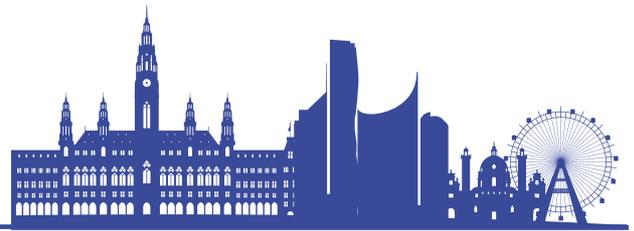




Vienna, Austria
15-18 August 2022



49th World Congress of the International Society of Surgery ISS/SIC

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PE... refers to abstracts included in the Poster Exhibition of the Congress but not presented within a regular Session.

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4.01

ENVIRONMENTAL CHEMICALS AND THEIR ASSOCIATION WITH HYPERPARATHYROIDISM

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Introduction: The incidence of primary hyperparathyroidism has significantly increased in the United States in the past few decades. Previous work from our institution detected environmental chemicals including polychlorinated biphenyls and pesticides within hyperplastic parathyroid tumors. The National Health and Nutrition Examination Survey (NHANES) is a program designed to assess the health and nutritional status of people in the United States and is part of the Centers for Disease Control and Prevention. The NHANES dataset includes measurements of environmental chemicals within laboratory serum specimens. Our aim was to determine if there are any environmental chemicals associated with elevated parathyroid hormone (PTH) levels in NHANES.

Materials & Methods: NHANES was queried from 2003-2006, which are the only years that include laboratory data on PTH. Subjects with elevated PTH and normal Vitamin D levels were identified. Student's T-Tests were used to analyze levels of environmental chemicals with elevated PTH in a univariate analysis. Categories of environmental chemicals included pesticides and insecticides, polychlorinated biphenyls (PCB), flame retardants, dioxins, furans, and environmental phenols. All environmental chemicals with $p < 0.05$ were then included in separate multivariate models adjusting for serum vitamin D and creatinine.

Results: There were 14,681 subjects analyzed, and of these 9.4% (1,377) had elevated PTH (>65 pg/mL) and normal Vitamin D (>30 ng/mL). Calcium was elevated >10.2 mg/dL in 2.8% (359) of subjects. Eighteen different PCBs were found to be associated with elevated PTH (PCB 74, 138, 146, 153, 158, 170, 172, 177, 178, 180, 183, 187, 194, 195, 196, 203, 206, 209; all $p < 0.05$). Additionally, the pesticides dimethylphosphate, transnonachlor, hexachlorobenzene, oxychlorane, heptachlor, and dichlorodiphenyldichloroethylene (DDE) were also associated with elevated PTH ($p < 0.05$).

Conclusion: In NHANES, twenty-four environmental chemicals were found to be associated with elevated PTH levels. These chemicals may lead us towards a causal link between environmental factors and the development of hyperparathyroidism and should be the focus of future studies looking at chemical levels within specimens.

Disclosure of Interest: None declared

4.02 TRANSORAL THYROIDECTOMY AND PARATHYROIDECTOMY-FIRST RESULTS OF THE EUROPEAN TOETVA STUDY GROUP

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Introduction: The aim of this study was to present the first results of an european transoral thyroid surgery study group including centers in Austria, Germany, Italy and Turkey.

Materials & Methods: 382 patients (337 female, 89.2%; 41 male, 10.8%) who underwent endoscopic thyroid or parathyroid surgery via vestibular approach from February 2016 to November 2021 in 9 centers were included. Data was analyzed regarding complications, surgery time, specimen retrieval and hospital stay.

Results: Overall, 371 (97.1%) transoral endoscopic thyroidectomy vestibular approach (TOETVA) and 14 (3.7%) transoral endoscopic parathyroidectomy vestibular approach (TOEPVA) with an average surgery time of 152.7 (±63.3) and 488 nerves at risk were performed. In 58 (18.5%) patients the specimen was retrieved via retroauricular and in 7 (1.8%) via transaxillary approach. 195 (66.6%) patients had benign histology including Grave´s disease and 85 (29 %) showed malignancy of the thyroid gland. In 13 (3.4%) adenoma of the parathyroid gland was present. In 11 (2.9%) conversion to open surgery was necessary and in one (0.3%) revision due to bleeding had to be performed. Transient recurrent laryngeal nerve (RLN) paralysis was present in 19 (5 %) and permanent RLN paralysis in 2 (0.5%) patients. 9 (8.9%) patients were affected of hypoparathyroidism after thyroidectomy during hospital stay. At discharge date 66 (17.4%) individuals presented skin discoloration, 48 (12.7%) presented sensibility disorder (chin, lips) and 22 (5.8%) had minor motor function disorder associated with the mental nerve. One patient (0.3%) presented postoperative infection.

Conclusion: Our european results show that transoral thyroid and parathyroid surgery, performed by experienced endocrine surgeons, is a safe scarless procedure and a good alternative to conventional minimally invasive thyroid surgery.

References:

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Disclosure of Interest: None declared

4.03

LONG-TERM OUTCOMES AFTER THYROID-CONSERVING, CURATIVE SURGERY FOR PATIENTS WITH HIGH-RISK PAPILLARY THYROID CARCINOMA

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Introduction: Guidelines universally recommend total thyroidectomy (TT) for patients with high-risk papillary thyroid carcinoma (PTC). However, in Japan, thyroid-conserving surgery (lobectomy or subtotal thyroidectomy) had been widely adopted for such patients until recently, unless distant metastases (M) were absent. We investigated long-term outcomes for this strategy.

Materials & Methods: A prospectively recorded database was retrospectively analyzed for 1463 patients who had undergone curative surgery for PTC >1 cm in diameter between 1993 and 2013. High-risk PTC was defined for tumors showing: tumor size (T) >4 cm; gross extrathyroidal extension (ETE); large nodal metastasis ≥ 3 cm (LN); or M. Among 505 high-risk patients, 415 did not have M.

Results: Median age was 59 years and 270 patients were female. Median duration of follow-up was 10.3 years. Thyroid-conserving surgery was conducted for 254 patients (LT group) and TT for 161 patients (TT group). In the whole cohort, Cox proportional hazards modeling identified age ≥ 55 years (hazard ratio [HR] 10.3, 95% confidence interval [CI] 4.0-26.6), LN (HR 3.1, 95%CI 1.8-5.5) and T >4 cm (HR 2.3, 95%CI 1.3-4.0) as significantly associated with cause-specific survival (CSS) and the same three factors as significantly associated with M recurrence-free survival (M-RFS). The extent of thyroidectomy was not associated with CSS and M-RFS. Patients with *TERT* promoter mutations displayed significantly worse outcomes than those without those mutations (10-year CSS: 83.2% vs. 100%). The rate of LN was lower for the LT group (25.6%) than for the TT group (46.6%). After propensity score matching, no significant differences were seen between groups for CSS (10-year CSS: 90.9% vs. 88.1%) or M-RFS (10-year M-RFS: 78.1% vs. 71.7%). Compared to the LT group, the TT group showed a significantly higher risk (risk ratio [RR]: 1.3) of postoperative transient recurrent laryngeal nerve palsy. TT for high-risk PTC also showed a significantly higher risk (RR: 10.5) of postoperative permanent hypoparathyroidism than TT for low-risk PTC (T1N0M0). Using the dynamic risk stratification (DRS) system for the LT group at 2 years after initial surgery, structural recurrence occurred even in 21.4% of patients with excellent response.

Conclusion: For patients with high-risk PTC, although TT enables sophisticated management including DRS, thyroid-conserving surgery showed almost identical oncological outcomes with lower complication rates.

Disclosure of Interest: None declared

4.04

CARDIAC CHANGES IN PHEOCHROMOCYTOMA/PARAGANGLIOMA PATIENTS AND THEIR REVERSAL AFTER CURATIVE SURGERY: RESULTS OF PHEOCARD PROSPECTIVE COHORT STUDY

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Introduction: Pheochromocytoma and Paraganglioma (PPGL) are catecholamine producing tumors of chromaffin cell origin, known to cause varied cardiovascular manifestations from hypertension to myocardial infarction. This study sought to objectively evaluate the cardiac changes in PPGL patients and their reversal following curative surgery

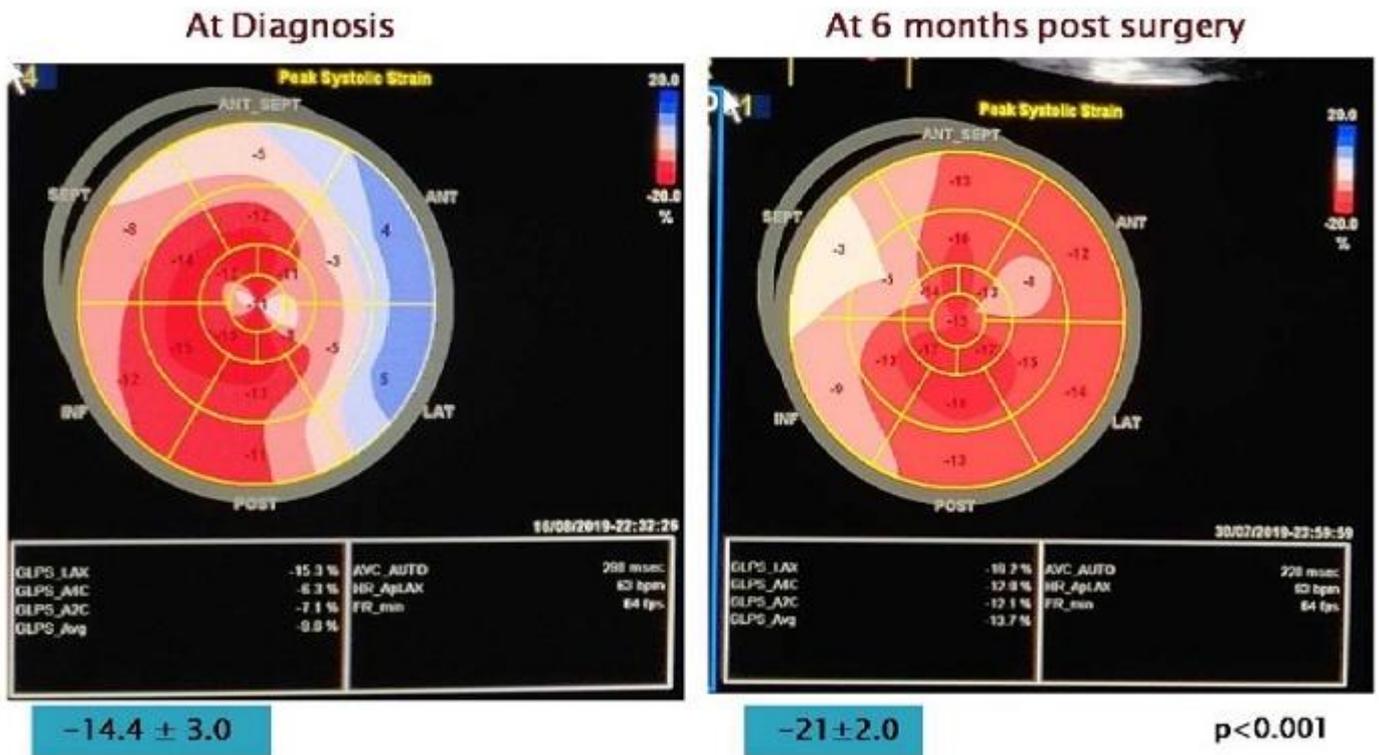
Materials & Methods: The study was approved by IEC and registered in ClinicalTrials.gov (NCT05082311) and involved thirty five consecutive PPGL patients managed as per standard protocol involving alpha blockade followed by curative surgery. They underwent detailed cardiac evaluation using 2D-echocardiography and speckle tracking echocardiography at the time of diagnosis, 7-10 days after alpha blockade, and at 7 days, 3 months, 6 months after surgical removal. Age and gender matched essential hypertensives and healthy individuals (10 in each group) served as two control groups.

Results: Patients with PPGLs had significant higher mean blood pressure, left ventricle end diastolic dimension and volume (LVEDD, LVEDV), left ventricle end systolic volume (LVESV), septal wall thickness, LV hypertrophy, lower mean LV ejection fraction (LVEF), early diastolic mitral annular velocity (E/A), decreased amplitude of LV longitudinal strain, and increased circumferential strain ($p < 0.001$) when compared with the control groups at baseline. Presence of hypertrophy was independently associated with presence of hypertension. After alpha blockade there was marked reduction in the mean LVEDD, LVEDV, LVESV, and normalization of E/A ratio ($p < 0.001$) in the PPGL patients. Following curative surgery there were early improvement in all echocardiographic parameters and it continued to improve even at 6 months after surgery (Table). There was marked improvement in the global longitudinal strain as seen on serial speckle tracking echocardiography with recovery of most of the segments of LV (Fig) depicting the reversal of sub clinical endocardial dysfunction ($p < 0.001$)

Parameters	At diagnosis	After α -blockade	Postoperatively p value	
			7-10 days	6 months
Septal wall thickness, mm	11 \pm 1.4	10.9 \pm 1.7	10.6 \pm 1.5	8.2 \pm 1.4 0.02
LVEDD, mm	45.6 \pm 4	43.3 \pm 3.1	42 \pm 2.4	38.4 \pm 3 <0.001
LVEDV, ml	91 \pm 12	88 \pm 10.5	78.1 \pm 13	66.4 \pm 11 <0.001
LVESV, ml	34.4 \pm 9.5	32.2 \pm 7.3	27.2 \pm 8.4	24 \pm 3 <0.001
LVEF, %	58.4 \pm 6	59.7 \pm 8.3	61.9 \pm 3.8	64 \pm 4 <0.001

Image:

Fig: Speckle tracking Echocardiographic bulls eye depiction of left ventricle longitudinal strain curve in PPGL patient at baseline and at 6 months after surgery



Red area denotes good endocardial contractility; Blue area denotes dysfunctional endocardium

Conclusion: PPGL patients have LV hypertrophy, systolic LV dysfunction, and subclinical diastolic dysfunction which are reversed after curative surgery

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Disclosure of Interest: None declared

7.01

C-SECTION RATES AND NEEDS IN RURAL INDIA: RETROSPECTIVE ANALYSIS OF 666 DISTRICTS AND 36 STATES AND UNION TERRITORIES

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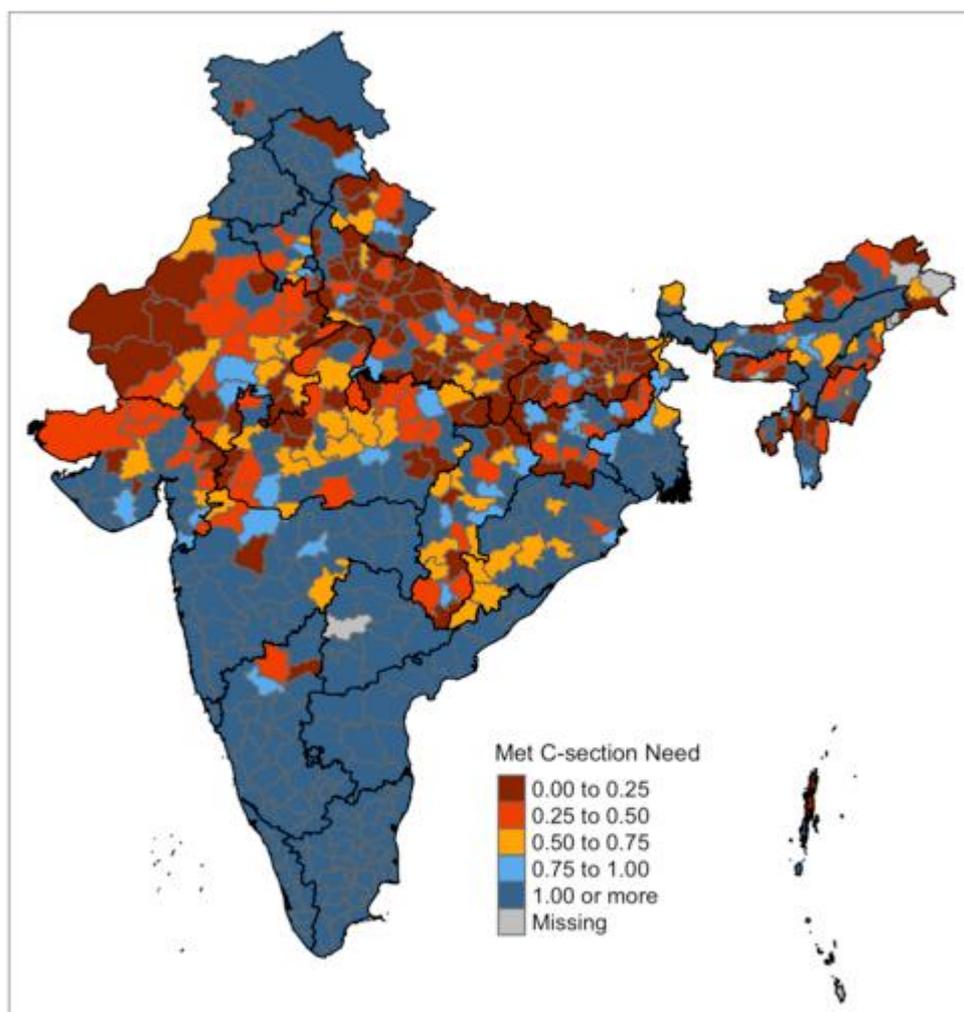
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Introduction: Past analyses of nationally-representative surveys have detected gaps in caesarean section (CS) rates and needs in rural India. However, these estimates cannot be used for routine monitoring at local levels due to long gaps between surveys and high sampling errors for smaller regions. Alternatively, Health Management and Information System (HMIS) records facility-level quarterly CS data. We aimed to estimate the HMIS-based CS rates and needs of rural areas across 666 districts and 36 states/union territories (UTs), compare rural and urban counterparts, and validate these estimates against standard sources.

Materials & Methods: For primary analysis, district- and state-level rural and urban aggregates were acquired from Health Management and Information System (HMIS) for April 2017- March 2018 for counts of CS and total institutional deliveries. Rates were calculated as percentage of CS deliveries out of total institutional deliveries while met need was determined relative to the World Health Organization's prescribed thresholds of 10% and 15% CS rates. Wilcoxon tests adjusted for multiple comparisons (Holm-Bonferroni correction) were used to investigate rural-urban differences at 5% significance level. For time-matched state-level validation, we compared the HMIS derived CS rates (January 2015 - November 2016) with those taken from National Family Health Survey (NFHS-4) using Lin's Concordance Correlation Coefficient (CCC).

Results: Nationally, the average CS rate in rural areas was 13.57% falling within the WHO prescribed 10-15% range with a met need of 1.36 at 10% and 0.91 at 15% threshold. There were marked differences in the CS rates and met need at state and district-levels. Most districts and states in southern India depicted met need >1 with northern regions of Bihar, Uttar Pradesh, and Rajasthan showing greater unmet need - pointing to a north-south divide. District-level analysis of rural-urban differences revealed significantly lower CS rates and met need ($n=1116$, effect size= 0.23, $p<0.001$) for rural areas. Validation analysis after removing two outlier states, depicted low-to-moderate agreement between HMIS- and NFHS-derived CS rates (CCC [95%CI] = 0.85 [0.73, 0.92]).

Image:



Conclusion: The CS rates in rural India were within the prescribed thresholds but lower than urban areas. Study limitations include issues with quality of source data and low agreement between HMIS and NFHS. Findings can initiate the use of HMIS CS data for routine monitoring and local health planning.

Disclosure of Interest: None declared

7.02

TRAVEL TIME AND PERINATAL MORTALITY AFTER EMERGENCY CAESAREAN SECTIONS: AN EVALUATION OF THE 2-HOUR PROXIMITY INDICATOR IN SIERRA LEONE

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Introduction:

Longer travel times are associated with increased adverse maternal and perinatal outcomes. Geospatial modelling has been increasingly used to estimate geographic proximity in emergency obstetric care. In this study, we aimed to assess the correlation between modelled and patient-reported travel times and to evaluate its clinical relevance.

Materials & Methods:

Women who delivered by caesarean section in nine hospitals were followed up with home visits at 1 month and 1 year. Travel times between the location before the delivery and the facility where caesarean section was performed were estimated, based on two models (model I Ouma et al; model II Munoz et al). Patient-reported and modelled travel times were compared applying a univariable linear regression analysis, and the relation between travel time and perinatal mortality was assessed.

Results:

The median reported travel time was 60 min, compared with 13 and 34 min estimated by the two models, respectively. The 2-hour access threshold correlated with a patient-reported travel time of 5.7 hours for model I and 1.8 hours for model II. Longer travel times were associated with transport by boat and ambulance, visiting one or two facilities before reaching the final facility, lower education and poverty. Lower perinatal mortality was found both in the group with a reported travel time of 2 hours or less (193 vs 308 per 1000 births, $p < 0.001$) and a modelled travel time of 2 hours or less (model I: 209 vs 344 per 1000 births, $p = 0.003$; model II: 181 vs 319 per 1000 births, $p < 0.001$).

Conclusion: The standard model, used to estimate geographical proximity, consistently underestimated the travel time. However, the conservative travel time model corresponded better to patient-reported travel times. The 2-hour threshold as determined by the Lancet Commission on Global Surgery, is clinically relevant with respect to reducing perinatal death, not a clear cut-off.

Disclosure of Interest: None declared

7.03

GROIN HERNIA: INDICATIONS, MANAGEMENT AND OUTCOMES IN RURAL AREA OF CAMEROON

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Introduction: hernia repair gives many methods of treatment, some more expensive than other. We aimed to investigate the determinants of an efficient technique for hernia repair in rural areas of Cameroon. We had to describe the postoperative outcomes over time

Materials & Methods: This study was held in health center of 335 villages from June 2010 to June 2021, including over 15 years old with uncomplicated groin hernia, operated free of charges. We got authorization from the president of Ascovime (Humanitarian Association who provides free medical care) and each patient signed a consent form before surgery. Suture repairs using Shouldice's technique were most used. Free tension repair was performed through the use of commercial prostheses and sterilized mosquito nets mesh. The choice of technique was random. We used local or spinal anesthesia. We consider to give systematically antibiotherapy to each patients and pain killers. The operating room nurses were responsible for monitoring the operated patients and any complications were presented to the surgeon. The evaluation of quality of life of the patients was done during the next health campaigns

Results: We collected 3492 patients. 65.38% had previous history of cure and 13.58% had a recurrence. Inguinoscrotal hernias were the most frequent 44.55%. Most complications were haematoma (1.4%), wound infection (4.3%) and residual pain (9.2%) attributed to suture repairs techniques. We recorded 10 cases of recurrence (3.15%) when the Shouldice technique was used, and 5 cases of recurrence (1.6%) when a prosthesis was used during the repairing process, in 11 years of study. The general moods of our patients as well other criteria of quality of life index of Ouagadougou are far from satisfactory score of 20.

Conclusion: There is no unanimity on the ideal surgical technique, the criteria for judgment are different from a surgical team to another. So one technique would not be suitable to all forms that may be encountered. Sterilized mosquito net mesh is a good alternative for free tension hernia repair in LMICs

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Disclosure of Interest: None declared

7.04 OFF-LABEL USE OF AN EXTERNAL HAND FIXATOR FOR THE TREATMENT OF CRANIOMAXILLOFACIAL FRACTURES – A FEASIBILITY STUDY ON THE CADAVER AND A RETROSPECTIVE DATA ANALYSES OF THE CLINICAL APPLICATION

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Introduction: The lack of resources limits the treatment of craniomaxillofacial fractures (CMF) in low-income countries (LIC). Therefore, Barton bandage and/or interdental wiring are considered being gold standard in these regions. The reduction is maintained by permanent occlusion for 6 weeks, which often leads to limited compliance and dissatisfying results. Appropriate food intake and oral hygiene are clearly hampered. Furthermore, in these conditions healing of nasopharyngeal fistula is difficult.

During humanitarian missions CMF need to be treated by trauma surgeons.

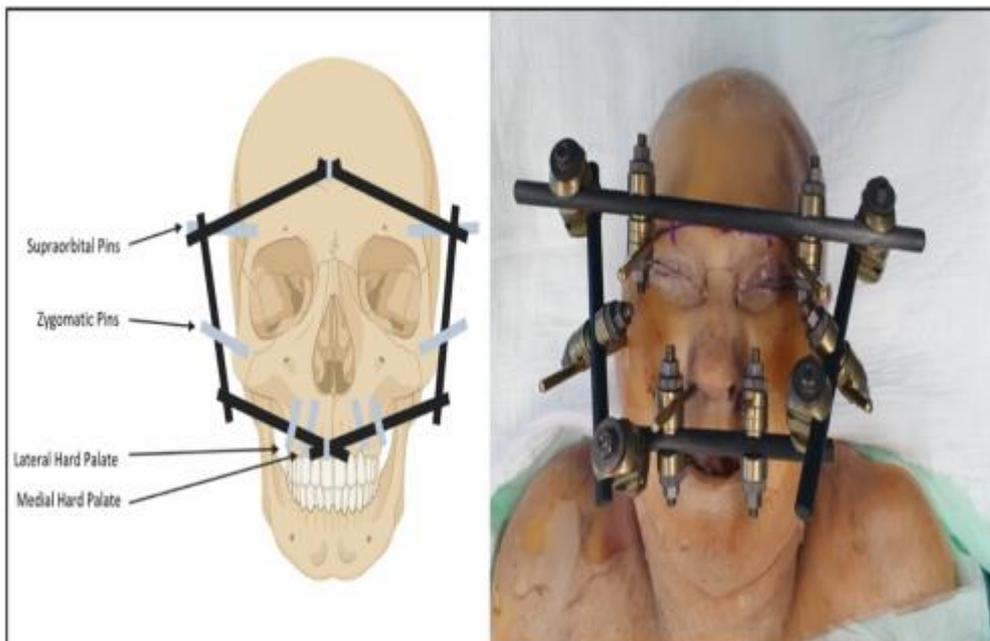
The aim of this study is to evaluate the feasibility of the use of an external face fixator (EFF) for the treatment of CMF on the cadaver.

Materials & Methods: Craniomaxillofacial fractures with split fracture of the hard palate were treated with EFF on 13 specimens. The fractures were created using a chisel. The pins were placed in specific anatomical regions (AO hand fixator, Synthes, Switzerland).

Biomechanical measurement of the maximal extraction force [N] of the pins was analysed by a pull force gauge (Sauter FC 500, Fmax = 500N, Germany). As a reference, Fmax of the mandibular pins were used. CT scans were performed on the healthy, fractured and EFF-treated skulls.

Results: After creating the fractures, the CT-imaging showed a complex fracture situation. Subsequent reduction and EFF placement an adequate reposition was shown in the post treatment CT scans. The pull-out forces for the single pins were as follows: Mandibula pins (N=15, median 488N), supraorbital pins (N=15, median 455N), Zygomatic pins (N=14, median 269.1N), medial hard palate pins (N=12, median 208.4N) and lateral hard palate pins (N=8, median 49.6N). It was not possible to pull out the complete fixation construction after it was installed (Fmax > 500N).

Image:



Conclusion: The described off-label treatment method demonstrated in a first treatment series in Sierra Leone appears clinically superior in comparison to the established non operative therapy. The results shown by our study on the cadaver show, that the stability of the EFF is sufficient for maintaining the reduction. Thus, a dynamic occlusion seems possible. The precise description of the optimal insertion places for the pins and safe drilling depth provides additional safety regarding prevention of nerve or vessel damage.

Disclosure of Interest: None declared

7.05

VALUE OF ULTRASONOGRAPHY IN PREDICTING AXILLARY LYMPH NODE STATUS IN BREAST CARCINOMA AFTER NEOADJUVANT CHEMOTHERAPY

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Introduction: Researchers have been trying to identify non-invasive technique to correctly identify the status of axilla in patients of breast carcinoma. Many non-invasive investigative modalities including ultrasound (USG), MRI, and ¹⁸F-DG-PET scan have been attempted. So far ultrasound seems to be the most promising in cases of early breast carcinoma. In developing countries most patients present with large breast cancers and axillary lymph node metastasis. There is a concern that ultrasound may not be accurate enough in such cases, more so in patients who have undergone neoadjuvant chemotherapy (NACT). We aimed to analyze the accuracy of ultrasound in predicting the status of axilla after NACT

Materials & Methods: We retrospectively analyzed our prospectively maintained database. All patients who underwent axillary lymph node dissection following neoadjuvant chemotherapy were included. Clinicopathological factors, ultrasound findings, histopathology, and IHC reports were analyzed. Patients who had progressive disease or stable disease were excluded.

Results: 46 women with breast carcinoma who were responders to NACT were included in the study. 23 patients were N0 after NACT, 22 were N1, while 1 patient was classified as having N2 disease on USG. On histopathological correlation 18(39.1%) were true positive, 4(8.7%) were false positive, 7(15.2%) were false negative, and 17(36.9) were true negative. Axillary ultrasound had a sensitivity of 72%, specificity of 81%, positive predictive value of 81.8%, NPV of 70.8%, and an accuracy of 76.1%. In 23 patients who were classified as N0 on USG, 6(26.1%) were false negative.

Conclusion: Ultrasound of axilla has limited ability to predict the status of axilla in patients of carcinoma breast following neoadjuvant chemotherapy.

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Disclosure of Interest: None declared

16.01

UNILATERAL ADRENALECTOMY FOR PRIMARY ALDOSTERONISM DUE TO BILATERAL HYPERPLASIA CAN RESULT IN RESOLUTION OF HYPOKALEMIA AND AMELIORATION OF HYPERTENSION

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Introduction: Bilateral idiopathic hyperaldosteronism (IHA) is the causative etiology in 60% of patients with primary aldosteronism (PA). Medical management is considered standard of care for IHA. The role of unilateral adrenalectomy with the intent of debulking total aldosterone production as a palliative measure remains controversial.

Materials & Methods: Single-center retrospective review (2010-2020) of all adult patients who underwent unilateral adrenalectomy with a diagnosis of PA due to IHA defined as lateralization index on successful adrenal venous sampling (AVS) <4. Demographic, pre-operative, intra-operative and post-operative variables were assessed until last follow-up. Hypertensive regimens were converted to the WHO Defined Daily Dose (DDD).

Results: Twenty-four patients were identified, 14 male (58.3%), mean age 52 ±10 years. Twenty-two patients (92%) had pre-operative hypokalemia, 90% on potassium supplements. Median number of antihypertensives taken was 3 (Q1-2, Q3-4) and DDD median 4mg/dL (Q1-3mg/dl, Q3-5.3mg/dl). 37% of patients on a mineralocorticoid receptor blocker (MRB) preoperatively. All patients underwent successful AVS, with median lateralization index of 3.52 (range 1.19-3.88). Median time from diagnosis until surgical treatment was 23.5months (Q-14.5, Q3-107). All operations were performed in minimally invasive fashion, with all patients being discharged on the first postoperative day. There were no conversions to open procedure, instances of hyperkalemia, ICU admissions, or post-operative complications. Median follow-up was 10.5months (range 1-145 months). Seventy-seven percent of patients demonstrated resolution of hypokalemia at last follow-up. Post-operatively median number of antihypertensives taken per patient was 1.5 (Q1-1, Q3-3) and DDD median was 2mg/dL (Q1-0.5mg/dl, Q3-2.75mg/dL) at last follow-up, vs pre-operative DDD of 4mg/dL (Q1-3mg/dl, Q3-5.3mg/dl), $p=0.003$. Only 3 patients required continuation of MRB post-operatively. Blood pressure control at last follow-up was improved in 75% of patients, with two patients being off any antihypertensive regimen.

Conclusion: Unilateral adrenalectomy in the setting of IHA can improve blood pressure control and stabilize potassium levels in selected patients. Further prospective studies in larger cohorts will be necessary to further define the role of unilateral adrenalectomy in the setting of PA due to IHA.

Disclosure of Interest: None declared

16.02

HEMITHYROIDECTOMY FOR LOW-RISK 1-4 CM PAPILLARY THYROID CANCER IS NOT ASSOCIATED WITH INCREASED RECURRENCE RATES IN THE DUTCH POPULATION WITH A RESTRICTED DIAGNOSTIC WORK-UP

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Introduction: The worldwide incidence of papillary thyroid carcinoma is rising without increasing mortality. Increased use of imaging modalities leads to increased papillary thyroid carcinoma (PTC) diagnoses without clinical significance. Therefore, the 2015 American Thyroid Association (ATA) guidelines recommend to de-escalated treatment such as hemithyroidectomy (HTx) instead of total thyroidectomy (TTx) for 1-4 cm PTC. Dutch guidelines endorse restricted work-up for thyroid incidentalomas recommending only fine needle aspiration in case of a 'palpable thyroid nodule'. A restrictive diagnostic work-up algorithm may result in the identification of less indolent PTCs and may lead to a patient population with relatively more aggressive PTCs. Therefore, this study aims to retrospectively analyze overall survival and recurrence of low-risk 1-4 cm PTC in the Netherlands.

Materials & Methods: From the national cancer registry, all patients diagnosed with low-risk 1-4 cm PTC between 2005 and 2015 were included for analysis. Low-risk PTC was defined according to the American Thyroid Association guideline. Age at diagnosis, sex, initial and additional surgical treatment, vital status, pathology and radioactive iodine (RAI) treatment details were collected. Disease free survival (DFS) and overall survival were compared between patients who underwent total thyroidectomy with or without RAI and hemithyroidectomy without RAI.

Results: In total 901 patients were included, of which 711 (78.9%) were females, with a median follow-up of 7.73 [IQR; 5.68-10.62] years. Total thyroidectomy (TTx) was performed in 893 (94.8%) patients and hemithyroidectomy (HTx) in 49 (5.2%) patients. Recurrence occurred in 23 (2.6%) patients. Moreover, the 10-year overall survival was 82.8% and 91.4% for HTx and TTx, respectively ($p=0.038$). Multivariable analysis showed no significant correlation between the extent of surgery (HTx versus TTx) and DFS ($HR= 0$, $p= 0.978$). Additionally, the extent of surgery did not impact overall survival on multivariable analysis ($HR= 1.245$, 95% CI [0.563–2.760]; $p= 0.590$).

Conclusion: Low-risk PTC patients with 1-4 cm tumor who underwent hemithyroidectomy showed similar recurrence rates as those who underwent total thyroidectomy with or without adjuvant radioactive iodine therapy. This similar recurrence rate suggests that hemithyroidectomy can be sufficient in treating low-risk 1-4 cm PTC, possibly reducing morbidity of low-risk 1-4 cm PTC patients in the Netherlands.

Disclosure of Interest: None declared

16.03

IS THERE ANY RELIABLE PREDICTOR OF FUNCTIONAL RECOVERY FOLLOWING POST-THYROIDECTOMY UNILATERAL NERVE PALSY?

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Introduction: It is usually difficult to predict outcome of post-thyroidectomy unilateral vocal fold palsy (UVFP). We aimed to prospectively identify reliable predictor of outcome of UVCP basing on Intra Operative Neuromonitoring (IONM) and Flexible Fiberoptic Laryngostroboscopy (FFL) findings.

Materials & Methods: Among 1172 thyroidectomies with routine use of IONM performed from April to December 2021, all the patients who showed UVFP at post-operative laryngoscopy were included. All of them underwent FFL 15 days postoperatively (PO) (T0) and were addressed to speech therapy. Follow up FFL was performed 45 days (T1) and 120 days (T2) PO. Arytenoid motility was checked at every time point. IONM and FFL findings were correlated to the functional outcome at every time point. Patients were grouped in two groups: those who recovered vocal fold motility (VFM) at T2 (recovery group - RG) and those who did not (no recovery group - NRG).

Results: Fifty-nine UVFP (5.0% of all the operated patients) were identified as complication of thyroid lobectomy in 7 cases (11.9%), total thyroidectomy (TT) in 31 (52.5%) and TT plus central neck dissection in 21 (35.6%). Eight patients (13.5%) were lost at T2 follow up and were excluded. Overall, 9 patients were included in NRG (0.8% of all the operated patients, 17.6% of UVCP). Final histology showed malignant disease in 26 patients (51%) and benign disease in 25 (49%). At IONM, 31 patients had loss of signal (LOS) and 20 significant reduction of signal (>50%). In the RG, 26 out of 42 patients had LOS, while in the NRG 5 out of 9. At T0 28 out of 51 included patients (54.9%) showed some arytenoid motility (AM) and 23 out of 51 (45.1%) arytenoid fixation (AF). At T1, 19 patients with AM (63,4%) and 8 with AF (27,6%) recovered VFM. 8 out of 29 patients with AF at T0 showed AM at T1. Significantly more patients in NRG had AF (8 out of 9) with respect to RG (15 out of 42) ($p<0.01$). No significant difference was found between RG and NRG concerning age, sex, final histology and IONM findings (type of LOS, percent drop of signal). AM at T0 was the only predictive factor for recovery of VFM ($p<0.01$).

Conclusion: Most of the patients with UVFP recover within 4 months. AM as evaluated by FFL is associated with early recovery of VFM. FFL should be included in the diagnostic protocols of patients with UVCP to reliably predict clinical outcome.

Disclosure of Interest: None declared

16.04

NEAR-INFRARED PARATHYROID AUTO-FLUORESCENCE (NIRAF) USE IN A REFERRAL CENTER FOR THYROID SURGERY. PROSPECTIVE RANDOMIZED STUDY OF ONE YEAR FOLLOW-UP.

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Introduction: Transient post-operative hypoparathyroidism may affect up to 53% of patients undergoing total thyroidectomy, resulting in prolonged hospital stay or hospital readmission and strongly affects patient's quality of life when permanent (up to 12% of patients)(1-3). Parathyroids' lesion may result from devascularization or inadvertent resection, the latter reported in up to 20% of patients. Since its introduction in current surgical practice NIRAF demonstrated to reduce post-operative hypoparathyroidism rate(4).

Materials & Methods: All patients undergoing not less than total thyroidectomy by two high-volume endocrine surgeons (>200 thyroidectomy per year) between January 2020 and June 2021 were included in the study. They were randomized in two different cohorts the day of the surgery: NIRAF Group(NG) and Control Group(CG). In NG NIRAF started by the beginning of thyroid bed dissection, while in CG visual inspection was used. Indocyanine Green (ICG) was used at the end of surgery in NG to assess parathyroid vascularisation. A complete follow-up for post-operative parathyroid function of at least six months was available for all patients included. Patients who underwent less than total thyroidectomy or who had uncomplete follow-up were excluded.

Results: In the study period 637 patients underwent thyroid surgery. Two-hundred-forty patients were included. Eight patients in NG and 1 in CG were excluded due to uncomplete follow-up or technical intra-operative problem. Finally there were 112 patients in NG and 119 in CG. No differences were present in patients' demographics between groups. Number of detected parathyroid glands was 415/448 in NG and 385/478 in CG($p<0.00001$). Accidental parathyroidectomy was reported in 7/448 patients in NG and in 31/476 in CG($p=0.0001$). Mean calcium levels were comparable between groups, while mean values of PTH(ng/ml) at post-operative day-1 were higher in NG compared to CG (28,2 versus 25,4)($p=0.0008$). Post-operative transient hypoparathyroidism occurred in 15/112 patients (13,3%) in NG and in 40/119 patients (33%) in CG($p=0.0003$), remaining definitive in 1/112 patients (0.9%) in NG and in 8/119 patients (6.7%) in CG($p=0.02$). No accidental parathyroidectomy was reported in 31 patients in NG who had concomitant central neck dissection.

Conclusion: NIRAF use is effective to decrease parathyroid's morbidity by 2.5-fold for transient hypoparathyroidism and by 7-fold for permanent hypoparathyroidism.

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Disclosure of Interest: None declared

16.05

THE RELATIONSHIP BETWEEN THYROID STIMULATING HORMONE LEVEL AND TUMOR ENLARGEMENT OF LOW-RISK PAPILLARY THYROID MICROCARCINOMA DURING ACTIVE SURVEILLANCE

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Introduction: Active surveillance (AS) for low-risk papillary thyroid microcarcinoma (PTMC) was initiated at Kuma Hospital in 1993 and is gradually spreading worldwide. In this study, we focused on thyroid stimulating hormone (TSH) levels of patients who undergo AS.

Materials & Methods: Between 1993 and 2019, 3312 patients underwent AS at Kuma Hospital. Of these, 2705 patients who underwent AS after adopting an electronic medical record in 2005 were enrolled. All patients were diagnosed with PTMC by cytopathology. Patients with Graves' disease were excluded. Some patients were prescribed levothyroxine. The AS period ranged from 1.0 to 15.7 years (median 5.5 years). We judged tumor enlargement when the size increased by ≥ 3 mm.

Results: Ninety-two patients (3.4%) showed tumor enlargement during AS; 5-, 10-, and 15-year enlargement rates were 3.0, 5.5, and 6.2%, respectively. We investigated whether and how various factors such as gender, age, family history of papillary carcinoma, multiplicity, levothyroxine administration, tumor size, and detailed TSH score affected tumor enlargement. We performed multivariate analysis for factors with $p < 0.20$ on univariate analysis. Young age (< 40 years) ($p < 0.0001$), large size (≥ 9 mm) ($p = 0.0171$), and high detailed TSH score (≥ 3 , higher than median value of normal range) ($p = 0.0384$) were independent factors relating to tumor enlargement. In the subset of patients < 40 years, low detailed TSH score (< 3) was the independent factor against tumor enlargement ($p = 0.0345$). In the subset of patients ≥ 40 years, none of the factors were significantly related to tumor enlargement on multivariate analysis. Only 22 patients (0.8%) showed novel appearance of lymph node metastasis during AS; 5-, 10-, 15-year node metastasis appearance rates were very low, at 0.9, 1.1, and 1.1%, respectively. To date, none of the patients showed distant metastasis or died of thyroid carcinoma during AS. Two hundred and eleven patients (7.8%) underwent conversion surgery after AS > 1.0 years for various reasons. After surgery, although only one patient showed lymph node recurrence, no patients showed distant recurrence (postoperative follow-up period, 0.1-13.8 years; median 4.6 years).

Conclusion: AS for PTMC is a safe management and beneficial for patients, if appropriately implemented. PTMC in young patients more likely to grow. For them, mild TSH suppression to low normal range could prevent carcinoma progression, although prospective studies are needed to draw more reliable conclusions.

Disclosure of Interest: None declared

16.06

MAKING THE CUT- PARATHYROIDECTOMY BEFORE OR AFTER KIDNEY TRANSPLANTATION?

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Introduction: Hyperparathyroidism is common in patients with end stage kidney disease and may persist even after kidney transplantation(KT). Parathyroidectomy(PTx) is curative but whether PTx should be performed before or after KT remains controversial. There is concern that PTx can adversely affect the renal allograft function if performed post-KT and result in complications such as permanent hypocalcemia. Our study was conducted to evaluate possible differences in outcomes and postoperative complications of PTx before and after KT at our institution.

Materials & Methods: We performed a retrospective review of 98 KT recipients at our center between 1/2012-2/2019 who had received PTx either pre-KT or post-KT. The data of patient demographics, surgical outcome and postoperative complications of KT and PTx were collected. The Independent t-test, Mann-Whitney U test, Chi-square test and Linear regression were used to compare the two groups using SPSS.

Results: Ninety eight patients were included in this study, with 23(23.5%) patients undergoing PTx before KT and 75(76.5%) after KT. The length of follow-up after KT was 67.7±25.5 months. In post KT patients, 30-day renal function was unchanged after PTx. Only 1 case of acute rejection occurred within 30 days of PTx. Calcium oxalate and phosphate crystals were less common on post-KT allograft biopsy in pre-KT PTx patients (10.0% vs. 34.8%, p=0.038). Patients in the pre-KT PTx group had higher median(IQR) parathyroid hormone(PTH) levels(1387.8(881.3-1582.7) pg/mL vs. 258.5(178.0-409.9) pg/mL, p<0.001) and lower mean adjusted calcium(9.4±1.3mg/dL vs. 10.6±0.8mg/dL, p<0.001) at time of PTx. Patients in the pre-KT group required more calcium supplementation after PTx than post-KT group(p<0.001)(Table 1). A higher PTH level before PTx was associated with higher postoperative calcium supplement requirement. At one year post-PTx, high daily calcium intake was observed in 11(11.2%) patients requiring >1000mg/day and 5(5.1%) patients requiring >2000mg/day. The patient demographics were similar in the two groups and there were no differences in surgical cure or postoperative complications.

Image:

Table 1

	Pre-KT group (n=23)	Post-KT group (n=75)	Total (n=98)	P value
Serum Creatinine Post-KT (mg/dL)				
6month post-KT	1.6±0.5	1.5±0.4	1.5±0.4	0.888
1-year post-KT	1.6±0.5	1.5±0.4	1.5±0.4	0.704
5-year post-KT	1.5±0.5	1.6±0.6	1.5±0.5	0.556
Preoperative PTH (pg/mL), median(IQR)	1387.8 (881.3-1582.7)	258.5 (178.0-409.9)	317.1 (190.6-626.7)	<0.001
Preoperative Corrected Calcium, (mg/dL), mean±SD	9.4±1.3	10.6±0.8	10.4±1.0	<0.001
Postoperative elemental calcium intake(mg), median(IQR)				
Postoperative 1 month	2993.9 (1496.9-4171.4)	798.4 (199.6-1916.1)	1197.5 (361.6-2395.1)	<0.001
Postoperative 6 months	2042.5 (1301.2-4590.6)	184.2 (0-798.4)	358.5 (0-1226.9)	<0.001
Postoperative 12 months	1216.7(0-1502.9)	0(0-598.8)	0(0-718.5)	0.009
Most recent follow-up	0(0-798.4)	0(0-479.0)	0(0-479.0)	0.492
Permanent hypocalcemia	4 (17.4%)	7 (9.3%)	11 (11.2%)	0.284

Conclusion: Parathyroidectomy before or after kidney transplantation does not adversely affect allograft function. The incidence of permanent hypocalcemia was low. Parathyroidectomy is safe and effective either before or after kidney transplantation.

Disclosure of Interest: None declared

20.01

SURGICAL TREATMENT OF ISOLATED AND MULTIPLE DUODENAL INJURIES

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Introduction: Duodenal injury in adults occurs in 0.2-0.6% of all trauma patients and 1-4.7% of all abdominal trauma cases. Associated injuries are present in 68-86.5% of patients, with serious vascular damage occurring in 23-40% of cases. Early cases of mortality are associated with bleeding and late cases with infection and sepsis. Although pancreatoduodenal injury is rare, it is associated with mortality from 3% to 44%, depending on the damage to the vascular structures. Mortality in concomitant trauma to the duodenum remains high, especially with the development of multiple organ dysfunction, and depends on various factors, including the cause that led to the traumatic injury, the location and severity of duodenum injury, and the severity of blood loss and the severity of shock [1-3].

Materials & Methods: A retrospective two-center study was conducted in patients (n=60) with isolated and multiple duodenal injuries ≥ II degree according to the criteria of the American Association for the Surgery of Trauma (AAST) who underwent operations in 2010-2021.

Results: 16 (26.7%) patients were with the closed injuries, 44 (73.3%) – with the penetrating injuries, 35 (79.5%) – with stab wounds, 5 (11.4%) – with gunshot traumas, 4 (9.1%) – with mine-explosive damages. Men composed 70%, women – 30%, the average age was 36 [18-73] years. On admission the RTS, ISS, and APACHE II scores were 6 [4-8], 14 [4-25], and 14 [8-32], respectively; 22 victims (36.7%) were in shock. Duodenum damage of the II degree was in 31 (51.7%) victims, III – in 24 (40%), IV – in 3 (5%) and V – in 2 (3.3%). Multiple intra-abdominal injuries occurred in 52 (86.7%) patients (1.81 associated injuries per patient). The primary suture was the most accepted surgical procedure in the majority of patients (76.4%); the duodenum was removed from the passage in 13.3%, duodenojejunostomy was performed in 6.7%, and pancreatoduodenal resection – in 3.3%. Postoperative mortality was 18.3%.

Conclusion: Duodenal injuries with early diagnosis and timely surgical intervention can be effectively treated using simple surgical methods (primary suture). Complex injuries of the duodenum and those associated with the damage to neighboring organs and structures require a more thoughtful strategy, which includes careful consideration of the physiological stability of a patient, severity of injuries, severity of changes in the abdominal cavity, retroperitoneal space, and also the experience of a surgeon.

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Disclosure of Interest: None declared

20.02

THE DISCREPANCY IN THE PERITONEAL CARCINOMA INDEX: DIAGNOSTIC IMAGING VS. SURGICAL EXPLORATION

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Introduction: Just a few years ago, peritoneal carcinosis was considered the terminal stage of tumor diseases. However, the increasing spread of radical cytoreductive surgery (CRS) followed by hyperthermic intraperitoneal chemotherapy (HIPEC) led to a paradigm shift in the treatment of patients with peritoneal tumor extension.

The Sugarbaker Peritoneal Carcinoma Index (PCI) is an important prognostic factor. Scoring can also be used to decide whether a patient is operable in terms of radical cytoreductive surgery or not. Despite significant advances in imaging, the diagnosis of peritoneal carcinoma remains a challenge for the radiologist due to a variety of factors.

Materials & Methods: The analysis of the patients with peritoneal carcinosis who were treated at our center between December 2015 and February 2022 using CRS and HIPEC should show to what extent the preoperative imaging diagnostics using 3-Tesla magnetic resonance imaging and high-resolution computed tomography compare with the intraoperatively obtained findings and PCI Scores correlate or diverge.

Results: Based on the retrospectively collected data, we now present the discrepancy between imaging diagnostics and intraoperative findings regarding PCI. Our observations and experiences show that the PCI determination at the surgical site usually results in a significantly higher scoring than the assessment in the preoperative imaging diagnostics.

Not only due to the morphology and size of the lesions, but also due to special metabolic factors of the carcinosis, these foci often completely evade imaging, despite optimized examination protocols and specialized radiologists who are familiar with the peculiarities of the peritoneal tumor spread and its variability.

Conclusion: Imaging diagnostics plays an important role in the surgical therapy concept of radical cytoreduction but is only of secondary importance for the decision-making regarding the indication for surgery.

Clinical aspects such as peritoneal carcinosis, T4 carcinoma or tumor perforation in the primary operation, but also advanced tumor stages with local carcinosis point the way in the decision to undergo CRS/HIPEC.

The indication for exploratory laparoscopy or laparotomy should be generous, since patients with early stages of peritoneal carcinosis and low PCI benefit particularly from CRS/HIPEC treatment. Especially in these early stages of carcinosis, imaging diagnostics is inferior to surgical exploration, despite the best technology and the highest diagnostic expertise.

Disclosure of Interest: None declared

20.03

AGE ADJUSTED CHARLSON COMORBIDITY INDEX (A-CCI) AS A TOOL TO PREDICT 30-DAY POST-OPERATIVE OUTCOME IN GENERAL SURGERY PATIENTS

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Introduction: Age adjusted Charlson Comorbidity Index (a-CCI) is an established scoring system to predict long term mortality. However, its role in predicting 30-day post-operative outcome in general surgery patients is not well elucidated.

Materials & Methods: This was a prospective observational study. Consecutive patients operated under general anesthesia between January 2019 and December 2020 were enrolled. Their a-CCI was calculated and stratified as Grade 0 comorbidities (a-CCI score=0), Grade A comorbidities (a-CCI score=1 and 2) and Grade B comorbidities (a-CCI score³). Post-operative complications were graded according to Clavien Dindo (CD) grading system and classified as minor complications (CD Grade I-II), major complications (CD Grade III-IV) and mortality (CD Grade V). Binary logistic regression and multi-nominal logistic regression analysis were done and relative risk ratios were calculated.

Results: A total of 925 patients were enrolled. The mean age was 42.75(14-85±10) years. 31% of our patients had complications within 30 days of surgery which included mortality in 2.7%. Compared to patients with Grade 0 comorbidities, the odds of getting complications is 1.2 times more in patients with Grade A comorbidities and 1.84 times more in patients with Grade B comorbidities (p=0.205, 0.001 respectively). In comparison to patients with Grade 0 co-morbidities, risk of mortality is 3 and 17.86 times more in patients with Grade A and Grade B comorbidities (p=0.121 and <0.001 respectively).

Binary and Multi nominal logistic regression analysis of a-CCI against complications in overall study population

a-CCI	No complications n (%)	Minor complications n (%)	Major complications n (%)	Mortality n (%)
GRADE 0	325(72.71)	83(18.57)	36(8.05)	3(0.67)
GRADE A	215 (68.47)	73(23.25)	20(6.37)	6(1.91)
Odd ratio (95% CI)	1.22(0.89-1.68) (P=0.205)			
Relative risk ratio (95% CI)	1.32(0.93-1.90) (P=0.120)			
	0.83(0.47-1.49) (P=0.550)			
	3.02(0.75-12.22) (P=0.121)			
GRADE B	97(59.15)	34(20.73)	17(10.37)	16(9.76)
Odd ratio (95% CI)				

1.84(1.27-2.68)
(P<0.001)

Relative risk ratio
(95% CI)

1.37(0.87-2.172)
(P=0.176)

1.58 (0.85-2.94)
(P=0.147)

17.86 (5.10-62.61)
(P<0.000)

Conclusion: a-CCI has clinical relevance in general surgical patients and can predict early post-operative outcome. It should be a part of our armamentarium for pre-operative assessment of surgical patients

Disclosure of Interest: None declared

20.04

INDICATIONS, TECHNIQUES AND RESULTS OF A PROSPECTIVE STUDY ON DIRECT PERITONEAL RESUSCITATION (DPR) USED ON 37 PATIENTS POST DAMAGE CONTROL SURGERY

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Introduction: Direct peritoneal resuscitation (DPR) following damage control laparotomy (DCL) for trauma or septic abdomen has been reported with promising results. The aim of this study was to report on indications, techniques, and practical tips for the general surgeons who wish to apply DPR into their practice as well as and our initial results of use of DPR.

Materials & Methods: We prospectively collected data on all patients undergoing DPR post DCS between August 2020 and October 2021 at a tertiary medical center. DPR was managed by surgical critical care, nursing, and nephrology team. Patients' physiological scores and clinical outcomes were evaluated.

Results: There were 37 patients during the study period, and in 86% DPR was applied for septic abdomen or bowel ischemia. The median (interquartile range: IQR) age was 62 (53-70) years; 62% were male, and median (IQR) body mass index was 30.0 (25.5-38.4) kg/m². On DPR initiation, median (IQR) APACHE IV score was 48 (33-64) and median (IQR) Acute Physiology Score (APS) was 31 (18-54). After DPR initiation, median (IQR) APACHE IV score and median (IQR) APS were 39 (21-62) and 19 (11-56), respectively, and both showed significant improvement in survivors ($p < 0.05$, respectively). Median (IQR) duration of DPR was 4 (2-8) days and primary abdominal closure was achieved in 30 patients (81%). There were eight mortalities (21.6%) within 30 days postoperatively, of which seven were within 3 to 24 days due to uncontrolled sepsis and multiple organ failure. Twenty four (67%) patients were either discharged home or transferred to rehab center/nursing home.

Image:

Table 1: Trend of laboratory parameters and physiologic scores

Variable, median (IQR)	DPR initiation	48 hours later	DPR in the end	p
WBC	12.7 (8.7-16.6)	13.9 (8.7-17.4)	13.0 (9.7-20.7)	0.4
Lymphocyte	945 (598-1292)	1081 (655-1519)	1025 (787-1732)	0.8
Hemoglobin	10.0 (8.6-12.1)	9.6 (8.3-10.9)	10.0 (9.0-10.9)	0.3
Hematocrit	32.0 (27.6-36.6)	28.5 (26.2-31.6)	31.5 (28.6-33.5)	0.06
D-dimer	4911 (2737-9383)	5447 (1416-13984)	6663 (3926-15509)	0.4
Ferritin	314 (108-3832)	424 (104-1529)	510 (285-1814)	0.3
pH	7.38 (7.31-7.41)	7.42 (7.4-7.44)	7.41 (7.36-7.45)	0.07
HCO ₃	21.7 (17.8-26.0)	25.7 (21.8-29.2)	24.5 (22.0-27.4)	0.08
Na (correct)	137 (135-141)	141 (139-146)	141 (138-144)	0.04
K	4.0 (3.8-4.5)	3.8 (3.6-4.1)	3.9 (3.6-4.3)	0.2
Ca (correct)	8.6 (8.0-9.0)	8.8 (8.5-9.1)	8.8 (8.4-9.1)	0.053
P	3.8 (2.9-5.1)	3.5 (2.9-4.3)	3.9 (2.8-4.4)	0.2
Albumin	2.5 (2.1-3.4)	2.3 (2.1-2.7)	2.4 (2.1-2.7)	0.009
CRP	15.0 (7.9-26.0)	19.0 (14.0-30.5)	15.0 (11.0-21.3)	0.2
APACHE IV	54 (39-66)	51 (32-61)	49 (35-65)	0.006
APS	37 (25-54)	29 (24-44)	31 (23-48)	0.007

Conclusion: Application of DPR showed significant improvement of APACHE IV score and APS in 37 patients with peritonitis or septic abdomen. Patients had high rates of definitive primary abdominal closure during the index hospitalization. Multidisciplinary approach to managing DPR is required.

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20.05

THE NESA'S TRANS DOUGLAS AND TRANS-ORAL SURGERY

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Introduction: Natural Orifice Surgery is an emerging new surgical discipline. Its goal is to develop surgical procedures which are using body natural openings rather than surgical incisions.

However, already in the 19th century, operations like tonsillectomy or vaginal hysterectomy

have been done.

Trans Gastric experimental operations started in 2004. The first European Natural Orifice Surgery interdisciplinary working group was established by the NESA in 2006, with the aim to develop safe, scarless, and as far as possible painless operations. The NESA conducted the pre-clinical and clinical studies, explored specific physiological and surgical aspects in order to find out if this approach will add value to the existing surgical methods.

Materials & Methods: In collaboration with the department of anatomy at the university hospital of Rotterdam the NESA conducted studies where the feasibility of the Trans-Douglas abdominal operations as well as the Trans-Oral approach for thyroidectomy were confirmed. The mean fornix posterior diameter was measured 2.6 cm with a range of 2.0-3.4 cm, which enables to use up to 25mm instruments without causing damage, and the sub-lingual approach to the thyroid proved safe and comfortable access to the thyroid gland.

Results: Over three hundred Trans Douglas Cholecystectomies were already done, although due to still lacking designed instruments, the Trans Douglas operations are done nowadays as hybrid operations. The NESA's Transoral Thyroidectomy is already in use in several countries using endoscopic instruments and/or robotics, and at the end of 2021 there are already over 300 peer-reviewed publications about this approach.

Conclusion: The Trans Douglas and Trans oral surgery are a paradigm change. The advantages of the Trans Douglas approach are introducing the surgical instruments parallel to the main blood vessels, no need for high intra-abdominal CO2 pressure, reduced pain and no scars. The Trans-Oral Thyroidectomy enables scarless surgery, but a designed instrument for the Trans Douglas approach is still needed in order to avoid the nowadays common hybrid procedure.

Disclosure of Interest: None declared

20.06

EFFECT OF LAPAROSCOPIC OMENTECTOMY ON CAPD CATHETER MALFUNCTION: A THREE ARM PILOT RANDOMIZED TRIAL

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Introduction: Catheter malfunction secondary to omental wrapping is a frequent complication of continuous ambulatory peritoneal dialysis (CAPD). Of the various methods of peritoneal dialysis catheter insertion (PDCI), open surgical insertion under local anaesthesia is most widely practised. Laparoscopic omentectomy is often undertaken as a salvage procedure in case of malfunctioning catheters. However, there is no randomized controlled trial (RCT) to evaluate the role of prophylactic laparoscopic omentectomy on catheter function. This pilot RCT was undertaken to evaluate the impact of laparoscopic omentectomy on the incidence of catheter malfunction.

Materials & Methods: Consecutive patients were randomized into three groups: laparoscopic PDCI with omentectomy (A), laparoscopic PDCI without omentectomy (B) and open surgical PDCI (C). Primary outcome was incidence of catheter malfunction at 6 weeks and 3 months.

Results: Forty-one patients completed follow up, with 16, 11 and 14 patients in Group A, B and C, respectively. Incidence of catheter malfunction was 6.2%, 27.3% and 14.3% in Group A, B and C, respectively, at 6 weeks and 6.2%, 36.4% and 21.4% at 3 months, respectively. In patients with previously failed catheter insertion (n=23), malfunction at 3 months was 8.3% (1/12) in patients who had omentectomy, compared to 45.5% (5/11) in those who did not (p=0.069). Operating time was significantly higher (p<.001) in group a.

Conclusion: Laparoscopic omentectomy may be associated with lower incidence of catheter malfunction, especially patients previously failed pd catheter. data from this pilot rct can used to design a high quality trial adequate number patients.

Disclosure of Interest: None declared

21.01

LAPAROSCOPIC FUNDOPLICATION AS A DAY CASE PROCEDURE - PATIENT COMPREHENSION FOR SUCCESSFUL MODEL

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Introduction: The British Association of Day Surgery states that elective laparoscopic Nissen's fundoplication procedures should be performed as a day case in 40% of patients. In 2014, an audit showed that only 18% of elective laparoscopic fundoplication procedures were day cases at our hospital. The purpose of the study was to design a model for laparoscopic fundoplication to increase the number done as a day case procedure.

Materials & Methods: This was a retrospective study of all patients who underwent laparoscopic fundoplication from 2014 - 2019. We audited the pathway and outcome of patients undergoing laparoscopic fundoplication in 2014, 2016 and 2019. We introduced patient information leaflets to the patient in the perioperative period explaining the procedures, side effects, post-operative diet regimen, and chest physiotherapy exercise following our initial audit in 2014. Further intervention in terms of the surgical team and theatre staff awareness to reach our goal by distributing surgery-oriented pamphlets and information. Further, we re-audited to see if there were any improvements in 2016 and 2019 compared to our previous cohort. A total of 104 patients were audited throughout the study. In the 2016 audit, we had 44 patients, and in the 2019 audit, we had a total of 31 patients.

Results: In 2019; 34.4 % patients regardless of hiatus hernia size were discharged on the same day; 48.2 % patients were discharged on the next day; 24.1% patients had a large hiatus hernia or gastric volvulus; 40.9% patients excluding large and complicated hiatus hernia were discharged on the same day; 75.8 % patients had intraoperative local anaesthetic inject at the operative field.

Conclusion: The main two factors which contributed to improvement of our results were; Intraoperative injection of diluted large volume of local anaesthetic medications to operative field which hugely contributed to the post-operative pain management; and Patient information pamphlets which explained the procedure, pain management, what to expect after surgery, complications and post-operative diet regimen. Also, when a patient is made aware of the procedure being a day case in advance they are more prepared to return home the same day following the procedure.

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21.02

LAPAROSCOPIC VERSUS OPEN PANCREATODUODENECTOMY: COMPARATIVE STUDY

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Introduction: Literature data from last year's showing that laparoscopic Wipple procedure (LWP) is superior to open pancreatoduodenectomy in terms of some intraoperative and postoperative complications. Many authors suggest that intraoperative blood loss, postoperative functional recovery time, length of hospital stay is shorter after LWP compared with open Wipple procedure (OWP).

However, some studies could not suggest superiority of LWP compared to OWP and even demonstrated increased morbidity and mortality for LWP in low-volume centers.

Materials & Methods: This retrospective study has been constructed on 100 patients (50 patients after laparoscopic pancreatoduodenectomy, 50 patients after open pancreatoduodenectomy) with periampullary tumor and chronic pancreatitis who underwent pancreatoduodenectomy from 2007 to 2021 by the same surgical team. We aimed to compare our results after LWP to those after OLW. All intraoperative data were recorded and comparatively analyzed (intraoperative blood loss, duration of the procedure, anastomosis formation time etc.). Postoperative complications were also recorded and described according to the Clavien-Dindo classification and international study group of pancreatic surgery definitions.

Results: Mean age was 57.8 years; mean operating time was 380 min of OWP 310 min in OWP group ($p > 0.05$). In our last 15 patients in LWP group mean operating time was same compared to last 15 patients in OWP group. In these selected patients pancreatico-jejuno anastomosis formation time was also same. Average blood loss in OWP and LWP was 300 versus 100 ml, respectively. The average hospital stay was 12 days in OWP group versus 5 days in LWP group ($p < 0.01$); the number of lymph nodes in the pathological study did not reveal a significant difference ($p > 0.05$). There was no significant difference in the frequency of major postoperative complications (anastomosis leakage, bleeding, pulmonary and septic complications) in the early postoperative period ($p < 0.05$). Perioperative mortality did not differ in comparing groups: 2 patients in the LWP group and 3 patients in OWP group.

Conclusion: This comparative study demonstrates that LWP is not inferior to OWP in terms of intraoperative and postoperative complications and perioperative mortality rate. Postoperative hospital stay is significantly shorter in LWP group. Some postoperative complications in LWP group also less than in OWP group.

Disclosure of Interest: None declared

21.03

IDENTIFYING PANCREATIC DUCTAL ADENOCARCINOMA PATIENTS WITH POOR PROGNOSIS BY IMPROVED CTC DETECTION IN HIGH BLOOD VOLUMES VIA DIAGNOSTIC LEUKAPHERESIS

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Introduction: Circulating tumor cells (CTCs) are associated with poor survival in patients with pancreatic ductal adenocarcinoma (PDAC). Because CTC-detection rates are low in peripheral blood of M0-PDAC (~10%), only a small fraction of high-risk patients can be identified. Here, we tested whether diagnostic leukapheresis (DLA), a clinically safe method that potentially allows screening of 2.5L peripheral blood (PB), significantly increases CTC-detection rates in PDAC.

Materials & Methods: Forty-six patients with PDAC who were scheduled for surgical therapy were included. Both DLA and PB (7.5 mL) samples were obtained prior to surgery. DLA was performed as previously described and CTC detection in PB and in DLA-samples (5% of whole DLA product) was performed using CellSearch[®] (CS) and a semiautomatic software (ACCEPT).

Results: DLA led to a significant increase in CTC detection frequency (14.3% PB; 45% DLA) ($p=0.003$). Also, the CTC/mL increased 10-fold (0.08 PB; 0.82 DLA) ($p=0.0008$). We observed a significant negative prognostic impact for CTCs detected in DLA samples ($p < 0.001$), which remained even if higher CTC cut-offs were used (≥ 2 CTC: $p = 0.01$; CTC ≥ 3 : $p = 0.05$). Interestingly, analysis of DLA revealed a clear prognostic separation of DLA^{CTC}/M0 patients with a favorable long-term outcome. Multivariate analysis confirmed DLA CTC as independent prognostic factor of poor OS (HR 3.3; 95% CI 1.46-7.47; $p = 0.004$). The CTCs in matched PB samples were of no prognostic significance, most likely due to the expected low detection rate in a relatively small cohort.

Conclusion: DLA can significantly increase CTC detection rates in PDAC, although we only investigated 5% of the DLA product here. Our data suggests that DLA CTCs identify patients with subclinical metastatic spread and poor prognosis despite successful surgical treatment. Yet, patients with locally advanced PDAC and negative CTC status in DLA samples displayed a relatively good prognosis. Hence, patients with primary PDAC and negative CTC-status might be good candidates for surgical treatments with curative intent, while patients with positive CTC-status may require more intensified multimodal therapy. DLA CTCs could thus provide a valuable tool for better patient selection.

Disclosure of Interest: None declared

21.04

A STUDY OF FEASIBILITY AND LONG-TERM SURVIVAL IN 199 CASES OF GASTRIC CANCER UNDERWENT D2 LYMPHADENECTOMY IN LMIC

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Introduction: Data on D2 lymphadenectomy in India is lacking. In this study, we evaluated the feasibility, morbidity, mortality, pattern of recurrence, and survival associated with this procedure.

Materials & Methods: Retrospective analysis of 199 cases of D2 lymphadenectomy was performed from a computerized database in a tertiary cancer care center of New Delhi from 2000 to 2021.

Results: A total of 199 patients underwent D2 lymph node dissection. The median age was 55 years (Range 17-78). The most common tumor location was in the distal stomach (64%) followed by the body (26%) and proximal stomach (9%). Upfront surgery was performed in 180 patients (90.5%). Nineteen patients (9.5%) received NACT followed by surgery. DRG was performed in 118 patients (59.3%) followed by total gastrectomy (24.1%) and subtotal gastrectomy (15.1%). R0 resection was done in 97.5% of cases. Clavien-Dindo grade III complication was noted in 14 patients (7%), most common among them were duodenal leak 3 patients (1.5%), chyle leak 3 patients (1.5%), and bile leak 3 (1.5%). Only one postoperative death (0.5%) occurred. The mean node harvested, and involved was 15 and 3 respectively. Systemic, local, and locoregional recurrence occurred in 72 patients (36.2%), 16 patients (8%), and 13 patients (6.5%) respectively. Among all recurrences, 33 (16.6%) occurred in the liver followed by peritoneum 29 (14.6%). Median DFS and OS were 61 months (95% CI 46.6-75.3), and 63 months (95% CI 52.7-73.2) respectively

Conclusion: D2 lymphadenectomy is a feasible and appropriate option for gastric cancer in the Indian population having very low morbidity and mortality profile with acceptable survival outcomes.

Disclosure of Interest: None declared

21.05

COMPLEX DUODENAL FISTULAS – A SURGICAL NIGHTMARE

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Introduction: External duodenal fistulas can result from leaks from duodenal suture or anastomotic lines, or resulting from a persistent fistula after percutaneous management of iatrogenic duodenal lesions. A common feature is the effect of the duodenal content rich in bile and pancreatic juice on nearby tissues, hence called “complex” duodenal leaks in this analysis. The aim of this study was to describe the different management options with emphasis on successful fistula closure rates.

Materials & Methods: A retrospective single academic center study identified 50 adult patients treated for complex duodenal fistulas over a 17-year period. The age range was 28-86 years and 36 (72%) were male. The most common underlying disease or procedure was repair of perforated duodenal ulcer in 16 patients, severe acute pancreatitis in 11 and iatrogenic or traumatic perforation in 11 patients.

Results: The first line treatment was surgical in 38 (76%) cases and consisted of resuture or resection with anastomosis combined with ante- or retrograde duodenal decompression and periduodenal drainage in 36 cases, rectus muscle patch and decompression, and surgical decompression with T-tube in one each. The fistula closure rate was 29/38 (76%). In 12 cases, the initial management was nonoperative with or without percutaneous drainage. The fistula was closed without surgery in 5/6 patients (1 patient died with persistent fistula). Among the remaining 6 patients eventually 3 required duodenal resection or repair and 3 operative drainage (with T tube in one), fistula closure was achieved in 4/6 cases. There was no difference in successful fistula closure rates among initially operatively vs. nonoperatively managed patients (29/38 vs. 9/12, $p=1.000$). However, when considering eventually failed nonoperative management in 7/12 patients, there was a significant difference in the fistula closure rate (29/38 vs. 5/12, $p=0.036$). The overall in-hospital mortality rate was 20/50 (40%).

Conclusion: Attempt at surgical closure combined with duodenal decompression in complex duodenal leaks seems to offer the best chance of successful outcome. In selected cases, nonoperative management can be tried accepting that some patients may require surgery later.

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Disclosure of Interest: None declared

21.06

IS IT POSSIBLE TO SAY "NO DRAIN NO PAIN" IN BARIATRIC SURGERY?

THE EFFECT OF DRAIN USE ON PAIN SCORES IN LAPAROSCOPIC SLEEVE GASTRECTOMY. A PROSPECTIVE RANDOMIZED TRIAL

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Introduction: One of the most important problems for patients after bariatric operations is pain control. The necessity of using drains continues to be questioned in this respect. There are few studies in the literature examining the relationship between the use of drains and pain scores after bariatric surgery. Our aim was to investigate effect of drain use in laparoscopic sleeve gastrectomy and its effects on postoperative pain

Materials & Methods: Patients over the age of 18 who underwent laparoscopic sleeve gastrectomy in a single center were included in the study. Patients whose pain scores could not be reached and who had loss of form in their files were excluded from the study. Patients were compared in terms of demographic information, BMI scores, leakage and other complications. Pain scores were recorded using the VAS scale at 4-8-12 and 24 hours postoperatively.

In the hospital system, a drain was placed for those whose registration numbers ended with an odd number, and no drain was placed for those whose registration number ended with an even number, thus randomization was achieved.

Results: A total of 177 patients with sleeve gastrectomy, 85 (48%) with drain and 92 (52%) without drain were included in the study. The mean age of those with a drain was 36.9±11.0, and those without a drain were 37.4±11.4, and no significant difference was observed (p=0.789). The mean BMI of those with a drain was 48.0±6.9, and the mean of those without a drain was 47.5±6.2, and no significant difference was observed (p=0.606)

When the VAS scores of the patients included in the study were evaluated according to the presence of drain, no significant difference was observed between the groups in terms of the 4th, 8th, 12th, and 24th hour VAS scores and VAS score averages (p>0.05).

	Drain Group Mean±SD	No drain group Mean±SD	p
VAS PO 4th hour	5,6±2,7	5,7±2,6	0,881
VAS PO 8th hour	4,4±2,4	4,7±2,1	0,361
VAS PO 12nd hour	4,1±2,3	4,3±2,4	0,569
VAS PO 24th hour	3,8±2,4	4,1±2,4	0,38
VAS score average	4,5±2,1	4,7±1,9	0,458

Conclusion: Although there are several similar analyzes for other procedures in bariatric surgery, our study is the first to examine the effect of drain use on pain scores after laparoscopic sleeve gastrectomy (1,2). It was observed that the presence of a drain after laparoscopic sleeve gastrectomy had no effect on pain relief. The surgeon should not hesitate to put a drain when it is thought that it will contribute to the follow-up of the patient.

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Disclosure of Interest: None Declared

21.07

TREATMENT OF REFRACTORY GASTROPARESIS WITH GASTRIC ELECTRICAL STIMULATION ASSOCIATED WITH OVERALL REDUCTION OF SYMPTOMS AND HOSPITALIZATION RATES

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Introduction: Gastroparesis (GP) is a disorder defined as delayed gastric emptying without a mechanical obstructive cause in the setting of stereotypic symptoms. Idiopathic GP (IGP) and diabetic GP (DGP) comprise the vast majority of etiologies, with management focused primarily on symptom reduction through medical optimization. Refractory cases may warrant surgical intervention, including gastric electrical stimulation (GES) and laparoscopic pyloroplasty (LP), but studies on postoperative quality of life (QOL) indicators are limited. This study aims to elucidate the QOL outcomes of patients who underwent surgery for refractory GP.

Materials & Methods: We conducted a single-site clinical audit of 100 consecutive adult patients who underwent GES and/or LP for refractory GP. Surgical indications included chronic, intractable nausea and vomiting related to GP. LP was pursued based on symptoms of bloating, early satiety, and lack of diarrhea. A survey was prospectively administered at follow-up to assess for changes in symptoms and post-surgical hospitalization rates. Clinical data for surgical evaluation and postoperative outcomes were ascertained via chart review.

Results: 19 patients with IGP and 25 patients with DGP (11 type I vs 14 type II diabetes mellitus) responded to the survey. The vast majority (84%) were female, with an average age of 49 years (range, 21 to 72). All patients reported refractory symptoms despite treatment with dietary modification (75%), glycemic control (60%), antiemetic (84%) and prokinetic agents (52%). 26 patients underwent both GES and LP procedures (GES/LP), while 15 had GES-only and two had LP-only. An overall decrease in symptoms (nausea, vomiting, indigestion, bloating) was reported in 93% and 74% of GES-only and GES/LP patients, respectively. Appetite was improved in almost all GES-only patients, with the majority (64%) indicating "Much Better". A significant number of GES-only patients (89% of DGP, 80% of IGP) and a majority of GES/LP patients (71% of DGP, 56% of IGP) had decreased hospitalization rates compared to before surgery. Serum hemoglobin A1c levels dropped 0.8% in all patients who underwent GES (p=.099).

Conclusion: Patients with refractory GP who either underwent GES-only or GES/LP showed an overall reduction of symptoms, decreased rates of hospitalization, and improvement of QOL.

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Disclosure of Interest: None declared

23.01

DISPARITIES IN EMERGENCY SURGERY AND EMERGENCY CARE AMONG PATIENTS WITH PERFORATED ULCERS AND A HISTORY OF MENTAL ILLNESS: A NATIONWIDE COHORT STUDY

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Introduction: Timing of surgery is crucial in patients with perforated ulcers. Co-morbid mental illness may delay emergency care due to patient- and system related factors. The study aimed to compare the quality of emergency care for patients undergoing surgery for perforated ulcers with and without a history of mental illness.

Materials & Methods: A nationwide registry-based cohort study of patients undergoing emergency surgery for perforated ulcer. We used data from the Danish Emergency Surgery Registry containing information on national quality standards regarding time-to-surgery and 30-day mortality 2004-2018, and time-to-antibiotics, pre-operative risk stratification and hemodynamic optimization 2015-2018. Patients were categorized according to severity of mental health history.

Results: We identified 4.767 patients undergoing emergency surgery for perforated ulcer. Of these 19%, 4% and 4% had a history of minor, moderate or major mental illness, respectively.

Overall, time from hospital arrival to surgery was 5.8 hours IQR(3.5;10.5), and only 51% CI(50;52) of all patients underwent surgery within the defined standard of 6 hours.

Adjusting for age, sex, and co-morbidity, patients with a history of major mental illness underwent surgery 49 minutes CI(8;91) later compared to patients with no history of mental illness. 30-day mortality for all patients was 23% CI(22;24). Adjusting for age, sex, and co-morbidity, patients with a history of major mental illness had a higher risk of death at 30-days with a Risk Ratio of 1.42[1.07;1.88].

Considering patients admitted from 2015-2018 (n=873), median time from hospital arrival to antibiotics was 192 minutes IQR(192;1633), and only 4% CI(3;5) of all patients received antibiotics within the defined standard of 1 hours from hospital arrival. Patients with a history of major mental illness received antibiotics 119 minutes CI(31;208) later, compared to patients with no history of mental illness.

We found no differences regarding time-to-surgery nor 30-day mortality for patients with a history of minor or moderate mental illness, and no differences regarding preoperative risk assessment nor preoperative hemodynamical optimization between any groups.

Conclusion: One-fourth of the population had a history of mental illness. Patients with a major history of mental illness had a higher risk of death and had longer delays from hospital arrival to surgery and longer delays from hospital arrival to antibiotics.

Disclosure of Interest: None declared

23.02

ACCURACY OF THE NELA SCORE AT PREDICTING LONG-TERM MORTALITY AFTER EMERGENCY LAPAROTOMY

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Introduction: Emergency Laparotomy (EL) encompasses a multitude of different operations on acutely unwell patients. EL carries a high risk of mortality that increases with time postoperatively. A recent meta-analysis estimated the risk of mortality as 8.4% at 30-days post EL, increasing to 24.6% at 1-year. [1]

The UK National Emergency Laparotomy Audit (NELA) has produced and validated a risk predictive tool for EL. The NELA score is calibrated for 30-day mortality and is repeatedly validated as a highly accurate predictive tool.

We aimed to explore long-term mortality after EL and the utility of the NELA score in long-term mortality prediction.

Materials & Methods: We reviewed computer and paper records of EL patients from May 2012 to June 2017 at Middlemore Hospital, New Zealand. Mortality was reviewed over a 4-year follow-up for all the patients. The inclusion criteria mirrored the UK NELA, 18 years and older patients undergoing emergency laparotomy. C-statistic and receiver operating characteristic (ROC) curves were used to evaluate the discrimination of NELA score for mortality at 30-days, 1-year and 4-years postoperatively.

Results: 758 patients met the inclusion criteria, with an observed 30-day mortality of 7.9%. Mortality increased to 15.6% at 1-year and 28.2% at 4-years. Median age was 62 (range of 18 to 96). 30.2% of patients had an existing cancer diagnosis at the time of EL, of which 9.5% were metastatic and 11.6% were diagnosed at the time of admission for EL.

The area under the curve (AUC) for the NELA prediction of mortality was 0.827 at 30-days. The accuracy remained high at 1-year with AUC of 0.816 and at 4-years with AUC of 0.811.

Conclusion: We have demonstrated progressively increasing high mortality rate amongst EL patients for up to 4-years postoperatively. This may be partly related to the high rates of cancer in our cohort. The NELA predictive score showed high accuracy in predicting both short and long-term mortality after EL. The NELA score continues to be an excellent tool to facilitate preoperative risk assessment and decision making.

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23.03

RIDESHARE TO THE RESCUE? TRENDS IN ALCOHOL-RELATED MOTOR VEHICLE COLLISIONS

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Introduction: The National Highway Traffic Safety Administration reports approximately 35,000 deaths from motor vehicle collisions (MVCs) each year. One-third of these deaths are attributed to MVCs with an intoxicated driver. Since the introduction of rideshare services (RSS) in 2010, usage has increased from <500,000 rides to >5 billion rides per year. We hypothesized that RSS would decrease the incidence of driving under the influence (DUI) arrests, AR-MVCs, and fatalities from MVCs with an intoxicated driver (AR-fatalities).

Materials & Methods: The total number of Texas MVCs and AR-MVCs, the national number of MVC fatalities and AR-fatalities, and national DUI arrests were obtained from validated government repositories. AR-MVCs and AR-fatalities were analyzed as a percentage of total MVCs and MVC fatalities. RSS user demographics were obtained from Statista analysis of ridesharing services in the United States and Texas A&M University. Data pre- (2005-2009) and post-RSS (2015-2019) were then compared with non-parametric assessments of variance.

Results: Pre- and post-RSS comparisons showed that Texas AR-MVCs decreased 25% ($p<0.01$) and national AR-fatalities decreased 9% ($p<0.01$). Nationally, fatal MVCs with an intoxicated driver that occurred between 12-3am decreased by 11% ($p<0.01$). Men self-reported as more likely to use RSS, and 55% of Texas RSS users were found to be male. Nationally, fatal MVCs with an intoxicated male driver decreased from 77% pre-RSS to 75% post-RSS ($p=0.03$). Younger generations were the majority of RSS users. Nationally, fatal MVCs with an intoxicated driver between 21-44 years old decreased from 64% to 59% ($p<0.01$). National DUI arrests decreased by 26% ($p<0.01$).

Conclusion: The number of Texas AR-MVCs, national AR-fatalities, and national DUI arrests decreased after the launch of RSS. The largest reduction was seen among young men between 12am and 3am, which strongly correlates with RSS usage. Additional work is needed to establish causal relationships between RSS availability and these metrics.

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Disclosure of Interest: None declared

23.04

PROPHYLACTIC EFFECT OF NEGATIVE PRESSURE WOUND THERAPY AND DELAYED SUTURE FOR INCISIONAL-SURGICAL SITE INFECTION AFTER EMERGENCY LAPAROTOMY FOR COLORECTAL PERFORATION: A MULTICENTER RETROSPECTIVE COHORT STUDY

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Introduction: Emergency surgery for colorectal perforation is associated with high risk of incisional-Surgical site infection (iSSI). Moreover, iSSI can lead worse outcomes. In recent years, prophylactic effect of Negative pressure wound therapy (NPWT) for iSSI have drawn much attention and been widely used. However, there is not enough evidence about effect of NPWT for highly contaminated emergency surgery. The aim of this study is to evaluate prophylactic effect of NPWT for iSSI after emergency surgery for colorectal perforation.

Materials & Methods: This retrospective cohort study analyzed the data from 48 hospitals certificated by Japanese Society for abdominal Emergency Medicine. Patients, who underwent emergency laparotomy for colorectal perforation between April 2015 and March 2020, were included. Subjects who were treated with prophylactic NPWT and delayed skin closure (NPWT group) were compared to those who were treated without these procedures (Control group) for the outcomes including the incidence of iSSI, using 1:4 propensity score-matched analysis. The propensity score was calculated by potential confounders. Subpopulations that benefit from NPWT were also explored by assessing interaction effects between NPWT and patient characteristics.

Results: A total of 1,626 subjects (NPWT group: 88, Control group: 1,538) were eligible for analysis, of whom 82 propensity score-matched pairs (NPWT group: 82, Control group: 328) were generated and compared. NPWT group was associated with the lower incidence of iSSI (NPWT group: 17 (20.7%), Control group: 112 (34.1%), odds ratio = 0.51, 95% confidence interval = 0.28 to 0.90, p = 0.022). There was no significant difference of length of hospital stay and healthcare costs between two groups. Furthermore, patients with diabetes mellitus and longer operative time were likely to benefit from NPWT.

Conclusion: NPWT could decrease the incidence of iSSI after emergency surgery for colorectal perforation without prolonged hospital stay and healthcare cost increase. To identify more appropriate adaptation, further analysis is required.

Disclosure of Interest: None declared

23.05

ANALYSIS OF PLATELET INHIBITION IN 435 MALE AND FEMALE TRAUMA PATIENTS WITH BRAIN INJURY

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Introduction: Thromboelastography (TEG, Haemonetics ®) with platelet mapping measures platelet inhibition through the adenosine diphosphate (ADP) and arachidonic acid (AA) pathways. Recent studies have demonstrated a hypercoagulable TEG profile in female trauma patients. We hypothesized that TEG profiles in patients with traumatic brain injury would reveal increased platelet inhibition in females.

Materials & Methods: All patients presenting to a level 1 trauma center with TBI received a TEG with platelet mapping assay from December 2019 to July 2020, and a retrospective review was conducted. If ADP or AA was found to be inhibited >60%, the patient was transfused 1 unit of platelets and a repeat platelet mapping assay was obtained.

Results: A total of 435 patients met inclusion criteria, with 255 (59%) being male. Females were older (76 vs. 65, $p < 0.001$) with lower ISS (15 vs. 17, $p < 0.001$) and lower GCS (10 vs. 14, $p < 0.001$) when compared to male patients. Males had higher BIG scores ($p < 0.05$) and head AIS ($p < 0.05$). Females were significantly more inhibited in AA (67 vs. 62, $p = .004$) than male patients. Males were significantly more inhibited in %inhibition ADP than female patients ($p < 0.001$).

Total (n=435) Males (n=255) Females (n=180) p-value

AA

Inhibited	129 (29.7%)	62 (24.3%)	67 (37.2%)	.004*
Not inhibited	306 (70.3%)	193 (75.7%)	113 (62.8%)	

ADP

Inhibited	63 (14.5%)	44 (17.3%)	19 (10.6%)	.051
Not inhibited	372 (85.5%)	211 (82.7%)	161 (89.4%)	

AA and ADP

Inhibited	58 (13.3%)	38 (14.9%)	20 (11.1%)	.252
Not Inhibited	377 (86.7%)	217 (85.1%)	160 (88.9%)	

Conclusion: Female trauma patients who present with TBI were found to be more inhibited in AA than male patients on TEG at the time of initial trauma evaluation. Intrinsic differences in sex coagulation profiles should be further investigated to optimize modern resuscitation strategies.

Disclosure of Interest: None declared

23.06

THE EDUCATIONAL IMPACT OF VIRTUAL PATIENTS ON ADVANCED TRAUMA TEAM TRAINING DURING A MULTINATIONAL, LARGE-SCALE CIVIL MILITARY MEDICAL SIMULATION EXERCISE

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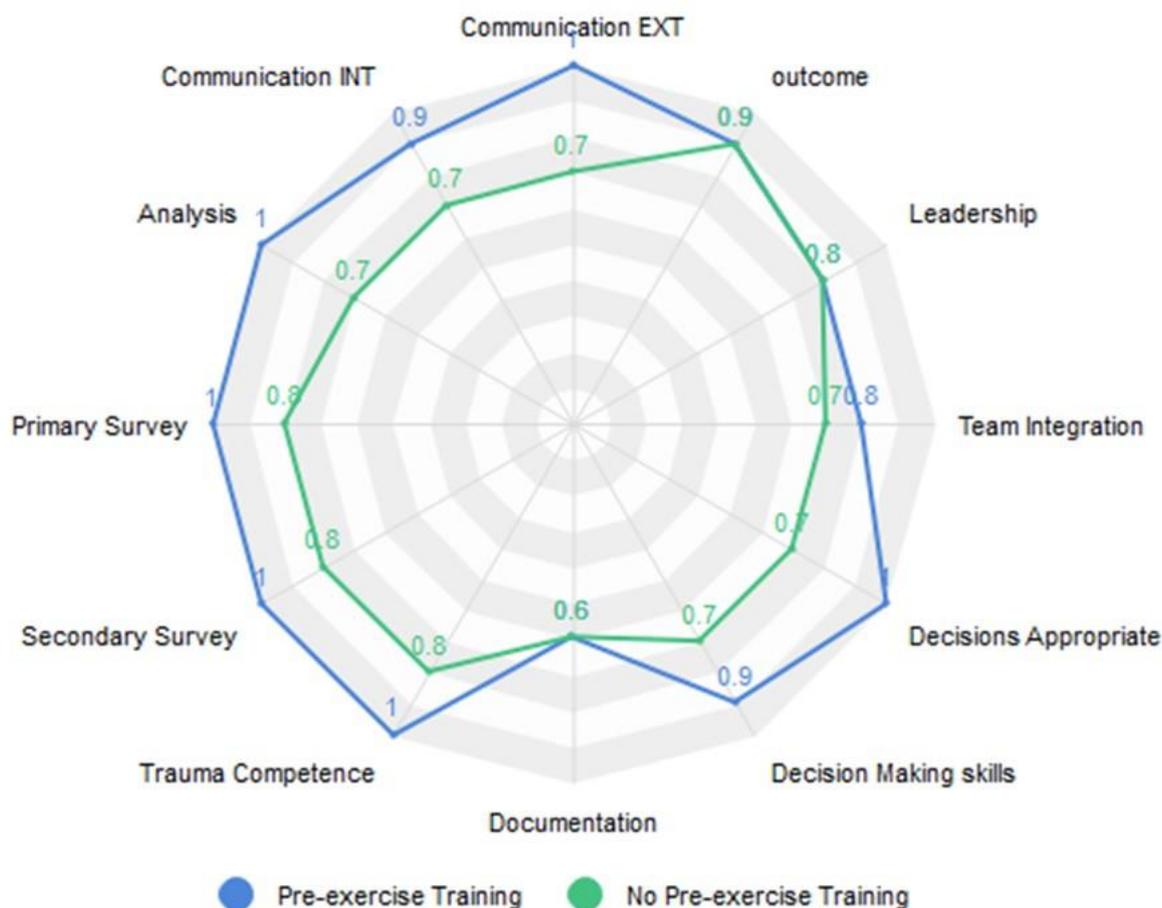
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Introduction: Major trauma is any injury with the potential to cause prolonged disability or death and the leading cause of death and disability in those under 40 years old. Many countries deal with increasing numbers of major trauma events and the incidence of terrorist atrocities is increasing globally. Common to several countries is the limited capacity to cope with these events. Postgraduate training for such events comprises primarily of full-scale simulations, requiring large resources: time consuming and expensive. Virtual Patients can contribute to efficiency, integrated with more conventional teaching. Development of virtual patients could enhance face to face learning opportunities, leading to better patient outcomes. Virtual patients are defined as computer-based programs based on authentic patients. Previous studies identified knowledge gap about virtual patients based on real-life patients, as support for learning processes for post graduate surgeons, anesthesiologists, nurses. The aim of this study was to investigate if virtual patients for post graduate surgical education, supported and improved learning and team training in decision making, during the world largest large-scale civil-military medical simulation.

Materials & Methods: The study was a prospective pilot study based on data: individual assessments, evaluation assessments and video-recordings of team training during large scale simulation. The population consisted of surgeons, nurses, anesthesiologists, representing trauma team members from 8 countries; 4 groups were participating, and 4 were control groups.

Results: Initial data analysis indicated that utilizing virtual patients contributed to improved individual knowledge about the management of major trauma patients, and improved teamwork. The data suggested increased awareness of flexible thinking, individually and within the teams. The application of virtual patients as support for reasoning, during the learning process in decision making, was directly correlated to level of previous knowledge and experience. Two of the four participating trauma teams initially showed lower levels of existing knowledge and competence in managing trauma patients and therefore made more effective use of the virtual patients

Image:



Conclusion: The advantages of using virtual patients due to large-scale simulation appears to be beneficial for preparations before participating in full scale simulation, and in particularly support teams who are not as experienced.

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Disclosure of Interest: None declared

24.01

COMPARISON OF NON-MESH DESARDA TECHNIQUE VERSUS LICHTENSTEIN TECHNIQUE FOR INGUINAL HERNIA REPAIR: A SYSTEMATIC REVIEW AND META-ANALYSIS OF 14 COMPARATIVE STUDIES.

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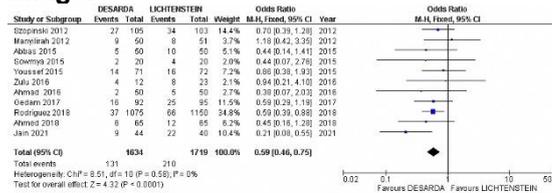
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Introduction: The aims of this systematic review and meta-analysis were to compare non-mesh Desarda technique (DT) with standard mesh-based Lichtenstein technique (LT) for inguinal hernia repair.

Materials & Methods: A systematic literature search for comparative studies comparing between DT and LT was conducted using electronic databases and Google scholar service. Studies were evaluated for hernia recurrence, post-operative complications, and time to return to work. We pooled the data using fixed effects model and random effects model after assessing the heterogeneity among the included studies. Odd ratio (OR) and mean difference (MD) were calculated for dichotomous and continuous outcomes, respectively. All statistical analyses were conducted using RevMan 5.3.

Results: A total number of 13 studies were included in this meta-analysis with a total number of 3673 patients divided between Desarda group (n=1794) and Lichtenstein group (n= 1879). There was no difference in terms of hernia recurrence between the Desarda repair and Lichtenstein repair group [OR 0.73, P = 0.47]. There was a significant lower rate of overall post-operative complications [OR 0.59, P = 0.0001] (Figure 1), seroma [OR 0.43, P = 0.0002] and surgical site infections (SSIs) [OR 0.41, P = 0.03] in the Desarda group. The two groups showed comparable results for haematoma [OR 0.66, P= 0.12], scrotal oedema [OR 0.71, P= 0.25], and testicular atrophy [OR 0.12, P= 0.15]. Moreover, Desarda group was associated with shorter operative time and return to work when compared to Lichtenstein group, [MD -12.13, P= 0.01] and [MD -3.98, P= 0.008], respectively.

Image:



Conclusion: DT and LT were found to have comparable results in terms of hernia recurrence rate, haematoma formation, and testicular atrophy. However, DT is superior to LT in terms of reducing postoperative mesh-attributed complications, such as SSI and Seroma formation besides shorter operative time and return to work. We recommend performing a well-designed, large cohort RCT with satisfactory long-term follow-up duration to assess the long-term outcomes of Desarda technique and to evaluate the cost-effectivity and impact in less economically developed countries.

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Disclosure of Interest: None declared

24.02

SHOULD THE SPERMATIC CORD BE PROTECTED? (SECOND REPORT)

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Introduction: In the latest years, Hernia Surgery has been oriented to achieve the best results with respect to recurrences and at the same time to decrease to the utmost the complications derived from the utilization of different materials (synthetic and biological). In this study (that started in January 2015 and ended in December 2021), we are making a second report utilizing the Lichtenstein technic with a layer of peritoneum between the mesh and the spermatic cord.

Objectives: To demonstrate the effectiveness of the utilization of a layer of peritoneum in the Lichtenstein technic in the protection of the spermatic cord and the decrease of the complications.

Materials & Methods:

745 cases with inguinal hernias were at random analyzed divided in three groups where different prothetic devices were utilized. Group I: Classical Lichtenstein technic, utilizing 100% proliprolane meshes. Group II: Spermatex mesh (prolipropile and Ptfе). And Group III: Placing a peritoneum layer of the sac between the prothesis and the cord. It was a requisite that the patient had children. A previous consent was requested from each patient. Pre and post-operative vascular doppler and spermogram were made.

Results: : All patients had normal preoperative studies (spermogram and Doppler of the cord). In groups II and III, there were no alterations in the post operative spermogram, but in group number I there was a 7.5% that consisted in a decrease of the total number of spermatozoids and motility alterations. In relation to arterial Doppler, there were no alterations in none of the groups. However, in the three of them there were some alterations in the venouse flux, 10,7% for group number I, 9,1% for group number II and 1,2% for group III. It was also taken into consideration the local complications where group III practically had none.

Conclusion: The utilization of the peritonuем layer protecting the spermatic cord demonstrated its effectiveness according the parameters analyzed (spermogram, vascular Doppler of the cord and local complications)

Disclosure of Interest: None declared

24.03

IS THERE EVIDENCE FOR THE APPLICATION OF TITANIUM MESH IN HERNIA REPAIR?

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Introduction: Since clinical studies have demonstrated that the recurrence rate in hernia repair is reduced by the use of mesh, the rate of clinical studies with polypropylene mesh investigating adverse events has increased. Since the mesh ban of polypropylene (PP) mesh in the transvaginal technique of pelvic organ prolapse (POP) by the FDA in 2019, the need for further development of mesh with the improved outcome is obvious. Titanium mesh may be a viable alternative to PP in hernia repair.

Materials & Methods: We searched Pubmed for “titanium mesh”, “titanium mesh hernia”, and “TiMesh” in connection with “hernia”, “clinical study”, randomized controlled trial” focusing on mesh outcome, and not the outcome of tacks.

Results: There are 11 studies investigating TiMesh versus PP mainly in laparoscopic inguinal hernia repair (TAPP, TEP), only one study in open inguinal hernia repair (Lichtenstein). Mesh-specific complications (recurrence, pain, infection) are not different except for heavyweight PP mesh. However, most studies report short time results. There is a difference in the impairment of postoperative recovery in favor of titanium mesh.

There is only one study in Pubmed reporting results of the postoperative examination of unchanged size and location of titanium silk (TS) by CT in n=40 patients. Further 11 clinical studies report results of titanium silk in ventral, umbilical, inguinal hernia repair in n= 900 in patients, of which n=495 patients were examined in 2-arm studies. There was no difference in the rate of mesh-specific complications except for one study in which there was a higher risk due to obesity. In one study there was an improvement of QoL after 1 year when compared to PP, there is a trend for faster recovery in TS patients. However, there are no randomized controlled studies and the Consort criteria are neglected.

Conclusion: Titanized mesh and titanium mesh may have promising properties when used in hernia repair, as the latter has shown significantly minimal shrinkage and less pronounced local inflammatory response over time. Further investigations using Consort Criteria and randomized controlled studies are needed.

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Disclosure of Interest: None declared

28.01

ARTIFICIAL INTELLIGENCE FOR PREOPERATIVE DIAGNOSIS OF MALIGNANT THYROID NODULES BASED ON SONOGRAPHIC FEATURES AND CYTOLOGY

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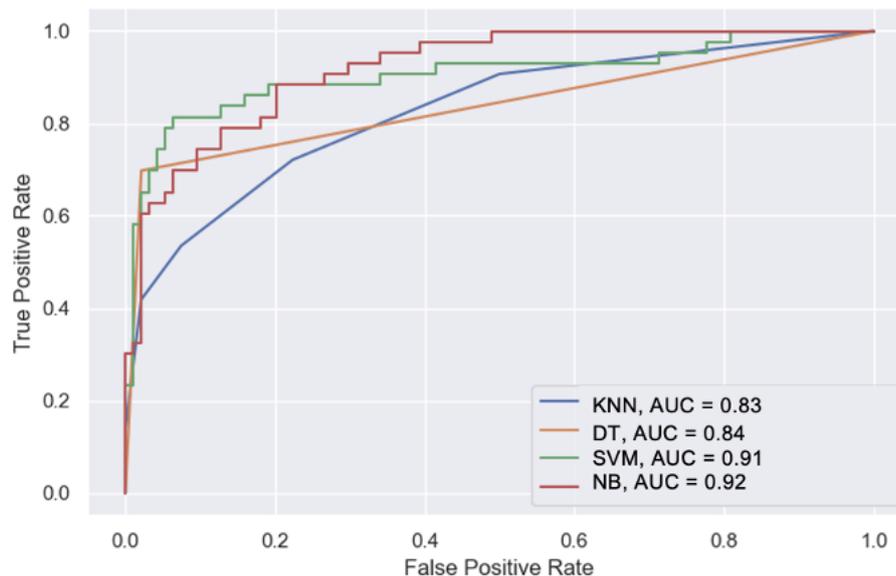
Introduction: Despite widespread use of ultrasonography (USG) and fine needle aspiration cytology (FNAC) to assess thyroid nodules, the interpretation of results is nuanced and requires specialist endocrine surgery input. Using readily available pre-operative data, the aims of this study were to develop an artificial intelligence (AI) model to classify nodules into likely benign or malignant; and to determine the diagnostic performance of the model.

Materials & Methods: Patients undergoing surgery for thyroid nodules between 2010 – 2020 were recruited from the Monash University Endocrine Surgery Unit database. Age, sex, serum TSH, USG features, FNAC results and final surgical histopathology were used. Training group USG images were reviewed and annotated by a radiologist experienced in thyroid USG and supplemented with features extracted from existing reports. Testing group USG features were extracted solely from existing reports to reflect primary care practice. We developed an AI model based on classification algorithms (K Nearest Neighbour, Support Vector Machine, Decision Tree, Naïve Bayes) and evaluated its diagnostic performance of thyroid malignancy.

Results: In the training group (n=847) 75% were female and 27% of cases were malignant. The testing group (n=198) consisted of 77% females and 17% malignant cases. Mean age was 52 years. Area under the ROC curves for internal validation of the four classifier AI algorithms are demonstrated in Figure 1. In the testing group following external validation, Support Vector Machine classifier was found to perform best in predicting final histopathology with an accuracy of 91%, sensitivity 91%, specificity 86%, F-score 94% and AUROC 0.86.

Image:

Figure 1. The ROC curves for internal validation of the prediction models.



AUC, area under the ROC curve; KNN, K nearest neighbour; DT, Decision tree; SVM, Support vector machine; NB, Naïve bayes

Conclusion: There is potential for an AI model incorporating radiology, cytology and demographics in a computer-aided decision support tool, to be used by primary care physicians, to help select patients for specialist management. Work on incorporating USG images into the AI model is currently underway.

Disclosure of Interest: None declared

28.02

SINGLE CENTER OUTCOMES FROM PARENCHYMAL-SPARING RESECTIONS WITH MICROWAVE ABLATIONS FOR NEUROENDOCRINE TUMOR LIVER METASTASES

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Introduction: Surgical debulking of neuroendocrine tumors (NETs) is used as a therapeutic approach for metastatic NETs in selected centers. Reported outcomes after parenchymal-sparing liver resections (PSR) in NET patients with high numbers of liver metastases are sparse.

Materials & Methods: Patients with NET liver metastases that underwent surgical debulking were included from 2019 to 2021. All patients underwent preoperative and serial postoperative imaging every 3 months with MRI Abdomen plus hepatobiliary contrast. Trends in perioperative liver function and serum tumor markers were examined, as well as morbidity, mortality. Post-operative outcomes such as progression free survival (PFS) and adjuvant therapeutic interventions for disease progression were quantified.

Results: 940 liver lesions were debulked from 48 patients with a combination of PSR (47%) and ultrasound navigation-guided microwave ablations (MWA) (53%). The median number of lesions targeted was 17.5. Post-operative transaminitis and thrombocytopenia correlated with number of lesions debulked (median POD1 AST/ALT 450/600 IU/L for 1-15 vs. 1500/ 1100 IU/L for >15 lesions, $p=0.02/0.05$ and median POD2 platelets $150 \times 10^9/L$ for 1-15 vs. $105 \times 10^9/L$ for >15 lesions, $p = 0.05$). Synthetic liver function measured by postoperative INR (median peak 1.37) and total bilirubin (median peak 1.25 mg/dL) did not differ according to number of lesions debulked. 15% of patients sustained a Clavien-Dindo grade 3/4 complication and was not associated with the number of lesions targeted. 30-day mortality was 0%. Bile leak occurred in 4 patients with a leak-to-resected lesion ratio of 0.9%. All patients with preoperative symptoms had improvement after surgery despite only 80% having a biochemical response postoperatively. Hazard regression analysis showed that PNET (compared to SBNET, $p=0.003$) and grade 2 (compared to grade 1, $p=0.01$) tumors, but not number of resected liver lesions, correlated with a higher risk of disease progression. 16% of patients necessitated non-surgical liver directed therapy after surgery. While extrahepatic disease (20%) did not impact PFS ($p=0.09$), the presence of bone mets was subsequently noted to have more disease progression than intraperitoneal metastases.

Conclusion: PSR with MWA for NET liver metastases is safe and does not affect synthetic liver function. Transaminitis and thrombocytopenia are proportionate to the amount of liver lesions debulked. All symptomatic patients had improvement of symptoms after PSR with MWA.

Disclosure of Interest: None declared

28.03

RADIOFREQUENCY ABLATION FOR HOT NODULES: THE NEW HOT TOPIC

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Introduction: Thyroid nodules are found in 3-7% of individuals on physical examination and in 20-76% on ultrasound. About 8-10% of benign nodules may exhibit autonomous behavior, causing symptoms of hyperthyroidism. Iodine therapy and thyroidectomy are effective treatment options for definitive treatment, however, both can induce hypothyroidism, which is also an unwanted condition. Radiofrequency Ablation (RFA) is a safe and effective alternative for the treatment of hyperfunctioning nodules.

This work aims to demonstrate our results in treating toxic nodules by RFA in volumetric reduction and normalization of TSH levels.

Materials & Methods: We enrolled Twenty-six patients in this study, with a mean age of 45.4 ± 15.0 years, twenty-five patients were women, and one was a man. All underwent a single RFA session without any reported. Of the 26 nodules submitted to ablative therapy, 15 were smaller than 12.0 cc, and 9 of them larger than 12.0 cc. We followed this group of patients for up six months after the RFA treatment

Results: Of the 26 nodules submitted to ablative therapy, 15 were smaller than 12.0 cc, and 9 of them larger than 12.0 cc. After RFA, there was a reduction in the volume of all nodules, with the volumetric reduction being more significant in nodules larger than 12.0 cc. The normalization of TSH laboratory levels occurs within 60 days. All patients progressed to euthyroidism in up to 90 days of follow-up, with no recurrence of hyperthyroidism in all cases.

Conclusion: A single RFA session effectively treated autonomous nodules, restored euthyroidism in all patients, and significantly shrunk the volume of the nodules. Its use could be a safe option in treating these patients and should be considered in the range of therapeutic options.

Disclosure of Interest: None declared

28.04

OVERALL SURVIVAL IN PATIENTS WITH STAGE IV PAN-NET ELIGIBLE FOR LIVER TRANSPLANTATION

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Introduction: The use of liver transplantation (LT) in patients with stage IV neuroendocrine pancreatic tumors (pan-NET) is under debate. Previous studies report a five-year survival of 27-44% after LT in pan-NET and up to 92.7% in patients with mixed NETs. This study aimed to determine survival rates of patients with stage IV pan-NET meeting criteria for LT while only subjected to multimodal treatment.

Materials & Methods: Medical records of patients with pan-NET diagnosed from 2000-2021 at a tertiary referral center were evaluated for eligibility. Patients without liver metastases, patients who did not undergo primary tumor surgery, age >75 years and patients with grade 3 tumors were excluded. The patients were divided into groups; all included patients, patients that met the Milan criteria, the criteria for LT according to the guidelines of United Network for Organ Sharing (UNOS) or the criteria for LT according to the guidelines of European Neuroendocrine Tumor Society (ENETS). Kaplan-Meier survival analysis was used to calculate overall survival.

Results: Out of 519 patients with pan-NET, 41 patients were included. Mean follow-up time was 5.4 years. Overall survival was 9.3 years (95% CI 6.8 to 11.7) and five-year survival was 64.7% (95% CI 48.2-81.2). Patients meeting the Milan, ENETS and UNOS criteria for LT had a five-year survival of 64.9% (95% CI 32.2-97.6), 85.7% (95% CI 59.8-100.0) and 55.4% (95% CI 26.0-84.8), respectively.

Conclusion: In patients with stage IV pan-NET, grade 1 and 2, with no extra abdominal disease, 5-year survival was 64.7% (95% CI 48.2-81.2). As these survival rates exceed previously published series of LT for pan-NET, the evidence base for this treatment is virtually non-existent.

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28.05

VALIDATED MODEL PREDICTING EFFECT OF RADIOACTIVE IODINE ON OVERALL SURVIVAL (OS) IN PAPILLARY THYROID CANCER (PTC)

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Introduction: OS in PTC is influenced by clinical and treatment variables. There is no validated tool to determine impact of radioactive iodine (RAI) on OS. This study aims to create a prognostic tool using a large national database to help personalize treatment for PTC patients.

Materials & Methods: Surgical patients with PTC were identified in the National Cancer Database from 2004-2017. Those with metastases or incomplete data were excluded. Patients were randomly divided into training and validation sets (70% training set; 30% validation set). Multivariate analysis of the training set identified variables for the calculator. A model using Cox regression and bootstrapped coefficients was created to predict OS at 5 and 10 years. The model's performance was assessed with calibration plots. Predicted and observed OS were compared.

Results: 194,411 patients were analyzed. 136,088 patients were in the training set and 58,323 in the validation set. There were no significant differences between training and validation sets ($p > 0.05$). Average patient age was 48 years. Majority were female (77%), Caucasian (76%), had Charlson Comorbidity Index of 0 (85%) and total thyroidectomy (87%). 88% had negative margins, 47% had N0 disease and 54% received RAI. Multivariate analysis of the training set for OS showed age, sex, race, CCI, type of surgery, surgical margins, tumor size, nodal status, and use of RAI were significant ($p < 0.05$). A Cox regression prediction model was created with these variables (Table 1). The model's predicted and observed OS were compared in the training and validation sets (Figure 1). Area under the curve for the model was 0.76 for the training set and 0.75 for the validation set.

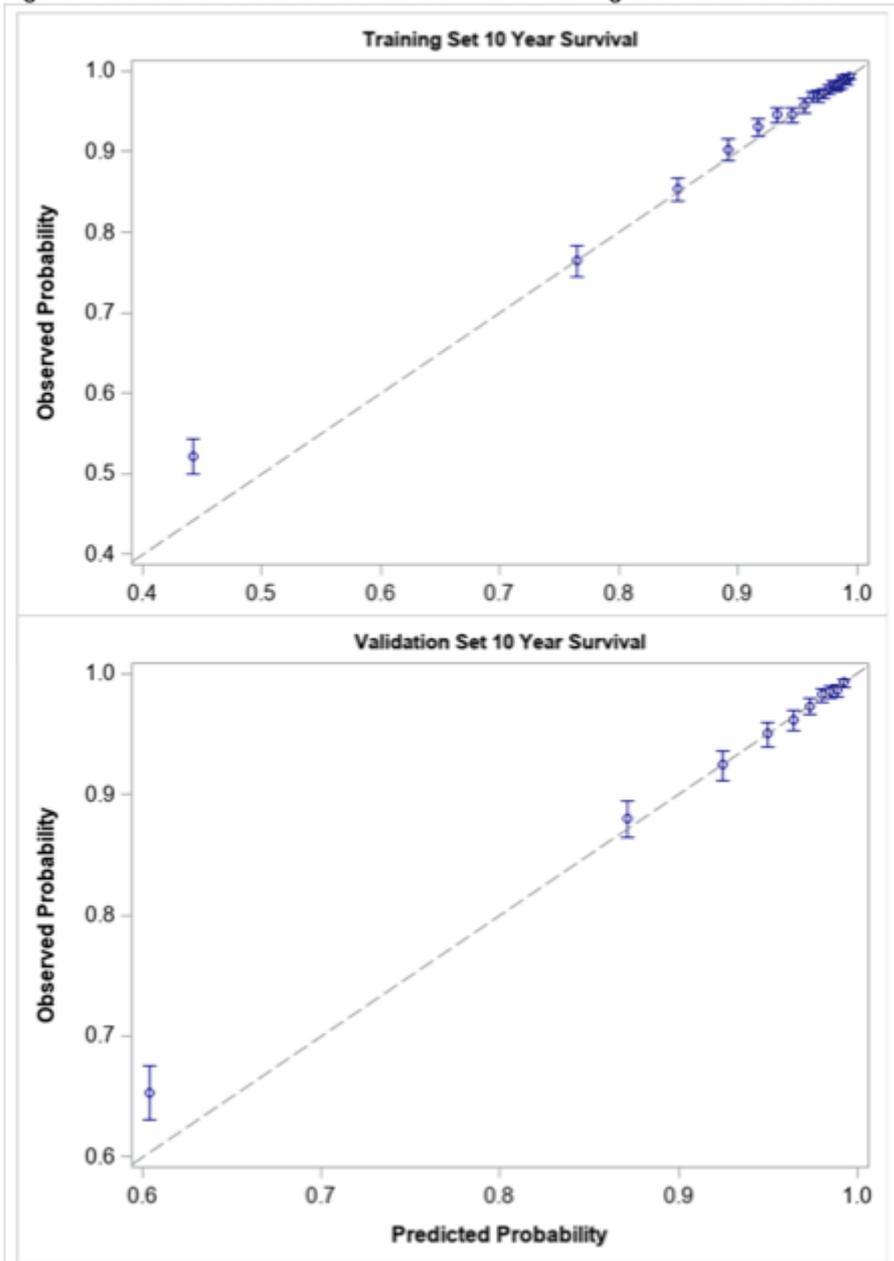
Table 1. Coefficients for Cox Regression Prediction Model

	Coefficient	SE		Coefficient	SE
Age 18-29 [Ref]	0		CCI 0 [Ref]	0	
Age 30-39	0.261	0.122	CCI 1	0.576	0.035
Age 40-49	0.824	0.111	CCI ≥ 2	1.307	0.046
Age 50-59	1.459	0.108	Lobectomy	0.110	0.042
Age 60-69	2.232	0.107	Total Thyroidectomy [Ref]	0	
Age 70-79	3.110	0.107	Margin Negative [Ref]	0	
Age ≥ 80	4.076	0.109	Margin Positive	0.420	0.038
Male	0.446	0.030	Tumor Size ≤ 1cm [Ref]	0	

Female [Ref]	0		Tumor Size 1.1-2cm	0.075	0.040
White	0.532	0.086	Tumor Size 2.1-3cm	0.222	0.049
Black	0.828	0.100	Tumor Size 3.1-4cm	0.598	0.055
Hispanic	0.325	0.103	Tumor Size >4cm	0.860	0.048
Asian/Pacific Islander [Ref]	0		N0 [Ref]	0	
Other	0.143	0.140	N1	0.587	0.038
No RAI	0.437	0.033	NX	0.272	0.034
Yes RAI [Ref]	0				

Image:

Figure 1. Calibration Plots for 10 Year Survival in Training and Validation sets



Conclusion: This model accurately predicts PTC mortality and the effect of RAI on OS. It can be used to individualize prognosis and therapy for PTC patients.

Disclosure of Interest: None declared

28.06

IMPACT OF SURGEON VOLUME ON MORBIDITY FOLLOWING PARATHYROIDECTOMY IN THE UNITED KINGDOM: A STUDY OF 16,140 PARATHYROIDECTOMIES FROM THE UNITED KINGDOM REGISTRY OF ENDOCRINE AND THYROID SURGERY (UKRETS)

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Introduction: Outcomes in endocrine surgery have been shown to improve with increasing surgeon volume. We aimed to study the effect of surgeon volume on morbidity following parathyroidectomy (Px) in the UK.

Materials & Methods: UKRETS (United Kingdom Registry of Endocrine and Thyroid Surgery) data from 06/01/04 to 31/12/2019 was analysed. Px for primary hyperparathyroidism with complete data were included. Exclusion criteria were patient age <18 or >80 years; surgeons contributing <10 cases; and length of stay >28 days. Primary outcome was persistent disease; secondary outcomes were post-operative hypocalcaemia, length of stay, and haemorrhage.

Results: Of the 35814 patients who underwent Px in the study period, 16140 were included for analysis after applying the exclusion criteria. These patients were operated by a total of 153 surgeons, who undertook a mean of 22.5 (range 2-115) Px/year. Overall incidence of persistent disease was 4.8% (776/16,140). Rates of persistent hypercalcaemia in patients undergoing surgery with negative and positive localisation are shown in *Table 1*.

Surgeon volume significantly reduced persistent disease on multivariable analysis (OR 0.878, 95%CI 0.842-0.914, p<0.001), along with age, gender, and positive localisation. BNE and reoperation significantly increased persistent disease.

Hypocalcaemia occurred in 3.2% (509/16,140) and fell with increasing surgeon volume (OR 0.951, 95%CI 0.910-0.993, p<0.001). Haemorrhage and length of stay were not significantly associated with surgeon volume.

Surgeon Volume	Rates of Persistent Hypercalcaemia		
	Overall	Negative Localisation	Positive Localisation
>50 cases/year	3.3% (96/2883)	5.7% (46/809)	2.4% (50/2074)
30-50 cases/year	5.0% (269/5357)	7.7% (115/1500)	4.0% (154/3857)
10-30 cases/year	5.1% (340/6659)	9.6% (102/1059)	4.3% (238/5600)
<10 cases/year	5.7% (71/1241)	11.5% (11/96)	5.2% (60/1145)
Overall	4.8% (776/16140)	7.9% (274/3464)	4.0% (502/12676)

Table 1: Surgeon volume and persistent hypercalcaemia

Conclusion: The incidence of persistent disease and hypocalcaemia decreased with increasing surgeon volume. The relative reduction in persistent disease with surgeon volume was similar in image negative and positive groups, but the absolute reduction was higher in image negative Px. Restricting image negative Px to high volume surgeons should be considered.

Disclosure of Interest: None declared

36.01

HAEMOBLOCK HEMOSTATIC SUBSTANCE IN REDUCING SEROMA FORMATION POST AXILLARY LYMPH NODE DISSECTION FOLLOWING BREAST CONSERVING SURGERY

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Introduction: Axillary lymph node dissection (ALND) remains an important component of breast cancer management. Seroma is a well recognized complication which may pose significant impact on patients' quality of life and potentially delaying adjuvant treatment. Currently research is still actively being conducted to identify best approach to reduce seroma formation. Haemoblock is an effective surgical haemostatic solution. It controls haemostasis by acting on the coagulation cascade. This solution also obliterates dead space by creating several microlayers of hydrogel film. We hypothesized that this agent would reduce seroma production by controlling haemostasis together with lymph flow and obliterating axillary dead space.

Materials & Methods: This is a prospective multicenter randomized control trial conducted between March 2019 and March 2021. All patient with breast cancer going for breast conserving surgery (BCS) and ALND were recruited. Both surgeons and patients were blinded. The primary outcome was to assess the efficacy of haemoblock in reducing seroma formation following ALND. The secondary outcome is to investigate additional benefits of haemoblock in reducing time to drain removal and wound infections. 58 patients were recruited and randomised into Group A; Haemoblock and Group B; Placebo with 1:1 ratio. Patient's drain chart was monitored after surgery and time to off drain was recorded. The criteria for drain removal includes output of less than 40mls per day. Patients were monitored up to 1 month for symptoms of seroma and surgical site infection (SSI).

Results: 58 patients were included in intention to treat analysis. There were 29 patients in Group A and 29 patients in Group B. The mean total amount of drain output was higher in Group A vs Group B (398 ± 205 vs 326 ± 198 , $p=0.176$) however this was not statistically significant. The mean time to remove drain were similar in both groups (6 ± 3.0 vs 6 ± 3.0 , Group A vs Group B, $p=0.526$). During follow up, 9 patients in Group A required seroma aspiration (mean aspiration 31 ± 73) as compared to Group B only 6 patients required aspiration (mean aspiration 12 ± 36), $p=0.222$. There was no relation between SSI rate between the 2 Groups.

Conclusion: Haemoblock solution does not have effect in reducing seroma production after ALND. It does not reduce time to remove drain and rate of SSI. The pathophysiology of seroma formation is complex and multifactorial, future research should emphasize on combined use of seroma reduction methods and longer follow up periods.

Disclosure of Interest: None declared

36.02

TOPICAL TRANEXAMIC ACID (TXA) REDUCES POSTOPERATIVE HEMATOMAS IN REDUCTION MAMMAPLASTIES

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Introduction: Postoperative bleeding requiring reoperation is an untoward event in breast surgery. Topical tranexamic acid (TXA) has been used routinely in many other surgical fields, but in breast surgery the information is scarce. We investigated the efficacy of intraoperatively topically applied TXA to reduce postoperative hematomas in reduction mammoplasty surgeries.

Materials & Methods: This retrospective cohort study comprises reduction mammoplasty patients at department of Plastic Surgery Helsinki University Hospital Jorvi between January 2019 and December 2021. Demographic and clinical data were retrieved. In November 2020, the intraoperative use of topically applied TXA (20 mg/ml) (figure 1.) was implemented as part of the hospital protocol for reduction mammoplasty surgeries. Two major study groups were distinguished according to whether breast tissue was rinsed with TXA before closure or not. The primary endpoint is the event of postoperative hematoma requiring evacuation in the operation room (OR). Secondary endpoints were the incidence of complications such as seroma, wound infections and other wound healing problems.

Results: A total of 415 patients were included in the study. Tranexamic acid was used in 207 (49.9 %) cases. Topical TXA was used on 174 (41.9 %) patients (6 [3.4 %] of those patients had additional i.v. or p.o. TXA, because of surgeon's preference). Systemic TXA (i.v./p.o.) alone was given to 33 (8.0 %) patients. Those 208 (50.1 %) patients who did not receive any TXA formed the control group. After November 2020 79.2 % of the patients were rinsed with TXA before wound closure, irrespective of the patient's pre- or intraoperative coagulation status.

Using topical TXA significantly reduced the amount of postoperative hematomas that required evacuation ($p=0.0080$). In the non-TXA control group there were 12 (5.8 %) hematomas in comparison to the topical TXA group where only one (0.6 %) hematoma occurred. No adverse events of topical TXA use were detected.

Tendency towards a decrease in wound infections (4.9 % vs. 9.4 %), seromas (1.8 % vs. 2.5 %) and other minor skin problems such as suture fistulas (46.6 % vs. 47.3 %) could also be seen in the topical TXA group (ns).

Image:

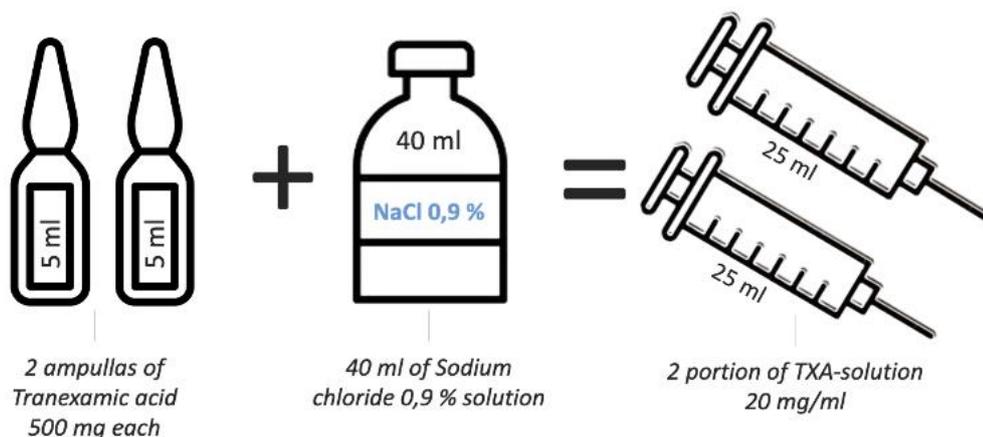


Figure 1. TXA-solution for rinsing the wood bed

Conclusion: Our retrospective study shows a tenfold decrease in the incidence of postoperative hematoma since rinsing breast tissue with TXA. This simple procedure may save patients from bleeding and pose a positive financial impact. Randomized controlled trials are needed.

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Disclosure of Interest: None declared

36.03

NIPPLE AND AREOLA SPARING MASTECTOMY OF PTOTIC BREAST WITH IMMEDIATE IMPLANT RECONSTRUCTION

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Introduction: Skin-sparing mastectomy is not associated with high rates of postoperative complications, local relapse, and does not affect survival. Widely accepted NAC removal during mastectomy with immediate reconstruction in case of ptotic breast, the absence of standardized NAC preservation techniques and the wide diversity of the proposed approaches to skin reduction and NAC preservation indicate the absence of consensus and require further study in order to develop the technique that would suit most breast surgeons

Materials & Methods: A total of 259 NAC-sparing mastectomies were performed. In 54 of those cases skin envelope reduction was performed with the use of the original patented technique. The marking is carried out in accordance with the Benelli breast lift surgery. The volume of the breast is determined using Tebbetts table. Mastectomy incision is placed between 9 and 12 hours of the de-epithelized area of the right breast or between 12 and 3 hours of the left breast. The diameter of the skin excess to be reduced varied from 2 to 14 cm, with the median of 7 cm. In total 12 cases of ischemic complications were identified. The volume of the implant located prepectorally varied from 250 to 680 ml (median = 490 ml).

Results: The suggested method of preoperative marking and NAC-sparing mastectomy allows us to perform radical surgery with acceptable rate of ischemic complications and fine aesthetic results achieved by minimizing postoperative scarring. Ischemia of the nipple and areola in the early postoperative period, which manifested as superficial epidermolysis of the nipple skin, resolved without any treatment (n = 3; 5.6%)

Conclusion: The suggested technique of linear measurement of the skin in the standing and in the lying position allows the surgeon to precisely determine the size of the skin excess and the area of de-epidermization. The application of the principles of the Benelli Breast Lift marking and the Tebbetts measurements helps determine the exact location of the skin de-epidermization zone and plan the mastectomy incision. The use of the described marking allows to conveniently perform radical intervention obtain an acceptable aesthetic result with minimized scarring and at the same time have low level of ischemic complications. This makes the suggested approach an attractive alternative to pedicle-based wise-pattern inverted-T NAC preserving mastectomy

Disclosure of Interest: None declared

36.04

THE IMPLEMENTATION OF NOVEL PATIENT FLOW ALGORITHMS AND THEIR ROLE IN REDUCING TREATMENT DELAYS: LESSONS FROM AN INTERNATIONALLY-ACCREDITED MULTIDISCIPLINARY BREAST UNIT IN SOUTH AFRICA

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Introduction: Multidisciplinary care is crucial for optimal breast cancer treatment and positive outcomes. Effective communication between various specialists involved in the breast cancer care pathway allows for the formulation of a cohesive cancer treatment strategy, and hence, the development of the multidisciplinary team meeting (MDM). Upon MDM discussion, patient care should be optimized by sensible flow algorithms that prevent treatment delays in breast cancer care. This study analyses the effect of such patient flow algorithms at an internationally-accredited multidisciplinary breast care unit in South Africa.

Materials & Methods: Patient flow algorithms were instituted in 2017 to ensure efficient patient data transfer to the various specialists within the multidisciplinary team upon the weekly MDM. The *time to (2): 2, 4, 8* rules were developed and applied whereby collective minutes were written within 2 hours of MDM end by navigators and the Chair of the MDM. Additionally, there was a 2-day turnaround period from MDM to relevant oncology physician appointments as well as a 2-day turnaround time from radiological investigations to tissue assessment, including special stains; a 4-day maximum turnaround time was instituted for ISH stains for HER receptor status analysis; and a total of 8 days was provisioned to receive final pathology results. Furthermore, surgery, reconstruction and radiation oncology consultations all occurred within 2 days of each other at maximum.

Thus, a comparison of patient time to treatment was made between two time periods: from January 2016 to December 2016 (prior to algorithm implementation) and January 2018 to December 2018 once the patient flow algorithm had been fully implemented. All breast cancer patients seen at the Netcare Milpark Breast Care Centre of Excellence (BCCE) and whose management plans commenced during the above study sub-periods were included.

Results: The best reflection in results has seen improvements to patient time to treatment from 36.5 days in 2016 to 21 days in 2018 when the above-mentioned patient flow algorithms were fully implemented.

Conclusion: Implementation of the *time to (2): 2, 4, 8* rules has resulted in improvement in patient time to treatment across the breast cancer care pathway at the BCCE. This novel patient flow algorithm has ensured that treatment delays are in keeping with international standards, enhanced the efficacy of the MDM as well as optimized overall patient care.

Disclosure of Interest: None declared

36.05

RANDOMIZED CONTROLLED PHASE 3 TRIAL ON COMPARING EFFICACY AND SAFETY OF NEO-ADJUVANT CONCURRENT CHEMO-RADIATION WITH NEOADJUVANT CHEMOTHERAPY ALONE IN PATIENTS WITH LOCALLY ADVANCED BREAST CANCER.

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Introduction: In India, locally advanced breast cancer (LABC) has been the most common stage of presentation. To improve the response rates and disease-free survival (DFS) the use of concurrent chemoradiation (CCRT) in the pre-operative setting is being studied and compared to conventional neoadjuvant chemotherapy (NACT) alone. The aim of this study was to determine the efficacy and safety of neoadjuvant CCRT versus NACT alone in patients with LABC.

Materials & Methods: We planned a prospective randomized controlled trial including all patients with LABC managed during the study period (July 2020-January, 2022). The method of randomization was simple, computer-generated random numbers. One arm received CCRT and the other arm received NACT alone. A dose-dense two-weekly regimen including four cycles of anthracycline along with cyclophosphamide followed by 12 cycles weekly paclitaxel was planned for all patients. Radiation therapy 16 # over 3 weeks was given along with paclitaxel. Neoadjuvant trastuzumab therapy was added along with taxanes whenever required. All patients underwent surgery (modified radical mastectomy). Arm 2 patients got adjuvant RT. Morbidity related to radiation, chemotherapy, and surgery along with pathological response was recorded for each patient.

Results: A total of 47 females with LABC were included for randomization and their data were analyzed using SPSS software. The mean age was 45.43 years SD 11.5 (range 22 to 70 years) and 23 were pre-menopausal and the rest 24 were postmenopausal. 22 women had right side breast cancer and 25 had left side breast cancer. 24% had comorbidities in form of hypertension, diabetes, asthma. PCR was better in the CCRT arm (p 0.39, Pearson Chi-square test) as compared to NACT arm. The morbidity related to CCRT was minor RT induced skin burns which were managed conservatively.

Patient and disease profiles	Arm 1 (CCRT)(n=24)	Arm 2 (NACT) (n=23)
ER positive	7	8
Triple negative BC	9	8
HER2 NEU +	8	6
Pathological		
complete response	18	13
partial response	6	10
Morbidity		
RT induced minor skin burns managed conservatively		
Surgical site infection post-MRM	6	0
Flap necrosis post-surgery		

Anemia, neutropenia related to CT

1	3
1	2
5	4

Conclusion: Patients with LABC undergoing concurrent chemoradiation in neoadjuvant settings have a better pathological complete response, minimum morbidity related to RT or surgery, hence well tolerated as compared to NACT alone group. The treatment duration also gets shortened.

Disclosure of Interest: None declared

36.06

EXPANDING APPLICABILITY OF SAME DAY MASTECTOMY: SAME DAY DISCHARGE IS SAFE FOR PATIENTS UNDERGOING MASTECTOMY WITH IMMEDIATE RECONSTRUCTION IN THE COMMUNITY SETTING

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Introduction: The safety of simple mastectomy as an outpatient procedure has been well established. Advances in breast cancer treatment have resulted in higher complexity of surgeries and patients such as those undergoing neoadjuvant chemotherapy (NAC), and an increased demand for immediate reconstruction (IR). Studies on same day surgery (SDS) mastectomies largely focused on mastectomies without reconstruction. Minimal data describe the safety of SDS in patients undergoing IR and in patients undergoing NAC. Furthermore, there is a paucity of data of the safety and feasibility of SDS in the community setting, where a large portion of cancer care occurs in United States.

Materials & Methods: A retrospective analysis was performed using a prospective database of all patients undergoing mastectomy with or without IR, treated with SDS or overnight admission (AD) at a community hospital from 2019 – 2021. Autologous tissue reconstruction was excluded. Outcomes assessed within 30 days of surgery included: readmission, infection requiring IV antibiotics, hematoma or flap ischemia requiring surgical intervention.

Results: Within a cohort of 95 patients who underwent mastectomy, 63 (66%) had SDS and 32 (34%) had AD. The two groups had similar high-risk baseline characteristics including age ≥ 70 ($p=0.23$), BMI ≥ 40 ($p=0.17$), tobacco use ($p=0.69$), and diabetes ($p=0.38$). 37 (59%) patients underwent IR with tissue expanders or implant in SDS and 19 (59%) in the AD group ($p=0.95$). 12 (19%) patients underwent NAC in SDS and 9 (28%) in AD ($p=0.31$). The complication rate was 6.3% in SDS was 6.3% and 12.5% in AD ($p=0.3$). IR was not associated with increased risk of major complications ($p=0.83$) in either group. The complication rate was higher in patients who underwent NAC (19%) vs. those who didn't (6%). Of the NAC patients, the complication rate was 17% (2/12) in SDS and 33% (3/9) in AD.

Conclusion: This report represents one of the larger series describing SDS for patients undergoing mastectomy with IR in the community. Our study demonstrates that SDS can be safely offered to patients who undergo IR. Additionally, we demonstrate that although patients with NAC have higher risk of complications, these patients did better in the SDS group compared to AD group, indicating admission itself does not offer a better outcome. However, this data points to an opportunity for improvement to reduce risk in the NAC cohort. Our study demonstrates the safety of same day mastectomy with or without reconstruction in a community hospital.

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38.01

TO COMPARE THE POST ESOPHAGECTOMY COMPLICATIONS IN ESOPHAGEAL CANCER PATIENTS RECEIVING PRE-OPERATIVE IMMUNO-NUTRITION V/S STANDARD NUTRITION

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Introduction: Oesophageal cancer is the eighth most common cancer and the sixth major cause of death globally. Squamous cell carcinoma is the most common type of oesophageal cancer. The most common symptom is dysphagia which causes malnutrition in individuals with anorexia. Locally advanced oesophageal cancer is treated with neoadjuvant chemoradiation and esophagectomy. It's a complicated technique that can cause both infectious and non-infectious complications. Immunonutrition is described as altering the immune system's activity or the effects of immune system activation by feeding nutrients in excess of dietary requirements. A number of vitamins and minerals are found in it. Immunonutrition therapy plus regular diet reduced post-esophagectomy complications, especially infections. It also aided in early recovery and reduced hospital stay.

Materials & Methods: This prospective observational study included 36 oesophageal squamous cell cancer patients. We used neoadjuvant chemoradiation followed by thoracoscopic Mc keowns esophagectomy with gastric conduit construction in all patients. A total of 18 patients received immunonutrition pre-operatively for a period of seven days, whereas the other 18 patients received standard nutrition only.

Results: Immunonutrition therapy showed a faster rise in serum albumin and a reduced CRP level postoperatively. The incidence of pneumonia was 22.2% in the immunonutrition group as compared to 61.1% in the standard nutrition group. A statistically significant difference ($p = 0.018$) was observed. The immunonutrition group had a lower incidence of anastomotic leak, conduit necrosis and average length of hospital stay but the difference was not statistically significant owing to the small sample size.

COMPLICATION	STANDARD NUTRITION GROUP	IMMUNONUTRITION GROUP
Pulmonary complications	11(61.1%)	4(22.2%)
Wound infection	4(22.2%)	4(22.2%)
Urinary tract infection	0	0
Intra-abdominal abscess	0	0
Anastomotic leak	7(38.9%)	2(11.1%)
Chylothorax	1(5.6%)	1(5.6%)
Conduit necrosis	2(11.1%)	1(5.6%)
RLN paralysis	1(5.6%)	4(22.2%)
Atrial fibrillation	3(16.7%)	3(16.7%)

Length of hospital stay (mean days) 17 days 13.7 days

Mortality 3(16.7%) 3(16.7%)

Conclusion: Preoperative immunonutrition with a standard diet improved early postoperative nutritional status and reduced the incidence of infectious complications, particularly pneumonia and other pulmonary complications (pleural effusion, pneumothorax) in patients with oesophageal squamous cell carcinoma.

Disclosure of Interest: None declared

38.02

KETOGENIC DIETS IN BREAST AND GYNECOLOGIC CANCERS PATIENTS

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Introduction: Because obesity is correlated with detrimental impacts on breast and gynecologic cancers risk, on treatment side effects and on cancer-specific and all-cause mortality, the recommendation before and after diagnosis is to attain and maintain a healthy body weight. Are ketogenic diets efficient and safe in this patient population?

Materials & Methods: The current scientific literature review on ketogenic diets performed in oncology settings – either clinical or preclinical studies – shows that there are 4 basic things one should know when considering ketogenic diets (KD).

Results: First, there are two types of low carb diets: high protein and high fat. KD are high fat diets with a protein intake lower than the one recommended in oncology. Second, oncology nutrition is not weight loss nutrition, but clinical supportive care needed on a day-to-day basis because mucositis, diarrhea, bloating, abdominal pain, or nausea influence patients' ability to digest many foods. Third, there is no evidence for long-term maintenance of the initial weight loss. Most available data comes from neurology – showing that only 3/10 adults still follow KD at 12 months. The price for the impressive short-term efficacy is yo-yo dieting, constipation, nausea, and nutrient deficiencies. And fourth, there is no evidence of anti-tumor effects, simplistic hypothesis that negates cancer metabolism complexity. Even in cells whose mitochondria don't work that well, ketones promote de novo mitochondria biogenesis. There are few KD clinical studies performed specifically with breast and gynecologic cancers patients, KD data in oncology settings consisting mainly on case reports and preclinical data. And preclinical data shows that cancers are heterogenous, having other metabolic pathways to use besides aerobic glycolysis. Many cancers can use fatty acids to resist treatment and support proliferation, and some of the cancers with high metabolic plasticity are the HER2+ breast cancers and the high-grade ovarian serous cancer.

Conclusion: Breast and gynecologic cancers patients don't have to lose weight for the sake of weight loss, to improve their prognosis they must lose fat without losing muscle and this is harder to maintain long-term with KD. Also, based on the high metabolic plasticity, no food, diet or dietary supplement can treat cancer. So, please mind the gap between popular short-term fast weight loss nutrition and clinical oncology nutrition.

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Disclosure of Interest: None declared

38.03

IMPACT OF THE COVID PANDEMIC ON HOME PARENTERAL NUTRITION.

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Introduction: Parenteral Nutrition is a fundamental part of the treatment of patients with chronic intestinal failure. Treatment can be carried out in patients staying at home as part of the Home Parenteral Nutrition (HPN) programme. It is necessary to prepare and train both a family member and the patient before being included in the programme. In March 2020 the World Health Organisation (WHO) proclaimed a global pandemic of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 or COVID-19). The pandemic heavily influenced health systems throughout the world.

Materials & Methods: We reviewed the data on all patients taking part in the HPN programme treated in our center during the period March 2020 to December 2021. The COVID status of the patient and caregiver were analyzed as well as deviations from standard care that resulted from the COVID pandemic.

Results: Thirty-seven patients were treated in this period with fourteen new patients enrolled in the programme. Three patients were excluded from the programme as a result of gastrointestinal rehabilitation. Eight patients died due to the progression of the neoplastic disease with no data on the COVID infection. Before being admitted to the ward, each patient was tested for a COVID infection. A negative COVID test result was also required for a caregiver who was trained in the hospital prior to giving the patient home care, connecting the nutrient solution, and central access care.

Tests were also obligatory during follow-up visits. In three cases (two patients and one caregiver), it was necessary to postpone the admission of the patient and delay the start of the programme due to a positive test result.

There were twenty-four cases of eighteen patients requiring admission to the ward due to complications (including infection of the central venous line in nine cases). Those patients were required to wait in the emergency department for the results of COVID tests before admission. The waiting time varied depending on the stage and severity of the pandemic, ranging from two to twelve hours.

No patient was denied treatment.

Six patients received a complete vaccination schedule against COVID. Four patients were considered to have recovered from a COVID infection.

Conclusion: The COVID pandemic influenced home PN treatment. In our experience no serious adverse events were seen.

Disclosure of Interest: None declared

43.01

KEYLOOP RETRACTOR FOR GASLESS LAPAROSCOPY: INITIAL FINDINGS FROM A PORCINE MODEL

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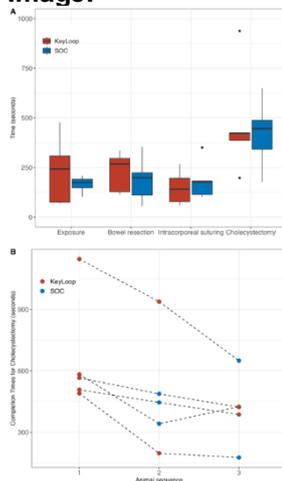
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Introduction: Current laparoscopic equipment does not meet the needs and resources of low- and middle-income countries (LMICs), thus limiting access to laparoscopic surgery. We designed a gasless laparoscopic system consisting of a single-unit laparoscope and the KeyLoop (KL) abdominal wall retractor. Here we describe testing of KL in a porcine model.

Materials & Methods: Experienced laparoscopic surgeons completed a series of 4 laparoscopic tasks in a porcine model: laparoscopic exposure, small bowel resection, intracorporeal suturing, and cholecystectomy. For each participating surgeon, the 4 tasks were completed in three animals: practice run with KL, standard-of-care (SOC) gas laparoscopy and test run KL. The order of SOC versus test run KL was block randomized to minimize learning curve effect. Vital signs, task completion time, blood loss and surgical complications were compared using paired nonparametric tests. Surgeons completed a survey on use of KL compared to SOC. Descriptive statistics were used for survey responses.

Results: Five surgeons performed 60 tasks in 15 pigs. Times to complete tasks are reported in seconds as median (IQR). There were no significant differences in time to gain exposure [KL 159(227); SOC 174(43); $p=1.0$], perform bowel resection [KL 268(168); SOC 199(113); $p=0.8$], intracorporeal suturing [KL 141(118); SOC 178(68) $p=0.8$], or cholecystectomy [KL 423(38); SOC 446(146); $p=1.0$]. For all 3 tasks, there was a learning curve and task completion times were more related to learning the pig model, and less related to using KL versus SOC. There were no significant differences in blood loss, vital signs or surgical complications between KL and SOC. Surgeons who routinely performed the following cases laparoscopically, felt that KL could be used to perform appendectomy, cholecystectomy, gastrostomy, small bowel resection, gastric wedge resection, hepatic wedge resection, Hartmann's procedure and distal pancreatectomy. Surgeons felt less confident about using the KL for ventral and inguinal hernias, splenectomy, and colectomy. No surgeon wanted to use KL for gastric bypass or a whipple procedure.

Image:



Conclusion: Procedure times, blood loss and surgical complications were similar between KL and SOC. Surgeons felt confident that KL could be used to safely perform many surgeries where gas laparoscopy is not available. Gas laparoscopy remains the standard of care, but KL can be a useful tool to gain laparoscopic exposure in LMICs.

Disclosure of Interest: None declared

43.02

ROLE OF THORACOSCOPIC SURGERY FOR INTRATHORACIC FIRST RIB RESECTION IN THORACIC OUTLET SYNDROME

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Introduction: Thoracic outlet syndrome (TOS) describes a number of signs and symptoms that are caused by compression of the neurovascular bundle (subclavian vein or artery or the brachial plexus) at the costoclavicular junction. [1] The supraclavicular and trans-axillary approaches are currently the most commonly used for first rib resection. [2] At first, thoracoscopic assisted open approaches were applied. [3] Later, video-assisted thoracoscopic surgery (VATS) of thoracic outlet syndrome provided, unlike the classical approaches, an excellent view of all the bone, vascular and nerve structures in the area and is safer. Other observed advantages are short post-operative stay and a quick return to daily life. [4]

Aim of the study:

The aim of this study is to assess the role of thoracoscopic surgery for intrathoracic first rib resection.

Materials & Methods: The study design was a prospective clinical trial. Since 2017, all cases of attempted thoracoscopic surgery for intrathoracic first rib resection have been included.

Results: The 7 patients (3 right ribs, 4 left ribs) had thoracic outlet syndrome of the neurogenic (1 patient), combination (1 patient), arterial (4 patients), and venous (1 patient) types. 170.8±44.27 minutes was the average operative time. There were no fatalities or severe complications.

Conclusion: The first rib excision using thoracoscopy was safe and had various advantages. As a result, it is a minimally invasive surgical alternative for treating thoracic outlet syndrome in some instances.

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Disclosure of Interest: None declared

43.03

THE ROLE OF LAPAROSCOPY IN SPONTANEOUS ASCITES-PERITONITIS TREATMENT IN PATIENTS WITH LIVER CIRRHOSIS

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Introduction: Spontaneous ascites-peritonitis is a life-threatening complication of ascites in patients with liver cirrhosis and is responsible for up to 20% of death if diagnosed early and up to 90% if left undiagnosed.

Materials & Methods: A retrospective descriptive study was done. At 67 patients diagnosed with liver cirrhosis and ascites-peritonitis who were admitted into the St. Trinity Hospital, Department of Surgery, Chisinau, Republic of Moldova, from 2012 to 2017 were performed diagnostic laparoscopy with sanitation and drainage of the abdominal cavity with postoperative lavage with antibiotics. All patients received treatment for liver function correction and were investigated for portal hypertension complications. All patients were diagnosed with decompensated liver cirrhosis according to Child-Pugh classification. All of them had refractory ascites during the months. To all were performed the ascitic fluid exam.

Results: Positive ascitic fluid bacterial culture was in 32,8% (22 patients), 67,1 % (45 patients) – culture-negative ascites-peritonitis. The most frequent bacterial species was – E. coli – 45% (10 patients). Were diagnosticated 22 cases of fibrinous ascites-peritonitis – 32,8%. Was performed 2 conversions (2,9 %) to laparotomy - because of non-controlled intrabdominal bleeding from liver tumoral nodules. Mortality was 8,9 % (6 patients) due to progressive liver failure. Recidivism at 1 month of ascitesperitonitis – 4, 4 % (3 patients). In 86% (58 patients) cases, at 1-month ascites become less and decreased diuretic dose.

Conclusion: Laparoscopic approach allow to perform better sanitation of the abdominal cavity to improve peritoneal absorption. Laparoscopic peritoneal lavage and postoperative fractional lavage of the abdominal cavity showed very high efficiency and deserve establishment as clinical practice for patients with ascites-peritonitis and cirrhosis.

Disclosure of Interest: None declared

43.04

COMPARATIVE STUDY BETWEEN GENERAL SURGEONS AND RESIDENTS IN GENERAL SURGERY IN LAPAROSCOPIC CHOLECYSTECTOMY

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Introduction: Laparoscopic surgery has multiple advantages over open surgery, making this approach the gold standard in the management of cholelithiasis and acute cholecystitis. Currently, this is the most practiced procedure by general surgeons, and for this reason, it is important to incorporate it early in practice.

Materials & Methods: An analytical observational study was carried out comparing patients carried to laparoscopic cholecystectomy with 192 medical records reviewed during the study period. The first group (G1) corresponds to 4 general surgeons, the second group (G2) to 2th year residents and the third group (G3) to 4th year residents.

Results: In this study there is not direct relationship between risks factors and surgical outcome, showing no statistically significant difference between the three groups in complications or characteristics of the procedure.

Conclusion: This study shows that laparoscopic cholecystectomy performed by second and fourth year residents is a feasible procedure, performed with the proper supervision of a specialist. Also, there is an association between early exposure to this procedure and a decrease in the operative time.

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Disclosure of Interest: None declared

46.01

IMPACT OF FLUORO-CHOLINE PET/CT IN REDUCTION OF FAILED PARATHYROIDECTOMY

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Introduction: Accurate localization of the pathological parathyroid gland is a prerequisite for minimally invasive surgical management of hyperparathyroidism (HPT). Poor imaging or discordance in odd situations like ectopic adenomas, parathyroid hyperplasia, syndromic HPT and secondary and tertiary HPT results in localization dilemma thus causing failed parathyroidectomy. We studied the impact of Fluoro-Choline (FCH) PET/CT imaging in reduction of possible failed parathyroidectomies.

Materials & Methods: We did a retrospective observational study of 117 patients (2018-2021) of HPT among which 96 patients underwent focused parathyroidectomy (FP). Neck exploration (NE) was performed in 21 patients for multiglandular disease, secondary HPT and syndromic patients. All patients had undergone ultrasound imaging and 99mTc-sestaMIBI scan with early SPECT/CT (MIBI). When this preliminary imaging was doubtful or negative or multiple lesions were expected, FCH PET/CT was performed. We compared the localization accuracy of MIBI scan and FCH PET/CT with surgical outcomes as reference standard.

Results: MIBI scan showed overall lesion detection rate (LDR) of 74.2 % (95% CI 73.3-75.07%) in localization of pathological parathyroid gland in 117 patients. FCH PET/CT was done in 26/96 patients who underwent FP and showed 94% (95% CI 94.2-95.2%) LDR in accurately localizing an adenoma while LDR of MIBI was 24% (95% CI 23.38-24.62%) in these 26 patients. In 10/21 patients who underwent NE, FCH had 100% LDR in localizing multiglandular disease whereas, it was only 50% for MIBI. In patients who underwent NE without FCH scan, MIBI showed 63% LDR.

Out of 96 patients of FP, 87 patients showed features of parathyroid adenoma. Single hyperplastic gland was seen in 7 patients, lipoadenoma was seen in 1 patient and 1 patient had features suggestive of parathyroiditis on histopathology. Out of 21 patients of neck exploration, two patients had co-existing hyperplasia and adenoma while rest all showed features of parathyroid hyperplasia.

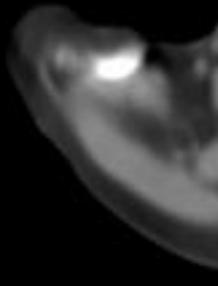
Image:

Fig 1a and 1b showing a ^{99m}Tc Sestamibi SPECT/CT scan in a patient of primary hyperparathyroidism with no uptake. Figure 2a and 2b show Fluoro-choline PET/CT in the same patient showing right superior parathyroid adenoma. Figure 3a and 3b show Fluoro-choline PET/CT in the same patient showing left inferior parathyroid adenoma.

1a



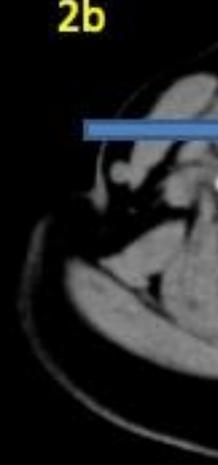
1b



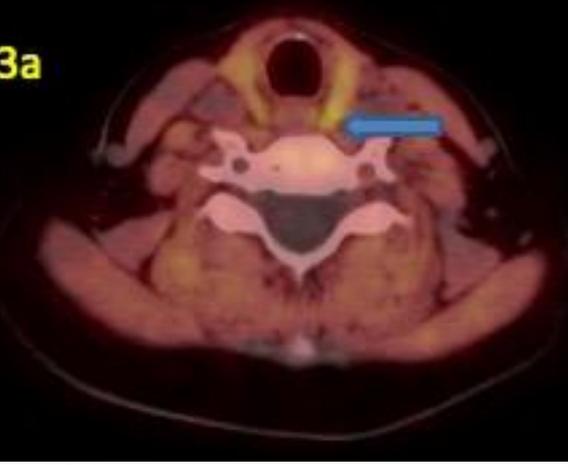
2a



2b



3a



3b



Conclusion: In patients who underwent successful FP, FCH was able to prevent neck exploration or possible failures in 23.8% cases. FCH PET was also able to provide accurate aid in localization in 46.7% of NE. Thus, FCH was found to be a reliable investigation in localization of MIBI-indeterminate/negative lesions and in situations where NE is warranted and may also be further studied for use as a first line investigation.

Disclosure of Interest: None declared

46.02

LABEL-FREE ENHANCEMENT OF ADRENAL GLAND VISUALIZATION USING NEAR INFRARED AUTOFLUORESCENCE FOR SURGICAL GUIDANCE

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Introduction: Benign or malignant tumors of the adrenal glands (AGs) are typically managed by adrenalectomy. During adrenalectomy, it is essential to distinguish the AG(s) from retroperitoneal fat and surrounding structures. Traditionally surgeons have relied on their own subjective visual skills to locate AGs; however, ultrasound and exogenous labels have been explored to aid intraoperative AG visualization, all of which have their own limitations. We investigated a novel label-free approach using near infrared autofluorescence (NIRAF) detection that could be potentially implemented for enhanced intraoperative AG visualization.

Materials & Methods: Patients undergoing adrenalectomy or nephrectomy were enrolled for this Institutional Review Board-approved study. NIRAF emitted above 800 nm was quantified in-vivo from AGs and surrounding tissues during open adrenalectomy or nephrectomy. Meanwhile for robotic adrenalectomy, NIRAF was measured from excised AGs and other tissue structures ex-vivo. For this study, NIRAF images of tissues were captured using a near infrared (NIR) camera setup, while NIRAF intensities were concurrently recorded using an NIR spectroscopy device. Normalized NIRAF intensities (expressed as mean \pm standard error) were analyzed and compared. A p-value \leq 0.05 was considered statistically significant upon using student's t-test.

Results: Fifty patients were enrolled including 23 adrenal cortical tumors, 8 adrenal medullary tumors, 4 adrenal cysts and others—2 adrenal hyperplasia, 1 hemangioma, 1 myelolipoma, 1 malignant lymphoma, 3 secondary metastatic tumors, 3 necrotic tumors and 4 healthy AGs. Normalized NIRAF intensity measured above 800 nm was significantly elevated for AGs (57.2 ± 5.3) versus retroperitoneal fat (1.7 ± 0.2 , $p < 0.001$) and other structures (0.8 ± 0.20 , $p < 0.001$). NIRAF images of AGs indicated elevated NIRAF intensity in adrenal cortex compared to the medulla and other perirenal structure. NIRAF intensity in AGs was notably decreased in malignant lesions, when compared to benign tumors and healthy adrenals.

Conclusion: Our preliminary findings indicate that NIRAF detection could be a promising technology to enhance AG visualization intraoperatively during adrenalectomy and potentially aid in preserving healthy AG remnant and aid in cortical-sparing adrenalectomies.

Disclosure of Interest: None declared

46.03

PARATHYROIDECTOMY FOR NORMOCALCEMIC PRIMARY HYPERPARATHYROIDISM IMPROVES BONE MINERAL DENSITY REGARDLESS OF POST-OPERATIVE PARATHYROID HORMONE LEVELS

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Introduction: Biochemical cure in normocalcemic primary hyperparathyroidism (nPHPT) is defined as parathyroid hormone (PTH) level normalization 6 months after parathyroidectomy (PTX). However, recent studies show that a significant number of nPHPT patients have persistent PTH elevation, and thus are “not cured.” We sought to correlate the natural trend of PTH with skeletal changes after PTX in patients with nPHPT.

Materials & Methods: This is a retrospective study of adult patients who underwent PTX in a tertiary referral center for sporadic PHPT between 2010 and 2020. Pre- and post-operative (6-months, 18-months, and last follow-up) laboratory and bone mineral densities (BMD) were collected. The percentage change in BMD from baseline to 18-months after PTX was calculated in the lumbar spine (LS), total hip (TH) and femoral neck (FN) if both were done at our institution. Patients were grouped as hypercalcemic PHPT (hPHPT) or nPHPT defined by the American Association of Endocrine Surgeons. Biochemical cure for hPHPT and nPHPT was normalization of serum calcium and PTH levels 6 months after surgery respectively.

Results: Of 661 patients meeting inclusion criteria, 68 (10.3%) had nPHPT. They had lower preoperative PTH (92.3 mg/dL vs 112 mg/dL, $p < 0.001$) and β -CrossLaps levels (480 pg/mL vs 594 pg/mL, $p = 0.005$) than hPHPT patients. nPHPT patients had fewer successful minimally invasive PTX (56% vs 73%, $p = 0.004$), and underwent more upfront standard cervical explorations (22% vs 13%, $p = 0.042$). Multigland disease was more likely in nPHPT patients (31% vs 18%, $p = 0.014$). Fewer nPHPT patients achieved biochemical cure (76% vs 95%, $p < 0.001$). Of 28 nPHPT patients with complete BMD and 18-month biochemical values, 7 (25%) had persistent PTH elevation at all time points (median 31-months). These 28 nPHPT patients had BMD improvement in the LS (1.84%, $p = 0.002$) and TH (1.64%, $p = 0.014$). When stratified by post-operative PTH levels, nPHPT patients with persistent PTH elevation had more BMD improvement at the TH than those with normalized PTH (3.73% vs -0.83%, $p = 0.017$). The LS (3.46% vs 1.53%, $p = \text{NS}$) and FN (3.66% vs 1.59%, $p = \text{NS}$) showed no difference in improvement.

Conclusion: Parathyroidectomy improves BMD in nPHPT patients with bone disease. Although one in four nPHPT patients had elevated PTH levels post-operatively which persisted throughout a >2-year follow-up time, significant BMD improvement was still seen. These findings are crucial to discuss with patients considering surgery and setting realistic post-operative expectations.

Disclosure of Interest: None declared

48.01

COMPARISON OF CLINICAL OUTCOMES BETWEEN LOW- AND HIGH-RISK GROUPS OF EARLY BREAST CANCER PATIENTS TREATED WITH INTRAOPERATIVE RADIOTHERAPY: A MULTI-CENTRE PROSPECTIVE STUDY

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Introduction: The standard treatment for early breast cancer is breast conserving surgery (BCS) followed by whole breast irradiation (WBI). There is a paucity of data on the use of intraoperative radiotherapy (IORT) in Malaysian women with such cancers.

Materials & Methods: This was a prospective analysis of early breast cancer patients treated with BCS and IORT as monotherapy or as a tumour bed boost followed by post-operative WBI. Between January 2016 and June 2019, patients suitable for BCS with no contraindications for IORT were recruited from University of Malaya Medical Centre (UMMC), Subang Jaya Medical Centre (SJMC), and Sunway Medical Centre (SMC). They were divided into low- and high-risk groups based on the TARGeted Intraoperative radioTherapy (TARGIT) A and B trials criteria. Outcomes of interest included local recurrence, wound complications, and radiation toxicity. The UMMC subset of patients were analysed for cosmetic and patient-reported outcomes.

Results: A total of 315 women were analysed within a median follow-up of 31 months. Overall, there were 104 and 211 patients in the low- and high-risk groups, respectively. No significant difference was observed in the local recurrence rates between the two groups (low-risk, 1.0% vs high-risk, 1.4%; $p=1.000$). Both cohorts similarly exhibited low frequencies of severe wound complications ranging between 1.4 to 1.9%. There were no major radiation toxicities (LENT-SOMA scale grade 3 or 4) reported. In the subset analysis, excellent or good cosmetic results were more prevalent than the fair or poor categories for both treatment groups. Out of the nine scales in the BREAST-Q patient-reported outcomes questionnaire, seven were scored similarly between both groups with no significant difference.

Conclusion: This study showed that the use of IORT in both low- and high-risk early breast cancers is efficacious and safe with low recurrence rates and acceptable toxicity profile. When the expertise and facilities are available, patients at low risk of recurrence should be offered this modality of treatment in a risk-adapted approach as it is associated with a number of benefits. Those deemed to be at high-risk of recurrence may be counselled on the use of IORT as a tumour bed boost within a clinical trial as the large TARGIT-B investigation is still ongoing. The cosmetic and patient-reported outcomes of IORT in a subset of patients have been found to be good and deserve further study in a larger population over a longer period of time.

Disclosure of Interest: None declared

48.02

CONTEMPORARY NIPPLE SPARING MASTECTOMY TECHNIQUE TO REDUCE ISCHEMIC COMPLICATIONS: PRESERVING IMPORTANT BLOOD FLOW BASED ON BREAST MRI

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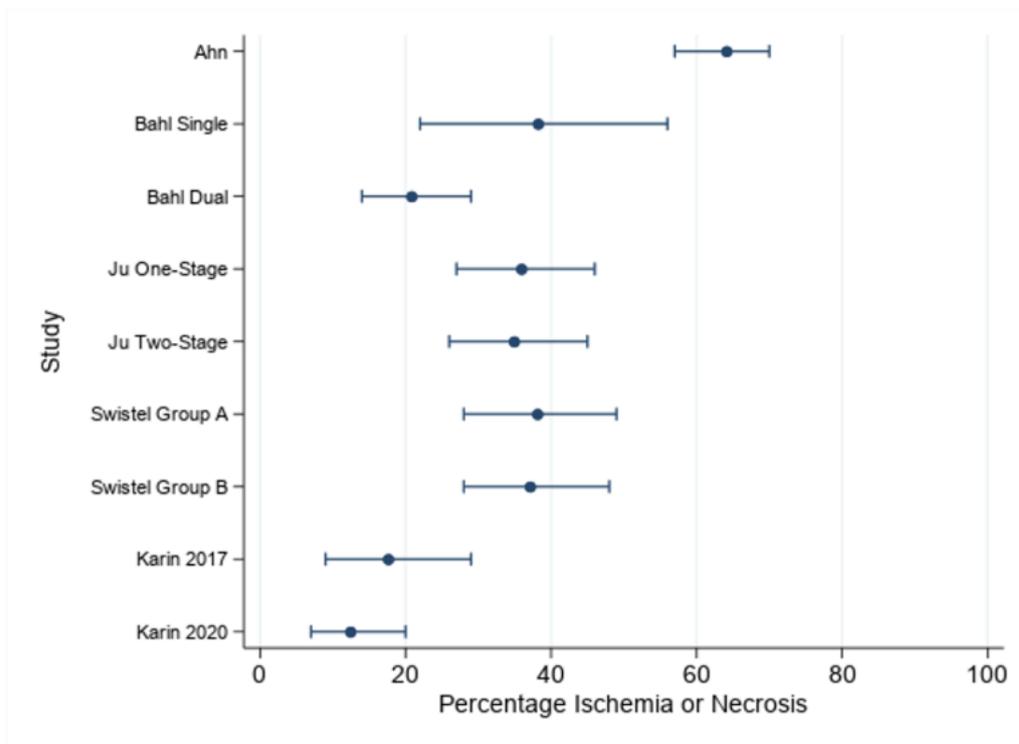
Introduction: Nipple-sparing mastectomy (NSM) with breast reconstruction is associated with superior aesthetic outcomes when compared to non-nipple-sparing approaches. However, ischemic complications to the nipple areolar complex (NAC) or mastectomy skin can be significant, requiring reoperation and revision. Breast MRI, often obtained for oncologic assessment, may visualize the dominant vascular supply to the breast and NAC. Here, the authors describe a surgical technique utilizing this information to preserve the dominant vascular supply to the NAC and central breast skin, thereby reducing ischemic complications.

Materials & Methods: A prospectively maintained database of consecutive NSM performed between 2018 and 2020 by a single breast surgeon was analyzed. Preoperatively, contrast-enhanced breast MRI images were assessed to determine if the internal mammary artery perforator (IMP) provided the dominant blood supply to the NAC. Intraoperatively, meticulous dissection was exercised to preserve the IMP to the NAC (IMP-NSM) located near the sternal border at the level of the second and/or third intercostal space. Parameters of interest included the ability to preserve the IMP intraoperatively, and rate of postoperative complications, with a particular focus on ischemic complications.

Results: 114 NSM were performed in 74 patients with a mean age and BMI of 49 years (range, 22-73) and 25.8 kg/m² (range, 19-41), respectively. Immediate reconstructive modalities included tissue expanders (48%), implants (11%), and autologous flaps (39%). Preoperative breast MRI demonstrated IMP dominant NAC blood supply in 92%. IMP preservation was attempted in all IMP-NSM, with successful preservation in 89% of cases. There were ischemic complications requiring reoperation in 1.8% (3/114), and the IMP was not preserved in two of those instances. There were minor ischemic complications in 10.5%. IMP-NSM was associated with a significantly lower ischemic complication rate compared to the literature for NSM with assessing MRI blood flow data but not preserving the IMP at surgery (necrosis 24.4%, p<0.001), utilizing Doppler examination to preserve the IMP (necrosis 37%, p<0.001), and similar rates to NSM following prior nipple delay procedure.

Image:

Figure 1: Comparison of IMP-NSM ischemia or necrosis to the literature that either divided the IMP (Ahn), evaluated MRI blood flow patterns but it was not used to preserve the IMP (Bahl), utilized doppler US to preserve the IMP (Swistel), or delay procedure with or without lumpectomy to decrease postoperative necrosis (Ju).



Conclusion: The IMP-NSM surgical technique preserves the dominant blood supply to the NAC, resulting in a significant reduction in postoperative ischemic complications. This approach may obviate the need for NAC delay procedures in select patients.

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48.03

HEALTH-RELATED QUALITY OF LIFE AFTER BREAST RECONSTRUCTION: COMPARING OUTCOMES BETWEEN RECONSTRUCTION TECHNIQUES USING THE BREAST-Q

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Introduction: Reconstruction of the breast following mastectomy can improve patient-reported quality of life. The aim of this study was to assess health-related quality of life (HRQoL) in women who have undergone mastectomy and breast reconstruction, and to identify any differences in HRQoL related to the reconstruction method used.

Materials & Methods: A cross-sectional postal survey study was performed in patients who had undergone breast reconstruction in Helsinki University Hospital between 08/2017 and 7/2019. The postoperative HRQoL was assessed using the BREAST-Q (2.0) Reconstruction Module. The results were compared between reconstruction groups using the Kruskal-Wallis test.

Results: A total of 338 patients were identified, of whom 146 (43%) participated in this study. The median age of the women was 57 (range 30-78). Of the reconstructions performed, 77 (53%) were immediate and 69 (47%) delayed. Microvascular flaps (n=77, 53%) were the most common method for primary breast reconstruction, followed by Latissimus dorsi (LD) flap (n=45, 31%), lipofilling (n=18, 12%) and implant reconstruction (n=6, 4%). The questionnaires were filled 15 months (0-37) after the last reconstructive procedure.

The satisfaction with breasts was high in all groups (median 61, range 58-62). The physical well-being of the chest was high regardless of the reconstructive method used (median 100, range 89-100). However, women with lipofilling reported more adverse effects of radiation (median 17 for lipofilling, range 12-18 vs. microvascular flaps median 18, range 10-18 and LD flaps median 18, range 14-18, p=0.02). Donor site morbidity was low with the patients reporting high satisfaction with the back (median 66/100, range 50-100) and abdomen (median 9/12, range 3-12), as well as the physical well-being of the back (median 61/100, range 35-100) and abdomen (median 60/100, range 47-100).

Conclusion: The patient reported HRQoL after breast reconstruction is high. Most women report being satisfied with the reconstruction, irrespective of the reconstruction method used. The reconstruction method can thus be chosen individually in cooperation between the patient and the surgeon.

Disclosure of Interest: None declared

48.04

BENEFITS OF PECS BLOCK AS PART OF THE ENHANCED RECOVERY AFTER SURGERY (ERAS) PROTOCOL FOR BREAST CANCER SURGERY IN AN ASIAN INSTITUTION– A RETROSPECTIVE COHORT STUDY

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Introduction: Regional analgesia techniques have been increasingly used for post-operative pain management following mastectomy. We aimed to evaluate the analgesic benefits of pectoral nerve (PECS) block incorporated in the enhanced recovery after surgery (ERAS) protocol in patients undergoing mastectomy in University Malaya Medical Centre, Malaysia.

Materials & Methods: This was a single centre, cohort study evaluating 335 women who have undergone unilateral mastectomy between January 2017 to March 2020 in Malaysia. Regional anaesthesia was given pre-operatively via ultrasound guided pectoral and intercostal nerves block (PECSII).

Results: Utilization of regional anaesthesia increased from 11% in 2017 to 43% in 2020. Opioid consumption was 3mg lower and length of stay was half a day shorter in the regional anaesthesia group and these were statistically significant. However, pain score and post-operative nausea and vomiting (PONV) were similar.

Table: Total opioids, pain score, post-op nausea and vomiting(PONV) and length of hospital stay

Variable	RA (n=86)	No RA (n=249)	p-value
Total Opioid Consumption (mg)†	27 (24 – 30)	30 (26 -34)	<0.001
Pain score†	2 (1-3)	2 (1-3)	0.719
PONV‡	28/86 (32.6%)	81/249 (32.5%)	0.996
Length of hospital stay (days)†	2.5 (2-3)	3 (2-4)	0.015

RA: Regional anaesthesia group

No RA: General anaesthesia group without regional anaesthesia

*p-value (<0.05) is considered to be statistically significant

Conclusion: This study highlights the importance of regional analgesia (PECS block) as a component of ERAS protocol for mastectomy in an Asian hospital. Although there was statistical significance of lower opioid consumption, the overall pain score and PONV remained unchanged while the length of hospital stay was shortened. Therefore, daycare surgery may be feasible in a selected group of patients undergoing mastectomy and could imply overall cost benefits.

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PROGNOSTIC AND PREDICTIVE VALUE OF TUMOR INFILTRATING LYMPHOCYTES IN BREAST CANCER PATIENTS OF LOW-TO-MIDDLE INCOME COUNTRY

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Introduction: The morphological evaluation of Tumor infiltrating Lymphocytes (TILs) in breast cancer is gaining momentum as evidence strengthens for the clinical relevance of this immunological biomarker. In this cohort study on breast cancer patients undergoing neoadjuvant chemotherapy (NACT), the TILs proportion was correlated with response to neoadjuvant chemotherapy and oncological outcomes

Materials & Methods: This retrospective and prospective study involved primary breast cancer patients who were treated with NACT between 2016 to 2020. The study was approved by IEC and registered in ClinicalTrials.gov (NCT05250336). Pre-therapeutic core biopsies from 489 patients were assessed for the proportion of stromal TILs by standardized method and categorized into low (0-10% immune cells), intermediate (11-59%) and high ($\geq 60\%$) TILs. The association between TIL concentration and pathological complete response (pCR), disease-free survival and overall survival were assessed.

Results: Of the 489 patients, 372 pre-therapeutic core biopsies matched eligibility criteria for assessment of TILs. Among these 135 (36.3%) were ER+, Her2-negative tumors, 108 (29%) were Triple Negative Breast Cancer (TNBC), and 129 (34.7%) were Her2-positive breast cancer. The proportion of high TILs were higher in TNBC (31.5%) and Her2 positive breast cancer (21%) compared to ER+, Her2-negative tumors (14.7%). High TIL concentrations were linked to higher pCR in all subtypes. A pCR was achieved in 27 %, 45%, and 52% of high TILs patients in ER+/Her2-negative, Her2-positive, and TNBC subtypes respectively ($p < 0.0001$). By univariate analysis, for TNBC and HER2-positive breast cancer, high TILs were linked to longer disease-free survival, but not in ER+, Her2-negative tumors. High TILs was associated with longer overall survival in TNBC ($p = 0.032$), but had no association in Her2-positive subtype ($p = 0.14$). Low TILs correlated with better disease free survival and overall survival in ER+, Her2-negative cancers.

Conclusion: In this first study of its kind from a low-to-middle income country to best of our knowledge, high TILs concentration was a predictor of response to NACT across all breast cancer subtypes. TILs concentration was found predictive of greater survival (disease free survival and overall survival) in TNBC and Her2-positive cancers. To the contrary, a negative prognostic correlation of TILs in ER+, Her2-negative cancers was observed.

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Disclosure of Interest: None declared

49.01

A NEW OPTICAL BIOPSY TECHNIQUE FOR DETECTION OF AGANGLIONOSIS IN HIRSHSPRUNG DISEASE BY USING RAMAN SPECTROSCOPY COMBINED WITH DEEP LEARNING

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Introduction: Raman spectroscopy provides chemical information regarding molecular vibrations that can be used for identification and quantification of molecules on biological tissues. Raman spectroscopy is potentially useful as a label-free detection method (Optical Biopsy) for intraoperative pathological diagnostics. We previously reported that the usefulness of Raman spectroscopy in identifying the enteric nerve system (ENS) in the human intestinal wall as a pilot study. In this study, we aimed to develop a new optical biopsy technique for aganglionosis of Hirshsprung disease (HSCR) and we then evaluated a custom designed Raman optical biopsy system combined with deep learning based on convolutional neural networks (CNNs).

Materials & Methods: Surgical specimens of formalin-fixed tissue of HSCR patients was subjected to this study. The Raman spectral data of the mucosa and serosa were comprehensively collected by using a home-build Raman microscopy system. The aganglionic segment was defined by convention histopathological diagnosis. A part of the obtained spectra was trained by CNN, and the leftover was used as evaluation data to discriminate the aganglionosis. The discrimination accuracy was compared with the results of principal component analysis combined with linear discriminant analysis (PCA-LDA), which is widely used in clinical application of Raman spectroscopy.

Results: We obtained 60 Raman spectral data of the mucosa of ganglionic and aganglionic segments (30 spectra in each) in surgical specimens of HSCR. We randomly selected 48 spectral data to train, and the remaining 12 spectral data were discriminated as the validation set. Discrimination of the validation set by CNN was 75% discriminable between ganglionic and aganglionic segments in mucosa. We also performed data augmentation (240 spectra) by adding noise. In the result, we achieved 100% classification accuracy between the normal and the lesion segments in mucosa.

Conclusion: This study shows that CNN is useful for discriminating Raman spectra of the human gastrointestinal wall. In addition, it was suggested that the diagnosis of HSCR can be made simply by measuring the spectra of the mucosa or serosa, without directly confirming the presence or absence of the ENS. In the future, we will use endoscopy and laparoscopy to develop a new, non-invasive, real-time optical diagnosis method that does not require biopsy.

References: Journal of Pediatric Surgery 56 (2021) 1150–1156

Disclosure of Interest: None declared

49.02

RISK FACTORS FOR DEVELOPING INTRA-ABDOMINAL ABSCESS AND THE NEED FOR LAPAROSCOPIC WASHOUT FOLLOWING APPENDICECTOMY FOR ACUTE APPENDICITIS: A RETROSPECTIVE COHORT STUDY

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Introduction: Laparoscopic appendicectomy is commonly performed in Australia for treatment of acute appendicitis. Intra-abdominal abscess (IAA) is a potential complication following appendicectomy for acute appendicitis. Risk factors for developing post-operative IAA remain controversial and poorly-defined. Laparoscopic washout may be performed for patients who develop complication(s) including IAA. The aim of this study was to define risk factors for both the development of IAA and patients who may require laparoscopic washout following appendicectomy.

Materials & Methods: Data were obtained from 423 patients who underwent laparoscopic appendicectomy over a five-year period (2012-2017). Clinical (fever, haemodynamics, examination findings), biochemical (white cell count, neutrophil count, C-reactive protein, bilirubin, albumin), radiological (CT free fluid), and operative factors (inflammation, suppuration, free-fluid, perforation, histopathology) collected in the pre-, peri-, and post-operative period(s) were analysed.

Results: 23 (5.4%) patients developed post-operative IAA. Duration of intravenous antibiotics was significantly longer in patients who developed IAA and in those who required laparoscopic washout ($p < 0.0001$). C-reactive protein (CRP) on admission ($p < 0.05$) and appendiceal perforation ($p = 0.0005$) were significantly higher in patients who either developed an IAA or needed laparoscopic washout. No clinical or radiological finding predicted either the development of IAA or need for laparoscopic washout.

Conclusion: Elevated CRP on admission may predict the development of post-operative IAA formation or the need for laparoscopic washout post-appendicectomy. Prolonged post-operative antibiotic use confers a higher likelihood of developing IAA as well as needing laparoscopic washout. These data highlight the need for clear guidelines on peri-operative antibiotic use following appendicectomy.

Disclosure of Interest: None declared

49.03

FLOATING ANUS DURING FOURNIER'S GANGRENE

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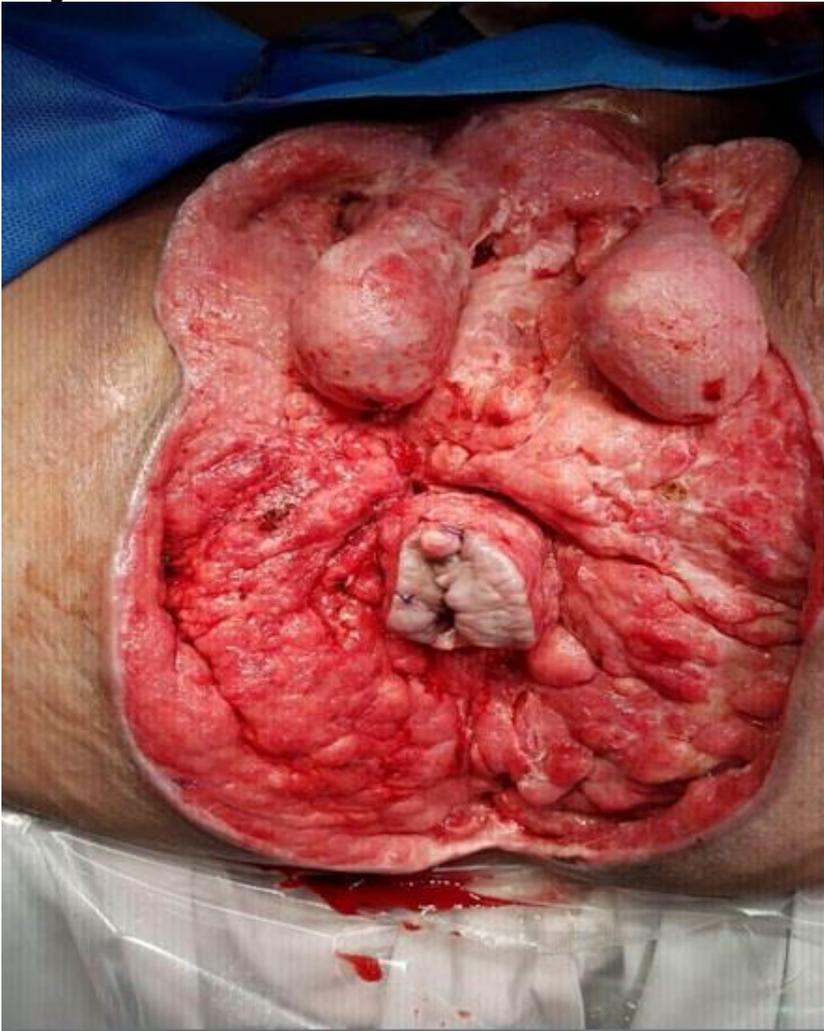
Introduction: The circumferential anus loose its anatomical position because of destruction of the surrounding tissues secondary to Fournier 's Gangrene .We present seven cases of this condition with the surgical treatment

Materials & Methods:

The age ranged from 58 to 65 years old. There were five men and two women. In the two women the area compromised was the perineal and vulva and in the five men was in the perineal area, the testicles and scrotum. The extension of damage was from 25 by 30 to 30 to 50 centimeters .The chosen flap was a fasciocutaneous V-Y advancement flap bilateral to the defect .The flap was harvested from the medial (four patients), postero medial (two patients) and gluteal áreas (1 patient). Both flaps were sutured each other ,surrounding the defect ,in such a way that their triangular bases were united . The relation base-length was 1:2 to 1:3 . The base of the flap supported the floating anus .The suture were with PDS in fascia and subcutaneous tissue and with intradermal Monocryl in the skin .No drainage was used.

Results: There were two partial dehiscence in the junction of both V-Y advancement flaps ,close to the base of scrotum, solved with vaccum assisted closure in ten days. There were no necrosis of flaps . The follow up was 34 to 65 days with no recurrence of the floating anus.

Image:



Conclusion:

We chose the V-Y advancement fasciocutaneous flap because it is reliable ,secure,fast,easy to perform,with good physiological and anatomic results .They give a great amount of tissue ,filling large defects with good blood supply,

taken from a near area such as the medial,postero medial and gluteal sites.It is neurosensorial and is not necessary search the perforators. In order to facilitate the easy sliding of the flap always incise all the perimeter of the flap ,thus the V-Y receive the blood supply from the vessels of the supra fascial plexus, converting it in a fasciocutaneous one .The complications were local dehiscences treated with vaccum assisted closure with good results.

The circumferential floating anus is a rare condition during Fournier" Gangrene.The surgical treatment have to solve the physiological and anatomic lack of support of the anus.In our experience the V-Y advancement fasciocutaneous flaps taken from the medial,postero medial and gluteal areas have funtioned very well .

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Disclosure of Interest: None declared

49.04

FOURNIER'S GANGRENE: CHALLENGES IN DIAGNOSTIC, TREATMENT AND REHABILITATION. A REVIEW BASED ON THE EXPERIENCE OF A BASE HOSPITAL IN THE EXTREME SOUTH OF CHILE.

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Introduction: Fournier's gangrene is a serious infection of the soft tissues of the perineum. Mortality ranges from 3 up to 60%. Despite several hospitals only admit one or two persons with this disease each 5 years, in our centre admissions due to this, is not uncommon. In this paper we will characterize these patients and review literature for an up-to-date of the disease.

Materials & Methods: A retrospective series of 43 patients were selected from the "Group related to diagnose" database of the Hospital Clínico de Magallanes, located at the Magallanes District, southern Chile. Diagnoses associated to Fournier's gangrene were filtered, from 2014 up to July 2021. 15 patients were rejected, due to not corresponding to diagnosis. Data from 28 remaining patients was collected on Excel 2021 and processed on Statsplus mac.

Results: 17 male and 11 female were studied. Incidence was 2,64 x 100.000 inh in global, where no differences within gender was observed. Global mortality was 25%. Mean hospital stay was of 92,5 days. Diabetes in bad metabolic control was the main risk factor, besides obesity. Undernourishing was a predictor of longer hospital stay, and also in higher complications rate during hospitalization. An average of 14,4 surgeries were required before coverage. A daily mean cost was of USD 530, and a mean total cost for patient was of USD 48.761. Age over 75 and more than two chronic pathologies with global damage was a predictor of mortality.

Conclusion: Eke et al., established as a risk factor for Fournier's Gangrene active base immunosuppression plus perineal infections, can lead to this condition. In our local community, obesity, diabetes, high blood pressure and poverty associated to bad adherence to their base treatments, increases the incidence compared to the literature. Evidence shows us that nourishing plays a key role in a better outcome, reducing hospital length of stay, but also mortality and morbidity, along with aggressive surgical management within 24 hours of admission, antibiotics within the 1st. hour and fluid therapy resuscitation. The use of scores predictor scales helps to identify patient at risk. Skin coverage depends on the area affected, with novel algorithms that can be useful to achieve final reconstruction, which varies from spontaneous closure up to free flaps. Finally, the injections of resources on primary health care level, in order to achieve and integral control of chronic pathologies, can lead to a diminishing of our current incidence rate.

Disclosure of Interest: None declared

49.05

IMPROVING MANAGEMENT FOR ACUTE CHOLECYSTITIS AND BILIARY PANCREATITIS – THE ‘HOT GALL BLADDER PATHWAY’

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Introduction: Laparoscopic cholecystectomy has been recommended for acute calculous cholecystitis and biliary pancreatitis. NICE guidelines recommend distinct time intervals for carrying out the procedure. An early intervention should be performed within 1 week for acute cholecystitis and 2 weeks for biliary pancreatitis. In 2018, the Royal College of Surgeons England published a quality improvement project aimed to reduce the time to emergency cholecystectomy. The results showed a national average of 16% complying with the NICE guidelines, as compared to 33- 67% internationally. As an acute NHS Trust, we established a ‘Hot Gall Bladder Pathway’ with the aim for improving outcome and decreasing complications of these patients.

Materials & Methods: This was a retrospective 13-month study of the management of patients with acute cholecystitis and biliary pancreatitis presenting to a DGH in Kent from 1st February 2019 to 1st March 2020, following implementation of the pathway. Inclusion criteria included: Patients aged 18 or above with acute cholecystitis (mild or moderate; Tokyo guideline grade I or II). Mild acute biliary pancreatitis. Exclusion criteria included: Patients aged below 18. Patients with acute cholecystitis and previous intervention with either ERCP or percutaneous cholecystostomy. Acute severe biliary pancreatitis patients with suspected complication.

Results: Between 1st February 2019 and 1st March 2020, a total of 134 patients were booked under the ‘hot gall bladder pathway’ for LC. 98 patients (73%) were considered suitable and the remaining 36 (27%) were deemed inappropriate for the hot gall bladder list. 98 included 68 (64%) and 35 (37%) patients presenting acute calculous cholecystitis with no associated organ dysfunction and mild biliary pancreatitis respectively 100% (98/98) underwent successful LC with no intraoperative complications.

68% (43/63) patients with acute calculous cholecystitis who were fit for the criteria underwent successful LC within the recommended 1-week time frame and 69% (24/35) with mild biliary pancreatitis achieved the recommended the ‘2 weeks’ window.

Conclusion: 100% of patients had successful LC with no record of intra-operative or post-operative complications with low 30-day re-admission rates. Support from senior upper GI surgeons, dedicated theatre lists and online referral form are invaluable for making better patient safety and care.

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Disclosure of Interest: None declared

49.06

TRANSPLANTATION OF BIOENGINEERED LIVER GRAFT WITH DECELLULARIZATION TECHNIQUE IMPROVED LIVER FUNCTION IN A PRECLINICAL LIVER FAILURE MODEL.

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Introduction: Liver transplantation is still the only treatment for end-stage liver cirrhosis. We applied decellularization technology, which washes out all cellular components from tissues, and succeeded in creating a partial liver graft filled with hepatocytes and vascular endothelial cells into a porcine decellularized liver scaffold. The partial liver graft was transplanted into a porcine model of chronic liver injury, and the efficacy of the graft was confirmed.

Materials & Methods: By optimizing the decellularization protocol, employing cell infusion pressure, and flow monitoring, we were able to create a regenerative liver that retained the extracellular matrix and the number of cells necessary for functional expression. In addition, we established an experimental transplantation system in which immunosuppressive agents, anticoagulation, surgical techniques, and postoperative management used in actual clinical practice were applied. And a comparative analysis was performed between the transplantation group and the control group for 28 days after surgery.

Results: Dynamic contrast-enhanced computed tomography and blood analysis, histopathological evaluation of the regenerated liver before and after transplantation, CYP activity measurement, and comprehensive analysis of mRNA were performed. As a result, blood flow inside the graft, maintenance of mature hepatocytes, and luminal structure of blood vessels, bile ducts, and lymphatic vessels were confirmed at 14 and 28 days after surgery, and bile production was also confirmed. In addition, liver graft improved the hepatobiliary enzyme-related blood data in the early postoperative period. The expression of CYP activity and mRNA related to the hepatobiliary system was upregulated on postoperative day 28, and gene ontology analysis was similar to the mRNA analysis. These results indicate that the transplanted regenerated liver functions in the body until postoperative day 28 and shows therapeutic effects on liver disorders.

Conclusion: In this study, we demonstrated that the regenerative liver can be a therapeutic option for end-stage liver cirrhosis. We are further concentrating our skills as surgeons to develop a difficult experimental model in which a regenerative adjuvant liver made by replacing hepatocytes, bile duct epithelial cells, and vascular endothelial cells with human iPS-derived cells is transplanted into immunosuppressed microminipigs.

Disclosure of Interest: None declared

57.01

INTRAVENOUS LOCAL ANESTHETIC COMPARED WITH INTRAPERITONEAL LOCAL ANESTHETIC IN LAPAROSCOPIC COLECTOMY: A DOUBLE-BLIND RANDOMIZED CONTROLLED TRIAL

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Introduction: Controlling perioperative pain is essential to improving patient experience and satisfaction following surgery. Traditionally opioids have been frequently utilised for postoperative analgesia. Although they are effective at controlling pain, they are associated with adverse effects, including postoperative nausea, vomiting, ileus and long-term opioid dependency.

Following laparoscopic colectomy, the use of intravenous or intraperitoneal infusions of lidocaine (IVL, IPL) are promising emerging analgesic options. Although both techniques are promising, there have been no direct, prospective randomised comparisons in patients undergoing laparoscopic colon resection.

The purpose of this study was to compare intraperitoneal local anaesthetic with intravenous local anaesthetic in laparoscopic colectomy surgery

Materials & Methods: Double blinded, randomised controlled trial of patients undergoing laparoscopic colonic resection. The two groups received equal doses of either IPL or IVL which commenced intra-operatively with a bolus followed by a continuous infusion for 3 days postoperatively. Patients were cared for through a standardized ERAS program. The primary outcome was total post-operative opioid consumption over the first three post-operative days. Patients were followed for 60 days.

Results: Fifty-six patients were randomised in a 1:1 fashion to the IVL or IPL groups. Total opioid consumption over the first three post-operative days was significantly lower in the IPL group (70.9 mg vs 157.8 mg $p<0.05$) and overall opioid consumption during the total length of stay was also significantly lower (80.3 mg vs 187.36 mg $p<0.05$). Pain scores were significantly lower at two hours post-operatively in the IPL group; however, all other time points were not significant. There were no differences in complications between the two groups.

Conclusion: Perioperative use of IPL results in a significant reduction in opioid consumption following laparoscopic colon surgery when compared to IVL. This suggests that the peritoneal cavity/compartments is a strategic target for local anaesthetic administration. Future ERAS recommendations should consider IPL as an important component of a multimodal pain strategy following colectomy.

Disclosure of Interest: None declared

57.02

A PROSPECTIVE COMPARATIVE STUDY OF MESH FIXATION IN LAPAROSCOPIC TEPP INGUINAL HERNIA REPAIR USING TACKER V/S CYNOACRYLATE(FEVIKWIK) V/S FIBRIN GLUE

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Introduction: There is significant evolution in treatment of hernia right from open surgery to TAP, TEPP, SCOLA for ventral hernia. In last one decade different modalities have been used for mesh fixation in TEPP sutures, Tackers which cost about 318 USD, fibrin glue costing around 94 USD. So we came with innovation of using cyanoacrylate (Fevikwik) which costs only 0.13 USD.

Materials & Methods: A comparative study done in Department of surgery MGM MEDICAL COLLEGE AND associated MY GROUP OF HOSPITALS over a period of four years (2018-2021). We studied around 390 patients who underwent laparoscopy TEPP inguinal hernia repair. Cases were randomized in three groups, group A (130 cases) mesh fixed with tackers, group B (130 cases) mesh fixed with cyanoacrylate, group C (130 cases) mesh fixed with fibrin glue.

Following parameters were observed, statistical analysis focussed on symptoms at presentation, diagnosis, type of fixation (tacker, cyanoacrylate, fibrin glue), ease of doing and time taken to fix the mesh, postop pain, haematoma, postoperative urinary retention. Follow up for 03 months.

Results: Statistical decrease in incidence of postoperative pain, haematoma formation, in group B compared to group A, C. Average hospital stay and pain score at all follow-ups were better for group B. There was similar incidence of postoperative urinary retention and seroma between the groups. Patients of cyanoacrylate group B started daily activity early at 15 days follow up when compared to group A and C. It was easy to fix mesh with cyanoacrylate and less time taken when compared to group A tackers.

Image:

f_x

The t-value is 0.0000089. The p-value is < .00001. The result is significant at $p < .05$.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1		Tacker	Fevikwik	Fibrin glue												
2	1	3	1	1												
3	2	2	0	1												
4	3	2	1	0												
5	4	6	1	2												
6	5	1	1	1												
7	6	2	2	1												
8	7	1	1	1												
9	8	8	1	0												
10	9	2	1	1												
11	10	1	1	1												
12	11	5	1	1												
13	12	2	0	1												
14	13	1	0	0												
15	14	2	1	3												
16	15	2	2	1												
17	16	7	1	1												
18	17	2	1	1												
19	18	2	1	1												
20	19	5	0	0												
21	20	2	1	1												

a) COMPARISON BETWEEN TACKER AND FEVIKWIK
The t-value is 8.69082. The p-value is < .00001. The result is significant at $p < .05$.

b) COMPARISON BETWEEN TACKER AND FIBRIN GLUE
The t-value is 6.41303. The p-value is < .00001. The result is significant at $p < .05$.

c) COMPARISON BETWEEN FEVIKWIK AND FIBRIN GLUE
The t-value is 0.0000089. The p-value is < .00001. The result is significant at $p < .05$.

Conclusion: Cyanoacrylate mesh fixation technique is 300 times cost-effective (cheaper) better postoperative recovery, easy to fix and less time consuming than tacker mesh fixation even it is easily reproducible technique to resident doctors. Hereby cyanoacrylate mesh fixation can be advocated over tackers in TEPP hernia surgery and worthwhile for developing countries.

Disclosure of Interest: None declared

57.03

EXPERIENCE OF THE OPERATING SURGEON AND ITS LINK TO SURGICAL OUTCOMES FOLLOWING EMERGENCY APPENDECTOMY – AN INTERNATIONAL MULTICENTRE SNAPSHOT STUDY

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Introduction: Graded mentored exposure to conditions and techniques is a cornerstone of surgical training. Surgical skill, a summation of acquired wisdom, deliberate practice and experience, has been linked to improved patient outcomes. Appendectomy is one of the first procedures surgical trainees perform independently. We hypothesise that, given the embedded training ethos in surgery, coupled with the steep learning curve required to achieve trainer-recognition of independent competency, 'real world' clinical outcomes following appendectomy for the treatment of acute appendicitis are operator agnostic.

Materials & Methods: We present a subgroup analysis of the SnapAppy international time-bound prospective observational cohort study (ClinicalTrials.gov Trial #NCT04365491), including all consecutive patients aged ≥ 15 who underwent appendectomy for appendicitis during a 3-month period in 2020-2021. Patient- and surgeon-specific variables, as well as 90-day postoperative outcomes, were collected. Patients were grouped based on operating surgeon level (trainee only, trainee under attending supervision, attending only). Pairwise comparisons of outcomes between groups, with Poisson and Quantile regression, adjusted for patient-associated confounders, were used to assess the relationship between surgical experience and postoperative complications or hospital length of stay (hLOS), respectively. The primary outcome of interest was severe complications (Clavien-Dindo ≥ 3) within 30 days.

Results: A total of 4,347 patients from 74 centres in 14 countries were included. Patients operated on by trainees were younger (33 vs 38 years, $p < 0.001$), had lower ASA classifications (ASA ≥ 3 : 6.6% vs 11.6%, $p < 0.001$) and fewer comorbidities compared to those operated on by attendings. Additionally, trainees operated alone on fewer appendiceal perforations (AAST severity grade ≥ 3 : 8.7% vs 15.6%, $p < 0.001$). The same pattern was seen on comparison of trainees under attending supervision and attending. Regression analyses failed to demonstrate a statistically significant association between level of surgeon and rate of severe complications (IRR 0.82 95%CI 0.51 - 1.33 for trainee vs attending; IRR 0.90 95%CI 0.55-1.47 for trainee under attending supervision vs attending) or hLOS.

Conclusion: Clinical outcomes following appendectomy do not differ depending on the level of the operating surgeon. This may be explained by an association between case complexity and appropriate trainee oversight.

Disclosure of Interest: None declared

57.04

THE RISK OF INFLAMMATORY BOWEL DISEASE AFTER BARIATRIC SURGERY

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Introduction: The association between bariatric surgery and new onset of inflammatory bowel disease has so far only been sparsely studied and with conflicting results. The aim of this study was to investigate the association between bariatric surgery and inflammatory bowel disease in a large population-based cohort.

Materials & Methods: This population-based retrospective cohort study included Swedish individuals registered in the Scandinavian Obesity Surgery Registry who underwent primary Roux-en-Y gastric bypass or sleeve gastrectomy during 2007 - 2018. Ten controls from the general population were matched according to age, sex and region of residence at time of exposure.

The study population was followed until 2019 with regards to development of inflammatory bowel disease. Cox proportional-hazards models were used to compare disease-free survival time between subgroups and control individuals for each outcome.

Results: The final cohort consisted of 64,188 exposed individuals with a total follow-up of 346,860 person years and 634,530 controls with total follow up of 3,444,186 person years. Individuals who underwent Roux-en-Y-gastric bypass had an increased risk of later development of Crohn's disease (HR 1.8 (1.5- 2.2)) and inflammatory bowel disease-unclassified (HR 2.7 (2.0-3.7)), but not ulcerative colitis (HR 0.9 (0.8-1.1)) compared to controls whereas individuals who underwent sleeve gastrectomy had an increased risk of ulcerative colitis (HR 1.8 (1.1-3.1)) but not Crohn's disease (HR 0.8 (0.3 – 2.1)) and inflammatory bowel disease-unclassified (HR 2.5 (0.8-7.8)).

Conclusion: Roux-en-Y gastric bypass was associated with increased risk of Crohn's disease and inflammatory bowel disease-unclassified while sleeve gastrectomy was associated with increased risk of ulcerative colitis only.

Disclosure of Interest: None declared

57.05

ANALYSIS OF FACTORS PREDICTING COMPLICATED APPENDICITIS

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Introduction: To differentiate complicated from uncomplicated acute appendicitis(AA) preoperatively is still a challenge. This study has been planned to analyze various preoperative clinical laboratory and radiological factors that may help to predict complicated appendicitis.

Materials & Methods: Patients who were diagnosed as AA were prospectively recruited. Seven factors viz age, WBC count, Neutrophil to Lymphocyte ratio, INR, duration of symptoms and two ultrasonography findings : presence of appendicolith and presence of periappendicular collection were used to predict complicated acute appendicitis preoperatively. After patient underwent appendectomy based on intraoperative and final histopathology reports complicated appendicitis was confirmed .The preoperative factors and the final postoperative data were tallied to determine the sensitivity, specificity, positive and negative predictive values for factors to distinguish whether the case is complicated or uncomplicated acute appendicitis.

Results: A total of 100 patients were included. Using ROC curve the cut off value for duration of pain >33.5hours(sensitivity is 52.94% and specificity is 80.30%, PPV is 58.06% and NPV is 76.81%.), N:L ratio of >6.37 (sensitivity is 64.71% and specificity is 81.82%, PPV is 64.71% and NPV is 81.82%.) and two USG findings of appendicolith (sensitivity of 47.06%, specificity of 92.42%, PPV of 76.19% and NPV of 77.22%.) and periappendicular collection (sensitivity of 76.47%, specificity of 93.94%, PPV of 86.67% and NPV of 88.57%.) were statistically significant in predicting complicated appendicitis.

Conclusion: This study concludes that , duration of pain ,N:L ratio, and USG findings of appendicolith and periappendicular collection can be used to predict complicated appendicitis preoperatively. Further studies are required to confirm these findings.

Disclosure of Interest: None declared

57.06

DOES LAPAROSCOPIC APPENDECTOMY IN ASIA TRANSLATE INTO LESS ANALGESICS AND FASTER RETURN TO WORK?

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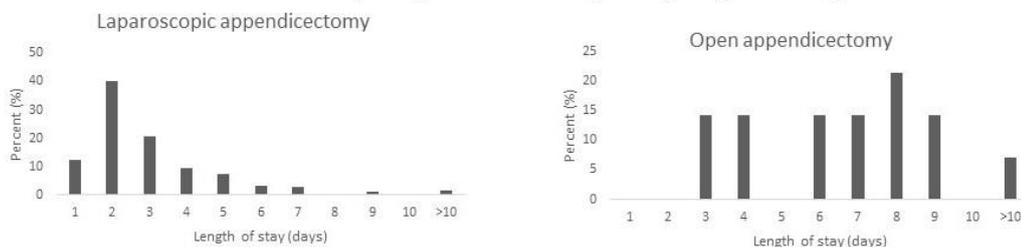
Introduction: Laparoscopic Appendicectomy (LA) is increasingly accepted as the standard of surgical care in acute appendicitis due to perceived benefits of minimally invasive surgery in reducing pain and faster return to work. We studied if these benefits hold true in our Asian population.

Materials & Methods: Data from 201 patients who underwent Appendicectomy over 18 months were evaluated retrospectively to study outcomes of postoperative pain, length of stay (LOS), leave duration. A telephonic questionnaire was conducted to evaluate post-operative analgesia duration and adequacy of hospital leave.

Results: 187 LA cases (93.0% of all emergency appendectomies) were compared with 14 open appendectomy (OA) cases during this study period. Duration of pre-surgery symptoms were significantly longer in patients who underwent OA compared to LA (LA: 1.81 days vs OA: 3.79 days; p: 0.0260) whilst significantly higher number of patients who underwent OA had perforated appendices. The LOS was significantly less for LA (mean LA: 3.09 days vs OA: 6.93 days; p: 0.00569). The mean duration of analgesia taken for LA cases was 7.03 compared to 5.25 For OA. The average first clinic follow-up was 36 days. (Range: 9 to 191 days) Only 67 of the 201 patients agreed for the telephonic questionnaire with nearly 69.2% untraceable due to disconnected hand phone numbers and 20.9% could not answer due to a language barrier. 25 of 67 patients (40.3%) were comfortable with having only a telephonic post-operative consult instead of coming to hospital. Nearly 75.6% had no symptoms when they came for their hospital review. The duration of HL ranged from 3 to 37 days and 8 to 37 days for LA and OA respectively. (mean LA: 17.9 vs OA: 21.8, p: 0.0504). Overall patients who underwent successful LA reported less pain compared to OA (p: 0.0683) but were given the same duration of 2 weeks of analgesics as OA. In the telephonic questionnaire nearly 80% (n=44) of LA cases did not complete the full duration of analgesics. Majority of patients (59.3%) consumed their prescribed analgesia for less than 5 days.

Image:

Frequency distribution of LOS (length of stay)



Frequency distribution of duration of MC

Medical certificate includes length of Hospitalisation.

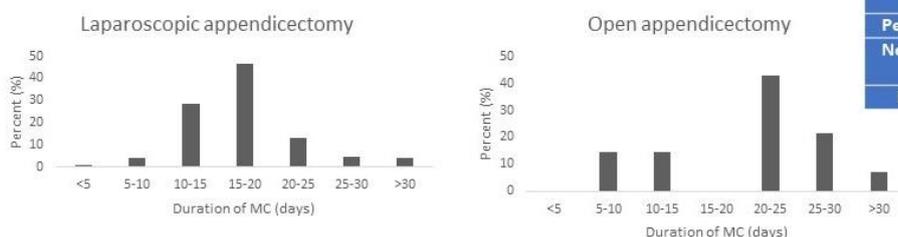


Fig. 3 Pain scores of patients who underwent an appendicectomy, comparing LA vs OA

	LA	OA	P-value
Pain score (out of 10) (3s.f)			
Total	3.21 (n=187)	4.14 (n= 14)	0.0683
Perforated	3.26 (n=58)	3.60 (n=10)	0.303
Non-perforated	3.16 (n=129)	5.50 (n=4)	0.0730

LA - Laparoscopic Appendicectomy; OA - Open Appendicectomy

Conclusion: Patients undergoing LA have less pain compared to OA and may not need analgesics for 2 weeks. A significant number of patients do not complete the prescribed analgesics. The duration of hospitalization leave given for LA may need to be reviewed to allow patients to return to work early and realize the true benefits of minimally invasive surgery.

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Disclosure of Interest: None declared

57.07

COST-EFFECTIVENESS OF ANTIBIOTIC USE IN UNCOMPLICATED DIVERTICULITIS IN A PRAGMATIC DOUBLE-BLIND RANDOMIZED TRIAL

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Introduction: Antibiotic treatment, often with inpatient admission, remains the standard of care for uncomplicated diverticulitis. This practice has recently been challenged by three randomised controlled trials [1-3]. The latest trial, STAND (Selective Treatment with Antibiotics for Non-complicated Diverticulitis) [3], was a pragmatic non-inferiority trial comparing placebo vs antibiotics. It demonstrated no significant difference in length of stay between groups. The aim of this study was to ascertain the cost-effectiveness of antibiotics treatment and the potential cost savings from its omission.

Materials & Methods: Data from the, international multi-centre STAND trial, was retrieved and all patients recruited from the Auckland City Hospital were identified. Economic data for this group was obtained from the Auckland District Health Board hospital financial data analyst services. Direct and indirect costs for each patient admission and 30-days post-discharge were determined and a multivariate analysis was performed to determine cost-effectiveness of antibiotics vs placebo. A decision analytic model was then used to estimate cost savings if patients were treated using a non-antibiotic pathway. Costs are reported in NZ Dollars.

Results: There were 60 patients recruited for the STAND trial from Auckland City Hospital (34 antibiotics, 26 placebo). There was no significant difference in the median time in hospital which was also reflected in the total cost incurred. The median admission costs were similar between groups, \$2583 antibiotics vs \$2599 placebo. There was no difference in adverse events requiring critical care admission, surgical intervention, readmission within 30-days (none in both groups) or frequency of utilisation of outpatient clinics within 30-days (2 visits antibiotics, 3 visits placebo). There is an estimated average \$477 cost saving per bed day for each individual patient if treatment omits inpatient admission for antibiotics. This saving could be further augmented with a streamlined non-antibiotic care pathway.

Conclusion: Use of antibiotics did not reduce the cost of treatment for uncomplicated diverticulitis within an RCT setting, however, a non-antibiotic treatment pathway would result in meaningful cost savings without significant adverse events. These results provide strong economic rationale for the omission of antibiotics for selected patients with uncomplicated diverticulitis.

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Disclosure of Interest: None declared

61.01

PREDICTING OF POSTOPERATIVE MORTALITY IN CASES OF ABDOMINAL SEPSIS FOR TWO SURGICAL STRATEGIES USING A NEW MATHEMATICAL MODEL: TWO CENTERS REVIEW OF A 10 YEARS' EXPERIENCE WITH THE SAME DIAGNOSTIC AND TACTICAL APPROACHES TO THE TREATMENT

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Introduction: To determine the prediction of mortality and to develop a mathematical model of abdominal sepsis designed to predict early mortality in severe patients, to be able to select patients for individual surgical treatment that have ongoing infection and require re-laparotomy.

Materials & Methods: It study was based on data from comparing known severity scores for two surgical strategies in 231 patients admitted for sepsis or septic shock. In these patients the severity of the condition was assessed at admission and after 72 hours in accordance with the objectives of the study, including objective laboratory parameters and known severity rating scores.

Results: One operation was performed in 67.5% of patients; in 20.8% of patients were performed re-laparotomy or re-laparoscopy 'on demand'; in 11.7% of patients surgical interventions were performed according to the 'program'. It well-known scores have shown the ability to predict early mortality: APACHE II scores (AUC 0.939) and SOFA (AUC 0.826). But of all patients who needed re-laparotomy/re-laparoscopy in 28.1% of the control patients identified with these scoring systems had negative results on re-laparotomy, although they had good and excellent AUC values for the APACHE II and SOFA scores. A mathematical model was developed for the early prediction of mortality, taking into account the preliminary values of systolic blood pressure (AUC 0.961), perfusion pressure of the abdominal cavity (AUC 0.893), C-reactive protein level (AUC 0.85) and lactate level (AUC 0.867). The results of this comparison in the whole sample gave a high accuracy of classification by groups: survivors-90.2%, non-survivors-81%, the overall accuracy was 87.6%.

Conclusion: The severity scoring systems (APACHE II, SOFA), which were used to predict the overall outcome in patients with complicated intra-abdominal disease, did not provide an objective basis for patient stratification when performing re-debridement of the abdominal cavity for abdominal sepsis. A new mathematical model is proposed for calculating the probability of postoperative complications and death, depending on the initial severity of the patient's condition. There is also a need to further develop more specific tools to assist clinicians in the daily follow-up and screening of these patients after an initial emergency laparotomy.

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3.

Disclosure of Interest: None declared

61.02

THE EFFECT OF VARYING PERIOPERATIVE OXYGEN SUPPLEMENTATION TO REDUCE THE INCIDENCE OF SURGICAL SITE INFECTIONS IN PATIENTS UNDERGOING ELECTIVE MAJOR ABDOMINAL SURGERIES - A RANDOMIZED CONTROL STUDY

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Introduction: Surgical site infections (SSIs) are a common cause of healthcare-associated infection. SSIs account for > 50% of hospital-acquired infections in a patient undergoing elective major abdominal surgeries, leading to most of the post operative morbidities and mortalities.¹Bactericidal activities of neutrophils in tissue is mediated by oxygen derieved free radicals, which is dependent on partial pressure of oxygen in tissues. The level of partial pressure of oxygen in tissues can be increased by inspiring with high FiO₂ of oxygen.²

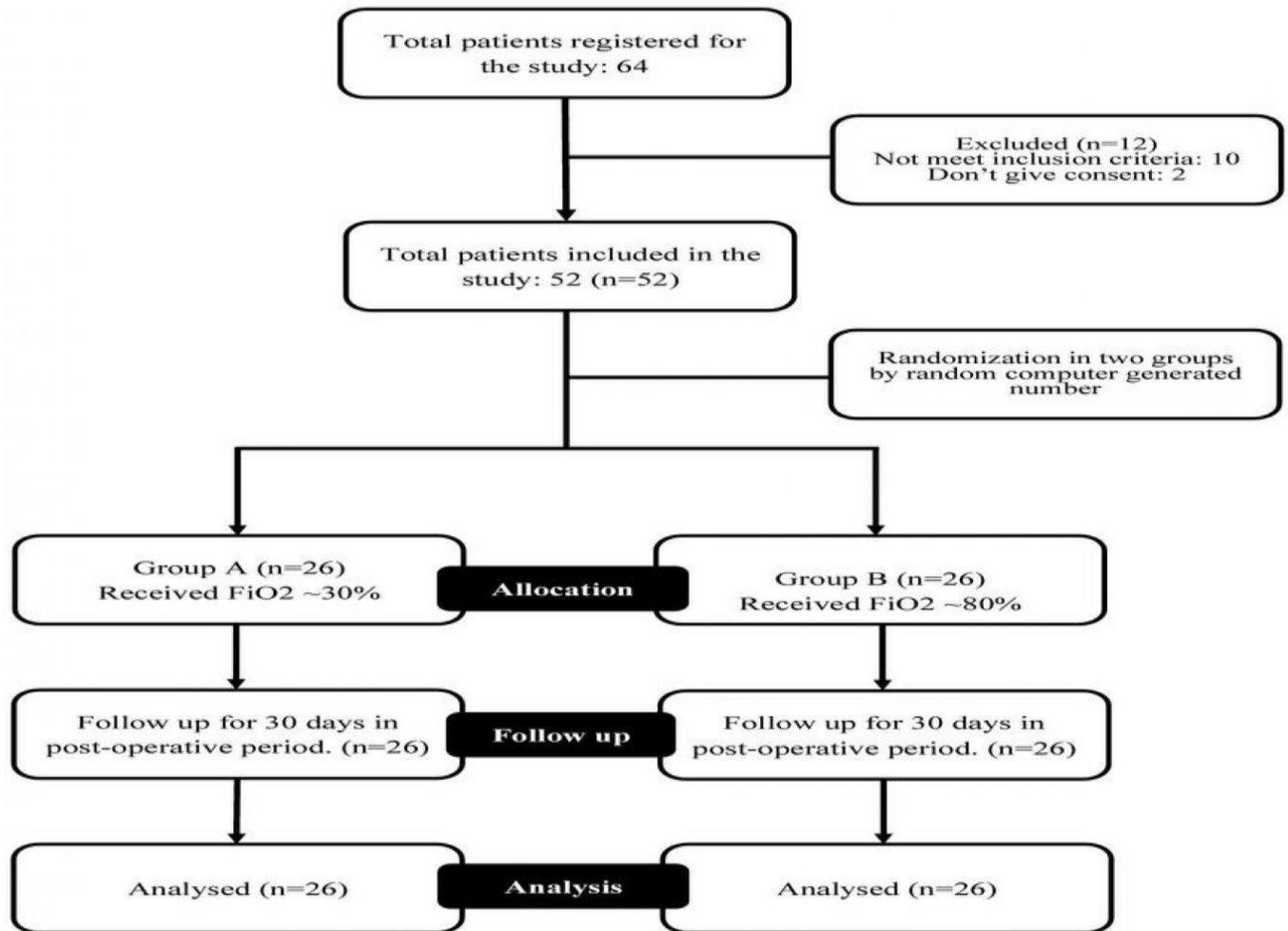
Materials & Methods: After the induction of anesthesia the assignments were stratified in two groups (A & B) by random computer generated numbers & were kept in sealed, sequentially numbered envelopes untill used. Group A received FiO₂ 30%, group B received FiO₂ 80% in intra and postoperative period for 2 hours. Both the groups were managed in the same clinical settings in pre, intra and post-operative periods as per standardized institutional protocol.

Patients and the Principal Investigator was unaware of the perioperative and postoperative oxygen supplementations. However, the concerned anesthesiologists were aware of the treatment groups assignments. The postoperative wound was assessed according to the NNISS and Southampton wound grading system.

Results: Out of total 52 patients, 5 patients in group A (19.3%) had undergo pre-operative interventions (ERCP+stenting/PTBD insertion) than in group B 4 (15.3%). The mean PaO₂ in group A was 96.8mmhg & in group B was 138.4mmhg. The overall incidence of SSI was 65.3%. In group A, 34.6% of patients had superficial SSI, 30.8% had deep SSI and none had organ space SSIs. In group B, 26.9% had superficial SSIs, 26.9% had deep SSIs and 11.5% had organ space SSIs. More intraoperative fluid/bile culture positivity rate was shown in group B than in group A. Group B had less mean postoperative length of hospital stay i.e. 10.58 ± 5.76 days, in comparison to group A,i.e 11.96 ± 8.68 days. Total 2 patients require ICU in the postoperative period in the group B, less than of 3 in group A. Group B patients required less post operative interventions (re-exploration and drainage) than that of group A.

Image:

Figure 1: Consort Flow Diagram (2010 CONSORT statement):



Conclusion: There was no significant difference in the incidence of SSI between the two groups but there was a difference in length of postoperative hospital stay and postoperative ICU requirements and interventions between the two groups. It may be due to the low sample size. However, we are continuing this study to include more patients in future.

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Disclosure of Interest: None declared

61.03

DYNAMICS OF CHANGES IN PLASMA FATTY ACID BINDING PROTEINS AND INTESTINAL ZONULIN IN PATIENTS WITH GENERALIZED INTRA-ABDOMINAL INFECTION AND ABDOMINAL SEPSIS DEPENDING ON THE SEVERITY OF PATIENTS

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Introduction: Generalized intra-abdominal infection (gIAI), abdominal sepsis (AS) and septic shock correlate in patients with poor treatment outcomes, which is accompanied by high mortality. The gut is believed to play a key role in the development of systemic multiple disorders in AS.

Materials & Methods:

A prospective single-center controlled study was conducted in 59 patients of both sexes aged 18 to 70 years with gIAI and abdominal sepsis (AS).

Results: According to the aims of the study the patients were divided into three groups: the 1st group – 26 patients with generalized peritonitis without AS according to the «Sepsis-3» criterion; the 2nd group – 24 patients with AS, and the 3rd group – 9 patients with septic shock. We found statistically significant higher levels of I-FABP in the all groups of patients ($p = 0.000$). The same tendency was observed in all periods of the study, and the most significant levels of I-FABP were by the tenth day after surgery in patients with septic shock: IQR 1567.3– 3876.1 ($p = 0.000$). Patients with abdominal sepsis did not have a statistically significant change in zonulin levels compared to patients with gIAI without sepsis ($p = 0.560$) and a similar trend was observed on the 3rd day after surgery ($p = 0.135$). Only by the 7th and 10th days after surgery changes in zonulin levels were significant in intra-abdominal infection patients without sepsis, with abdominal sepsis and septic shock ($p = 0.000$ and $P = 0.004$, respectively).

Conclusion: The systemic consequences of sepsis are widespread, but therapeutic approaches to modulate the immune system of the intestinal mucosa are still rarely effective in treating these patients, due to the need for early diagnosis of the extent of damage to the digestive tract. Serum I-FABP levels have been shown to be objectively early predictors of the severity of gastrointestinal involvement in generalized intra-abdominal infection. We also presented evidence for elevated plasma levels of zonulin in gIAI, but this was not an early predictor of GI injury as has been shown for I-FABP in this patient population.

Disclosure of Interest: None declared

61.04

ASSESSMENT OF THE SEVERITY OF PATIENTS WITH GENERALIZED INTRA-ABDOMINAL INFECTION: AN EMPHASIS ON THE PREDICTIVE VALUE OF REDUCING ABDOMINAL PERFUSION PRESSURE IN THE COMPLEX TREATMENT OF PATIENTS

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Introduction: An urgent task is to determine the prognosis of mortality in patients with complicated intra-abdominal infection at the stages of their complex treatment in the context of emergency abdominal surgery.

Materials & Methods: This study was based on data comparing severity indicators in 255 patients of both sexes, aged 18 to 70 years, who were operated on for secondary peritonitis in the same surgical hospital.

Results: By the criteria of Sepsis-3 patients without sepsis were 119 (46.7%), with abdominal sepsis was diagnosed in 110 (43.1%), and septic shock was diagnosed in 26 (10.2%). The main finding of this study is that increased leukocyte, lactate, C-reactive protein levels and decreased systolic blood pressure, abdominal perfusion pressure 72 hours postoperatively were predictive factors for patients. It was shown that there was a strong negative relationship between intra-abdominal pressure and abdominal perfusion pressure ($r = -0.83$, $p = 0.000$), a positive correlation between the surgical approach ($r = 0.88$; $p = 0.000$) and these increases of pressure values were correlated with the deterioration of the patients' condition according to the APACHE II and SOFA scores severity. It was also confirmed that the risk of developing abdominal compartment syndrome statistically significantly ($p = 0.000$) increases in the presence of intestinal paresis (OR = 4.3, 95% CI 1.5-5.9), the numbers of re-laparotomies (OR = 4.84, 95% CI 1.8-6.5), and massive infusion therapy (OR = 3.8, 95% CI 1.1-4.9), and its will be able to lead to the development of acute respiratory distress syndrome (OR = 4.6, 95% CI 2-6.1), cardiogenic pulmonary edema after surgery 3.6, 95% CI 1.4-4.9), and postoperative delirium (OR = 2.2, 95% CI 1.1-3.1).

Conclusion: The results from an ongoing study and study of abdominal perfusion pressure in intraabdominal infections (IAI) patients with and without abdominal sepsis have shown that the frequency of IAH is high in complicated IAI and mortality was also high and correlated with severity scores. It was keeping the IAH up to the third day after surgery makes it possible to distinguish between a positive result in patients who survived and those who did not. The presence of low abdominal perfusion pressure (< 62 mm Hg) allows preliminary identification of a group of patients with a high risk of mortality from the first days after surgery against the background of intensive treatment of patients.

Disclosure of Interest: None declared

63.01

DIAPHRAGMATIC PERITONECTOMY FOR OVARIAN CANCER

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Introduction: Surgery for advanced ovarian cancer includes resection of the diaphragmatic peritoneum. The technique of the operation is presented in this video.

Materials & Methods: The video was recorded during two operations on patients with advanced ovarian cancer. The operating team consist of a surgeon and a gynecologist specializing in ovarian cancer surgery.

Results: Anatomical landmarks and all steps of the operation are explained. Resection of the diaphragm is shown. Potential pitfalls are underlined.

Conclusion: The technique of the diaphragmatic peritonectomy is essential for surgeons taking part in operations for advanced ovarian cancers.

Disclosure of Interest: None declared

63.02

THE SURGEON'S 'GUT FEELING' IN PREDICTING OUTCOMES OF EMERGENCY LAPAROTOMY

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Introduction: Emergency laparotomy (EL) is a frequently performed procedure that carries significant risk of mortality and morbidity. Multiple clinical tools exist to predict mortality following EL. Those tools focus on the operation and the patients' physiology and comorbidities. The surgeon's 'gut feeling' about perioperative risks with EL has not been explored. We aimed to explore the value of the surgeon's 'gut feeling' in the setting of EL.

Materials & Methods: EL patients were prospectively identified and screened for eligibility in 5 metropolitan hospitals in New Zealand from January 2019 and ongoing. Patients ≥ 18 undergoing EL were included. Data including patient's age, sex, ASA, comorbidities, laboratory results and vital signs were recorded. Outcomes were mortality, morbidity (complications as per Clavien-Dindo), length of stay, and re-operations.

The surgeon's 'gut feeling' was assessed via a written questionnaire immediately before and after EL. The questionnaire consists of a Visual Analogue Scale (VAS) which the surgeon scored from 0 to 100, based on the patients perceived risk of mortality and morbidity. The surgeon was also asked about the proposed operation. The same questions were asked after completion of the operation.

The surgeon's preoperative mortality prediction was compared with the cohort's actual mortality rate. A change in VAS score from pre to postoperatively was compared with outcomes.

Results: 501 patients with both pre and post-EL questionnaires completed were included.

Surgeons accurately predicted the type of operation performed for 86% of patients. For the remainder, surgeons performed an operation significantly different from what was proposed pre-operatively.

The preoperative surgeon's 'gut feeling' of risk on the VAS correlated highly with mortality. A cut-off VAS score of ≥ 40 carried a significantly higher risk of mortality at 21% ($n=110$, $p<0.0001$). A VAS score <40 carried a 4.3% risk of mortality. There was significant heterogeneity with how the individual surgeons scaled the VAS.

A higher VAS score for mortality postoperative (cf preoperatively) correlated with higher mortality 14.8% versus 3.6% ($p<0.0001$) with less heterogeneity amongst surgeons. The same trend is seen with VAS for morbidity ($p=0.049$).

Conclusion: The surgeon's 'gut feeling' correlated highly with outcomes of mortality and morbidity. We have described a reliable and effective way to measure a surgeon's 'gut feeling'. Future work should focus on the utility of the surgeon's gut feeling in risk prediction.

Disclosure of Interest: None declared

63.03

EFFECTS OF THE SHORT STITCH TECHNIQUE FOR MIDLINE ABDOMINAL CLOSURE ON INCISIONAL HERNIA: RESULTS FROM THE RANDOMISED-CONTROLLED ESTOIH TRIAL

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Introduction: Incisional hernia remains a frequent complication of midline laparotomies with a substantial impact on quality of life and health care costs. Based on a recently published meta-analysis of elective midline closure the use of a slowly absorbable suture for continuous suturing and small bites technique results in significantly less incisional hernias compared to large bites technique. The aim of this study was to compare short stitch technique for laparotomy closure to standard loop closure using an ultra-long term absorbent elastic suture material.

Materials & Methods: This prospective, multi-centre, parallel-group, double-blind, randomised-controlled superiority trial was performed in 9 surgical departments in Germany and Austria. Following elective midline laparotomy, patients aged 18 years or older were randomly assigned to fascial closure using a short stitch (5-8 mm every 5 mm, USP 2-0 single thread) or long stitch technique (10 mm every 10 mm, USP 1 double loop) with a poly-4-hydroxybutyrate-based suture material (Monomax®). The randomisation sequence was computer-generated; investigators that assessed the primary outcome by ultrasound and patients were blinded to group allocation. Incisional hernia one year after surgery was the primary outcome.

Results: After 1 year 414 patients (97.4 %) were finally included in the primary outcome analysis. In the small stitch group, the fascia was closed with significant more stitches (46 [standard deviation [SD] 12] vs 25 [SD 7]; $p < 0.001$), resulting in a higher suture length to wound length ratio (5.3 [SD 2.2] vs 4.0 [SD 1.3]; $p < 0.001$) and a longer duration for wound closure (15 [SD 6] vs 9 [SD 4] min; $p < 0.001$). After 1 year (± 1 month), 7 (3.3%) of 210 patients in the short stitch group and 13 (6.4%) of 204 patients in the long stitch group had developed incisional hernia (OR 1.97 (0.77 – 5.05), $p = 0.17$).

Conclusion: The use of an ultra long-term absorbent elastic suture material, we detected a low incisional hernia rates independent of the stitch technique used for abdominal wall closure. Nevertheless, this trial detected no significant difference in the incisional hernia rates one year after laparotomy closure with either short or long stitches. However a significantly reduced incidence for the combined secondary endpoint of hernia and burst abdomen underlines a possible advantage of the short stitch technique.

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63.04

EVALUATION OF DRAIN INSERTION AFTER APPENDICECTOMY FOR COMPLICATED APPENDICITIS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF 17 STUDIES.

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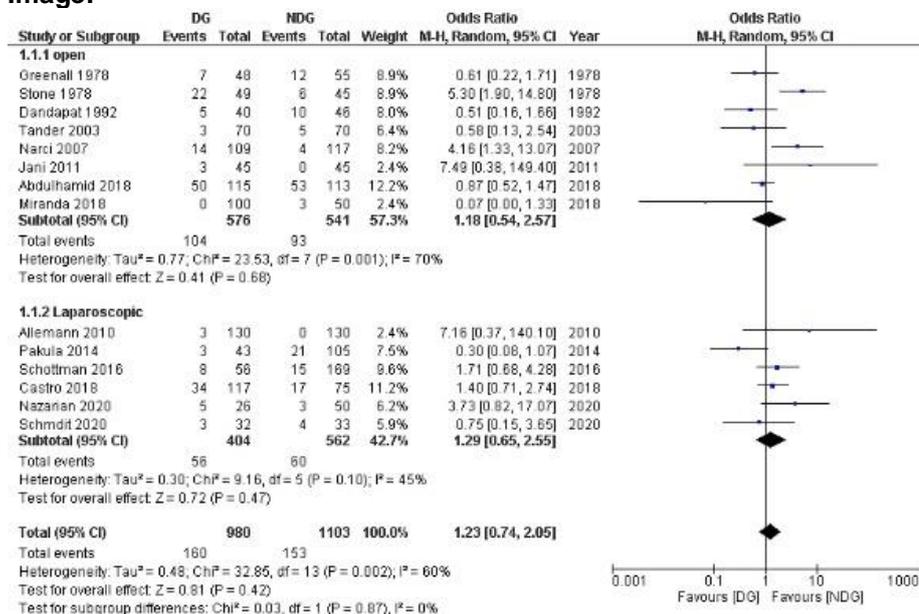
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Introduction: To evaluate comparative outcomes of drain insertion versus no drain after appendicectomy for complicated appendicitis.

Materials & Methods: A systematic search of PubMed, Cochrane library and Scopus was conducted, and all studies comparing drain versus no drain after appendicectomy for complicated appendicitis were included. Abdominal collection, Surgical site infection (SSI), bowel obstruction, faecal fistula, paralytic ileus, Length of hospital stay (LOS) and mortality were the evaluated outcome parameters for the meta-analysis.

Results: Seventeen studies reporting a total number of 4255 patients who underwent appendicectomy for complicated appendicitis with (n=1580) or without (n=2657) drain were included. There was no significant difference between the two group regarding abdominal collection [odd ratio (OR) 1.41, P=0.13] (figure 1) and mortality [Risk difference 0.01, p= 0.18]. No-drain group was superior to the drain group regarding SSI [OR 1.93, P= 0.0001], faecal fistula [OR 4.76, P= 0.03], Intestinal obstruction [OR 2.40, P= 0.04], and paralytic ileus [OR 2.07, P=0.01].

Image:



Conclusion: this meta-analysis has shown that drains have no effect on the development of intra-abdominal collections in complicated appendicitis, but it can significantly increase the risk of post-operative complications such as fistula, surgical site of infection (SSI), bowel obstruction, ileus and length of hospital stay (LOS).

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Disclosure of Interest: None declared

63.05

PREGNANCY CURRICULUM FOR SURGERY RESIDENTS: A FIRST STEP IN PROTECTING OUR TRAINEES

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Introduction: An increasing number of women are entering the field of surgery and its subspecialties. As graduate surgical training takes place during a woman's reproductive years, the number of surgical trainees becoming pregnant or raising children during residency is anecdotally rising. Alarming, a recent study by Rangel et al showed a miscarriage rate almost doubled for female surgeons compared to non-surgeons, as well as increased pregnancy complications and use of infertility treatments. While each institution has its own policies and arrangements to accommodate resident pregnancy and early parenthood, these local adaptations are rarely advertised. We set out to share our early efforts at implementing protective guidelines for pregnant residents in order to open the conversation over the programmatic and individual challenges of pregnancy and child rearing during residency. The aim of this initiative is to start a narrative to collectively improve the antenatal outcomes of our trainees and their growing families.

Materials & Methods: A focus group was assembled which included staff surgeons, residents with in-training pregnancy and/or early child-rearing experience, as well as obstetrics consultants. Together, stakeholders developed a set of recommendations for the protection of pregnant and early parenting trainees.

Results: Four areas of process improvements were identified to protect pregnant residents: ergonomics, exposure, maternal & fetal care, and fourth trimester support. Suggested practice modifications and interventions are illustrated in Figure 1.

Image:

Ergonomics	Exposure	Mother-Fetal health	Fourth Trimester
			
<p>Priority for short cases, <4h if possible</p> <p>Ability to sit during operation (ex: robotic cases, AVF)</p>	<p>Opt out of cases involving fluoroscopy, high levels of volatile anesthetics, or antineoplastic drugs</p> <p>Avoid direct contact with active TB, TORCH, and Covid -19 patients</p> <p>Opt out of cadaver lab with high concentrations of formaldehyde</p>	<p>All pre-natal visits are excused absences</p> <p>Encouraged regular hydration and bathroom breaks</p> <p>No more than 6 consecutive nights without a night off (daytime limits per ACGME regulations)</p>	<p>Liberal interpretation of maternity & paternity leave as designated by the ABS and the resident's institution</p> <p>Unlimited breaks for pumping & lactation room use</p>

Conclusion: Program directors across the nation are working to navigate the complex logistics of in-training pregnancies. While the recommendations proposed in this project are entirely optional and initiated by the resident herself, widespread and decisive institutional support is paramount to cultural shifts surrounding in-training pregnancy. Through our recommendations, we hope to offer a foundation upon which individual residencies can build tailored, pregnancy-specific interventions, with the ultimate goal of improving maternal and fetal outcomes. As surgeons, we devote our careers to improving the human condition and saving lives. It is now time to champion our own community through equally important achievements: childbearing and raising families.

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Disclosure of Interest: None declared

64.01

A TIME TREND ANALYSIS OF 5,000 ROBOTIC THYROIDECTOMIES VIA BILATERAL AXILLO-BREAST APPROACH

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Introduction: Since the introduction of the bilateral axillo-breast approach robotic thyroidectomy (BABA RT) in 2008, it has become one of the most popular robotic thyroid surgical approaches and was performed over 5,000 successful cases at Seoul National University (SNU)-affiliated hospitals by 2021. Although, several studies have demonstrated the clinical outcomes of BABA RT cases, no studies have reported the time trend analysis of BABA RT cases based on large databases. This study aimed to investigate the time trends of surgical outcomes in patients who underwent BABA RT over the last 14 years.

Materials & Methods: From February, 2008 to September, 2021, we conducted a retrospective medical chart review of 5,011 consecutive patients who underwent BABA RT at three SNU-affiliated hospitals. To evaluate trends in surgical treatment strategies and outcomes after BABA RT, the patients were divided into three groups based on the main model of the da Vinci robotic surgical system used.

Results: Of the 5,011 patients, 4,706 were diagnosed with thyroid cancer, and the remaining 305 with benign thyroid disease. The most common histological subtype was papillary thyroid carcinoma (n = 4,584; 97.4%). With respect to the surgical extent for thyroid cancer, total thyroidectomy gradually decreased from 92.2 to 17.5%, and thyroid lobectomy increased from 1.0 to 75.6%. The mean tumor size significantly increased from 0.8 cm to 1.2 cm (p < 0.05). The mean number of metastatic lymph nodes (LNs) in central neck dissection (CND) and lateral neck dissection (LND) (from 0.9 to 1.6; CND, from 0.6 to 3.9; LND, p < 0.05) and harvested LNs in CND and LND significantly increased throughout the study period (from 4.7 to 6.2; CND, 5.3 to 17.9; LND, p < 0.05). Permanent hypoparathyroidism decreased from 3.4 to 2.9%. The rate of transient and permanent vocal cord palsy decreased from 15.2 to 2.7% and from 0.7 to 0.2%, respectively.

Conclusion: With advancements in robotic surgical systems and improvements in BABA RT technique, surgical indications have expanded to include more advanced thyroid diseases, and surgical outcomes have improved over the last 14 years.

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Disclosure of Interest: None declared

64.02

THE PROGNOSTIC IMPACT OF EXTENT OF VASCULAR INVASION IN FOLLICULAR THYROID CARCINOMA

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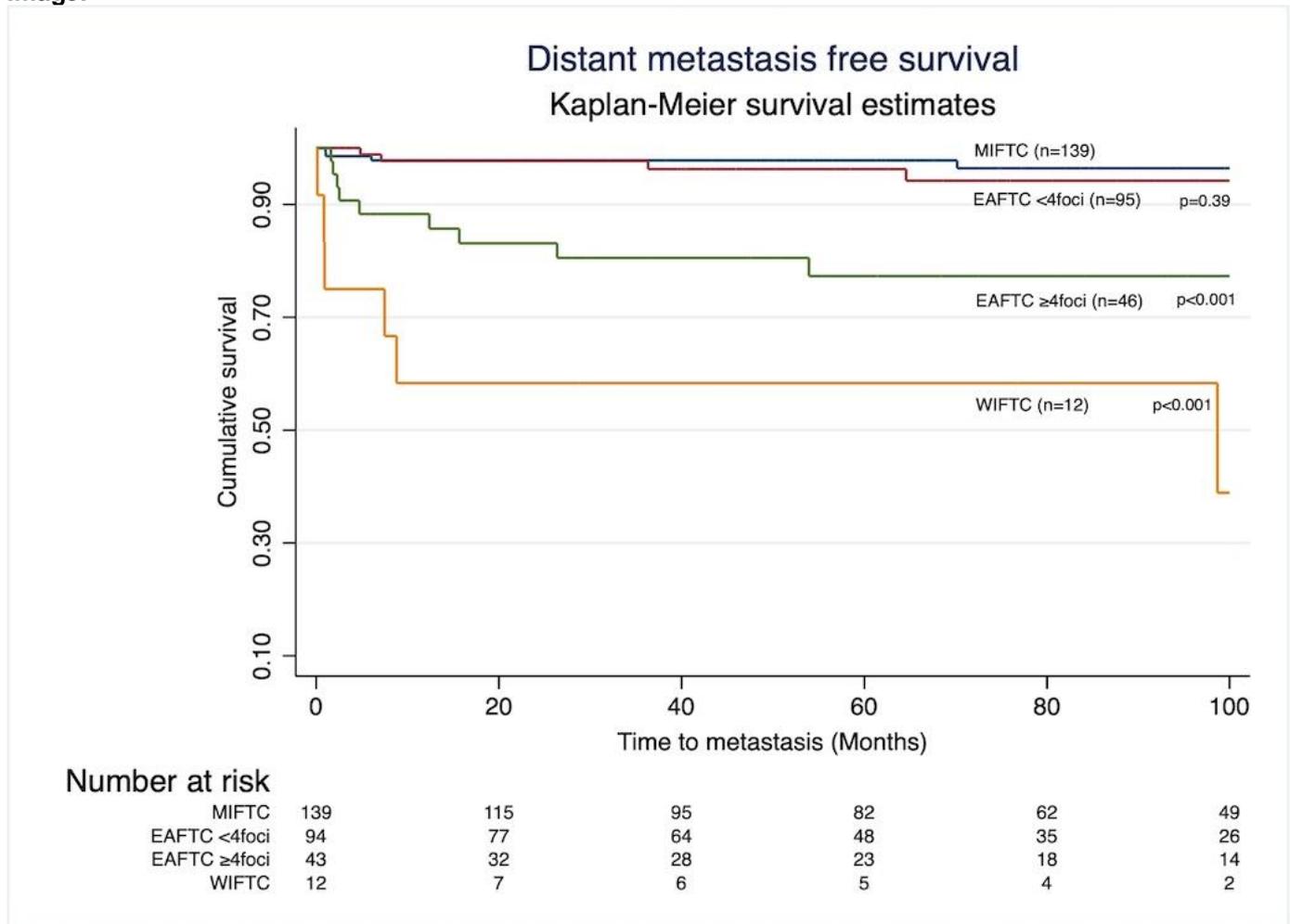
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Introduction: Encapsulated angioinvasive follicular thyroid carcinoma (EAFTC) is associated with an increased risk of distant metastasis and reduced survival compared to minimally invasive follicular thyroid carcinoma (MIFTC). There is controversy regarding the extent of surgery and adjuvant radioactive iodine therapy for angioinvasive follicular thyroid carcinoma when stratified by number of foci of angioinvasion.

Materials & Methods: All follicular thyroid carcinoma cases from 1990-2018 were identified from a thyroid cancer database. Primary outcomes were distant metastasis free survival (DMFS) and disease specific survival (DSS) with factors of interest being age, gender, tumour size, treatment, foci of angioinvasion and histological subtype. Data linkage with the NSW Registry of Births Deaths & Marriages was used to determine survival times. Outcomes were analysed using Kaplan Meier estimates and Cox proportional hazard regression to produce hazard ratios (HR).

Results: A total of 292 cases were identified; 139 MIFTC, 141 EAFTC and 12 widely invasive follicular thyroid carcinoma (WIFTC). The majority of EAFTC patients were treated by total thyroidectomy (>97%) and RAI therapy (>91%). Over a median follow up period of 6.25 years, DMFS was significantly reduced (p<0.001) with 3.6% (MIFTC), 14.2% (EAFTC) and 50% of WIFTC developing metastasis. The risk of metastasis in EAFTC with ≥ 4 foci of angioinvasion was 31.7% (HR=5.89, p=0.004), 6.3% for EAFTC (HR=1.74 p=0.47) with < 4 foci of angioinvasion and 50% for WIFTC (HR=12.05 p<0.001), compared to 3.6% for MIFTC. A significant proportion (50%) of EAFTC presented with metastasis. Age ≥ 50 years (HR=4.24, p=0.005) and tumour size by 1cm (HR=1.27 p=0.014) were significantly associated with increased risk of distant metastasis. DSS was reduced significantly (p<0.001), with 2.9% (MIFTC), 7.8% EAFTC and 33.3% of WIFTC patients dying of disease. For EAFTC patients DSS was 96.8% for < 4 foci and 82.6% for ≥ 4 foci of angioinvasion (p=0.003).

Image:



Conclusion: Encapsulated angioinvasive follicular thyroid carcinomas are at increased risk of distant metastasis with survival related to the extent of angioinvasion. Tumours with < 4 foci of angioinvasion should be considered for a total thyroidectomy and adjuvant RAI therapy particularly in older patients.

Disclosure of Interest: None declared

64.03

PATIENT ANXIETY DURING ACTIVE SURVEILLANCE FOR LOW-RISK PAPILLARY THYROID MICROCARCINOMA IS RELIEVED AFTER 5 YEARS: A PATIENT-REPORTED OUTCOME STUDY WITH LONG TERM FOLLOW-UP

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Introduction: Active surveillance (AS) has been adopted as reasonable management to prevent overtreatment of low-risk papillary thyroid microcarcinoma (PTMC). Several patient-reported outcome (PRO) studies have suggested that patients under AS experience higher anxiety than those receiving immediate surgery. We have performed AS for patients with low-risk PTMC since 1993. This cross-sectional study compared PROs between patients who underwent AS and immediate surgery, and investigated factors affecting quality of life (QoL) in patients during AS.

Materials & Methods: Among 282 patients with low-risk PTMC, 249 were under AS (AS group) and 33 underwent immediate surgery (Surgery group). The Surgery group included both conventional surgery (n = 24) and video-assisted neck surgery (n = 9). Three questionnaires were used to evaluate QoL, including the State-Trait Anxiety Inventory (STAI), the SF-36 version 2 (SF-36v2) and a visual analog scale (VAS) assessing thyroid cancer-related symptoms, anxiety and satisfaction with management. Multiple linear regression analyses were used to determine relationships between state anxiety and other variables in the AS group.

Results: Mean age was 49.9 ± 10.7 years and 246 patients (87.2%) were women. Median duration of follow-up was 7.9 years (range, 0.5–27.0 years) in the AS group and 4.0 years (range, 0.8–25.3 years; $p < 0.001$) in the Surgery group. Compared with the Surgery group, the AS group showed significantly less STAI scores in both state and trait anxiety ($p = 0.04$, $p = 0.03$), and better Mental Component Summary (MCS) score in SF-36v2 ($p = 0.002$). In all scales of the SF-36v2 except Social Functioning (SF), the AS group showed higher scores than norm-based scores for the general Japanese population. With the VAS, the Surgery group reported worse symptoms related to neck surgery than the AS group. In multiple linear regression analysis of the AS group, trait anxiety ($\beta = 0.64$) and follow-up duration ($\beta = -0.12$) were the most significant predictors of state anxiety. Compared with the group with < 5 years since starting AS, the group with ≥ 5 years since starting AS showed significantly lower state anxiety score ($p = 0.002$).

Conclusion: Low-risk PTMC patients under AS showed less anxiety and better psychological health than the Surgery group. A certain period such as 5 years seems to alleviate the anxiety of patients under AS.

Disclosure of Interest: None declared

64.04

FERROPTOSIS INDUCERS IN THYROID CANCER

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Introduction: Papillary thyroid carcinoma (PTC) progression imparts reduced patient survival. Evasive tumor progression can be influenced by antioxidant Glutathione (GSH) metabolism. Glutathione peroxidase 4 (GPX4) regulates GSH oxidation to prevent lipid peroxidation of cell membranes during increased oxidative stress in cancers and regulates ferroptosis cell death pathway in tumor cells. We have shown that PTC tissues are GSH-enriched. This study aims to determine whether ferroptosis is a critical pathway to abrogate GSH-mediated cytoprotective and chemo-resistant behaviors in thyroid cancer cells and 3D spheroid model.

Materials & Methods: We examined differential effects of various classes of GPX4 inhibitors on thyroid cancer cells (K1, MDA-T32, MDA-T68) with diverse mutational signatures and 3D spheroid model. The effects of GPX4 inhibitors on ferroptosis activation, tumor cell survival, oxidative stress, and activation of signaling pathways were assessed by Western blot, GSH/GSSG levels, ROS induction, RT-qPCR, migration, immunofluorescence, and viability assays.

Results: GPX4 inhibition induced ferroptosis, ROS, arrested tumor cell migration, increased DNA damage, DNA damage repair response, and mTOR pathway suppression. Mechanism of GPX4 inhibitor-induced cell death was mTOR pathway suppression-dependent with subsequent activation of autophagy and enhanced DNA damage. Differential responses to DNA damage response were observed in 3D spheroids.

Conclusion: Effective GPX4 inhibition with various inhibitors induced a robust but differential activation of ferroptosis in thyroid tumor cells *in vitro* and in the 3D spheroid model. Our study is the first of its kind to determine the differential effects of GPX4 inhibitors on thyroid cancer cells with various mutational backgrounds. We have identified a novel mechanism of action of GPX4 inhibition in preclinical models of thyroid cancer that can be further exploited for therapeutic benefit in advanced therapy-resistant thyroid cancers.

Disclosure of Interest: None declared

64.05

ICG ANGIOGRAPHY-GUIDED THYROIDECTOMY IMPROVES IMMEDIATE AND LONG-TERM PARATHYROID GLAND FUNCTION

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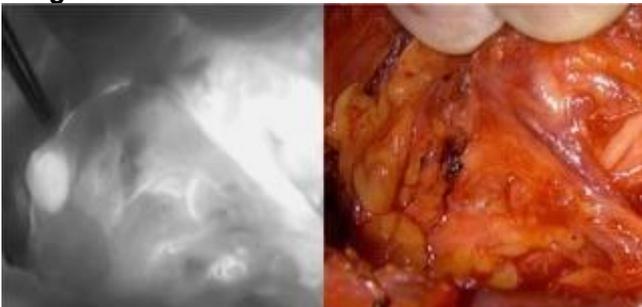
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Introduction: Hypoparathyroidism is the most frequent complication after total thyroidectomy. When it evolves into a permanent condition, it has been associated with a worsening in patients' quality of life, as well as a predisposition to develop multiple disorders and even to a shorter lifespan. Our objective is to assess the usefulness of an indocyanine green (ICG) angiography-guided thyroidectomy to reduce the rate of permanent hypoparathyroidism.

Materials & Methods: We performed a prospective study with two consecutive cohorts (control group: CG; angiography group: AG) of patients who underwent a total thyroidectomy. ICG angiography to assess the vascularization degree of the parathyroid glands at the end of the surgery was performed in all patients (CG and AG). Additionally, in the AG we also performed an ICG angiography immediately after the visualization of parathyroid glands to identify their feeding vessels. Both groups were compared to establish the differences in the rate of postoperative hypocalcemia (need of calcium treatment due to the presence of symptoms or corrected calcium levels at 24h after surgery <1.8 mmol/L) and permanent hypoparathyroidism (need of calcium and/or vitamin D supplementation 12 months after thyroid surgery to maintain calcium levels within the normal range and free of hypocalcemic symptoms). Statistical analysis was performed using the Chi-square test with Yates correction or Fisher's exact test, as appropriate. P-values <0.05 were considered statistically significant. We also calculated the Odds Ratios (OR) with 95% confidence intervals (95%CI).

Results: We included 120 consecutive patients (84 CG; 36 AG). Thyroid cancer was the most common preoperative diagnosis (63.1% CG – 69.4% AG; $p=0.646$) and central lymph node dissection was commonly performed in both groups (54.8% CG – 64.3% AG; $p=0.468$). The AG developed a lower rate of postoperative (26.2% - 5.6%; $p=0.011$) and permanent hypoparathyroidism (11.9% - 0%; $p=0.032$). The OR for permanent hypoparathyroidism was 0.673 (95%CI 0.591-0.766). We also observed a significant higher rate of well vascularized parathyroid glands at the end of the surgery (score 2) in the AG (39.2% - 52.9%; $p=0.018$).

Image:



Conclusion: ICG angiography-guided thyroidectomy is a useful tool to identify parathyroid vascularization, which allows us a better parathyroid preservation and consequently, significant decrease in permanent hypoparathyroidism rates.

Disclosure of Interest: None declared

67.01

EQUITY AND INCLUSION FOR GLOBAL COLLABORATION IN RESEARCH AND EDUCATION REQUIRE HYBRID SURGICAL CONFERENCES

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Introduction: The time has passed for arranging in-person-only international medical and educational conferences. Any professional association or institution publicly espousing support for equity, inclusion, or decolonization must certainly recognize the value of online and hybrid conferences for global colleagues and collaborators. Therefore, these same entities should demand that national, regional, and international conferences offer presenters the option of sharing their research via the internet and allow attendees to tune in from any place on the globe that has Wi-Fi access.

Materials & Methods: The Covid-19 pandemic has taught us that organizations—large such as the American College of Surgeons and small such as the Pan African Academy of Christian Surgeons—can organize and host multi-day international conferences through online platforms such as Zoom. Other groups have organized hybrid conferences with an in-person option that allow participation and presentations via online platforms for professionals unable to attend physically for any reason—travel restrictions, visa difficulties, professional duties, family responsibilities, or financial constraints.

Results: Registration can be required for online presenters and registration fees can be charged for online access for distance attendees. Although some local difficulties with bandwidth and connectivity might occur, any experienced conference goer has seen compatibility issues and technical glitches even when presenter and audience share a room. A critic of this proposal might surmise that venues could suffer financially if fewer persons occupy hotels, eat in restaurants, or take advantage of local sites; but when an important component of the conference is international collaboration, those possible and as yet unconfirmed post pandemic financial aspects should not be allowed to divert the commitment to equity and inclusion.

Conclusion: Almost every week another peer-reviewed article appears pleading for decolonizing the relationship between researchers and educators in HICs and LMICs. Hybrid and online conferences provide steps in this direction by attempting to level the participation playing field. [1, 2, 3, 4, 5]

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Disclosure of Interest: None declared

67.02

CATASTROPHIC EXPENDITURE AND IMPOVERISHMENT AFTER CAESAREAN SECTION IN SIERRA LEONE: AN EVALUATION OF THE FREE HEALTH CARE INITIATIVE

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Introduction: Utilizing surgical services, including caesarean sections, can result in catastrophic expenditure and impoverishment. In 2010, Sierra Leone introduced the Free Health Care Initiative (FHCI), a national financial risk protection program for the most vulnerable groups. Aim of this study was to investigate catastrophic expenditure and impoverishment related to caesarean section in Sierra Leone and evaluate the impact of the FHCI.

Materials & Methods: Women who delivered by caesarean section in nine hospitals were followed up with home visits one month after surgery, and data on medical and non-medical expenditures were collected. Individual income was estimated based on household characteristics and used to determine catastrophic expenditure and impoverishment for each patient. The impact of the FHCI was assessed by comparing actual expenditure with counterfactual expenditures had the initiative not existed.

Results: For the 1146 patients in the study, the median expenditure was 23 (IQR 4; 56) international dollars (Int\$). Patients in the poorest quintile spent a median Int\$ 59 (IQR 28; 76), which was significantly more than patients in the richest quintile, who spent a median Int\$ 17 (IQR 2;38, $p < 0.001$). Travel (32.9%) and food (28.7%) were the two largest expenses. Catastrophic expenditure was encountered by 12.0% and 4.0% (10% and 25% threshold, respectively) of the women. Without the FHCI, 66.1% and 28.8% of the women would have encountered catastrophic expenditure.

Conclusion: Many women in Sierra Leone face catastrophic expenditure related to caesarean section, mainly through food and travel expenses, and the poor are disproportionately affected. The FHCI is effective in reducing the risk of catastrophic expenditure related to caesarean section, but many patients are still exposed to financial hardship, suggesting that additional support is needed for Sierra Leone's poorest patients.

Disclosure of Interest: None declared

67.03

THE SUVA EVIDENCE-BASED GUIDELINES FOR QUALITY SAFE, SURGICAL, OBSTETRIC, TRAUMA, AND ANESTHESIA CARE IN LOW- AND MIDDLE- INCOME COUNTRIES (LMICS)

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Introduction: Morbidity and mortality in surgical, obstetric, trauma and anaesthesia (SOTA) care systems in low- and middle-income countries (LMICs) remain high. Quality improvement processes, interventions, and structure are essential in the effort to improve outcomes. This study aimed to develop evidence-based guidelines on best practice recommendations to improve mortality and infection outcomes in SOTA systems in LMICs.

Materials & Methods: The World Health Organization (WHO) handbook for guideline development was utilized structurally. Systematic reviews were conducted on interventional effectiveness studies that assessed surgical, obstetric and trauma mortality and infection rates in LMICs as a result of its implementation. The Grading of Recommendations, Assessment, Development and Evaluations (GRADE) approach was used to assess the quality of evidence. The current guidelines were proposed by the G4 Alliance and International Society of Surgery International Standards and Guidelines for Quality Safe Surgery and Anesthesia (ISG-QSSA) Working Group. A meeting was held in Suva, Fiji hosted by the Fiji Ministry of Health in March 2020, which formed the initial consensus for the results. In November of 2021, the G4 Alliance Permanent Council members convened to achieve consensus (>80% agreement) on the final recommendations.

Results: Three systematic reviews screened 44,129 articles, yielding 107 studies which were included in a qualitative synthesis, and 69 studies were included in a meta-analysis to produce a pooled estimated effect size of reduction in mortality and infection across nine interventions. The final 11 best practice recommendations covered three main topics: three targeting surgical infection and mortality, four targeting trauma mortality, and four recommendations targeting the improvement of maternal and perinatal mortality.

Conclusion: These best practice recommendations aim to improve mortality and morbidity in LMIC SOTA systems by providing a list of practical, evidence-based, achievable, and effective quality improvement processes that can serve as a guide to policymakers, government stakeholders and hospital administrators currently undergoing surgical scale-up on the path to improving the safety, quality, and accessibility of surgical care in LMICs.

Disclosure of Interest: None declared

67.04

INTERNATIONAL CONSENSUS RECOMMENDATIONS FOR THE OPTIMAL PRIORITIZATION AND DISTRIBUTION OF SURGICAL SERVICES IN LOW- AND MIDDLE- INCOME COUNTRIES

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Introduction: Urgent and accelerated investment in surgical scale-up is needed to meet the demand for surgical services in low- and middle-income countries (LMICs); however, no consensus has been established on the optimal distribution and prioritization of surgical services. This study sought to develop consensus statements regarding the regional-level or district-level distribution of surgical services in LMICs and prioritization of service scale-up.

Materials & Methods: The Global Alliance for Surgical, Obstetric, Trauma, and Anaesthesia Care (The G4 Alliance) and the International Society of Surgery (ISS) International Standards and Guidelines for Quality Safe Surgery and Anaesthesia (ISG-QSSA) Working Group invited international surgeon experts from LMICs to participate in an eDelphi consensus process. The initial statements for assessment were developed by the Working Group comprised of 13 members from various surgical specialties. Voting took place in two rounds between May and June 2020.

Results: Fifty-three nominated experts from 27 LMICs voted on 27 statements in two rounds. Ultimately, 26 statements reached consensus ($\geq 80\%$ agreement) and comprise the current recommendations. The statements covered three major themes: whether surgical services should be decentralized or regionalized; how the implementation of these services should be prioritized; and principles to guide LMIC governments in scaling up safe, accessible, and affordable surgical care.

Conclusion: These recommendations constitute the best available basis for policymaking, planning, and allocation of resources for strengthening surgical systems in LMICs.

Disclosure of Interest: None declared

67.05

**DISTRESS FINANCING AND IMPOVERISHING EXPENDITURES DUE TO SURGICAL CARE IN INDIA:
RETROSPECTIVE ANALYSIS OF NATIONALLY-REPRESENTATIVE SURVEY (2017-18)**

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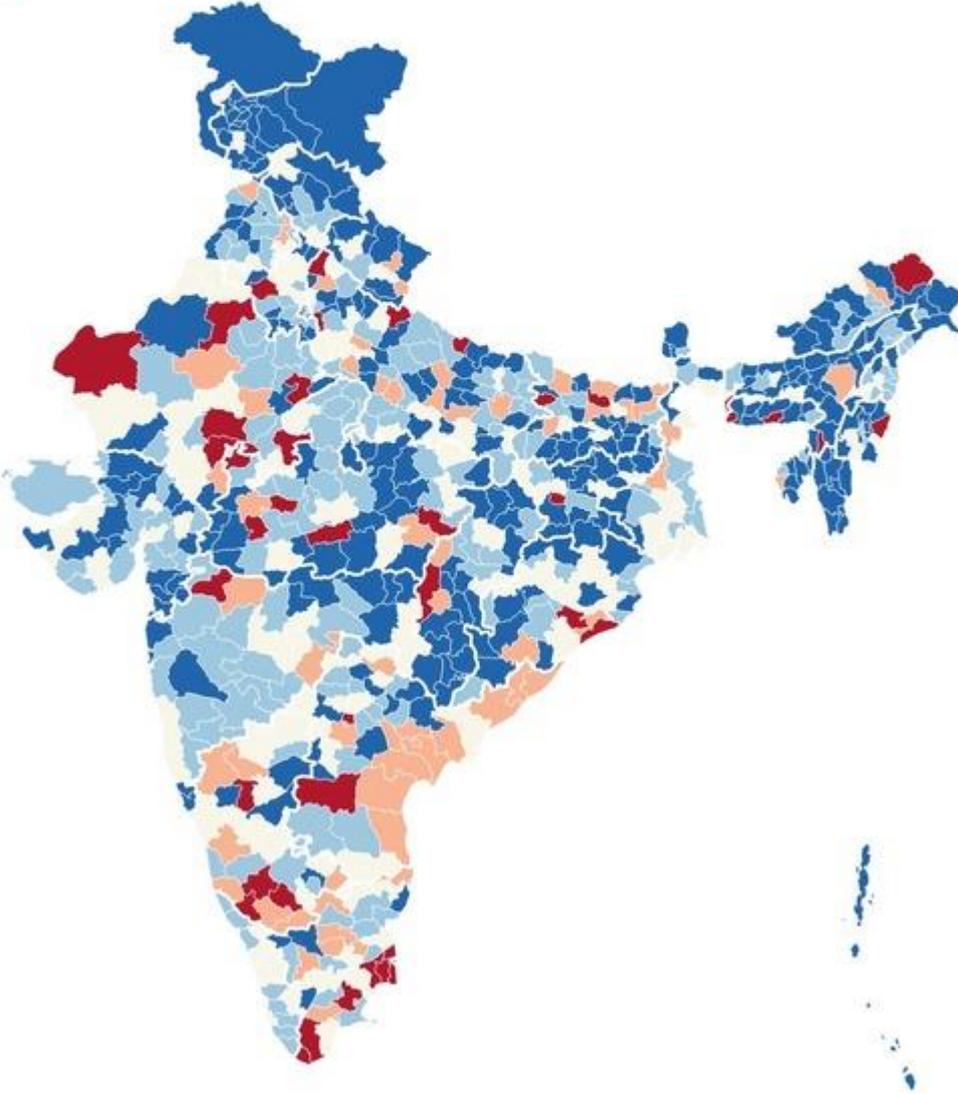
Introduction: Globally, 57% surgery seekers are at the risk of impoverishing health expenditure (IHE) and use financing mechanisms that put them at distress. While the Lancet Commission on Global Surgery created country-level estimates, there is still a lack of comprehensive subnational assessment of distress financing (DF) and IHE. We filled this gap to create national, state, and district-level DF and IHE estimates due to surgical hospitalisations in India.

Materials & Methods: We conducted a retrospective analysis of data from 75th National Sample Survey 75th Round on Social Consumption in Health (July 2017 – June 2018) with a nationally-representative sample of 113823 households. We included households with at least one surgical hospitalization in the last 365 days. Outcomes included: 1) Surgical rates per 100000 people. 2) Out-of-pocket expenditures (OOPE) corresponding to hospitalizations - as the summation of costs of treatment packages, transportation, and non-medical expenses in Indian National Rupees (INR) after removing the amount reimbursed by the medical insurance company or employer. 3) IHE - as the proportion (%) of households that fell below poverty line after surgery plus the below-poverty-line households pushed into impoverishment using the state-specific rural and urban poverty line thresholds from the Reserve Bank of India. 4) DF - as % households that borrowed money from friends/family or sold their assets to meet surgical care expenses. Values are reported as estimates and accompanying standard errors (SE).

Results: Nationally, surgical rate and OOPE due to surgical hospitalizations were 1489 (SE: 27.2) and 27565.63 (758.05) INR, respectively. 15.35% (0.54)% of surgery-seeking households faced DF while 72.89% (8.38)% faced IHE. Rural areas had lower surgical rates (1306 (32.95) vs. 1929 (48.41)) and OOPE (24916.37 (971.97) vs. 31859.64 (1208.11)) than urban areas but higher proportions of IHE (77.81 (1.10) vs. 64.86 (1.24)) and DF (17.29 (0.75) vs. 12.19 (0.76)). There were wide variations across 36 states/union territories and 662 districts for all outcomes. Example, DF ranged from 0% in districts like Bikaner, Leh, Kargil to 100% in Upper Dibang Valley.

Image:

Proportion (%) of surgery-seeking households facing distress financing



Conclusion: These first-ever findings can inform India’s national surgical planning. Significant DF and IHE prevalence among surgery-seekers rationalizes greater allocation to surgery under public health insurance. Findings are limited by high error rates for smaller regions and recall bias.

Disclosure of Interest: None declared

67.06

OFF-LABEL USE OF ORTHOPEDICAL TRAUMA IMPLANTS IN A LOW-INCOME COUNTRY

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Introduction: Lack of resources, severe injuries, and logistical flaws force surgeons in low-income countries (LIC) to improvise during surgery and use implants "off-label." These off-label treatments are specific for the work of trauma surgeons in non-governmental (NGO) hospitals in LIC. The aim of this study is to show the need of off-label surgery in an environment of low resources by means of typical examples.

Materials & Methods: Off-label treated fractures, the implant used instead, and the reason for off-label treatment were investigated in 367 injuries over a three month period in an NGO hospital in Sierra Leone.

Results: Twenty-seven fractures were treated off-label with mostly K-wires (88.89%) and external fixators (51.85%). Three reasons for off-label use could be defined: no suitable implants (N = 14), the condition of soft tissues that did not allow internal osteosyntheses (N = 10), and implants not ready for surgery due to logistic flaws (N = 3). The implants needed were mostly locking plates.

Conclusion: Surgeons in similar settings must use K-wires and external fixators to treat complex fractures. Using implants off-label can help surgeons to treat fractures otherwise left untreated.

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Disclosure of Interest: None declared

68.01

FEMALE MEDICAL STUDENTS AND A CAREER IN SURGERY - A SYSTEMATIC REVIEW

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Introduction: This systematic review is a direct follow on from a 2012 review by Yu et al exploring factors influencing female medical students' surgical career choice. This review aimed to identify whether there have been changes in factors influencing female medical students to pursue a career in surgery over the last 10 years.

Materials & Methods: Six electronic databases were searched, articles screened, and themes assessed by two independent investigators as per PRISMA 2020. Studies were included if - published in English after June 2012, results not replicated elsewhere, >60% enrolled in a medical programme, identified relevant factors, career choice inclusive of general surgery and drew gender separate conclusions. Studies were excluded if – qualitative, systematic reviews, had no gender specific analysis and did not include general surgery.

Results: A total of 1,151 articles were identified and 20 were eligible for inclusion. Disincentives identified were - family aspirations, lack of access to parental leave, lifestyle, inflexibility and length of training, high workload, lack of part time work, lack of female role models, gender inequality and perceived gender discrimination. Incentives were – ability to help people, having a less ambitious partner, prestige and financial stability, acute nature of surgery, challenging and stimulating cases, hands on approach, becoming a mentor and same gender mentors. A new supportive factor of access to research opportunity was identified.

Conclusion: Despite a decade passing with colleges and institutions taking strides to address factors influencing a career in surgery, there appears to be very little change reported by female medical students. However, a new factor of access to research opportunities has emerged and may be a useful recruitment tool to increase female trainee interest.

Disclosure of Interest: None declared

68.02

ADDRESSING KNOWLEDGE GAPS IN SURGICAL SAFETY CHECKLIST USE: A STATISTICAL PROCESS ANALYSIS OF A SURGICAL QUALITY IMPROVEMENT PROGRAM IN ETHIOPIA

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Introduction: While implementation of the WHO Surgical Safety Checklist (SSC) reduces morbidity and mortality^{1,2}, uptake remains challenging in low-income countries^{3,4}. Clean Cut, a surgical quality improvement program, has been shown to reduce surgical infections in a pilot program in Ethiopia, and we continue to implement this program in additional hospitals. We aimed to determine the impact of educational workshops to improve SSC use in five new hospitals where Clean Cut has been implemented.

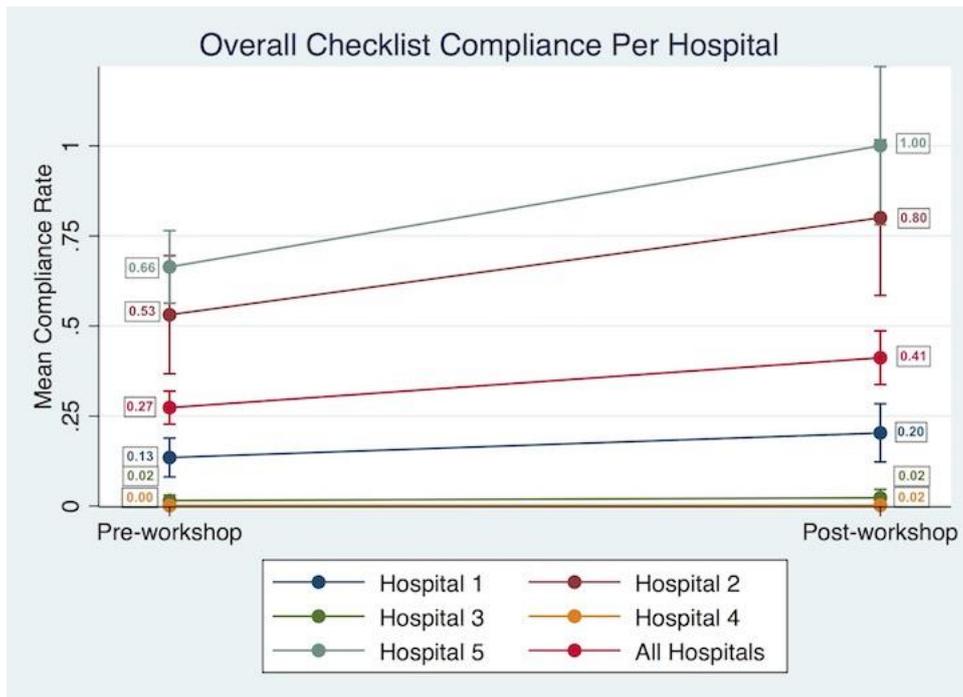
Materials & Methods: We performed an analysis of Clean Cut data using statistical process control methodology to understand the variation in SSC uptake before and after educational workshops. From April 2019-September 2020, each of the five hospitals implemented Clean Cut, including receiving checklist workshops, over a 6-month period. To assess the change in checklist compliance following the checklist workshop, we performed a time series analysis using population-averaged generalized estimating equations Poisson regression. We calculated the incidence rate ratio of correct checklist use pre- and post-workshop and predicted the change in average weekly compliance attributed to the workshop. We report improvements in SSC utilization as percentage increases.

Results: We captured data from 2,767 operations, 1,940 (70.1%) pre-workshop and 827 (29.9%) post-workshop. Average weekly checklist compliance improved 34% (from 27% to 41% overall compliance) after workshop delivery. Use of sign in, time out, and sign out improved 25%, 8%, and 16%, respectively (Table 1). Hospitals with higher checklist performance at baseline had the greatest improvement, while low performing hospitals showed little to no improvement (Figure 1).

Mean compliance rate (95% CI) Rate difference

	Pre-workshop		% Increase	P-value
Checklist Compliance	.27 (.22-.32)	.41 (.33-.49)	.14 (.05-.22)	34% 0.001
Sign in	.39 (.33-.45)	.52 (.44-.61)	.13 (.03-.23)	25% 0.010
Time out	.69 (.61-.76)	.75 (.65-.85)	.06 (-.04-.17)	8% 0.25
Sign out	.41 (.35-.46)	.49 (.41-.57)	.08 (.00-.17)	16% 0.082

Image:



Conclusion: Checklist workshops improved rates of checklist compliance during Clean Cut implementation, particularly in hospitals with some experience in its use. They had little effect on checklist use or implementation in sites not already regularly using the SSC, emphasizing the importance of multifactorial interventions and culture change approaches. In facilities ready to engage with quality improvement initiatives, short workshops can serve as a catalyst to accelerate behavior change.

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Disclosure of Interest: None declared

68.03

WOMEN INVOLVEMENT IN GENERAL SURGERY IN COLOMBIA: A DEEP VIEW IN LATIN-AMERICAN REALITY

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Introduction: Women choose the specialty of surgery because of suitable models and academic challenges mixed with a technical component. In the present work we want to establish the real participation of women in residency and work level in general surgery.

Materials & Methods: A survey was carried out in academic and surgical training centers (n=152), main work centers (n=111) in capital cities (n=115) and university teaching centers (n=477) in 2020 to establish the percentage of women's participation in residency and at work level in general surgery.

Results: Women represent 39% of residents in training in general surgery. In major hospital centers, women represent only 9% of job positions. Finally, only 21% of university surgical teaching positions are held by women.

Conclusion: Although there has been an increase in the possibility of entry into residency and the surgical labor scenario for women, based on our results there is still a large participation gap in our country. Therefore, mentorship and diversity should continue to be promoted in order to put an end to the ghost of gender bias in the surgical field.

Disclosure of Interest: None declared

68.04

ANALYTIC STUDY ON BEHAVIOR OF SUPERSPECIALITY TRAINEES TOWARDS YOUNG FACULTY DURING THYROIDECTOMY

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Introduction: Formal surgical training involves the consultant scrubbing and assisting the trainees to perform surgical procedures. The younger faculty majority of them in their initial stages of career do not enjoy the privileges of Professors yet have to balance their academic and surgical training and also maintain the discipline of surgical training most of the senior professors. We aimed to study the analysis of behavior of senior residents on advice of a young faculty during procedures of Hemi or Total Thyroidectomy.

Materials & Methods: It is a prospective study in a tertiary referral center where a young faculty after his formal training in superspeciality of Endocrine Surgery and 2 year of post training experience in one another department of Endocrine Surgery was recruited and he scrubbed assisted the trainees the trainee was rated complaint based on Compliance score. Residents were termed efficient or non-efficient based on efficiency score.

Results: Out of total 100 surgeries, 40% and 60% were HT and TT performed by trainee residents with maximum were males (57%). 84% residents were complaint while 81% identified as efficient. 73% residents were both complaint and efficient, 8% were both non-complaint and non-efficient, 8% were non complaint and efficient. There was significant association between compliance and efficiency (p value = 0.002) but insignificant association with gender (male: 87.7% Vs. female: 79.1%, p=0.243).

Conclusion: Majority of trainees in superspeciality training are complaint and efficient when dealing with surgical procedures involving young faculty as trainer. However in this study when they reach their 3rd year of training compliance decreased and efficient behavior increased for certain residents.

Disclosure of Interest: None declared

68.05

ENVIRONMENTALLY SUSTAINABLE SURGERY: WASTE PRODUCTION IN GENERAL SURGERY

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Introduction: The World Health Organisation defines a Sustainable Healthcare System as a system that improves health and minimizes negative impacts on the environment. Hospitals produce more than 5 million tons of waste each year. Operating rooms (ORs) generate between 20% and 70% of hospital waste. The WHO has issued its own guidelines on the different types of medical waste, which include: infectious waste, sharps, pathological waste, pharmaceutical waste, genotoxic waste, radioactive waste, chemical waste, non-hazardous or general waste. Of the OR waste produced, up to 90% is wrongly classified as biohazardous waste, meaning it cannot be repurposed, reduced or recycled, but has to be treated in a manner which prevents any future health risks. The approximate annual cost of waste management in health systems is about \$ 5,000,000.

Materials & Methods: Based on these findings and our own observations in the OR, we predicted that there were even greater amounts of OR waste in general surgery. The goal of our study could be therefore to quantify the healthcare waste produced during the most performed procedures in General Surgery. The authors identified disposable supplies and instruments that are routinely opened and wasted in common general surgery procedures at the University Surgical Department of San Salvatore Hospital in L'Aquila (Italy).

Results: The most performed procedures included open repair of groin hernia, haemorrhoidectomy, laparoscopic cholecystectomy. All the waste produced from the moment when patient leaves the ward until the moment he returns was collected and weighted. The considered waste was paper, plastic, metal, glass, gauzes, and everything that is thrown away. Then, a distinction was made between which of this waste is considered "dirty" (biohazardous), which is "clean", which is potentially recyclable.

Conclusion: General surgery procedures generate a substantial amount of waste. Significant financial and environmental benefit could result from an appropriate waste segregation and an implementation of recycling programs.

Disclosure of Interest: None declared

74.01

CHARACTERISTICS OF WOUND AND BUCCAL SWABS FROM DIFFERENT BURN WOUND LOCATIONS

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Introduction: Due to their immunosuppressed state, burn patients are particularly susceptible to infection in the acute period. Despite many advances in infection control, early excision and grafting and topical antimicrobials, diagnosis and treatment of burn wound infections remains a challenge for providers. Specifically, the rise of multi-drug resistant organisms has necessitated the judicious use of antibiotics. Furthermore, there is limited information regarding the differences in microbial diversity between different groups of patients. Therefore, this study aimed to better categorize the specific differences in the microbiome of patients based on the location of their burn wounds.

Materials & Methods: 31 patients with minor (<10% TBSA) and uncomplicated thermal burns anticipated to require a single excision and grafting operation were enrolled. Blood draws, wound biopsies, culture swabs and saliva for oral microbiome (16S rRNA) analysis were collected before and after wound excision, at first dressing takedown, and at first follow-up visit (10-14 days). Data was analyzed using Faith's Phylogenetic Diversity Metric (Alpha diversity), Permutational multivariate analysis of variance (Beta diversity) and Linear discriminant analysis effect size (LEfSe; Taxa abundance).

Results: Burn location was summarized into lower extremity, trunk and upper extremity. Upper extremity included chest, back, arm and hand. Trunk included abdomen and lower extremity included leg and foot. No significant differences in alpha diversity were detected in buccal swab or wound bed (WB) swab between groups. WB swab beta diversity for lower extremity differed significantly from both trunk and upper extremity (PERMANOVA, $p=.01$ and $.008$, respectively). LEfSe plots showed enrichment of greater than 15 taxa among the different burn locations ($p<.05$, LDA >4). In particular, buccal swabs from lower extremity showed *Neisseria* and *Serratia* and upper extremity showed *Phocaeicola*, *Lactobacillus* and *Prevotellaceae*. WB swabs showed enrichment of *Burkholderiaceae*, *Staphylococcus* and *Serratia* and *Enterobacteriaceae* in upper extremity, trunk and lower extremity, respectively.

Conclusion: Our study shows that different burn wound locations display unique microbiome characteristics. Better understanding of these specific microbial profiles could help aid in the development of targeted therapies to help reduce infections and the increasing prevalence of multi-drug resistant organisms.

Disclosure of Interest: None declared

74.02

REVISITING “DONOR-FREE” SKIN REPLACEMENT WITH FULL-THICKNESS SKIN MICRO-COLUMNS WITHIN A DERMAL MATRIX

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Introduction: Although split-thickness skin grafts (STSG) remain the standard in the coverage of large full-thickness skin defects, the disadvantages of STSG donor and recipient sites appeal to the search for alternatives. We have previously published a case report of two patients who had undergone implantation of full-thickness skin micro-columns (FTSC), and we here revisit the long-term outcomes of one of those patients. The benefit of these microcolumns is that they contain the elements of full-thickness skin grafts, and therefore have the same beneficial qualities in the context of wound healing.

Materials & Methods: A case review was performed of a patient who underwent reconstruction of a full-thickness arm wound by way of FTSC. The FTSC was harvested from the lateral thigh and implanted into a bilayer dermal regeneration matrix (Integra). Donor and recipient sites were assessed on scheduled follow up visits.

Results: By post-operative day 30, the thigh donor site had completely re-epithelialized, and by post-operative day 60, the arm wound had healed as well with minimal scarring or pain. Two years later, the patient returned to clinic and was found to have maintained successful take of the recipient site and no donor site morbidity.

Conclusion: Long term outcome of clinical usage of FTSC embedded in bilayer dermal matrices results in successful, durable coverage of full-thickness defects without any perceivable donor site morbidity. Continued developments are needed to promote this single-stage technique as an alternative to conventional skin replacement therapy.

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Disclosure of Interest: None declared

74.03

THE METABOLIC RESPONSE TO SEVERE INJURY

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Introduction: Hypermetabolism characterizes the human response to severe injury, burns, fractures, multiple organ trauma. The determinants of burn treatment include fluid resuscitation, treatment of inhalation injury, early acute management of burns, control of infection, early closure of the burn wound, support of the hypermetabolic response to trauma, rehabilitation, and recovery.

Materials & Methods: In this review, we will discuss methods of modulating the hypermetabolic response to trauma as it affects acute care and rehabilitation and recovery.

Results: Hypermetabolism characterizes the human response to major trauma, multiorgan failure, and burns.¹ This response is characterized by an increased heart rate and cardiac dysfunction.

This increased heart rate continues for two years from the time of injury, as does increased cardiac output. With increased energy expenditure of 150% above normal continuing for one year post injury, increased protein catabolism that can waste up to one-third of the muscle mass, increased temperature to 38.5°C exists through acute hospitalization. Increased lipolysis (fatty infiltration of the liver), negative nitrogen balance, and loss of muscle mass continue throughout the first-year post-injury and growth stops in children for up to two years postburn. Proper nutrition, control of environmental temperature, modulation of the endocrine response with oxandrolone, propranolol and exercise improve these responses.

Conclusion: Mortality is decreased with the advent of control of the hypermetabolic response in decreasing catabolism. Strength, long-term outcomes, and quality of life are improved. From 1980 to 1986, 32% of patients with burns over 60 - 100% TBSA died.² The decrease in mortality from 1987 to the present is such that less than 18% of patients with burns over 60 - 100% die. Overall scarring, facial scarring, hand scarring, and future employability have been improved through exercise and modulation of the hypermetabolic response.

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Disclosure of Interest: None declared

81.01

A RANDOMIZED CONTROLLED TRIAL TO COMPARE THE EFFICACY OF INTRAPERITONEAL INSTILLATION OF LEVO-BUPIVACAINE WITH LIDOCAINE FOR POST-OPERATIVE PAIN RELIEF IN PATIENTS UNDERGOING LAPAROSCOPIC CHOLECYSTECTOMY

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Introduction: Laparoscopic approaches to surgery have become a trend with laparoscopic Cholecystectomy being the most performed Laparoscopic surgery. In around 17% of the patients, the main reason for overnight hospitalstay (1) and the primary reason for prolonged convalescence post laparoscopic cholecystectomy is pain. (2) The intra-peritoneal use of local anesthetics (IPLA) produces a significant decrease in early post-operative abdominal pain. (3) But a consensus on the best drug, concentration and area to be applied has not been achieved.

Materials & Methods: The study was designed as randomized controlled study with double blinding. A total of 295 participants were recruited for the study and randomized to one of the four groups.

1. Group A-lidocaine instillation before gall bladder (GB) dissection
2. Group B-lidocaine instillation after GB dissection
3. Group C-Levo-Bupivacaine instillation before GB dissection
4. Group D-Levo-Bupivacaine instillation after GB dissection

After applying the exclusion criteria, 175 participants remained (Group A=42, Group B=51, Group C=41, Group D=41). The pre-, intra- and post-operative data was collected using a proforma. Intraoperative surgical difficulty was recorded as per the scoring system proposed by Sugrue et al. (4) Post-operative pain was recorded using visual analog scale (VAS). Statistical analysis was done using SPSS ver. 28 and relevant statistical tests were done.

Results: Significantly lower pain scores were recorded in Group C compared to Group D ($p < 0.01$). No difference noted in the pain scores between Group A and C and between Group B and D. Comparison of VAS scores between genders revealed lower scores in males than females in comparison of Group A with B ($p < 0.024$) and comparison of Group C with D ($p < 0.001$). Comparison of the VAS scores between Group C and D with the difficult laparoscopic cholecystectomy scores were significantly lower ($p < 0.001$) when the scores were < 2 . Shoulder tip pain was found to be significantly lower in Group A compared to Group B ($p < 0.004$), and in Group C compared to Group D ($p < 0.002$).

Conclusion: As per the results of our study, it is evident that there are better post-operative outcomes when IPLA instillation is done prior to GB dissection. No difference has been noted between the use of Lidocaine and Levo-Bupivacaine. Considering this and the higher cost of Levo-Bupivacaine, Lidocaine can be presumed to be the better alternative. But further studies need to be done with a larger sample size to validate this.

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Disclosure of Interest: None declared

81.02

CHILDHOOD APPENDICITIS AND FUTURE RISK OF INFLAMMATORY BOWEL DISEASE -A NATION-WIDE COHORT STUDY IN SWEDEN 1973-2017

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Introduction: This study investigates the association between juvenile appendicitis, treated conservatively or with appendectomy, and, adult risk of inflammatory bowel diseases (IBD) either ulcerative colitis (UC) or Crohn's disease (CD). We used nation-wide population data from more than 100,000 individuals followed for over 4 decades.

Materials & Methods: All Swedish patients discharged with an appendicitis diagnosis before age 16 between 1973 to 1996 were identified. Everyone diagnosed with appendicitis was matched to an individual in the general population without a history of juvenile appendicitis (unexposed) of similar age, sex and region of residence. The study population was retrospectively followed until 2017 for any development of UC or CD. Cox proportional-hazards models compared disease-free survival time between exposed and unexposed, also analysing the impact of treatment (conservative treatment vs appendectomy).

Results: The final cohort consisted of 52,391 individuals exposed to appendicitis (1,674,629 person years) and 51,415 unexposed (1,638,888 person years). Childhood appendicitis with appendectomy was associated with a significantly lower risk of adult IBD (adjusted hazard ratio (aHR) 0.48 (0.42-0.55)), UC (aHR 0.30 (0.25-0.36)) and CD (aHR 0.82 (0.68-0.97)). Those treated conservatively had a lower risk of adult UC (aHR 0.29 (0.12-0.69)) but not CD (aHR 1.12 (0.61-2.06)) compared to unexposed individuals.

Disease outcome	Number of patients	Events / Person years	Adjusted hazard ratio (95% CI)
Inflammatory bowel disease	103,806	1,148 / 3,313,518	
No juvenile appendicitis (unexposed)	51,415	777 / 1,638,888	1 (ref)
Appendectomy	50,421	355 / 1,614,849	0.48 (0.42 - 0.55)
Conservative treatment	1,970	16 / 59,781	0.59 (0.36 - 0.96)
Ulcerative colitis	103,806	619 / 3,321,105	
Juvenile appendicitis	52,391	145 / 1,677,985	0.30 (0.25 - 0.36)
Appendectomy	50,421	140 / 1,618,040	0.30 (0.25 - 0.36)
Conservative treatment	1,970	5 / 59,945	0.29 (0.12 - 0.69)

Crohn's disease	103,806	529 / 3,321,186	
No juvenile appendicitis (unexposed)	51,415	303 / 1,644,677	1 (ref)
Appendectomy	50,421	215 / 1,616,662	0.82 (0.68 - 0.97)
Conservative treatment	1,970	11 / 59,847	1.12 (0.61 – 2.06)

Conclusion: Juvenile appendicitis treated with appendectomy was associated with a decreased risk of adult IBD, both UC and CD. Those treated conservatively instead of surgery had a lower risk of UC only. Our findings warrant more research on the role of the appendix and gut microbiota in IBD pathogenesis.

Disclosure of Interest: None declared

81.03

DIAGNOSTIC IMAGING OR OBSERVATION IN EARLY EQUIVOCAL APPENDICITIS (DIAMOND) – AN OPEN-LABEL, RANDOMISED CONTROLLED TRIAL

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Introduction: It is suggested that mild appendicitis can resolve spontaneously and that the use of computed tomography (CT) may lead to overdiagnosis of uncomplicated appendicitis¹. Adult Appendicitis Score (AAS)² can be used to select patients with intermediate risk (score 11-15) for appendicitis, who, according to the current protocol, are recommended to be imaged. The aim was to study whether imaging results in more patients diagnosed with appendicitis than observation and to evaluate the safety and feasibility of score-based observation compared to imaging in patients with equivocal signs of appendicitis.

Materials & Methods: Adult patients with suspected appendicitis with symptoms less than 24 hours and AAS 11-15 were eligible for this trial. After exclusions, patients were openly randomised into two equal-sized groups: imaging and observation. Patients in the imaging group had ultrasound followed by CT when necessary, whereas patients in the observation group were reassessed after 6-8 hours with repeated scoring and managed accordingly. The primary outcome was the number of patients requiring treatment for acute appendicitis within 30 days.

Results: Ninety-three patients were randomised to imaging and 92 to observation, and after exclusions, 93 and 88 patients were analysed in each of these groups, respectively. Imaging led to more patients requiring treatment for acute appendicitis than observation: 72.0% vs 56.8%, a difference of 15.2% (95%CI 1.4% - 29.0%), suggesting that patients with spontaneously resolving appendicitis were not diagnosed or treated in the observation group. 54.5 % of patients in the observation group did not need any diagnostic imaging within 30 days after randomisation. Less CT scans were performed for patients in the observations group: 34.1% versus 72.0% within 30 days and 38.6% versus 72.0% within one year. There was no statistical difference in the numbers of complicated appendicitis (4.3% vs 2.3%) or negative appendectomies (1.1% vs 1.1%) in imaging and observation groups, respectively.

Conclusion: Score-based observation of patients with early equivocal appendicitis results in fewer patients requiring treatment for appendicitis, probably by avoiding diagnosis in patients with resolving appendicitis. Score-based observation using the AAS is a safe and practical alternative for imaging.

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81.04

SYSTEMATIC REVIEW AND METAANALYSIS ON PREOPERATIVE COMBINED MECHANICAL AND ORAL ANTIBIOTIC BOWEL PREPARATION FOR PREVENTING COMPLICATIONS IN ELECTIVE COLORECTAL SURGERY

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Introduction: The occurrence of postoperative complications such as anastomotic leaks or surgical site infections (SSI) influence the treatment outcome after colorectal surgery. One reason for the increased risk of complications following colorectal surgery is the physiologically high bacterial colonisation of the bowel. Preoperative bowel preparation therefore aims to remove faeces and reduce bacterial colonisation. This can be done mechanically and/or with non-absorbable oral antibiotics. While the ineffectiveness of MBP alone has already been demonstrated, recent data suggest some benefit from combined mechanical and oral antibiotic bowel preparation.

Materials & Methods: We included randomised controlled trials (RCTs) of adult patients undergoing elective colorectal surgery comparing combined mechanical and oral antibiotic bowel preparation (MBP+oAB) with sole MBP, sole oAB or no bowel preparation (nBP).

We searched MEDLINE, Embase and CENTRAL up to December 2021 using relevant search terms. Standard methodological procedures as recommended by Cochrane were used for study selection, data extraction and risk of bias assessment. Pooled results are reported as mean difference (MD) or risk ratio (RR) and 95 % confidence interval (CI). GRADE criteria were applied to assess the overall certainty of evidence.

Results: We included 21 RCTs analyzing 5264 patients undergoing elective colorectal surgery.

17 studies compared MBP+oAB with MBP and showed a 44% (RR 0.56, 95% CI 0.42- 0.74) reduction in risk of SSI and 41% (RR 0.59, 95% CI 0.36- 0.99) reduction of anastomotic leaks when MBP+oAB was used.

3 studies compared MBP+oAB with oAB and found no difference between the 2 treatment alternatives in terms of risk of SSI (RR 0.87, 95% CI 0.34- 2.21) and risk of anastomotic leakage (RR 0.84, 95% CI 0.21- 3.45), based on low to very low certainty of the evidence.

Only one study compared MBP+oAB with nBP and concluded that MBP+oAB reduced the incidence of SSI (RR 0.63, 95% CI 0.33-1.23) without affecting the risk of anastomotic leakage (RR 0.89, 95% CI 0.33-2.42).

Conclusion: The results show that MBP+oAB is more effective than MBP alone in reducing the risk of SSI and anastomotic leakage.

Whether the effect of oAB alone is actually equivalent to that of MBP+oAB, as our results suggest, cannot be determined given the low certainty of the evidence. Also, the question of whether MBP+oAB actually reduces the risk of SSI compared to nBP without affecting the rate of anastomotic leaks needs further investigation.

References: The protocol for the review is registered in the Cochrane Database of Systematic Reviews.

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Disclosure of Interest: None declared

81.05

CAN TARGETING SPHINCTER SPASM REDUCE POST-HAEMORRHOIDECTOMY PAIN? A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Haemorrhoidectomy is often complicated by significant postoperative pain, of which, spasm of the internal anal sphincter is thought to be a contributing factor. This study aims to appraise the evidence behind interventions aimed at lowering sphincter spasm to relieve post-haemorrhoidectomy pain.

Materials & Methods: A Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) compliant systematic review was conducted from September 2021 to January 2022. Medline, EMBASE and CENTRAL databases were systematically searched. All RCTs which compared interventions targeting the internal anal sphincter to relieve pain post excisional haemorrhoidectomy were included. The primary outcome measure was pain on the visual analogue scale (VAS). A random effects meta-analysis was conducted using the 'meta' package in R. PROSPERO registration: CRD42021288125

Results: Of the initial 10221 search results, 45 articles were included in a qualitative synthesis, and 20 studies were included in a meta-analysis. Four studies show that botulinum toxin injection significantly reduces pain on postoperative day two, with a mean difference (MD) of -0.55 (95%CI, -1.02; -0.068), $p=0.036$, $I^2=5.7\%$. Five studies show topical diltiazem significantly reduced pain at day three: MD -1.74 (-2.86; -0.61), $p=0.013$, $I^2=88\%$. Seven studies demonstrate topical glyceryl trinitrate (GTN) significantly reduced pain at day seven: -0.89 (-1.76; -0.01) $p=0.048$, $I^2=89.1\%$. Four studies show lateral internal sphincterotomy did not significantly reduce pain: MD -1.40, (-4.69; 1.89) $p=0.27$, $I^2=94\%$. Lateral internal sphincterotomy was associated with a significantly higher risk of incontinence shown in nine studies, with low heterogeneity. RR 2.75 (1.18- 6.40), $I^2=0.00\%$ $p=0.024$. The results for the primary outcome are limited by high heterogeneity and the risk of bias.

Conclusion: Evidence suggests that the administration of botulinum toxin or the application of topical diltiazem or GTN can reduce postoperative pain after haemorrhoidectomy. Sphincterotomy did not appear to reduce pain after hemorrhoidectomy, however is associated with a significantly higher risk of incontinence.

Disclosure of Interest: None declared

81.06

ESTABLISHMENT OF A 'BEYOND TOTAL MESORECTAL EXCISION' SURGICAL SERVICE – THE IMPERIAL COLLEGE LONDON EXPERIENCE.

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Introduction: Surgical resection of cancers extending beyond the conventional total mesorectal excision (TME) plane after neo-adjuvant therapy is technically challenging. 'Beyond TME' surgery requires multidisciplinary specialist surgical teams to minimise morbidity and maximise the chance of complete microscopic resection (R0), as these factors impact upon long-term survival. The aim of this study was to review the short / medium term outcome measures of the newly established Imperial College Complex Cancer service which began in 2016.

Materials & Methods: A retrospective analysis was undertaken to identify cases of 'Beyond TME' surgery performed between 2016 and 2020. Abstracted data included pre-operative demographics, intra-operative parameters, peri-operative morbidity rates and medium term survival.

Results: Forty five consecutive patients were identified that underwent 'Beyond TME' surgery. Nineteen patients were referred by other institutions. Median cohort age was 57 (range: 27-74; 24F). Twenty five patients had primary cancers and 20 had local recurrent tumours. The majority of cancers were rectal (n=29), with the remainder in: anus (n=7), recto-sigmoid (n=5), and one each in prostate / cervix / pouch / presacral teratoma. Sixteen patients had internal iliac vessel explantation (35.6%) for vascular control or as part of en bloc resection, and two patients external iliac artery and vein resection en bloc with vascular reconstruction (4.4%). Six patients had concomitant sacral resection, 15 patients had extended pelvic side wall resection involving en bloc resection of the piriformis, and 5 patients had intra-operative radiotherapy. Median blood loss was 1.5 litres (0.2 – 12) and operative time was 595 minutes (225 - 1199). Median ICU stay was 4 days (1-23) with a median length of hospital stay of 21 days (4-78). Clavien Dindo class 3 complications were seen in 11 patients. R0 resection was achieved for 26 (57.8%), R1 for 12 (26.7%) and R2 for 2 (4.4%) patients. Median follow up was 22 (3-2020) months at which point 31 (68.9%) patients were alive. At last follow up 25 patients were disease free and median time to recurrence was 11.5 months (1-46).

Conclusion: The results outlined above demonstrate outcomes measures that are comparable with well-established international centres of excellence. Consequently, it is safe to establish new centres undertaking these complex procedures where the necessary surgical expertise is available.

Disclosure of Interest: None declared

81.07

INTEGRATED MOLECULAR CHARACTERIZATION OF INTRADUCTAL PAPILLARY MUCINOUS NEOPLASMS

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Introduction: Intraductal papillary mucinous neoplasms (IPMNs) are cystic precursor lesions to pancreatic ductal adenocarcinoma (PDAC). IPMNs undergo multistep progression from low grade (LG) to high grade (HG) dysplasia, culminating in invasive neoplasia. While the pivotal somatic mutations underlying IPMN progression have been previously cataloged, there is no integrated multi-platform assessment of molecular alterations that accompany these events.

Materials & Methods: We performed laser capture microdissection on surgically resected cystic lesions of varying grades of histological dysplasia and germline controls obtained from 24 patients (total of 74 independent histological lesions) in a multi-institutional effort. Whole exome, whole transcriptome sequencing as well as multiplex immunofluorescence were performed in each sample followed by detailed integrated molecular characterization.

Results: All premalignant lesions either harbored *GNAS* or *KRAS* mutations and the mutational landscape of IPMN overlapped significantly with previous reports. Progression was not associated with significant changes in the mutational landscape whereas distinct copy number alteration (CNA) accumulated significantly. HG lesions were enriched on pathways more closely related to PDAC biology such as *MYC* or *E2F* targets and demonstrated downregulation of the antigen presentation assembly, suggesting putative mechanisms of immune evasion during pre-neoplastic progression. Evolutionary analysis pointed to a divergent evolution where 1q amplification subsequent induction of DNA damage repair deficiency was associated with HG progression and with cases that harbor co-occurring PDAC.

Conclusion: Taken together, this work further characterizes PDAC progression through an integrated molecular approach. Our findings suggest that PDAC evolution is not necessarily a gradual process and that there are distinct transcriptomic and genomic events that can help to identify cystic lesions that might harbor the potential for progression into PDAC.

Disclosure of Interest: None declared

81.08

STRATIFICATION OF OVERALL SURVIVAL AFTER CURATIVE RESECTION OF COLORECTAL LIVER METASTASES THROUGH ARTIFICIAL INTELLIGENCE.

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Introduction: The primary cause of mortality in colorectal cancer is metastatic disease. This study investigated the ability of a machine learning algorithm to stratify the overall survival of patients undergoing curative resection for colorectal liver metastases (CRLM).

Materials & Methods: All patients undergoing curative liver resection for CRLM between March 2010 and October 2020 at our tertiary care hospital were included in this retrospective study. Patients with recurrences or missing data in the variables of interest, as well as patients dying within 90 days of operation were excluded. A gradient tree boosting model was used to stratify patients into two groups (high- and low-risk) in terms of overall survival (OS), based on demographic, oncological, perioperative and radiological information. The algorithm was trained and tested on separate datasets. Differences in survival between the two groups were compared with Kaplan-Meier analysis and the log-rank test.

Results: A total of 537 patients were included in our analysis, 460 (86%) in the training group and 77 (14%) in the test group. Of the latter, 46 (60%) and 31 (40%) were allocated by the algorithm to the high- and low-risk groups, respectively. A significantly reduced OS ($p=0.001$) was observed in the high-risk group on Kaplan-Meier analysis. The most important predictors of survival were preoperative serum CEA, intraoperative whole blood transfusions and number of liver metastases.

Conclusion: Artificial intelligence can stratify patients into high- and low-risk groups regarding overall survival after curative resection of CRLM. Careful preoperative selection, closer follow-ups and a more aggressive postoperative systemic treatment strategy may be of benefit to these patients, in order to improve long-term outcomes.

Disclosure of Interest: None declared

81.09

SIGNET RING GASTRIC CARCINOMA: PARTICULARITIES IN CLINICAL-PATHOLOGICAL FEATURES AND PROGNOSIS. A 5-YEAR FOLLOW-UP RETROSPECTIVE STUDY.

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Introduction: Signet Ring Gastric Cancer (SRGC) is composed of poorly cohesive cells with no gland formation known as “signet ring cells”. Despite a decrease in the overall incidence of gastric cancer in recent decades, the incidence of SRGC is increasing, accounting for 35-45% of gastric adenocarcinoma. Some controversy remains regarding several epidemiological, clinical, and pathologic features, and the optimal therapeutic approach is yet to be universally accepted. This study aimed to help clarifying the behavior of SRGC and to define a tailored approach.

Materials & Methods: A retrospective, unicentric, cohort study was carried between 2012 and 2016. All consecutive patients with Gastric Carcinoma were enrolled and divided in two groups: SRGC and Non SRGC. Several epidemiologic, clinical, pathologic parameters were evaluated and compared between groups. Survival, prognosis, and outcome were also compared. Exclusion criteria were loss to follow-up and absence of histology or staging.

Results: This study included 102 patients with SRGC and 296 with Non SRGC. Patients with SRGC were significantly younger, had tumors more frequently located in gastric body and were HER2 negative. Non SRGC patients presented significantly more nonspecific symptoms and were more frequently submitted to subtotal gastrectomy. Posterior totalization occurred in 2 cases (both Non SRGC). No differences were observed in staging laparoscopy findings, type of reconstruction, lymphadenectomy and postoperative complications. No differences were verified in staging, (neo)adjuvant treatment, surveillance, palliative care, recurrence and mortality. In SRGC, Neutrophil-to-Lymphocyte Ratio failed to predict Lymph Node metastasis. Female patients had significantly more advanced stages and patients with lymphatic invasion presented higher recurrence rate. Mortality was significantly influenced by tumor size, type of lymphadenectomy, metastatic Lymph Node Ratio, lymphatic and venous invasion.

Conclusion: According to these results, in SRGC subtotal gastrectomy was safe when feasible regardless the type of reconstruction, and lymphadenectomy of 16 or more lymph nodes seems to decrease mortality. In contrast with Non SRGC gastric cancer, age didn't increase mortality and surveillance didn't increase recurrence rate. Larger prospective studies with longer follow-up are needed to confirm these results and clearly define the biological behavior of SRGC.

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Disclosure of Interest: None declared

81.10

MESENTERIC RECURRENCE OF COLON CANCER: EVIDENCE FOR THE UTILISATION OF ONCOLOGIC COMPLETE MESOCOLIC EXCISION

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Introduction: The principles surrounding complete mesocolic excision (CME) of colon cancer are 1) careful dissection between the mesenteric plane and parietal fascia, 2) removal of the complete mesentery with encasement of the mesenteric fascia and visceral peritoneum and 3) high/central vascular ligation. In theory, all mesenteric lymph nodes and tumour deposits draining the tumour centrally should therefore be excised. CME has been associated with a decreased rate of colon cancer recurrence but is somewhat controversial. We present a consecutive series of patients referred to our institution with recurrent colon cancer and evidence of a previous, non-CME colon cancer resection. We aim to describe this cohort and present their demographics, operative details, radiologic images and outcomes.

Materials & Methods: Patients were prospectively identified from Tumour Board discussions between Nov 2018 and February 2022. All had mesenteric/nodal recurrence and evidence of residual mesentery and/or vascular supply of after previous surgery.

Results: Eleven patients (8/73% male, mean age 64.8+/-16.9 years) were included. The primary tumour was located in the ascending colon (n=5), sigmoid/descending colon (n=4), transverse colon (n=1) and caecum (n=1). Nine recurrences (82%) were in the mesentery only and two were in the colon/anastomosis and mesentery. Time from primary surgery to identification of mesenteric cancer recurrence was 2 months-4.9 years. Eight (73%) had chemotherapy after primary resection (seven with 5 FU based). Seven (64%) patients had a subsequent resection based on CME principles.

Conclusion: We describe a cohort of patients with a mesenteric colon cancer recurrence after a radiologically confirmed, non CME resection. The majority had chemotherapy after their index resection. Thirty seven percent were not amenable to a subsequent salvage CME based resection. CME is an important concept which offers a strategy to decrease the risk of locoregional colon cancer recurrence.

Disclosure of Interest: None declared

85.01

APRI+ALBI AND VON WILLEBRAND FACTOR SHOW TUMOR SPECIFIC DIFFERENCES IN THE PREDICTIVE POTENTIAL FOR POSTOPERATIVE PATIENT OUTCOME AFTER LIVER RESECTION

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Introduction: Scores like aspartate aminotransferase to platelet ratio index (APRI) or albumin-bilirubin grade (ALBI) and their summative score APRI+ALBI have shown an association with postoperative patient outcome, like posthepatectomy liver failure (PHLF), in patients undergoing liver resection. vWf-antigen (vWf-Ag) shows high preoperative predictive potential for PHLF. With this study we aimed to compare and specify the predictive potential for outcome after hepatic resection of APRI+ALBI and vWf-Ag.

Materials & Methods: For this study 228 patients undergoing liver resection were included. Preoperative vWf-Ag was measured from plasma samples using enzyme-linked immunosorbent assay (ELISA). APRI, ALBI and APRI+ALBI were calculated using routine laboratory parameters. Postoperative outcome was assessed.

Results: We examined differences in APRI+ALBI and vWf in postoperative outcome. Both APRI+ALBI and vWf-Ag were significantly higher in patients who developed PHLF (APRI+ALBI, $p = 0.001$; vWf-Ag, $p = 0.001$) and patients who developed postoperative morbidity (APRI+ALBI, $p = 0.007$; vWf-Ag, $p < 0.001$). To analyze the predictive potential for PHLF we used receiver operating characteristic curve analysis, both APRI+ALBI and vWf showed high predictive potential (APRI+ALBI, area under the curve (AUC) = 0.739, $p = 0.001$; vWf-Ag, AUC = 0.731, $p = 0.001$). In an analysis of different tumor entities, APRI+ALBI performed better in patients with metastasized colorectal cancer (mCRC) (APRI+ALBI mCRC, AUC = 0.905, $p = 0.007$; vWf-Ag mCRC, AUC = 0.848, $p = 0.021$) and vWf-Ag outperformed APRI+ALBI in patients with hepatocellular carcinoma (HCC) (APRI+ALBI HCC, AUC = 0.733, $p = 0.038$; vWf HCC, AUC = 0.805, $p = 0.007$). We then defined two cut-offs. A cut-off of vWf $\geq 174\%$ for HCC patients undergoing major resection, with a high negative predictive value (NPV) (vWf $\geq 174\%$, Sensitivity = 1.00, Specificity = 0.63, NPV = 1.00, positive predictive value (PPV) = 0.63). And a high NPV cut-off for APRI+ALBI of ≥ -1.923 for mCRC patients (APRI+ALBI ≥ -1.923 , Sensitivity = 0.75, Specificity = 0.96, NPV = 0.98, PPV = 0.60, $p < 0.001$).

Conclusion: With this study we can demonstrate that both APRI+ALBI and vWf-Ag show comparable overall potential as preoperative predictors for patient outcome after hepatic resection. APRI+ALBI appears to be more sensitive in patients with mCRC and vWf respectively in HCC patients. Therefore, both APRI+ALBI and vWf-Ag show promise as predictors for postoperative outcome in specific indications.

Disclosure of Interest: None declared

85.02

BRAIN METASTASIS INCIDENCE IN GASTRO-ESOPHAGEAL CANCER : A META-ANALYSIS

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Introduction: Upper gastrointestinal cancers (UGC) are a leading cause of cancer related deaths. Brain metastases (BM) from gastric and esophageal cancer are rare and associated with a poor survival time. The incidence of BM for UGC is lacking

Materials & Methods: We searched “: Gastric cancer OR Oesophageal Cancer AND Cerebral Metastasis ” in Pubmed, EMBASE, Cochrane Library. Inclusion criteria were studies with an incidence rate of BM from UGC cancer patients cohort. When the inclusion criteria were met, we extracted the following endpoints: year of publication, country of population, tumor localization, histology, number of brain lesion, synchronous or metachronous brain metastases, stage of the primary tumor, other localization of metastases, surgical treatment of the primary tumor, brain metastasis treatment, survival and follow-up

Results: 52 studies were included. The total number of patients with oesophageal tumor were described in 30 studies with 41636 patients from which 1234 patients (2.9%) had BM. 526 patients (63%) had an adenocarcinoma, 287 (34%) had a SCC and 17 (3%) other histology. BM was unique in 288 patients (50%) and multiples in 282 patients (50%). A combined radiotherapy and surgery was performed in 129 patients (17.9%). Surgical metastasectomy was performed in 172 patients (24.25%). The median survival was reported from 3 month to 24 months. We identified 12 articles which matched the research criteria for gastric cancer with a total of 73.781 primary gastric tumors where 645 presented brain metastasis (0.87 %). 159 patients had single BM (42.3 %) compared to 217 patients with multiple BM (57.7 %). We identified 434 adenocarcinoma which represent 81.1 % of the brain metastasis. Median survival for patients with brain metastasis from gastric cancer was described from 1.3 month to 27 months

Conclusion: Brain metastases from UGI cancer are rare and associated with a low survival. Multimodal treatment is the most described treatment strategy. More studies are required to assess the role of brain imaging in the initial staging of UGI cancer

Disclosure of Interest: None declared

85.03

COST-UTILITY ANALYSIS OF ANTIBIOTIC THERAPY VERSUS APPENDICECTOMY FOR ACUTE UNCOMPLICATED APPENDICITIS

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Introduction: Current UK National Health Service (NHS) guidelines recommend appendicectomy as gold standard treatment for acute uncomplicated appendicitis. However, an alternative non-surgical management involves administering antibiotic-only therapy with significant lower costs. Therefore, a UK-based cost-utility analysis (CUA) was performed to compare appendicectomy with an antibiotic-only treatment from an NHS perspective.

Materials & Methods: This economic evaluation modelled health-outcome data using the ACTUAA (2021) prospective multicentre trial. The non-randomised control trial followed 318 patients given either antibiotic therapy or appendicectomy, with quality of life (QOL) assessed using SF-12 questionnaires administered 1-year post-treatment. A CUA was conducted over a 1-year time horizon, measuring benefits in quality adjusted life years (QALYs) and costs in pound sterling using a propensity score-matched approach to control for selection on observable factors.

Results: The CUA produced an incremental cost-effectiveness ratio (ICER) of -£23,278.51 (-€27,227.80) per QALY. Therefore, for each QALY gained using antibiotic-only treatment instead of appendicectomy, an extra £23,278.51 was saved. Additionally, two sensitivity analyses were conducted to account for post-operative or post-treatment complications. The antibiotic-only option remained dominant in both scenarios.

Conclusion: While the results do not rely on a randomized sample, the analysis based on a 1-year follow-up suggested that antibiotics were largely more cost-effective than appendicectomy and led to improved QOL outcomes for patients. The ICER value of -£23,278.51 demonstrates that the NHS must give further consideration to the current gold standard treatment in acute uncomplicated appendicitis.

Disclosure of Interest: None declared

85.04

THE EFFICACY OF HEMOGLOBIN SPRAY IN WOUND MANAGEMENT: A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS OF COMPARATIVE STUDIES

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Introduction: Wounds are an increasing global problem with up to 6% of the population affected by non-healing wounds. Standard of care fails to heal approximately 25% of venous ulcers and 50% of DFUs. Thus, there is an unmet need for novel therapies that promote healing and provide more efficient wound care in complex, hard-to-heal wounds. The results of treatment with hemoglobin spray and Hyperbaric oxygen therapy (HBOT) have not been compared. Therefore, this systematic review and network meta-analysis (NMA) was conducted to explore the efficacy and safety of hemoglobin spray in the treatment of chronic wounds and to compare with that of HBOT.

Materials & Methods: The systematic review and network meta-analysis was conducted. Twenty-four studies (16 randomized controlled trials and 8 cohort studies) met the inclusion criteria. Risk ratio (RR) and mean difference (MD), along with their variances, were estimated for dichotomous outcomes (i.e., wound healing, reduction of fever, discomfort, prevention of surgical site infection, faster granulation or epithelialization, and reduction of surrounding edema or erythema) and continuous outcomes (i.e., wound size reduction, pain, better cosmetic results, reduction of antibiotic use, and reduction of hospital stay), respectively. This study was conducted following the PRISMA guidelines and PROSPERO number: CRD42020161396.

Results: All 16 RCTs were considered at low risk of bias for random sequence generation. The overall risk of bias was considered low for most of the cohort studies.

Hemoglobin spray as adjunctive therapy was shown to have a significant beneficial effect compared with HBOT in improving the healing rate of chronic wounds, with the proportion of wound healing 2.36 and 1.62 times better than control, respectively. Hemoglobin spray was also associated with 1.32 times higher treatment success than HBOT. Network meta-analysis demonstrated that hemoglobin spray had a higher chance of treatment success (67.9%, SUCRA = 0.8) compared with HBOT (32.1%, SUCRA = 0.7)

Conclusion: We reports the first evidence indicates that the proportion of wound healing with hemoglobin spray or HBOT was higher than control. Network meta-analysis demonstrated that hemoglobin spray had a higher chance of treatment success than HBOT. Further research comprising well-designed RCTs and updated meta-analysis is required to provide sufficient evidence of the comparative effectiveness of hemoglobin spray and HBOT in clinical practice

Disclosure of Interest: None declared

85.05

SQUAMOUS CELL CARCINOMA ARISING IN THE EPIDERMOID CYSTS: NARRATIVE REVIEW AND CLINICAL IMPLICATIONS OF 100 CASES

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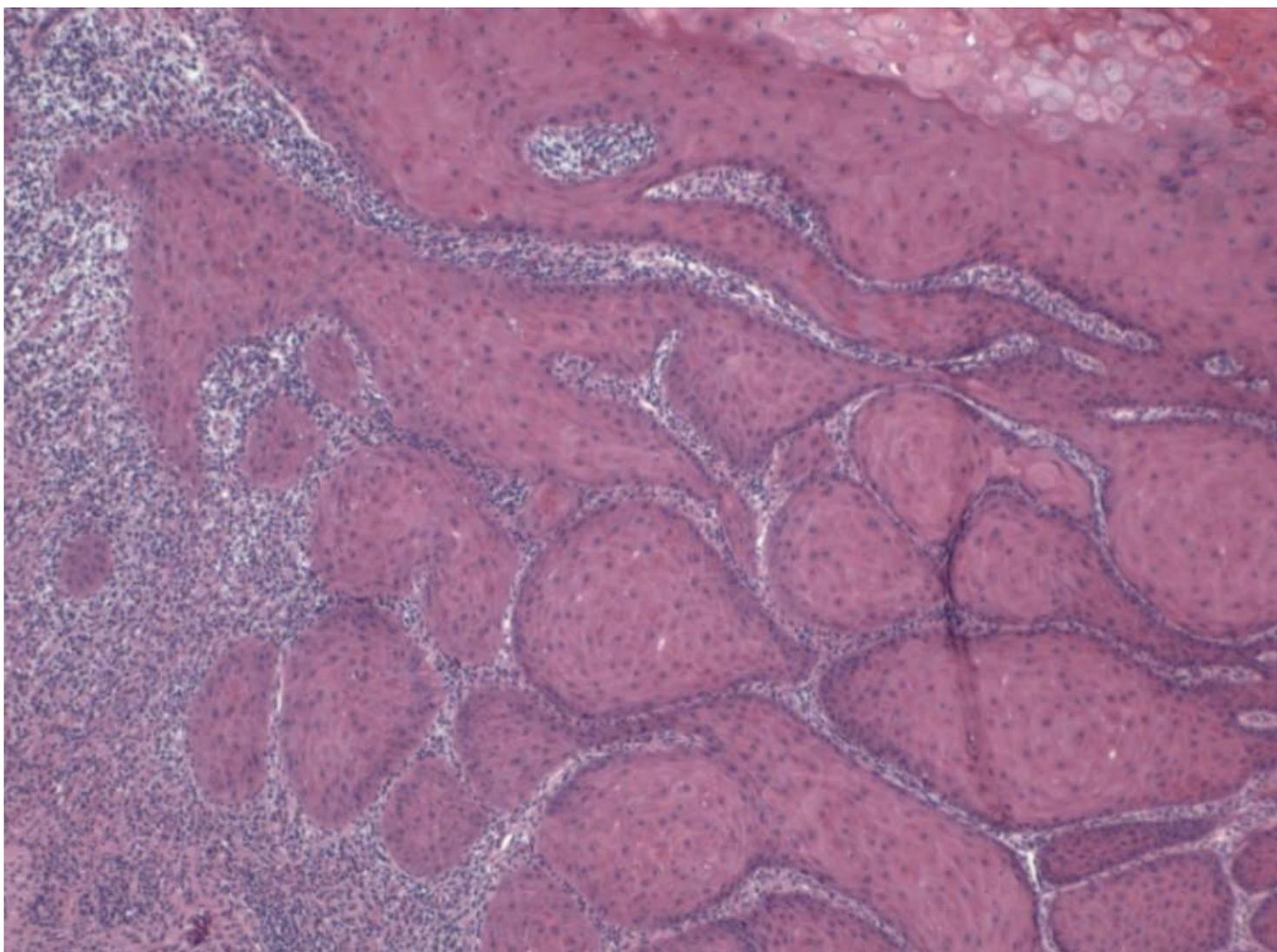
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Introduction: The sebaceous cyst, also known as epidermoid cyst (EC) is the most encountered dermatological cystic lesion and found in about 85% to 90% of all excised skin cysts. They are characterized by presence of keratinized stratified squamous epithelium with well defined granular layer producing lamellated keratin and sebaceous material without calcification .The usual sites are scalp, neck, and the trunk .The malignant transformation in the epidermal cysts are an uncommon finding of unknown aetiology. The reported incidence in the literature varies from <1% to 9%. The malignancy subtypes in the epidermal cysts include basal cell carcinoma and squamous cell carcinoma (SCC).The development of SCC in EC occurs most frequently on the head,neck,trunk and thigh,they can metastasize to the regional lymph nodes and lungs. Malignant transformation of the EC may also occur in the internal body organs other than the skin, such as the intra-cranial region , urinary tract and ovary.The risk factors associated with the malignant transformation are;trauma, recurrent infection, chronic sunlight exposure , advanced age, skin that is sensitive to ultraviolet radiation, and immunosuppression.

Materials & Methods: The authors has reviewed 100 cases published in the past 70 years.M:F ratio is 1.8:1, 50% of cases reported in the age group beyond 06th decade of life and only 11% reported in the age group <40 years. The size at the diagnosis varies between 8 mm and 150 mm, the most frequent size of presentation is ≤4 cm.

Results: They are detected mainly in the head & neck area (53%) , the trunk (33%) and in the lower limbs (10%).The alarming features of the transformation is that the consistency changes into a firmer mass, pain, continuous discharge, , ulceration, bleeding, rapid increase in size, chronic inflammatory changes or infection not responding to conservative treatment.

Image:



Conclusion: Male gender, as well as incomplete excision of the benign cyst wall also are associated with a higher risk. The immunohistochemistry of the tumour cells may reveal positivity to p53, CK5/6, CAM 5.2, Cytokeratin AE1/AE3 and p16, in addition to serum SCC-related antigen level. The treatment of choice in the early disease is radical surgical excision. Disease free margin specimens are highly recommended to reduce the risk of residual disease or recurrences. For cases no longer amenable to surgery or radiotherapy due to locally advanced or metastatic disease, palliative systemic chemotherapy or immunotherapy with PD-1 blockade is indicated.

References: A squamous cell carcinoma arising from scrotal epidermal cyst. A case report and review of 94 cases from the world literature. [Abdalla Saad Abdalla Al-Zawi](#) et al. *Nowotwroy J Oncol* 2019; 69, 3–4: 150–156

Disclosure of Interest: None declared

87.01

CRITICAL VIEW OF SAFETY IS VALUABLE IN PREVENTING IATROGENIC INJURY TO MAJOR ABERRANT ARTERIES DURING LAPAROSCOPIC CHOLECYSTECTOMY

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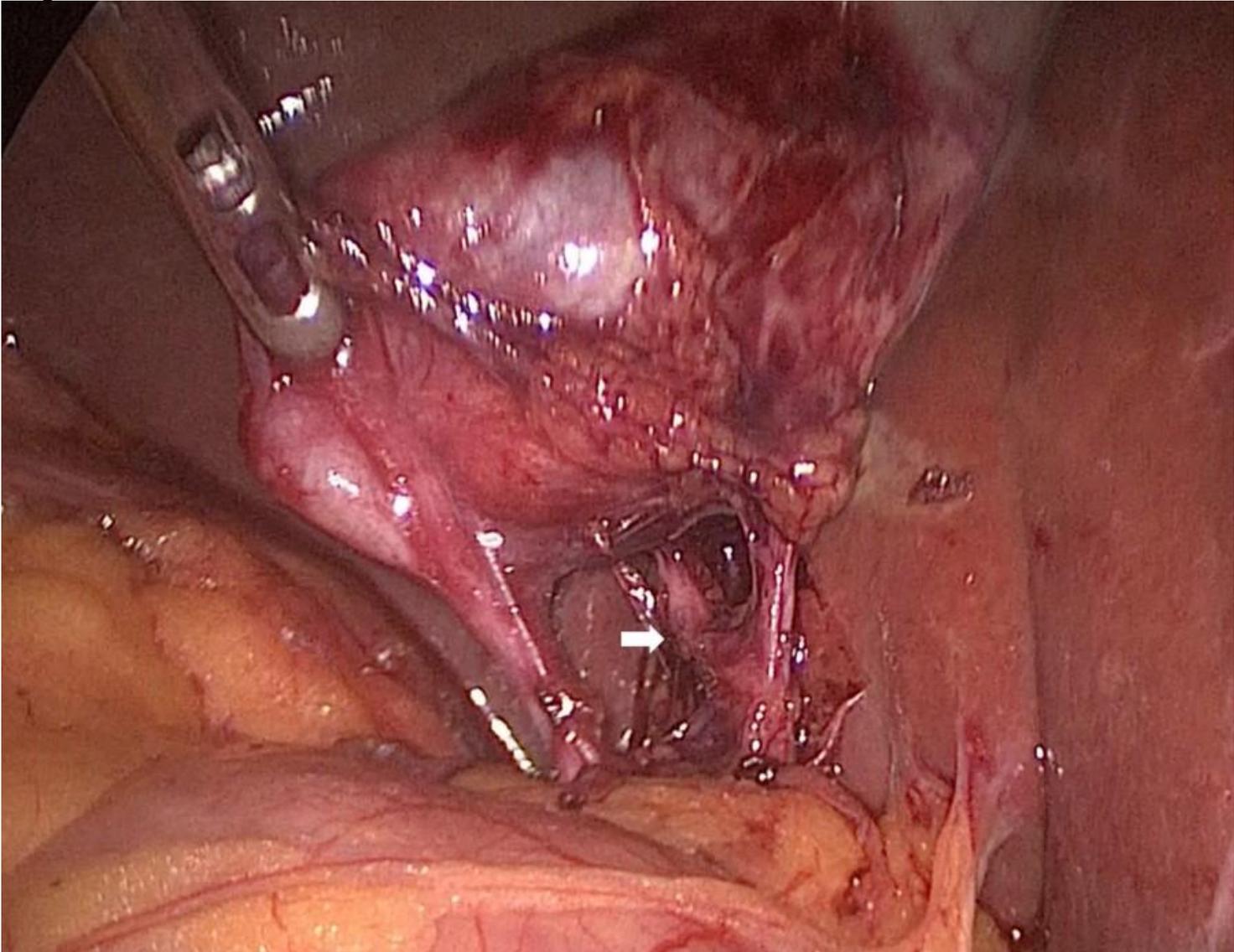
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Introduction: Critical view of safety (CVS) is one of the most followed dissection techniques for prevention of bile duct injury (BDI) during laparoscopic cholecystectomy (LC). Although present in up to 50% of patients, utilization of CVS for prevention for major arterial anomalies during LC has seldom been described.

Materials & Methods: We present a short LC video wherein CVS was useful in prevention of injury to an aberrantly coursing right hepatic artery (RHA).

Results: A patient in his seventh decade with symptomatic gallstone disease presented for elective LC. After initial dissection three tubular structures, 2 arteries and cystic duct were identified in the Calot's triangle. One of the arteries was posteriorly coursing, of large calibre in close relation to the cystic duct and neck of gallbladder (Figure). We hypothesized that it was unlikely to be the posterior branch of cystic artery and proceeded to dissect this artery to its termination. The lower one third of the gallbladder body was mobilized off the artery which further coursed anterior to the cystic plate into the liver bed. The use harmonic scalpel was particularly helpful in safe dissection and preservation of vessel. With the anterior and posterior cystic arteries originating from it, this artery was probably the RHA with aberrant extrahepatic course and termination into the gallbladder bed. With this vessel fully dissected 'classical' critical view of safety obtained, the surgery was completed by clipping the cystic artery & duct and dissecting the remaining gallbladder off the cystic plate.

Image:



Conclusion: Originally described as a dissection technique for prevention of BDI, CVS is also valuable in preventing iatrogenic injury to major aberrant arteries during LC.

Disclosure of Interest: None declared

87.02

LAPAROSCOPIC RESECTION OF A RETROPERITONEAL SCHWANNOMA – VIDEO PRESENTATION AND LITERATURE REVIEW

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Introduction: Schwannomas are tumors, usually benign, that arise from the peripheral neural sheaths. They are mostly present in the head and trunk extremities. Less frequently, they appear in the abdominal cavity, typically in the paravertebral and presacral spaces. Retroperitoneal schwannomas are rare and account for 3% of all schwannomas and 4% of retroperitoneal tumors. Because of its slow growth, they are commonly asymptomatic and found as an incidental diagnosis in imagiologic studies. The definite treatment is surgery to provide a definite diagnosis.

Materials & Methods: Hospital records, video presentation and literature review.

Results: We hereby present the case of a 67-year-old woman with persistent abdominal discomfort, postprandial bloating and pyrosis over the course of 3 months. Blood analysis show no relevant alterations. The CT performed revealed a peripancreatic mass, near the pancreatic tail and adjacent to the superior pole of the left kidney. A MRI was performed for better clarification, showing a nodular lesion with 17mm with a well-defined wall. A scintigraphy excluded the hypothesis of a supernumerary spleen. Endoscopic ultrasonography showed an hypoechoic mass with homogeneous content measuring 10x13mm. Aspiration was not performed due to the risk of hemorrhage. The patient was submitted to laparoscopic surgical exploration with use of intraoperative ultrasonography. A 2cm mass was resected under no complications. The patient was discharged after 2 days. Histopathologically, a benign tumor of the nerve sheath compatible with a schwannoma was identified. The patient was kept under surveillance.

Conclusion: Intra-abdominal schwannomas are rare and difficult to diagnose. Differential diagnosis of a retroperitoneal mass include benign and malignant neoplasms arising from the pancreas, spleen, kidney or the adrenal gland. The preoperative diagnosis is challenging, since there are no specific radiological findings and because of the iatrogenic risk related to the aspiration/biopsy procedures. Therefore, surgery is considered the definite treatment to ensure the correct diagnosis.

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Disclosure of Interest: None declared

87.03

LAPAROSCOPIC COMPLETE MESOCOLIC EXCISION WITH SEPARATE LIGATION OF ILEOCOLIC ARTERY AND VEIN AT ORIGIN:

A USEFUL TECHNIQUE FOR SAFE MESENTERY RESECTION FOR ILEOCOLIC CROHN'S DISEASE

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Introduction: Emerging evidence from observational studies suggests that complete mesocolic excision (CME) during surgery for Crohn's disease (CD) may reduce recurrence. However one of the reservations against routine use of CME is that in advanced CD mesentery is frequently inflamed thickened and bleeds heavily during transection. Hence conventional surgical resection is performed close to the bowel wall leaving the diseased mesentery in situ.

Materials & Methods: We perform laparoscopic CME for patients with ileocolic CD. We however do not use energy source or en mass clipping for central vascular ligation. Instead, we secure the ileocolic artery and vein separately at their origin with dissection, individual ligation & division. With this technique, CME can be performed safely and in blood less field. A short video of our technique is presented.

Results: A patient in his early twenties presented with history of recurrent pain abdomen and after extensive investigations was diagnosed to have ileocecal CD. His symptoms persisted on medical therapy and later he developed sub-acute intestinal obstruction (Figure). After resolution of obstruction on conservative management he was offered laparoscopic ileocolic resection with CME. Initial diagnostic laparoscopy was performed and omental adhesions were taken down. Subsequent to dissection of ileocolic artery and vein separately, they were divided between the clips with scissors without using energy device. Medial to lateral dissection of mesocolon and right colon from retroperitoneum was performed as in standard CME. After complete mobilization, extracorporeal stapled transection and hand-sewn two layered, side to side ileocolic anastomosis was fashioned. Thus en bloc removal of the diseased bowel segment along with intact fascial coverage of the disease and all blood vessels, lymphatics, blood vessels and fibro-fatty tissue was performed.

Image:



Conclusion: Laparoscopic complete mesocolic excision with separate ligation of ileocolic artery and vein at origin is a useful technique of safe mesentery resection for ileocolic Crohn's disease.

Disclosure of Interest: None declared

87.04

RESECTION OF A GIANT RECTAL LATERALLY SPREADING TUMOR USING TAMIS

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Introduction: Surgical treatment of rectal lesions can be challenging mostly due to morbidity associated with injury to surrounding structures¹. Transanal minimally invasive surgery (TAMIS) is a technique described in 2009 for local excision of some selected rectal lesions², like lateral spreading tumors (LST) that are pre-cursors of colorectal cancer³. To perform this procedure a platform for transanal access it is needed.

Materials & Methods: We present a case of TAMIS to excise a large LST. The patient is a 77 y.o male with clinical presentation of diarrhea of 2 months. He underwent a CT scan that demonstrated a wall thickening of the upper and medium rectum. Colonoscopy revealed a nearly circumferential 9 cm mid and upper rectal laterally spreading tumor granular type (LST-G). Biopsies informed a Tubulovillous adenoma with low-grade dysplasia. No evidence of invasion was founded on preoperative study.

Results: The length of stay was 2 days. The patient did not experience pain nor bleeding. Deferred biopsy revealed tubulo-villous adenoma with low/high grade dysplasia and intramucosal focus of well differentiated adenocarcinoma, with negative surgical margins. In outpatient control patient did not manifest any symptom neither at 1 month nor 3 months. Bowel movements were normal even prior the hospital discharge.

Conclusion: TAMIS is a feasible procedure in well-selected patients and reduces both operative mortality and postoperative morbidity compared with radical surgery⁴

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Disclosure of Interest: F. Celedón Salary, Royalty or Honoraria from: no, Receipt of Intellectual Property Rights of: no, Grant/Research Support from: no, Consulting fees from: no, Speaker's Honorarium from: no, Ownership Interest of: no, Other Financial/Material Support from: no, A. Sturiale Salary, Royalty or Honoraria from: no, Receipt of Intellectual Property Rights of: no, Grant/Research Support from: no, Consulting fees from: no, Speaker's Honorarium from: no, Ownership Interest of: no, Other Financial/Material Support from: no, R. Rojas Salary, Royalty or Honoraria from: no, Receipt of Intellectual Property Rights of: no, Grant/Research Support from: no, Consulting fees from: no, Speaker's Honorarium from: no, Ownership Interest of: no, Other Financial/Material Support from: no, G. Naldini Salary, Royalty or Honoraria from: no, Receipt of Intellectual Property Rights of: no, Grant/Research Support from: no, Consulting fees from: no, Speaker's Honorarium from: no, Ownership Interest of: no, Other Financial/Material Support from: no, M. Flores Salary, Royalty or Honoraria from: no, Receipt of Intellectual Property Rights of: no, Grant/Research Support from: no, Consulting fees from: no, Speaker's Honorarium from: no, Ownership Interest of: no, Other Financial/Material Support from: no, S. Uribe Salary, Royalty or Honoraria from: no, Receipt of Intellectual Property Rights of: no, Grant/Research Support from: no, Consulting fees from: no, Speaker's Honorarium from: no, Ownership Interest of: no, Other Financial/Material Support from: no

87.05

ROBOTIC POSTERIOR PELVIC CLEARANCE IN LOCALLY ADVANCED RECTAL CANCER

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Introduction: Originally intended as palliative procedure, the pelvic exenteration surgeries have significantly evolved for Locally advanced as well as recurrent rectal cancers. Emergence of Robotic assisted technologies have revolutionized minimally invasive approach to Total Mesorectal Excision (TME) as well as multi-visceral pelvic exenteration. The ascertained benefits of robotic system in terms of three-dimensional (3D) vision, enhanced ergonomics, elimination of tremors as well as dependable instrument dexterity leading to a precise and controlled anatomical dissection has led to surge in adoption of robotic system in complex pelvic surgery.

Materials & Methods: The authors present this video of Robotic posterior pelvic clearance in a postmenopausal elderly female, ECOG 0, known hypertensive with a body mass index of 27, diagnosed with a upper- rectal cancer invading the uterus (T4 N2 M0 adenocarcinoma 3 o'clock to 9 o'clock on MRI). Patient underwent long course chemoradiotherapy and had complete radiological response on MRI Pelvis. On Surveillance MRI, confirmed on EUA, within 9 months of completion of Radiotherapy developed recurrence with threatened anterior margin at serosal surface of uterus. As per MDT recommendations she underwent biopsy that was positive for adenocarcinoma followed by Robotic posterior pelvic clearance.

Results: Informed and written consent was taken for filming during the operation and educational video production. A ypT3 ypN0 Mx; R0 resection was histologically confirmed in the en-bloc multi-visceral specimen (Abdominoperineal excision (APE)+ uterus, cervix and adnexa). The patient remains well, on regular clinical and radiological surveillance and completed adjuvant 3 months Capecitabine following her posterior pelvic clearance.

Conclusion: This video supports the evidence that as a part of multidisciplinary approach, robot assisted pelvic exenteration is feasible and safe in patients with locally advanced /recurrent rectal cancers. It can be applied to enhance patients early post-op recovery without compromising oncologically clear margins, retaining the benefits of MIS, while performing multi-visceral surgery with greater precision and control.

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Disclosure of Interest: None declared

95.01

LONG TERM QUALITY-OF-LIFE, DISABILITY AND FRAILITY AFTER EMERGENCY LAPAROTOMY

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Introduction: Emergency Laparotomy (EL) is a term used to describe a wide range of high-risk surgical procedures. A recent meta-analysis of worldwide studies has shown that mortality increases with time from 8.4% at 30-days to 24.6% at 1-year. Despite the well-established increase in mortality and the morbidity associated with EL, little is known about the effect of EL on Quality of Life (QoL) and Long-Term Disability. We aim to explore the impact of EL on QoL, Disability and Frailty scores at 1-year compared to baseline.

Materials & Methods: Patients aged 18 and above who were booked for EL were identified and recruited to a prospective cohort study in 5 metropolitan hospitals in New Zealand. Pre-operatively, these patients had baseline screening to assess health status the week prior to EL. Patients were followed up during their hospital stay, at 30-days, 6-months and 1-year postoperatively. The 12-Item Short Form Survey (SF-12) was used for QoL screening. The WHO Disability Assessment Schedule 2.0 (WHODAS) tool was used to quantify disability. The Emergency General Surgery Frailty Index (EGSFI) was used for patients aged 65 and older. It comprises a functional and clinical component. All above measures were repeated during follow-up. Difference was examined using two-tailed Wilcoxon rank-sum analysis with a p value < 0.05 denoting significance.

Results: 322 patients with a mean age of 65 were included in the study and followed up for 1-year. The QoL as denoted by the SF-12 was improved at 1-year after surgery. Of the 12 parameters of the SF-12, 2 did not significantly change whilst the remainder improved significantly ($p < 0.001$).

There was no significant difference in the composite WHODAS score 20.3 at 1-year and 19.0 at baseline ($p = 0.18$).

The EGSFI for patients aged 65 or greater ($n = 194$) was not significantly different at 1-year compared to baseline, 2.9 and 2.6 respectively ($p = 0.12$). There was no difference when examining the functional component of the score ($p = 0.40$).

Conclusion: Despite the increasing mortality at 1-year post-EL, the survivors appear to have better QoL compared to pre-EL, whereas functional status remains unchanged. However, the clinical significance of an improved SF-12 score at 1-year remains unknown. Given that QoL did not worsen after EL, the current metric of mortality, commonly predicted for patients undergoing EL, is sufficient for shared decision making.

Disclosure of Interest: None declared

UTILIZATION OF TORSO IMAGING FOR THE EVALUATION OF GROUND LEVEL FALLS AT A LEVEL 1 TRAUMA CENTER: MORE IMAGING DOES NOT EQUAL BETTER CARE

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Introduction: Computed tomography (CT) of the chest (CTC), abdomen, and pelvis (CTAP) is common when assessing trauma patients. However, unnecessary imaging can expose patients to excess radiation and increase healthcare costs, especially in low-energy mechanisms of injury. We sought to characterize the use of torso CT for the evaluation of patients presenting after ground level falls (GLF) at our institution and evaluate its utility for identifying injuries leading to a change in management.

Materials & Methods: All patients 18 years and older, including those with diminished GCS, intoxicated, or intubated, presenting to our level one trauma center with a GLF (1m or less) between 2015 and 2019 were included. Data were obtained through institutional chart review and analyzed using descriptive statistics, univariate, and multivariate logistic regression. The sensitivity, specificity, and positive and negative predictive values of physical exam (PE) and adjunct radiographs for the identification of traumatic injuries on CT imaging were also evaluated.

Results: A total of 1195 patients met inclusion criteria. Figure 1 summarizes imaging obtained for the cohort based on whether they had a positive or negative PE of the torso. Of patients with a positive torso PE, 222 CTC and 249 CTAP were obtained, with 103 CTC (46%) and 67 CTAP (27%) identifying traumatic injuries. Of patients with a negative torso PE, 127 CTC and 142 CTAP were obtained, with 12 CTC (9%) and 6 CTAP (4%) identifying traumatic injuries. Only seven CTC and one CTAP in patients with a negative torso PE identified traumatic injuries not diagnosed on radiograph, with only three leading to changes in management, none of which were significant. Multivariable logistic regression further demonstrated that a positive PE was the only thing significantly associated with identification of acute traumatic findings on torso CT. In evaluating the utility of PE and chest/pelvic radiograph prior to deciding whether to obtain torso CT imaging, the negative predictive value of a negative PE and normal chest/pelvic radiographs was 98%.

Image:

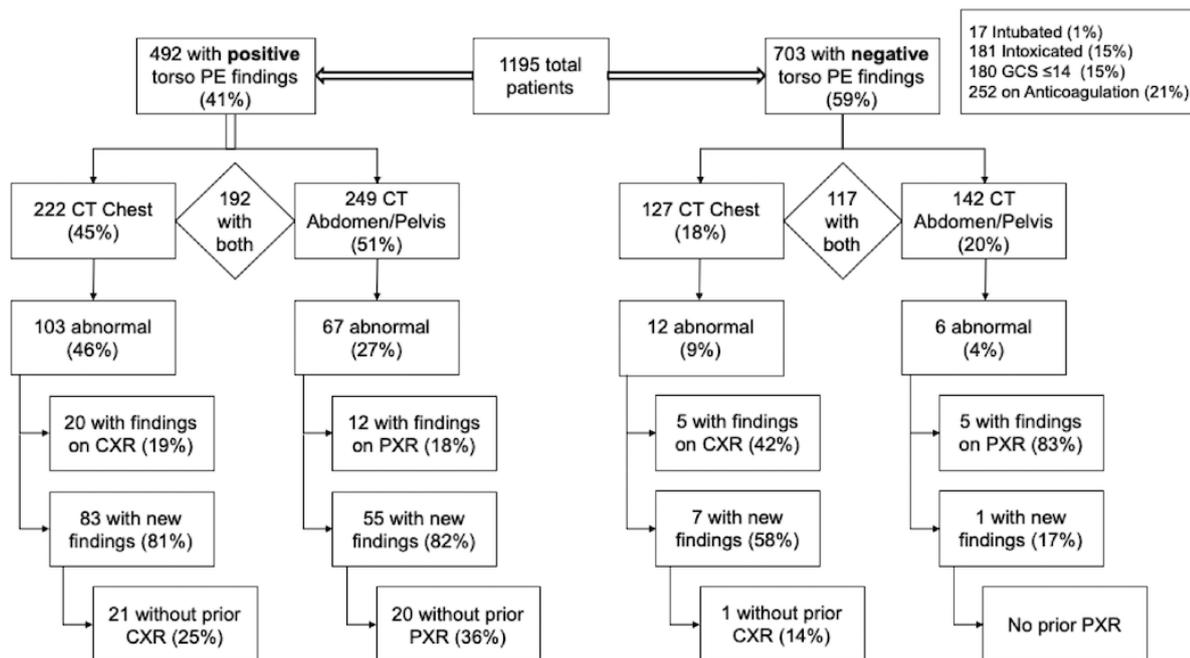


Figure 1. Flowchart of imaging obtained and findings for GLF patients. CT=Computed Tomography, CXR=Chest X-Ray, PXR=Pelvic X-Ray.

Conclusion: Patients with a positive torso PE may benefit from additional torso CT imaging. However, patients with a negative torso PE, even if intoxicated, intubated, or with diminished GCS, are unlikely to have acute traumatic findings on such imaging. Using PE and chest/pelvic radiographs as a screening tool prior to CT torso imaging in patients with GLF may reduce healthcare costs and radiation exposure.

Disclosure of Interest: None declared

95.03

PREVENTABILITY OF INJURY-RELATED DEATHS AT FOUR HOSPITALS IN CAMEROON: A SYSTEMATIC APPROACH TO TRAUMA QUALITY IMPROVEMENT

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Introduction: Preventable death reviews are a fundamental component of trauma quality improvement (QI) that facilitate the correction of systemic issues in care. Although injury-related mortality in Cameroon is substantial, opportunities for QI have never been formally assessed.

Materials & Methods: A QI committee composed of multidisciplinary experts at four hospitals in the Littoral and Southwest regions of Cameroon was formed to review all adverse events including deaths among trauma patients from 2019 to 2021. Events were discussed at newly established hospital morbidity & mortality (M&M) conferences and committee meetings to identify contributing factors and overall preventability.

Results: During 49 total M&M conferences and committee meetings, 100 adverse events were reviewed, including 63 deaths. Of the fatalities, 53% were deemed preventable, 26% potentially preventable, and 21% not preventable. Over half of the 42 preventable or potentially preventable deaths occurred in the emergency department (ED); brain injury (52%), respiratory distress (48%), and hemorrhage (36%) were the most frequent physiologic factors associated with mortality. The majority of patients who died in the ED failed to receive recommended laboratory tests or imaging (62%) or recommended treatment (82%), because of unaffordability, failure in teamwork and communication, or lack of supplies.

Conclusion: Basic improvements in the evaluation and management of life-threatening issues in the ED can significantly reduce the high rate of preventable trauma-related deaths across Cameroon. Trauma team training and the provision of resources to better manage respiratory failure and bleeding should be prioritized as local health systems are strengthened. Formal methods of trauma QI can be utilized in low-resource environments to determine root causes of mortality and identify interventions that will lead to improved outcomes.

Disclosure of Interest: None declared

95.04

SIGNIFICANTLY INCREASED BONE VOLUME BY A VASCULAR PEDICLED PERIOSTEAL FLAP IN A DIAPHYSEAL CRITICAL-SIZED DEFECT (CSD) MODEL IN THE RAT ANIMAL MODEL.

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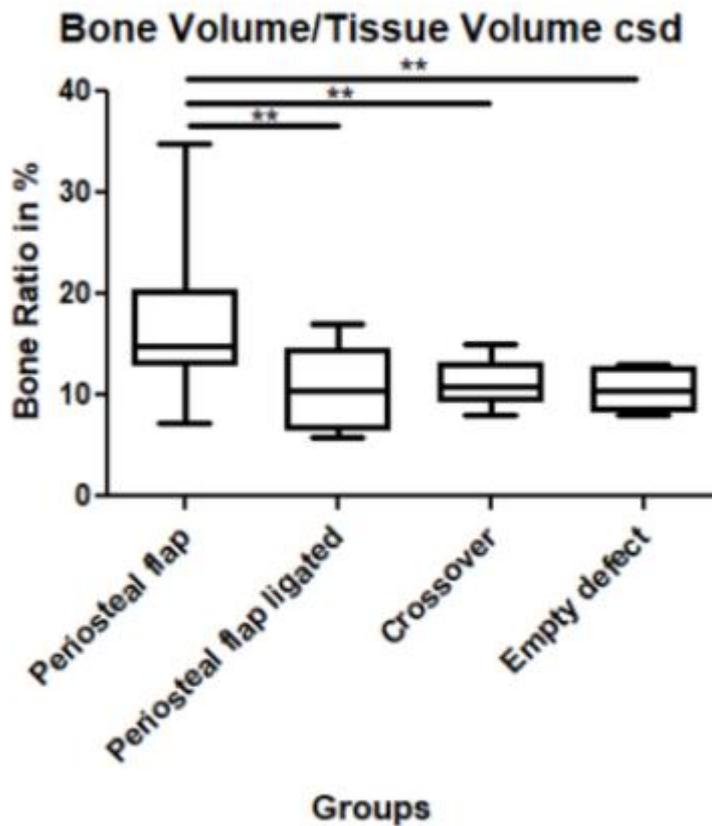
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Introduction: The repair of large bone defects and pseudarthroses remains challenging. Even after revision surgery, e.g., with an autologous bone graft, healing is not guaranteed. The aim of this study is to evaluate whether there is a significant increase in bone tissue volume by a vascular pedicled periosteal flap compared to a non-vascular periosteal flap and to an empty defect and a crossover group in a csd pseudarthrosis model in the rat femoral diaphysis.

Materials & Methods: The following 4 treatment groups were formed of a total of (N=32) male Sprague Dawley rats: Vascular pedicled periosteal flap (PF, n=12), non-vascular periosteal flap (PF_lig n=7), empty defect (L n=6) and crossover group (CO n=7). A prospective randomized plate osteosynthesis (1.5mm angular stable 5-hole plate osteosynthesis, Medartis company, Switzerland) of 5 mm csd was performed. The csd is a pseudarthrosis model and shows, without further therapy, no healing potential. The defects were created in the diaphysis of the right femur using a 0.44 mm Gigli saw. The periosteal flap was dissected along with the supplying vessel from the medial femoral condyus with the aid of surgical loupes and fixed to the plate and to the defect with a suture. In the PF_lig group, it was ligated. The CO group received a vascular periosteal flap to the empty defect by a second operation after 6 weeks. The empty defect group received no further therapy. Regular radiographic examinations were performed during the study period. After the endpoint (10 weeks after initial therapy), evaluation was performed by μ -CT examination to determine the newly formed bone volume in the defect, as well as descriptive histological examination.

Results: There was a significant increase in bone volume in the PF group compared to the PF_lig ($p=0,0078$), the CO group ($p=0,0069$), and to the empty defect group ($p=0,0038$) with respect to BV/TV. (Figure 1).

Image:



Conclusion: In a rat diaphyseal csd model, a significant increase in bone volume in the defect was demonstrated in the PF group. The model serves as a pseudarthrosis model. The results of this study indicate that a vascular periosteal flap promotes significantly increased new bone formation compared to all other groups. The purely surgical technique of a vascularized periosteal flap in combination with an autologous bone graft could promote the healing of a pseudarthrosis in a clinical setting.

Disclosure of Interest: None declared

95.05

AN AUGMENTED REALITY PROCEDURAL TRAINING CURRICULUM MAY BE SUPERIOR TO TRADITIONAL TRAINING METHODS

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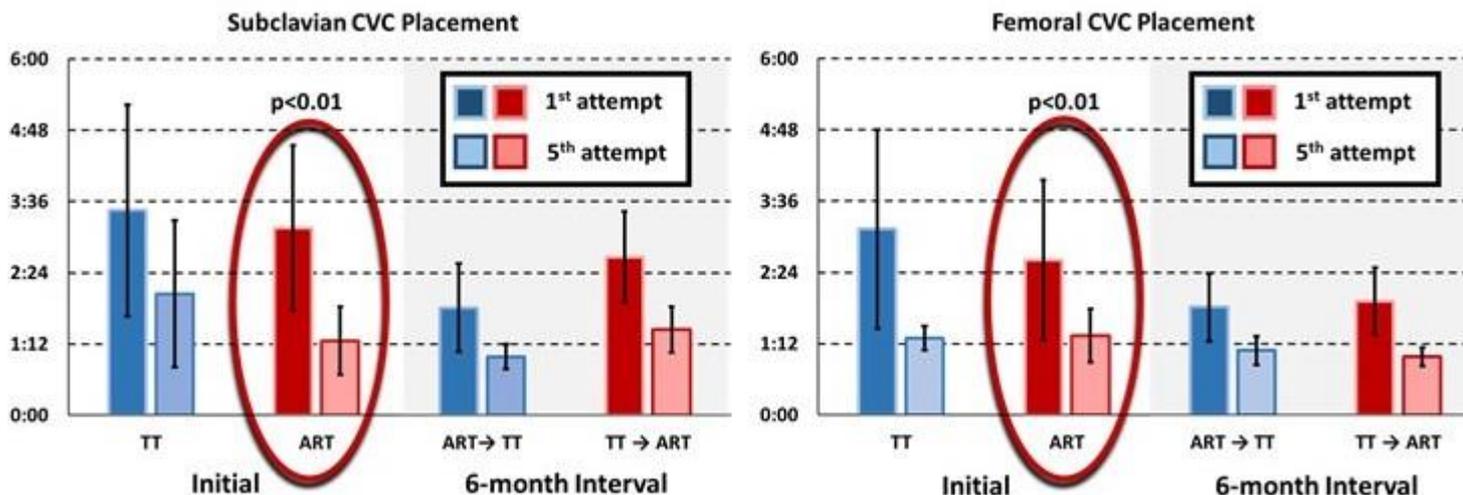
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Introduction: Augmented reality (AR) training, real world enhancement using computer-generated information, has been shown to improve learning. AR training (ART) has not been widely utilized for initial and sustainment training. We hypothesized ART could reduce procedural times and sustain a new skill set in novice learners as compared to traditional training (TT) methods.

Materials & Methods: General Surgery Interns (GSI) prior to participating in any clinical activities were eligible. All participants: 1) completed demographic, educational, and simulation experience questionnaires, and 2) reviewed central venous catheter (CVC) mechanics, insertion techniques, and complications training modules. GSI were randomized into two groups: TT - utilizing only verbal instruction, and ART - utilizing verbal instruction and AR visual cues. AR goggles populated with instructional software were utilized. Each participant performed subclavian and femoral CVC cannulation tasks five times. Interval (seeker needle insertion, guide wire advancement, skin dilation, and catheter placement), and total procedural times were recorded. Initial and six-month cross over group testing was performed. Data was analyzed using chi-squared and repeated ANOVA tests. Significance was $p < 0.05$.

Results: Ten GSI (TT (n=5), ART (n=5)) participated. There was no difference in demographic or educational experience. All GSI had undergone previous surgical simulation training; none had prior virtual reality or AR simulation training. There was no difference in time to complete the procedural steps between the groups performing either task. When performing a repeated ANOVA analysis, there was a significant difference in the ART group's initial first and fifth subclavian and femoral CVC placement times (See figure). After 6-months, the groups exchanged training platforms, ART->TT and TT->ART. Significant differences between the first and fifth CVC placement attempts were not seen. However, the GSIs' 6-month performance was faster than their initial attempts.

Image:



Conclusion: Our study demonstrated a 6-month retention of knowledge in the subclavian CVC placement. The demonstrated 6-month skill set sustainment is essential where high volumes of critically injured individuals may not be routinely seen. An ART platform may represent a segue to transfer and sustain procedural knowledge in an efficient manner.

Disclosure of Interest: None declared

95.06

SELF-PERCEIVED PREPAREDNESS AND TRAINING NEEDS OF HEALTHCARE PERSONNEL ON HUMANITARIAN MISSION: A PRE- AND POST-DEPLOYMENT SURVEY

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Introduction: Humanitarian healthcare workers are indispensable for treating weapon-wounded patients in armed conflict, and the international humanitarian community should ensure adequate preparedness for this task. This study aims to assess deployed humanitarian healthcare workers' self-perceived preparedness, training requirements and mental support needs.

Materials & Methods: Medical professionals deployed with the International Committee of the Red Cross (ICRC) between October 2018 and June 2020 were invited to participate in this longitudinal questionnaire. Two separate questionnaires were conducted pre- and post-deployment to assess respondents' self-perceived preparedness, preparation efforts, deployment experiences and deployment influence on personal and professional development.

Results: Response rates for the pre- and post-deployment questionnaires were 52.5% (114/217) and 26.7% (58/217), respectively. Eighty-five respondents (85/114; 74.6%) reported feeling sufficiently prepared to treat adult trauma patients, reflected by predeployment ratings of 3 or higher on a scale from 1 (low) to 5 (high). Significantly lower ratings were found among nurses compared to physicians. Work experience in a high-volume trauma centre before deployment was associated with a greater feeling of preparedness (mean rank 46.98 vs 36.89; $p = 0.045$). Topics most frequently requested to be included in future training were neurosurgery, maxillofacial surgery, reconstructive surgery, ultrasound, tropical diseases, triage, burns and newborn noncommunicable disease management. Moreover, 51.7% (30/58) of the respondents regarded the availability of a mental health professional during deployment as helpful to deal with stress.

Conclusion: Overall, deployed ICRC medical personnel felt sufficiently prepared for their missions, although nurses reported lower preparedness levels than physicians. Recommendations were made concerning topics to be covered in future training and additional preparation strategies to gain relevant clinical experience. Future preparatory efforts should focus on all medical professions, and their training needs should be continuously monitored to ensure the alignment of preparation strategies with preparation needs.

Disclosure of Interest: None declared

95.07

POLYTRAUMA WITH TRAUMATIC BRAIN INJURY: DOES VENO-VENOUS EXTRACORPOREAL LIFE SUPPORT HAVE A ROLE?

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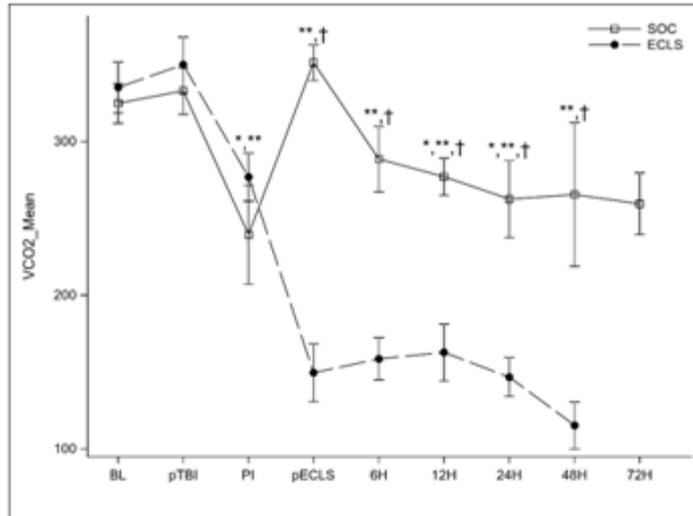
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Introduction: Polytrauma with traumatic brain injury (TBI) is an unresolved cause of death. We created a clinically relevant anesthetized swine model of polytrauma with TBI and evaluate the utility of veno-venous (VV) extracorporeal life support (ECLS) in this model vs. animals receiving standard of care (SOC). We hypothesized that VV ECLS leads to reduction in metabolically produced CO₂ and ventilator settings and mitigates respiratory acidosis for optimized brain sparing management and resuscitation.

Materials & Methods: Continuously anesthetized, intubated, mechanically ventilated swine (n=16, 56.5±1.2 kg) received: Foley catheter, jugular, femoral arterial and venous catheters; intracranial pressure (ICP) monitor (Raumedic AG, Helmbrechts, Germany). After baseline (BL) data collection a direct head injury followed by bilateral chest trauma using a captive bolt device were carried out. After bilateral chest tube placement animals underwent controlled arterial hemorrhage to a mean blood pressure of 40 mm Hg; followed by a 30 min period of shock with subsequent blood reinfusion and fluid resuscitation. Animals were randomized to receive SOC, n=8 or VV ECLS using a 23F bi-caval jugular and the X-lung ECLS system, (Fresenius/Xenios Heilbronn, Germany), with continuous heparin infusion, ECLS, n=8). Heart rate (HR), systolic blood pressure (SBP), PaO₂-to-FiO₂ ratio (PFR), exhaled tidal volume (VTE), peak inspiratory pressure (PIP), arterial CO₂ (PaCO₂), arterial pH, arterial lactate (Lac), ICP, cerebral perfusion pressure (CPP), cerebral oxygenation (CerPO₂), total fluid balance, carbon dioxide production (VCO₂), complete blood cell count, platelet aggregometry, thromboelastography (TEG), and prothrombin time (PT) were collected at BL, post-TBI (pTBI), post chest injury (PI), after ECLS initiation or a matched timepoint in SOC animals (pECLS), and at 6, 12, 24, 38, and 72 hours PI. Statistics, SAS 9.4 (Cary, NC). Data are mean±SEM, significance at p<0.05, *SOC vs. BL, **ECLS vs. BL, †SOC vs. ECLS.

Results: See table and graph. Mean time to ARDS (PFR<300) was 12±6 hrs (SOC) vs. 10±5 hrs (ECLS). Mean survival time SOC: 33±9 hrs, 6/8 lived till 72 hours vs. ECLS: 36±6 hrs, 0/8 lived at 72 hours.

Image:



		BL	pTBI	PI	pECLS	6H	12H	24H	48H	72H
Heart Rate (bpm)	SOC	114±9	197±7*	167±14*	160±5*	134±9	126±6	109±14	101±3	96±8
	ECLS	106±4	183±17**	137±13**	173±8**	152±7**	126±6	120±5	115±8	N/A
ABP/S (mm Hg)	SOC	103±4	193±12*	83±18	127±5*	113±6	104±3	97±5	119±19	123±25
	ECLS	102±5	189±17**	88±6	109±8	114±9	98±6	81±8	81±6	N/A
PFR	SOC	444±9	433±15	209±37*	331±40*	346±43	301±56	314±73	295±100	213±48*
	ECLS	429±11	415±19	181±27**	266±45**	338±42	336±48	324±41**	168±36**	N/A
VTI (mL)	SOC	545±15	530±18	510±34	456±25	483±22	475±20	420±38*	320±10*	326±14*
	ECLS	564±17	566±17	521±31	394±16**	440±28**	467±30**	430±19**	388±4**	N/A
PIP (cm H ₂ O)	SOC	23±1	21±1	46±5*	32±2*	36±2*	41±4*	36±5*	35±3*	42±4*
	ECLS	24±1	22±1**	48±3**	29±1**	33±3**	38±5**	44±6**	56±12**	N/A
pH	SOC	7.51±0.02	7.44±0.02*	7.33±0.03*	7.28±0.04*	7.30±0.07*	7.31±0.06*	7.45±0.02	7.39±0.08	7.44±0.06
	ECLS	7.51±0.02	7.46±0.03	7.36±0.02**	7.31±0.02	7.31±0.06**	7.34±0.05	7.48±0.03	7.48±0.06	N/A
PaCO ₂ (mm Hg)	SOC	39±1	42±1	48±2	38±4	33±2†	35±4	34±6	43±1*	42±3
	ECLS	41±1	42±2	47±2	32±3	20±4**	26±4**	24±2**	22±1**	N/A
Lactate (mmol/L)	SOC	3±1	4±0	7±1*	12±0*	11±2*	8±2	1±0	1±0	1±0
	ECLS	2±1	5±1**	7±1**	13±1**	15±2**	10±1**	3±1	3±1	N/A
ICP (mm Hg)	SOC	22±1	49±5*	29±1*	27±3	29±3*	31±4*	36±10	35±11	28±5
	ECLS	20±1	51±8**	32±1**	25±1**	29±2**	31±2**	37±4**	29±2**	N/A
CPP (mm Hg)	SOC	63±4	79±11	28±11*	47±6	42±5*	37±5*	37±14*	56±23	64±22
	ECLS	58±4	36±37	28±5**	34±2**	36±2**	32±5**	25±8**	32±6**	N/A
Cerebral PO ₂ (mm Hg)	SOC	20±7	24±5	12±9	20±8	29±12	28±10	36±12	46±28	43±29
	ECLS	14±6	29±6	18±8	20±8	26±5	25±5	21±8	25±7	N/A
Hourly UOP (mL)	SOC	63±21	48±20	21±7	50±13	194±71	202±70	131±25	209±117*	113±17*
	ECLS	197±52	35±11**	48±21	71±15	99±17	177±64	243±104	205±183	N/A
Fluid Balance (mL)	SOC	27±104	49±112	82±136	252±217	1793±458*	3387±540*	1991±2201	5370±4497*	6160±5298*
	ECLS	-138±27	-136±28	-171±41	233±151	3142±467**	6465±848**	11080±1082**	16722±662**	N/A
PLT (x10 ³ /μL)	SOC	299±12	303±13	299±12	282±19	241±14*	201±15*	191±18*	203±71*	199±97*
	ECLS	226±51	216±50	230±51	186±41**	172±38**	131±31**	73±21**	41±21**	N/A
PT (sec)	SOC	13.4±0.1	N/A	13.6±0.1	13.7±0.2	14.8±0.3*	N/A	15.1±0.1*	13.6±1.4	13.8±0.9
	ECLS	13.5±0.1	N/A	13.7±0.3**	15.2±0.3**	16.5±0.5**	N/A	17.3±0.8**	15.7±0.6*	N/A
Clot Strength (mm)	SOC	76±1	N/A	73±1*	73±1†	72±1†	N/A	78±1†	83±2†	86±2*
	ECLS	74±1	N/A	74±3	69±1**†	68±1**†	N/A	67±2**†	74±1†	N/A
PLT Aggregation (ADP, AUC)	SOC	55±5	N/A	44±3	24±6*	20±6*	N/A	52±6†	58±18†	39±11
	ECLS	45±5	N/A	33±4**	12±3**	17±4**	N/A	14±5**†	8±5**	N/A

Conclusion: VV ECLS effectively reduced VCO₂ and ventilator settings; mitigating lactic acidosis but required increased fluids load causing delayed lung edema and right heart failure. Studies with adjunct use of ECLS and dialysis to reduce fluid overload are ongoing.

Disclosure of Interest: None declared

95.08

ASSESSING ACHIEVEMENT OF KEY PERFORMANCE INDICATORS DURING INITIAL ASSESSMENT AND CARE OF INJURED PATIENTS AT GHANAIAN NON-TERTIARY HOSPITALS

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Introduction: A systematic approach to the initial assessment and care of the injured can ensure early detection of life-threatening conditions in order to prompt timely interventions. We aimed to determine the level of achievement of key performance indicators (KPIs) during initial assessment and management of injured persons, as assessed by independent observers, at district and regional hospitals in Ghana.

Materials & Methods: Trained observers were stationed at emergency units of six district (first level) and two regional (referral) hospitals, from October 2020 to December 2021, to observe management of injured patients by health service providers. Achievement of KPIs was assessed for all injured patients and for seriously injured patients (admitted for ≥24 hours, referred, or died).

Results: Management of 2,126 injured patients was observed. Road traffic crash was the most common mechanism (59%) and lacerations (56%) were the most common injury type. Completion of initial triage ranged from 54% for oxygen saturation to 87% for mobility assessment. For primary survey, airway was assessed in 73% of patients, chest examination performed in 62%, and internal abdominal bleeding assessed in 36%. Reassessment rates were low, ranging from 10% for respiratory rate to 13% for level of consciousness. 28% of patients were seriously injured. Completion of KPIs was higher for these patients, but reassessment remained low, ranging from 19% for respiratory rate to 23% for blood pressure (Table).

Table: Selected KPIs achieved in the initial assessment of injured patients in non-tertiary Ghanaian hospitals

	All patients (N=2,126)	Seriously injured patients (N=586)
	N	N
Triage at arrival		
Mobility	1,856	533
Respiratory rate	1,226	398
Oxygen saturation	1,161	400
Retriage for patients staying ≥0.5 hr at ER (n) 1,997		546
Mobility	251	109
Respiratory rate	198	101
Consciousness	259	122

Oxygen saturation	195	109
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Primary assessment and actions

Airway	1,549	479
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Chest	1,321	432
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Abdomen	761	307
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Documentation

Patient age	1,964	554
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Injury mechanism	2,117	584
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Blood pressure at arrival	1,407	433
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Injury type	2,021	573
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Conclusion: Several KPI elements should be performed more frequently, such as oxygen saturation and assessment for internal abdominal bleeding. Reassessment rates need to be improved, especially for seriously injured patients. Overall, care for the injured at non-tertiary hospitals in Ghana could be improved with a more systematic approach, which could be promoted by use of context-appropriate checklists.

Disclosure of Interest: None declared

STUDY COMPARING CONTRAST ENHANCED COMPUTED TOMOGRAPHY ABDOMEN WITH DIAGNOSTIC LAPAROSCOPY IN PATIENTS WITH PENETRATING ABDOMINAL TRAUMA: A RANDOMIZED CONTROLLED TRIAL

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Introduction: Penetrating abdominal trauma (PAT) was traditionally managed by mandatory exploration which led to long hospital stays and high rates of non-therapeutic surgery. Some centres have moved on to diagnostic laparoscopy (DL), which is less invasive, however general anaesthesia is required, and risk of iatrogenic injuries persists. Contrast enhanced computed tomography (CECT) guided selective non-operative management may avoid surgery altogether. The aim of this randomized controlled trial (RCT) was to define the role of CECT and DL in the management of low velocity penetrating injury to the anterior abdominal wall.

Materials & Methods: This prospective two-armed randomized controlled study was conducted between April 2019 and February 2021. Hemodynamically stable patients with anterior abdominal wall PAT were randomized to DL and CECT based management. This study compared outcomes of contrast enhanced computed tomography (CECT) based selective non-operative management with upfront diagnostic laparoscopy (DL). Random sequence generation was done with a computer-generated. No blinding was done. Primary outcome was the length of hospital stay. Secondary outcomes were rate of non-therapeutic surgery, rate of complications, length of hospital stay.

Results: One hundred six patients were randomized: 52 patients in DL group and 54 patients in CECT group. Mean length of hospital stay was similar in both groups (3.5 days vs 3 days; effect size – 0.51, 95 % C.I. - 43.40 to 18.349; p = 0.423). Rate of non-therapeutic surgery was significantly lower in CECT group (17.4% vs 65.4%, p = 0.0001). Rate of complications and length of ICU stay were similar in both groups. SNOM based on CECT findings was successful in 93.8% of patients, 2 patients required delayed surgery.

Conclusion: This study did not find any difference in length of hospital stay in patients undergoing DL or CECT. However, there was a significant reduction in non-therapeutic surgery by using CECT to evaluate these patients.

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96.01

DOES SPECT/CT IMPROVE SLN IDENTIFICATION IN OBESE BREAST CANCER PATIENTS?

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Introduction: Body mass index (BMI) has been shown to pose difficulty in sentinel lymph node (SLN) identification in breast cancer in patients with BMI>30. This study was undertaken to evaluate role of single photon emission computerized tomography (SPECT/CT) in SLN identification rates in obese patients undergoing SLN biopsy.

Materials & Methods: SLNB was performed in 111 node negative early breast cancer patients. A pre-operative planar lymphoscintigraphy and SPECT/CT was done.

A radiotracer was injected and planar lymphoscintigraphic images were taken at 10, 30, 60 and 120 minutes after injection. Immediately after 2-hours of planar image irrespective of lymph node identification, SPECT –CT was performed with a dual head variable angle gamma camera with arm abducted.

Intraoperatively, 3-5 ml of blue dye (methylene or patent blue violet) was injected intra-parenchymally around the tumour. Hand held gamma probe was used to identify the hot nodes and the findings of planar lymphoscintigraphy were known to the surgeon. Incision was made just below the hair bearing area of axilla and blue/hot or blue and hot nodes were identified and excised for frozen section. If the surgeon was unable to identify the nodes for 20 mins, SPECT/CT findings were revealed, which mentioned the exact anatomical location of the lymph nodes. The number of patients in whom surgeon used the SPECT-CT findings while performing the procedure was recorded in both the groups.

Results: Overall, using combination technique, SLN was identified in 96.5% patients with BMI<30 and 96% in patients with BMI>30. Among 111 patients evaluated for the ease of SLNB, 4/83 patients with BMI<30 required help of SPECT/CT while 21/24 patients with BMI>30 required SPECT/CT as a guide for dissection. This difference was statistically significant ($P < 0.01$). Excellent agreement was found between SPECT/CT and gamma probe ($k=0.313$, 95% CI=0.159 to 0.466) in identifying SLN. However, the agreement was poor between planar imaging and gamma probe ($k=0.039$, 95% CI=0.0405 to 0.118). In obese patients, SLN were identified in 64% of patients by planar imaging as compared to 80% with SPECT/CT.

Conclusion: SPECT/CT provided useful information in anatomical localization of SLN and improves ease of dissection in patients with BMI>30. Thus, SPECT-CT should be considered for pre-operative localization in breast cancer patients with high BMI.

Disclosure of Interest: None declared

96.03

VALIDATION SENTINEL LYMPH NODE BIOPSY STUDY IN POST NACT cN0 AXILLA USING LOW-COST DUAL DYE TECHNIQUE: POTENTIAL SOLUTION FOR RESOURCE POOR SETTINGS

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Introduction: Sentinel lymph node biopsy (SLNB) using radio-pharmaceutical and a blue dye is gold standard for axillary staging in clinically node-negative early breast cancer and increasingly being used for post NACT cN0 axilla as well. High costs and limited availability of radio-pharmaceutical and/or gamma probe are major deterrents in performing SLNB in developing countries. In this study, we evaluated feasibility of SLN identification (SLN-IR) of fluorescein-guided(FG) SLNB in combination with methylene blue dye (MBD).

Materials & Methods: This was a prospective cross-sectional non-randomized validation study in patients with post NACT clinically node negative axilla. Patients underwent validation SLNB using fluorescein (and blue LED light) and MBD. Axillary dissection was performed irrespective of SLNB histology. SLIN-IR and False Negative Rate (FNR) were assessed.

Results: The SLNs were identified in 51 out of 56 (91%) post Neoadjuvant Chemotherapy (NACT) patients. The median number of sentinel lymph nodes identified 1 (range 1-3) in post **NACT** patients. The SLN-IR using MBD was 91%, FD was 85%, and combined MBD FD was 89%. The false negative rate (FNR) was 7.8% (MBD), 8.3% (FD) and 7.8% (MBD+FD)

Conclusion: This prospective validation study showed adequate SLN-IR and FNR using low cost dual dyes in post NACT cN0 patients and can be used in low resource settings.

Disclosure of Interest: None declared

96.04

EVALUATION OF DUAL DYE TECHNIQUE FOR SENTINEL LYMPH NODE BIOPSY IN BREAST CANCER: TWO ARM OPEN LABEL PARALLEL DESIGN NON-INFERIORITY RANDOMIZED CONTROLLED TRIAL

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Introduction: Sentinel lymph node biopsy (SLNB) by dual-dye technique (radioisotope plus blue) is gold standard for axillary staging in patients with early operable breast cancer (EOBC). The paucity of nuclear medicine facilities in developing nations pose a logistic challenge. This study evaluated the performance of Tc-99 plus methylene blue (MB) dye versus ICG + MB dye for SLNB in EOBC.

Materials & Methods: This randomized controlled trial was conducted from Dec 2019 to Nov 2021 to compare SLN identification proportions using the standard radiocolloid-blue dye [Group A] method and dual dye (MB + ICG; Group B) method. Secondary objective was to study time required and cost effectiveness of performing SLNB in each group. Sample size was calculated assuming iIR of 90% in the experimental arm (ICG+MB), power of study as 90% and alpha error as 5%. Sample size of 70 (35 in each arm) was calculated; however due to COVID pandemic, sample size achieved was 33. Upfront operable node negative early breast cancer were included in the study. Clinico-demographic data, number & type of SLN, time taken were noted. Cost analysis was done including the equipment, manpower & consumable. SLNB was done using standard peri-areolar and peritumoral injection of both dyes/radiotracers. Spy Elite system was used for NIR imaging. Chi square/Fisher exact test was used to compare the proportion between two groups. A *p* value of less than 0.05 was considered to represent statistical significance.

Results: 33 patients were randomized to group A(17 patients) and Group B(16 patients). Mean age of patients was 56.21 years. Clinical details are in figure 1. SLN Identification Rate(IR) between 2 groups was 100%. IR of Tc was 94.11% in Tc-99 + MB compared with 100% of ICG in ICG+ MB(*p*=0.33). Overall IR of Methylene blue was 93.94% . Mean number of SLNs identified were 2.82(+/- 2.40) in Tc99 group and 3.31(SD, 2.41) in ICG group(*p*=0.32). Median(range) time required for SLNB in Tc99 and ICG groups were 11(6-33) minutes and 12.5(6-35) minutes respectively(*p*=0.25). Cost of performing SLNB in Group A and Group B was Rs.2967 and Rs.14,449 respectively.

Image:

Clinical parameters	Group A :Tc+MB (n=17) N(%)	Group B: ICG+MB (n=16) N(%)	p-value
Side of breast cancer			
Left	11(64.71)	10(62.50)	0.89
Right	6(35.29)	6(37.50)	
Site of Breast Cancer			
UOQ	7(41.18)	5(31.25)	0.43
LOQ	1(5.88)	5(31.25)	
UIQ	4(23.53)	2(12.50)	
LIQ	2(11.76)	2(12.50)	
Retro-areolar	3(17.65)	2(12.50)	
T Staging			
Tis	1(5.88)	5(31.25)	0.16
T1	2(11.76)	2(12.50)	
T2	14(82.35)	9(56.25)	

Conclusion: ICG+MB is non-inferior to Tc-99+MB for SLNB in EOBC. Although the cost of dual dye technique is more than the conventional dual agent method, this cost can be reduced by using newer NIR imaging systems which have lesser cost price and by increasing number of procedures performed by NIR imaging system.

Disclosure of Interest: None declared

96.05

DISCREPANCY OF INTRINSIC SUBTYPE BETWEEN PRIMARY TUMOR AND LYMPH NODE METASTASIS IN BREAST CANCER PATIENTS

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Introduction: Change in the characteristics of breast cancer cells in the recurrence from the primary cancer is well known. Especially, the expression of estrogen receptor (ER), progesterone receptor (PR), HER2 and Ki-67 is important as it concerns medical therapy. Heterogeneity of cancer cells in primary breast cancer and metastatic site at the time of initial therapy is not clarified. The aim of study is to find out whether intrinsic subtype of lymph node (LN) metastasis differs from that of primary breast tumor, and how much additional information is obtained.

Materials & Methods: Ninety-one female breast cancer patients (2 bilateral) with lymph node metastasis operated in 2013 to 2018 were enrolled. Patients received preoperative chemotherapy or endocrine therapy were excluded. Immunohistochemistry of ER, PR, HER2 and Ki-67 for both primary breast tumor and largest LN metastasis. Intrinsic subtype was determined as luminal A (ER+, PR+, HER2-, Ki-67 index \leq 20%), luminal B (ER+, HER2-, PR- or PR+ and Ki-67 index $>$ 20%), luminal B HER2 rich (ER+, HER2+), HER2 (ER-, HER2+) and triple negative (ER-, PR-, HER2-). Discordance rate of the intrinsic subtype between primary tumor and lymph node metastasis was analyzed.

Results: Discordance rate of ER, PR, HER2 and Ki-67 was 2/93 (2.2%), 7/93 (7.5%), 2/93 (2.2%) and 10/93 (10.8%), respectively. Intrinsic subtype of the breast tumor was luminal A in 46, luminal B in 28, luminal B HER2 rich in 6, HER2 in 2 and triple negative in 11 breasts. Among luminal A in breast tumor, 5 were luminal B in LN. Among luminal B in breast tumor, 3 were luminal A and 1 was luminal B HER2 rich in LN. Among HER2 in breast tumor, 1 was triple negative in LN. Among triple negative in breast tumor, 1 was luminal B in LN. Discordance rate of intrinsic subtype was 11/93 (11.8%). Considering the intrinsic subtype of LN metastasis, the effect of additional hormone therapy, chemotherapy, and anti-HER2 therapy could be expected in 1, 5 and 1 patient, respectively.

Conclusion: Discordance rate between primary breast tumor and LN metastasis was 11.8%. Considering the intrinsic subtype of LN metastasis, the effect of additional medical therapy could be expected in 7.5% of the breast cancer patients with LN metastasis.

Disclosure of Interest: None declared

100.01

INDIAN SURGERY TRAINEE'S PERSPECTIVE ON SURGICAL ERGONOMICS PRINCIPLES AND EDUCATION: A LONG ROAD AHEAD

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Introduction: Indian surgical residents are overworked and suffer mental and physical injuries regularly. A hierarchical organizational structure, staffing patterns, and fear of failure in examinations leads to this problem going unreported. Resident well-being is potentially associated with better academics and patient care. This study aimed to determine the knowledge, attitude and impact of incorporating surgical ergonomics lectures during residency.

Materials & Methods: An online survey via google forms was distributed to 123 surgery residents with questions regarding demographics, prevalence of musculoskeletal (MSK) symptoms, factors affecting and awareness of ergonomic recommendations. The residents then received 2 online webinars on surgical ergonomics and a follow up survey evaluated the impact of the webinars.

Results: Seventy-one residents (83% male and 17% female surgeons) responded to pre-session survey. Median age was 27 years (range 24-35 years). Eighty five percent had MSK symptoms most common being pain (70%) and stiffness (40%) attributed to their training. Low back (70%), limbs (60%) and neck regions were the most affected parts. Fifty percent started these symptoms during their first year of training itself. Sixty percent reported that they were hesitant in communicating freely to their consultants to adjust the table heights or other things. Forty six residents completed the follow up survey. Majority strongly agreed or agreed that sessions improved understanding of the fundamental causes of posture-related pain (90%), increased understanding of the scope of the problem of work-related MSK injuries among surgeons (95%), increased awareness of options available for prevention of work-related MSK injuries (95%), increased awareness of available options for rehabilitation, recommendations made in the sessions were practical and can be applied to everyday practice (90%) and 90% responded to incorporate the recommendations in their daily practice.

Conclusion: The rates of MSK symptoms and/or injury are high among surgical trainees in India and there is limited awareness of ergonomics. Our study shows that a simple intervention led to improved symptoms and this type of ergonomics curriculum can be adapted effectively even in LMICs.

Disclosure of Interest: None declared

100.02

A SURGICAL GATEWAY; A CHANCE FOR INTERESTED STUDENTS TO GET TO KNOW THEIR DESIRED CAREER.

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Introduction: Physician workforce is influenced by specialty career choices. There are considerable number of students who are interested in surgery as a future career however, there is burnout and loss of interest due to multiple factors, of which: limited exposure to the surgical field, Lack of modern teaching methods and extracurricular surgical activities, along with the absence of mentoring programs and student-surgeon relationships. This study aims to assess the impact of a surgical pilot society on students' knowledge, skills and interest.

Materials & Methods: This quasi-experiment evaluated the influence of the surgical pilot society on the medical students at University of Khartoum, as well as its Teaching hospitals and research center, from March to April 2021. We developed a four-week comprehensive surgical program. That provides early exposure to the surgical field through Sessions, hands-on workshops, shadowing opportunities, career pathway discussions and research center visits. We chose 40 individuals randomly from 161 para-clinical students who filled out an interest survey. Data was collected using self-administered questionnaires before and after the intervention, and was matched using codes assigned to each participant. Data was analyzed Using SPSS-26.

Results: The 34 participants who filled both pre and post-intervention questionnaires were from different para clinical years; fourth 32.4%, third (second semester) 38.2%, and third (first semester) 29.4%, majority were women (94.1%). Most participants had no prior surgical experience (91.2%). The percentage of participants who thought they were qualified to be surgeons changed from 79.4% to 91.2% in the post-intervention questionnaire. Students' knowledge about surgery research has significantly improved (p value = 0.009), as well as their surgical skills as; Suturing, knotting, surgical instrument identification, surgical etiquette, history taking, and examination (all with p values of < 0.001). Suturing session was the most impactful followed by the shadowing experience. Overall, 85.3% of the students were satisfied with their surgical society experience and 97.1% of them recommend it.

Conclusion: This student-led study had demonstrated a significant positive impact on augmenting students' interest, surgical knowledge and skills. Students were satisfied and recommended surgical society to their colleagues. Hence, Universities should support surgical education initiatives that promote students' interest, interaction and future orientation.

References:

Disclosure of Interest: None declared

100.03

THE VERY BEGINNING OF LEARNING SURGICAL TECHNIQUE

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Introduction: The practical training of a future surgeon begins with the development of manual skills and improves over the years. During the education every medical student masters some kinds of manual skills but it is not enough for clinical practice. At the moment there is not a unified approach to sufficient preparation of the hands to start a surgical internship. We offer to test our manual training program "Fundamentals of Surgical Techniques" for the students, interested in the surgical specialty.

Materials & Methods: In our studying participated 40 medical students from 1 to 6 year, divided into 5 groups. All of them underwent 8-hour educational course with a mentor according our program. After it the students trained by their own during 4 months. Every participant was provided by a textbook "Basics of surgical equipment", "basic surgical simulator", developed for the course, and tools. The course included mastering of 28 surgical skills. After the training every student had 10-step practical exam. The evaluation included the final result (1 point), technique (1 point) and ergonomics (1 point). Minimum 12 points were needed.

Before and after the course the students were questioned.

Results: 1). 90,9% of students passed the final exam.

2). According the questionnaire, the average time of self-training was 30 minutes 3-4 times per week that was less than recommendation. Increasing training time led to better results.

Conclusion: 1). According questionnaires data, a video course for self-study was developed.

2). The program "Fundamentals of Surgical Technics" can be mastered during one semester and it corresponds better for 2-3-year students.

3). Such a program allows to expand student's practical skills and can be used as a first step in the preparation for surgical internship.

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100.04

EXTRACTING THE TACTILE INFORMATION OF SURGERY WITH A PARTICIPANT-BASED STUDY

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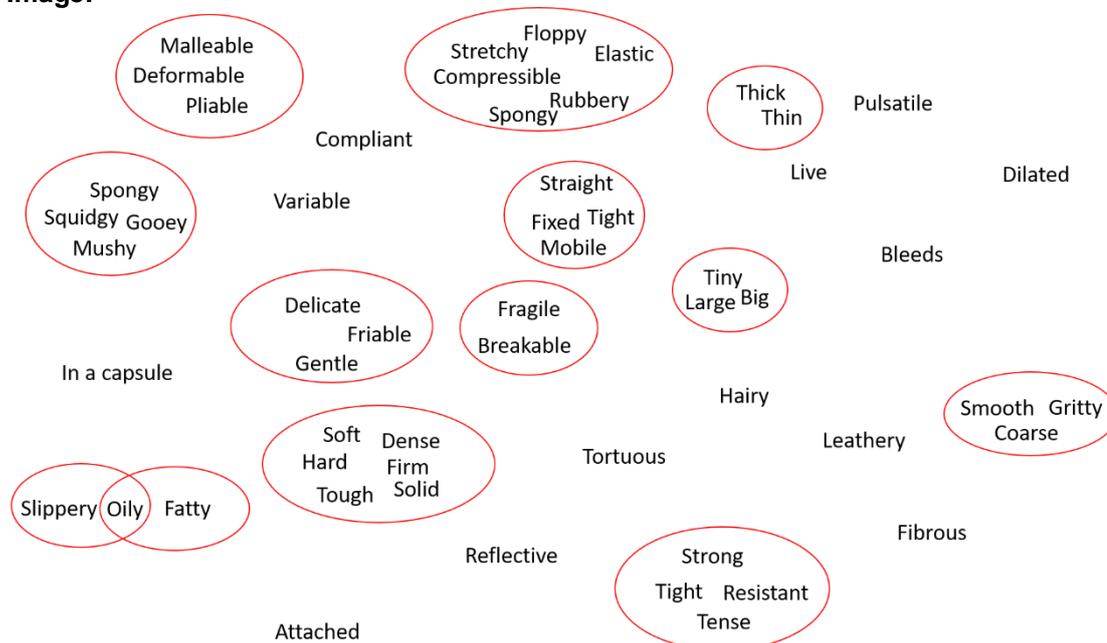
Introduction: Surgical simulation can provide good and ethical training. However, surgical simulators have limited visual and tactile realism according to surgeons. The present study focuses on how the tactile feedback can be characterised for open and laparoscopic surgeries. Much research on surgical simulation focus on mimicking the physical properties, but those properties cannot describe completely and accurately the sensations during surgery.

Materials & Methods: Participant-based studies are implemented to characterise the feedback from soft tissues during a laparoscopic bile duct exploration, including direct touch and touch through tools. This study's design is based on research conducted in the textile industry. It consists of interviews among specialists aiming to generate a description of the tactile feedback, an analysis of the responses including synonym groupings and frequency-based selection; followed by surveys to evaluate how the different sensations are interconnected. The correlation relationships are then evaluated using statistical analysis.

Results: The interviews gathered a list of 53 descriptives when using direct touch and 35 descriptors of the feedback through tools. A frequency-based selection allows keeping only the most relevant parameters. After this analysis, a list of 10 parameters is left to be analysed in the second part of the study. Those parameters are: softness, smoothness, thickness, elasticity, attachment to other tissues, resistance to gripping, resistance to cutting, resistance to suture, resistance to pulling, and resistance to tearing.

The statistical analysis following the survey shows that softness, smoothness, and thickness are important parameters for the identification of the tissues by surgeons when using indirect touch. Softness is the main property that impacts on the sensations through the tools. Elasticity and attachment are independent parameters but do not seem to impact the indirect touch which is the most essential type of touch during laparoscopy. The different properties using indirect touch are all correlated at a strong level, therefore, it is not necessary to evaluate all of them when testing synthetic materials for surgical simulation.

Image:



Conclusion: This method captures the complexity of the tactile feedback because it gathered more than fifty descriptives of the soft tissues, allowing a description of the embodied knowledge of surgeons. The study also highlights the most important tactile properties during surgery and how they are interconnected.

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Disclosure of Interest: None declared

100.05

EFFECTS OF THE CORONAVIRUS PANDEMIC ON MEDICAL AND SURGICAL EDUCATION: RESULTS OF AN INTERNATIONAL SURVEY BY THE INTERNATIONAL ASSOCIATION OF STUDENT SURGICAL SOCIETIES (IASSS)

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Introduction: Coronavirus disease 2019 (COVID-19) presents a variety of unforeseen challenges to all individuals in the healthcare setting, including medical students and surgical trainees. Adaptations to the content and delivery of medical education are inevitable as institutions respond to COVID-19. Surgical departments face significant restructuring, with important implications for surgical training.

Materials & Methods: Between 12 May and 26 May 2020, we conducted an online survey to assess the global impact of COVID-19 on medical and surgical education. All data were anonymous; no personal identifiable information was collected. The survey was circulated to contacts of the International Association of Student Surgical Societies (IASSS), including medical students and healthcare practitioners. Consent was implied by participation in the survey, which was on a voluntary basis.

Results: We collated 527 responses from 111 institutions across 26 countries. Globally, 93.5% of medical student placements were affected by COVID-19, with examination restructuring and alternative teaching methods employed by 87.8% of medical schools. Trainee redeployment was common in both surgical (61.5%) and non-surgical (77.1%) disciplines. Surgical services were significantly affected, with reduced elective procedures in 93% of institutions. On an individual level, COVID-19 resulted in prolonged absence from clinical duties and mental health concerns at all levels of training.

Conclusion: Our data highlight drastic changes in medical and surgical education and practice as a result of COVID-19. These changes are significant at all levels of training, both institutionally and individually. The pandemic is likely to have persistent consequences for future trainees in terms of education and career progression.

Disclosure of Interest: None declared

106.01

MINIMALLY INVASIVE SURGERY (MIS) TRAINING IN A HIGH-INCOME COUNTRY (HIC) PROGRAM FOR LOW-MIDDLE-INCOME COUNTRY (LMIC) SURGEONS

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Introduction: The most widespread model to support surgical education for low- and middle-income countries (LMICs) is partnering with high-income country (HIC) surgeons. Minimally Invasive Surgery (MIS) has the potential to improve care in resource deprived LMICs. There are few coordinated strategies to support the development of surgical care in LMICs. We explored the effectiveness of our LMIC-HIC educational partnership for supporting Global Surgery.

Materials & Methods: Through a partnership between a HIC (France) and a LMIC (Ecuador) a group of surgeons were commissioned from 2015-2019 for a custom designed short-term training experience at a HIC accredited MIS training center as part of their postgraduate education. After completion of the program, more promising candidates might be chosen for long-term surgical training at one HIC accredited University Hospital. The training curriculum was developed by university and academic surgeons in the HIC, including competency-based medical education principles; supported by LMIC steering committee and candidate selection. A Likert and short-answer survey tool was administered to these junior surgeons upon completion of their training experience.

Results: Expected goals including certification/examination in France were achieved by thirty-five participating LMIC surgeons, 86% were male with a current average of 2-5 years of postgraduate surgical experience during the program. Candidates experienced paramount changes in their surgical career including leadership and teaching roles after returning to home country. 50% are currently senior consultants, 40% have reported being promoted to Chief or Head positions, and the rest are currently in other training programs abroad. Vast majority (>90%) agree the experience boosted their clinical and teaching abilities and it was worth the effort. Limitations as adaptation to host country, paperwork/visa, and impact on family were the most representative. After completion of the program, 2 surgeons were chosen for a 1-year training experience at HIC accredited University Hospital as part of their early career development.

Conclusion: This surgical program represents a model for Surgical Education and the Global Surgery; it can be reproducible in different specialties and countries. Such collaborative efforts denote a feasible upskilling opportunity towards addressing global surgical service capacity and improve access to surgical care.

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Disclosure of Interest: None declared

106.02

A PROSPECTIVE STUDY OF ERGONOMIC CHALLENGES FOR THE ASSISTANT SURGEON DURING MINIMAL ACCESS SURGERY

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Introduction: laparoscopic or minimal access surgery raises both physical and cognitive demands. There is a great need to assess our ergonomics and improve them. Attention to this occupation health context is of importance not just to the patient in terms of reduced complications and lesser operating time, it is no doubt beneficial to the operating surgeon for his/her long career. The assistant surgeon who occupies an important part of these minimal access surgeries is often ignored. There is huge need to ensure that right ergonomics is followed for better performance by the assistant.

Materials & Methods: The study included 23 assistant surgeons who volunteered to participate. The study period was from June 2021 to December 2021 at Victoria hospital, Bangalore. Participants with any preexisting musculoskeletal problems were excluded using Nordic musculoskeletal questionnaire (NMQ). laparoscopic cholecystectomy and laparoscopic appendectomy were included in this study. The positions of the assistant surgeon were recorded and then was examined using ergo intelligence UEA software. The data was analyzed using Spss 16 software.

Results: 2 participants were excluded from final analysis due to their preexisting musculoskeletal issues. The average age of the assistant surgeons was 27.3 years. REBA (Rapid entire body assessment) scoring showed 16 assistant having an average score of 5.6 for the neck. The trunk and legs had an average score of 2(81%). The shoulder showed an average score of 4.2(76.4%).

Conclusion: The principles of ergonomics have to be stressed among the assistant surgeons. Modifications of the positions and instrumentation would significantly contribute to alleviate this occupational health hazard.

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Disclosure of Interest: None declared

106.03

EXPERIENCES USING VIDEOS TO COMPLEMENT STRUCTURED ORAL EXAMINATIONS IN SURGERY

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Introduction: Surgeons require multiple skills to be considered competent. Variation of assessment strategies are vital role in the overall evaluation of knowledge, analysis, and technical expertise. The oral examination is the standard method to test knowledge and clinical reasoning, but reliability and validity concerns remain. Providing structure to orals may facilitate the measurement of achievement of the course outcomes, and the use of mock assessments can assist trainees in preparing for exit examinations. This study explored the experiences of surgical trainees and the examiners using a video-assisted, procedure-based, structured oral examination (SOE) in a face-to-face and virtual format.

Materials & Methods: This descriptive study at the Division of Surgery at Stellenbosch University, Tygerberg Academic Hospital, Cape Town, South Africa, took a case-based SOE format using procedural videos. One group of registrars had face-to-face contact with the examiner, and the other group was assessed on an online platform, e.g., Microsoft Teams™, where the examiner was remote. After the SOE, a focus group interview was held with the surgery trainees and individual interviews with the examiners, generating qualitative data.

Results: Themes were developed from the interview transcripts. These themes centre around the utility of videos in this examination format and technical issues during the SOE, e.g., the connectivity and audio-visual disturbances. Further themes revolved around the standardization of questions and preparation of the examiners.

Conclusion: Overall engagement by both the registrars and the examiners was high, and procedural videos as part of the mock SOE was experienced as valuable. The addition of video recordings to the online platform posed administrative and technical challenges. However, the registrars and the examiners could log in from peripheral clinical training sites. Suggestions towards improvement emphasized the importance of standardized approaches and better examiner preparation. Examiners requested training and guidelines on examination practice. Future efforts should focus on the standardization of the examination format, optimizing technical issues, and improving examiner preparation.

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Disclosure of Interest: None declared

106.04

UTILIZING EYE TRACKER TECHNOLOGY AS A NEW TOOL TO ENHANCE QUALITY OF LEARNING: A STEP FORWARD IN SURGICAL EDUCATION

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Introduction: One of the sensory input for any surgeon is that of the visual field of the operating area. The information is assessed and further steps of decision making and motor response is initiated. The right decision and motor output is refined over years of experience by any senior surgeon. If this could be transferred to the young generation of surgeons the added advantage would be huge. One such tool for this transfer is eye tracker technology. Eye technology can quantitatively capture the gaze patterns, fixation, pupil reaction, saccades etc.

Materials & Methods: 10 expert surgeons and 10 residents were included in this study. The study was conducted at skill lab, Victoria hospital, Bangalore between November 2021 to December 2021. The participants completed 4 tasks while the eye tracker (Tobii eye pro Nano) recorded their gaze patterns and fixation on the area of interest. The tracker recorded multiple variables. The data was analyzed using Tobii pro lab software.

Results: Large data was generated as the recording was analyzed at milliseconds. There was significant difference in the time to first fixation, the average was 0.69 seconds in expert and 1.7 seconds in novice segment and, time duration in the average time at area of interest between the expert and novice. The time duration difference at area of interest was statistically significant (>0.05). No difference was noted at the number of fixations at the area of interest.

Conclusion: Eye tracker technology brings great potential in being a disruptive tool in surgical education. It is recommended that it is included in the training curriculum.

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Disclosure of Interest: None declared

106.05

TRAUMA TEAM TRAINING – A MIXED METHODS STUDY EVALUATING THE EFFECT OF A MULTIDISCIPLINARY MASTERCLASS ON TRAUMA MANAGEMENT SKILLS AND ITS INTEGRATION INTO NOVEL WORK SITUATIONS

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Introduction: The treatment of severely injured trauma patients requires both technical and non-technical skills such as adequate communication, teamwork and adaptivity. Learning opportunities in the workplace are limited due to low exposure to highly complex and acute patient cases. This study aims to assess the effect of a multidisciplinary trauma masterclass on participants' self-assessed technical and non-technical trauma management skills and its integration in novel work situations.

Materials & Methods: This mixed methods study included participants of the Dutch combined Definitive Surgical and Anaesthetic Trauma Care (DSTC and DATC, referred to as DSATC) course of 2019, consisting mainly of senior residents or attendings in surgery or anaesthesiology, scrub nurses and anaesthesia technicians. The DSATC is a multidisciplinary three-day trauma masterclass consisting of lectures, case discussions, and workshops in an anatomy and operative porcine laboratory. Quantitative questionnaires were held pre-course and post-course after one day, three months and one year. Participants rated their trauma management skills on a 5-point Likert scale. Pre-course ratings were compared with 1-day post-course ratings by use of a Wilcoxon signed rank test. Qualitative semi-structured interviews were held nine months after course participation and focused on integration of newly acquired skills into the work environment.

Results: With 71 respondents (71/95; 74.7%), the quantitative questionnaires showed that self-efficacy in all non-technical and technical skills significantly increased after the course ($p < 0.03$) and remained at this level after one year. The qualitative interviews ($n=11$) demonstrated that increased confidence in trauma management skills was the most impactful change for daily practice. Innovative application of skills and enhanced reflection at work demonstrate adaptivity. Small-group case discussions and the operative porcine laboratory were considered the most educational working formats, and the unique focus on multidisciplinary teamwork was highly valued.

Conclusion: Improvements in daily functioning after trauma masterclass participation mostly seemed to result from greater overall self-efficacy and adaptivity, rather than enhanced domain specific knowledge and skills. Future trauma curricula should consider aligning their teaching strategies accordingly to optimally prepare trauma team members for the highly variable and complex cases they will encounter.

Disclosure of Interest: None declared

110.01

APRI+ALBI IS INCREASED IN PATIENTS WITH ADVERSE OUTCOME AFTER LIVER RESECTION AND SHOWS HIGHER PREDICTIVE POTENTIAL THAN ICG-CLEARANCE IN THE PREDICTION OF POSTHEPATECTOMY LIVER FAILURE – AN INTERNATIONAL MULTICENTER STUDY

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Introduction: The combined score of the aspartate transaminase to platelet ratio index (APRI) and the albumin-bilirubin grade (ALBI) APRI+ALBI has been associated with postoperative patient outcome. With this study we analyze associations of APRI+ALBI and indocyanine green (ICG)-clearance with postoperative patient outcome and compare their predictive potential for posthepatectomy liver failure (PHLF) and validate our findings in an external cohort.

Materials & Methods: For this study 457 patients were included. Patients underwent liver surgery at the general hospital Vienna (Vienna, Austria) or the clinic "Landstrasse" (Vienna, Austria). Our validation cohort consisted of 557 patients from the Karolinska Institutet, (Solna, Sweden) and the clinic Favoriten (Vienna, Austria). APRI+ALBI was calculated using routine laboratory parameters. ICG clearance, recorded as plasma disappearance rate (PDR) and retention after 15 minutes (R15) was measured. Postoperative patient outcome was retrospectively assessed.

Results: APRI+ALBI was significantly increased in patients who suffered from PHLF ($p<0.001$) and R15 was higher in this group ($R15=0.028$), while PDR did not show any difference ($p=0.063$). APRI+ALBI was higher in patients who suffered from 90 days mortality ($p<0.001$), icg-clearance showed no significance in this group ($R15, p=0.406$; $PDR, p=0.616$) We then analyzed the predictive potential of APRI+ALBI and icg-clearance using receiver operating characteristic (ROC) curve analysis. APRI+ALBI outperformed icg-clearance when comparing areas under the curve (AUC) (APRI+ALBI, $AUC=0.635, p<0.001$; $R15, AUC=0.576, p=0.028$; $PDR, AUC=0.565, p=0.064$). Using Youden's J statistic we defined a cut-off of -2.50 for APRI+ALBI (sensitivity=0.61, specificity=0.60, positive predictive value [PPV]=0.21, negative predictive value [NPV]=0.90, $p=0.001$). We tried to validate our findings in our validation cohort. APRI+ALBI was significantly higher in patients who developed PHLF ($p<0.001$) and predictive potential of APRI+ALBI improved in this cohort ($AUC=0.675, p<0.001$). Our cut-off showed high NPV (Sensitivity=0.084, specificity = 0.35, PPV=0.27, NPV=0.88, $p<0.001$).

Conclusion: With this study we show an association of APRI+ALBI with both PHLF and 90 days mortality in patients undergoing liver resection. The predictive potential of APRI+ALBI outperformed an established liver function test in icg-clearance and could identify patients at low risk for adverse outcome after surgery. We could replicate our findings in our validation cohort.

Disclosure of Interest: None declared

110.02

PREDICTION OF OUTCOME AND LONG TERM OVERALL SURVIVAL AFTER HEPATIC RESECTION UTILIZING CIRCULATING MICRORNAS.

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Introduction: The potential of microRNAs (miRNA) as multifunctional biomarkers for preoperative risk assessment has become a topic of great scientific interest. In this study we aimed to validate the association of miRNAs with postoperative patient outcome and analyze an association of miRNAs with overall patient survival.

Materials & Methods: We included 175 patients undergoing hepatic resection in this study. miRNAs were analyzed from patient plasma using a quantitative polymerase chain reaction (qPCR) array. Blood samples were collected perioperatively. miRNAs evaluated were miRNA 151a-5p, 192-5p and 122-5p. Relative logarithmic differences were calculated between miRNAs to form self-normalizing pairs. Both miRNA pairs 122-5p_151a-5p and 151a-5p_192-5p were joined and the logarithmic differences of the miRNA combination for every patient was calculated. Logarithmic difference is stated as P* value.

Results: We analyzed development of PHLF in different tumor types. High P* values were associated with PHLF in patients with colorectal cancer liver metastases (CRCLM) and hepatocellular carcinoma (HCC) (both $p < 0.005$). P* values revealed high predictive potential with an area under the curve (AUC) of 0.794 ($p < 0.001$). Our cohorts were split using a low-stringency cutoff of $P > 0.59$ ($P^* > 0.59$) and a stringent cutoff of $P > 0.68$ ($P^* > 0.68$) and Overall Survival (OS) was assessed using Kaplan-Meier-Curve survival analysis. Both cutoffs present a significant difference in OS in the low- and high-risk groups ($P^* > 0.59$ Median OS: 53.5 months low-risk group, 12.0 months high-risk group; $p = 0.021$) ($P^* > 0.68$ Median OS: 51.4 months low-risk group, 11.2 months high-risk group; $p = 0.001$). Cut-offs were assessed for PHLF, 90-day mortality and OS categorized in OS < 1 year, OS < 3 years and OS < 5 years. $P^* > 0.59$ showed a significant difference for PHLF, 90-day mortality and OS < 1 year ($p < 0.005$). $P^* > 0.68$ however, showed a statistical difference in all analyzed parameters between the low- and high-risk groups ($p < 0.005$ for PHLF, 90-day mortality, OS < 1 year, OS < 3 years; $p < 0.05$ for OS < 5 years).

Conclusion: We were able to validate earlier findings showing a high predictive potential of miRNAs for the development of PHLF in our 2 greater patient subgroups (CRCLM and HCC). Additionally, we can report that miRNAs are predictive for OS. An easily implementable qPCR array for the evaluation of the presented miRNA combination could significantly improve preoperative patient assessment.

Disclosure of Interest: None declared

110.03

AN OVERSHOOTING INFLAMMATORY RESPONSE AFTER HEPATIC RESECTION AS A DRIVING FORCE BEHIND POSTHEPATECTOMY LIVER FAILURE IN HUMANS

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Introduction: While experimental data on the process of liver regeneration is abundantly present, validation of these findings in humans is largely missing. With our study we aimed to systematically assess early transcriptional changes during liver regeneration in humans to elucidate if previously identified regulators of murine liver regeneration are differentially expressed in humans as well, how these processes differ in patients with posthepatectomy liver failure (PHLF), and what differences prior to operation (preOP) are linked to ineffective liver regeneration, ultimately leading to PHLF.

Materials & Methods: RNA sequencing was performed in liver tissue of 21 patients preOP as well as 2 hours after the induction of liver regeneration. Cytokine levels were assessed in 129 additional patients. Immunofluorescence was used to quantify intrahepatic neutrophil accumulation and confirmed by electron microscopy. Liver sinusoidal endothelial cells were isolated from a mouse NASH model.

Results: Within only 2h after the initiation of liver regeneration, we observed drastic changes in transcriptional processes in liver tissue. The majority of involved pathways were inflammatory responses. Patients suffering from PHLF showed an overall higher inflammatory response upon initiation of liver regeneration, higher ICAM-1 induction, as well as intrahepatic neutrophil adhesion. Patients with LD showed increased levels of MPO, as a marker for neutrophil degranulation, while other circulating cytokines appeared similar between groups. DUSP4, as an important regulator of inflammation in LSECs, was found to be significantly lower in patients developing PHLF.

Conclusion: While inflammation has been thought to induce liver regeneration, our data suggests that in humans an overwhelming inflammatory response is associated with PHLF. PreOP differences in LSEC DUSP4 did predict post-operative outcomes in the context of liver function and were associated with postoperative neutrophil activation; implying a pathophysiological role of DUSP4 in overwhelming inflammation.

Disclosure of Interest: None declared

110.04

ANALYSIS OF PERIOPERATIVE CONCENTRATION CHANGES OF FIBRINOGEN AND MARKERS ASSOCIATED WITH THE COAGULATION CASCADE AND THEIR ASSOCIATION WITH POSTOPERATIVE PATIENT OUTCOME AFTER HEPATIC RESECTION

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Introduction: Posthepatectomy liver failure (PHLF) remains a relevant postoperative risk in patients undergoing liver resection. Parameters involved in coagulation and hemostasis have been associated with rodent and human liver regeneration. Fibrinogen deposition in the liver and Antithrombin III (ATIII) both are involved in postoperative hepatic regeneration. In this study we aimed to elucidate concentration changes of fibrinogen and selected coagulation parameters over the perioperative time course and examine if these factors are associated with postoperative patient outcome.

Materials & Methods: 55 patients undergoing liver resection were included. Fibrinogen levels, ATIII activity as a surrogate for absolute ATIII levels, thrombin time (TT) and prothrombin time (PT) were assessed out of routine laboratory blood tests from prior to the operation (preOP) and from the first and fifth postoperative day (POD). Postoperative patient outcome was retrospectively evaluated.

Results: Patients who suffered from PHLF had prolonged PT on POD1 ($p = 0.012$). Patients with higher levels of Fibrinogen preOP ($p = 0.098$) and lower Fibrinogen on POD1 ($p = 0.074$) showed a tendency to develop PHLF. We then examined postoperative morbidity in our patients. Patients who developed postoperative morbidity, also had prolonged PT ($p = 0.021$). In patients with severe morbidity (Dindo Morbidity grade ≥ 3) preOP fibrinogen levels were elevated ($p = 0.002$). When looking at perioperative dynamics of our parameters, Fibrinogen concentration significantly dropped from preOP to POD1 in patients who did and didn't suffer from PHLF (no PHLF, $p = 0.002$; PHLF, $p = 0.008$). Fibrinogen then increased from POD1 to POD5, in patients without PHLF ($p < 0.001$). ATIII activity was also lower in patients with and without PHLF when comparing preOP to POD1 (no PHLF, $p < 0.001$; PHLF, $p = 0.028$). But only in patients with PHLF ATIII activity then dropped even further from POD1 to POD5 ($p = 0.002$).

Conclusion: With this study, we document that coagulation parameters are associated with postoperative outcome in human patients undergoing hepatic resection. Our data indicates that low postoperative fibrinogen might negatively affect postoperative liver regeneration. Of course, the pathophysiology behind these findings needs to be further explored, but given the possibilities of pharmaceutically influencing fibrinogen levels, these findings may ultimately translate into improved patient outcome after liver resection.

Disclosure of Interest: None declared

111.01

CYTOREDUCTIVE SURGERY +/- HIPEC: 5-YEAR EXPERIENCE OF THE IMPERIAL COLLEGE ADVANCED CANCER SERVICE

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Introduction: The National Institute for Health and Care Excellence in the UK supports cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC), but requires specialist centres offering this procedure to carefully audit their outcome data. This retrospective study aimed to review outcome measures after CRS +/- HIPEC undertaken at the Imperial College Advanced Cancer Service.

Materials & Methods: A retrospective analysis of a prospectively maintained database was undertaken to review surgical and cancer specific outcome measures for patients undergoing CRS +/- HIPEC at the Imperial College Advanced Cancer Service between July 2016 and May 2021.

Results: Total of 48 (83%) patients underwent CRS with HIPEC and 10 (17%) underwent CRS without HIPEC. Repeat cytoreductive procedure were performed for 1 (1.7%) patient. Primary tumour sites were: colorectal 43 (74.1%); appendiceal 6 (10.3%); small bowel 2 (3.5%); gastric 2 (3.5%); ovarian 2 (3.5%); cancer of unknown primary 3 (5.1%). The median surgical PCI score was 7 (1-37) with complete excision of all disease (CC-0) achieved for 48 (82%) patients. 7 patients (12%) had synchronous liver resection. Median length of ICU stay was 4.9 (0-26) and length of hospital stay was 13.8 (8-90) days. Clavien-Dindo ≥ 3 complications occurred in 5 (8.6%) cases with 1 (1.8%) anastomotic leak. No 30 day mortalities occurred while 90 day mortality was encountered in 1 (1.9%) case. Median follow up for the cohort was 13.5 (1-61) months. 29 (50%) were alive at last follow up with 25 (55%) developing recurrence within a median of 6 (2-36) months. 2 (3.4%) patients required repeat cytoreductive procedures.

Conclusion: The presented data demonstrate that outcome measures comparable with international centres of excellence can be achieved by new services, provided care is delivered by appropriately trained health care teams.

Disclosure of Interest: None declared

111.02

LAPAROSCOPIC SURGERY FOR COMPLEX CROHN'S DISEASE: PERIOPERATIVE AND LONG TERM RESULTS FROM A PROPENSITY MATCHED COHORT

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Introduction: Laparoscopic surgery for complicated (Montreal B3) Crohn's disease (CD) is often technically challenging. We hypothesised that, when comparing similar cohorts, outcomes after laparoscopic (Lap) surgery are improved compared to open surgery. We aimed to compare the perioperative and long-term outcomes of matched patients undergoing Lap and open colonic and ileocolonic resection.

Materials & Methods: In this retrospective cohort analysis from a single, high volume IBD centre, Lap and open patients were matched 1:1 using logistic regression based on age, body mass index (BMI), gender, indication (fistula vs. abscess), ASA class, prior abdominal surgery, postoperative Crohn's medication use and propensity scored for Lap approach. Primary outcomes were operative time, blood loss and complications and assessed using multivariable regression models. Long-term outcomes were subsequent intraabdominal surgery for recurrent CD, incisional hernia surgery, and stoma reversal rates.

Results: 906 patients underwent surgery for complex CD. After propensity matching, 386 patients were analyzed (193 open/193 lap, 51.3% male, mean age 33.9+/-12.6). Mean follow-up was 9.8 (range 7.9-12.1) years. Length of stay (LOS) [6 (4,8) vs 8 (5,11) days, p<.001] and operative time [154 (110,216) vs 176 (126,239) minutes, p=0.03] were shorter in the lap group. Patients undergoing open surgery were more likely to have postoperative sepsis (10.9 vs 4.7%, p=0.02) There was no difference in other complications or mortality. After adjusting for the use and type of postoperative medications, no association was found between operative approach and subsequent intra-abdominal operation or incisional hernia repair. Lap patients were less likely to have postoperative sepsis [OR 0.40 (0.18, 0.91), p=0.03] and more likely to have their stomas reversed [OR 1.9 (1.2, 3.1), p=0.01].

Conclusion: In the setting of complicated Crohn's, laparoscopic surgery is associated with reduced operative times and LOS. Mortality, reoperation and hernia rates were equivalent to open surgery. Patients undergoing laparoscopic surgery are less likely to experience postoperative sepsis and more likely to have their stomas reversed.

Disclosure of Interest: None declared

111.03

OUTCOMES OF CLOSTRIDIODES DIFFICILE INFECTION ON IBD PATIENTS UNDERGOING COLONIC RESECTION: A PROPENSITY SCORE MATCHED NSQIP ANALYSIS

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Introduction: Clostridiodes difficile infection (CDI) affects inflammatory bowel disease (IBD) patients more frequently than non IBD patients. Often, symptoms of an acute IBD flare and CDI (which include diarrhoea, fatigue, dehydration and fever) overlap. In the IBD literature, hospitalised IBD patients with CDI (IBD-CDI) have increased morbidity and mortality when compared to unmatched IBD patients without CDI. We aimed to determine outcomes in matched IBD surgical patients with and without CDI.

Materials & Methods: All adult patients with IBD in the National Surgical Quality Improvement Program database undergoing a small and/or large bowel resection between 2015–2019 were identified. The t-test and non-parametric Wilcoxon rank sum tests were used to analyse continuous factors in IBD-CDI versus IBD patients. Chi-square and Fisher's exact tests were used to compare categorical variables. Propensity score matching was based on age +/- 5 years, gender and surgery performed. Weighted logistic regression models were performed to test the association between binary outcomes and IBD-CDI. A Poisson regression model was used to examine the effect of CDI on length of stay (LOS).

Results: Data from 12,663 IBD patients and 119 IBD-CDI were recorded during the study period. After propensity score matching, the presence of CDI was associated with readmission (4.55 [3.09-6.71], p<.001), return to the operating room (3.17 [1.81-5.52], p<.001) and any complication (2.16 [1.47-3.17], p<.001). Similarly, infection (2.55 [1.71-3.8], p<.001), any surgical site infection (SSI, 2.58 [1.67-3.98], p<.001) and organ space SSI (2.49 [1.51-4.11], p<.001), ventilation for >48 hours (4.03 [1.39-11.69], p=0.01), acute renal failure (15.06 [4.26-53.26], p<.001), CVA (12.36 [1.26-121.06], p=0.03), sepsis (2.4 [1.39-4.15], p=0.002) and septic shock (3.29 [1.36-7.96], p=.008) were all higher in the IBD-CDI cohort

LOS was significantly longer in the IBD-CDI cohort. Specifically, the mean LOS was increased by 39% if a patient had CDI (OR 1.39 95% CI [1.19-1.64]). There was no difference in mortality or venous thromboembolism between the cohorts.

Conclusion: IBD patients with CDI undergoing surgery had an increased rate of infections, return to the operating room, readmission and longer lengths of stay compared to a matched cohort of surgical IBD patients without CDI. Early suspicion, testing and treatment for CDI in IBD patients is crucial.

Disclosure of Interest: None declared

111.04

QUALITY OF LIFE IN PATIENTS AFTER RESECTION OF RETROPERITONEAL SOFT TISSUE SARCOMA

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Introduction: Surgery is the mainstay of treatment for retroperitoneal soft tissue sarcoma (RPS). Complete tumor resection, often requiring multivisceral resections, is one of the most important prognostic factors for overall survival (OS). Still, recurrence rates remain high. Repeated surgery for RPS recurrence is associated with improved OS and is acceptable in terms of morbidity and mortality, but the impact on patients' quality of life (QoL) has been scarcely investigated. In this study we aim to assess and analyze postoperative QoL after resection and re-resection of RPS regarding physical as well as psychosocial components.

Materials & Methods: All patients who underwent resection of primary, recurrent or metastasized RPS at the University of Heidelberg between 10/2001 and 12/2020, who were alive, were included. Six questionnaires to assess physical and psychosocial components of QoL were sent to all patients. Regression analyses were performed to investigate the relation between postoperative QoL and patient as well as treatment characteristics.

Results: We received questionnaires from 127 out of 180 contacted patients (70%). 44 % of all patients only had one tumor resection, 19% were operated twice, 9% had three, and 24 % had more than three tumor resections. Reduced physical functioning ($p < 0,001$) as well as reduced mental well-being ($p < 0,001$) significantly affected current QoL, whereas social, cognitive and emotional functioning and the fear of a progression did not have an impact (all $p > 0,05$). Regular experience of pain ($p = 0,009$), fatigue ($p < 0,001$) and constipation ($p = 0,015$) were associated with reduced current QoL. There was no correlation between reduced general, physical, emotional or social functioning and the number of operations as well as the occurrence of postoperative complications (all $p > 0,05$).

Conclusion: In everyday surgical practice, besides sufficient oncological treatment, the focus is mainly set on physical recovery and postoperative complications. However, our results show that postoperative QoL of RPS patients is neither mainly affected by postoperative complications nor the number of operations. Postoperative QoL seems to be affected not only by physical but also psychosocial limitations. Therefore awareness for possible psychosocial impairments and concomitant psychooncological care may further improve long-term postoperative QoL.

Disclosure of Interest: None declared

111.05

COMBINED SPHINCTER PRESERVING PROCEDURE (LIFT + VAAFT + FiLAC) IN COMPLEX ANAL FISTULA : A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction: Successful treatment of complex perianal fistula continues to be a challenging problem. Various new techniques have evolved such as ligation of the Inter-sphincteric fistula tract (LIFT), Video-assisted anal fistula treatment (VAAFT), fistula laser closure (FiLAC), fibrin glue, and fistula plug. However, the results of all these techniques are variable and far from being optimal. In this study, we have combined the LIFT procedure with VAAFT and FiLAC in the treatment of complex anal fistula. We hypothesize that the combined approach can improve the healing rate without causing any change in continence.

Materials & Methods: The study included forty-five patients with complex anal fistula (high trans-sphincteric, supra-sphincteric, and horse-shoe fistula) based on clinical examination and MRI. All the patients were operated using the combined approach by the same team of surgeons. Patients were followed for 1 year. The assessment of continence was done by Wexner scoring. The healing, recurrence, and continence status was noted.

Results: Primary healing occurred in 91.11% patients and none of the patients reported any de-novo incontinence. The patients with minor pre-existing incontinence did not report any worsening of continence after the procedure. The preoperative and postoperative Wexner scores did not show any significant change. The average healing time was 43.53 days.

Conclusion: This study concludes that the combined sphincter sparing approach (LIFT + VAAFT + FiLAC) is a safe and effective procedure for complex anal fistula. Combining the various techniques can improve the outcome without compromising the continence status of patient.

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Disclosure of Interest: None declared

111.06

A SYSTEMATIC REVIEW AND SINGLE-ARM META-ANALYSIS OF THE INCIDENCE OF COMPLICATIONS FOLLOWING HEMORRHOIDECTOMY

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Introduction: Excisional hemorrhoidectomy remains an effective operation. Fecal incontinence is a feared long-term complication following hemorrhoidectomy, and the incidence of which is unclear with variation reported in literature. This study aims to determine the true estimate of post-operative complications of hemorrhoidectomy for different excisional techniques.

Materials & Methods: Randomised Controlled Trials (RCTs) and observational studies published in the last 25 years were identified by means of a Preferred Reporting Items of Systematic Reviews and Meta-analyses (PRISMA) compliant systematic review using Medline, EMBASE and CENTRAL databases. Only studies which reported excisional procedures for grade 3 and/or 4 hemorrhoids were included in the review. Single-arm meta-analyses of proportions was performed using the 'meta' package in R, with the Freeman-Tukey double arcsine transformation method. Outcomes of interest were fecal or flatus incontinence measured at an early (0-3 month), or late (>6 months) interval, post-operative bleeding, urinary retention, anal fissure and stenosis.

Results: A total of 117 studies were included in the analysis, of which 59 were RCTs and 58 were observational studies. Early incontinence from excisional hemorrhoidectomy (EH) in RCTs was estimated at 2.64% [95% CI, 0.37-6.21] $I^2=79\%$, with 15 treatment arms and 895 participants. Late incontinence in RCTs was estimated at 2.96% [1.05-5.53] $I^2=84\%$ across 33 treatment arms and 2138 participants. Thirty-one observational studies with 17,588 participants show the incidence of late incontinence after 6 months for EH was 2.03% [0.69-3.93] $I^2=97.6\%$. Early incontinence after Stapled Hemorrhoidopexy (SH) in 14 observational studies with 2298 participants was 3.50% [1.20-6.75], $I^2=91\%$, however after 6 months the percentage reduced to 1.17% [0.44-2.15] $I^2=92.1\%$. Observational studies reporting significant post-operative bleeding occurred in 2.86% [1.35-4.85] $I^2=93.7\%$ of participants undergoing EH. For SH this was 3.71% [2.82; 4.69] $I^2=74.2\%$. Observational studies report the urinary retention rate for EH at 2.90% [1.37-4.89] $I^2=93.4\%$, for SH this was 5.51% [4.15-7.05] $I^2=85\%$.

Conclusion: Post-operative complications following hemorrhoidectomy is generally low. However, there is significant variation in study quality and methodology of reporting, contributing to high heterogeneity. The quantified incidence rate of these complications can help inform patients and clinicians the risks associated with the operation.

Disclosure of Interest: None declared

111.07

DETECTION OF ANASTOMOTIC LEAKAGE FOLLOWING ELECTIVE COLONIC SURGERY: RESULTS OF THE PROSPECTIVE BIOMARKERS AND ANASTOMOTIC LEAKAGE (BALL) STUDY

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Introduction: Anastomotic leakage (AL) is an infrequent but life-threatening surgical complication following colorectal surgery. Early diagnosis remains clinically difficult but is a necessity to reduce associated morbidity and mortality. Clinical review and radiological modalities for the diagnosis of leakage remain non-specific and often only detect AL once it is well developed. Systemic inflammatory biomarkers, however, have shown promise in early pre-clinical detection of AL following colorectal surgery.

Materials & Methods: A multi-centre prospective observational study was conducted across four public hospitals in Auckland and Christchurch, New Zealand. Consecutive adults undergoing elective colectomy were initially recruited over a 3-year period. Perioperative blood samples were collected to measure IL-6, IL-1b, TNF-a, IL-10, C-reactive protein (CRP), leucocyte and neutrophil counts. Statistical analysis was performed to compare patients with an uncomplicated recovery with patients with AL.

Results: Sixteen patients developed AL (5.7%), diagnosed at a median post-operative (POD) day 7. IL-6 and CRP were consistently elevated in the early postoperative period in patients with AL and had the best diagnostic accuracy on POD 1 (Area Under Curve) AUC 0.69; p= 0.02); and POD 3 AUC 0.70; p= 0.02) respectively. IL-10, once adjusted for BMI and surgical approach, was the sole biomarker significantly elevated in patients with AL on POD 4.

Conclusion: Early postoperative elevations of CRP and IL-6 provide clinically significant information for the early detection of AL from POD 1. Application of these inflammatory biomarkers and their combinations in daily practice warrants further investigation.

Disclosure of Interest: None declared

120.01

COST-EFFICACY ANALYSIS OF USE OF FROZEN SECTION HISTOLOGY FOR MARGIN ASSESSMENT DURING BREAST CONSERVATION SURGERY IN BREAST CANCER PATIENTS

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Introduction: Margin assessment is an essential component of breast conservation surgery (BCS) for breast cancer (BC). Reoperation for re-excision of infiltrated margin(s) detected on paraffin section histology (PSH) adds to time, inconvenience, and cost. Intra-op assessment of margins with frozen section histology (FSH) has the potential to facilitate one-step oncologically complete BCS, obviating need for re-operation for margin revision. In a large cohort of BC patients undergoing BCS, we evaluated the accuracy and cost efficacy of margin assessment with FSH in achieving oncologically complete (infiltration free margins) surgery.

Materials & Methods: Registered on central trial registry of India (CTRI/2021/08/035896) and approved by IEC, this study included consecutive female patients operated during October 2010-September 2020. Intra-op FSH and PSH reports were reviewed, considering PSH as gold standard to assess the true positive (TP), true negative (TN), false positive (FP), false negative (FN), overall accuracy and cost-efficacy of FSH. Total cost incurred for achieving oncologically complete BCS in the whole cohort with use of FSH- Scenario-A was calculated [total cost of hospitalisation in Indian Rupees (INR), as per SGPGIMS charter of costs], and compared with total hospital costs for the entire cohort in a hypothetical scenario- Scenario-B, where intra-op FSH was not used, margins were assessed by PSH only, and all patients with infiltrated margin(s) on PSH were re-operated for re-excision or mastectomy.

Results: We screened 367 eligible patients, of which 38 were excluded due to incomplete FSH data. Of 329 patients analysed, 60 (18.2%) were reported to be having one or more margin involved on histology, which were managed by re-excision or mastectomy in the same sitting, thus avoiding a reoperation. Additional 10 (3%) patients were reported to be having involved margins on PSH, though FSH was FN. Detailed results are listed in table. Average cost of first operation with use of FSH was INR 25776 which included INR 660 as FSH cost. The average cost of reoperation was INR 17360 which could be avoided in 60 (18.2%) by use of FSH.

Image:

Table 1. Accuracy and Cost effectiveness of Frozen Section Histology for margin assessment for BCS

True Positive	54 (16.4%)
False Positive	06 (1.8%)
True Negative	259 (78.7%)
False Negative	10 (3%)
Sensitivity	84%
Specificity	98%
Positive Predictive value	90%
Negative Predictive value	96%
Overall Accuracy	95%
Cost incurred to achieve oncologically complete BCS in entire cohort, and cost saving with use of FSH	
Strategy A: Use of FSH to help one-step complete BCS, avoidance of re-operation	INR 8.6 million
Strategy B: Use of PSH alone, and reoperating any patients with infiltrated margins	INR 9.4 million
Total cost-saving with use of FSH for the whole cohort	INR 0.8 million
Average per patient cost-saving by use of FSH (Entire Cohort)	INR 2431

BCS= breast conservation surgery, FSH= Frozen section histology, PSH= Paraffin section histology, INR= Indian Rupees

Conclusion: Use of intraoperative FSH facilitates one-step oncologically complete BCS in majority of patients and results in considerable cost saving for health care system and patients, resulting in avoidance of reoperations, possibly preventing patient anxiety and delay in adjuvant treatment.

Disclosure of Interest: None declared

120.02

EVALUATION OF ONCOLOGICAL OUTCOMES OF ROUTINE CAVITY SHAVE WITH BREAST CONSERVING SURGERY

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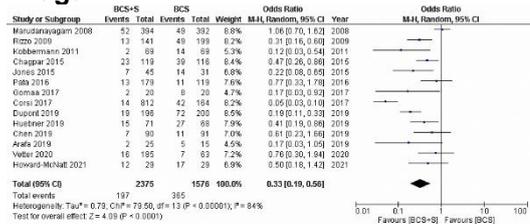
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Introduction: Given this high re-excision rate (20–60%) following breast conserving surgery, a significant body of work has been undertaken to optimise the primary procedure and reduce the need for further salvage. Techniques such as contemporaneous frozen-section analysis of the excised tumour bed or cavity biopsies are able to identify involved margins, facilitating further intra-operative re-excisions. Moreover, multiple single-centre studies have progressed from cavity biopsies to undertaking additional circumferential cavity shaving to increase the yield of negative surgical margins.

Materials & Methods: The aim of this systematic review and meta-analysis is to compare routine circumferential cavity shaving (BCS+S) versus no shaving (BCS) with breast conserving surgery for breast cancer. A systematic literature search for comparative studies comparing between BCS+S and BCS was conducted using electronic databases and Google scholar service. Studies were evaluated for recurrence and post-operative complications. We pooled the data using random effects model and calculating odd ration (OR) and mean difference (MD) for dichotomous and continuous outcomes, respectively. Evaluated outcomes were positive margin rate, re-excision rate and operative time

Results: A total number of 14 studies were included in this meta-analysis with total number of 3951 patients divided between BCS+S (2375 patients) and BCS alone (1576 patients). BCS+S group showed significant lower rate of positive margins and re-excision compared to BCS group [8.2% vs 23.1, OR 0.33, 95% CI (0.19,0.56), P=0.0001] and (7.3% vs 19.8%, 95% CI (0.25, 0.55), OR 0.37, P=0.00001), respectively. Operative time was shorter in BCS group than BCS+S group [MD 5.75, 95% CI (5.57, 9.50), P=0.003].

Image:



Conclusion: Comparing to BCS alone, BCS and routine cavity shave provides lower positive margins rate and subsequent need for re-excision rate; however, this additional step prolongs the operative time. Well-designed trials are needed to explore the cosmetic impact and cost-effectiveness of routine cavity shaving.

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Disclosure of Interest: None declared

120.03

CONSIDERATIONS ON LOCAL RECURRENCE RISK FACTORS IN BREAST CANCER: A RETROSPECTIVE COHORT STUDY

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Introduction: Locoregional recurrence can negatively impact the prognosis of breast cancer patients. However, no trustworthy prediction model is known to forecast prognosis and direct new therapeutic strategies and clinical management. We aimed to review the risk factors for local recurrence in our cohort.

Locoregional recurrence can negatively impact the prognosis of breast cancer patients. However, no trustworthy prediction model is known to forecast prognosis and direct new therapeutic strategies and clinical management. We aimed to review the risk factors for local recurrence in our cohort.

Materials & Methods: This retrospective study was conducted on a breast cancer cohort, including operated invasive and ductal in situ carcinomas between 2001 and 2019 with at least three years of follow-up. Males were excluded, and clinical and pathological data were analyzed using R.

Results: Overall, 6167 breast cancer patients were included. The median age was 62 years (IQR 51-71), 50.79% underwent breast-conserving surgery, and 58.41% sentinel lymph node biopsy. Breast cancer patients with one local recurrence (259 patients) had a 10-year overall survival of 84.84% (95% CI 80.35-89.57%), significantly lower than patients without local recurrence ($p < 0.05$). Patients with more than one local recurrence (43 patients) had a 10-year overall survival of 76.66% (95% CI 63.58-92.43%). In the multivariate logistic regression analysis, adjusted for follow-up time, the most predictive factors for local recurrence were young age at diagnosis, luminal Her (OR 3.12, 95% CI 1.9 - 5.13), Her-enriched (OR 3.05, 95% CI 1.72 - 5.41), basal-like (OR 2.83, 95% CI 1.71 - 4.69), and luminal B (OR 2.27, 95% CI 1.53 - 3.37) subtypes. Other significant predictive factors were comedo-like necrosis and G3 tumor grading.

Conclusion: Tumor molecular subtype is the most predictive factor for locoregional recurrence. Although local treatment is a prior choice for low-risk patients, future treatment strategies should increase their attention to tailor treatment to the tumor type, and new systemic treatment strategies need to be considered.

Disclosure of Interest: None declared

120.04

MODIFIED LICAP TURN-OVER FLAP- A SIMPLE RECONSTRUCTIVE TECHNIQUE FOR LARGE LUMPECTOMY DEFECTS IN RESOURCE LIMITED ENVIRONMENT

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Introduction: The Lateral Intercostal Artery Perforator flap (LICAP) is used for reconstruction of the lateral breast defects. Conventional technique described involves use of doppler to identify perforators and require special plastic surgery training to harvest the flap. We propose a simple technique using anatomical landmarks rather than doppler and the outcomes of first 22 cases done in our department.

Materials & Methods: We mark the safe zone of perforators using anatomical landmarks. Flap is dissected all around except the safe zone. With this technique, we performed a total of 22 LICAP turn-over flaps between Jan 2020 to June 2021. In all 22 cases, the indication of flap was to fill the post breast conservation surgery defects in lower outer, central and upper outer quadrant of breast. Patient was positioned in a single position during surgery. All LICAP flaps were harvested by drawing anatomical landmarks and without hand held doppler.

Results: Out of 22 LICAP turn-over flaps, 13 were harvested for left breast and 9 for right breast. The median width and length of flap was 12.2 cm and 19.6 cm respectively. The additional mean operative time was 41 minutes. All LICAP flaps survived well and grade 1 Clavien dindo morbidity documented in 4 cases. Mean hospital stay was 2.6 days. There was no delay in initiation of radiotherapy. Early cosmetic outcome was good, and we are following up for the long-term outcome.

Image:



Conclusion: Modified LICAP flap can be done safely in a single position without any special equipment and with basic knowledge of the easily identifiable anatomical landmarks. This technique has short learning curve and without the need for any plastic surgery training. The early cosmetic outcomes are good.

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120.05

BREAST RECONSTRUCTION WITH SERIAL LIPOFILLING – A PATIENT PERSPECTIVE

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Introduction: An increasing number of women seek breast reconstruction following a mastectomy. Thus, being able to offer a range of reconstruction methods to meet the needs and wishes of these patients is important. Serial lipofilling without tissue expansion is a relatively new method for autologous breast reconstruction. Here we assess the patient experience of the procedure and the reconstructed breast.

Materials & Methods: A cross-sectional study on women who had undergone total breast reconstruction with lipofilling between June 2010 and June 2016 was performed. Women who had undergone complete follow-up with MRI imaging were included. The patients were given a purpose-built questionnaire evaluating the reconstruction process, the recovery time and potential adverse effects, as well as the appearance and sensitivity of the reconstructed breast.

Results: Thirty-eight women, median age 62 (range 48-78) years, were included in the study. The time from the breast reconstruction was median 2.1 (0.4-6.8) years. MRI imaging revealed a total fat retention proportion of 58 (14-119)% after median 4 (2-6) lipofilling procedures. Volumetric symmetry achieved in the breasts was good with the reconstructed breast being 76 (17-100)% of the contralateral. The questionnaire was returned by 25 (66%) of the participants. The responders reported a high similarity between the physical aspects of the reconstructed and the contralateral breast (median score 20 (3-28) out of 30) and good sensitivity of the breast (median 8 (1-10) out of 10). The recovery from the operations was judged easy (median 9 (4-10) out of 10) with little pain, bruising or contour irregularities in the fat donor areas at two months after the surgery (median 29 (9-30) out of 30).

Conclusion: Lipofilling without tissue expansion is a feasible option for autologous reconstruction as a good volumetric symmetry can be achieved with an acceptable number of procedures and easy recovery. The patient-reported satisfaction with the breast reconstructed with lipofilling is also high. This method represents an option of autologous breast reconstruction for women unwilling to undergo flap reconstruction or unsuitable for the extensive surgery it requires.

Disclosure of Interest: None declared

120.06

IMPROVING QUALITY OF BREAST CANCER SURGERY AT A COMMUNITY HOSPITAL: OUTCOMES OF ONCOPLASTIC SURGERY IN THE COMMUNITY SETTING IN THE UNITED STATES

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Introduction: Breast conserving surgery (BCS) is the most common surgical treatment for breast cancer. There is increased adoption of oncoplastic surgery (OPS) to expand candidacy for breast conservation and to achieve improved cosmetic outcomes. There is also an increase use of neoadjuvant chemotherapy (NAC). However, minimal data describe outcomes in oncoplasty in the neoadjuvant setting and in the community setting despite the majority of breast cancer patients being treated in the community.

Materials & Methods: Retrospective review was performed of women diagnosed with breast cancer who underwent BCS and OPS at a community hospital from 2019-2021. In our cohort, oncoplastic surgery was performed by a plastic surgeon, immediately following the cancer resection performed by a breast surgical oncologist. Short term outcomes assessed included postoperative complications and re-excision rates.

Results: Within a cohort of 121 patients with breast cancer, 78 (64.5%) underwent BCS and 43 (35.5%) had OPS. The mean age was 62.7 years (range: 36-93), while the BMI was 30.84 kg/m² (range: 17.75-56.24). Smoking and diabetes was reported in 41 (33.3%) and 20 (16.4%) patients, respectively. 15 patients in the OPS group and 10 in the BCS group had NAC. The use of NAC was not associated with increased risk of positive margins, or increased risk of complications in either group. OPS was associated with younger age (55.8 vs. 66.7 years, $p < 0.001$) and larger specimen removed (6.5 vs. 5.5 cm, $p < 0.002$). The frequency of overall complications in BCS and OPS were 21.8% vs. 15.6%, respectively. RE-excision rates were more common in the BCS group compared to OPS (20.5% vs. 11.1%, $p = 0.14$), as were seromas (BCS: 14.1% vs. OPS: 4.4%, $p = 0.08$). Infections (BCS: 3.8% vs. OPS: 6.7%, $p = 0.38$) and hematomas (BCS: 5.1% vs. OPS 4.4%, $p = 0.62$) were similar in both groups.

Conclusion: Breast oncoplastic surgery can safely be performed in the community setting, with equivalent outcomes as those reported in the academic setting. OPS allows removal of bigger specimen with a trend towards lower re-excisions and complications. OPS can be an option offered to appropriate patients and may improve outcomes of, and expand candidacy for, breast conservation. Many women receive cancer treatment at a community hospital, therefore, facilitating high-quality surgical care and techniques to achieve successful outcomes in this setting is a priority with high impact.

Disclosure of Interest: G. De la Cruz: None declared, K. Trockman : None declared, T. Kuck: None declared, D. Caragacianu Consulting fees from: Medtronic

120.07

A RANDOMIZED CONTROLLED TRIAL TO COMPARE EFFICACY OF COMPLETE DECONGESTIVE THERAPY(CDT) VS CDT AND PLACEMENT OF HYDROPHOBIC SILICONE TUBE IN BREAST CANCER RELATED LYMPHEDEMA (BCRL)

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Introduction: Women treated for breast cancer face a life time risk for developing lymphedema in upto 40% of this population. Patients experience psychosocial morbidity, decreased mobility, and complications (recurrent infections, risk of malignancy) associated with up to a 7-fold increase in medical costs. Lymphedema is still an incurable disease and at present CDT is standard treatment with limited results. Can artificial pathways in the form of silicone tube in combination with CDT help to decrease the lymphedema more significantly.

Materials & Methods: Patient with stage 2 and stage 3 lymphedema were randomized into arm A, fenestrated silicone tube inserted in subcutaneous plane from hand to scapular region along with standard compression therapy and in arm B that received standard care only. Follow-up was done at 1, 2, 4, 12 and 24 week and between 24-36 months. Primary endpoints were reduction of limb volume, girth and pain free range of motion in upper limb. Secondary outcomes were change in quality of life assessed by LYMQOL ARM questionnaire.

Results: All patients 11(100%) of silicone tube arm had $\geq 10\%$ limb volume reduction and in standard arm only 6(42%) had $\geq 10\%$ limb volume reduction at 24 weeks with p value 0.002. At 2 yrs follow up silicone group continued to show volume reduction $> 10\%$, while volume increment $> 10\%$ was noted in control group p value 0.001. Silicone tubes group showed reduction in circumference $\geq 2\text{cm}$ as compared to controls at almost all points of arm measurement with p values < 0.05 . Quality of life, pain free range of motion at all major joints improved with no significant complications. Indocyanine green Lymphography demonstrated patency and lymphatic fluid flow in silicone tubes.

Conclusion: Combining silicone tube placement with standard care leads to more significant reduction in volume and limb circumference with improved quality of life and with no significant complications.

Disclosure of Interest: None declared

120.08

IMPACT OF BREAST CANCER TREATMENT ON SEXUAL HEALTH IN PRE-MENOPAUSAL BREAST CANCER SURVIVORS

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Introduction: Sexual health is often a neglected domain of quality of life of breast cancer survivors. Aim of the study aimed to analyze incidence of sexual dysfunction in breast cancer survivors and impact of various treatment modalities on female sexuality.

Materials & Methods: Study included non-metastatic pre-menopausal breast cancer women and was assessed by Female Sexual Function Index (FSFI) questionnaire before, 4 weeks after completion of therapy and at 3 months follows up. Comparisons of scores were done between mastectomy and breast conservation surgery (BCS) patients and on hormonal therapy versus non-hormonal therapy.

Results: A total of 150 patients were included. Chemotherapy was given to all patients and >90% received adjuvant radiotherapy. Almost 70% underwent mastectomy (n=104) and rest underwent BCS (n=46). Based on cut off of 26.55, 82.6% (124) patients had sexual dysfunction at 3 months post treatment. Median scores of BCS group was significantly better vs mastectomy group at 3 months (22.85 +/- 2.19 versus 21.75 +/- 2.09, p= 0.002). individual domains comparison at 3 months revealed reduction of arousal, lubrication, orgasm, pain more in MRM vs BCS, however differences were not statistically significant. Desire, arousal and pain showed more reduction in hormonal group as compared to non-hormonal group, however, differences were not statistically significant

Conclusion: The incidence of sexual dysfunction is high in breast cancer survivors affecting their quality of life, more so in patients undergoing mastectomy. Breast conservation Surgery should be preferred over mastectomy in eligible patients and psychosocial support should be offered to all during follow up.

Disclosure of Interest: None declared

121.01

WAR SURGERY IN AFGHANISTAN: A MODEL FOR MASS CAUSALITIES IN TERROR ATTACKS?

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Introduction: The aim of the study was to identify solution strategies from a non-governmental (NGO) hospital in a war region for violence-related injuries and to show how high-income countries (HIC) might benefit from this expertise.

Materials & Methods: NGO trauma hospital in Lashkar Gah, Afghanistan. Four hundred eighty-four war victims admitted in a three month period (February 2016-May 2016) were included. Patients´ characteristics were analyzed.

Results: The mean age was 23.5 years. Four hundred thirty-four (89.9%) were male, and 50 (10.1%) were female. The most common cause of injury was bullet injuries, shell injuries, and mine injuries. The most common injured body region was the lower extremity, upper extremity, and the chest or the face. Apart from surgical wound care and debridements, which were performed on every wound in the operation theatre, laparotomy was the most common surgical procedure, followed by installation of a chest drainage and amputation.

Conclusion: The surgical expertise and clear pathways outweigh modern infrastructure. In case of a mass casualty incident, fast decision-making with basic diagnostic means in order to take rapid measurements for life-saving therapies could make the difference.

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Disclosure of Interest: None declared

121.02

APPLICATION OF VIDEOTORACOSCOPIC TECHNOLOGIES IN THE TREATMENT OF WOUNDED VICTIMS WITH PENETRATING CHEST INJURIES

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Introduction: Penetrating chest injuries is a very common pathology among all types of traumas in antiterrorism operation (ATO) in the east of Ukraine. The purpose of the study: analysis of the results of treatment of victims with penetrating chest injuries using minimally invasive technologies.

Materials & Methods: Materials and methods. From 2015 to 2020, 68 victims from the anti-terrorist operation (ATO) in the east of Ukraine with penetrating chest injuries were treated at the Department of Thoracic and Abdominal Surgery of SI «Institute general and urgent surgery by Zaycev of Academy Medical science of Ukraine. Structure: in 17 (25%) cases stab wounds, in 53 (75%) - gunshot wounds. In 41 (60.3%) cases there were single injuries, in 27 (39.7%) - multiple. 37 victims received treatment using video thoracoscopic (VTS) technology, also was used endovideosurgical complex "Contact".

Results: After diagnostic measures (polypositional radiography, ultrasound, CT scan) and confirmation of the penetrating nature of the wound, the victims underwent medical and diagnostic VTS. Sources of intrapleural hemorrhage are recognized: intercostal arteries and their branches - 7 (19%), lung parenchyma - in 23 (62%) patients; large vessels of the lungs and mediastinum - in 3 (8%); internal thoracic artery - in 4 (11%). VTS intervention with the use of electrocoagulation stopped bleeding in 19 patients. In 14 cases, lung resections were performed using Endo GIA Universal linear staplers (Covidien) to achieve aero- and hemostasis. At the final stage of the intervention, blood clots were fragmented and aspirated. Fine results were obtained in 31 (84%) patients after PTSD interventions. Conversion to thoracotomy was required in 6 (16%) patients with massive hemothorax due to damage to large pulmonary vessels and mediastinum.

Conclusion: Conclusions. VTS technologies significantly reduce the incidence of purulent intrapleural and pleural complications in penetrating chest injuries. Undoubted advantages of VTS are: full revision; accurate diagnosis; the ability to perform surgery in full volume; determination of indications for thoracotomy.

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Disclosure of Interest: None declared

121.03

FEASIBILITY AND SAFETY OF INTRAOPERATIVE COLONOSCOPY FOR VERIFY COLON DAMAGE IN WOUNDED WITH COMBAT PENETRATING ABDOMINAL TRAUMA (DATA OF JOINT FORCES OPERATION AT THE EAST OF UKRAINE 2014 - 2021 YY.)

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Introduction: Intraoperative diagnosis of small colon lesions is difficult, especially for minor penetrating lesions, with a large number of them, in the presence of a significant amount of blood in the abdomen and with their location in the mesoperitoneal departments. With untimely diagnosis, such injuries in the postoperative period causes to severe and often fatal infection complications.

At the same time, although there are many reports of successful and safe intraoperative use of colonoscopy in patients with colon cancer, but there is no information on the use of flexible endoscopy in abdominal trauma and suspected colon injury.

Materials & Methods: On the Role 2 military medical care in the military mobile hospitals located in the area of the Joint Forces Operation (JFO), 26 intraoperative colonoscopies (IOC) were performed for combat penetrating abdominal trauma. The study was performed on the wounded with multiple injuries of internal organs, when during laparotomy it was impossible to clearly verify the presence or absence of colon damage and/or their number and location. The age of the wounded ranged from 21 to 55 years, on average 33.2 ± 8.8 . During IOC, the operating surgeon in the abdominal cavity controlled the passage of the colonoscope through the colon, air supply, luminescence and detection of blood in the colon, which helped to quickly visualize the location of penetrating injuries.

Results: Intraoperatively colon damage was detected in 19 (73%) cases, more often 1-2 degrees according to American Association for the Surgery of Trauma, and excluded - in 7 (27%). Penetrating wounds were found in 18 cases (94.7%), blunt with a metal fragment inside the colon - in 1 (5,3%) case (it was removed during colonoscopy).

Compared the frequency of complications among the wounded who underwent IOC and who didn't (wounded with penetrating abdominal trauma and the same class of total trauma severity according to BATLS), it rate was lower for group with IOC (24.9% - 47 from 189 cases - in the group without colonoscopy vs 10.5% - 2 from 19 cases - in the group with colonoscopy; $p \leq 0.05$)

Conclusion: In our opinion, intraoperative colonoscopy is a safe method that can be used to diagnose the wounded with colon injuries at the Role 2 of military medical care - in military mobile hospitals for rapid verification of colon damage and their location, as well as prevention of complications associated with untimely diagnosis.

Disclosure of Interest: None declared

121.04

A UNIQUE CASE OF SIMULTANEOUS ASPIRATION AND INGESTION OF TWO BULLETS AFTER A SINGLE GUNSHOT WOUND OF THE FACE

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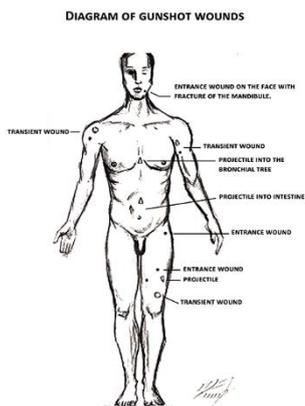
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Introduction: Within the body, the bullets may have an unpredictable trajectory. Bullet migration within the body is a well-reported phenomenon, which can pose significant diagnostic and treatment difficulties, particularly in absence of corresponding exit wound. As of today, only nine other cases with an aspiration and only one reporting swallowed bullet (entered the left maxillary sinus and ricocheted from the cervical vertebrae into the esophagus) were found in the literature (1, 2). No other studies reporting bullet swallowing in intact upper GI tract nor synchronous aspiration and ingestion were found.

Materials & Methods: We present a unique case of a single gunshot wound of the face with simultaneous ingestion and aspiration of two bullets.

Results: The patient was shot by a 7.65 mm calibre semi-automatic pistol (Walther PPK, 7 bullets, 244 m/s) at his home. He was conscious with stable vital signs on the admission. The physical examination revealed a single facial gunshot wound without apparent exit wound and five through-and-through wounds of the extremities. No chest nor abdominal wounds were found. The initial x-ray examination revealed a comminuted fracture of the left mandible with no visible projectile in the surrounding tissues. Quite unexpectedly, routine X-ray and CT scan showed two projectiles, lodged in the right inferior bronchus and within the lumen of the proximal jejunum, respectively. There was no evidence for intrathoracic or intraabdominal injuries. Upper gastrointestinal endoscopy did not find any injuries. The flexible bronchoscopy revealed intact airways and a bullet lodged in the right inferior bronchus occupying about two-thirds of the lumen, which was retrieved intact by rigid bronchoscopy. The jejunal bullet was evacuated via defecation.

Image:



Conclusion: Even rare, due to the unpredictable trajectory of the bullets, the aspiration or ingestion of bullets in blind gunshot wounds of the face, should be taken into consideration. Computer tomography allows excellent identification of the projectile's position and is very useful to avoid unnecessary interventions. Bronchoscopy is an excellent tool for bullet retrieval. Although the passing of both bullets through a single entrance is impossible from a ballistic point of view this seems the only possible explanation. The other, more incredible hypothesis, is the passing of the second bullet by chance through the opened mouth after a ricochet, because the shooting took place in closed space.

References: Disclosure: The case is published in J R Army Med Corps 2013; 159(3). Mutafchiyski V, Popivanov G, Shopov I, Iordanov H. A single gunshot wound of the face with simultaneous aspiration and ingestion of two bullets.

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Disclosure of Interest: None declared

PW1.01

RECURRENCE AND SURVIVAL FOLLOWING SURGERY OF T3 ESOPHAGEAL CARCINOMA WITH CURATIVE INTENT. ROLE OF CIRCUMFERENTIAL RESECTION MARGIN.

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Introduction: Despite negative intraoperative frozen section analysis, R1 resection may be detected in definitive histology. Apart from perianastomotic R1, microscopic tumor within less than 1mm distance to the circumferential resection margin (CRM) is a crucial feature which cannot be fully prevented by resection techniques.

Materials & Methods: Between January 2000 and December 2021, 499 patients with esophageal carcinoma underwent curative esophagectomy. 223 of these were pT3 tumors in 212 of which pertinent information about CRM was available. We did a retrospective analysis of N, G and histological subtype, neo-adjuvant or adjuvant treatment and CRM. Correlation with recurrence rate, tumor-free survival, survival following recurrence and overall survival was established.

Results: 152 patients (68,1%) developed recurrence. 41 patients had R1 and 7 had R2 at the CRM. By univariate analysis R1 at the CRM correlated significantly with recurrence ($p=0.001$) and with overall survival ($p=0.005$) but had no influence on post-recurrence survival. By multivariable analysis the significant correlation of CRM to recurrence persisted independently of N, G and histological subtype. The 3-year recurrence free survival rate was 7.8 % with R1 positive CRM and 0% with positive R2, compared to 32.2% with free lateral margins. By multivariable analysis, N and CRM retained negative statistical significance ($p=0.027$) on recurrence free survival, whereas adenocarcinoma subtype had a positive impact. Neo-adjuvant therapy had neither impact on overall nor on post-recurrence survival. Adjuvant treatment did not influence post-recurrence survival.

Conclusion: In pT3 tumors residual tumor at the CRM has a significantly negative impact on recurrence and overall survival, which is independent of stage, grading, histology and neo-adjuvant therapy. Post-recurrence survival was not influenced by CRM, N, G, histology of the primary tumor or adjuvant treatment.

Disclosure of Interest: None declared

PW1.02

HIGH SYSTEMIC IMMUNE-INFLAMMATION INDEX (SII) CORRELATES WITH LYMPHOVASCULAR INVASION (LVI) IN NEOADJUVANTLY TREATED AND UNTREATED PATIENTS WITH ADENOCARCINOMA OF THE GASTROESOPHAGEAL JUNCTION.

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Introduction: Adenocarcinoma of the gastroesophageal junction (AEG) is an aggressive disease, and less than 20% of patients survive more than five years after diagnosis. The systemic immune-inflammation index (SII) based on peripheral neutrophil, lymphocyte, and platelet counts has shown a prognostic impact in several malignancies. Lymphovascular invasion (LVI) is defined as the invasion of vessel walls by cancer cells and/or the presence of tumor-emboli within an endothelial lined space. Both, SII and LVI were shown to be prognostic parameters for patients with AEG. However, until today no data exists on a potential correlation between SII and LVI in AEG. The aim of this study was to determine the potential correlation of SII and LVI in patients with resectable adenocarcinoma of the gastroesophageal junction.

Materials & Methods: Consecutive patients that underwent surgical resection at the department of surgery at the Medical University of Vienna between 1992 and 2012 were included into this study. Preoperative SII was calculated by the formula $\text{platelet} \times \text{neutrophil} / \text{lymphocyte}$. LVI was assessed by immunostaining for podoplanin, a selective marker of lymphatic endothelium.

Results: 221 patients (75 neoadjuvantly and 147 upfront-resected patients) were included in this study. Patients with elevated SII had a significantly higher risk of LVI ($p < 0.001$). Furthermore, combination of SII and LVI is of better predictive value regarding patients' overall survival than SII or LVI alone.

Conclusion: Evaluation of the relationship between SII and LVI in AEG patients identified a suitable indicator for clinicians to use when performing preoperative risk assessment.

Disclosure of Interest: None declared

PW1.03

FIBRIN GLUE ENDOSCOPIC BLOCKAGE OF BLEEDING ESOPHAGEAL VARICES IN PATIENTS WITH LIVER CIRRHOSIS

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Introduction: The survival rate in patients with liver cirrhosis and variceal bleeding are directly linked to the volume of the hemorrhage and the efficiency and timing of the primary endoscopic hemostasis procedure, as well as the degree of functional liver reserves. The aim of the study was to evaluate the performance of the fibrin glue blockage of hemorrhagic varices and to observe the mortality rate correlated with the hepatic functional reserves and the speed of performance of endoscopic hemostasis from the moment of hemorrhage onset.

Materials & Methods: This study included 1657 patients with liver cirrhosis and variceal bleeding treated from 2004 to 2021 (Child A/B/C-214/992/451). Endoscopic hemostasis was performed using fibrin glue blockage (through intra-variceal injection), up to the complete retraction of all variceal cordons. We conducted a post-surgery mortality rate analysis, in relation to the endoscopic hemostasis performing time from the onset of variceal hemorrhage, by dividing patients into two groups: (1) in less than 6 hours from onset (706 patients) and (2) in more than 6 hours from onset (951 patients).

Results: Control of variceal hemorrhage was achieved in 1632 cases (98.5%). In 25 patients (1.5%), the hemorrhage from the bottom gastric varices could not be stopped. No significant statistical relation was observed between the degree of hepatic dysfunction and the mortality rate in patients with variceal bleeding controlled within the first 6 hours from hemorrhage onset. In this first group, 57 patients (8.1 %) died as a result of an irreversible hemorrhagic shock. In the second group, a direct correlation was noted between the degree of hepatic dysfunction and the mortality rate in patients submitted to endoscopic hemostasis within more than 6 hours from bleeding onset (23.7% , or 225 patients). According to the degree of functional liver reserves, the mortality rates in stages Child A/B/C/ (203/549/199 patients) represented to 5.9% (12 pts.) /21.1% (116 pts.)/39.7% (79 pts.) due to hepatic failure.

Conclusion: Endoscopic hemostasis with injection fibrin glue blockage is an efficient method to control variceal bleeding in liver cirrhosis. The survival of cirrhotic patients with variceal bleeding is directly related to the speed of the primary endoscopic hemostasis procedure. Paradoxically, the results of endoscopic hemostasis within the first 6 hours from bleeding onset did not depend on the functional hepatic reserves but were rather determined by the severity of the hemorrhage.

Disclosure of Interest: None declared

PW1.04

PREDICTORS OF MORBIDITY AND MORTALITY FOLLOWING PERFORATED PEPTIC ULCER (PPU) SURGERY IN MALAYSIA – A SOUTH-EAST ASIA EXPERIENCE

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Introduction: Perforated peptic ulcer remained a common surgical emergency with high morbidity and mortality globally, associated with regional variation. Data paucity remained concerning various predictive factors and predictive scoring systems in predicting the operative mortality as well as morbidity locally.

Materials & Methods: This is a single-center retrospective study in a Malaysian tertiary referral center. Patients with perforated peptic ulcers operated between 2018 and 2021 were included. Patients' characteristics, preoperative condition and operative findings were compared and analyzed for association with mortality and post-operative morbidity.

Results: Of 112 patients included, 19 had died (17.0%). Age>65 years (OR, 10.37;95% CI 3.34–32.20; $p<0.001$), female gender (OR, 3.83;95% CI 1.19–12.33; $p, 0.029$), comorbidity including diabetes mellitus (OR, 6.84; 95% CI 2.34–20.02; $p, 0.001$), hypertension (OR, 18.90; 95% CI 5.76–61.97; $p<0.001$) or renal disease (OR,32.89;95% CI 3.57–302.36; $p<0.001$); and American Society of Anaesthesiologist (ASA) score ($p, 0.001$) were associated with post-op mortality.

Age>65 years (OR, 6.99; 95% CI 2.38–20.57; $p<0.001$), female gender (OR, 3.46; 95% CI 1.17–10.25; $p, 0.020$), comorbidity including diabetes (OR, 5.04; 95%CI 1.91–13.29; $p, 0.001$), hypertension (OR, 7.14; 95% CI 2.73–18.65; $p<0.001$), renal disease (OR, 12.67;95% CI 1.42–112.98; $p, 0.011$), perforation size ($p, 0.001$); and higher ASA ($p <0.001$) score were associated with post-op complications.

Charles Comorbidity Index, Peptic ulcer perforation (PULP) score, Boey score ($p, 0.001$) and Practical scoring system Of Mortality in patients with Perforated Peptic ulcer (POMPP) score were significantly associated with death and post-operative complications but PULP score has the best ROC area under the curve for both outcomes with 0.97 (95% CI, 0.93 – 1.00) and 0.89 (95% CI, 0.81 – 0.96) respectively. A cut-off value of 3.5 and 2.5 for PULP score were sensitive and specific for prediction of mortality and post-operative complications, respectively.

Conclusion: Patient characteristics were the most important factors associated with post-operative mortality and complications seen from its association with Charles Comorbidity Index, not discussed previously. High morbidity and mortality in certain patients highlight importance of early identification and escalation of care. Existing mortality predictive scores were also useful in predicting post-operative complications and should be considered for local management protocol.

Disclosure of Interest: None declared

PW1.05

APPROPRIATE INDICATIONS AND TIMING OF INTRAOPERATIVE CONVERSION TO HAND-ASSISTED LAPAROSCOPIC SURGERY OR OPEN SURGERY IN LAPAROSCOPIC LIVER RESECTION

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Introduction: With the rapid advancement of laparoscopic techniques and equipment, the rate of Laparoscopic liver resection (LLR) has been increasing worldwide, and the indications for LLR have expanded. However, pure LLR is sometimes difficult to complete, and unplanned intraoperative hand-assisted laparoscopic surgery (HALS) or open conversion are sometimes necessary. Appropriate indications and timing for conversion are unclear. This study aimed to clarify risk factors for intraoperative HALS or open conversion in LLR.

Materials & Methods: We collected data from 208 patients who underwent LLR from January 2010 to February 2021 in our department. We retrospectively examined these data between cases of unplanned intraoperative HALS conversion, open conversion and pure LLR and clarified risk factors and indications for HALS or open conversion.

Results: There were 191 pure LLRs, nine HALS conversions, and eight open conversions. In the HALS conversion group versus pure LLR group, body mass index (BMI) (27.0 vs. 23.7 kg/m², p=0.047), proportions of patients with history of upper abdominal surgery (78% vs. 33%; p=0.006), repeat hepatectomy (56% vs. 15%; p=0.002), S7 or S8 tumor location (67% vs. 35%; p=0.049), and difficulty score (DS) ≥7 (56% vs. 19%; p=0.008) were significantly higher, and surgical time (339 vs. 239 min; p=0.031) was significantly longer. However, postoperative states were not significantly different between the two groups. The BMI cut-off value for risk of unplanned intraoperative conversion determined by receiver operating characteristic curve analysis was 25 kg/m², and the proportion of patients with BMI ≥25 kg/m² (89% vs. 31%, p<0.001) was significantly higher in the HALS conversion group versus pure LLR group. In the open conversion group, although there were no significant differences compared to the HALS group in clinicopathological factors except for sex, blood loss was greater (1425 vs. 367 mL; p<0.001).

Conclusion: Factors for considering HALS during LLR were patients with a history of upper abdominal surgery including repeat hepatectomy, BMI ≥25 kg/m², S7 or S8 tumor location, DS ≥7, and prolonged surgical time. Further, uncontrollable intraoperative bleeding was an indication for open conversion.

Disclosure of Interest: None declared

PW1.06

EM18-ELISA ACTS AS A POTENTIAL SURVEILLANCE MARKER FOR THE SURGICAL FOLLOW-UP OF HEPATIC ALVEOLAR ECHINOCOCCOSIS

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Introduction: Modalities for follow-up after resection of hepatic alveolar echinococcosis remain unclear. The current study tested if the use of recEm18 is sufficient to exclude recurrence during short-term follow-up.

Materials & Methods: This is a retrospective study with patients undergoing liver resection for alveolar echinococcosis at the University Hospital Bern from December 2002 to December 2020. Pre- and postoperative values of recEm18 were associated with clinical outcomes.

Results: Among 155 patients pre- and postoperative results of recEm18 was available in 60 patients who underwent liver resection for alveolar echinococcosis in curative intent. Stratification of perioperative recEm18 values showed three different trajectories of recEm18 based on pre- or postoperative thresholds of 10 AU/ml. Seven patients (12%) had pre- and postoperative elevated recEm18 over 10 AU/ml. Responder patients (n = 31, 52%) showed high preoperative values over 10 AU/ml with a significant decrease postoperatively under the threshold of 10 AU/ml and the low group (n = 22, 36%) had low recEm18 values under 10 AU/ml in both examinations. recEm18 values had a linear correlation to the maximum lesion diameter. Postoperatively, a persistent negativization or a significant decrease of recEm18 value was seen in all groups (Low 0 AU/ml to 0 AU/ml, responders 41 AU/ml to 0 AU/ml, non-responders 87 AU/ml to 61 AU/ml, $p < 0.001$). Median postoperative value of Em18 in the overall cohort was 0 AU/ml with a median time of 12 months.

Conclusion: recEm18 may act as serological surveillance marker for disease activity and recurrence during follow-up of surgically treated patients with alveolar echinococcosis and is associated with the lesion size. Further systematic studies are needed to proof these results.

Disclosure of Interest: None declared

PW1.07

LAPAROSCOPIC RESECTION OF HEPATIC ALVEOLAR ECHINOCOCCOSIS: A SINGLE-CENTER EXPERIENCE

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Introduction: Alveolar echinococcosis (AE) remains a very rare disease requiring complete radical resection for curative treatment. While open approaches are common, safety and efficacy of laparoscopic resections remain unknown.

Materials & Methods: This is a single-center, retrospective cohort study with patients undergoing liver resection for hepatic AE at the Department of Visceral Surgery and Medicine, Bern University Hospital from December 2002 to December 2020. Postoperative outcomes of patients following laparoscopic hepatectomy (LH) for hepatic AE were compared with those of patients undergoing open hepatectomy (OH).

Results: A total of 93 patients underwent liver resection for hepatic AE. Laparoscopic hepatectomy was performed in 23 patients and open hepatectomy in 70 patients. While there were no significant differences in terms of gender, age and diagnostic tools, the majority of patients of the LH cohort were staged PNM1 (78%) in contrast to only 36% in the OH cohort ($p = 0.002$). All patients undergoing laparoscopic hepatectomy were treated by minor liver resections in comparison to the open hepatectomy cohort with 61% major liver resections and 39% minor resections. Laparoscopic hepatectomy was associated with shorter median operation time (115 minutes vs. 240 minutes, $p < 0.001$), lower overall complication rate (9% vs. 46%, $p = 0.002$), lower major complication rate (4% vs. 11%, $p = 0.322$) and shorter length of hospital stay (4 days vs. 10 days, $p < 0.001$). After subgroup analysis of PNM I staged patients, similar results are seen with persistent shorter median operation time (122 minutes vs. 223 minutes, $p < 0.001$), similar major complication rate (6% vs. 8%, $p = 0.759$) and shorter length of hospital stay (4.4 days vs. 11.7 days, $p < 0.001$).

Conclusion: Laparoscopy appears as a feasible and safe approach for treated patients with PNM1-staged alveolar echinococcosis without impact on disease recurrence.

Disclosure of Interest: None declared

PW1.08

EVALUATION OF VALIDITY OF ENDOSCOPIC TRANSPAPILLARY GALLBLADDER DRAINAGE FOR ACUTE CHOLECYSTITIS BASED ON THE TOKYO GUIDELINES 2018

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Introduction: The Tokyo Guidelines 2018 recommend early laparoscopic cholecystectomy (Lap-C) for patients with acute cholecystitis (AC)¹. We evaluated the validity of endoscopic transpapillary gallbladder drainage (ETGBD) as a bridging therapy prior to elective Lap-C.

Materials & Methods: In total, 46 patients [LM1] with AC underwent ETGBD.

Results: The technical success rate was 87.0% and the clinical success rate was 92.5%. The average procedure time was 28.1 minutes. Patients in the failure group had more complicated branching forms of cystic duct. The length of time until feeding start, WBC levels normalized, and length of hospital stay were significantly shorter in the success group. The median duration of drainage tube placement was 28 days, and the median waiting period for surgery was 40 days. The median operating time, amount of bleeding, and length of postoperative hospital stay were 122 min, 12 g, and 4 days, respectively. In patients who underwent Lap-C, the waiting period for surgery and the operating time were similar between the ETGBD success and failure groups. However, the amount of bleeding and the length of postoperative hospital stay tended to be greater in the patients with ETGBD failure. The eight patients who did not undergo Lap-C tended to have higher ASA-PS and CCI scores than the patients who underwent Lap-C.

Conclusion: Our study revealed that ETGBD has equivalent efficacy prior to elective Lap-C despite some challenges which lower its success rate. Perioperative ETGBD can improve patient quality of life by eliminating the need for a drainage tube.

Disclosure of Interest: None declared

PW1.09

EUS-GUIDED BILIARY INTERVENTIONS FOR BENIGN DISEASES AND UNSUCCESSFUL ERCP - A PROSPECTIVE UNICENTER FEASIBILITY STUDY ON A LARGE CONSECUTIVE PATIENT COHORT

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Introduction: The *aim* of this study (design, systematic prospective clinical observational study on quality assurance in daily clinical practice) was to evaluate the efficacy and safety of EUS-BD in benign indications.

Materials & Methods: Patients with cholestasis and failed ERCP were recruited from a prospective EUS-BD registry (2004-2020). Primary endpoint was technical and clinical success. Secondary endpoints were procedure-related complications during hospital stay.

Results: In total, 103 patients with EUS-BD and benign cholestasis were extracted from the registry ($n_{\text{Total}}=474$). Different transluminal access routes were used to reach the bile ducts: transgastric ($n=72/103$); -duodenal ($n=16/103$); -jejunal ($n=14/103$); combined -duodenal and -gastric ($n=1/103$). The technical success rate was 96% ($n=99$) for cholangiography. Drainage was not required in 2 patients; balloon dilatation including stone extraction was sufficient in 17 cases (16.5%; no additional or prophylactic insertion of a drain). Transluminal drainage was achieved in $n=68/103$ (66%; even higher in patients with drain indication only) by placement of a plastic stent ($n=29$), conventional biliary metal stents ($n=24$), HotAXIOS[®] stents ($n=5$; Boston Scientific, Ratingen, Germany), Hanaro[®] stents ($n=6$; Olympus, Hamburg, Germany), HotAXIOS[®] stents and plastic stents ($n=1$), HotAXIOS[®] stents and metal stents ($n=$) and metal stents and plastic stents ($n=2$). Techniques for stone extraction alone ($n_{\text{Successful}}=17$) or stent insertion ($n_{\text{Total}}=85$; $n_{\text{Successful}}=85$ - rate, 100%) and final EUS-BD access pathway included: Rendezvous technique ($n=14/85$; 16.5%), antegrade internal drainage ($n=20/85$; 23.5%), choledochointestinosotomy ($n=7/85$; 8.2%), antegrade internal and hepaticointestinosotomy ($n=22/85$; 25.9%), hepaticointestinosotomy ($n=21/85$; 24.7%), choledochointestinosotomy and hepaticointestinosotomy ($n=1/85$; 1.2%).

The complication rate was 25% ($n=26$) - the spectrum comprised stent dislocation ($n=11$), perforation ($n=1$), pain ($n=2$), hemorrhage ($n=6$), biliary ascites / leakage ($n=3$) and bilioma / liver abscess ($n=3$; major complication rate, $n=12/68$ - 17.6%). Re-interventions were required in 19 patients (24 interventions in total).

Conclusion: EUS-BD can be considered an elegant and safe alternative to PTCD or reoperation for failed ERCP to achieve the necessary drainage of the biliary system even in underlying benign diseases. An interventional EUS-based internal procedure can resolve cholestasis, avoid PTCD or reoperation and thus improve quality of life.

Disclosure of Interest: None declared

PW1.10

THE ROLE OF ENDOSCOPIC TRANSMURAL APPROACH IN THE TREATMENT OF BILIARY OBSTRUCTIONS

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Introduction: Transpapillary biliary drainage in ERCP is an established method for treatment of patients with benign and malignant biliary obstruction. However, attempts to gain access to the biliary tract through the major duodenal papilla during ERCP have been unsuccessful in some patients. This study aims to determine the role of EUS-guided transmural approach in biliary endotherapy in case of failed ERCP.

Materials & Methods: A prospective analysis of the treatment outcomes of all 896 patients with obstructive jaundice secondary to biliary obstruction, who underwent endoscopic treatment in the years 2016-2021 at our institution.

Results: Effective drainage of bile ducts through the major duodenal papilla during ERCP was achieved in 772/896 (86.16%) patients with biliary obstruction. In 124/896 (13.84%) patients (92 males, 32 females; mean age 63.52 [46–89] years) ERCP failed and EUS-guided transmural approach was performed. Benign biliary obstruction was identified in 17/124 (13.71%) patients; the remaining 107/124 (86.29%) were diagnosed with malignant biliary obstruction. EUS-guided endoscopic transpapillary biliary tract stenting with transmural access was performed in 21/124 (16.94%) patients; the remaining 103/124 (83.06%) required extra-anatomical transmural anastomosis of the bile ducts to the gastrointestinal tract. Technical success was achieved in 121/124 (97.58%) patients, while clinical success was achieved in 112/124 (90.32%). Complications were reported in 15/124 (12.1%) patients; with early complications in 12 and late complications in 3.

Conclusion: Various methods of EUS-guided transmural access to bile ducts improves endotherapy outcomes of patients with biliary obstruction. Endoscopic transmural access is highly effective and associated with an acceptable number of complications.

Disclosure of Interest: None declared

PW1.11

CT-BASED BODY COMPOSITION AND CLINICAL OUTCOMES AFTER PANCREATIC CANCER SURGERY

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Introduction: Resection of pancreatic cancer remains a highly morbid procedure, and patients are often exposed to cancer cachexia. The study aim was to assess the role of preoperative CT-based sarcopenia on postoperative clinical outcomes in patients undergoing resection for pancreatic cancer.

Materials & Methods: This retrospective mono-center study included all consecutive patients with pancreatic cancer operated between 01/2015 and 12/2018. Skeletal muscle index (SMI), as a marker of muscle quantity, was measured at the level of the third lumbar vertebra on preoperative CT scans. Sarcopenia was defined based on pre-established cut-offs, and its impact on postoperative morbidity and length of stay (LOS) was assessed. Independent risk factors for major complications (Clavien grade \geq IIIa) were identified by uni- and multi-variate analysis.

Results: A total of 136 patients were included and 76 (56%) had preoperative CT-based sarcopenia. Patients with sarcopenia were older (69 vs 64 years, $p=0.004$) and had lower BMI (23 vs 26 Kg/m², $p<0.001$). There was no difference in median LOS and major complications rates between both groups (16 vs 17 days, $p=0.397$, and 38 vs 40%, $p=1.000$, respectively). On uni- and multivariate analysis, independent risk factors for major complications were pancreatic fistula (OR 6.811, <0.001) and post-pancreatectomy hemorrhage (OR 40.379, $p<0.001$), while increased skeletal muscle radiation attenuation (marker of muscle quality) was a protective factor (OR 0.909, $p=0.008$).

Conclusion: Preoperative CT-based sarcopenia had no impact on morbidity and LOS after pancreatic cancer surgery. However, muscle quality (skeletal muscle radiation attenuation) as a specific sarcopenia marker was lower in patients with major complications and seemed to prevail over muscle quantity (SMI) in the clinical prediction of adverse outcomes.

Disclosure of Interest: None declared

PW1.12

HIGH VOLUME CARE IS ASSOCIATED WITH IMPROVED OUTCOMES FOR PATIENTS WITH PANCREATIC NEUROENDOCRINE TUMORS: A POPULATION-LEVEL ANALYSIS

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Introduction: Pancreatic neuroendocrine tumors (PNETs) are rare neoplasms. Unlike many cancers, surgical management plays a prominent role in not only locoregional but metastatic PNET, where primary resection and debulking of liver metastases are independently associated with improved survival. Whether treatment patterns and outcomes differ between low-volume (LV) institutions and high-volume (HV) institutions is unstudied.

Materials & Methods: A statewide cancer registry was queried for patients with non-functional PNET between 1997-2018. LV institutions were defined as performing <20 yearly pancreatectomies for PNET, while HV institutions performed ≥20 per year. Disease-specific survival (DSS) was evaluated with Kaplan-Meier and multivariable Cox Proportional Hazards analysis. Odds of receiving primary site surgery and distant site surgery were analyzed with multivariable logistic regression.

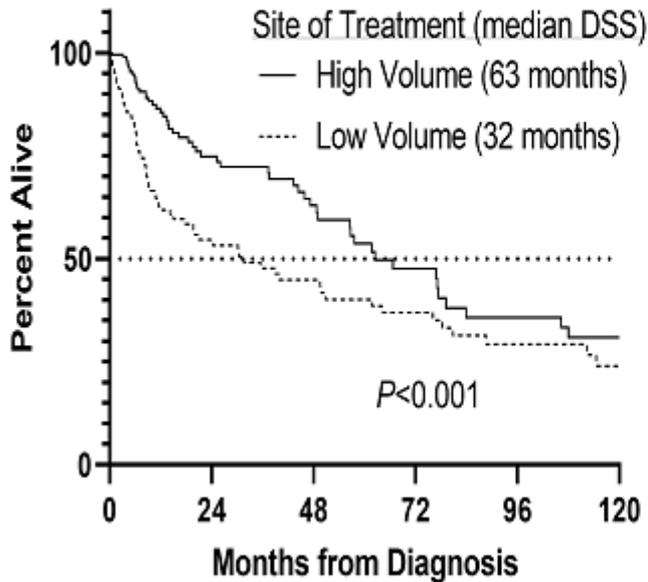
Results: We identified 647 patients with complete staging data: 393 locoregional (n=236 with HV care, n=157 LV care) and 251 metastatic (n=116 HV, n=135 LV). The median follow-up was 10 months from diagnosis. Patients with HV care had improved DSS compared to LV care for both locoregional and metastatic disease (**Figure**).

In patients with metastatic disease, primary site surgery (HR 0.55, $P=0.003$) and HV treatment (HR 0.63, $P=0.002$) were independently associated with improved DSS. Furthermore, diagnosis at a HV center was independently associated with higher odds of receiving primary site surgery (OR 2.59, $P=0.01$) and metastasectomy (OR 2.51, $P=0.03$) versus LV diagnosis. Conversely, HV diagnosis was not significantly associated with higher odds of primary site surgery for locoregional disease (OR 1.46, $P=0.15$).

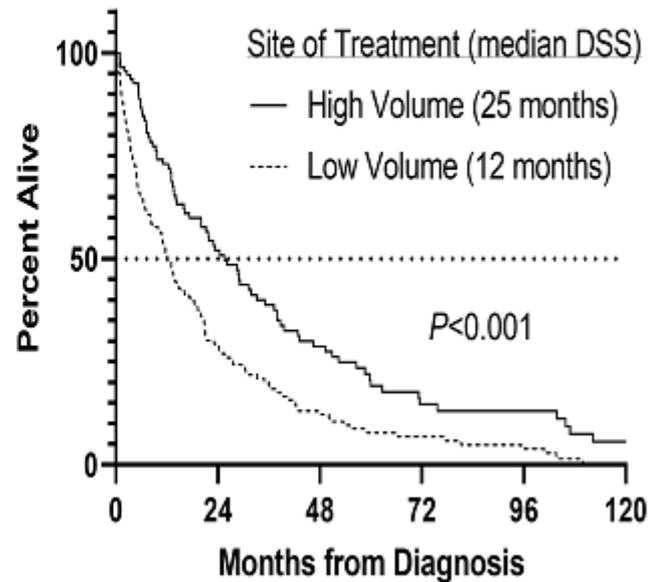
36% (n=159) of patients with LV diagnosis underwent treatment at HV centers, compared to 92% (n=172) with HV diagnosis. Older age (OR 0.98, $P=0.02$) and later year of diagnosis (OR 1.05, $P=0.009$) were independently associated with lower and higher odds, respectively, of subsequent HV treatment in patients with LV diagnosis. Race, gender, disease stage, and insurance status were not associated with HV referral (all $P>0.1$).

Image:

Disease-Specific Survival of Patients with Locoregional Pancreatic Neuroendocrine Tumor



Disease-Specific Survival of Patients with Metastatic Pancreatic Neuroendocrine Tumor



Conclusion: Care of PNET at HV centers is associated with improved DSS. For patients with metastatic disease, this benefit is attributable to higher receipt of primary site surgery and metastasectomy. We recommend referral of all patients with PNETs, especially those with metastatic disease, to regional or national high-volume centers due to improved treatment patterns and outcomes.

Disclosure of Interest: None declared

PW1.13

THE MESOPANCREAS: A NEGLECTED AREA IN PANCREATIC CANCER?

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Introduction: Following implementation of the circumferential resection margin into histopathological evaluation, R0 resection rates have drastically decreased in pancreatic cancer patients (PDAC). This is highlighted by follow-up investigations, in which 80% of the patients are diagnosed with local recurrence. Mesocolic and mesorectal excision during oncological colorectal surgery has been implemented according to the idea of compartment anatomy. During pancreatoduodenectomy (PD) the topography of fusion fascia during mesopancreatic excision (MPE) has started to gain attention. The MP area was however not evaluated standardly in PDAC patients, and its excision during PD remains elusive. It further remains unknown if computed tomography (CT) is sufficient to detect MP infiltration. The aim of our study was to radiographically and histopathologically analyze MP infiltration and the influence of CRM-evaluated resection margin on survival of upfront resected and neoadjuvantly treated PDAC patients.

Materials & Methods: 291 consecutive patients who underwent upfront MPE (*upMPE*: n=264) and neoadjuvant treatment following MPE (*neoMPE*: n=27) were evaluated. The MP tissue was radiographically and histopathologically analyzed and the CRM was applied.

Results: MP infiltration rate was high and evident in 78.4% of the *upMPE* patients and in 62.9% of the *neoMPE* patients (p=0.039). R0(CRM-) resection rate was 48.5% and 62.9% in the *upMPE* and *neoMPE* patients respectively (p=NS). In correlation analysis, patients (*upMPE* and *neoMPE*) with MP infiltration were prone to R1/R0CRM+ resections. In multivariate analysis, only R0(CRM-) resection was an independent prognostic parameter. Local recurrence occurred in 21.1% of the *upMPE* patients and the rate was lower in patients receiving R0(CRM-) resection (10.9%, p<0.001) and when compared to the local recurrence rate of *neoMPE* patients (7.4%, p=0.04). CT detected MP stranding in *upMPE* patients and tumor response in *neoMPE* patients significantly correlated with MP infiltration.

Conclusion: Most of the patients are diagnosed with MP infiltration. This might have resulted in the previously reported high rates of R1 resections in upfront resected as well as in neoadjuvant treated patients. Similar to redefined standards in colorectal cancer patients, benefits and pitfalls of MPE should therefore be discussed in western communities as well. CT predicted MP infiltration could lead to similar treatment stratifications as vessel invasion in the evaluation of PDAC patients.

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Disclosure of Interest: None declared

PW1.14

PARENCHYMAL PRESERVING OR TOTAL PANCREATECTOMY WITH/WITHOUT ISLET CELL AUTOTRANSPLANTATION SURGERY FOR PATIENTS WITH CHRONIC PANCREATITIS

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Introduction: The selection of surgery between parenchymal preserving (PPS) and total pancreatectomy (TP) with/without islet cell autotransplantation (IAT) for chronic pancreatitis (CP) patients varies based on multiple factors with a scarcity in literature addressing both at the same time. The aim is to compare both when surgery is selected based on dominant area of disease, ductal dilatation, and glycemic control and compare outcomes.

Materials & Methods: From 2017 to 2021, CP patients offered surgery at a single institution were retrospectively evaluated.

Results: 51 patients underwent surgery (20 [39.2%] TPIAT, 4 [7.8%] TP, and 27 [52.9%] PPS – 9 Whipple procedures, 15 distal pancreatectomies, and 3 duct drainage procedures). No significant difference observed in baseline characteristics, perioperative outcomes except median length of stay (2 days [IQR 1-3] vs. 6 [IQR 5-7], $p = 0.001$) attributed to insulin requirement and education, was longer for TPIAT group. No differences in postoperative complications, such as clinically significant leak and intrabdominal fluid collection (3 [11.1%] vs 2 [10%], $p = 1.0$), hemorrhage (0 vs. 2 [10.0%], $p = 0.2$), delayed feeding (1 [3.7%] vs. 5 [25.0%], $p = 0.07$), or wound infection (4 [14.8%] vs. 0, $p = 0.1$) between PPS and TPIAT groups respectively as well as requirement of long-acting insulin at discharge (2 [15.4%] vs. 7 [43.8%], $p = 0.1$) for pre-operative non-diabetic patients. No significant difference in weaning off narcotic and no mortality observed.

Conclusion: The most appropriate selection of surgery yield good and comparable outcomes amongst the groups.

Disclosure of Interest: None declared

PW1.15

HOW DO WE MANAGE STAPLER LACERATION OF PANCREATIC CAPSULE DURING LAPAROSCOPIC DISTAL PANCREATECTOMY?

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Introduction:

Materials & Methods: We defined the laceration of pancreatic capsule by stapler as 'stapler laceration' and investigated POPF after LDP in 113 consecutive cases in our department from January 2010 to December 2019. Risk factors for clinical relevant POPF (ISGPS grade B) were examined including age, gender, ASA, BMI, history of upper abdominal surgery, location of pancreatic dissection, stapler laceration, preoperative blood tests, operative time, blood loss, etc.

Results: The median age was 62 (27-84) years, gender (male/female) 44/69, and median BMI 22.8 (16.4-32). The primary diseases were invasive pancreatic ductal carcinoma in 6 cases, IPMN in 16 cases, PanNEN in 47 cases, MCN in 12 cases, metastasis in 2 cases, and others in 17 cases. Median operative time was 297 (139-572) minutes, median blood loss was 55 (1-1420) ml, and median postoperative hospital stay was 11 (7-60) days. POPF Grade B occurred in 14 patients (12.4%), postoperative hemorrhage in 0 patient (0%), and death in 0 patient (0%). Stapler laceration was observed in 11 cases (9.7%). Ten patients were repaired with sutures, but POPF developed in five cases. One patient had re-stapling successfully without POPF. We found that stapler laceration ($p=0.004$) and left side pancreatic dissection ($p=0.05$) were risk factors in univariate analysis. In multivariate analysis, stapler laceration was the only risk factor ($p=0.002$, OR 8.61 (2.19-33.89)) for clinical relevant POPF. We also investigated long-term complications after LDP. Postoperative fatty liver happened in 11 cases (9.7%) and worsening of glucose intolerance in 17 cases (15.0%), both of which were to be independent of the location of pancreatic dissection.

Conclusion: Pancreatic stapler laceration was a risk factor for clinical relevant POPF. Additional pancreatic resection using stapler on the duodenal side should be considered in case of stapler laceration.

Disclosure of Interest: None declared

PW1.16

ACUTE AND CHRONIC MESENTERIC ISCHEMIA: SINGLE CENTER ANALYSIS OF OPEN, ENDOVASCULAR, AND HYBRID SURGERY

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Introduction: The aim of the study was to analyse the outcome of open surgical, endovascular, and hybrid interventions in the treatment of acute (AMI) and chronic (CMI) mesenteric ischemia.

Materials & Methods: Retrospective review of a cohort of mesenteric ischemia patients at a single tertiary referral center from 2015 to 2021. Primary end point was postoperative in-hospital mortality. Secondary end points were the number of bowel resections, duration of the procedure, length of postoperative intensive care treatment, length of hospital stay, revision surgery (number and type), and the nature and severity of postoperative complications according to Dindo-Clavien.

Results: 64 patients, 20 with CMI and 44 with AMI, underwent open, hybrid or endovascular surgery. Bowel resection was performed in 45.5% of the patients with AMI (29.5% small intestine, 2.3% colon and 13.6% both). There was no in-hospital mortality in the CMI cohort as compared to 29.5% in the AMI cohort ($p=0.03$), with no differences regarding endovascular and open surgery (29.6% vs 29.4%). Severe postoperative morbidity (Dindo-Clavien ≥ 3) was also significantly more frequent in the AMI group when compared to the CMI group (20% vs 77.3%, $p<0.001$). ASA classification and intensive care stay were identified as factors associated with mortality in AMI patients.

Conclusion: Morbidity and in-hospital mortality are low in CMI patients, but substantial in AMI patients. Early diagnosis and open or endovascular treatment may be decisive for the outcome of these patients.

Disclosure of Interest: None declared

PW1.17

EARLY POSTOPERATIVE AND LONG-TERM RESULTS OF VASCULARSURGICAL MANAGEMENT OF CHRONIC MESENTERIC ISCHEMIA (CMI) IN A SINGLE-CENTER OBSERVATIONAL STUDY

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Introduction: Chronic mesenteric ischemia belongs to the most challenging diseases in visceral medicine requiring a combined and interdisciplinary approach of vascular and abdominal surgery as well as interventional radiology.

Aim: To investigate short-/long-term vascularsurgical patency and outcome in CMI depending on the mesenteric revascularization technique and reflecting real-world data.

Materials & Methods:

This retrospective single-center observational study registered all patients who had undergone open vascularsurgical reconstruction because of CMI at a tertiary German university hospital comparing one- *versus* (vs.) two-vessel as well as antegrade vs. retrograde reconstructions.

Results: In total, 38 patients were enrolled (mean [\pm SD] age, 64 \pm 13 [range, 32-83] years; sex ratio [m:f], 18:20[43:57]) over 12 years.

While 52.6 % of patients underwent one-vessel reconstruction, 47.4 % the two-vessel reconstruction. There was a trend of i) more perioperative complications in the two-vessel-group (83.3 % vs. 55 %, $p=0.086$), and ii) higher morbidity at one year in the two-vessel vs. one-vessel group (57.1 % and 41.2 %, respectively; $p=0.470$) while the morbidity of the two-vessel vs. one-vessel group at five years (100 % vs. 30 %) was significantly different ($p=0.004$). The mortality was greater in the two-vessel vs. one-vessel group: as a trend in the early postoperative period (27.8 % vs. 0, $p=0.17$) but significantly at one (38.5 % vs. 0, $p=0.011$) and five year(s) (100 % vs. 2 %, $p=0.007$). Regarding overall survival, the one-vessel group showed a significant superiority above the two-vessel group ($p=0.001$).

Actually, there was no significant difference of early postoperative morbidity comparing retrograde and antegrade group ($p=0.161$) as well as at one year and five years ($p=0.479$ and $p=0.367$, respectively). In addition, there was no significantly different postoperative mortality in antegrade vs. retrograde group at each time.

There was no significant difference regarding the survival of patients who had undergone antegrade vs. retrograde reconstruction whereas there was a significantly longer survival in one-vessel group vs. two-vessel group ($p=0.001$).

Specific and general complication rates were 60.5 % and 55.3 %, respectively, resulting in an overall morbidity of 73.3 % (mortality, 18.4 %).

Conclusion: The vascular surgeon should be prepared to perform various procedures of mesenteric reconstruction to tailor the operative strategy to the specific needs of the individual patient.

Disclosure of Interest: None declared

PW1.18

TRANSMURAL ENDOSCOPIC DRAINAGE OF POSTOPERATIVE INTRA-ABDOMINAL ABSCESSSES

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Introduction: Currently, endoscopic transmural drainage is a common method of treatment of post-inflammatory pancreatic fluid collections. Use of endoscopic ultrasonography in transmural drainage makes access through the wall of gastrointestinal tract to other pathological fluid collections possible, including postoperative intra-abdominal abscesses (PIAAs). Assessment of usefulness of endoscopic transmural drainage in treatment of PIAAs.

Materials & Methods: Retrospective assessment of endotherapy results' in all 29 patients with PIAAs in years 2018-2021 in the Department of General, Gastroenterological and Oncological Surgery, Collegium Medicum, Nicolaus Copernicus University in Toruń, Poland. Patients were divided into two groups depending on period between the surgery and beginning of endoscopic treatment. The 1.group consisted of patients who underwent endoscopic transmural drainage of PIAAs during first two weeks after the surgery. The 2.group consisted of patients in whom endotherapy began two weeks after the surgery or later.

Results: In all 29 patients active transmural (transgastric) endoscopic drainage through single approach was performed. The 1.group consisted of 16/29 (55.17%) patients with PIAAs, the 2.group consisted of 13/29 (44.83%) patients with PIAAs. In both groups PIAAs were complications of urgent laparotomy due to purulent or fecal peritonitis caused by pathology in the large intestine (81.25% vs 76.92%, p=NS). The active transmural endoscopic drainage lasted 7 (5-12) days in the 1.group and 13 (7-22) days in the 2.group (p<0.05). Complications of endotherapy were stated in 3/16 (18.75%) patients in the 1.group and in 2/13 (15.38%) patients in the 2.group (p=NS). Clinical success was achieved in 15/16 (93.75%) patients from the 1.group and in 10/13 (76.92%) patients from the 2.group (p=NS). Long-term success was stated in 14/16 (87.5%) from the 1.group and in 9/13 (69.23%) patients from the 2.group (p<0.05).

Conclusion: Endoscopic transmural drainage is an effective method of treatment of PIAAs. An early endoscopic drainage results in better outcomes of treatment in this group of patients.

Disclosure of Interest: None declared

PW1.19

NO IMPACT OF SEX ON SURGICAL SITE INFECTIONS IN ABDOMINAL SURGERY: A MULTI-CENTER STUDY

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Introduction: Male sex is controversially discussed as a risk factor for surgical site infections (SSI). The aim of the present study was to evaluate the impact of sex on SSI in abdominal surgery under elimination of relevant confounders.

Materials & Methods: Clinicopathological data of 6603 patients undergoing abdominal surgery from a multi-center prospective database of four Swiss hospitals including patients between 2015 and 2018 were assessed. Patients were stratified according to postoperative SSI and risk factors for SSI were assessed using univariate and multivariate analysis.

Results: In 649 of 6603 patients SSI was reported (9.8%). SSI was significantly associated with reoperation (22.7% vs. 3.4%, $p < 0.001$), higher mortality rate (4.6% vs. 0.9%, $p < 0.001$) and higher rate of length of hospital stay over the 75th percentile (57.0 % vs. 17.9 %, $p < 0.001$). In univariate analysis male sex was a significant risk factor for SSI ($p = 0.01$). In multivariate analysis including multiple confounders' such as comorbidities and perioperative factors there was no association between male sex and risk of SSI (odds ratio (OR) 1.1 [CI 0.8 – 1.4]). Independent risk factors for SSI in multivariate analysis were BMI ≥ 30 kg/m² (OR 1.8 [CI 1.3 - 2.3]), duration of surgery > 75th percentile (OR 2.3 [1.8 - 2.9]), high contamination level (OR 1.3 [1.0 – 1.6]), laparotomy (OR 1.3 [1.0 – 1.7]), previous laparotomy (OR 1.4 [1.1 – 1.7]), blood transfusion (OR 1.7 [1.2 – 2.4]), cancer (OR 1.3 [1.0-1.8]), malnutrition (OR 2.5 [1.8 – 3.4]).

Conclusion: Under elimination of relevant confounders there is no significant correlation between sex and risk of SSI after abdominal surgery.

Disclosure of Interest: None declared

PW1.20

THE EFFECTS OF A RESISTANCE EXERCISE INTERVENTION ON LOSS OF MUSCLE MASS AND PHYSICAL FUNCTION AFTER ELECTIVE SURGERY IN ABDOMINAL MALIGNANCY: PRELIMINARY DATA FROM A FEASIBILITY TRIAL.

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Introduction: Although muscle mass loss has been shown to be predictive of surgical outcomes, there are very few studies that have explored the effects of resistance exercise interventions on sustained loss of abdominal muscle mass (derived from routine CT scans) and loss of physical function, following elective surgery in cancer patients. The purpose of this study was to assess the effects of resistance exercise on sustained abdominal muscle mass loss (using routine CT scans) and physical function in a small number of patients undergoing elective surgery for abdominal cancer, who took part in a feasibility trial.

Materials & Methods: A small cohort of patients with abdominal cancer (n=23) were randomised after surgical resection, to one of two groups: Usual care (CON), or resistance exercise intervention with usual care (REX). CT scans were carried out for each patient immediately prior to surgery (within 2 weeks) and at up to 24 months after surgery. Muscle mass was derived from CT scan muscle cross-sectional area (L4; combined left- and right-side) in the rectus abdominis. Physical function was assessed using the short physical performance test battery (SPPTB). Only descriptive statistics were appropriate for this small-scale feasibility trial.

Results: Mean rectus abdominis muscle mass changes were +16.5% after the resistance exercise intervention (REX) with usual care and were + 0.65% (CON). 11.9% respectively. Corresponding mean SPPTB scores increased by 5.5% in the resistance exercise group and by 0.9% in the control group.

Conclusion: The resistance exercise intervention appeared to off-set much of the loss of abdominal muscle mass and decline in physical function, usually seen following elective surgery for cancer. This study provides strong justification for a larger scale randomised controlled trial to establish the effectiveness of resistance exercise in counteracting the expected loss of abdominal muscle mass and decline in physical function, usually observed after elective surgery in Abdominal cancer patients.

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Disclosure of Interest: None declared

PW1.21

ROLE OF “BAYES NETWORK“ AND LOGISTIC REGRESSION ANALYSIS IN RISK ASSESSMENT OF COLON CANCER SURGERY

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Introduction: Objectives: To assess whether a Bayes network (BN) forecasts the safest treatment path for individual patients undergoing colon cancer surgery.

Summary Background Data: Colon cancer treatment often has to be adjusted when patients harbor risk factors not covered by current guidelines.

Materials & Methods: A BN was built from colorectal cancer quality assurance data from years 2000 to 2004 (N=47,437). The test cohort comprised a database of N=8,179 patients from 2008 till 2010. The expected probabilities of in-hospital-death, prolonged hospitalization and relaparotomy were computed by BN and logistic regression analysis (LR) based on preoperative characteristics. Predictive accuracies were compared. The treatment path with the expected lowest death risk was calculated using the BN for coecum and ascending-colon-cancer patients.

Results: Receiver operating characteristics curves revealed an area under the curve for BN and LR of 83.7 % vs. 81.3 %, respectively, for death, 64.3 % vs. 67.5 %, respectively, for prolonged hospital stay, and 58.5 % vs. 56.3 %, respectively, for relaparotomy. The in-hospital lethality of those patients who were treated according to the “suggestions” of the BN was significantly lower compared with that of patients treated otherwise (3.6 % vs. 18 %, $p=0.002$) when using matched-pairs-analysis.

Conclusion: BN and LR predicted in-hospital death quite accurately. Moreover, the BN, when including treatment options into the database, may be used for prediction of the safest individual treatment whereby considering the contributions of several risk factors.

Disclosure of Interest: None declared

PW2.01

FLUORESCENCE SPECTROSCOPY GUIDED REAL TIME INTRAOPERATIVE MARGIN ASSESSMENT IN BREAST CANCER PATIENTS: A PILOT STUDY

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Introduction: Intraoperative diagnosis of tumour involvement of the surgical margin can reduce the need for revision surgery. The aim of our study was to evaluate the role of fluorescence spectroscopy in margin assessment.

Materials & Methods: This cross-sectional study was performed using a low cost and portable version of multispectral fluorescence spectroscopy device containing a fibre optical Y-coupler probe, a blue diode laser (peak wavelength 488 nm and bandwidth 1 nm), and a high-resolution spectrometer. Patients undergoing surgery for breast cancer were included from August 2020 to October 2021. Ethical clearance was obtained, and informed consent were taken. 2 ml of 20 % fluorescein sodium was injected intravenously after induction of general anaesthesia. Spectra were recorded from the excised surgical specimen and analysed using Spectra Suite software by Ocean Optics and STATA software v15.0.

Results: 84 spectra from 16 patients were recorded. 2 patients were excluded from the analysis due to excessive background noise in the recorded spectra. Spectral characteristics of breast tissue of 12 patients who underwent mastectomy were compared using Friedman's test first. 2 patients then underwent breast conservation surgery. None of the patients had resection margin positive for tumour on final histopathological analysis.

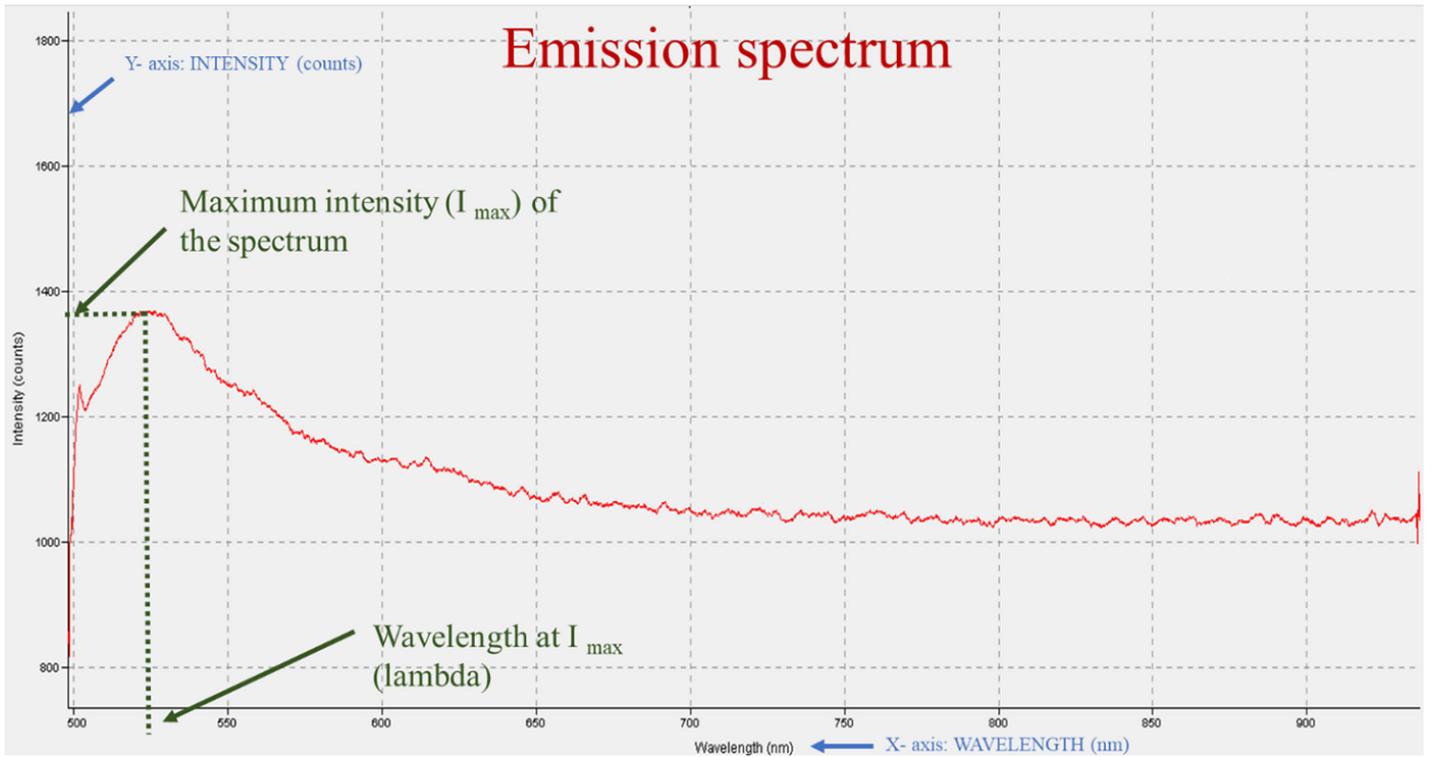
Maximum intensity (I_{max}) of the spectrum from the tumour tissue (median 1249.97 U) was found to be higher compared to the negative surgical margins (1221.01 U) and the normal breast tissue (1132.74 U) (p value 0.00051).

Wavelength at I_{max} (λ) was calculated for the spectrum, tumour tissue had higher λ (referred to as "red shift" of the spectrum) (median 526.2 nm) compared to negative surgical margin (median 522.50 nm) and normal breast tissue (median 520.44 nm) (p value 0.00031).

Tumour tissue (median 220145.6 U.nm) had higher area under the curve (AUC) of the spectrum compared to negative surgical margins (median 203797.6 U.nm) and normal breast tissue (median 208573.2 U.nm) (p value 0.00483).

Two patients who underwent breast conservation surgery also had similar findings on the spectral analysis of the tissue.

Image:



Conclusion: Fluorescein spectroscopy can provide real time intraoperative assessment of the surgical margins in breast cancer patients. Tumour tissues had higher maximum intensity, higher wavelength at I_{max} and higher AUC in their spectra as compared to negative surgical margins and normal breast tissues.

Disclosure of Interest: None declared

PW2.02

DEMOGRAPHIC, TREATMENT, CLINICAL, AND SOCIOECONOMIC DETERMINANTS OF PATIENT SATISFACTION POST-BREAST SURGERY

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Introduction: Approximately 1 in 8 women will be diagnosed with breast cancer in their lifetime. Despite an abundance of literature on breast cancer treatment and outcomes, little research has looked at the impact of socioeconomic status on patient satisfaction following breast cancer surgery. The objective of the study was to determine if patient satisfaction post-breast cancer treatment and surgery is associated with socioeconomic status.

Materials & Methods: A post-procedure survey of tissue confirmed breast cancer patients (n=324) at a Midwest urban community teaching hospital after breast surgery was conducted to assess quality of life, lymphedema, treatment characteristics, clinical characteristics, and socioeconomic status. This survey included the EORTC-QLQ-C30, EORTC-QLQ-BR23, Fact-B, SF-36, lymphedema assessments, and treatment decision assessments.

Results: The results of multivariate logistic regression modeling with forward selection found that having managed care health insurance as the guarantor, having simple total mastectomy, and feeling uninformed on surgical treatments were all associated with increased dissatisfaction with breast cancer treatment. Of note, none of the remaining variables – demographics, clinical variables, other treatment modalities, or SES – were associated with dissatisfaction with breast cancer treatment.

Conclusion: Understanding the risk factors for dissatisfaction will give surgeons and their teams the opportunity to enhance delivery of information to at-risk patients and reinforce shared decision-making models of care to provide optimal patient outcomes in all spheres.

Disclosure of Interest: None declared

PW2.03

ANALYSIS OF SURGICAL TREATMENT OF THE AXILLA IN cN0 BREAST CANCER PATIENTS AFTER NEOADJUVANT CHEMOTHERAPY: A RETROSPECTIVE COHORT STUDY.

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Introduction: Management of the axilla in cN0 breast cancers after neoadjuvant chemotherapy remains object of great debate especially in the case of cN+ tumors with an imaging downstaging after neoadjuvant systemic treatment. The primary objective of our study was to evaluate overall (OS) and disease-free survival (DFS) after sentinel lymph node biopsy (SLNB) compared to complete axillary lymph node dissection (CALND) in cN0 patients after neoadjuvant chemotherapy (NAC). The response to neoadjuvant chemotherapy of the axillary localizations of the disease and the imaging accuracy were secondary objectives.

Materials & Methods: We performed a retrospective cohort study including all women above 18 years of age undergoing breast surgery after neoadjuvant chemotherapy from 2015 to 2021. Overall, DFS and imaging accuracy were assessed. Male patients were excluded.

Results: The present study encompassed 300 women treated with neoadjuvant chemotherapy. The pre-NAC cN1 were 47.3%, cN2 19.2%, and cN3 9.6%. The 27.4% of pre-NAC cN1 had a complete response, 7.12% cN2, and 2.85% cN3. Among cN+ patients, 29.51% had a post-NAC negative imaging (cN0) and a post-NAC negative pathology (ypN0). The sensibility of post-NAC locoregional nodes staging imaging was 56% (37.07% - 73.33%), and the specificity was 69.44% (53.14% - 82%) with an AUC of 63% (CI.95 50-75%). A total of 41 women underwent SLNBs alone, and 259 had CALND. No significant differences were observed in terms of OS ($p=0.543$). DFS was higher in SLNBs than CALNDs ($p=0.057$).

Conclusion: Our analysis suggests that SLNB alone may be a possible option for patients following NAC without any significant compromise of overall and disease-free survival.

Disclosure of Interest: None declared

PW2.04

IMPACT OF OMITTING SENTINEL NODE BIOPSY IN WOMEN AGED 80 AND ABOVE DIAGNOSED WITH CLINICALLY NODE NEGATIVE INVASIVE BREAST CANCER

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Introduction: The importance of sentinel lymph node (SLN) biopsy in management of elderly women with breast cancer is not clear. We aim to determine rates of axillary recurrence (AR) and survival in women aged over 80 with clinically node negative invasive breast cancer in whom SNB was omitted.

Materials & Methods: This retrospective study included women aged 80 years and above diagnosed with clinically node negative invasive breast cancer and underwent primary breast surgery with omission of SLN biopsy at our breast unit between January 2010 and December 2019. Statistical analysis (SPSS v22) was performed to assess overall survival (OS) and disease-free survival (DFS).

Results: One-hundred eighty one women with 186 cancers met the inclusion criteria. The mean age was 83.8 + 3.4 years (range: 80-97). Personal history of previous breast cancer was seen in 11% (n=20). The median tumor size on mammogram and ultrasound was 22mm and 21mm respectively. Neo-adjuvant endocrine therapy was given to 16%(n=30) women. Initial surgery was mastectomy or breast conserving surgery in 36% and 64% women respectively. Invasive ductal carcinoma was the commonest histological subtype (n=135, 73%). Grade 2 and 3 tumors were seen in 60% (n=111) and 29% (n=53) respectively. Molecular subtypes of luminal, HER2 enriched, triple positive and triple negative was seen in 74% (n=137), 4% (n=7), 7% (n=14) and 15% (n=28) women respectively. None of the women received chemotherapy or anti-HER2 therapy. Postoperative radiotherapy and endocrine therapy was given to 61% (n=113) and 77% (n=144) women respectively. With a median follow up of 53.50 months (IQR: 32.00-77.25), isolated AR developed in 3.8% (n=7) with a median time to relapse of 14 months. Distant recurrence with or without loco-regional recurrence was seen in 9% (n=16). The 5-years OS and DFS rate was 79.4% and 61.2% respectively. On univariate analysis using log rank method, OS was better with estrogen receptor (ER) positivity [p=0.00], progesterone receptor (PR) positivity [p=0.000], size less than 20mm [p=0.001], and absence of lympho-vascular invasion (LVI) [p=0.012]. DFS was significantly better with ER positivity [p=0.000], PR positivity [p=0.000], size less than 20mm [p=0.000], absence of LVI [p=0.001], and in grade1 tumors [p=0.041]. HER2 status and tumor focality had no effect on OS and DFS.

Conclusion: Omitting SLN biopsy in over 80 breast cancer women does not compromise oncological safety avoiding potential side effects and morbidity related to axillary surgery.

Disclosure of Interest: None declared

PW2.05

IMPLEMENTING MULTIDISCIPLINARY MEETING RECOMMENDATIONS INTO CLINICAL PRACTICE DURING THE FIRST PANDEMIC YEAR: AN OBSERVATIONAL CROSS-SECTIONAL ASSESSMENT.

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Introduction: Multidisciplinary team meetings (MDM) represents a cornerstone of breast cancer management even during the COVID-19 pandemic. Meanwhile, patient-centeredness in the decision-making process and timely access to breast cancer treatment are expected to improve patient satisfaction and outcome. This study aimed to assess the prevalence of discordance between MDM decision and patient's management during the first year of the COVID-19 pandemic. Secondary aims were to evaluate the prevalence of discordance before and after the pandemic spread and assess the reasons for the discordance.

Materials & Methods: We retrospectively gathered data about MDMs and clinical files of patients operated for invasive breast cancer. Cases examined at MDM between January 2020 and December 2020 were included, and the discordance between MDM recommendations and subsequent treatment was assessed. According to a priori sample size assessment, 207 women had allowed an estimation of discordance to at least within five percentage points on either side of the estimated prevalence using a 95% confidence interval for prevalences ranging from 1 to 16%.

Results: A total of 299 cases were discussed at the MDM during the considered period. The median age was 66 years (IQR 53-75). Breast-conserving surgery was indicated in the 48.83% (146/299) of cases. The discordance between MDM recommendations and surgical treatment was 2.68% (8/299), mainly because of woman choice (75%, 6/8). The discordance between MDM recommendations and adjuvant treatment was 12.37% (37/299), mainly due to comorbidities 67.57% (25/37). No significant differences were observed before and after COVID-19 spread. However, neoadjuvant chemotherapy increased from 0.00% (0/55) to 4.92% (12/244) ($p=0.093$). In addition, primary non-surgical treatment was indicated in 5.74% (14/244) ($p=0.081$), and the discordance between MDM recommendations and adjuvant treatment was less frequently due to women's choice ($p=0.078$).

Conclusion: MDM recommendations and surgical treatment have a low discordance rate. Meanwhile, MDM recommendations and adjuvant treatment were more discordant, mainly because of comorbidities which could negatively impact the possible treatment complications. Although no significant changes were observed after the COVID-19 pandemic spread, this study was underpowered to assess small differences.

Disclosure of Interest: None declared

PW2.06

LOW-COST SURGICAL PATHWAY TO PROVIDE STANDARD BREAST CANCER CARE IN LIMITED RESOURCE SETTING: A PILOT STUDY

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Introduction: Breast cancer survival represents the triumph of scientific advancement; however, this improved survival is not seen uniformly across the globe as many centers still struggle to provide standard basic care to breast cancer patients. There are many barriers in the implementation of standard guidelines in limited resource settings. We implemented a pathway to provide standard breast cancer care in limited resource settings. Initial results from this pilot study are discussed here.

Materials & Methods: This pathway consists of triple assessment of breast lumps using clinical examination, USG and/or X Ray mammography, a low-cost core needle biopsy (CNB) technique. After confirmation of diagnosis early breast cancer (EBC) patients were given option of BCS vs MRM. Since, we do not have frozen section biopsy (FSB), margin assessment was not possible. For this purpose, we excised the lumps with wide margin and used oncological techniques for reconstruction in all patients. SLNB for cN0 patients was done using low-cost methylene blue dye (MBD) and fluorescein dye (FD) under local anesthesia (LA) as FSB is not available. If sentinel lymph nodes were positive for metastasis, then ALND was carried out at the time of definitive surgery under general anesthesia.

Results: We initially performed validation studies for each component of this pathway. A total 57 patients with breast lumps were evaluated with low cost CNB technique. The sensitivity of this technique was 94% and specificity 100% [1]. Similarly, we performed a prospective validation study using MBD and FD in cN0 patients. Identification rate of above 92% and false negative rate of less than 8% was observed in 29 EBC patients without prior chemotherapy. Identification rate of 82% and false negative rate of 8.7% was observed in 23 post NACT patients. After validation studies, this pathway was designed for EBC patients incorporating validated components. So far, 25 patients have undergone surgery using this pathway. Four patients had positive SLNs and underwent ALND during definitive surgeries. Twelve patients underwent BCS, and all margins were free from tumor in all patients.

Conclusion: Our results show that standard breast cancer surgery can be provided to eligible patients even in the absence of automated core biopsy system, radio-colloid and frozen section biopsy. Our study is continued to evaluate long term outcome and validation.

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Disclosure of Interest: None declared

PW2.07

DETECTION OF CTC FROM BREAST CANCER PATIENTS WITH ANTI-TROP2 ANTIBODY

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Introduction: Identification of circulating tumor cells (CTC) from the blood of cancer patients is expected to be applied in a wide range of fields to promote future genomic medicine such as therapeutic effect prediction, life prognosis prediction, and elucidation of cancer metastasis mechanism. We have conducted a CTC supplementary study using anti-Trop2 antibodies, and we report the results.

Materials & Methods: Using 208 resected breast cancer specimens, immunostaining with anti-Trop2 antibody was performed to analyze the expression by breast cancer subtype. Anti-EpCAM antibody and Trop2 antibody were mixed at a ratio of 1: 1 and set in a CTC microchip, and CTC was captured from the peripheral blood of 26 breast cancer surgery cases.

Results: Immunostaining was performed using antibodies against EpiCAM, Her2, PD-L1 and Trop2. Of these, 96 cases (46.1%) had the highest positive rate in the study using the Trop2 antibody. The positive rate on each subtype, luminal A was 46.9%, luminal B was 37.1%, Her2 was 50%, and triple negative was 52.3%, which were useful for capture of CTCs. In 26 breast cancer patients, CTC was catchable in 13 cases (50%). At this time, EpCAM-positive CTC was expressed in 6 cases (23.1%), whereas Trop2 was expressed in all 13 cases (100%).

Conclusion: EpCAM translocates from the cell surface into the cell due to changes in EMT, but Trop2 does not translocate into the cell even with changes in EMT, suggesting that it is useful as a CTC capture antibody.

Disclosure of Interest: None declared

PW2.08

INCIDENCE AND PROGNOSTIC SIGNIFICANCE OF ANDROGEN RECEPTORS (AR) IN INDIAN TRIPLE NEGATIVE BREAST CANCER (TNBC)

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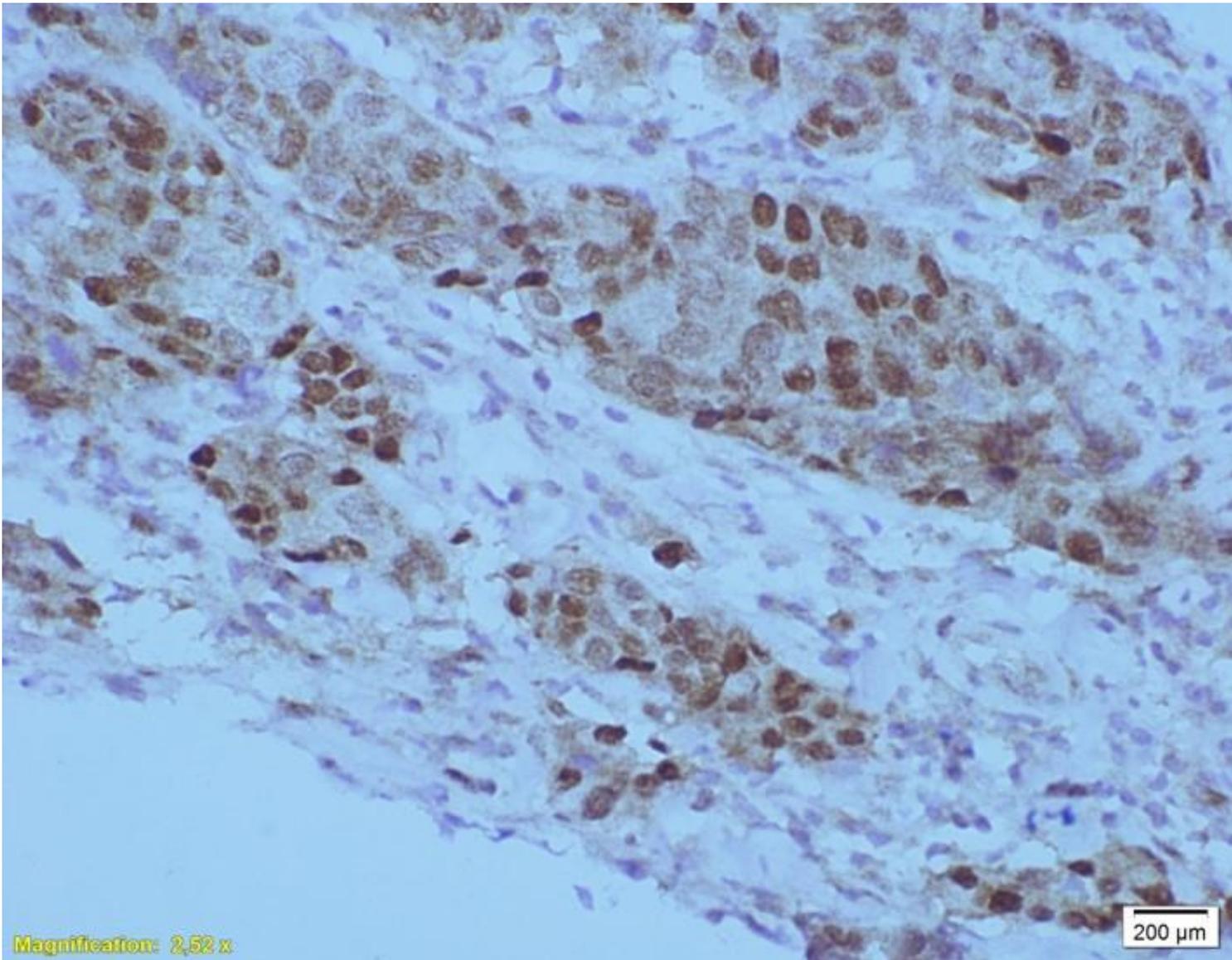
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Introduction: Molecular sub-characterization of triple negative breast cancer (TNBC) has great therapeutic and possibly prognostic implications. The primary aim of this study was to investigate the incidence of luminal androgen receptor (LAR) subtype of TNBC and secondary aims were sub-categorization and clinicopathologic correlation of LAR breast cancers.

Materials & Methods: Retrospective study (*January 2008 and 31st December 2018*) consisting of 157 TNBC patients. Androgen Receptor (AR) expression was measured by immunohistochemical analysis. 1% cut-off was set as positive expression. Subcategorization was done on basis of EGFR (>15% of tumor cells) and Ki-67 expression (low-<11%, intermediate- 11–20%, and high- >21%). AR expression was correlated with various clinicopathologic features and outcome of the patients.

Results: The incidence of AR expressing tumor among TNBC was 24.8%. Based on different cut-offs of $\geq 5\%$, $\geq 10\%$ and $\geq 20\%$ expression, the incidence was 18.4, 15.2 and 11.5% respectively. Ki-67 ($p=0.89$) and EGFR ($p=0.643$) expression incidence didn't differ significantly in AR positive and negative tumors but AR expressing tumors were more likely to be low-grade tumors ($p=0.014$). Based on EGFR expression 19.1, 66.9 and 14% patients were categorized as low, intermediate and high risk respectively. Low risk tumors were more likely to have higher ($\geq 10\%$) AR expression ($p<0.001$). There was no other significant difference in clinicopathological profile, response to neoadjuvant chemotherapy, disease-free survival ($p=0.458$) and overall survival ($p=0.806$) of AR expressing and negative tumors.

Image:



Magnification: 2,52 x

Conclusion: AR expression does not seem to have prognostic significance in TNBC and further studies should focus more on its predictive role in deciding-anti androgen therapy.

Disclosure of Interest: None declared

PW2.09

SERUM GAMMA SYNUCLEIN : A PROMISING BIOMARKER IN BREAST CANCER

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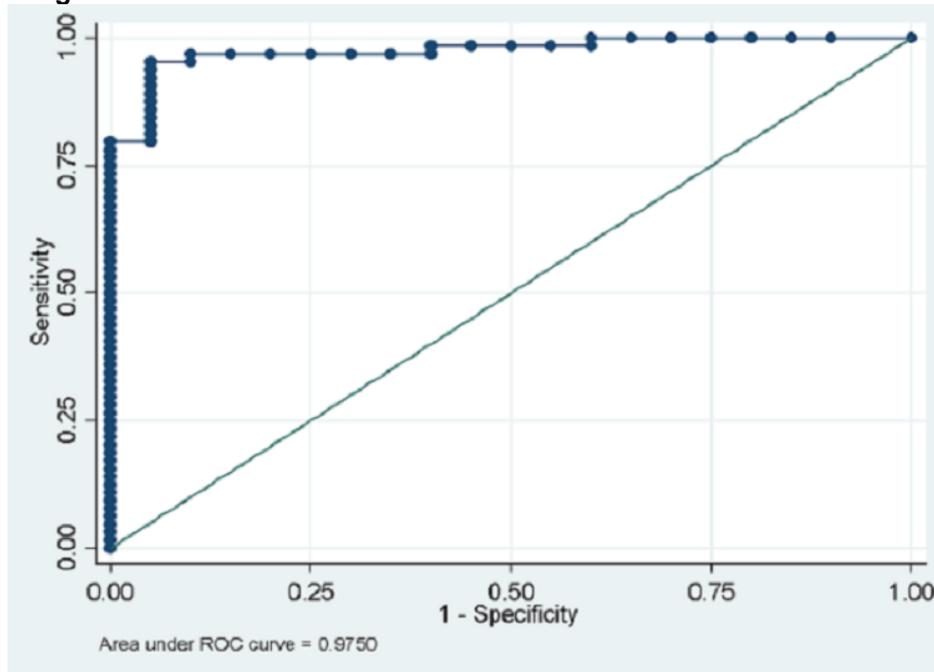
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Introduction: Serum biomarkers in cancers can be of diagnostic, predictive and prognostic value. There is a paucity of such markers for breast cancer. Gamma synuclein (SNCG) is one novel marker which belongs to the synuclein family and usually expressed in neural tissue. It has been found to be expressed in various cancer tissues, viz., esophagus, pancreas, colon, stomach, ovary as well as breast cancer. However, its expression in the sera of breast cancer patients has not been studied. In this study we assessed the expression of SNCG in sera of patients with breast cancer and explored its role as a biomarker.

Materials & Methods: This was a prospective cohort study conducted between January 2018 to January 2020. A total of sixty-four patients who had biopsy proven breast cancer were included. Serum SNCG was measured both preoperatively and postoperatively in patients undergoing upfront surgery. For patients undergoing neoadjuvant chemotherapy the serum SNCG levels were measured before start of chemotherapy, after 3 cycles, after completion of chemotherapy and 2 weeks postoperatively. Twenty healthy women were taken as controls. SNCG levels were measured using Human SNCG ELISA Kit using Sandwich- ELISA principle. The optical densities were measured using spectrophotometric technique, which was proportional to the concentration of human SNCG. Statistical analysis was done using Student's t-test and ANOVA and presented as percentages and mean with standard deviation.

Results: The mean age was 49.5 +/-12.2 years. Serum SNCG levels were significantly high in the patient group as compared to the control group (11.5 +/-4.9ng/ml vs 1.7+/-1.4 ng/ml, **p<0.001**). With a cut-off of 4.06 ng/ml, the sensitivity and specificity of serum SNCG indicating breast cancer was **95.3%** and **95%** respectively. Mean values of SNCG from stage I to IV showed an increasing trend (7.5 ng/ml, 11.2ng/ml, 11.7ng/ml, 12ng/ml, p=0.923) but the difference was not statistically significant. Mean SNCG levels in estrogen receptor(ER) positive tumours was higher as compared to ER negative tumours (12.06 +/-4.8ng/ml vs 10.44 +/- 5.1ng/ml, p =0.21). There was a fall in the SNCG levels following surgery and after neoadjuvant chemotherapy, however the difference was not statistically significant.

Image:



Conclusion: Serum gamma synuclein has shown high sensitivity and specificity in detecting breast cancer. Its use as a diagnostic biomarker in breast cancer may be promising. Further studies and long term follow up data are required to establish its role in prognosis.

Disclosure of Interest: None declared

PW3.01

OUTCOMES OF PAPILLARY THYROID MICROCARCINOMA PRESENTING WITH CLINICALLY DETECTED LATERAL LYMPHADENOPATHY

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Introduction: The indolent behaviour of most Papillary Thyroid Microcarcinoma (PTMC) allows management with active surveillance (AS) protocols, however occasionally a more aggressive PTMC phenotype may result in poor outcomes. We aim to describe the prognosis of a cohort of patients with PTMC who presented with clinically significant lateral lymphadenopathy (PTMCcN1b).

Materials & Methods: Outcomes of patients with PTMC who presented with clinically apparent lateral lymph node metastases (PTMCcN1b) treated between 1997-2020 at Royal North Shore Hospital were collated and compared to two control groups' outcomes; patients with clinically detected PTMC without evidence of involved lymph nodes (PTMCcN0), and with PTC (>10mm) who presented with clinically significant lateral lymphadenopathy (PTCcN1b). Clinicopathological variables, post-operative risk-stratification, rates of disease recurrence, re-operative surgery, and structural disease-free survival were assessed.

Results: During the study period, 1534 PTMCs were diagnosed following thyroid surgery, of these 157 (10%) were clinically detected PTMCcN0 and 26 PTMCcN1b (1.7%). There were 138 patients in the PTCcN1b control group. All cN1b patients were treated with total thyroidectomy and adjuvant RAI. Maximal lymph node deposit size was similar between the PTMCcN1 and PTCcN1 groups (23 vs 27 mm, $p=0.11$). Patients with PTMCcN1 were more likely to have biochemical or structural persistence or recurrence compared to PTMCcN0 (19 vs 3.8%, $p=0.002$), but less likely than PTCcN1b patients (19% vs 42%, $p=0.04$). All patients in the PTMCcN1b group who achieved an excellent response to initial therapy (85%) were disease-free at last follow-up. The rate of re-operation was similar for the PTMCcN1b and PTMCcN0 groups (4% vs 2%, $p=NS$), and significantly lower than the PTCcN1b group (4% vs 26%, $p=0.002$). Five-year disease-free survival estimates were significantly better for PTMCcN1b patients than PTCcN1b patients (94% vs 59%, $p=0.001$).

Conclusion: PTMCcN1b patients treated with thyroidectomy and adjuvant RAI have inferior clinical outcomes compared with PTMCcN0 patients, but perform better than their PTCcN1b counterparts with respect to disease persistence and recurrence. Response to initial therapy provides accurate prognostication in PTMCcN1b patients and if an excellent response to initial treatment is achieved, patients in this series achieved long-term disease-free survival.

Disclosure of Interest: None declared

PW3.02

OUTCOMES IN MALE PATIENTS <40 YEARS OLD WITH PAPILLARY THYROID CANCER

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Introduction: Male (M) sex has been associated with higher incidence of adverse clinicopathologic features in papillary thyroid cancer (PTC). Age, conversely, has been shown to be a positive prognostic indicator. Our study aims to investigate the role of M sex and age <40 in clinical outcomes of PTC.

Materials & Methods: An institutional database of 1,434 patients undergoing surgery for suspected thyroid cancer between 2000 and 2020 was queried. Six hundred and eighty patients with PTC diagnosed on surgical pathology were included. Seventy- one % of patients were female (F). Twenty- four % of patients were F <40 years old, 44% were F ≥ 40, 7.9% were M <40, and 24% were M ≥ 40. Chi-square tests were utilized for categorical variables and ANOVA for continuous variables.

Results: When compared with M ≥ 40 and F of all ages, M<40 were significantly more likely to have lymph node metastasis on final pathology (N1a: 15 vs. 11%, N1b: 35 vs. 17% p <0.05). M<40 were also more likely to have intraoperatively identified lymph node involvement (38.8% vs. 19% p <0.001) and were more likely to undergo lymph node dissection (53.7% vs. 33% p = 0.002). These associations held when M <40 were compared with M ≥ 40 (p < 0.05) and when M <40 were compared with F <40 (p < 0.05). M <40 were not more likely to present with an advanced T stage. Only 8 patients in our sample had M1 disease, none of whom belonged to the M <40 group. There were no differences noted between groups in need for postoperative radioactive iodide, 30- day readmission, disease recurrence, reoperation, or 30- day mortality.

Conclusion: Males <40 years of age with PTC are more likely to have nodal metastasis, though no differences in outcomes of recurrence or need for postoperative radioactive iodine were observed. Based on subgroup analyses, both gender and age appear to play a role in the prevalence of higher N stage.

Disclosure of Interest: None declared

PW3.03

COMPARISON BETWEEN OPEN VERSUS ROBOTIC MODIFIED RADICAL NECK DISSECTION IN PATIENTS WITH WELL-DIFFERENTIATED THYROID CANCER

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Introduction: Robotic approaches for thyroid cancer have provided opportunity to perform modified radical neck dissection (MRND) without leaving neck scars. However, current evidence on the complication and oncologic safety of robotic MRND is still not sufficient. In this study, we compared the oncologic outcomes of patients with well-differentiated thyroid cancer treated with open and robotic MRND.

Materials & Methods: This retrospective study included 234 and 52 patients who underwent open MRND and robotic bilateral axillo-breast approach (BABA) MRND, respectively, from January 2018 to December 2020 at a single institution. Stimulated thyroglobulin (Tg) levels after surgery and before radioactive iodine (RAI) treatment were analyzed to compare the remnant tumor burden after surgery.

Results: Robotic BABA MRND group included more female patients ($p < 0.001$) and was significantly younger ($p < 0.001$) compared to open MRND group. The primary tumor size and frequency of extrathyroidal extension were not significantly different between the two groups. Despite that the number of retrieved lateral lymph nodes was significantly lower in the robotic BABA MRND group (26.3 ± 15.2 [open] vs. 21.9 ± 12.6 [robotic], $p = 0.03$), the total number of metastatic lymph nodes was significantly higher in patients undergoing robotic BABA MRND (11.0 ± 9.4 [open] vs. 15.0 ± 9.9 [robotic], $p = 0.009$). Incidences of postoperative complications, including hypoparathyroidism, vocal cord palsy, chyle leakage, and bleeding, were similar between the two groups. Postoperative Tg (0.2 ng/mL [IQR, $0.2-0.2$] vs. 0.2 ng/mL [IQR, $0.2-0.7$], $p = 0.23$), stimulated Tg at first RAI treatment (1.0 ng/mL [IQR, $0.2-5.2$] vs. 1.7 ng/mL [IQR, $0.2-6.8$], $p = 0.51$), and stimulated Tg at last RAI treatment (2.1 ng/mL [IQR, $0.2-12.0$] vs. 5.2 ng/mL [IQR, $1.2-7.2$], $p = 0.75$) were comparable between open and robotic BABA MRND groups.

Conclusion: Our data suggest that robotic BABA MRND resulted in comparable complication rate and oncologic safety in terms of remnant tumor burden. Thyroidectomy with robotic BABA may be a good treatment option for patients with well-differentiated thyroid cancer who undergo MRND.

Disclosure of Interest: None declared

PW3.04

INTRA-THORACIC THYROID RESTS: AN UPDATED CLASSIFICATION AND CASE SERIES

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Introduction: Thyroid rests are relatively common in thyroid surgery. During embryological development aberrant islets of thyroid tissue may descend beyond the thyroid, along the thyro-thymic tract into the mediastinum. The size, blood supply, relation to laryngeal nerves and parathyroids is variable and influenced by grade (Fig. 1). A grading system for thyroid rests was previously proposed by our unit. (1) We propose an additional “Grade V” based on our current series.

Thyroid rests are particularly relevant when located entirely in the mediastinum and disconnected from the thyroid gland, as they are easily mis-identified during thyroid or parathyroid surgery. Recurrence of a mediastinal goitre after cervical thyroidectomy has been described as the “forgotten goitre” phenomenon. (2)

This study aims to establish the proportion of retrosternal goitres caused by Grade V rests and the frequency of “forgotten goitre”.

Materials & Methods: We performed a retrospective review of a prospectively maintained database of thyroidectomies for benign retrosternal goitre from Jan 2015-2022. The database contains clinical, intra-operative and histopathological data. Figure 1 illustrates our revised classification of thyrothymic rests. We defined Grade V rests as entirely intra-thoracic thyroid rests without any remnant connection to the thyroid gland proper, inaccessible via a standard cervical approach. Figure 2 demonstrates cross-sectional imaging of a Grade V rest in a patient with previous total thyroidectomy.

Results: Our unit performed 1,087 thyroidectomies for benign retrosternal goitre. Twenty-six Grade V thyroid rests were identified in 20 patients (1.8%). There were 2 males and 18 females. The mean age was 65 years (range 33 to 84 years). Three patients underwent primary total cervical thyroidectomy, and 10 primary cervical hemithyroidectomy. Fifteen patients had a single Grade V rest excised, 4 had 2 rests, and 1 patient had 3 rests excised. Seven of the 20 patients (35%) had undergone previous total or hemi-thyroidectomy, ie “*forgotten goitre*”. The mean weight of each Grade V rest was 68.1g (max 148g). The mean diameter was 68.4mm (max 115mm).

Image:

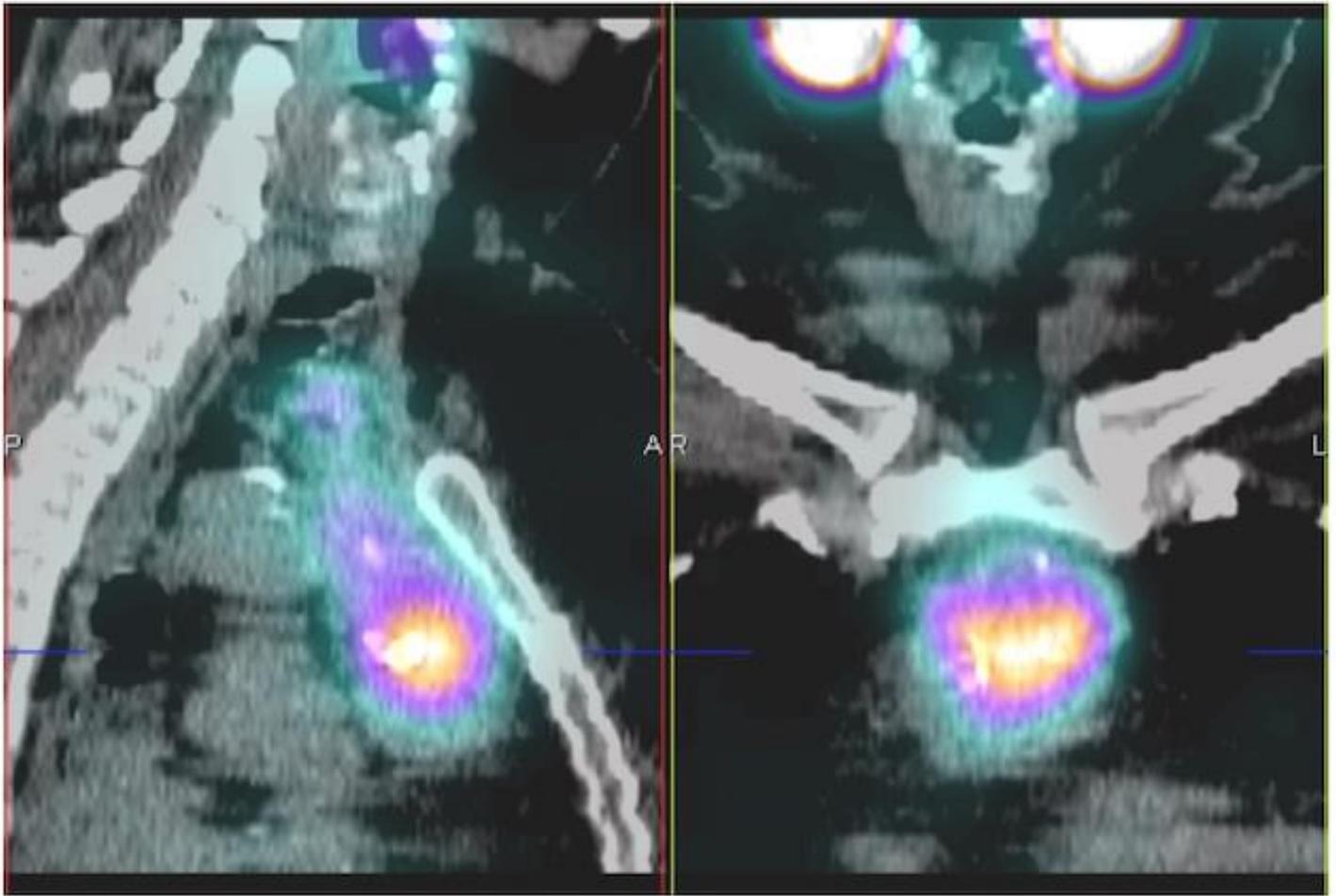


Figure 2: Iodine¹³¹ SPECT CT demonstrating a Grade V rest in previous total thyroidectomy.

Conclusion: This study presents one of the largest series of intra-thoracic thyroid rests and “*forgotten goitres*”. We present an additional “Grade V” to Sackett, *et al.*’s grading of thyrothymic rests, which we believe present unique diagnostic and technical challenges.

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Disclosure of Interest: None declared

PW3.05

MULTI-MODALITY TREATMENT OF ANAPLASTIC THYROID CANCER: OUTCOMES OF YONSEI PROTOCOL

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Introduction: Survival rates for anaplastic thyroid cancer (ATC) have not improved in the past four decades. The goal of this study was to investigate a new treatment protocol using concurrent chemoradiation therapy (CCRT) on anaplastic thyroid cancer.

Materials & Methods: This retrospective study reviewed the medical records of 64 patients diagnosed with anaplastic thyroid cancer from October 2015 to July 2021. CCRT was performed with paclitaxel and external beam radiotherapy of 60 grays in 30 fractions. After two cycles of CCRT, the feasibility of surgery is evaluated. If surgery is not possible, chemotherapy is continued, and at the end of cycle 4, the patient's feasibility for surgery is assessed.

Results: Of the 64 patients with ATC evaluated, 35 (54.7%) were female, and the mean age at diagnosis was 62.4±11.7 years. The size of the tumor size was 40 (62.5%) less than 5 cm, 23 (35.9%) between 5 and 10 cm, and 1 (1.6%) more than 10 cm. Five patients (7.8%) had stage IVA, 12 patients (18.8%) had stage IVB, and 47 patients (73.4%) had stage IVC. The median overall survival for the entire cohort was 0.77 years (9.4 months), ranging from 0.17 to 3.37 years. The overall survival at 0.5 and 1 year were 73.9% and 33.1%, respectively.

Conclusion: Multi-modality treatment using CCRT in ATC patients showed a median overall survival of 0.77 years. The era of refractory ATC can be gradually replaced by the integration of multidisciplinary therapies including surgery and chemoradiation therapy.

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Disclosure of Interest: None declared

PW3.06

TRANORAL ROBOTIC THYROIDECTOMY VS TRANSORAL ENDOSCOPIC THYROIDECTOMY VESTIBULAR APPROACH USING ENDOSCOPIC RETRACTOR.

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Introduction: The transoral endoscopic thyroidectomy vestibular approach (TOETVA) and transoral robotic thyroidectomy (TORT) have been successfully refined in recent years, with few complications and excellent results. In this study, we compared TORT and TOETVA with a surgical method using three trocars and an endoscopic retractor in patients with papillary thyroid cancer.

Materials & Methods: From January 2019 to October 2021, we retrospectively compared 56 consecutive TORT cases and 132 TOETVA cases. We investigated patient characteristics, pathologic findings, and clinical outcomes, including total operative time, docking time, and console time. The learning curves of TOETVA and TORT were also evaluated.

Results: The median operation time of TORT was 81 min, which was significantly longer than that of TOETVA (73 min, $P = 0.008$). However, the median docking time of TORT was only 5 min and the median console time was 27 min. There were no significant differences between the two groups in terms of postoperative complications. The median number of retrieved lymph nodes for both TOETVA and TORT was 2.0 ($P = 0.509$). Additionally, there was no significant difference in the median number of metastatic lymph nodes between TOETVA and TORT.

Conclusion: In this large single-centre study, we found that TORT with an endoscopic retractor was not significantly different from TOETVA with an endoscopic retractor in terms of lymph node dissection and postoperative complications. Given the high cost of TORT, TOETVA by highly skilled surgeons may be a good alternative for patients who cannot afford it.

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Disclosure of Interest: None declared

PW3.07

ASSOCIATION OF HYPERCALCEMIA AND BENIGN FIBRO-OSSEOUS JAW TUMORS: A 25-YEAR RETROSPECTIVE STUDY AT MAYO CLINIC

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Introduction: The association between familial primary hyperparathyroidism (1HPT) and benign jaw tumors has been previously noted in Hyperparathyroidism-Jaw Tumor Syndrome, an exceedingly rare autosomal dominant disorder. Main findings in these syndromic patients include 1HPT, an increased risk of parathyroid carcinoma, as well as fibro-osseous jaw tumors in an estimated 30% of patients.¹⁻² Benign fibro-osseous lesions in nonsyndromic patients are also rare. To our knowledge, no previous studies have evaluated the rate of 1HPT and hypercalcemia in nonsyndromic patients with benign fibro-osseous lesions of the jaw.

Materials & Methods: This is a retrospective study from a sample of patients who underwent surgical treatment of fibrous dysplasia (FD), ossifying fibroma (OF), and central giant cell granulomas (GCG) at Mayo Clinic. Patient demographics, history of 1HPT, histopathological diagnosis, and relevant laboratory values such as PTH, serum calcium, urine calcium, vitamin D, and alkaline phosphatase were collected.

Results: A total of 93 patients (mean age, 30 years) with fibro-osseous jaw tumors were treated at Mayo Clinic between 1996 and 2021. In the FD (n=64), OF (n=24), and GCG (n=5) groups, a diagnosis of 1HPT was found in 2 patients (3.1%), 1 patient (4.2%) and 0 patients (0%), respectively. In the FD, OF, and GCG groups, mean (range) PTH levels were 49 (32-94) pg/mL, 44 (29-71) pg/mL, and 58 (36-100) pg/mL, respectively. Elevated PTH levels (>65 pg/mL) were observed in 3 patients (4.7%) with FD, 1 patient (4.2%) with OF, and 1 patient (20%) with GCG. Mean (interquartile range) alkaline phosphatase levels were found to be 81 (70-117), 76 (55-248), 52, (44-61) for FD, OF, and GCG groups, respectively. Mean (range) calcium levels were 9.3 (8.1-11.3) mg/dL in the FD, 9.4 (8.1-10) mg/dL in the OF, and 9.3 (8.8-10.1) mg/dL in the GCG group, respectively. No statistically significant differences were found between the FD and OF groups.

Conclusion: Patients with fibro-osseous jaw tumors including FD, OF, and GCG may have increased risk of 1HPT compared to that of the general population. Surgeons treating these benign tumors need to be cognizant of these findings, obtain appropriate laboratory studies, and incorporate multidisciplinary care for their patients with our Endocrinology and Endocrine Surgery colleagues.

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PW3.08

REDUCING DISPARITIES IN THE TREATMENT OF HYPERPARATHYROIDISM

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Introduction: Health care disparities are prevalent in the American Deep South for numerous illnesses. Hyperparathyroidism is also quite common, with African American patients experiencing disparate outcomes and access to care. With a comprehensive outreach program and systematic treatment plans, we sought to evaluate our institution's ability to reduce disparities in the treatment of hyperparathyroidism.

Materials & Methods: With IRB approval, we performed a retrospective review of prospectively collected data at a southern quaternary medical center for all patients undergoing parathyroidectomy by endocrine surgeons from 2015-2021 for primary (PHPT) and tertiary (THPT) hyperparathyroidism. Patient demographics, pre-and post-operative clinical and biochemical data, and complication rates were collected. Statistical analysis included chi-squared and ANOVA tests.

Results: There were 757 patients included. Of these, 675 patients had PHPT with 135 (20%) African-American (AA) and 78% female. There were 82 patients with THPT, of these 44 (53%) were AA and 58% male. AA patients were younger than their Caucasian (CA) counterparts with a mean age of 56±14 vs 60±14 years in PHPT (p=0.007) and 49±9.5 vs 55±10 years in THPT (p=0.017).

Median preoperative PTH was higher in AA with PHPT 133(IQR 97, 187) vs 101 pg/mL(74, 144) (p=0.004) and in AA with THPT 284 (189, 543) vs 218 pg/mL (275, 295) (p=0.005). The AA PHPT patients had significantly higher preoperative mean calcium levels 10.9 vs 10.6 mg/dL(p<0.001). Preoperative symptomatology was not significantly different between races. Etiology of disease was not different by race with the majority of PHPT being caused by a single adenoma (61.9%AA vs 57.4%CA, p=0.121) and the majority of THPT being caused by 4 gland hyperplasia (86.4AA vs 88.6% CA, p=0.949). Biochemical cure rates at 6 months and complication rates were not different between races for PHPT and THPT patients.

Conclusion: AA patients with PHPT and THPT disease experience similar cure rates to their Caucasian counterparts despite more severe biochemical disease in younger patients. Therefore, by ensuring minority patients have access to and treatment by high volume surgeons embedded in a comprehensive health care system, health care disparities can be ameliorated.

Disclosure of Interest: None declared

PW3.09

ROLE OF INFLAMMATION IN PRIMARY HYPERPARATHYROIDISM

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Introduction: Inflammatory markers (IM) are being increasingly utilized for diagnosis and prognostication in varying disease states. Primary hyperparathyroidism (PHPT) has been described as a proinflammatory state, however the clinical role of inflammatory markers such as procalcitonin (PROCAL), erythrocyte sedimentation rate (ESR), and C-reactive protein (CRP) are contradictory in the literature.

Materials & Methods: With IRB approval, we prospectively collected pre- and 2-week post-operative serum inflammatory markers from adult patients undergoing parathyroidectomy for primary hyperparathyroidism between 3/2021-9/2021. Upper limits of normal are: PROCAL >0.08 ng/mL, CRP >10.91 mg/L, ESR >20.1 mm/hr. Statistical analysis was completed using chi-squared and Kruskal-Wallis tests.

Results: A total of 97 patients had IMs drawn during the study period (32 thyroidectomies and 65 parathyroidectomies). There was no difference between age or sex in the study groups. The most common pathologic etiology for PHPT was a single adenoma (38/65, 58%). Median preoperative calcium and parathyroid hormone for the parathyroidectomy group was 10.6 (IQR 10.3, 10.9) mg/dL and 89.1 (78, 143) pg/mL, respectively. The most common reason for thyroidectomy was indeterminate/enlarging nodules (43%).

Preoperatively, the mean value for inflammatory markers for parathyroidectomy vs thyroidectomy were within normal limits and not significantly different between groups. Postoperatively, the mean CRP was significantly lower in the parathyroidectomy patients (6.99 mg/L vs 9.08 mg/L (**P=0.022**)).

In the parathyroidectomy group **20% (13/65)** had any abnormally elevated IM preoperatively with ESR being most commonly elevated (9/13). In the thyroidectomy group **28% (9/32)** were elevated preoperatively with CRP being the most common. Of these, 5 had Graves' disease. Postoperatively 41% (27/65) of parathyroidectomy patients had elevated IM and 31% (10/32) of thyroidectomy patients.

Of those who had elevated preoperative values, 4 (30%) parathyroidectomy patients normalized and 2 (22%) thyroidectomy patients normalized.

Conclusion: Inflammatory markers are elevated in those undergoing endocrine surgeries. Type and level of markers appears to differ between parathyroidectomy and thyroidectomy patients. Approximately 25% normalize after surgery. Future directions including testing IM at later postoperative timepoints and further investigating the connection of ESR and CRP levels to symptoms in hyperparathyroidism.

Disclosure of Interest: None declared

PW3.10

UTILITY OF THE SLOPE OF CHANGE IN IOPTH DURING PARATHYROIDECTOMY IN PREDICTING SINGLE GLAND DISEASE FOR PRIMARY HYPERPARATHYROIDISM

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Introduction: Intraoperative parathyroid hormone (ioPTH) monitoring is a useful tool during image-guided focused parathyroidectomy (PTX) for primary hyperparathyroidism (PHPT). Criteria such as the original Miami criterion of >50% ioPTH decrease within 10 minutes of gland excision, have been proposed for their specificity in ruling out multi-gland disease (MGD). When evaluating ioPTH values, surgeons must weigh the risks and benefits of terminating the operation, obtaining additional ioPTH values, or converting to cervical exploration. This project was conducted to determine if the slope of ioPTH decline may be an additional metric to differentiate single-gland disease (SGD) from MGD.

Materials & Methods: Patients with sporadic PHPT who underwent image-guided focused PTX between 1/2018–9/2021 at a tertiary academic health system were included. Exclusion criteria included prior PTX, lack of ioPTH levels at 5 and 10 minutes post-gland excision, and biochemical evidence of persistent disease determined by hypercalcemia on post-operative labs. Patient demographics, clinical characteristics, and peri- and post-operative data were collected. Confirmation of SGD or MGD was based on surgical histopathology. ioPTH slopes and percent decreases were calculated and used to assess accuracy and utility.

Results: Of 248 patients meeting inclusion criteria, 217 (87.5%) had SGD and 31 (12.5%) had MGD. An ioPTH decrease at 5 minutes of $\geq 69\%$ yielded 100% specificity and accounted for 111/217 (51.2%) SGD cases. A negative slope of ≥ 44.5 (pg/mL)/min from 0-5 minutes also yielded 100% specificity for SGD and accounted for 43/217 (20%) of SGD cases. Of the 43 SGD cases identified by slope criterion, 8 (18.7%) were distinct cases not identified by the percent-decrease criterion. All 8 had baseline ioPTH levels in the highest 16% of the SGD cohort. When used in combination, the two criteria detected SGD with 100% specificity at 5 minutes post-excision in 119 (48.0%) cases. Between 5-10 minutes post-excision, an increase in ioPTH (positive slope) was detected in 28 cases, yet 19 (67.9%) ultimately had SGD.

Conclusion: Incorporating data on the rate of decay of ioPTH within 5 minutes after gland excision can confirm SGD in a higher proportion of PHPT patients undergoing PTX than by solely utilizing ioPTH percent decrease. Earlier intraoperative confirmation of cure can potentially decrease operative time and cost and improve operative efficiency. Evaluation of ioPTH slope after 5 minutes post-excision does not provide additional utility.

Disclosure of Interest: None declared

PW3.11

FEASIBILITY OF AUTOFLUORESCENCE USING OVERLAY-IMAGING FOR THE DETECTION OF PARATHYROID GLANDS: STANDARDS AND CLINICAL APPLICABILITY.

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Introduction: This prospective medical product study was conducted to define standards for the usage of Elevision™ (Medtronic, Minneapolis, MN, USA) which represents a development of near infrared autofluorescence (NIRAF) imaging differing to previous NIRAF-products in an additional adjustment of the intensity of excitation light and a near-infrared overlay-imaging.

Materials & Methods: In total 158 patients (female=114 (72.2%)), in whom Elevision™ was used from January 2021 to February 2022 at least for the intraoperative visualization of one parathyroid gland, were included in this study. Whether parathyroid glands were first localized by the surgeon or by Elevision™ was noted. Distance and infrared-intensity (IR%) were documented during the measurement. In thyroidectomies the specimen was subsequently scanned for further parathyroid glands.

Results: Overall, 442 parathyroid glands with 265 nerves at risk were analyzed in 103 thyroidectomies with 15 neck dissections, 25 hemithyroidectomies and 30 parathyroidectomies. 98 (58.3 %) patients had benign histology including Grave´s disease and 29 (17.3%) showed malignant histology of the thyroid gland. In 41 (24.5%) benign histology of the parathyroid gland, including adenoma and hyperplasia was present. In 92 (58.2%), parathyroid glands were localized by the surgeon and by using Elevision™. In 43 (27.2%) patients the surgeon detected more parathyroid glands and in 23 (14.6 %) patients more parathyroid glands could be visualized by using Elevision™. The interrater reliability of detecting parathyroid glands between surgeon and the Overlay-Imaging showed a moderate accordance with Cohen´s Kappa of 0.46 and a statistically significant result of $p < 0.001$. The ideal distance for the measurement covers a range from 8 to 12 cm with mean IR% of 35.9% (± 17.8).

Conclusion: In contrast to previous NIRAF imaging Elevision™ allows intraoperative real time imaging in overlay technique. Considering its limitations such as different autofluorescence patterns, influence of location and surrounding tissue of parathyroid glands, it can be used as an adjunct tool for the localization of parathyroid glands.

Disclosure of Interest: None declared

PW3.12

ADRENALECTOMY FOR PHEOCHROMOCYTOMA WITHOUT PREOPERATIVE ALPHA-ADRENERGIC BLOCKADE DOES NOT RESULT IN INCREASED HEMODYNAMIC INSTABILITY

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Introduction: Peri-operative mortality and morbidity associated with resection of pheochromocytoma has been reduced significantly following introduction of preoperative alpha-adrenergic blockade. However, the current protocol requires multiple day admission and dose escalation of alpha-blockage. Recently published retrospective data suggest equal safety using a new protocol based on intra-operative titration of alpha-blockage. The primary aim of this study is to prospectively assess the feasibility and safety of introduction of a new protocol without preoperative escalation of alpha-adrenergic blockade.

Materials & Methods: Single institution prospective cohort including all patients who underwent adrenalectomy for pheochromocytoma without preoperative alpha-adrenergic blockade from May 2019 to November 2021. Primary outcome was intra-operative hemodynamic instability defined as duration of systolic blood pressure above 200mmHg in minutes. Secondary outcomes included complication rates, postoperative requirement of blood pressure support, hospital stay.

Results: We included 24 patients with de-escalated pre-operative alpha-adrenergic protocol and compared these patients with 17 patients who underwent adrenalectomy with pre-operative alpha-blockage. Median duration of systolic blood pressure above 200mmHg was 2.5 minutes [0-4] versus 0 minutes [0-1.5] ($p=0.084$), respectively. Median postoperative high care unit admission was 17.9 hours [9.7-21.6] versus 19.1 hours [8.5-29.1] ($p=0.539$). Median length of stay in days was 2.9 [2.2-5.4] for patients without blockade compared to 6.5 [6.0-12.8] for the group with blockade ($p=0.000$). No significant differences in complication rates were observed.

Conclusion: Preliminary data suggest that adrenalectomy for pheochromocytoma with de-escalated preoperative alpha-adrenergic blockade protocol is safe and feasible and results in shorter length of hospital stay.

Disclosure of Interest: None declared

PW4.01

ACCURACY OF SURGEON-PERFORMED TRANSCUTANEOUS LARYNGEAL ULTRASONOGRAPHY IN DETECTING VOCAL CORDS MOVEMENT FOLLOWING THYROID AND PARATHYROID SURGERY

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Introduction: Transcutaneous laryngeal ultrasonography (TLUSG) has been identified as a promising instrument in detecting vocal cord (VC) movements abnormality (1-3). The non-invasive nature, low cost and being readily available office-based procedure make it attractive to surgeons (4). The aim of this study was to evaluate the reproducibility and accuracy of TLUSG in detecting VC movements abnormality following surgery.

Materials & Methods: This was a cross-sectional study conducted on 77 patients who underwent thyroid and parathyroid surgery from August 2019 till December 2020 at Endocrine and Breast Surgery Clinic, Universiti Kebangsaan Malaysia Medical Centre. Patients had laryngeal examination (LE) before surgery and LE on day 2 and TLUSG within 2 weeks after surgery. The TLUSG performed by one of two endocrine surgeons was recorded, muted and labelled based on manoeuvres performed by the patients and re-evaluated by both surgeons at different time points to assess the inter- and intra-rater reproducibility. To obtain the accuracy, TLUSG were compared with LE findings.

Results: There were a total of 154 VC analysed. The prevalence of VC paresis/palsy in this study was 5.2%. We found substantial inter- and intra-raters agreements with κ value of > 0.61 . However, the sensitivity and positive predictive value of the test were less than 50% despite excellent specificity, negative predictive and accuracy of $>94\%$. The assessability of TLUSG in visualizing both VCs on the same patient was 87%. The assessable VC were related to female gender ($p = 0.02$), younger age group ($p = 0.006$) and those without thyroid cartilage calcification ($p = <0.0001$).

Conclusion: Our findings suggest that TLUSG is an unreliable alternative to assess VC movement abnormality following surgery. Further assessment with larger balanced samples and objective evaluation of VC mobility on TLUSG are required to refute this impression.

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Disclosure of Interest: None declared

PW4.02

A PROSPECTIVE STUDY OF ELECTROMYOGRAPHIC AMPLITUDE CHANGES DURING INTRAOPERATIVE NEURAL MONITORING FOR OPEN THYROIDECTOMY

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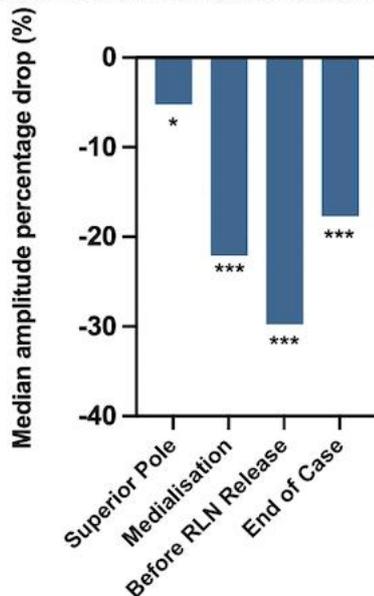
Introduction: Intraoperative nerve monitoring (IONM) of the recurrent laryngeal nerve (RLN) enables prediction of postoperative nerve function. The correlation of intraoperative electromyographic amplitude changes (EMG) with surgical manoeuvres during conventional thyroidectomy has not been previously described, which could identify opportunities intraoperatively to reduce RLN palsy. The aim of this study is to measure EMG amplitude changes during IONM at specified surgical steps in patients undergoing open thyroidectomy.

Materials & Methods: A prospective study of consecutive patients undergoing thyroidectomy was performed with intermittent IONM using the NIM Vital nerve monitoring system. 200ug of Sugammadex was administered in patients at least 10 minutes prior to surgery. The ipsilateral vagal nerve was stimulated, and signal amplitude recorded at five time points during thyroidectomy (baseline, after mobilisation of superior pole, medialisation of the thyroid lobe, before release at Ligament of Berry, end of case). The alpha for significance was set at $p < 0.05$.

Results: A total of 100 consecutive patients undergoing thyroidectomy were studied with 126 RLN at risk. The overall rate of loss of signal (LOS) was 4.1%. There was a highly significant median percentage amplitude drop at medialisation of the thyroid lobe ($-22.1 \pm 54.5\%$, $P < 0.001$), before release at the Ligament of Berry ($-29.8 \pm 67.1\%$, $P < 0.001$) and at the end of case ($-17.7 \pm 51.8\%$, $P < 0.001$) compared to baseline.

Image:

Median amplitude (mA) percentage drop at vagal nerve stimulation from baseline during thyroidectomy



Conclusion: A significant percentage drop in EMG amplitude at the end of case compared to baseline, indicates that global RLN function is significantly impacted and that traction forces during thyroid mobilisation are the most likely mechanism of RLN impairment during conventional thyroidectomy.

Disclosure of Interest: None declared

PW4.03

INTRAOPERATIVE MET-RECEPTOR TARGETED FLUORESCENT IMAGING AND SPECTROSCOPY FOR LYMPH NODE DETECTION IN PAPILLARY THYROID CANCER: NOVEL DIAGNOSTIC TOOLS FOR MORE SELECTIVE CENTRAL LYMPH NODE COMPARTMENT DISSECTION.

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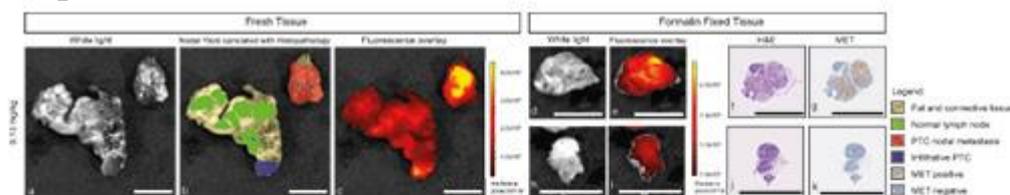
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Introduction: Patients undergoing prophylactic central compartment dissection (PCLND) for papillary thyroid cancer (PTC) are often overtreated. This study aimed to determine if molecular fluorescence-guided imaging (MFGI) and spectroscopy can be useful for detecting PTC nodal metastases (NM) and to identify negative central compartments intraoperatively.

Materials & Methods: We used a data-driven prioritization strategy based on transcriptomic profiles of 97 primary PTCs and 80 normal thyroid tissues (NTT) to identify tumor-specific antigens for a clinically available near-infrared fluorescent tracer. Protein expression of the top prioritized antigen was immunohistochemically validated with a tissue microarray containing primary PTC (n=741) and NTT (n=108). Staining intensity was correlated with ten-year locoregional recurrence-free survival (LRFS). A multivariate regression analysis was performed to assess the association of MET expression status, NM, tumor size, multifocality, extrathyroidal extension and vascular invasion with locoregional recurrence risk. *In vitro* specific binding was assessed using MET positive (TPC1) and negative (T47D) cell lines. A phase-1 study (NCT03470259) with EMI-137, targeting MET, was conducted to evaluate safety, optimal dosage for detecting PTC NM with MFGI, feasibility of NM detection with quantitative fiber-optic spectroscopy, and selective binding of EMI-137 for MET *in vivo*.

Results: MET was selected as most promising antigen. A ten-year LRFS of 81.9% was observed in patients with positive versus 93.2% in patients with negative MET staining. A positive MET status (HR 4.76 [95% C.I. 1.14 – 19.90; p=0.03] and extrathyroidal extension (HR 4.95 [95% C.I. 2.10 – 11.69]; p<0.0001) were associated with locoregional recurrence. *In vitro* selective binding was confirmed. In 19 patients, no adverse events related to EMI-137 occurred. A total of 76 PTC nodal metastases and 340 normal lymph nodes were assessed. 0.13 mg/kg EMI-137 was selected as optimal dosage for differentiating NM from normal lymph nodes using MFGI (p<0.0001) and spectroscopy (p<0.0001). Representative MFGI images are provided in figure 1. MFGI identified 5/19 levels (26.3%) without NM. EMI-137 binds selectively to MET *in vivo*.

Image:



Representative images from PTC nodal metastases and normal lymph nodes imaged with the IVIS Spectrum in the 0.13 mg/kg dosage cohort. MFGI images from the fresh nodal dissection specimen and representative formalin fixed PTC nodal metastasis (d-g) and normal lymph node (h-k) are presented. The exact location of the grossed lymph nodes is provided and correlated to final histopathology (b). Fluorescence intensities for the formalin-fixed PTC nodal metastases and normal lymph nodes are scaled. The scale is provided in radiance. Corresponding H&E (f and j) and MET stained slides (g and k) are provided per presented lymph node. Scale bars represent 10 mm.

Conclusion: MET is overexpressed in PTC and associated with increased locoregional recurrence rates. Perioperative administration of EMI-137 is safe and facilitates NM detection using MFGI and spectroscopy, potentially reducing the number of negative PCLNDs with more than 25%.

Disclosure of Interest: None declared

PW4.04

DIAGNOSTIC VALUE OF FINE-NEEDLE ASPIRATION CYTOLOGY IN THYROID CANCER: A SWEDISH REGISTRY STUDY OF 2349 THYROID CANCER CASES WITH HISTOLOGICAL CORRELATION.

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Introduction: Fine-needle aspiration cytology (FNAC) is an effective tool in the diagnostic work-up of patients with thyroid nodules suspicious for malignancy. The aim of our study was to assess the diagnostic value of FNAC in thyroid cancer (TC) in Sweden by correlating the findings of preoperative cytology with those obtained through final histology of the surgical specimen.

Materials & Methods: A Swedish nationwide cohort of patients having surgery for TC (n = 2524) from the Scandinavian Quality Register for Thyroid, Parathyroid and Adrenal surgery between 2004 and 2013 was obtained. The majority of data was validated through scrutinizing patient journals and FNAC/histology reports across all tertiary hospitals in Sweden.

Results: Among the 2519 cases operated for TC, 1815 (72.1%) were women and the TC diagnosis was substantiated and validated through the histology report in 2335 cases (95%) with available data with respect to primary surgery (n=2422). The histology report was not available in 37 cases (1.5%), whereas 87 cases proved to be benign (3.7%). Among the 2335 TC cases of the registry, 356 (15.2%) had benign FNAC, in 41 cases (1.8%) FNAC was non-diagnostic, whereas in 348 cases (14.9%) FNAC was not performed at all. FNAC suggestive of atypia of unknown significance (AUS), follicular lesion of unknown significance (FLUS) and or follicular neoplasm was present in 378 cases (16.2%). Lesions suspicious for malignancy and malignant lesion were present in 219 (9.4%) and 980 (42%), respectively. In the subset of benign FNACs that turned out to be TC (n=356), micropapillary carcinoma (microPTC) was frequently encountered (n=142, 39.9%). In the more difficult to diagnose preoperatively, subset of patients with follicular and/or Hurthle-cell thyroid cancer (n=329), FNAC suggested FLUS or follicular neoplasm in 160 (48.6%), suspicious malignancy in 30 (9.1%) and malignancy in 50 (15.2%) cases.

Conclusion: FNAC is performed in the majority of patients (84.7%) operated for TC in Sweden and retains its value as a tool in TC diagnostic work-up. A substantial number of benign FNACs (39.9%) in this cohort are encountered in patients with microPTC. In patients harboring follicular and/or Hurthle-cell TC, FNAC is suggestive of follicular neoplasm, suspicious malignancy or malignancy in up to 75.1%.

Disclosure of Interest: None declared

PW4.05

THE SIGNIFICANCE OF INCIDENTAL NODAL MICROMETASTASIS AFTER HEMITHYROIDECTOMY FOR DIFFERENTIATED THYROID CANCER

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Introduction: Differentiated thyroid cancer (DTC) is the most common endocrine malignancy with an excellent prognosis. Current recommendations state that hemithyroidectomy is adequate treatment of low risk, DTC <4cm. Although micrometastatic (≤ 2 mm) deposits in lymph nodes (LN) is considered low-risk for recurrence by the American Thyroid Association, optimal surgical management of this finding remains unclear in the setting of hemithyroidectomy. This study sought to determine if incidental micrometastatic LN (mLN) after hemithyroidectomy resulted in increased risk of early locoregional recurrence.

Materials & Methods: A retrospective study was conducted evaluating patients who underwent hemithyroidectomy for clinically node-negative DTC at a tertiary referral center between January 1, 2011 and December 31, 2020. Demographic, pre- and post-operative laboratory and surgical data were collected. Patients were excluded if they had familial syndromes, underwent planned LN dissection, had no LN in the specimen, LN metastasis > 2 mm, or did not have post-operative surveillance cervical ultrasound (US). Patients were grouped into those without LN metastasis and those with mLN. Post-operative cervical US was used for evaluation of recurrence.

Results: Of 959 patients undergoing hemithyroidectomy for DTC, 216 met inclusion criteria. One hundred seventy-nine patients (83%) had benign LN and 37 (17%) had mLN disease. Median follow-up time was 24 months (interquartile range 15-42 months). Patients with mLN were younger in age (35 years vs 45 years, $p=0.002$). Although patients with mLN had no difference in primary tumor size than those with benign LN (1.5cm vs 1.2cm, $p=NS$), mLN patients more frequently had evidence of extrathyroidal extension (19% vs 6%, $p=0.031$) and lymphatic invasion (38% vs 7%, $p<0.001$). Patients with mLN were more likely to undergo completion thyroidectomy (35% vs 15%, $p=0.008$) but had similar rates of contralateral lobe malignancy to those with benign LN (38% vs 46%, $p=0.74$). Patients with mLN had similar locoregional recurrence rates (3% vs 4%, $p=0.606$), with no difference in median follow-up time between groups.

Conclusion: Incidental nodal micrometastasis does not increase early locoregional recurrence rates in patients undergoing hemithyroidectomy for DTC. Serial observations with ultrasound is a safe and effective management plan in the near term for patients without additional high risk features. Future studies are needed to evaluate longer-term outcomes.

Disclosure of Interest: None declared

PW4.06

A RANDOMIZED CONTROLLED TRIAL TO COMPARE THE SAFETY AND OUTCOME OF TRANS-ORAL VESTIBULAR AND AXILLO-BREAST APPROACH FOR ENDOSCOPIC HEMITHYROIDECTOMY IN PATIENTS WITH BENIGN THYROID SWELLINGS

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Introduction: Over the last decade, endoscopic thyroidectomy has come up as a safe and feasible procedure with better cosmetic outcome due to incisions on unnoticeable areas. This randomized study compares the outcomes of two most popular approaches of trans-oral vestibular (TOETVA) and bilateral axillo-breast approach (BABA).

Materials & Methods: 136 patients were to be randomized in this study between January 2019 and November 2020 however, only 30 patients (14 in TOETVA and 16 in BABA group) were evaluated at the time of submission of this dissertation. Patients of age ≥ 18 years with benign or cytologically indeterminate lesions involving single lobe of size ≤ 5 cm were included. Primary objective was to compare the outcome in terms of patient satisfaction (cosmesis and neck discomfort) on a Likert scale of 1 to 5 at 3-months follow up.

Results: Demographic profiles were comparable among the 2 groups. The mean cosmetic scores were 1.4 ± 0.9 and 2.1 ± 0.5 and neck discomfort scores were 1.1 ± 0.3 and 1.7 ± 0.6 in TOETVA group and BABA group respectively. The results were statistically significant for both the cosmesis ($p = 0.04$) and neck discomfort ($p = 0.01$) respectively, in favour of the TOETVA approach. The mean operative time in TOETVA approach was significantly less than BABA approach (117 ± 15.6 vs 138 ± 11.5 min; $p = 0.001$). Both the techniques safe & feasible, comparable in terms of blood loss, pain scores, hospital stay and with no complications like RLN injury & hypocalcemia.

Conclusion: Both the approaches were comparable in terms of complications, however TOETVA has shorter operative time besides, better patient satisfaction outcomes.

Disclosure of Interest: None declared

PW4.07

CALCIFICATIONS FORMATION ON ULTRASONOGRAPHY AFTER FINE NEEDLE ASPIRATION IN BENIGN THYROID NODULES

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Introduction: The presence of intra-nodular calcification on thyroid ultrasonography(US) is one of the important indicators of malignancy. As a consequence, nodule showing new calcification during follow-up easily raises the concern of cancer, and frequently results in the requirement of surgery even with negative finding on previous fine needle aspiration(FNA) cytology. However, FNA itself during the prior evaluation could also lead to the formation of calcification that may mimic malignancy on US. Therefore, the purposes of this study are to investigate the characteristics and the development course of FNA-induced calcifications on US.

Materials & Methods: From October 2008 to August 2017, totally 51 patients with 55 benign thyroid nodules that had new calcifications formation during US follow-up after at least one history of FNA were enrolled. Micro-calcifications were defined as hyperechoic punctate foci of less than 1 mm with or without acoustic shadowing; macro-calcifications included those large or coarse calcifications of more than 1 mm with acoustic shadowing; mixed-calcifications were denoted by having both micro- and macro-calcifications. The clinical data included the US features, numbers of FNA, and time-to-calcification interval were evaluated. FNA was repeated to confirm benign lesion for any doubt lesion during follow-up.

Results: According to the patterns of calcification, 39 of 55(70.9%) nodules had micro-calcifications while 43 of 55(78.2%) nodules had macro-calcifications. More specifically, 12(21.8%) were pure micro-calcifications, 16(29.1%) were pure macro-calcifications, and totally 27(49.1%) nodules showed mixed-calcifications. For these calcified nodules, 17(30.9%) were initially considered as pure cysts, 27(49.1%) were cystic predominantly mixed nodules, 4(7.3%) were solid predominantly mixed nodules, and 7(12.7%) were purely solid nodules. Nodules with mainly cystic content manifested most frequently as mixed-calcification (47.7%), while nodules with mainly solid content tend to show more macro-calcification (45.5%) after FNA. None of the nodules became malignancy at follow-up cytology. The history of FNA was found to be performed average 478.71 days (95% CI 352.04-605.37, range 42-658 days) prior to the detection of new calcification on US.

Conclusion: Long-term follow-up US after FNA revealed various types of calcifications formation that may be misdiagnosed as malignancy. Recognizing these important phenomena may aid in preventing unnecessary management or surgery.

Disclosure of Interest: None declared

PW4.08

RISK FACTORS FOR ADVERSE OUTCOMES IN FIRST-TIME RENAL PARATHYROID SURGERY: AN ANALYSIS OF THE UNITED KINGDOM REGISTRY OF ENDOCRINE AND THYROID SURGEONS (UKRETS)

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Introduction: Evidence is currently insufficient to establish recommendations for surgery in patients with renal hyperparathyroidism. This series aims to establish risk factors for adverse outcomes following renal parathyroidectomy (Px).

Materials & Methods: Data in the UK Registry of Endocrine and Thyroid Surgery (UKRETS) from 01/2001 to 12/2020 on first-time Px was analysed. Outcome variables included post-operative hypocalcaemia (HC); persistent HC, persistent hypercalcaemia (PH); re-operation for bleeding, length of stay (LOS) and readmission. Age <15 and >85 years, and LOS >28 days were excluded. 4 gland excision was categorised as total (T), 3.5 as subtotal (ST) and <3.5 as less than subtotal (LTST). Entries with missing data in any variable were excluded. Independently correlated co-variables were excluded from the multivariable analysis. Multivariable regression analysis was undertaken, significance was p<0.05.

Results: 2477 entries, 1172 (47%) analysed. 776/1172 (66%) underwent ST or T Px. Dialysis was done in 685/1172 (58%), imaging in 482/1172 (41%), ioPTH 64/1172 (5%) and 482/1172 (41%) were normocalcaemic pre-op. PH occurred in 50/1172 (4.3%), HC 54.4% (534/1172), persistent HC 61.3% (718/1172), readmission 2.6% (31/1172) and reoperation for bleed 0.5% (6/1172). LTST ↑ risk of PH (OR 5.9 95% CI 3.1-11.4), ↓ HC (OR 0.4 95% CI 0.3-0.5) and persistent HC (OR 0.3 95% CI 0.2-0.4). No risk factors for bleeding were found.

In the subgroup that underwent ST or T Px, PH occurred in 13/776 (1.7%), HC 54.6% (424/776), persistent HC 71.9% (558/776), readmission 2.3% (18/776) and reoperation for bleed 0.6% (5/776). ST Px ↓ risk of HC (OR 0.7 95% CI 0.5-1.0) and persistent HC (OR 0.5 95% CI 0.3-0.6). Pre-operative imaging ↓ risk of post-operative HC (OR 0.6 95% CI 0.5-0.9). Use of ioPTH did not affect any outcomes. The incidence of PH, HC and persistent HC to number of glands removed is shown in the table.

Glands removed (cases)	PH (%)	HC (%)	Persistent HC (%)
4 (550)	1.6	57.3	76.5
3.5 (226)	1.8	48.2	60.1
3 (191)	8.4	34.5	46.6
2 (88)	5.7	26.1	29.5
1 (113)	12.4	18.5	39.8
0 (4)	50	0	0
Total(1172)	4.3	54.4	61.3

Conclusion: LTST Px has an unacceptably high (6x) risk of PH and so ST or T is recommended. ST Px ↓ the risk of HC and persistent HC without ↑ risk of PH, so performs best in this analysis. Neither imaging nor ioPTH ↓ risk of PH, but imaging did ↓ risk of HC in patients undergoing ST or T Px.

Disclosure of Interest: None declared

PW4.09

CLINICAL SIGNIFICANCE OF A NON-LOCALIZING CERVICAL ULTRASOUND STUDY

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Introduction: Effective preoperative imaging helps identify suspicious parathyroid gland(s) and guides surgical decision making for the treatment of primary hyperparathyroidism (PHPT). Cervical ultrasonography (US) is a quick and cost-effective imaging modality but results vary in different settings. This study was conducted to identify clinical and pathologic factors associated with negative US findings for parathyroid localization.

Materials & Methods: Adult patients with PHPT treated with parathyroidectomy between January 1, 2015 and December 31, 2020 who underwent preoperative US were identified. Patient demographics, preoperative, intraoperative, pathologic and post-operative data were recorded. Patients were grouped and compared based on if preoperative US was able to localize a suspicious parathyroid gland. Standardized parathyroid gland localization (A-G) was used.

Results: Of 347 patients meeting inclusion criteria, 102 (29%) patients did not have preoperative US localization. Compared to patients who had positive US localization, US negative patients were less likely to localize with sestamibi (MIBI) (75% vs 90%, $p=0.002$) and four-dimensional computed tomography (4DCT) (85% vs 95%, $p=0.003$). If both MIBI and 4DCT localized, they were less likely to have concordance in the US negative cohort (78% vs 92% $p=0.004$). US negative patients were less likely to have a successful minimally invasive parathyroidectomy (63% vs 82%, $p<0.001$), and more likely to require conversion to a bilateral cervical exploration (BCE) (18% vs 7%, $p=0.016$) or initially undergo BCE (20% vs 10%, $p=0.02$). They were also more likely to have multigland disease (30% vs 18%, $p=0.002$), lighter parathyroid adenomas (0.77g vs 0.89g, $p<0.001$) and not achieve biochemical cure postoperatively (9.8% vs 3.7%, $p=0.035$). In patients with single gland disease, parathyroid glands in the US negative cohort were more likely to be found in deeper gland locations (B,C,F) (Odds Ratio 1.80, 95% confidence interval 1.04-3.10, $p=0.035$).

Conclusion: Patients with negative preoperative US localization were less likely to have concordant localization with MIBI and 4DCT, and more likely to have multigland disease. Although a negative US localization may not direct a surgeon to a suspicious parathyroid gland, it can suggest crucial information regarding gland size, weight, potential location and likelihood of single gland disease, all of which is invaluable to the operating surgeon.

Disclosure of Interest: None declared

PW4.10

INCIDENCE OF HYPOPARATHYROIDISM POST TOTAL THYROIDECTOMY WITH SELECTIVE PARATHYROID AUTO-TRANSPLANTATION

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Introduction: Reported rates of hypoparathyroidism (HypoPT) following total thyroidectomy vary dramatically based on varying definitions of hypoparathyroidism, approach to auto-transplantation (AutoTx), post-operative prophylactic calcium supplementation protocols and quality of follow-up data. We aim to describe the incidence and predictors of postoperative HypoPT in a consecutive series of patients with prospective follow-up data.

Materials & Methods: We analysed operative data and outcomes of 445 consecutive patients who underwent total thyroidectomy between April 2018 and January 2020. Temporary HypoPT (tHypoPT) was defined as PTH <1.6 pmol/L at 24 hours or 48 hours postoperatively. Permanent HypoPT (pHypoPT) was defined as PTH <1.6 pmol/L at 12 months post-operatively, or an ongoing need for calcitriol supplementation to maintain normocalcaemia.

Results: tHypoPT occurred in 117 (26%) patients, but no patient required IV calcium replacement. pHypoPT occurred in 7 (1.6%) patients, including 4 patients with recovery of PTH levels but an ongoing supplementation requirement. Indication for surgery did not influence HypoPT. tHypoPT was associated with parathyroid AutoTx (OR 4.0, p<0.001), however failure to AutoTx was associated with an increased risk of pHypoPT (OR 13.5, p=0.004). Failure to identify all parathyroid glands (OR 9.7, p=0.008) and the presence of parathyroid tissue in the pathology specimen (OR 5.5, p=0.04) were associated with pHypoPT.

Conclusion: Supplementation requirement despite recovery of PTH levels at 12 months must be included in the definition of pHypoPT. AutoTx is an important technique in the prevention of pHypoPT. The thyroid gland must be carefully examined after excision to identify parathyroid tissue for AutoTx.

Disclosure of Interest: None declared

PW4.11

PARATHYROIDECTOMY FOR SECONDARY AND TERTIARY HYPERPARATHYROIDISM: DOES RACE IMPACT SURGICAL OUTCOMES?

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Introduction: Racial disparities exist in the care of patients with end stage renal disease. These may be more pronounced for patients with secondary hyperparathyroidism (2HPT) and tertiary hyperparathyroidism (3HPT), as limited evidence-based guidelines for surgical referral exist despite the known long-term morbidity and mortality benefits of parathyroidectomy. We examined the association between race and adverse surgical outcomes after parathyroidectomy for patients with 2HPT and 3HPT.

Materials & Methods: The ACS NSQIP database was used to identify patients with 2HPT and 3HPT who underwent parathyroidectomy between 2015-2019. Patients with 2HPT and 3HPT were analyzed separately. Patients were stratified by race (white vs. non-white). Descriptive statistics were calculated and outcomes compared between each race. The primary outcome measures were 30-day morbidity and mortality. Secondary outcome measures included unplanned reoperation, readmission, and increased hospital length of stay (LOS).

Results: A total of 1,412 parathyroidectomies were included: 1,150 2HPT and 262 3HPT. Of these, 753 (65.5%) patients with 2HPT and 139 (53.1%) with 3HPT were non-white. Overall mortality was <1% in both cohorts, and did not differ based on race. Overall morbidity was 6.9% for 2HPT and 2.3% for 3HPT. Univariate analysis revealed a 1.7-fold increased risk of morbidity in non-whites with 2HPT, and a 2.1-fold increased risk of reoperation. Race was associated with increased LOS in both cohorts. On multivariate analysis which controlled for demographics, body mass index, functional status, pre-operative laboratory values, American society of anesthesiologists (ASA) class, and perioperative characteristics, race did not predict an increased likelihood of morbidity (2HPT: OR 1.7, p=0.09; 3HPT: OR 1.8, p=0.55), reoperation (2HPT: OR 1.7, p=0.29; 3HPT: OR 1.6, p=0.59), or increased LOS (2HPT: OR 1.3, p=0.29; 3HPT: OR 1.6, p=0.24). For patients with 2HPT and 3HPT, functional non-independence and ASA class 4 status, respectively, independently predicted likelihood of morbidity (Table 1). In both cohorts, elevated alkaline phosphatase predicted an increased LOS.

Image:

Table 1. Independent Predictors of Morbidity, Reoperation, and Increased LOS After Parathyroidectomy for Secondary and Tertiary Hyperparathyroidism

	OR	95% CI	p-value
Secondary Hyperparathyroidism			
Morbidity			
Functionally non-independent	4.645	1.871-11.530	<0.001
Creatinine ≥8.10 mg/dL	1.777	1.050-3.008	0.032
Increased LOS			
Alkaline phosphatase ≥200 IU/L	3.326	2.195-5.040	<0.001
Preadmitted	12.295	4.899-30.856	<0.001
Inpatient (vs. outpatient)	10.273	5.222-20.208	<0.001
Tertiary Hyperparathyroidism			
Morbidity			
ASA 4	21.436	3.235-142.036	0.001
Reoperation			
LOS > 2 days	19.174	2.240-164.116	0.007
Increased LOS			
Alkaline phosphatase ≥120 IU/L	5.383	1.983-14.611	<0.001
Inpatient (vs. outpatient)	13.527	3.675-49.786	<0.001
OR time ≥120 min	6.633	2.404-18.3	<0.001

Conclusion: Race impacts surgical outcomes after parathyroidectomy for secondary and tertiary hyperparathyroidism; however, other markers of advanced disease are more predictive of adverse outcomes in this subset of patients. Surgical referral earlier in the disease course may reduce the risk of post-operative complications.

Disclosure of Interest: None declared

PW4.12

SELECTIVE UTILIZATION OF INTRAOPERATIVE PARATHYROID HORMONE MEASUREMENT DURING MINIMALLY INVASIVE PARATHYROIDECTOMY IN PATIENTS WITH PREOPERATIVE CONCORDANT FINDINGS

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Introduction: Advancements in preoperative localization of enlarged and hyperfunctional parathyroid glands have given surgeons strong suggestion of where to start the operation for minimally invasive parathyroidectomy (MIP) while intraoperative parathyroid hormone (IOPTH) levels suggest when to stop. We questioned whether there was a role for selective utilization of ioPTH. We sought to examine factors and cure rates after MIP for preoperatively suspected single gland disease associated with and without the use of ioPTH results to guide intraoperative decision-making.

Materials & Methods: Adult patients with sporadic primary hyperparathyroidism (PHPT) treated between 2015 and 2020 who underwent MIP with ioPTH for suspected single gland disease with at least two concordant preoperative localization studies were identified. Patients were stratified by whether the operation was terminated prior to obtaining ioPTH results (i.e. selective ioPTH) or not. Persistence was defined as hypercalcemia (>10.2 mg/dL) at 6 months postoperatively.

Results: Of the 328 patients who met the inclusion criteria, 140 (42.7%) underwent MIP with selective ioPTH (MIP-SI) and 188 (57.3%) underwent MIP with ioPTH guidance (MIP-IG). There was no difference in age, sex, preoperative serum calcium or PTH, and degree of imaging concordance between groups ($p>0.05$). There was no difference in median ioPTH percent drop (76.9% vs 77.0%, $p=0.622$) or percent of patients with inadequate 5 minute ioPTH decline (23.5% vs. 29.8%, $p=0.136$) between groups. The MIP-IG group was more likely to have an inadequate 10 minute ioPTH decline (20.7% vs. 12.1%, $p<0.01$), resulting in 36 (19.1%) patients undergoing bilateral cervical exploration in the MIP-IG group. The MIP-SI group was more likely to have larger gland size (1.7 vs. 1.5 cm, $p<0.01$) and weight (629 vs. 450 mg, $p<0.05$), and shorter operation time (41 vs. 83 minutes, $p<0.0001$). There was no difference in persistent PHPT between groups (1.4% in MIP-SI vs. 1.1% in MIP-IG, $p=0.999$).

Conclusion: MIP can be performed without waiting on ioPTH results in select patients with comparable cure rates to MIP with ioPTH used as a determinate of operative completion. Parathyroid surgeons should combine the results of clinical characteristics, preoperative localization studies, and intraoperative gland features to guide the selective utilization of ioPTH during MIP. Future studies should consider whether baseline ioPTH is needed at all for select subgroups of patients.

Disclosure of Interest: None declared

PW4.13

CLINICAL CHARACTERISTICS AND OUTCOMES OF ADRENAL HEMORRHAGE

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Introduction: Adrenal hemorrhage has multiple etiologies. Clinical characteristics, management and outcomes, and follow-up of patients with adrenal hemorrhage are not well described. The aim of this study was to examine the underlying etiology of adrenal hemorrhage, evolution of imaging characteristics, and adequacy of subsequent evaluation. We hypothesized that adrenal nodules were more likely to increase in size or remain stable compared to hemorrhage alone.

Materials & Methods: Patients 18 years and older diagnosed with adrenal hemorrhage from 2005 to 2021 were identified. Demographics, hemorrhage etiology, and subsequent follow-up were recorded. Descriptive statistics and chi-squared test were used to analyze the data. P-value <.05 was considered significant.

Results: Of 193 patients with confirmed adrenal hemorrhage, mean age was 49.2±18.3, 36% (n=70) were female. Clinical presentations included trauma 47% (n=91); abdominal 22% (n=42) or flank 6% (n=12) pain; shock 3% (n=7); postoperative complication 9% (n=17); or incidental on imaging acquired for other reasons 12% (n=24). Average hemorrhage size was 4.3±3.4 cm, and density on venous phase was 49.3±17 HU. Hemorrhage outside of the gland was present in 63% (n=121) of patients. Unilateral hemorrhage was more frequent (90%, n=174) than bilateral hemorrhage (12%, n=24), p<0.001. Of 12% (n=23) of patients with adrenal nodules, 39% (n=9) were not identified on imaging at presentation and 35% of patients underwent some form of adrenal biochemical evaluation. Of 5 patients undergoing adrenalectomy or biopsy, pathology was benign in 2 and non-adrenal malignancies in 3. Death during the same hospital admission occurred in 5% (n=9) of patients. Follow-up imaging was performed in 55% (n=102) of patients after excluding 6 patients who died or underwent adrenalectomy. Follow-up imaging revealed resolution, increased, decreased, and stable adrenal size in 30% (n=31), 12% (n=12), 38% (n=39), and 19% (n=19) of patients, respectively. Adrenal nodule with hemorrhage was as likely to increase in size or remain stable compared to hemorrhage without nodule (40% vs 29%, p=0.39). No adrenocortical carcinomas were identified.

Conclusion: Adrenal hemorrhage was found to be secondary to multiple etiologies. Many adrenal nodules were not identified on imaging at presentation in the setting of adrenal hemorrhage. A minority of patients underwent full adrenal biochemical evaluation. Follow-up imaging may improve identification of underlying nodules needing formal endocrine assessment.

Disclosure of Interest: None declared

PW6.01

UPTAKE OF LAPAROSCOPIC APPENDICECTOMY AMONGST SURGICAL TRAINEES IN A DEVELOPING WORLD SETTING - A SOUTH AFRICAN EXPERIENCE

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Introduction: This study is a survey amongst surgical trainees in South Africa designed to document their exposure to laparoscopic appendicectomy and interrogate their perceptions about the procedure and identify possible barriers to the uptake of the procedure

Materials & Methods: A structured survey was developed using a combination of quantitative questions designed to determine the clinical exposure of surgical trainees to laparoscopic appendectomy and then probe into possible factors limiting their access to the procedure.

Results: 156 trainees completed the survey. There was a low level of face-to-face teaching on how to perform a laparoscopic appendectomy both within KZN and outside KZN (32% and 34% of respondents, respectively). Both within KZN and outside KZN, respondents reported a general lack of experience in performing this procedure. This lack of experience was more significant within KZN, as demonstrated both in the performance of the procedure assisted by a senior (KZN: 48%, Outside KZN: 71%) and performance of the procedure alone (KZN: 34%, Outside KZN: 67%). There is significant interest in learning the procedure amongst participants. The most significant barriers reported by respondents are time constraints (KZN: 41%, Outside KZN: 30%).

Conclusion: There is a lack of exposure to laparoscopic appendicectomy amongst South African surgical trainees. This implies a deficiency in formal surgical training programs. Addressing this deficiency will require innovative solutions. If ignored, South African trainees may well fall behind their international peers in terms of familiarity and competence in laparoscopic surgery.

Disclosure of Interest: None declared

PW6.02

PREOPERATIVE TOTAL PSOAS MUSCLE INDEX PREDICTS FUNCTIONAL DECLINE AFTER EMERGENCY ABDOMINAL SURGERY IN ELDERLY PATIENTS

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Introduction: Emergency abdominal surgeries are increasingly being performed in elderly patients worldwide. Postoperative functional decline (PFD) is a significant concern in these patients. Recent studies show that computed tomography (CT) documented psoas muscle volume (PMV) is a good indicator of sarcopenia. We hypothesized that PMV measurement is significantly associated with PFD. In this study, we investigated the utility of PMV measurement to predict PFD in elderly patients.

Materials & Methods: This retrospective, single-center study included patients aged ≥ 65 years who underwent emergency abdominal surgery between January 2019 and June 2021. In-hospital deaths and trauma-related and vascular surgeries were excluded. The following data were analyzed: age, sex, body mass index (BMI), vital signs, surgical procedures, functional score at admission and 28 days postoperatively, and the Charlson Comorbidity Index (CCI). The Barthel Index (BI) was used to determine functional evaluation scores. PFD was defined as a ≥ 5 point decrease in the BI 28 days postoperatively. The PMV (cm^2) was measured using CT and was normalized by height to calculate the total psoas index ($\text{TPI} = \text{PMV}/\text{height}^2$, cm^2/m^2). Variables were compared between the PFD and non-PFD groups. Multivariate analysis was used to identify risk factors for PFD.

Results: Data of 238 patients were analyzed (PFD group: 71 patients, non-PFD group: 167 patients). Patients were significantly older (83 years vs. 75 years, $p < 0.001$), had a higher CCI (4 vs. 3, $p < 0.001$), included a higher percentage of women (65% vs. 39%, $p < 0.001$), and had lower BMI ($20.8 \text{ kg}/\text{m}^2$ vs. $22.2 \text{ kg}/\text{m}^2$, $p = 0.028$) in the PFD than in the non-PFD group. However, no intergroup difference was observed in vital signs. Length of hospital stay was longer in the PFD group (23 days vs. 11 days, $p < 0.001$). The TPI was significantly lower in the PFD than in the non-PFD group ($1.84 \text{ cm}^2/\text{m}^2$ vs. $2.46 \text{ cm}^2/\text{m}^2$, $p < 0.001$). Multivariate logistic regression analysis showed that the TPI was the most significant independent predictor of PFD (odds ratio 0.14, 95% confidence interval [CI] 0.06–0.32) (Table 1). TPI showed the highest area under the receiver operating characteristic curve (0.802, 95% CI 0.75–0.86) (Fig.1).

Image:

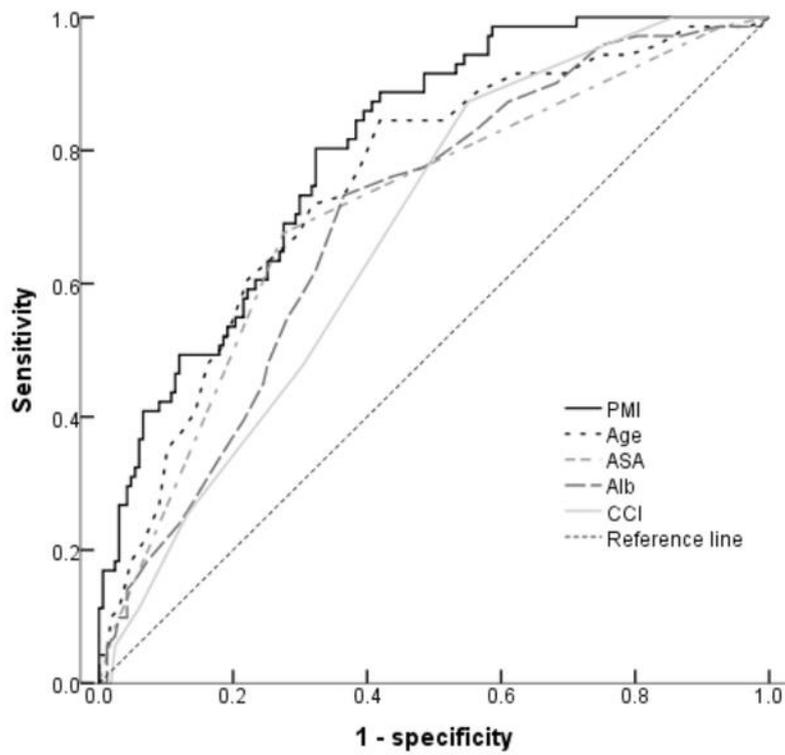


Fig. 1

Conclusion: TPI may be potentially useful to predict PFD in elderly patients who undergo emergency abdominal surgery. Early detection of this risk factor enables prompt initiation of preventive measures against PFD.

Disclosure of Interest: None declared

PW6.03

DIAGNOSTIC INFLAMMATION BIOMARKERS FOR PREDICTION OF 30-DAY MORTALITY RATE IN ACUTE CHOLANGITIS

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Introduction: Acute cholangitis (AC) is an acute inflammation and infection of the biliary tract, a potentially life-threatening infection, which is usually associated with biliary tree obstruction and impairment of bile flow from the liver to the duodenum. AC is classified by severity from mild, moderate to severe infection (grade I to III, respectively).

Materials & Methods: This study recruited a retrospective cohort from Jan 2015 to July 2018. Overall, 294 patients of age ≥ 18 years with AC were enrolled. The study was conducted according to the World Medical Association Declaration of Helsinki. Demographic and laboratory data were collected for analysis. T-Bilirubin and other laboratory results were collected and analyzed using independent T-test and ANOVA for continuous values and multivariate COX regression for survival analysis for identifying independent factors for early mortality. The cut-off threshold of T-bilirubin was determined by calculating the area under the receiver operating characteristic (ROC) curve.

Results:

There were 213 male and 81 female patients and mean age \pm SD of patients was 49.57 ± 16.1 and 56.12 ± 20.18 respectively. 31.9% patients were found older than 60 years of age and 35% patients were found between 30–45 years of age. T-bilirubin and length of hospital stay (LOS) were found statistically significant ($P < 0.05$) in relation to mortality in AC patients. The area under ROC curve for T-bilirubin level ($P = 0.017$, OR = 1.010) was 0.717 (95% CI, 6.25–168.9) and this is consistent with the Cut-off point for more than or equal to $38.6 \mu\text{mol/L}$ (2.26 mg/dL).

Image:

PATIENTS BASELINE CHARACTERISTIC	MALE	FEMALE	P-VALUE
Gender	213/294	81/294	NA
Age (years) (mean \pm SD)	49.57 \pm 16.1	56.12 \pm 20.18	0.004
Weight (Kg) (mean \pm SD)	1.69 \pm 0.07	1.57 \pm 0.06	0.001
Height (cm) (mean \pm SD)	73.65 \pm 14.72	69.28 \pm 16.58	0.057
BMI (mean \pm SD)	25.87 \pm 4.45	28.26 \pm 6.67	0.002
Neutrophil-to-Lymphocyte Ratio (mean \pm SD)	15.13 \pm 14.52	18.14 \pm 19.43	0.151
Platelet-to-lymphocyte Ratio (mean \pm SD)	320.39 \pm 263.08	384.20 \pm 390.24	0.108
White cell counts ($\times 10^9/\text{ml}$) (mean \pm SD)	12.33 \pm 5.28	13.10 \pm 7.46	0.319
Hemoglobin (g/dL) (mean \pm SD)	13.15 \pm 2.23	11.61 \pm 2.18	0.001
Neutrophils ($\times 10^9/\text{ml}$) (mean \pm SD)	10.22 \pm 5.13	11.09 \pm 6.98	0.247
Lymphocytes ($\times 10^9/\text{ml}$) (mean \pm SD)	1.13 \pm .811	1.07 \pm 0.79	0.543
Lactic acid (mmol/L) (mean \pm SD)	2.28 \pm 1.15	2.36 \pm 1.89	0.763
Alanine aminotransferase (U/L) (mean \pm SD)	182.94 \pm 154.13	246.36 \pm 285.87	0.015
Aspartate aminotransferase (U/L) (mean \pm SD)	152.78 \pm 136.14	267.99 \pm 378.16	0.001
Alkaline Phosphatase (U/L) (mean \pm SD)	305.06 \pm 264.66	312.59 \pm 202.70	0.817
Total bilirubin ($\mu\text{mol/L}$) (mean \pm SD)	89.93 \pm 68.62	77.08 \pm 78.60	0.170
Direct bilirubin ($\mu\text{mol/L}$) (mean \pm SD)	66.36 \pm 48.70	71.77 \pm 70.90	0.525
Albumin (g/L) (mean \pm SD)	33.32 \pm 7.64	31.97 \pm 8.16	0.186
International normalized ratio (mean \pm SD)	3.14 \pm 23.063	1.50 \pm 1.88	0.560
Prothrombin time (mean \pm SD)	14.41 \pm 19.56	13.17 \pm 7.58	0.610
Partial thromboplastin time (mean \pm SD)	33.78 \pm 38.32	28.81 \pm 6.99	0.292
Creatinine (mmol/L) (mean \pm SD)	96.25 \pm 64.89	99.71 \pm 96.30	0.729
Blood urea nitrogen (mmol/L) (mean \pm SD)	5.57 \pm 4.11	6.21 \pm 5.24	0.277
Length of Hospital Stays (days) (mean \pm SD)	10.72 \pm 9.78	11.16 \pm 10.47	0.740

Table 1 Data collected from patient files.
NA: Not applicable.

MARKERS	P VALUE (2-TAILED)	STANDARD ERROR	HAZARDOUS RATIO	(95% CI)
T-bilirubin (Cut-off $\geq 38.6 \mu\text{mol/L}$)	0.037	0.003	1.010	1.004-1.017
Age	0.004	0.030	1.090	1.029-1.155
PLR	0.436	0.004	0.995	0.988-1.002
NLR	0.599	0.032	0.968	0.910-1.030

Table 3 Independent marker predictors of mortality in AC identified by multivariate COX-regression survival analysis.

PARAMETER	SURVIVAL (N = 283)	NON-SURVIVAL (N = 11)	P VALUE
Age	50.97 \pm 17.42	61.54 \pm 18.28	0.05
Gender			
Male (n%)	72.8% (n = 206)	63.6% (n = 7)	0.5
Female (n%)	27.2% (n = 77)	36.4% (n = 4)	
PLR (mean \pm SD)	340.69 \pm 308.217	267.73 \pm 157.98	0.436
NLR (mean \pm SD)	16.062 \pm 16.109	13.462 \pm 157.98	0.599
Total Bilirubin ($\mu\text{mol/L}$) (mean \pm SD)	83.09 \pm 67.24	170.69 \pm 120.74	0.037
Hospital stay (days) (mean \pm SD)	10.04 \pm 8.39	31.45 \pm 20.949	0.007

Table 2 Demographic data and baseline parameters between survival and non-survival groups.
Data as mean \pm SD or number (%). SD = standard deviation. NLR = Neutrophil-to-Lymphocyte Ratio. PLR = Platelet-to-Lymphocyte Ratio.

Conclusion: Herein, we suggest a T-bilirubin serum level as a new biomarker to identify risk of mortality in AC using basic laboratory test that is available in most primary care facilities. T-bilirubin levels is found to be largely related to

short-term in AC. Clinically, high T-bilirubin level may potentiate a concern regarding poor prognosis and increase mortality risk. Further studies are still needed with larger cohorts to shed more light in these findings.

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PW6.04

SPONTANEOUS RUPTURE OF FUSIFORM ANEURYSM IN PREGNANCY – PREVENTION AND TREATMENT

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Introduction: Splenic artery aneurysm is a rare, dangerous vascular pathology, occurring predominantly in pregnant women. The majority of aneurysms are asymptomatic until rupture. This rare event is associated with catastrophic consequences, showing a disproportionately high mortality up to 75 % among pregnant women and fetal mortality up to 95 %.

Materials & Methods: Case report, literature review. A literature research in the PubMed database returned 17 cases with sufficient data.

Results: The increasing news of abdominal imaging leads to arising number of incidentally detected splenic aneurysm during pregnancy. Spontaneously ruptured SAA during pregnancy remains a life-threatening surgical entity. We report one of the rare cases of the survival of a mother and her twins after spontaneous rupture of a fusiform splenic arterial aneurysm. The 32-year-old mother was at 38 weeks of gestation for a twin pregnancy, both infants in transverse position. Severe abdominal pain and fetal distress lead to immediate caesarean delivery of two healthy infants, 10 and 11 minutes after clinical onset. Since it was uncertain if the bleeding originates from venous or arterial splenic vessels, a two-stage surgery was performed. First reconstruction of the ruptured vessel and 6 days later resection of the fusiform aneurysm with splenectomy was the chosen procedure.

Conclusion: The primary therapeutic approach should be endovascular therapy by either embolization or stand crafting.

Rupture of splenic artery aneurysm requires urgent treatment within minutes to reduce the materno-fetal mortality. Immediate resuscitation, midline laparotomy in case of hemoperitoneum in pregnant women and prompt surgical management in an appropriate structure can be lifesaving for both, the mother and the fetus.

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Disclosure of Interest: None declared

PW6.06

MICROBIOLOGY OF COMMUNITY, HOSPITAL ACQUIRED AND POSTOPERATIVE PERITONITIS

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Introduction: Secondary peritonitis is a surgical emergency and can be classified as community (CAP) and hospital acquired peritonitis (HAP). HAP can further be classified as postoperative peritonitis (POP) or non-surgical peritonitis (nsHAP). Apart from rapid source control, adequate antimicrobial therapy is essential to improve outcomes. Thus empiric therapy has to take suspected germ spectrum and possible resistance rates into account. Microbial selection and development of resistances pose problems during the usually prolonged administration of antibiotics for peritonitis. However, a possible negative effect of multi-resistant germs on mortality has not yet been clarified.

Materials & Methods: Bacteriological smears from consecutive patients treated at a single institution from 2010 to 2018 requiring intensive care due to secondary peritonitis were evaluated retrospectively. Patient characteristics and outcomes as well as germ spectrum and resistance rates were collected. Initial germ spectrum, changes over the course of therapy and possible development of resistance as well as potential influences on the clinical course were analyzed. Potential differences between CAP, POP and nsHAP were evaluated. The study was prospectively registered in the German Clinical Trials Register (DRKS No 00016165).

Results: Microbial intraabdominal swabs of 195 (75 CAP, 90 POP, 28 nsHAP) patients were analyzed. Patient characteristics and outcomes between CAP and POP did not differ statistically, HAP-non-POP however showed significantly higher mortality rates. At index operation 77.7% of positive swabs identified a polymicrobial flora with *E. coli* (26%), *Bacteroides* spp. (18%) and *Enterococcus* spp. (15%) being the most common bacteria. We found no influence of the site of perforation on the composition of the microbial flora. At index operation 35.4% of tested bacteria were resistant to Ampicillin/Sulbactam (POP 44.2%; CAP 22.3%; nsHAP 39.5%) while 29.0% were resistant to second generation cephalosporins (POP 29.5%; CAP 31.2%; nsHAP 21.4%). As expected the microbial spectrum in patients with open abdomen shifted over time: after 7 to 30 days of open abdominal treatment *Enterococcus* spp. (37%) and *Candida* spp. (33%) were the most common germs identified.

Conclusion: In this study we described the microbial flora of severe intraabdominal infections at a medium sized Central European acute care hospital. High rates of resistance against certain antibiotics should be taken into account for guiding empirical therapy in peritonitis.

Disclosure of Interest: None declared

PW6.07

EFFECT OF SOCIOECONOMIC DEPRIVATION ON OUTCOMES FROM EMERGENCY LAPAROTOMY

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Introduction: Emergency laparotomy (EL) is a high-risk surgical procedure with an overall 30-day mortality of 8.4%. Socioeconomic deprivation (SED) has been linked with worse outcomes following EL by the National Emergency Laparotomy Audit (NELA) in the UK. However, the patient's SED was based on their area of residence which is an indirect and potentially erroneous measure for an individual. The NZiDep index was developed based on New Zealand's population to be used in prospective research.[1] It is an 8-item list which correlates highly with an individual's SED. We aimed to explore the impact of SED on patients' outcomes from EL.

Materials & Methods: EL patients were prospectively identified and screened for eligibility in 5 metropolitan hospitals in New Zealand from January 2019 and ongoing. Patients aged 18 years and over undergoing EL were included. Data including age, sex, ASA, comorbidities, NZiDep score, mortality, length of stay, and postoperative complications were prospectively recorded. Univariate and Multivariate analyses were conducted. Chi-squared test for categorical items with $p < 0.05$ considered significant.

Results: 958 patients were eligible with 660 patients completing the NZiDep questionnaire. Patients who scored 1 or greater were deemed to be at risk of SED. Patients at risk of SED were generally younger than those at no risk of SED, mean age 59.2 and 66.6 respectively ($p < 0.001$).

Overall complication rate was higher at 65.0% in patients at risk of SED compared to 56.6% in patients at no risk of SED ($p = 0.034$). Mortality rate did not differ between the 2 groups ($p = 0.38$). Mean length of stay was 18 in the group at risk of SED and 16 in patients at no risk of SED ($p = 0.16$). The ASA and HDU/ICU stay did not differ between the 2 groups.

Conclusion: Patients with SED had higher rates of complications despite being younger with similar ASA and comorbidity profiles. In the current study, no difference was seen in mortality. However, this may be related to the sample size. Future studies should incorporate SED in risk prediction tools which can then be used clinically in the preoperative setting.

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Disclosure of Interest: None declared

PW6.08

LIFE THREATENING UNSTABLE PELVIC EING FRACTURES IN CAMEROON: ANALYSIS OF SEVERITY MORBIDY AND MORTALITY

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Introduction: Unstable pelvic fractures are severe and life-threatening injuries with high morbi-mortality rates. Management of these fractures is a major challenge in orthopaedic practice in limited resource communities. The aim of this study is to evaluate the functional outcome of unstable pelvic fractures managed in a hospital with limited diagnostic and therapeutic facilities

Materials & Methods: This was a hospital based prospective observational study carried out from 1st of January 2009 to 31st of December 2018 at the Limbe Regional, a level III health institution in the South West region of Cameroon

Results: A total of 68 patients were included in the study. The ages ranged from 18 to 80 years with a mean age of 39 ± 5 years. The average follow-up duration at the latest visit was 36 months (range 3–84 months). There were 59 cases that were evaluated. The overall average Majeed score was fair. Poor outcomes were noted in patients aged 60 years and above, those with co-morbidities, and those managed conservatively

Conclusion: although the functional outcomes following unstable pelvic fractures have improved with modernised diagnostic and therapeutic modalities, it is not the case in poor resource settings where the lack of these modalities make the management challenging, consequently affecting the functional outcome

Disclosure of Interest: None declared

PW6.09

URO-GENITAL COMPLICATIONS OF PELVIC FRACTURES IN CAMEROON: RESULTS OF A 10-YEAR RETROSPECTIVE ANALYTIC STUDY

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Introduction: Pelvic ring injuries are high energy injuries which are associated with high morbidity and mortality [1]. Associated urogenital injuries are common due to the close anatomical relationship between the bony pelvic structures and the intrapelvic urogenital organs [2].

Materials & Methods: This was a 10-year retrospective study carried out at the Douala General Hospital. All patients who were admitted and managed for a urogenital complication following a pelvic ring fracture was included in the study. Files from which relevant information could not be retrieved were excluded.

Results: A total of 468 cases of pelvic fractures were recorded, and urogenital complications were noted in 46 cases (9.83%). Complications were more in males (32 cases) than in females (14 cases). Complications included bladder ruptures (16 cases), urethral ruptures (18 cases), vaginal tears (7 cases), ano-rectal lesions (5 cases). Complications were associated with young age ($p=0.001$), male sex ($p=0.000$), Tiles B and C fractures ($p=0.001$), open fractures ($p=0.002$) and mechanism of injury ($p=0.000$).

Conclusion: Urogenital injuries following pelvic fractures are common. The management is challenging in resource limited settings.

References:

Disclosure of Interest: None declared

INVESTIGATION OF SCREW OSSEOINTEGRATION ENHANCEMENT BY EXTRACELLULAR VESICLES (EV) AND BONE MORPHOGENETIC PROTEIN 2 (BMP-2) IN A RAT ANIMAL MODEL - A NOVEL STUDY DESIGN -

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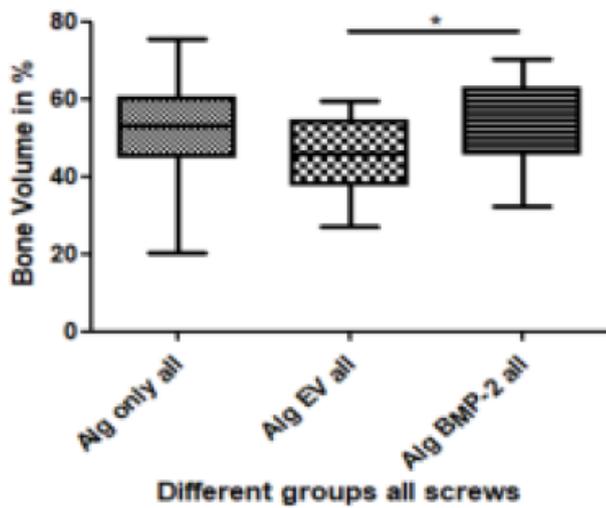
Introduction: Particularly in osteoporotic bone, loosening of osteosynthesis material is a well-known problem in clinical practice. This leads to secondary fracture dislocation and non-healing. The aim of this study is to improve the stability of screws inserted into bone by adding Extracellular Vesicles (EVs) or Bone-Morphogenetic-Protein-2 (BMP-2) with alginate (Alg) as a carrier material.

Materials & Methods: Operations were performed on 30 rats (*Sprague Dawley*). These were divided into 3 groups of equal size: Alg only, Alg EV, and Alg BMP-2. To analyze the osseointegration, a novel surgical procedure and biomechanical protocol were established. Here, a diaphyseal fracture was created with a Gigli saw (0.66mm) and angular stable 5-hole plate osteosynthesis was placed with four 1.5mm screws. The 4.0mm long proximal and distal screws were placed monocortically in a 2.0mm hole that was too wide, so the screw had no contact area with the surrounding bone. The hole was filled with the substances mentioned above. The 2 screws next to the osteotomy were placed bicortically to stabilize the fracture. After the endpoint was reached 6 weeks postoperatively, μ -CT, and a biomechanics pull-out test and a stiffness analysis were performed.

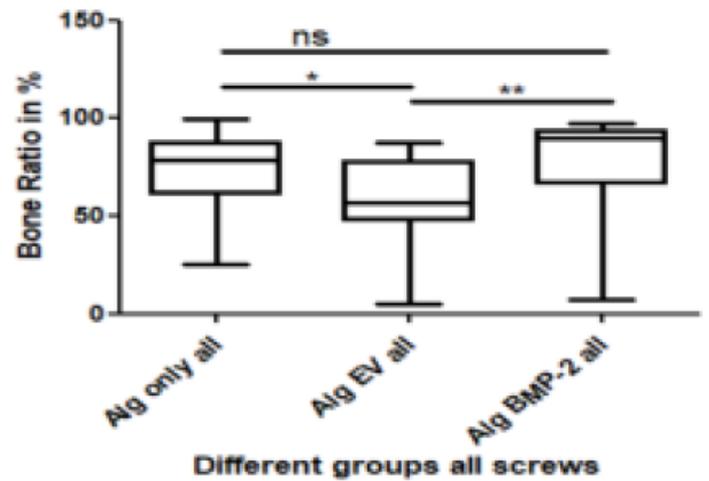
Results: The novel study design and the examinations were well feasible. The μ -CT scan shows significantly more Bone Volume/Tissue Volume in the BMP-2 treated group compared to the EV treated one (*p= 0.0203). The screw-bone contact area was also significantly increased in the BMP-2 treated group compared to the EV treated (**p= 0.0063) group, the contact area was significantly increased in the Alg only group compared to the Alg EV group (*p= 0.0438), too. The biomechanical pull-out test showed a significant increase of the maximal force of the BMP-2 treated group compared to the EV treated one (*p= 0.0240). The stiffness of the BMP-2 treated group was significantly higher compared to the Alg EV group (*p= 0.0414) and the Alg only group (*p= 0.0363).

Image:

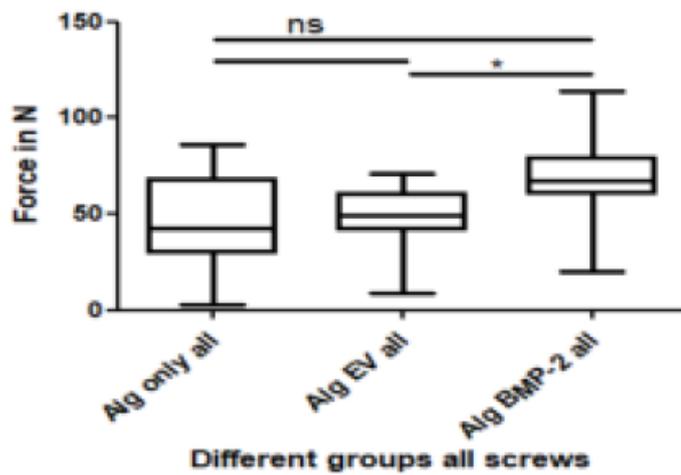
Bone Volume/Tissue Volume 2.2 mm radius



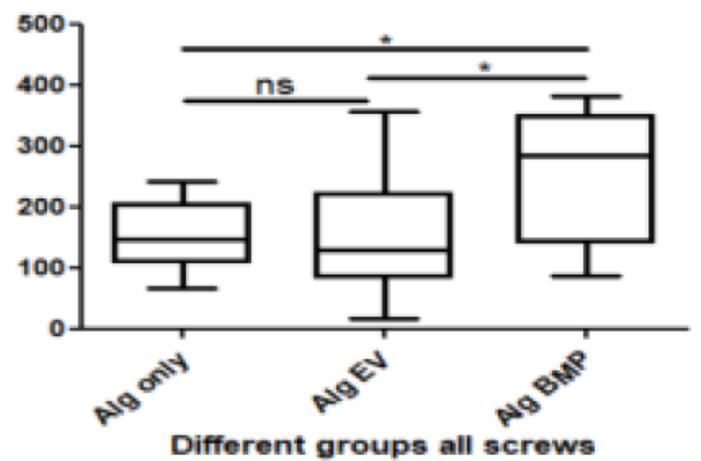
Interface Bone Ratio



Pull-out test



Stiffness



Conclusion: The results of the μ -CT scans and the biomechanics studies indicate that the use of BMP-2 can improve the osseointegration of osteosynthesis materials. The use of EVs seems to have a rather negative effect on osseointegration in this animal model.

Disclosure of Interest: None declared

PW6.11

VASCULAR PEDICLED PERIOSTEAL FLAP FOR FRACTURE HEALING IN A SMALL ANIMAL EXPERIMENT.

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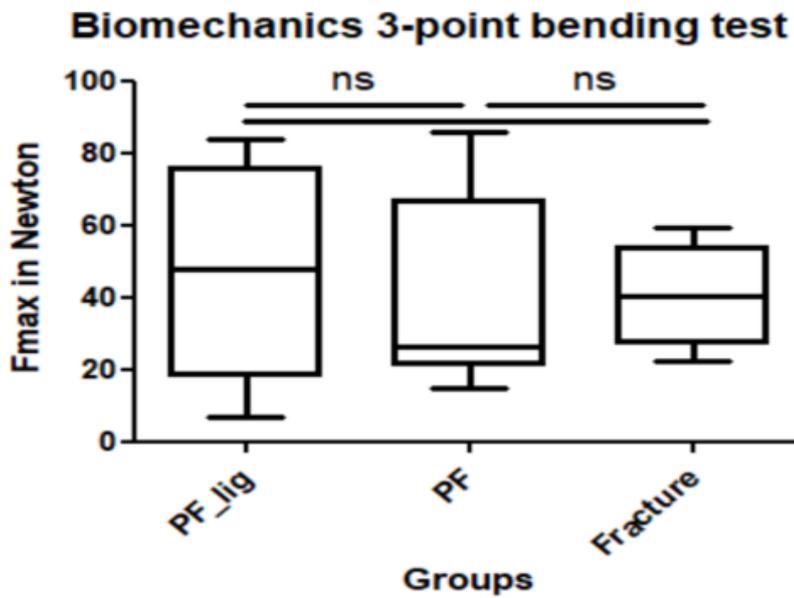
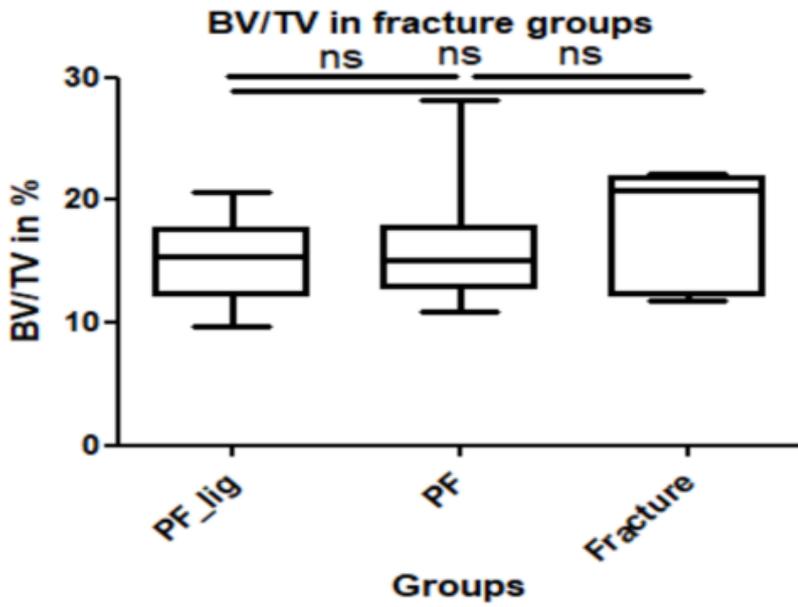
Introduction: For the treatment of pseudarthrosis or larger bone defects, periosteal flaps in combination with autologous bone grafting as revision surgery is a possible technique. This may promote fracture healing. The aim of this study in a rat animal model was to analyze whether a vascular pedicled or non-vascular periosteal flap can also improve healing of an acute diaphyseal femoral fracture.

Materials & Methods: The following 3 treatment groups were formed of a total of (N=31) male Sprague Dawley rats: Vascular pedicled periosteal flap (PF, n=13), non-vascular periosteal flap (PF_lig n=13), and simple fracture without periosteal flap (F n=5). A 0.66 mm Gigli saw was used to create a diaphyseal fracture on the right femur. Plate osteosynthesis (1.5 mm angular stable 5-hole plate osteosynthesis, Medartis Company, Switzerland) of the fracture was performed. The therapy was prospectively randomized. The periosteal flap was prepared together with the supplying vessel from the medial femoral condyle with the aid of surgical loupes and fixed to the plate and onto the fracture with a suture. In the PF_lig group, the vessel was ligated. The F group did not receive one. Regular X-Ray controls were performed. After the endpoint (6 weeks postoperatively), evaluation by μ -CT scans was performed to determine the newly formed bone volume (Bone Volume/Tissue Volume (BV/TV)) in the fracture zone. Biomechanics with a 3-point bending test (Zwick-Roell tensile force measuring machine, Germany), and descriptive histologic examination (RGB Trichrome staining) were conducted.

Results: There was no significant increase in bone volume in the PF group compared to the PF_lig ($p=0.6684$) and fracture group ($p=0.4669$) regarding BV/TV, also the PF_lig and fracture group showed no significant difference ($p=0.3271$). (Figure 1).

The 3-point bending test also showed no significant difference in maximum forces among all groups: PF to PF_lig ($p=0.7536$) and to the fracture group ($p=0.9137$). PF_lig to the fracture group ($p=0.6398$).

Image:



Conclusion: The findings from this study indicate that, in contrast to a pseudarthrosis or a large bone defect, the healing process of a simple diaphyseal fracture cannot be improved by a periosteal flap, vascular pedicled or without a vessel.

Disclosure of Interest: None declared

PW6.12

REPAIR AND RECONSTRUCTION OF PERIPHERAL NERVES AFTER NEUROMA, AND TUMOR RESECTION WITH PROCESSED ALLOGENIC NERVE GRAFT (AVANCE® NERVE GRAFT)

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Introduction: In the treatment of peripheral nerve injuries, autologous nerve interposition grafts are still considered as the method of choice for bridging defect gaps. However, these are always accompanied by morbidity of the donor site, leading to loss of sensation and possible complications such as end neuroma formation or persistent pain. For these reasons, the commercially available decellularized allogeneic nerve allograft (Avance® Nerve Graft) is currently being investigated with the multicenter RANGER® clinical trial. The aim of this study was to assess the safety of the Avance® Nerve Graft for the reconstruction of peripheral nerves after neuromas, and tumor resection.

Materials & Methods: For this purpose, ten patients with eleven implanted grafts were recruited for the prospective study. Five patients suffered from a neuroma in continuity, four from an endneuroma formation and two from Schwannomas. Seven patients were symptomatic for pain. After the resection, the peripheral nerves were reconstructed with the Avance® Nerve Graft. The patients were following up for at least six months, by assessing recovery of motor, and sensibility and pain reduction.

Results: No rejections of graft or recurrences of neuromas could be observed during the follow-up examinations. Out of seven patients, a significant decrease in pain was observed in all patients. 87.5% of patients showed recovery to S3 or better. 80% of patients (n=4) achieved a strength grade of M3 or higher. However, in one case an explorative surgery was performed due to decreasing functional parameters over time and no signs of recovery assessed by NCV.

Conclusion: The reconstruction with the Avance® Nerve Graft was safe. Moreover, the Avance® Nerve Graft demonstrated good outcomes for motor, and sensory function. Of particular interest, was the recovery of lesioned purely sensible nerves, for those at this time no reasonable treatment option exist.

Disclosure of Interest: A. Borger Other Financial/Material Support from: The financial resources for the conduct of the RANGER study at the Medical University of Vienna are provided by Axogen Inc., B. Gesslbauer: None declared, C. Radtke: None declared

PW7.01

A RARE CASE OF LUMBAR TRAUMATIC HERNIA

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Introduction: Disruption of abdominal wall musculature with intact skin due to blunt trauma is a rare and can be easily missed and most of these hernias are not diagnosed at initial presentation. Lumbar hernia resulting from blunt trauma are extremely rare However, the use of computed tomography (CT) scan in patients with severe abdominal trauma should reveal this injury (1). Herein, we present a rare case of traumatic lumbar hernia in an adult female.

Materials & Methods: Case report

35-year-old women was involved in a road traffic collision. She was unrestrained rear seat passenger. The patient had no history of loss of consciousness. She was brought to Emergency Department complaining of severe abdominal pain. On examination, the patient was fully consciousness and hemodynamically stable. She had swelling and bruises on the right flank area associated abdominal tenderness.

CT scan showed a large defect in the right lateral abdominal wall with herniation of bowel loops.

Increased density seen in the subcutaneous fat of the right posterolateral abdominal wall suggestive of contusion/hematoma.

The patient was admitted for observation. Patient did well, tolerating normal diet, and was fully mobilized. She was advised to have hernia repair operation, but the patient preferred to do the operation in her home country.

Results: Discussion

Although, the force of the blunt trauma is insufficient to breach the elastic skin, yet, it can cause abdominal wall musculature disruption. The contusion marks and bulge at the site of the hernia may be diagnosed incorrectly as a hematoma or contusion (2). Thorough examination of the patient with serious additional injuries may add to the difficulty of hernia detection.

CT scan is the gold standard diagnostic tool for evaluation of patients with traumatic hernia. CT scan can detect the traumatic hernia and most of the associated injuries (3).

Conclusion: Traumatic lumbar hernia is a rare type of hernia. Early recognition of the traumatic lumbar hernia is challenging and need a high index of clinical suspicion

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Disclosure of Interest: None declared

PW7.02

ASSESSMENT OF CHANGE IN HEMATOLOGICAL FUNCTIONS OF SPLEEN FOLLOWING BLUNT SPLENIC INJURY: A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction: Splenic injury following blunt abdominal trauma is relatively common. The paradigm shift towards Non-Operative Management (NOM) of blunt trauma has been dramatic with injury to the spleen. Once the NOM has become standard of care for the hemodynamically stable patients, the problem of NOM failure was recognised and this failure necessitated obliteration of splenic artery by angioembolization (AE). But remaining viable splenic tissue may not guarantee functional adequacy of spleen and these patients could potentially have diminished splenic function. We conducted a prospective observational study to assess the outcome of patients with non-operative management of splenic injury and the functional consequence of NOM on haematological functions of spleen after 30 days of injury that can be used as surrogate measurement tool for assessment of splenic function.

Materials & Methods: This Prospective observational study was conducted under Division of Trauma surgery and Critical care, Department of surgical disciplines, JPNATC, AIIMS. All adult trauma patients with age between 18 to 65 years of either gender presenting to ED (Emergency department) with any grade of splenic injury were included. The data was analysed by SPSS (21.0 version).

Results: In this study we compared the various hematological parameters and red cell indices in management group and comparison was also made in chronology. In patients with NOM the Hb, Hct, MCV and MCH has decreased in follow up period in comparison to values obtained at time of admission. But Post AE there is improvement in Hb, HCT, MCV. In NOM group initial leucocytosis tend to normalise in follow up period, same happened in AE group also. On evaluation of differential counts, it was observed that in both groups the neutrophil counts returned to normal in follow up period and also Lymphopenia came to normal. The peripheral blood smear was also evaluated twice in all enrolled patients, to find out nuclear and cytoplasmic inclusions and certain pathognomic cells of hyposplenia like Heinz bodies and pitted cell.

Conclusion: The NOM has been an accepted standard for all grades of splenic injury within ambit of hemodynamic stability. The use of angioembolization in higher grade does not impart significant measurable deterioration in splenic functionality in many of the observed hematological parameters.

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Disclosure of Interest: None declared

PW7.03

A FOLLOW UP STUDY OF A NEWLY DEVELOPED SURGICAL TRAUMA COURSE ON ANIMAL MODEL IN MAINLAND CHINA

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Introduction: The University of Hong Kong–Shenzhen Hospital(HKU-SZH)has developed a surgical trauma course that includes didactic lectures and practical sessions.On the operative session,surgeons were supposed to learn the principles of damage control surgery and treatment of specific organ injuries.The aim of the study was to assess the value of this course using participants' feedback and to investigate its future development

Materials & Methods: Course curriculum consists of lectures and integrated operative practice on a live porcine model.participants performed all surgical procedures on a live animal model under general anesthesia(Fig1).The surgical procedures composed of various penetrating trauma scenarios.A questionnaire was sent to the 70participants at a minimum of 6 months after completions of the course.A 5-point Likert scale was used to evaluate participants' improvement and satisfaction on the course

Results: Results of questionnaire are presented in Table1.The top three surgical procedures that participants performed prior to the course are laparotomy,splenectomy and colostomy,while laparotomy, splenectomy and cardiac repair were the top procedures they implemented during the post-course period.Majority of participants reported positive feedbacks and strong desire to the implementation of this course

Results from Respondents (42/70)

- 1.The data were collected from42participants,38of them were male and4were female
- 2.18participants had more than a decade of professional experience
- 3.Only45%of participants had previously attended a trauma course
- 4.Approximately91%of participants reported passing on the information and key materials they have learned at the course to colleagues and students
- 5.88%of respondents scored4or higher on the improvement of their ability to perform surgical procedures at their subsequent daily practice
- 6.Nearly all participants(40/42)reported they satisfied with the course environment, structure, procedure and content
- 7.Almost55%of participants would like to attend a refresher course once a year
- 8.All of42participants preferred the course to be recommended to all regions in the country

Image:



Conclusion: This study shows that operative trauma course on animal significantly increased participants' ability to handle critically injured patients. This also indicates the benefits of this structured trauma course not only in short term, but also in long term goal. Moreover, we think that it is necessary to organize more training courses in large scale for specialized surgeons in mainland China.

Disclosure of Interest: None declared

PW7.04

MANAGING BLUNT SOLID ORGAN INJURIES IN A MIDDLE-INCOME COUNTRY: ARE WE UP TO THE STANDARD?

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Introduction: The first Level 1 Trauma Centre in Malaysia was established in 2011 which provides services to a population of 3.7 million people in the Southern Region. In the setting of newly established trauma services, the purpose of this study was to evaluate our experience with the treatment of blunt solid organ injuries (SOI). We hypothesized that non-operative management of SOI would be as predominant and effective as in high-income countries.

Materials & Methods: We identified all patients with blunt liver, spleen and kidney injuries in our registry admitted between January 2018 and June 2021. Patient baseline, injury characteristics, type of primary management (operative management [OM] or non-operative management [NOM]), primary surgical procedures, failure of NOM, causes of failed NOM, management of failed NOM, outcome of treatment such as length of stay and mortality were analysed and compared with those reported from high-income countries with established trauma systems.

Results: Among 448 patients with blunt SOI, majority were male (83.9%) and in the "working-age" range of 15-64 years old (93.5%). The most frequent mechanism of injury (92.0%) was road traffic crashes resulting in 65.5% of isolated organ injuries and 34.5% of combined injuries. Severe injury (NISS \geq 16) was present in 84.2% of patients. Severe TBI (GCS \leq 8) occurred in 22.3%. NOM of blunt SOI was utilized in 334 patients (74.6%) while 114 (25.4%) had OM. High-grade liver and kidney injuries were mostly treated with NOM ($p<0.001$). Patients with high-grade spleen injuries had more immediate surgery performed ($p<0.001$). NOM was successful in 97.3%, with only 9 patients (2.7%) requiring subsequent surgery. Underlying causes for NOM failure were hemodynamic instability due to secondary bleeding (77.8%) and sepsis (22.2%). Mean length of stay was 11 days. Overall mortality was 11.2%, which was significantly higher in the OM group (23.7%) than in the NOM group (6.9%). Three significant predictors of survivability were identified; patients with GCS \geq 9 upon admission (AOR 16.60, CI 7.77-35.48, $p<0.001$), patients with NOM (AOR 3.01, CI 1.44-6.30, $p=0.003$) and patients who had no kidney operation (AOR 7.00, CI 1.55-31.62, $p=0.011$).

Conclusion: This is one of the largest single-centre experiences on blunt SOI in South-East Asia. With good selection and adequate resources, selective NOM of blunt solid organ injuries is a safe and effective therapeutic approach with a high success rate of 97.3%, avoiding the morbidity of unnecessary laparotomies.

Disclosure of Interest: None declared

PW7.05

INCREASED INTERPERSONAL VIOLENCE IN COVID-ERA SUB-SAHARAN AFRICA; SHIFTING TRAUMA EPIDEMIOLOGY AND THE NEED TO STRENGTHEN HEMORRHAGE RESUSCITATION

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Introduction: The COVID-19 pandemic continues to reshape global healthcare. Alterations in social interaction, employment, and community patterns have changed trauma epidemiology in high-income countries. Few studies have characterized COVID-era trauma patterns in low- and middle-income countries (LMIC), where most injury deaths occur. Using data from an ongoing prospective multisite trauma registry in Cameroon, we compared injury epidemiology and care patterns during the first 9 months of the COVID pandemic to historical controls.

Materials & Methods: We performed a retrospective analysis of the previously-described Cameroon Trauma Registry. The first confirmed case of COVID-19 in Cameroon occurred on 3 March 2020. We compared patients presenting in the 9 months following this date (COVID-era) with patients between March and December 2019 (PRE). Injured patients who were admitted to the hospital, transferred to higher care, died, or left against medical advice were included in the analysis. Demographics, injury patterns, clinical data, and outcomes were compared between cohorts using chi-squared and Kruskal-Wallis tests.

Results: We analyzed data on 1,717 PRE and 1,660 COVID-era patients; overall trauma volume was comparable between time periods (191 patients/month PRE vs. 184 patients/month COVID-era). Patient demographics were similar (77% male, median age 32 years), but COVID-era patients had indicators of lower socioeconomic status and higher unemployment (7% vs. 5%, both $p<0.01$). Intentional injuries were more prevalent among COVID-era patients (13% vs. 10%, $p<0.01$) and the perpetrators were more frequently partners, family member or friends of the victim (4% vs. 2.7%, $p=0.04$). COVID-era patients had higher rates of stab injuries than their PRE counterparts (8% vs. 5%, $p<0.01$) and were more often bleeding on presentation (82% vs. 73%, $p<0.01$). Mean presenting hemoglobin was lower in the COVID-era cohort (10 vs. 11g/dL, $p<0.01$) and more patients received blood transfusion (4% vs. 2.7%, $p=0.03$). Despite similar injury severity, early injury mortality was lower in COVID-era patients (5% vs. 7%, $p<0.01$).

Conclusion: Injury epidemiology in COVID-era Cameroon is characterized by higher rates of interpersonal violence and penetrating injury than the pre-COVID period. Trauma systems efforts should prioritize protocolizing early hemorrhage resuscitation and expanding blood banking capacity to address these epidemiologic shifts and mitigate preventable deaths.

Disclosure of Interest: None declared

PW7.06

SUCCESSFUL TRAUMA SURGEON-LED INTRODUCTION AND ORGANIZATION OF A STOP THE BLEED-PROGRAM IN THE NETHERLANDS: FROM OPINION PAPER TO NATIONAL STANDARDIZATION

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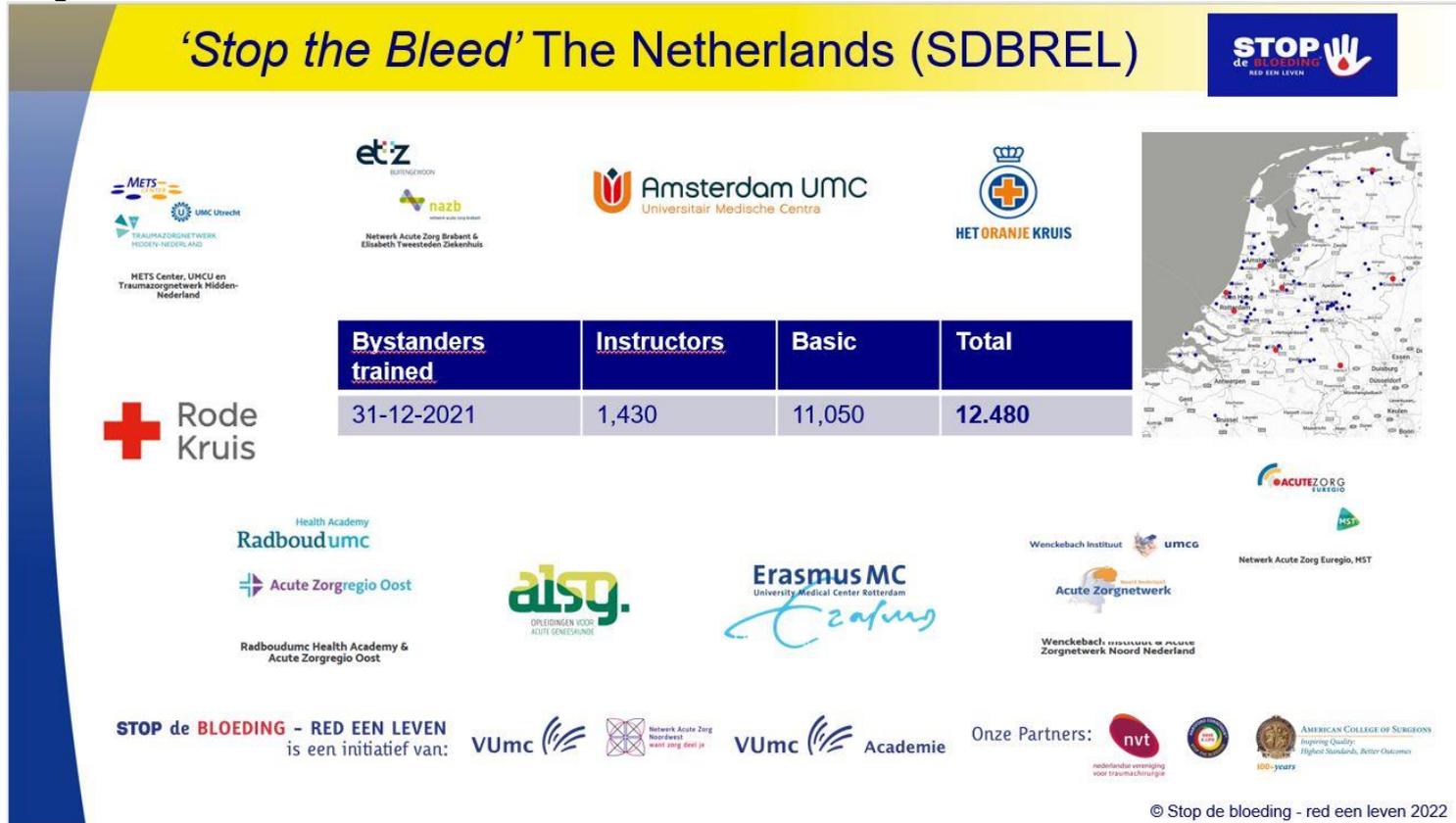
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Introduction: After the Brussels-terrorist attacks of March 22, 2016 trauma surgeons in Amsterdam felt urged to introduce the *Stop the Bleed – Save a Life* concept and course in the Netherlands to turn civilian bystanders into immediate responders to life-threatening hemorrhage in trauma. This idea was ventilated as a front-page article in the journal of the Royal Dutch Medical Association in June 2016. After a team-up with an education institute (EI), the regional Trauma Area Network (TAN) and a knowledge transfer office the campaign and courses *Stop de bloeding – red een leven* (SDBREL) were kicked-off in December 2016. Next to the basic course, an instructor course was developed to certify first-aid instructors/(para)medical personnel and BSc medical students for teaching the basic course. The instructor course was given by senior-SDBREL instructors at the EI only. A system was needed for national roll-out beyond Amsterdam.

Materials & Methods: Fellow-trauma surgeons of other TAN's were approached and asked to team-up with an EI and their TAN to develop a SDBREL instructor course hub in their area. After agreement, a license was issued and a senior instructor course was given at the EI in that TAN by the Amsterdam EI-instructors (Teach-the teacher). Then, after a hand-over of educational material and instructions the newly affiliated SDBREL-hub was able to autonomously organize courses and acquisition. Moreover, trauma surgeons functioned as key figures to motivate organizations and people continuously.

Results: Within 5 years, 6 TANs were affiliated as SDBREL instructor course hubs. Together with Amsterdam, 1430 instructors were delivered and 11.050 bystanders followed the basic course. Also, affiliation with The Orange Cross and the Dutch Red Cross was accomplished and resulted in assimilation of the SDBREL concept and techniques in the new Dutch First Aid-guidelines 2021. In a co-operation, a SDBREL trauma surgeon developed educational material to train The Police Academy and all Dutch law enforcement officers.

Image:



Conclusion: The success of the Dutch Stop the Bleed (SDBREL) can be attributed to 1) trauma surgical leadership: a. intrinsic motivation to act as problem owner of victims with life-threatening hemorrhage within the trauma chain of survival b. clinical expertise c. teamwork and 2) using existing organizations and structures in trauma care to

disseminate the concept and course. A blended-learning instructor refresher course has now been developed and introduced to the instructor course hubs.

References: www.stopdebloedingredeenleven.nl

[Stop de bloeding - red een leven - YouTube](#)

Disclosure of Interest: None declared

PW7.07

THORACOSCOPIC SUTURING OF LEFT VENTRICULAR WOUND IN THORACOABDOMINAL STAB WOUND.

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Introduction: The heart area is one of the most dangerous areas in chest damage, heart wounds account for 5% to 18% of all penetrating chest wounds. In modern literature, we did not find reports of thoracoscopic suturing of the heart wound, wherefore we want to present a clinical case of thoracoscopic suturing of the left ventricular wound of the heart with thoracoabdominal stab wound

Materials & Methods: A 42-year-old man was taken to the hospital 1 hour 10 minutes after being injured. Upon admission, BP 66/40 mm Hg, heart rate 110 beats per minute, saturation - 94%. On the front surface of the chest there are 15 stab-cut wounds measuring 1 cm to 5 cm in length. Hemoglobin – 99 g/l.

The patient was urgently operated, laparoscopy was performed, a small amount of blood was found, multiple through wounds of the left dome of the diaphragm were determined. The thoracoscopy was performed: in the left pleural cavity 200 ml of blood with clots was found, a 3 cm x 2 cm pericardium wound was detected, about 30 ml of blood clots were found in the pericardium cavity. On the anterior wall of the left ventricle wound of 1 cm x 0.5 cm with oozing venous bleeding was revealed. The cardiac wound was repaired with horizontal mattress sutures with teflon gaskets. 3 wounds of diaphragm were sutured with separate interrupted sutures through thoracoscopic approach, and 4 wounds - through laparoscopic approach.

Results: No violation of myocardial contractility was detected on the next day echocardiography. The ECG did not reveal any rhythm disorders and signs of myocardial ischemia. The patient was discharged from the hospital on the seventh day in a satisfactory condition.

Conclusion: The localization of the chest wound in the so-called "heart box" maximizes the frequency of heart injuries and fatal outcome. Up to 90% of people with penetrating heart injuries die before getting into the operating room. In meta-analysis of treatment of predominantly blunt chest trauma, it has been demonstrated that thoracoscopy is preferable to open thoracotomy in stable patients. There are only single observations of the performance of miniinvasive diagnostic interventions for penetrating cardiac trauma with stable hemodynamics. In our observation of a penetrating chest trauma with a left ventricular wound, the main factors that insured the success of thoracoscopic suturing of the heart wound were stable hemodynamics, the absence of cardiac tamponade, the non-penetrating nature of the myocardial wall wound.

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Disclosure of Interest: None declared

PW7.08

THE MATHEMATICAL MODEL OF POSTOPERATIVE MORTALITY IN CASES OF DUODENAL INJURIES: A SINGLE CENTER REVIEW OF A 14-YEAR EXPERIENCE

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Introduction: In worldwide the problem of severe injuries in peacetime and war time isn't only medical, but also of great social importance. The trauma of the duodenum in blunt and penetrating injuries of the abdominal organs according to various sources is about 3 - 5% of all injuries of the abdomen, but these injuries have a high mortality, which is from 4 to 47% [1-2].

Materials & Methods: A retrospective study included 72 patients older than 18 years old with traumatic injuries of the duodenum \geq II degree, according to the criteria of the American Association of Surgery for Trauma, who were operated from 2010 to 2021. Patients were assigned into two groups: the 1st group (survivors, n=58) and the 2nd group (non-survivors, n=14).

Results: Multiple injuries of intra-abdominal and anatomical structures of the retroperitoneal space were in 72.2% patients. Mean RTS, ISS, and APACHE II scores in the deceased and the surviving patients were and 6.89 ± 1.0 and 3.93 ± 0.7 ; and 12.36 ± 3.9 and 20.6 ± 4.5 ; 14.05 ± 3.2 and 26.67 ± 4.1 , respectively ($p=0.000$). All indicators were identified whose changes were most different in surviving and deceased patients on admission to the hospital:

blood hemoglobin, serum albumin and lactate and the level of systolic blood pressure (area under curve amounted 0.831, 0.934, 0.956, 0.816 respectively, $p=0.000$). The analysis of the factor structure made it possible to determine the contribution of each indicator to discrimination and to divide patients into groups. It was found that the indicator 'serum lactate' played most major role in discrimination (-0.9723) and the following were 'serum albumin' (0.5934), 'systolic blood pressure' (0.4636) and 'blood hemoglobin' (0.4437):

F non-survivors= $-213.9 + 0.317 x_1 + 0.06 x_2 + 5.99 x_3 + 66.6 x_4$;

F survivors= $-193.8 + 0.289 x_1 + 0.026 x_2 + 6.42 x_3 + 51.98 x_4$,

x_1 – SBP; x_2 – blood hemoglobin; x_3 – serum albumin; x_4 – serum lactate.

Based on the data obtained, the mathematical model was developed for predicting of mortality with sensitivity 86.7% and specificity 100%.

Conclusion: These research results have shown that the proposed mathematical forecasting model is most suitable for predicting treatment outcomes in the early stages of patients with duodenal injuries with ensures high accuracy. At the same time, the forecasting problem can be solved using the APACHE II and RTS severity scores for these patients, although the forecasting accuracy in this case may be lower.

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Disclosure of Interest: None declared

PW7.09

CHALLENGES IN TRAUMA MANAGEMENT DURING THE COVID-19 PANDEMIC IN ALBANIA.

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Introduction: Never before have we seen an infectious disease as devastating and pervasive as COVID-19. It was first found in residents of Wuhan, China, in December 2019, The coronavirus pandemic has caused major healthcare challenges worldwide resulting in an exponential increase in the need for hospital support and intensive care. However, care for trauma patients can not be reduced or delayed.

Materials & Methods: Our study included all patients with traumatic injuries who presented to the emergency departments (ED) of the University Hospital of Trauma in Tirana, Albania, between 1 January 2019 and 30 September 2019 (non-COVID) and 1 January 2020 and September 30, 2020 (COVID-19 period)...

Results: A 44% reduction in ED admissions for trauma patients was seen during the COVID-19 pandemic. Fewer patients suffered car- and sports-related injuries. Injuries after high-energy trauma were more severe in COVID-19. The severity of the injuries was higher, consequently relatively more patients underwent OM during the COVID-19 period...

Injuries to the upper extremities were lower compared to the lower ones mainly constituting this difference. The mortality rate was highest during the pandemic...

Conclusion: The trauma emergency care measures we have provided can protect the medical staff involved in emergency care and ensure the timely timing of effective interventions during the outbreak of COVID-19. The health care of trauma patients remained high during the covid pandemic¹⁹. The results of this study can be used to optimize the use of hospital capacity and to predict health care planning in future outbreaks.

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**PW7.10
IS A REGIONAL AIR AMBULANCE SYSTEM COST-EFFECTIVE?**

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Introduction: Air ambulance services are an integral part of modern trauma system and can help achieve “The **right** patient goes to the **right** hospital at the **right** time”.The Guangdong-Hong Kong-Macao Greater Bay Area(GD-HK-Macao GBA) is a national strategy for further development and low altitude opening has been recently approved.Therefore,it is worthy to explore the possibility to establish a regional air ambulance system in GD-HK-Macao GBA.

Materials & Methods: Data from official website of air ambulance service in different countries and regions were collected.Population,area,number of air ambulance rescue and cost is indicator for analysis.Similar data from GD-HK-Macao GBA is also collected and analyzed with assistant by geospatial analysis technology.From the perspective of real world study,it is defined artificially that more than 3 times of air ambulance rescue per day is cost-effective for those countries or regions where are affordable.

Results: Switzerland has a population of 8.6 million and a land area of 41,284 square kilometers.There are 16,273 air ambulance rescues in a financial year during 2020-2021,with an average of about 45 air ambulance rescues per day.The annual cost is nearly 160 million euros,and the average cost of each air ambulance rescue is nearly 10,000 euros.Germany has more than 24,000 air ambulance rescues,with an average of about 66 rescues per day.Norway has 20,000 air ambulance rescues,with an average of about 55 rescues per day.London has 1494 air ambulance rescues,with an average of about 4 rescues per day.Victoria in Australia has 7707 air ambulance rescues,with an average of about 21 rescues per day.Hong Kong has about 1500 air ambulance rescues, with an average of about 4 rescues per day (Table 1).Data from GD-HK-Macao GBA is shown in Figure 1.

Table 1 Data from official website of air ambulance services (2020 to 2021)

Country or Region	Population (million)	Area (km ²)	Air ambulance rescue per year	Average air ambulance rescue per day	Cost(€)	Average cost per air ambulance rescue(€)
Switzerland	8.6	41284	16273	44.58	157343329	9668.9
Germany	83	357582	24000	65.75	897810	37.4
Norway	5.4	385000	20000	54.79	98295555	4914.7
London	9.2	1577	1494	4.09	65766	44
Victoria	6.7	227000	7707	21.16	—	—
Hong Kong	7.4	1106	1496	4.09	—	—

Image:



Figure 1. Helipad distribution and regional major trauma centers in

GD-HK-Macao GBA

Conclusion: All the regional air ambulance systems in the above study are cost-effective. The study outcome will provide positive drive for GD-HK-Macao GBA to go forward with its air ambulance system development. An integrated trauma system should be in place to support the operation of this air ambulance system.

Disclosure of Interest: None declared

PW7.11

EPIDEMIOLOGY OF FALL INJURY IN METROPOLITAN JAPAN

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Introduction: Fall injury is one of the major cause of trauma in all countries and cause a typical injury pattern. It has different etiologies in different populations. We reviewed and analyzed the patients with fall injury that referred to our institution located in the metropolitan area of Tokyo, Japan.

Materials & Methods: A retrospective observational study was conducted in the tertiary emergency critical care medical center in Japan from 2012 to 2021. Patients with fall injury, aged 16 or over were included.

Results: A total of 231 patients were included in this study, 189 (82%) were males, and 47 (20%) died. The mean age was 48 years. The mean Injury Severity Score (ISS) was 34.5 (median 13) and the mean falling height was 6.2m (median 2). In the dead group, the mean height was 18.7m, and the mean ISS was 58. Falling height and severe chest [chest abbreviated injury scale (AIS) ≥ 3] and/or head injury (head AIS ≥ 3) were associated with high mortality. The 1m increasing falling height was comparable to 4.9% increases in mortality. In patients with severe head and/or chest injuries, a 50% mortality rate was estimated to occur at falls from 9m, compared to 16m in those without head and/or chest injuries.

Conclusion: Falling height was correlated with ISS, and was associated with high mortality. This information might enhance triage criteria applied to the patients with fall injury. Further studies elucidating their mechanism underlying this association are warranted.

Disclosure of Interest: None declared

PW7.12

NON-COMBAT NECK VESSELS INJURIES, SINGEL CENTER EXPERIENCE

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Introduction: Aim of the study. To analyse the results of non-combat neck vessels injuries.

Materials & Methods: The frequency of non-combat neck vessels injuries according to the clinic databank, from January 2000 to January 2019 amounted to 42 (17.8%) of the all vessels injuries (n=236).

There were 32 men, 10 women, mean age 32.4 ± 7.8 . In 23.8% of patients, the injuries were suicidal. In 3 (9.4%) patients there was a combined injury of the neck, with a penetrating wound of the abdominal cavity (n=2) and the right thigh (n=1). Thirteen patients had haemorrhagic shock and 2 patients with stroke symptoms in admission. In 17 cases were carotid artery injured, vertebral artery in 3 and veins 22 cases, also 10 neck organs were injured. Artery/vein vessels were – in 4 cases.

Results: Active bleeding was noted in 20 (47.6%) cases, massive neck hematoma in 10 cases. In 5 cases, respiratory failure was noted due to compression of the pharynx and larynx by a growing of hematomas. All patients underwent emergency surgery, the type of operation depended from type of injures of neck vessels, neighbouring structures and general condition with presents of shock. In all cases, arterial vessels were repaired with patch, later suture or auto-vein plasty. In 8 patients with IJV injuries, the vessel was repaired with a lateral or circular suture. In one case, the vessel was ligated. In patients with injuries of the vertebral artery (n=3), tamponade of the wound (vertebral) canal with a muscular aponeurotic flap was used to stop bleeding. The duration of hospitalization was 11.2 ± 2.1 days. Hospital mortality was 4.8%. Stroke was noted in 9.5%.

Conclusion: The frequency of non-combat injuries of the neck vessels due to regional clinic database, was 17.8% of all vascular trauma, however the neck vessels injuries are most difficult in terms of providing surgical care and accompanied by significant mortality and high frequency of strokes.

Disclosure of Interest: None declared

PW7.13

THORACOSTOMY IN THE ERA OF COVID 19 WHAT IS THE DIFFERENCE?

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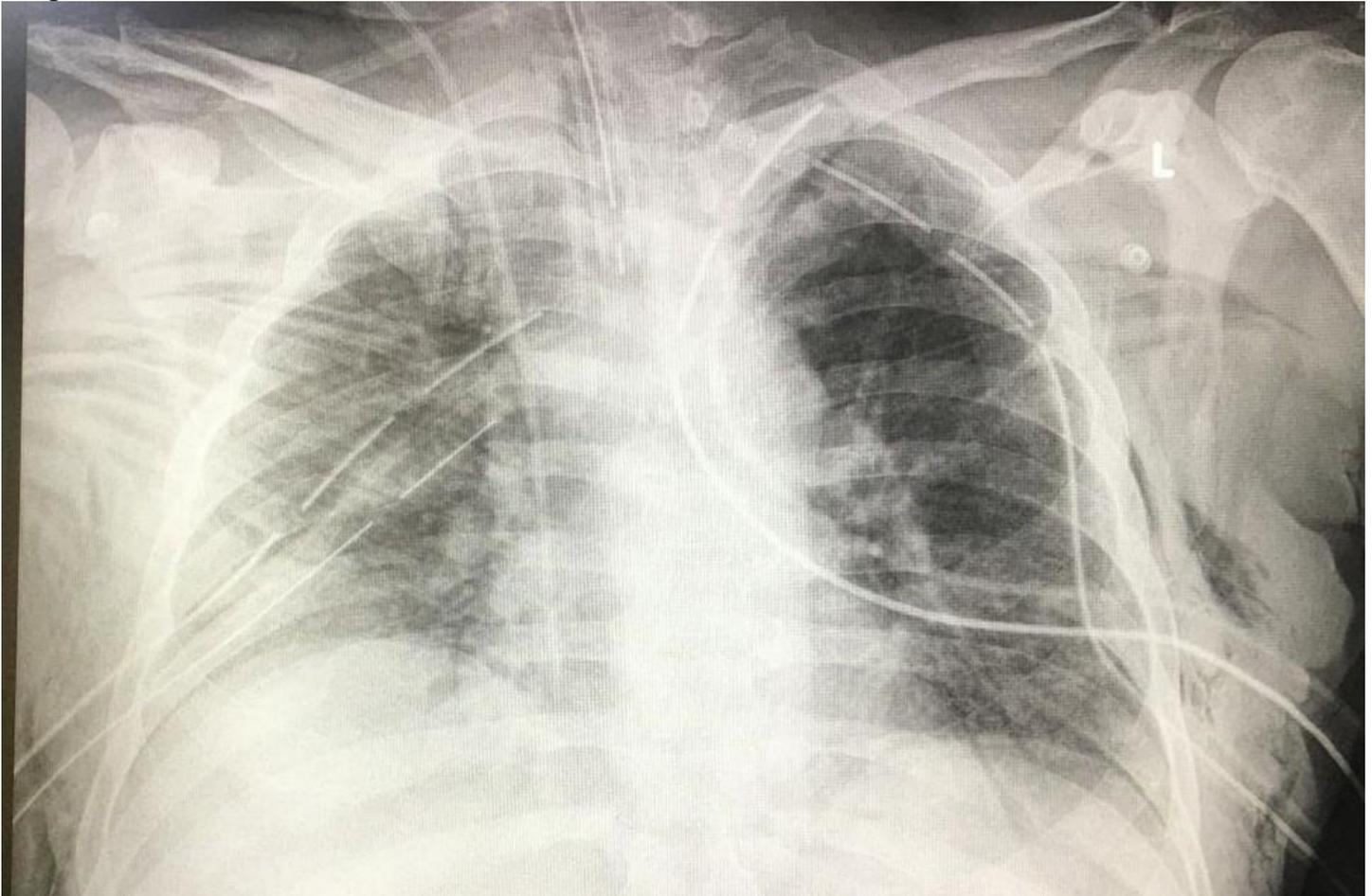
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Introduction: Barotrauma appears to be high in COVID¹⁹ patients. Pneumothorax developed in 25% of them. Mostly they need thoracostomy. In trauma; most of thoracic injuries are treated by thoracostomy

Materials & Methods: In Khalifa medical city Ajman, UAE a descriptive, observational, Retrospective cohort study was conducted. 100 patients were recruited in 2 groups: 50 COVID¹⁹ patients (above 18 years all genders) with pneumothorax, needed thoracostomy & 50 non COVID¹⁹ (above 18 all genders) with traumatic pneumothorax, needed thoracostomy. Children, Adult COVID¹⁹ patients with no pneumothorax, or with pneumothorax and with no need for thoracostomy, non COVID¹⁹ patients who had trauma, with no pneumothorax or had pneumothorax with no need for thoracostomy were excluded. SPSS 25, Mann Whitney Test (U test), Chi-Square test and Fisher's exact test were used to statistically analyse the data

Results: Age range for trauma patients were 20-40 year (58.8%) & in COVID¹⁹ patients 40-60 (50%). Patients were male in 96.1% of trauma cases & in 78% of COVID¹⁹ patient. Co-Morbidities were 0% in trauma patients & 76% in COVID¹⁹. Hemothorax were found in 37.3% of trauma patients, while Plural effusion were found in 12% of COVID¹⁹ patients. All the above results were statistically significant. Chest tube complications (tube malposition & dislodgment), Subcutaneous emphysema (more in trauma patients (15.7%) than in COVID¹⁹ (6%) & Acquired broncho-plural Fistula (0% in trauma, 2% COVID¹⁹ were not statistically significant in both groups. Tube blockage observed in 3.9% of trauma & in 18% in COVID¹⁹ patients. Number of chest tubes inserted (One: 74.5%, Two: 23.5%, Three & More: 2%) in trauma patients, while in COVID¹⁹ they were (One: 56%, Two: 30%, Three & More: 14%), Median duration for chest tube stay was 3 Days in trauma, 7 days in COVID¹⁹; and death was observed in 3.9% in trauma, 64% in COVID¹⁹; all of the above results were statistically significant

Image:



Conclusion: Therapeutic effect of tube thoracostomy in treating Adult COVID¹⁹ patients who had pneumothorax or plural effusion is not as effective as in trauma non COVID¹⁹ patients who had pneumothorax or effusion. Morbidity & mortality are more in COVID¹⁹ patients than in trauma patients.

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Disclosure of Interest: None declared

PW7.14

PREHOSPITAL CORE TEMPERATURE MEASUREMENT IN TRAUMA PATIENTS: BACK TO THE CORE

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Introduction: As part of the trauma triad of death, accidental hypothermia is a critical occurrence in trauma patients which is responsible for increased morbidity and mortality. Early and adequate assessment of hypothermia is therefore essential and can be made by the measurement of core temperature. However, there is still lack of consensus in clinical practice for reliable core temperature measurement in the prehospital environment. A contributor to this lack of consensus may be that the reliability of thermometers is mainly tested in a stable in-hospital environment. This study aims to provide an overview of different core temperature measurement devices and insights on the reliability of these options with the effect of varying ambient temperatures.

Materials & Methods: A literature search was performed using PubMed, Embase, Cochrane Library and CINAHL. Studies were included if they aimed to assess the suitability of different core temperature measurement methods with a focus on the prehospital environment. Studies conducted under simulated in field conditions were also included. Studies were excluded if performed in a hospital setting, under sport or exercise conditions, if focused on fever or therapeutic hypothermia detection or if conducted with animals.

Results: Five studies were included, out of which four studies focused on tympanic measurement and one study on temporal artery measurement. | *Tympanic measurement* | One study investigated continuous tympanic measurement in potentially severely injured from the initial assessment on scene until hospital arrival. Continuous tympanic measurements were accurate compared to the different central and peripheral sites regardless of temperature ranges between 30.0 °C and 38.3 °C. Three studies in normothermic healthy volunteers assessed the impact of environmental factors and reported an increasing reliability by insulating the ear and probe with a cap. | *Temporal artery measurement* | One study investigated temporal artery temperature measurement in prehospital patients and showed an acceptable agreement with digital oral and axillary thermometers.

Conclusion: This review demonstrated that the recommended choice for core temperature measurement in the field is a thermistor based tympanic thermometer with an insulation barrier of the ear and probe with a cap, in patients without a diminished cardiac output or cardiac arrest.

Disclosure of Interest: None declared

PW7.15

CAMEL-RELATED HEAD INJURY IN A HIGH-INCOME DEVELOPING COUNTRY

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Introduction: Injury caused by large animals vary according to the regional distribution of the animals, their behavior, and relationship to humans (1). Camels causes 83.3% of animal related injuries at UAE (2). Trauma patients with head injury have higher mortality compared with those with no head injury (3). Very few studies in the literature have discussed camel related head injuries. We aimed to study the incidence, mechanisms, types, and outcome of camel related head injury in Al-Ain city, United Arab Emirates (UAE) in order to give recommendations on preventive measures.

Materials & Methods: We retrospectively collected data of all patients who were admitted to Al Ain Hospital with camel related head injury from January 1, 2015 through January 1, 2021.

Data collected included demography, vital signs, and Glasgow Coma Score (GCS) on admission, mechanism of injury, anatomical location and severity of the injury, associated injuries, and management. The patients were followed up during their hospital stay to record the length of hospital stay (LOS), complications, and outcome. Overall injury severity was determined using the Injury Severity Score (ISS).

Results: During the study period, 98 patients were admitted to the hospital with camel related injury. 39 (39.8%) of the admitted patients with camel related injury sustained head injury. The median (range) age of patients was 27 (4-51) years. 34 (87.2%) patients were camel caregivers. 33 patients (84.6%) were injured in farms. The most common primary mechanism of injury was fall while riding the camel in 24 (61.5 %) patients. All patients were admitted at the same day of injury and none of them were wearing helmet.

24 (61.5%) patients had isolated head injury while 15 (38.5%) patients had associated other body regions injuries. 34 (87.2 %) patients had mild traumatic brain injury (GCS 13-15), Brain concussion was the most common head injury in 22 (56.4%) patients. Seven patients suffered intracranial hemorrhage.

GCS was not statistically significant in relation to the injury severity calculated by ISS ($p=0.620$, Spearman Correlation). One patient died during the study period after having decompressive craniectomy for subdural hemorrhage (overall mortality 2.6%).

Conclusion: Camel-related head injury is common between camel care giver at our region. Compulsory helmet use by those workers should be adopted especially when riding camels to reduce head injuries caused by camel trauma.

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Disclosure of Interest: None declared

PW7.16

MANAGEMENT OF STERNAL FRACTURE IN A COMMUNITY-BASED HOSPITAL

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Introduction: Sternal fractures are an uncommon in blunt trauma to the chest. The routine use of computed tomography in evaluation of chest trauma helps to identify these fractures. Isolated sternal fracture requires only conservative management; however, the presence of a sternal fracture may be an indication for other major life-threatening injuries. We aimed to study the incidence, mechanism of injury, management, and outcome of sternal fractures in blunt trauma patients treated in a community-based hospital.

Materials & Methods: CT scan of the chest of all blunt trauma patients who were admitted to Al Rahba hospital between October 2010 and March 2019 were retrospectively reviewed. The electronic medical records of all the patients with CT scan-detected sternal fractures were retrieved. The studied variables included age at the time of injury, gender, mechanism of injury, type and site of fracture, associated injuries, GCS, ISS, Intensive Care Unit admission, length of hospital stay and outcome.

Results: During the study period, 5632 blunt trauma patients were admitted to the hospital, CT scan of the chest was performed for 2578 (45.8%) patients. Sternal fractures were diagnosed in 63 (2.4%) of patients who had CT scan. The main mechanism of injury was motor vehicle collision in 56 (88.8%) patients. The commonest site of fracture was the body of the sternum in 47 (74.6%) patients. Two patients died (overall mortality 3.2%) and two patients had long term disability.

Conclusion: Sternal fractures are relatively uncommon. The incidence of sternal fractures is similar in a community-based hospital to those reported from trauma centers. CT is the imaging modality of choice for diagnosis. Sagittal reformats are the most sensitive for the diagnosis of sternal fractures. It is often associated with severe multiple organ injuries. Most sternal fractures do not require surgical intervention. Those patients with normal cardiac enzymes can be discharged safely if there is adequate pain control and no other major injuries.

Disclosure of Interest: None declared

PW7.17

PATTERNS, SEVERITY AND OUTCOME OF PAEDIATRIC INJURIES IN CAMEROON

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Introduction: Paediatric injuries have emerged as a global health issue in many low- and middle-income countries (LMICs), and death rates remain higher than in developed countries, yet awareness remains considerably low

Materials & Methods: This was a hospital based retrospective study. We reviewed all the patients aged from 18 years old and below, who were admitted at the emergency unit of one of the three major referral hospitals in the south-west region of Cameroon for an injury, from the 1st January to the 31st December 2020

Results: The ages ranged from 2 weeks to 18 years, with the mean age of 10.37 years and the median age of 11 years. We included 18 infants (0.3%), 141 children (45.9%), and 146 adolescents (47.2%). There were 191 Males (61.6%) and 114 Females (38.4%), giving a sex ratio of 1.6:1. Majority of admissions were in the morning 155 (50.8%), and Most of consultations were in September. The most common place of injury was the road side (51.1%), and road traffic crashes (43.5%) were the overall main causes of injuries. Soft tissue injuries were the most common type of injury sustained (79%). The head and the neck were the most affected parts of the body (47.4%).

Conclusion: Male adolescents are the most affected by injuries. Majority of these injuries occur in the morning around September. Road traffic accidents are the main causes, and the road side is the most common place of injury. Soft tissue injuries are the main type of injury sustained. The Head and the neck are the most affected parts of the body

Disclosure of Interest: None declared

PW8.01

THE MODERN ASPECTS OF RADIATION DIAGNOSTICS OF THE NEOPLASMS OF FRONT MEDIASTINUM

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Introduction: Tumors and cysts of the mediastinum in the structure of all oncological diseases make up 3-7%. Most often thymomas are detected in people 20-40 years. About 80% of the detected neoplasms of the mediastinum are benign, and 20% are malignant. Thus, neoplasms of the mediastinum are one of the urgent problems of modern thoracic surgery.

Materials & Methods: All patients had been admitted to SI «Zaycev V. T. Institute of General and Urgent surgery of National Academy of Medical Sciences of Ukraine», Kharkiv, Ukraine for surgical treatment for thymoma or carcinoma of the thymus gland. Age of patients ranged from 35 to 65 years, gender was performed 14 males and 21 females. Patients underwent MSCT of the chest cavity organs without fail, in which the localization, size, density, tumor structure, as well as its relationship with neighboring structures were determined. All patients were examined for further diagnostics and treatment, after initial imaging elsewhere, therefore CT protocols varied. Our study included 35 scans outcomes of computer tomography (CT) who were treated at the Department of Thoraco-abdominal Surgery. Computed tomography was performed on spiral tomographs "Aquilon 64" from Toshiba (Japan). Scanning area - from the tops of the lungs to the pleural sinuses with a preliminary topogram. Slice thickness was 0,5 mm.

Results: Typically, thymomas are closely related to the superior pericardium that is anterior to the aorta, pulmonary artery, or superior vena cava, although they have been described anywhere from the lower neck to the cardiophrenic border. At presentation, thymomas are usually 5 to 10 cm large although have been described from a few millimeters to 34 cm.⁸ One of the important though challenging roles of CT is to determine local tumor invasiveness but only in this cases we found : type B1 thymoma with signs of capsule invasion. Our review panel analysed the CT scans according to their technical knowledge and experience.

Conclusion: The results of our study suggest that CT is helpful in detecting thymoma in patients with MG referred for thymectomy, but as indicated by a high inter-observer variation, it is difficult to distinguish lymphoid follicular hyperplasia from thymoma. To obtain the most accurate preoperative diagnosis, a CT scan with contrast should be made and all patient characteristics, especially, age, stage of MG and the presence of antistratitonal-antibodies should be assessed.

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Disclosure of Interest: None declared

PW8.02

AGENESIS OF THE LEFT HEMI-DIAPHRAGM, THE UNDERLYING CAUSE OF A NEGLECTED DYSPNEA IN A 65-YEAR-OLD FEMALE; CASE REPORT AND LITERATURE REVIEW

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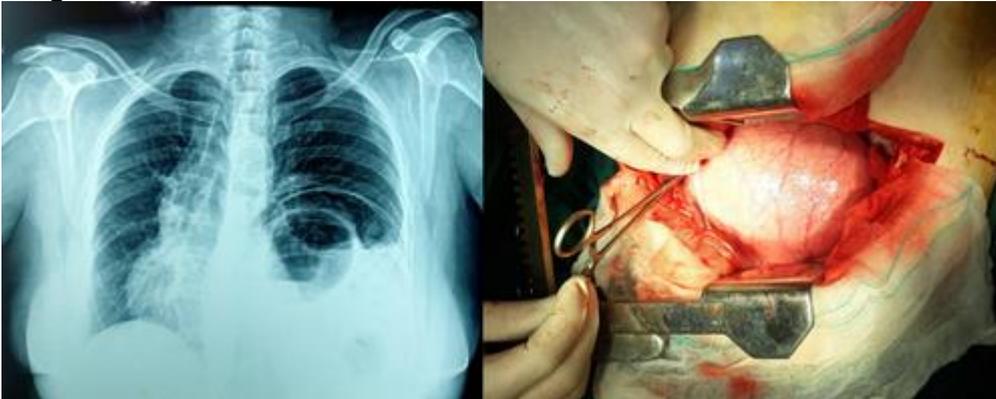
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Introduction: The diaphragmatic membrane, on its complex way of embryonic development, can be involved with various disorders that may partially or completely not develop. Agenesis of the diaphragm is the term that refers to this maldevelopment. Most affected neonates do not live more than hours to days for the severity of lung immaturity. However, less than 30 cases have been reported so far that survived childhood, and even their adulthood period was treated surgically or conservatively.

Materials & Methods: Having reported a case of left hemi-diaphragmatic agenesis in a 65-year-old female, we reviewed the cases reported since 1948 in the literature.

Results: The patient was presented to the surgery center complaining of exacerbated dyspnea during the recent four months. Although not cyanotic, she was incessantly complaining of being suffocated. Notably, besides tachypneic clear respiratory sounds at the right hemithorax, bowel sounds were heard from the base to the half of the left hemithorax with decreased left-sided air entry. Thus, the patient with the preoperative diagnosis of left unilateral diaphragmatic herniation underwent surgery. The initial symptoms reoccurred after four months. Renewed evaluations such as chest x-ray were representative of recurrent hernias. Axial chest CT scan without contrast was performed in which the absence of a diaphragmatic remnant was proved. In the second operation, after the left lateral thoracotomy in the seventh intercostal space and getting into the hemithoracic cavity, the surgical team encountered vestiges of a very thin and loose membrane separating thoracic and abdominal cavities. The majority of the stomach and spleen, splenic flexure, and the length of the jejunum were found in the left thoracic cavity beside a hypoplastic lung. With the final diagnosis of diaphragmatic agenesis, the existing defect was repaired by the construction of a new diaphragm using a dual mesh synthetic patch and fixed anterolaterally, posteriorly, and medially with mediastinal fascia. After fixating of the mesh, the left lung was inflated with high positive pressure, and a chest drain tube was inserted. The control x-ray confirmed the neodiaphragm in its proper position without intrathoracic herniation of digestive system organs. The postoperative recovery and follow-up duration have been uneventful for two years now.

Image:



Conclusion: It is difficult to diagnose diaphragmatic agenesis intraoperatively, and no modality is available to help the examiner physician diagnose perinatally.

Disclosure of Interest: None declared

PW8.03

SAFETY OF SURGICAL TREATMENT OF CONGENITAL PULMONARY AIRWAY MALFORMATION (CPAM) A RETROSPECTIVE STUDY

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Introduction: Congenital Pulmonary Airway Malformation (CPAM) describes a benign congenital form of lung dysplasia. It occurs in 1: 35.000 up to 1:11.000 live births, with recent studies showing an even higher incidence due to improved antenatal imaging. Although it represents the most common form of fetal lung lesions (30-40%), there is still an ongoing debate on the optimal course of treatment, ranging from observation to early surgical resection. Regarding symptomatic patients the current gold standard is operative resection of the affected lobe during the first year of life. Due to possible future infection or malignant transformation, surgical resection is also discussed for asymptomatic children.

To evaluate the safety of surgical resection, we retrospectively analyzed data of patients treated at our center who underwent surgery between 2000 and 2020.

Materials & Methods: All patients undergoing surgical resection for CPAM between 2000 and 2020 were included in this retrospective study. We analyzed data according to methods of surgical resection, age at diagnosis and resection, postoperative outcome and length of hospital stay.

Results: 10 patients were included, 6 boys and 4 girls. In 6 cases the diagnosis was obtained prenatally, in 50% on prenatal ultrasound during pregnancy week 14-22. The remaining 4 children were diagnosed in the first month of life (n=2) or at elementary school age (n=2) due to symptoms by chest X-ray or CT. Four children were symptomatic (3 girls, 1 boy). Nine of them underwent open resection via thoracotomy with lobectomy of the affected lobe, in one case a wedge resection via thoracoscopy was performed. Median age at resection was 9 months (asymptomatic patients 9 months, symptomatic patients 54 months). There was no major morbidity (n=0), only minor occurred (fever = 1; diarrhoe n=1), both Clavien Dindo I. Average postoperative stay on the pediatric intensive care unit was 3.5 days with a total length of hospital stay of 9.6 days (3.5 ICU, 6.1 pediatric ward). Asymptomatic patients were dismissed after 9 days vs symptomatic after 10.25 days.

Conclusion: This study underlines the safety of surgical resection in CPAM patients. Length of stay was shorter in asymptomatic patients. However, clear and evidence-based recommendations are necessary regarding the indication of resection and optimal timing and course of treatment of asymptomatic children. With increasing experience of minimally invasive anatomic resections, video-assisted approaches might be feasible also in CPAM patients.

Disclosure of Interest: None declared

PW8.04

GEOGRAPHIC AND ECONOMICAL CORRELATION OF PEDIATRIC LIVING DONOR LIVER TRANSPLANTATION DONOR-RECIPIENT GENDER PROFILE: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Paediatric living donor liver transplantation (LDLT) has gained popularity due to limited deceased donor organ supply. Some studies report inequalities in donor and recipient gender profiles, but data is sparse. We evaluate LDLT donor-recipient gender profiles, comparing geographic locations and Organisation for Economic Co-operation and Development (OECD) status.

Materials & Methods: We performed a systematic review, searching PubMed, Embase and Cochrane databases for publications dated January 2006-September 2021. We included full text English articles reporting gender in ≥ 40 universally sampled donor-recipient pairs. Search terms were permutations of 'liver transplant', 'living donor' and 'paediatric'. Countries were grouped according to continents and OECD status. Proportions analysis with corresponding 95% confidence intervals (CI) were used for analysis of dichotomous variables, with significance when 95% CI did not cross 0.5. Data are reported as female proportion (%) and 95% CI.

Results: Of 12,525 studies (6152 recipients and 6138 donors) identified, 14 retrospective studies (12 countries) fulfilled study inclusion criteria. No preponderance of a certain gender in recipients was seen overall [female proportion 50.36 (95% CI 46.48 to 54.24)], in Asian, European and American countries as well as both OECD and non-OECD countries. Female donor preponderance was seen overall [female proportion 57.35%, (95% CI 55.13-59.55)], in Asian [female proportion 57.89%, (95% CI 54.97 to 60.79)] and American countries [female proportion 57.86%, (95% CI 54.60 to 61.07)]. Female donor preponderance was found to be present in both OECD [female proportion 55.44%, (95% CI 53.98 to 56.88)] and non-OECD countries [female proportion 59.59%, (95% CI 57.15 to 61.99)].

Conclusion: There are significant imbalances in recipient-donor gender profiles in paediatric LDLT that are not well explained. Under-reporting of gender in academic publications has to be addressed before a more comprehensive analysis can be carried out. Our results highlight the need for further studies regarding detailed epidemiological data on underlying diseases in paediatric LDLT which could clarify the link between liver pathology and donor-recipient gender profiles.

Disclosure of Interest: None declared

PW8.05

OUTCOME OF EMERGENCY LAPAROTOMY IN A PUBLIC HOSPITAL IN MALAYSIA

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Introduction: Emergency laparotomy is known to carry a distinctive risk for death and complications. Management of emergency laparotomy is resource-intensive, however critical facilities, advanced equipment and expertise is limited in middle and low-income countries. Acknowledging the disproportionate mortality and morbidity, several countries have taken the initiative to improve the quality for emergency laparotomy patients. This study aims to describe the characteristics of emergency laparotomy patients in Malaysia with reference to operative workload, time of surgery and outcomes.

Materials & Methods: This retrospective cross-sectional study included all emergency laparotomy for the period 1st January 2017 to 31st December 2017. Data on patient demographics, postoperative mortality, type of surgical procedure and utilisation of critical care facilities was obtained from the Computerised Operating Theatre Documentation System of the hospital.

Results: A total of 509 laparotomies were performed during the year and 262 (51.5%) were performed as emergency. The number of elderly patients aged 65 years and above was found to be significantly higher in emergency cases (35.9%), as compared to elective (24.3%). The overall 30-day mortality following emergency laparotomy was 16.4% and 29.8% for patients 65 years and over. The length of stay and utilisation of critical care facilities was significantly increased for emergency laparotomy. Mortality was associated with increasing age, high ASA physical status and high ACCI score. Colorectal procedures comprised the most common emergency laparotomies (44.3%), followed by procedures for small bowel (27.1%), biliary procedures (16.4%) and repair of perforated peptic ulcers (12.2%). The 30-day mortality rate highest for procedures related to repair of perforated peptic ulcer (43.8%). A significant number of emergency laparotomy episodes (56.9%) were performed out of working hours.

Outcome of laparotomy Elective (n = 247) Emergency (n = 262) P value

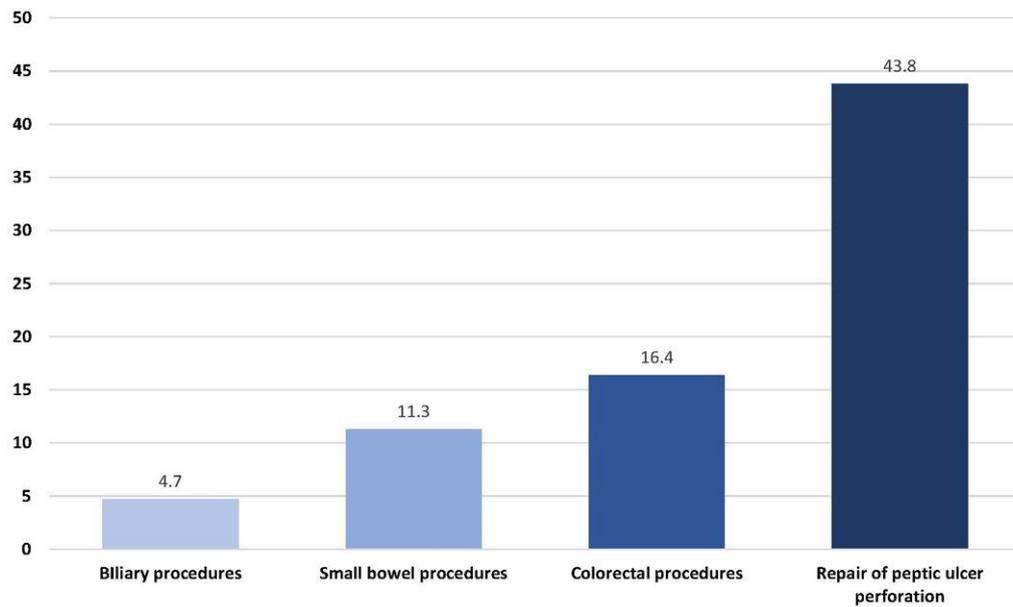
Length of stay, d, median (IQR) 4 (IQR: 2-7) 7.5 (IQR: 5-14.25) <.01

HDU/ICU admission, n (%) 15 (6.0) 77 (29.4) <.01

30-day mortality 0 (0.0) 43 (16.4) <.01

Image:

Figure 1: 30-day mortality rate of types of surgical procedures



Conclusion: Emergency laparotomy in public hospitals in Malaysia is associated with significant mortality and substantial use of critical care facilities. Appropriate risk assessment and perioperative care pathways may improve outcome. Concerted effort must be made to improve the outcome of emergency laparotomy by conducting audits and designing care pathways to suit the local needs.

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Disclosure of Interest: None declared

PW8.06

COMPARISON OF QUALITY OF LIFE OF PATIENTS AFTER ETEP INGUINAL HERNIA REPAIRS AND LICHTENSTEIN OPERATION: AN INDIAN PERSPECTIVE

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Introduction: Inguinal hernia repair is one of the most popular procedures performed on a regular basis. Open surgery, such as the Lichtenstein operation, or laparoscopic surgery can be used to treat hernias. We have recently adopted eTEP inguinal hernia repair and introduced eTEP inguinal hernia repair as a regular procedure for the majority of our patients. In older patients with cardiac issues who are not candidates for laparoscopic surgery, we conduct open Lichtenstein repairs. Young individuals are also undergoing Lichtenstein surgery owing to financial constraints or a misconception about laparoscopic surgery. Furthermore, some patients prefer an open hernia repair. The aim of this study is to compare quality of life and recurrences after unilateral inguinal hernia repair for patients undergone eTEP and Lichtenstein operation.

Materials & Methods: A retrospective analysis was done on 70 patients with primary unilateral inguinal hernias who had surgery between 2016 and 2020. All patients were admitted on day of operation. Epidemiological data, surgical time, perioperative problems, and inpatient time were analysed. Data on the incidence of hernia recurrences and quality of life, as measured by the Carolinas Comfort Scale and Short Form 36, was gathered by a telephone survey or during patient visit.

Results: Unilateral inguinal hernia was simultaneously repaired in 42 patients performing TAPP and 28 performing Lichtenstein procedures. The patient's average age was 51.3 years. The time required for unilateral eTEP surgery was more than that required for the Lichtenstein approach (70 vs 58 min). The average length of stay among eTEP patients was 26 hours, while in Lichtenstein patients it was 34 hours (p 0.05). One patient had a hernia recurrence with eTEP procedure. One week following surgery, 6 patients (14%) reported postoperative pain after eTEP and 11 patients (39%) after Lichtenstein. One year following surgery, the average CCS and SF-36 scores were comparable.

Conclusion: In comparison to the Lichtenstein procedure, unilateral inguinal hernia surgery with the eTEP approach was linked with reduced discomfort in the perioperative period and a shorter hospital stay. However, the eTEP technique takes longer time to perform than the Lichtenstein procedure. In both operations, the quality of life of patients with long time follow-up is identical.

Disclosure of Interest: None declared

PW8.07

CHARACTERIZATION OF THE MAIN EMERGENCY SURGERIES IN PEDIATRIC AND ADULT PATIENTS AT THE REFERENCE HOSPITAL IN MOZAMBIQUE.

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Introduction: Emergency services are the main points of medical and surgical entry. The clinical epidemiological profile differs between countries. Our objective is to characterize the main emergency surgeries in the country's reference hospital.

Materials & Methods: A prospective cross-sectional study was carried out between October - December 2020 in the emergency operating room of the Maputo Central Hospital. The information was extracted from the anesthesia records and from the patients' clinical records. The study was approved by the Institutional Bioethics Committee of the Faculty of Medicine & Hospital Central de Maputo (CIBS FM&HCM/P049/2020).

Results: 964 emergency surgeries were performed. Females (69.7%) were the most predominant in adults and males (61.3%) in pediatrics. The main surgical anesthetic risk (ASA) was I in pediatrics (60.9%) and II in adults (45.3%). The main types of anesthesia in pediatrics and adults were: 116 (87.9%) and 277 (34.4%) general anesthesia, 7 (5.1%) and 4 (0.5%) sedation and 4 (3%) and 520 (63.6%) regional respectively. The most used anesthetic gases were: isoflurane in 8 (13.8%) / 40 (10.7%), followed by sevoflurane in 8 (4.6%) / 23 (6.3%) and finally halothane 4 (2.4%) / 3 (0.8%) in pediatrics and adults respectively. General surgery 70 (54.7%), ophthalmic surgery 28 (21.9%) and neurosurgery 13 (10.2%) were the main surgeries in pediatrics and in adults cesarean sections 443 (54.4%), general surgery 256 (31.4%) and orthopedic surgery. 46 (5.6%). The relevant mean surgical time in pediatrics was 1-2 hours (28.5%), < 30 minutes (27.3%) and equaling 30-45 minutes and 45-60 minutes (18.6%) and in adults between 30-45 minutes (33.5%), 1-2 h (29.5%) and 45-60 min (14.8%).

Conclusion: General surgery with foreign body removal and cesarean procedures was the main cause of pediatric and adults surgery in the emergency department of the Maputo Central Hospital

Disclosure of Interest: None declared

PW8.08

TOWARDS A LOW COST MONITOR-BASED AUGMENTED REALITY TRAINING PLATFORM FOR AT-HOME ULTRASOUND SKILL DEVELOPMENT

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Introduction: One of the aspects of ultrasound training is to develop psychomotor skills during practical exercises [1]. This research investigates the use of Augmented Reality to assist students in their home-based ultrasound training.

Materials & Methods: In this project, a student can train for an ultrasound examination using just two printed Aruco markers and one computer with the following process:

1. The student sits in front of the computer,
2. The student places one Aruco markers on his/her arm and one on the simulated probe (a pen).
3. The student launches the application: the live video recorded by the webcam appears.
4. On the screen, the student can see the live video and a simulated space where there is an arm and an ultrasound probe. The arm follows the arm of the student thanks to the Aruco marker; similarly, the ultrasound probe follows the simulated probe.
5. The student clicks on one of the ultrasound buttons. An ultrasound display screen will appear.
6. The student starts the examination by running the simulated probe along his/her arm: the ultrasound images will appear on the ultrasound display screen. The student can train to read the ultrasound.

Ultrasound images were recorded by running a Healcerion Sonon 300L ultrasound probe down the arm of a volunteer. We used Unity 2020 LTS to create our tracking solution. The webcam records the live scene and detects the Aruco markers; from their positions, the positions of the arm and the probe are updated in the simulated space. Then, the choice of the ultrasound image depends on the distance and the angle between the two markers.

Results: This system was evaluated in 2 stages. In Stage 1, 2 surgical consultants and 1 anesthesiologist were shown the system and openly discussed their feedback. In Stage 2, 9 students and 1 lecturer in the MSc in Anatomy were asked to complete a short MCQ.

Stage 1:

- The system is interesting and there is a need for this kind of system.
- It would be useful to tight it to a surgical need.
- There are several tasks a trainee needs to be proficient at such as the angle to find the best view, contact with skin, working the gel, and the interactions amongst them all. If this interaction is not handled correctly then you are now learning the task in error.

Stage 2: Overall, the results of this feedback session were positive, demonstrating that students would use such a system for home-based training to support their studies.

Image:



Conclusion: The evaluation of the system demonstrates its potential to assist students in their home-based ultrasound training.

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Disclosure of Interest: None declared

PW8.09

TAMSULOSIN ADMINISTRATION FOR THE PREVENTION OF URINARY RETENTION AFTER INGUINAL HERNIA REPAIR

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Introduction: Inguinal hernia (IH) repair under spinal anaesthesia is one of the most common worldwide procedures performed by general surgeons. However, one of the drawbacks of this type of anesthesia is the possibility of postoperative urinary retention (POUR). POUR results to prolonged hospitalization and reduced patient satisfaction. The aim of this double blinded randomized controlled study is to investigate the prophylactic effect of Tamsulosin on the development of postoperative urinary retention (POUR) in men undergoing elective open IH repair under spinal anesthesia.

Materials & Methods: A total of 100 eligible male adults patients ≥ 50 years of age with unilateral inguinal hernia repair and ASA Score ≤ 2 were randomized into 2 groups. Patients in the experimental group were given 2 doses of tamsulosin 0.4 mg orally 24 hours and 6 hours before surgery. In the control group, 2 doses of placebo were administered, in the same manner as the study group. Patient with benign prostatic hypertrophy under medication were excluded from the study. All the procedures were performed under spinal anaesthesia.

Results: No statistically significant differences in terms of base demographics between the two groups were found. Mean age of the patients was 64 years old. Overall, the incidence of POUR was 37% (37/100) with no difference between the 2 groups. Among patients receiving tamsulosin 39.2% (20/51) developed POUR, compared to 34.7% (17/49) in the control group.

Conclusion: This interim analysis of our prospective randomized trial showed no benefit from the prophylactic use of tamsulosin in preventing POUR after IH repair under spinal anesthesia. This type of anesthesia was also correlated with an overall high incidence of POUR.

Disclosure of Interest: None declared

PW8.10

COMPLEX ABDOMINAL WALL RECONSTRUCTION WITH BIOLOGIC MESH FOR VENTRAL HERNIA REPAIR IN SOLID ORGAN TRANSPLANT RECIPIENTS: PRACTICAL TIPS AND TRICKS

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Introduction: Ventral hernia is common occurrence in patients undergoing solid organ transplant (SOT) and require complex abdominal wall reconstruction (CAWR). The aim of this study was to analyze the outcomes of CAWR in SOT patients in a tertiary center.

Materials & Methods: We performed a prospective cohort study from January 2016 to November 2021 of patients who underwent CAWR with biological mesh at our center. As per study protocol all patients are followed for 3 years.

Results: During the study period we performed CAWR in 38 SOT patients. Mean age (Standard Deviation: SD) was 61 (9.5) years and the majority were males (68 %). Mean body mass index (SD) was 30.3 (5.5) kg/m² and hernia repair was done electively in 33 of patients and the majority (82%) of hernia were less than class 2 with median mesh size (interquartile range) 600 (400-800) square cm. Seventy nine percent of patients were liver transplant recipients and the mesh was placed sub-lay (retro-rectus) (82%) and posterior component separation was the most common technique employed (82%). Five patients (13.2%) had surgical site infection and 4 (10.5%) had unplanned reoperations. No patients were dead postoperatively and 30-day readmission rate was 21%. Three patients (7.9%) had recurrence during the follow up and all of them had reoperations.

Image:

Table 1| Comparison of patients between patients who received steroids and those who didn't at CAWR.

		Non steroid N=20	Steroid N=18	P
Age, year, Median (IQR)		63 (52-67)	62 (54-71)	0.4
Male, N (%)		14 (70%)	12 (67%)	0.8
BMI, kg/m ² , Median (IQR)		30.8 (28.0-32.7)	28.6 (25.0-33.1)	0.4
Emergency, N (%)		4 (20%)	1 (6%)	0.3
Transplant organ N (%)	Liver	17 (85%)	13* (72%)	0.04
	Kidney	0 (0%)	6* (33%)	
	Heart	3 (15%)	1 (6%)	
ASA N (%)	2	3 (15%)	1 (6%)	0.2
	3	17 (85%)	15 (83%)	
	4	0 (0%)	2 (11%)	
CDC Wound Class 3 and 4, N (%)		4 (20%)	5 (28%)	0.7
Operative time, Median (IQR), Minutes		170 (128-230)	196 (165-271)	0.08
Mesh size, Median (IQR), cm ²		540 (250-600)	600 (400-850)	0.4
Length of Stay, Median (IQR), Days		6 (4-10)	6 (4-7)	0.9
All complications, N (%)		3 (15%)	4 (22%)	0.7
SSO, N (%)		3 (15%)	3 (17%)	0.9
SSI, N (%)		2 (10%)	3 (17%)	0.6
Reoperations, N (%)		3 (15%)	1 (6%)	0.6
Disposition Home, N (%)		17 (85%)	16 (89%)	0.9
Recurrence, N (%)		2 (10%)	1 (6%)	0.9

*Two patients had combined liver and kidney transplant.

BMI: body mass index, ASA: American society of anesthesiology, CDC: center for disease control and prevention, OR: operative time, IQR: interquartile range, SSO: surgical site occurrence, SSI: surgical site infection

Conclusion: Complex abdominal wall reconstruction using biologic mesh for post solid organ transplant patients with ventral hernia is safe and has low recurrence, when performed by a dedicated CAWR team.

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Disclosure of Interest: None declared

PW8.11

ENDOMETRIAL STROMAL SARCOMA OF THE TRANSVERSE MESOCOLON – A CASE REPORT

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Introduction: Uterine stromal tumors make up less than 1% of uterine neoplasms. Given the rarity of these tumors there is a paucity of data to guide clinical decisions. Extrauterine origin for this tumor is thought to be related to endometriosis. Endometriosis is also an independent risk factor for the development of endometrial stromal sarcoma.

Materials & Methods: Literature review and data from the electronic patient chart.

Results: A 72 years old female, with a past medical history of hypertension, diabetes, chronic heart failure and atrial fibrillation was referred to general surgery after a positron emission tomography found a large abdominal mass. At the time the patient showed no symptoms related to the gastrointestinal tract.

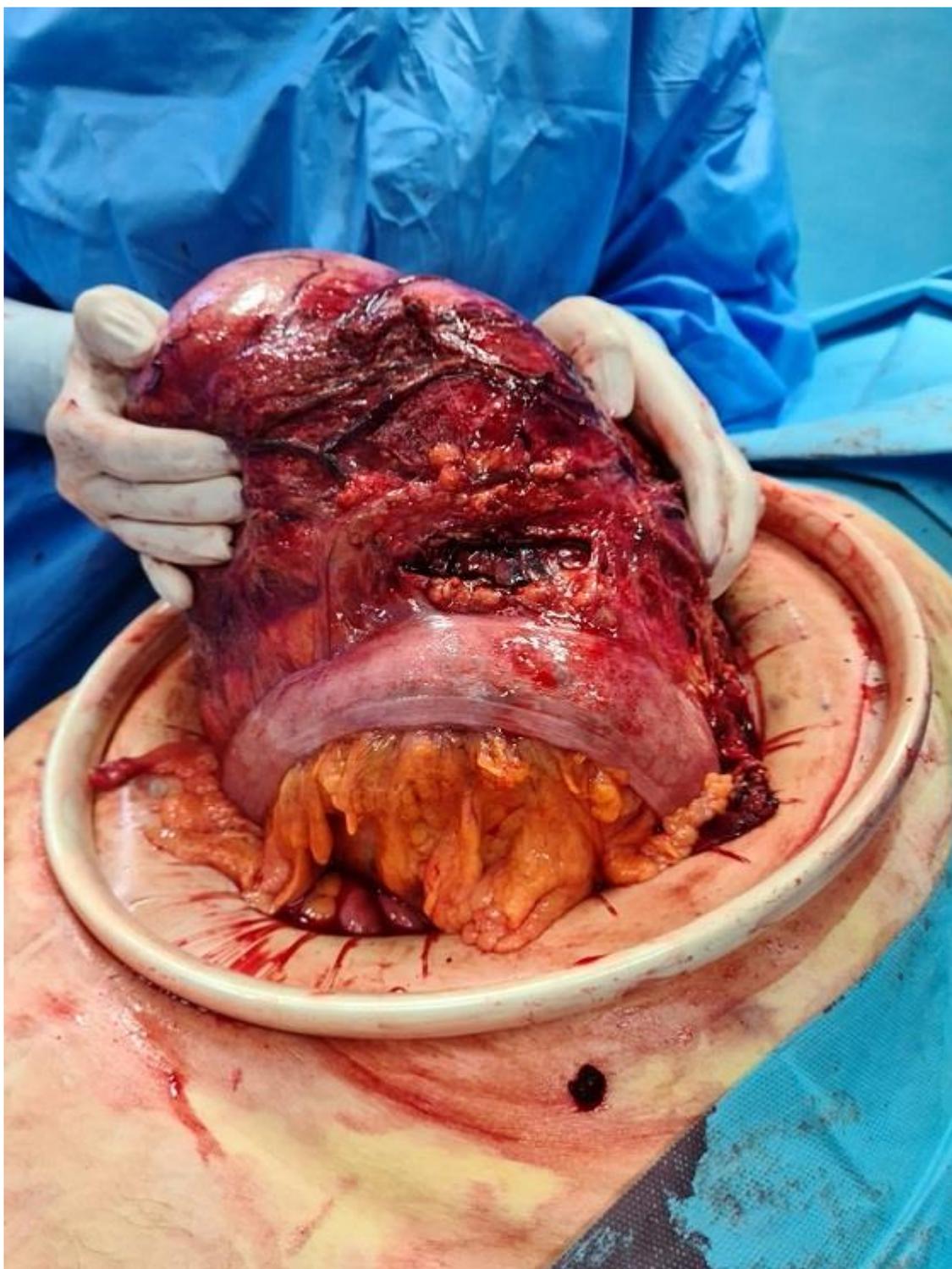
Upper endoscopy showed no relevant findings. Endoscopic ultrasonography and fine needle aspiration cytology were inconclusive. Abdominal magnetic resonance imaging showed a 15x14x11cm cystic mass, without invasion of adjacent viscera, suggestive of peritoneal tumor.

During this work up the mass had a fast growth and patient started having symptoms of early satiety, anorexia, and vomiting. After multidisciplinary discussion surgical excision was proposed.

Intraoperatively the mass was found to be adherent to the anterior abdominal wall, and had its origin point on the transverse mesocolon (figure 1). The mass was excised, as well as two satellite nodules in the mesocolon. Post operatively the patient developed an intraperitoneal hematoma, without need for surgical reintervention, and was discharged after 12 days.

Initial pathological analysis showed a high grade leiomyosarcoma. The patient was referred to a high-volume oncology center. Later revision of the histologic specimens showed an endometrial stromal sarcoma. First computerized tomography post operatively showed a residual 34 mm mass, involving the left rectus abdominis muscle. After multidisciplinary discussion the patient started hormonal treatment with letrozole.

Image:



Conclusion: Surgery is the mainstay of treatment for endometrial stromal sarcoma. Tumor free margins are an important prognostic indicator. Given the expression of hormone receptors, post operative hormone treatment can reduce the risk of recurrence. After recurrence chemotherapy may be indicated with agents such as ifosfamide or doxorubicin.

Disclosure of Interest: None declared

PW8.12

EVALUATION OF VECTRA® XT 3D SURFACE IMAGING TECHNOLOGY IN MEASURING BREAST SYMMETRY AND BREAST VOLUME.

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Introduction: Background: Breast symmetry is an important component of assessing breast cosmesis. The Harvard Cosmesis scale is the most widely adopted method of breast symmetry assessment. However, the scale lacks reproducibility, reliability; and this limits its application in clinical practice. The VECTRA® XT 3D (VECTRA®) is a novel breast surface imaging system which, when combined with breast contour measuring software (Mirror®) aims to automate this measurement to produce a more accurate and reproducible breast contour measurements to aid operative planning in breast surgery.

Materials & Methods: Objectives: This study aims to compare the reproducibility and reliability of the Harvard Cosmesis scale with VECTRA®; and assess how differences in breast volume approximation affect breast symmetry scores.

Methods: Patients at a tertiary institution had 2D and 3D photographs of their breasts. Seven panellists scored the 2D photographs using the Harvard Cosmesis scale. Two panellists used Mirror® software to calculate the Root Mean Scores (RMS) when the 3D images were overlapped over each other; and breast volumes.

Results: Results: Inter-observer agreement was weak (kappa 0.078-0.454) amongst Harvard scores compared to VECTRA® measurements. Intra-observer agreement ranged from none to moderate (kappa -0.005 – 0.7) amongst the panellists using the Harvard Cosmesis scale. Kappa values ranged 0.537 to 0.674 for intra-observer agreement ($p < 0.001$) with RMS scores. RMS had moderate correlation with the Harvard Cosmesis scale ($r_s = 0.613$). Furthermore, absolute volume difference between breasts had poor correlation with RMS ($R^2 = 0.133$).

Conclusion: Conclusion: VECTRA® and Mirror® software is a more objective method of measuring breast symmetry.

Disclosure of Interest: None declared

PE001

THORACIC ENDOVASCULAR REPAIR (TEVAR) TO TREAT VARIOUS THORACIC/THORACOABDOMINAL AORTIC LESIONS - ROLE OF COVERING/OVERSTENTING THE LEFT SUBCLAVIAN ARTERY (LSA): A RETROSPECTIVE COHORT STUDY

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Introduction: Pathologies of the descending thoracic aorta inwardly extended towards the aortic arch actually shorten the proximal landing zone for aortic prosthesis. This, in turn, worsens the feasibility of the aorta for endovascular therapeutic options of those pathologies.

Aim: To investigate that there is no necessity for primary standard revascularization of the LSA in TEVAR with LSA covering. The researchers have 12 years of experience in treatment of different thoracic aortic lesions, which will also be reviewed in this study.

Materials & Methods: All patients ($n=112$) who had undergone endovascular, hybrid or open operative therapy of variant pathologies of descending aorta were included in this retrospective unicenter cohort study.

Results: There was no significant difference comparing the not-revascularized vs. the revascularized group, considering the consequences on cerebrovascular blood circulation (in particular, $n=1$ case [4.8%] vs. no case [0%]; $p=1$) or the spinal cord ischemia ($n=2$ [9.5%] vs. $n=1$ [7.1%]; $p=1$). As the main result, there was no case of manifest left-arm ischemia & deaths (mortality, 0). Survival was in both groups as follows: 22 [95%-CI, 14.154–29.904] months vs. 43 [95%-CI, 33.655–51.921] months with no statistically significant difference ($p>0.05$). The only statistically significant risk factor found was renal insufficiency ($p, 0.028$) but this too is considered a trend by the urgency of revascularization. Postoperatively, pneumonia showed a trend of higher frequency ($p=0.058$) in the revascularized cases ($n=0$ in the not-revascularized vs. $n=3$ [21.4%] in the revascularized cases). There was no significant difference in the occurrence of postoperative neurovascular complications (such as cerebrovascular accidents, spinal cord ischemia or left-arm ischemia) by comparing the groups of not-revascularized and revascularized patients.

Conclusion: Revascularization of the blocked LSA in Ishemaru-zone-2-approaching TEVAR should be limited to:

- . An inadequate intracerebral circle of Willis
- . An advantageous left vertebral artery w/ stenosis/an inadequate right vertebral artery
- . Left vertebral artery originating directly from the aortic arch & must be blocked
- . Need of an adequate left internal thoracic artery for CABG
- .

However, there is no appropriate evidence as yet based on sufficient study results achieved in trials w/ an advanced design (such as [double-]blind, multicenter randomized study) that appears to be urgently required.

Disclosure of Interest: None declared

PE002

DIAPHRAGMATIC PPLICATION – 5 YEARS SINGLE CENTER EXPERIENCE

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Introduction: Diaphragmatic eventration is a relatively uncommon entity and surgical treatment is infrequently performed for unilateral diaphragmatic paralyses in adults. The aim of the study was to report the clinical and surgical outcomes in this kind of patients.

Materials & Methods: Single center, cohort retrospective study including 11 patients (5 men) operated on diaphragmatic eventrations from February 2017 to February 2022. The median age was 68 years and the median body mass index was 28.2kg/m². Hypertension was presenting in 7 patients (64%), heart valve surgery in 4 patients (36%), myasthenia gravis history in 3 patients (27%) and diabetes mellitus in 2 patients (18%). Dyspnea was the main symptom in all patients, (one equivalent patient dependent on invasive ventilatory support), thoracic pain was present in 27% and eructation and reflux symptoms were there in 18% of the patients. The mean forced expiratory volume in the first second was 62% of predicted. Regarding the etiology, iatrogeny was the most common, identified in 7 patients (4 postcardiac surgery and 3 post thoracic surgery), 1 post infection, 1 post traumatic and the remainder were idiopathic in origin. Eight eventrations were left-sided and 3 were right.

Results: A posterolateral thoracotomy was performed on 10 patients and video-assisted thoracoscopic surgery (VATS) on one patient. We chose different techniques with 8 radial, 1 “accordion” and 2 mixed repairs with purse-string and “accordion” plication. The median hospital stay was 5 days (3-71 days) and 4 days for drain removal (2-21 days), with minimum days for the VATS patient. We have one case of morbidity with long-lasting pleural effusion. There was one case of death at 71 days post right diaphragmatic plication on an anticoagulated patient who complicated with hemorrhagic shock caused by a hemothorax and hepatic hematoma and died later due to COVID-19 with bacterial superinfection. At 30 days follow-up 10 patients reported an improvement in symptoms (one ventilated patient) and the mean descending distance of the diaphragm was 1,45 intercostal spaces. With a mean follow-up of 10,1 month there was only one case of relapse.

Conclusion: Plication of the diaphragm is safe and effective procedure for symptomatic diaphragmatic eventration in adults. Most patients experienced significant clinical improvement. VATS approach can be an option with tendency for short hospital stay but we need further good quality, prospective and randomized controlled studies to support that statement.

Disclosure of Interest: None declared

PE003

A 25-YEAR-OLD MEDIASTINUM INTRUDER

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Introduction: A 77-year-old female with aggravating dyspnea was referred to us for the surgical management of a severe calcific aortic valve stenosis. Patient history showed the presence of a mediastinum cystic mass described in 1997 for which clinical surveillance had been proposed. Preoperative computed tomography (figure 1) and chest X-ray (figure 2) revealed that the cystic mass had tripled over the last 25 years and currently measured 17 x 13 x 3 cm. An aortic valve replacement associated with *en bloc* removal of the cystic mass was performed.

Materials & Methods: Perioperative examination (figure 3) and histopathological findings (figure 4) were consistent with benign pleuropericardial cyst.

Results: The postoperative recovery was successful and the clinical follow-up uneventful.

Image:



Figure 1.



Figure 2.

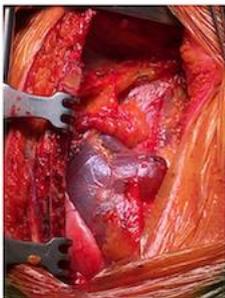


Figure 3.



Figure 4.

Conclusion: Pleuropericardial cyst are a relatively rare form of mediastinal benign cyst with an embryological origin[1]. They are generally fortuitously discovered and their management should consist in a complete surgical excision, even in asymptomatic patients. This allows to prevent further complications and obtain a definitive histological diagnosis[2].

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Disclosure of Interest: None declared

PE004

PRIMARY CLOSURE STILL HAS A ROLE IN PRE-PUBERTAL PILONIDAL SINUS DISEASE, WHEREAS RECURRENCE WAS NOT INFLUENCED BY THE TYPE OF PROCEDURE IN ADOLESCENTS – A RETROSPECTIVE MULTICENTRIC ANALYSIS

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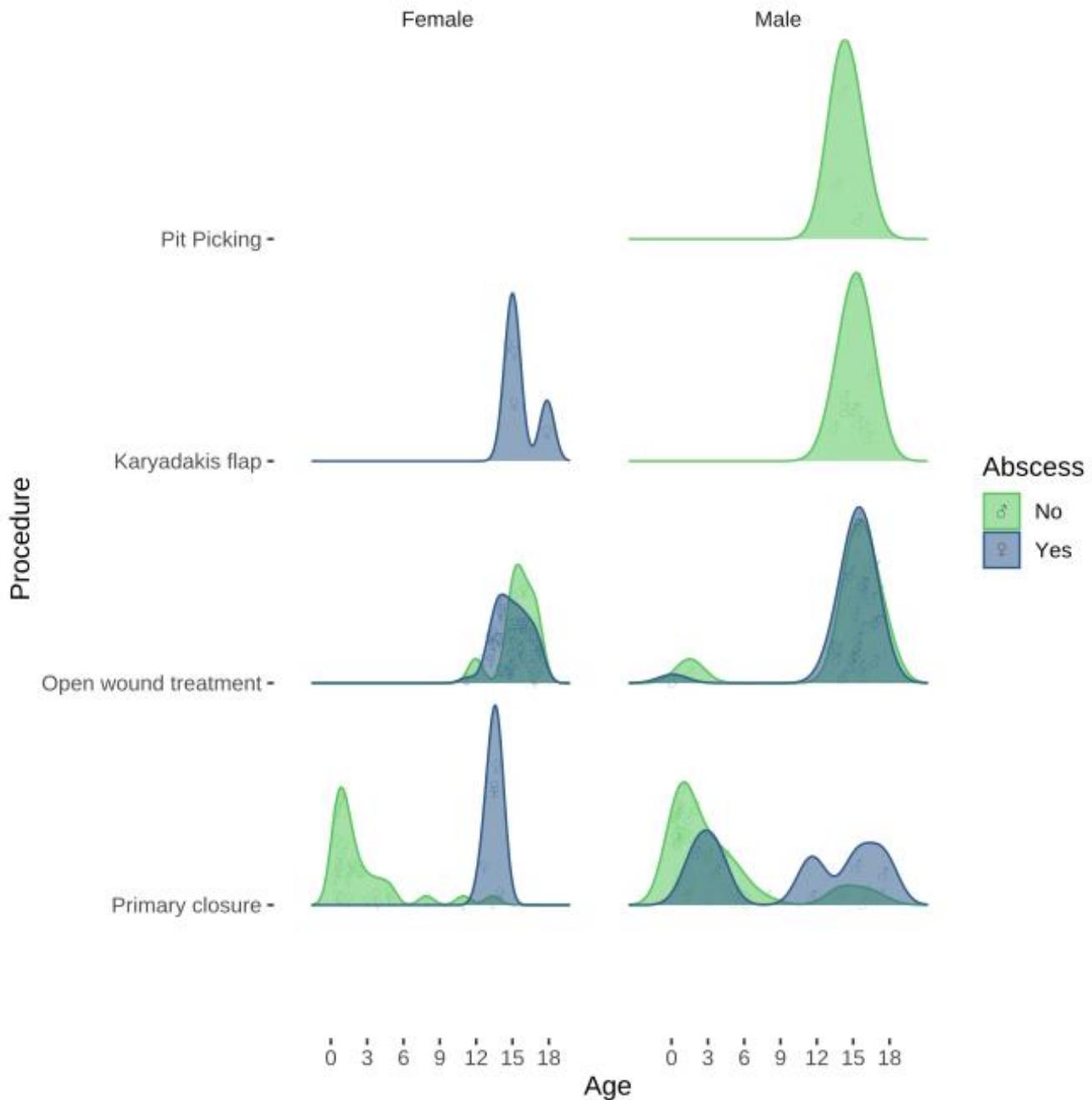
Introduction: Despite primary midline closure having no role in the treatment of pilonidal sinus disease in adults due to its high recurrence rates, it is still widely used in paediatric surgery. Evidence is largely missing for pilonidal sinus disease treatment in children and the existing one is occasionally contradictory. We therefore compared the chance of recurrence in the combined patient population of three paediatric surgical departments.

Materials & Methods: We retrospectively assessed all children treated between the 1st January 2009 and the 31st December 2020 in our paediatric surgical units. Obesity was defined as a body-mass index above the 97th percentile. Onset of puberty was assumed based on contemporary German data with 13 years. The chance for a recurrence was calculated using logistic regression with pre-defined predictors.

Results: We included 214 patients, whose median age was 14.1 (95% confidence interval (CI) 13.6–14.7) years. 103 (48%) were female, 110 male, and one patient neither of both. Of these, 77 were classified as children and 140 as adolescents. Abscesses were present in 92 patients (85 adolescents), obesity in 45 patients (30 adolescents) of 191 patients with available data, and methylene blue guidance was used in 76 patients (68 adolescents). Primary closure was used in 83 patients (13 adolescents), excision and open treatment in 98 patients (93 adolescents), a Limberg flap in 2 adolescents, a Dufourmentel flap in 2 adolescents, a Karyadakis flap in 18 adolescents, a Bascom flap in 3 adolescents, and pit picking in 8 patients (6 adolescents). Recurrences occurred in 34 patients (31 adolescents) after a median duration of 0.48 years (95% CI: 0.35–0.86). In pre-pubertal children, recurrence was an exception precluding any analysis. Consequently, all procedures fared worse compared to primary closure in the whole cohort, but this effect vanished with inclusion of the predictor age. We thus limited the assessment of the different procedures to adolescents: In them, recurrences were not influenced by the type of procedure, the presence of an abscess, sex or use of methylene blue.

Image:

Density of age distribution of cases separated by sex.
 Colour indicates concurring abscess.



Conclusion: Despite the almost exclusive use of primary closure in pre-pubertal children, recurrences were an exception. In adolescents, recurrences did not differ between the different types of procedures, but some were rarely used. Moreover, we may have missed recurrences as the patients became of age and were not treated by paediatric surgeons anymore or were lost to follow-up.

Disclosure of Interest: None declared

PE005

OUTCOME OF THE BISHOP-KOOP ENTEROSTOMY IN THE TREATMENT OF INTESTINAL ATRESIA

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Introduction: The surgical treatment of intestinal atresia involves several techniques. Resection with end to end anastomosis has high morbidity and mortality. The Bishop Koop enterostomy helps since it allows early enteral nutrition. This accommodates well in our milieu where total parenteral nutrition and a true neonatal intensive care unit are not available. Our goal was to report our preliminary results of the Bishop Koop enterostomy in a resource limited setting.

Materials & Methods: We did a descriptive retrospective study in the pediatric surgery service of the Yaounde Gyneco-obstetric and pediatric hospital over 8 years from the 1st January 2013 to the 1st June 2020

Results: Nine files of patients with a mean age at presentation of 3.3 days (1-7 days) and mean weight of 2546.6 were collected. Male predominance was noted with a sex ratio of 2 and 6 patients (67%) were premature. The Bishop Koop procedure was indicated for jejunal atresia in 6 cases and type 3 of Grosfeld classification in 66.6%. The morbidity was marked by wound site infection in 3 patients, peristomal skin irritation and anastomotic leak in 2 patients each. We recorded a mortality of 88.8% and the mean post-operative duration before death was 9.2 days.

Conclusion: The Bishop Koop technique is an alternative in the surgical tools used in intestinal atresia. Our preliminary results could be ameliorated if total parenteral, stoma bags and neonatal intensive care unit were made available.

Disclosure of Interest: None declared

PE006

LIPOBLASTOMA AS RARE SOFT TISSUE TUMOR LESION IN AN INFANT

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Introduction: Aim: To illustrate a rare case of a soft tissue tumor(Tu) mass of the right groin diagnosed as lipoblastoma

Materials & Methods: Scientific case report

Results: Case: - *Med. history (hx):* Swelling of the right groin increasing after physical activities. Familiarity med. hx, breast cancer (grandmother).

- *Clinical findings:* 22-months-old girl with an elastic swelling of 2x3 cm in size at the right groin.

- *Diagnostics:* **1)** Lab parameters: White blood cell count, 11.1 (normal range, 3.7-9.8) Gpt/L.

2) Ultrasound-guided Bx: Appropriate puncture specimen w/o no complications

3) Histopathol. investigation: Lipomatous lesion w/ lipoblast-like cells & muscle tissue; Ki67-index, 1% (no MDM2 expression).

4) MRI revealed a partially liquid, partially fat-equivalent Tu-like lesion of 44x34x48 mm in size within the adductor group of thigh muscles occupying the medial myofascial compartment of the right leg including **i)** a finger-shaped tail up to the left hip (no intraarticular Tu extension) & like a Tu cone to the right obturator internus muscle, **ii)** displacement of the nerve & vessels to the lat. site with no hint for osseous infiltration, & **iii)** blood supply from the right common fem. artery (additionally, cystiforme ovarian lesion of 9x7 mm in size at the left side).

- *Therapy* (surg. intervention, 92 min): R0 resection (by pediatric & vasc. surgeons) of the mass with a gentle capsule (orienting Tu margin) incl. surrounding muscle fibers (for Tu-free resection margin), lymphadenectomy as part of the resected Tu conglomerate & additional excision of the dermal puncture site at the right groin (+ preserving all vessels) was performed.

- *Histopathol. investigation* (surg. specimen): Confirmation of lipoblastoma

- *Clinical course:* Postop. time period showed development of a wound seroma with fever prompting to surg. wound revision & initiation of antibiotics. After an episode of an infection of the upper respiratory tract, a wound abscess needed to be surgically opened, at the initial phase with exposed vasc. segment of the right groin prompting for antiseptic wound dressing, later on treated with vacuum-assisted closure (VAC).

- *Further therapeutic consequences /outlook:* Regular clin. & ultrasound-based control investigations in an outpatient clinic setting & clin. data documentation in the "Soft Tissue Sarcoma Registry" (CWS-SoTiSar).

Conclusion: Careful & complete surg. resection is valued to be the only potentially curative treatment incl. continuous follow-up investigations (clin. finding & imaging controls).

Disclosure of Interest: None declared

PE007

TRAUMATIC EVISCERATION OF THE STOMACH FOLLOWING AN IMPALEMENT INJURY

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Introduction: Traumatic abdominal evisceration of the stomach following a penetrating impalement injury is an extremely rare form of penetrating traumatic abdominal wall injury. we report a case of stomach evisceration caused by penetrating abdominal trauma following an impalement injury.

Materials & Methods: a 30 months old infant rushed to the emergency department by his mother. he was brought for protrusion of intra-abdominal organs after falling on a bottle with point of maximum impact being the abdomen. the diagnosis of traumatic abdominal wall evisceration was made following physical examination. preoperative resuscitation initiated and a laparotomy done 5 hours after admission.

Results: the post operative period was marked by fever which resolved with artesunate administration. the patient was discharged after 14 days of hospitalisation.

Image:



Conclusion: traumatic evisceration of the stomach is extremely rare. A laparotomy is mandatory and if done early could yield good results even in a resource-limited milieu.

Disclosure of Interest: None declared

PE008

GASTRIC HISTOLOGICAL FINDINGS IN MORBIDLY OBESE SUBJECTS UNDERGOING LAPAROSCOPIC SLEEVE GASTRECTOMY

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Introduction: Laparoscopic sleeve gastrectomy (LSG) is an effective surgical procedure in the treatment of obesity. Obesity has potential effects on the production of gastritis (1) **Objective:** To determine the histological findings of the resected gastric segment during LSG performed in a series of obese patients

Materials & Methods: Descriptive study January 2009 to December 2012. Department of Surgery, Clinical Hospital University of Chile. LSG was performed in 473 obese patients, with partial gastric resection. LGS was indicated according to the standards established by the National Institute of Health of the United States of America (2)

The resected gastric segments were sent to the Pathological Anatomy Service, where a regular study was carried out

For histological typing of gastritis, the Sidney classification was used (3)

Chronic gastritis : Mononuclear cells and lymphocytes

Active gastritis : Neutrophil infiltration

Superficial gastritis : Lymphocytes and plasma cells in the superficial portion of the lamina propria

Follicular gastritis : Monocytes and lymphoid follicles with germinal center in the mucosa (Fig.1)

Gastric atrophy : Shrinkage of glands

Intestinal metaplasia : Replacement of gastric glandular epithelium by cells with intestinal phenotype

Results: The series consisted of 371 women (78.4%) and 102 men (21.6%), mean age 38.8 ±11.9 years and a mean Body Mass Index (IMC) of 37.5 ± 3.2 kg/m²

The histological findings of the resected stomach in the 473 patients are shown in Table 1. Microscopic analysis showed histological alterations in 89.4%

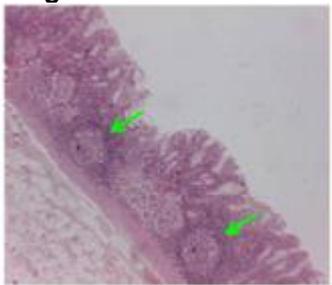
Table 1. Histological findings in resected stomachs of obese patients operated on with LSG

Histological findings	Patients Percentage	
	(n = 473)	%
Normal histology	50	10.6
Abnormal histology	423	89.4
Chronic follicular gastritis	224	47.4
Superficial chronic gastritis	16	3.4

Chronic nonspecific gastritis	152	32.1
Chronic atrophic gastritis	42	8.9
Chronic gastritis with intestinal metaplasia	27	5.7
Gastritis with inflammatory activity	53	11.2
Hyperplastic polyp	1	0.2
Non-necrotizing granuloma	1	0.2
Intramural granular cell tumor	1	0.2
Neuroendocrine cell hyperplasia	1	0.2

Figure 1. Chronic follicular gastritis, with minor magnification (4 x) prominent lymphoid follicles (f) located at the base of the mucosa

Image:



Conclusion: This study shows a high prevalence of histopathological gastric lesions in obese patients undergoing LSG, with chronic follicular gastritis being the most frequent pathology.

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2.NIH Consensus Statement. Gastrointestinal surgery for severe obesity. 1991;279:1-20

3.Dixon MF. Am J Surg Path. 1996;10:1161-81

Disclosure of Interest: None declared

PE009

ACUTE APPENDICITIS IN THE GERIATRIC POPULATION: IT'S NOT A RARE DIAGNOSIS ANYMORE

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Introduction: Acute appendicitis is one of the most common acute surgical pathologies worldwide. With increased life expectancy and the growing population of elderly patients, there has been a rise in the number of cases of acute appendicitis in elderly people. Diagnostics of acute appendicitis in the elderly is challenging – acute appendicitis is not the most common pathology in the elderly, and clinical signs of acute appendicitis are not pronounced.

Materials & Methods: We retrospectively reviewed patient records in one university hospital from 2019 to 2020 who had surgical treatment for suspected acute appendicitis. The total count of patients was 219. We identified 38 elderly patients (≥65 years old) with a proven diagnosis with either computed tomography (CT) or ultrasonography (US). All patients had US done in the emergency department, and it was sufficient to prove the diagnosis in 12 cases. CT scans (26 patients) were analyzed by one radiologist afterward.

Results: The average age of patients was 73.92 years (range 65 – 91). Laparoscopic appendectomy was performed in 42.1% of cases and open appendectomy in 57.9%. The average length of stay was 4.15 days (range 2 – 14).

Intraoperatively complicated appendicitis was diagnosed in 23 cases (60.5%), uncomplicated appendicitis – 13 cases (34.2%), normal appendix – 2 patients (5.3%).

Based on operation notes – 13 patients had periappendicular abscesses. In 8 cases (61.5%), abscess was visualized either by CT (7 cases) or US (1 case). Ten patients had signs of appendix perforation intraoperatively. There were signs of perforation in 8 cases (80%) in CT.

In 5 cases, CT scans were inconclusive regarding the diagnosis of acute appendicitis; intraoperatively, two were described as normal, 2 – uncomplicated, 1 – complicated appendicitis.

Conclusion: Although acute appendicitis is generally a clinical diagnosis, in elderly patients, diagnostics might be complex due to inconclusive clinical signs. Using multimodal diagnostic methods is critical in diagnosing acute appendicitis in the elderly, and CT scan is accurate in diagnostics of complicated appendicitis. Although necessary, more extensive investigation may lead to delayed treatment and an increased count of open appendectomies.

Disclosure of Interest: None declared

PE010

FACTORS INFLUENCING POSTOPERATIVE URINARY RETENTION AFTER INGUINAL HERNIA REPAIR

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Introduction: Open inguinal hernia (IH) repair under spinal anesthesia is one of the most common worldwide procedures performed by general surgeons. However, one of the drawbacks of this type of anesthesia is the possibility of postoperative urinary retention (POUR), especially in male patients ≥ 50 years of age. Aim of this study is to investigate perioperative predisposing factors for POUR after IH repair under spinal anaesthesia.

Materials & Methods: 100 consecutive male adults patients ≥ 50 years of age with unilateral inguinal hernia repair and ASA Score ≤ 2 , were prospectively included. All the procedures were done under spinal anaesthesia. The examined parameters were age, comorbidities, BMI, IPSS questionnaire scores, nocturia, size and type of the hernia, type of repair, operation duration, perioperative administration of intravenous (IV) opioids and/or atropine, administration of spinal opioids, perioperative iv fluids, postoperative pain and preoperative anxiety. Pain and anxiety assessment was based on the Visual Analog Scale (VAS) score.

Results: The incidence of POUR was 37%. Bladder catheterization was applied in all POUR cases. Catheter removal was successful in less than 24 h in 34 patients, while in one patient the catheter was removed in the second postoperative day. Two patients required prolonged catheterization. Preoperative patient's high anxiety VAS score (A-VAS) (>51 mm) ($p=0.007$), the intraoperative use of atropine ($p=0.02$), comorbidities ($p=0,013$) and posterior wall reinforcement ($p=0,003$), were detected as risk factors for POUR. Regression analysis confirmed the results. Most common causes of anxiety among patient with high A-VAS score were anxious personality (9/23), operation (7/23) and anaesthesia (4/23).

Conclusion: Posterior wall reinforcement should be avoided during open inguinal hernia repair. In patients with pre-operative high anxiety VAS score a different type of anaesthesia may be used in order to diminish the rates of POUR.

Disclosure of Interest: None declared

PE011

INCARCERATED HIATAL HERNIA – A CASE REPORT

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Introduction: The definition of giant paraoesophageal hernia (GPEH) is still a matter of debate, and the optimal approach remains unknown, but for massive incarcerated hiatal hernias, emergent surgical treatment is mandatory, despite high morbidity and mortality. Hiatal hernias can be divided in four types: type I or sliding hernias, type II when migration of the gastric fundus is found, type III when both sliding and paraoesophageal components are found, and type IV hiatal hernias when any other intraabdominal organ apart from the stomach is herniated.

Materials & Methods: Case report and review of literature.

Results: A 69-year-old man, with known medical history of hypertension and hiatal hernia presented in the emergency department with abdominal pain and nausea, without vomiting but without passage of feces or flatus. CT scan revealed a large diaphragmatic hernia and exuberant dilatation of the ascending colon and hepatic flexure, with a presumptive diagnosis of a cecal volvulus. A emergent laparotomy was done, and a large right colonic distension was noted, caused by incarceration of the transverse colon in a large diaphragmatic hernia, without signs of ischemia. The herniated contents were reduced, cruroplasty performed, and a loop colostomy was done. Splenectomy was also needed due to intraoperative iatrogeny. The post-operative period was unremarkable apart from superficial surgical wound infection. Later, he developed a incisional hernia after the closure of the colostomy, which was surgically corrected. The patient is without signs of hiatal hernia recurrence and asymptomatic up until the date of the submission of this abstract.

Conclusion: Hiatal hernias are a common finding in imagiologic studies, and a vast majority of patients is asymptomatic. Hiatal hernias can become symptomatic and in extreme cases can present with incarceration or even strangulation. In the later, the treatment is emergent surgery but no standard procedure exists so far. Reduction of the hernia contents with resection if ischemia is present must be done, but the role of fundoplication remains unclear, as well as the use of mesh. Further studies are needed to understand the optimal treatment of this patients.

Disclosure of Interest: None declared

PE012

ACUTE ABDOMEN AND PREVIOUS SURGERY PITFALLS

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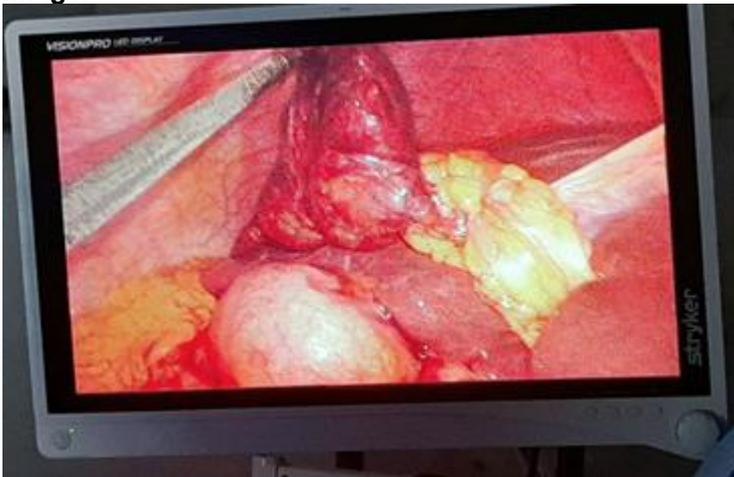
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Introduction: The falciform ligament is a peritoneum fold stretching between the umbilical fissure of the liver and the abdominal wall. Its free edge, the round ligament, contains the remnant of the obliterated umbilical vein and extraperitoneal fat. Inflammation processes affecting the falciform and round ligaments are rare and usually associated with ischemia due to spontaneous torsion. Other rare causes include infection, tumor or cryptogenic.

Materials & Methods: A 46-year-old female patient was admitted in the emergency room with acute epigastric pain and nausea. There were no other associated symptoms. The patient's medical history included a laparoscopic ovarian cystectomy and a laparoscopic right hemicolectomy, in the previous 18 months, due to a cecal tubular adenoma with low grade dysplasia. There were no complications after the primary surgery, and the patient was discharged on the fourth postoperative day. Abdominal examination revealed a non-distended abdomen, but abdominal guarding was present. Blood tests revealed a normal white cell count ($6.5 \times 10^9/L$) and a C-reactive protein of 2.39 mg/dL (normal if $<0,2$ mg/dL). The CT scan in the emergency room showed a well-defined fat density lesion adjacent to the ileocolic anastomosis with increased density, representing intraperitoneal focal fat infarction. Given her progressively worsening symptoms, a laparoscopic exploration was performed.

Results: Intraoperative findings revealed torsion of round ligament with necrosis. The ligament was resected and removed through the umbilical port. She was discharged on the third postoperative day. Histology showed areas of fat necrosis and no malignant cells.

Image:



Conclusion: Laparoscopic right colon hemicolectomy technique, in our department, includes section of the round ligament for better exposure. The fatty appendages of this ligament may twist spontaneously, causing vascular compromise, resulting in inflammation and necrosis. In this particular case, we believe the previous surgery was the main cause for the ligament necrosis. This uncommon event is a reminder of the pitfalls of every surgical gesture we perform.

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Disclosure of Interest: None declared

PE013

PYLEPHLEBITIS: RARE COMPLICATION OF ACUTE APPENDICITIS

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Introduction: Pylephlebitis is defined as septic thrombophlebitis of the portal vein (VP), usually secondary to suppuration either in the region drained by the VP system or in structures contiguous to the VP.

Materials & Methods: We are presenting the case of 49 years old male who was having a 4 week long complaints of progressive loss of appetite, nights sweats, fatigue.

Results: No other chronic diseases were known. An ultrasound showed thrombosis of VP. Computed tomography (CT) displayed VP partial thrombosis, a total venae mesenteric superior thrombosis. Laboratory tests revealed leukocytosis $24.6 \times 10^9/L$, CRP 176.99 mg/L, d-dimers 5.19 mg/L. Treatment with intravenous heparin was initiated. VP puncture was done, obtaining the pus. Blood culture analysis displayed *Streptococcus* sp. – antibiotic therapy with Penicillin G was started. Due to lower hemoglobin, esophagogastroduodenoscopy was done revealing esophagitis. Re-examining CT - suspected changes in colon ascendens was seen and colonoscopy was done revealing no pathological changes in mucosa. After 6 days, control laboratory tests revealed leukocytosis $9.4 \times 10^9/L$, d-dimers 5.71 mg/L, CRP 72.58 mg/L. The patient began to complain about pain and discomfort in right side of abdomen, nights sweats, fever, fatigue. Diagnostic laparoscopy was performed. Intraoperative findings revealed retrocecal, retroperitoneal destructive, gangrenous appendicitis with abscess. Due to the intraoperative finding, the operation was converted to open. The postoperative period was uneventful. Patient was discharged on third postoperative day. Histological examination revealed gangrenous appendicitis with purulent periappendicitis, mesenteriolite – suspicious on low-grade mucinous neoplasia of the appendix with acute appendicitis. Anticoagulant therapy was continued in outpatient setting. One month after discharge patient remains well, with no symptoms.

Conclusion: Pylephlebitis is rare but potentially lethal complication of an intra-abdominal infection. It has an unspecific clinical presentation and the diagnosis is often difficult. Pylephlebitis may have several etiological moments but it is important to remember that appendicitis can be one of the causes.

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Disclosure of Interest: None declared

PE014

CASE REPORT: UNUSUAL CASE OF SMALL BOWEL OBSTRUCTION - POSTOPERATIVE HERNIA, ADHESIONS AND GALLSTONE?

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Introduction: Small bowel obstruction (SBO) is one of the most common pathologies in emergency surgery. Small intestines are involved in approximately 80% of cases of mechanical bowel obstruction. Adhesions and hernias are most common causes of mechanical SBO while gallstones can be identified as causative factor in 0.5-4% of cases.

Materials & Methods: A 78-year-old woman presented to the emergency department with complaints of crampy abdominal pain, nausea and vomiting. Physical examination revealed slightly distended abdomen with diffuse tenderness and postoperative midline hernia with no signs of incarceration. Previous medical history was significant for bilateral breast cancer with bone metastases, congestive heart failure (CHF), hypertension, chronic kidney disease and hysterectomy. Atrial fibrillation of unknown duration was diagnosed on admission.

Plain abdominal radiographs were obtained on admission and showed dilated small bowel loops with air-fluid levels. Patient was admitted to the surgical department with suspected adhesive SBO. Nasogastric tube was placed, intravenous fluids and symptomatic therapy was initiated. Patient showed signs of improvement (no vomiting, able to pass gas and stools) but still had intermittent abdominal pain and nausea. Non contrast abdominal CT was obtained that showed dilated small bowel loops with intraluminal mass and empty small bowel loops distally to the mass.

Results: Patient underwent laparotomy with enterotomy with subsequent gallstone removal from ileum. Postoperative recovery was uneventful until the fourth day when patient developed shortness of breath and died the next morning from presumed pulmonary embolism.

Conclusion: Gallstone is a rare cause of SBO and those affected are usually older patients with significant comorbidities. Patient age, concomitant medical conditions along with delayed diagnosis all contribute to high mortality and morbidity.

Disclosure of Interest: None declared

PE015

PROFILE OF RARE PERITONEAL TUMOR LESIONS - DIAGNOSES, SURGICAL INTERVENTION AND OUTCOME AT A TERTIARY CENTER OF ABDOMINAL SURGERY (REPRESENTATIVE CASE SERIES)

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Introduction: Exemplary demonstration of 8 cases with rare peritoneal tumor (Tu) lesions (PTLs) & their histol. results in abd. surgery emphasizing boild. diversity.

Materials & Methods: Representative scientific case reports

Results: (selected cases)

1) Intraop. incidental finding of a jejunal PTLs during gynecol. surgery of endometrium carcinoma (Ca) leading to segm. resection & reconstruction w/ side-to-side jejunojejunostomy (histol. investigation, jejunal diverticulum with pancr. metaplasia).

2) During expl. laparotomy, in case of suspected ovarian Tu, multiple 8- to 15-mm PTLs were resected along with radical hysterectomy - medical history (hx), mastectomy for breast cancer (histologically, no Tu in the gynecol. specimen detectable, rather primary perit. Ca).

3) In lap. hemioplasty of incarcerated trocar hernia, a suspicious inflamed fatty Tu-like tissue was resected from the descending colon (histologically, acute epiploic appendagitis).

4) In expl. laparotomy for pseudomyxoma peritonei (PCI: 32) of unknown origin, 4 PTLs were resected for further Tu classification displaying parts of a mucinous adeno-Ca (histol. investigation confirmed pseudomyxoma).

5) In lap. appendectomy, partial resection of the greater omentum was combined (histol. finding of the appendix: lipofibrosis of the appendix w/ necrotic fat tissue consistent with a twisted "appendix epiploicae").

6) In expl. laparotomy for chronic subileus (medical hx, appendectomy & resection of the ileum with ileoileostomy), small PTLs were detected & interpreted as scarring adhesion of the jejunum (histol. preparation displayed plant food ingredients w/ older necrosis of fat tissue).

7) Abd. CT scan displayed an oval paracolic mass (no diverticulitis) diagnosed as "appendagitis epiploicae" of the descending/sigmoid colon.

8) Common surg. intervention of urology & abd. surgery comprising subtotal peritonectomy, right hemicolectomy, partial resection of the urinary bladder & hyperthermic intraperit. chemotherapy incl. fresh frozen section (later def. histol. investigation, primary serous papillary adeno-Ca of the peritoneum).

Conclusion: PTL can comprise diverse origins & entities. Histol. investigation & close cooperation of the pathologist & surgeon can be considered a substantial prerequisite for def. diagnosis-finding, following decision-making & further therap. steps using various modi, however, associated with still limited clin. experiences on the appropriate diagn. & (peri-)therap. management due to their rareness.

Disclosure of Interest: None declared

PE016

JUVENILE GRANULOSA CELL TUMOR OF THE OVARY: A RARE CASE OF RETROPERITONEAL RECURRENCE

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Introduction: Granulosa cell tumors (GCT) are sex cord stromal tumors, which account for less than 5% of all ovarian neoplasms and may be subdivided into: a) adult type GCT (which represent 92 – 95% of all ovarian granulosa cell tumors); b) juvenile type granulosa cell tumor (JGCT). This later subtype has a very low incidence, occurring in mainly pre-pubertal girls and young women. In patients submitted to excision of an early stage JGCT, recurrence is exceedingly rare. Current evidence to define the best management is scarce, with literature mainly consisting of small case series and case reports.

Materials & Methods: We present the case of a 23 year-old woman, with a history of right salpingooforectomy four years earlier, due to an ovarian torsion. The pathological examination of the operative specimen revealed the presence of a JGCT (stage IC1). She had no further treatment at that time.

The patient was referred to our Surgical Department due to abdominal complaints of right upper quadrant pain and a palpable mass. Abdominal CT and MRI documented a lesion (approximately 63 x 59 x 79mm) with mixed content and multiple septa, anterior to the right kidney and adjacent to the duodenum. It was well delimited, with evidence of compression (but without invasion) of the inferior vena cava. Upper endoscopy didn't show evidence of communication with the gastrointestinal tract.

Results: Patient has undergone surgical excision, which confirmed it was firmly adherent to the aorta and inferior vena cava without invasion of the kidney nor the duodenum. There were no complications in the post-operative period. Pathological report documented a recurrent JGCT, with similar characteristics to previous one. The patient was referred for adjuvant treatment.

Conclusion: Although these tumors are less likely than adult GCT to recur after resection of stage I neoplasms, when they do, their clinical course is more likely to be aggressive.

For the General Surgeon that may come across a patient with previous history of a granulosa cell tumor, it's extremely important to remember that this subtype of tumor may have a small but distinct hazard of malignancy, as illustrated by this case.

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Disclosure of Interest: None declared

PE017

BENIGN METASTASIZING LEIOMYOMA, NOT SO BENIGN NOW...

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Introduction: Uterine leiomyoma is the most common benign gynecological tumor. Rarely, there can be a hematogenous dissemination of the tumor. First described in 1939, there have been reported about 100 cases in the literature. It affects mostly women in their forties with previous gynecological interventions. Most frequently, the disease manifests as solitary or multiple nodules in the lungs.

Materials & Methods: Presentation of a case report of a woman with benign metastatic leiomyoma.

Results: We present a case of a forty-four year-old woman, G1P1, whose child was delivered by cesarean section. She had a leiomyoma excised 16 years ago. The patient was being followed in gynecology appointments for uterine myomas and was proposed for hysterectomy. In the preoperative chest radiogram multiple nodules were found in the lung parenchyma. A body CT was performed: numerous bilateral pulmonary lesions were found, the biggest with 3 cm, as well as a 6 mm hypovascular nodule in the hepatic segment 6 and a 10.6 cm left parauterine lesion. Both uterine and pulmonary lesions were biopsied and were suggestive of leiomyoma, with spindle cell proliferation, without mitosis or atypia, and 90% positivity for estrogen and progesterone receptors. The case was discussed in a multidisciplinary team and the patient was submitted to a total hysterectomy with bilateral anexectomy. Postoperative period was uneventful and the patient was discharged 4 days after surgery.

Conclusion: In benign metastasizing leiomyoma, surgery has an important role, in the control of the primary tumor and of metastatic lesions through bilateral anexectomy, since these tumors are often dependent on sexual hormones and are positive for hormone receptors. Also, hormone therapy (for example, aromatase inhibitors) was described to further halt the progression of the disease.

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Disclosure of Interest: None declared

PE018

SPONTANEOUS NON-TRAUMATIC PERFORATION OF THE BLADDER IN AN ELDERLY PATIENT WITH CHRONIC BLADDER CATHETERIZATION: A RARE CAUSE OF ACUTE ABDOMEN

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Introduction: Spontaneous perforation of the bladder can be a rare cause of acute abdominal pain, which, combined with its multifactorial etiology, is a diagnostic challenge for the Surgeon in the Emergency Department, leading to exploratory laparotomy.

Materials & Methods: A 90-year-old female patient, confined to bed due to dementia, carrying an indwelling urethral catheter, presented in the Emergency Department with acute deteriorating abdominal pain, vomiting and abdominal tenderness indicative of peritonitis. She had a complex surgical history, with multiple tender incisional hernias. Inflammation markers were elevated. Abdominal CT scan showed presence of free intraperitoneal air and small amounts of fluid in the pouch of Douglas. Shortly after admission, the patient was taken into surgery.

Results: Intraoperative findings included distention of the stomach, intestines and colon without signs of perforation, obstruction or inflammation. After further arduous investigation, a sclerotic ulcerative area on the fundus of the bladder was observed, with perforation of the bladder wall. Closure of the deficit was performed with two layers of simple interrupted sutures. Due to loss of domain, closure of the abdominal walls was performed by using an intraperitoneal mesh. The patient had an uncomplicated recovery and was discharged on the sixth postoperative day.

Conclusion: Spontaneous non-traumatic perforation of the bladder is a urological emergency; however the General Surgeon is more likely to encounter it, during an exploratory laparotomy for peritonitis. The clinical, laboratory and imaging findings are non-specific, leading towards perforation of the stomach, small or large intestine, causing strong intraoperative concerns. Malignancy should be considered as a possible cause of perforation, especially in patients without history of pelvic radiotherapy or chronic pelvic inflammation.

Disclosure of Interest: None declared

PE019

LIVER METASTASIS 18 YEARS AFTER RETROPERITONEAL LEIOMYOSARCOMA RESECTION

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Introduction: Leiomyosarcoma is a histological subtype of soft tissue sarcoma that arises from smooth muscle cells and account for up to 15% of all soft tissue carcinomas¹ that form involuntary muscles, commonly found in the retroperitoneum, uterus, stomach, small intestine and vascular tissue.

Surgery with a wide margin of complete excision is the most effective leiomyosarcoma treatment.

Dissemination usually occurs within the first 3 years after diagnosis. Liver and lungs are the most common sites of metastasis in leiomyosarcoma. Liver metastasis are usually observed in the recurrence of visceral and retroperitoneal sarcomas.²

Materials & Methods: We report a case of 70-year-old female patient with large liver right lobe metastasis, detected 18 years after resection of a primary retroperitoneal leiomyosarcoma.

Abdominal CT scan was performed due to a slight abdominal discomfort, it showed sharply contoured, hypodense structure 7.3 x 5.3 cm in the right liver lobe. Further MRI examination revealed suspicious for malignant lesion. US guided CORE biopsy was performed after detecting suspicious liver lesion. Pathohistological and immunohistochemistry examination of biopsy material showed high-grade (Grade 2) leiomyosarcoma liver metastasis. Due to the localised liver lesion, without evidence of extrahepatic disease, oncologic council recommends surgical treatment – resection of liver metastasis. Conventional right side hemi-hepatectomy with ultrasonic surgery system was performed. Macroscopic and microscopic description of postoperative material - metastatic lesion 88x55x70mm, negative resection margins were obtained. Lesion consists of spindle cells with cigar-shaped nuclei, expressive cell polymorphism, areas of necrosis and abundant mitoses ≥ 10 per 10 high-power fields. Positive for smooth muscle marker actin and negative for CD117, DOG-1 and S100, Ki-67 index 10% by immunohistochemistry. Patient recovered well after surgery.

Results: Further follow-up by medical oncologist was recommended.

Conclusion: To the best of our knowledge, this case have had the longest disease-free interval before metastasis to the liver. Early diagnosis and surgical removal of the tumor is the only potentially curative option for liver metastasis of leiomyosarcoma.

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Disclosure of Interest: None declared

PE020

INTRAPERITONEAL HEMATOMA AS A DIFFERENTIAL DIAGNOSIS OF MESOTHELIOMA: A CASE REPORT ABOUT A PATIENT WITH PERITONEAL THICKNESS

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Introduction: Mesothelioma is a rare malignant asbestos-associated disease from the lining cells of the pleura but also the peritoneal cavities. In case of peritoneal form of mesothelioma there are non-specific symptoms. Due to this diagnostic by CT-scan is necessary. Because there are several differential diagnoses with similar sings in CT-scan, it is still a challenge in diagnosis.

Materials & Methods: We describe a 79-year-old man, who presented with acute abdominal pain in the right lower abdomen and nausea. We performed a CT-scan, which revealed a peritoneal thickness with elevated density in the right upper abdomen without any other sings for metastasis. A sonography guided puncture was too riskful. Therefore, we decided to do a laparoscopy. Intraoperatively we could not find any findings for a mesothelioma. A further CT-scan showed an incompletely revealed tumor.

Results: Potential differential diagnoses are metastatic pleural disease or pseudomyxoma peritonei. But there are also non-malignant differential diagnosis like tuberculosis or empyema. In our case we can demonstrate in which way hematoma can be seen as a further differential diagnosis of mesothelioma.

Conclusion: Due to the rare incidence of mesothelioma, diagnosis even with CT scan is still challenging. Peritoneal hematoma should be mentioned as a differential diagnosis in case of suspected mesothelioma.

Disclosure of Interest: None declared

PE021

PNEUMOPERITONEUM IN INCISIONAL HERNIA AFTER LIVER TRANSPLANT

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Introduction: Incisional hernia, (IH) is a postoperative complication that may occur in around 10% of laparotomies. Patients undergoing liver transplant (LT) represent a particular group, as they are high-risk patients in the pre-transplant stage, receive immunosuppressive drugs that alter protein synthesis, and undergo surgery with large incisions and prolonged operating times. In the repair of IH in these patients, various techniques have been used, both open and laparoscopic, with diverse results. Preoperative therapeutic pneumoperitoneum (TP) is currently validated as a useful tool in the management of IH. However, the results of its use in the context of IH in LT patients have not been described.

Materials & Methods: A clinical case is presented, corresponding to a 48-year-old male patient who underwent LT in 2018; who developed a giant hernia in relation to a supraumbilical midline laparotomy plus transverse extension to the right flank. Computed tomography investigation prior to TP revealed a hernial ring diameter of 20 centimeters, with a calculated volume of the sac of 4,015 cc with Valsalva. A TP catheter was inserted by interventional radiology, initiating a TP protocol. A total of 10,000 cc of intraperitoneal air was administered over 7 days.

Results: Surgical intervention was performed, performing primary closure of the defect using polypropylene running stitch and reinforcement with polydioxanone barbed suture. A 30 x 30 cm high-density polypropylene prosthesis (prolene®) was also installed.

He was discharged on the fourth day, without incidents, and the drains were removed 13 days postoperatively with debits below 20 cc per day.

Conclusion: To date, there is no report in the medical literature of the usage of preoperative TP for the management of incisional hernias in patients with a history of LT.

This clinical case is presented as a successful initial experience, thus adding an alternative to optimize the treatment of patients undergoing LT who develop a large incisional hernia.

Disclosure of Interest: None declared

PE022

COMPARISON OF TWO DIFFERENT HEMOSTATICS AGENTS IN THE PROCEDURE OF THYROIDECTOMY.

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Introduction: Hemostatic agents are used in various surgical procedures and in thyroidectomy for a safe surgery is placed in the thyroid bed with or without drain. Surgicel is an oxidized cellulose polymer and surgical fibrillar is oxidized regenerated cellulose which has% faster hemostasis and also conforms to the site for optimal adherence. We compared the use of surgical Vs surgical fibrillar in patients undergoing Total thyroidectomy for benign cytology.

Materials & Methods: Between January 2018 to June 2021 from prospectively collected data 50 patients in surgical group were compared to surgical fibrillar group. All patient had drain placed in the thyroid bed. All patient had benign cytology. The patient in surgical fibrillar group was operated by a single endocrine surgeon drain was remove when the output was less than 20 ml.

Results: The groups were comparable in terms of age, weight of goiter and size. Mean drain in surgical fibrillar was 18.759.89ml. Mean drain in surgical was 32.89.12.16 ml (p<0.000). The Mean days for discharge was 1.456 vs 2.00 (p=0.0129)

Hypocalcaemia fibrillar	8/50	Biochemical 1/50	symptomatic	Surgical
Surgicel	7/50	2/50		

Conclusion: Surgical fibrillar is better which compared to surgical as a hemostatic agent but the productive cost and large numbers are needed.

Disclosure of Interest: None declared

PE023

CONSERVATIVE TREATMENT OF IDIOPATHIC SPONTANEOUS PNEUMOPERITONEUM

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Introduction: Idiopathic spontaneous pneumoperitoneum (ISP) is an unusual condition, which is characterized by the presence of gas in the intraperitoneal space without gastrointestinal perforation. There is no clear etiology for it.

Materials & Methods: A 36-year-old female patient searched emergency care due to chest and shoulder pain associated with mild abdominal discomfort. She denied vomiting, altered bowel habits, eating food with a possible foreign body. Personal history reported a laparoscopic Nissen fundoplication 9 months ago due to gastroesophageal reflux only. The patient reported having sexual intercourse 96 hours before the onset of symptoms. On examination, she was in good general condition, hemodynamically, flabby abdomen, sudden negative decompression negative. In view of the findings, chest and total abdomen CT without contrast were requested which showed: topical fundoplication, mild pneumomediastinum, pneumoperitoneum, more evident in the upper abdomen, and in perigastric / periduodenal planes without free fluid. The hospital's chest pain protocol was opened. Chest X-rays showed pneumoperitoneum.

Results: In view of the findings, the patient was asked to complete the exam with oral contrast and was later submitted to a new tomography and there was no contrast extravasation. Laboratory tests such as blood count, C-reactive protein, kidney and liver function showed no changes. Based on these findings, we diagnosed the patient with ISP. She was treated conservatively with close observation and serial abdominal examination. She was admitted with intravenous antibiotic therapy, absolute fasting and parenteral diet. A new control tomography was performed after 48 hours and a decrease in pneumoperitoneum was noticed. Upper gastrointestinal endoscopy was performed 96 hours after admission without signs of micro perforation or changes in fundoplication. The patient was given a liquid diet and accepted it without complications. She was discharged asymptomatic from the hospital after 7 days under follow-up.

Conclusion: ISP is a benign condition, but is not a simple diagnosis and should be considered as one of exclusion after discarding surgical causes. It is important to have a notion of the occurrence of cases like this so that the diagnosis can be made with certainty. Imaging exams help to avoid unnecessary laparotomies.

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Disclosure of Interest: None declared

PE024

DEPRESSION IN SOMATIC DISEASES WITH THE EXAMPLES OF CORONARY HEART DISEASE AND TUMOR DISEASES - CONSIDERABLE RELEVANCE FOR MORBIDITY AND MORTALITY

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Introduction: Objective: To present the problem of comorbid depression in cardiac and cancer patients based on our own clinical experience from patient care and selected references from the topic-related literature, with reference to early diagnosis because of its immense importance for outcome.

Materials & Methods: Narrative compact review

Results: Triggered by increased stress response - not adequate to the situation - and the associated overload of the stress systems themselves with massive catecholamine release up to depletion of the noradrenaline-producing cells, it comes to the thus missing protection of the brain from the simultaneous cortisol release. The result is cell destruction on a considerable scale, especially in the limbic system. These failures ultimately lead to the depressive symptomatology, which thus forms the final stage of the overload of the stress systems. The destruction of the stress systems is flanked by the release of proinflammatory substances such as IL-2 and IL-6.

The path to overload is formed here by the two disease areas under consideration (myocardial infarction, selected tumor diseases).

Conclusion: The pathway from massive stress to depressive symptomatology is manifold and is to be considered separately depending on the clinical specialty. So far, this has been done solely in the context of psychiatry. By demonstrating the comorbidity of myocardial infarction and various cancer types with depression, the depression's importance is also introduced into somatic medicine. This is reinforced by the fact that somatic (painful and nonpainful) symptoms can also indicate depression. Thus, depression is not a disorder to be concerned about because it belongs to a non-somatic specialty. In all areas of anesthesia and surgery (operative or perioperative medicine, intensive care on the ITS/IMC, emergency medicine, pain therapy), somatic physicians encounter patients with cardiac and/or cancer diseases, in whom a depression requiring treatment is present, which contributes to the patient's prognosis and which must be treated or at least diagnosed by them.

The two examples of myocardial infarction as well as selected cancer diseases prove:

In case of any somatic symptom, but mainly pain as well as breathing difficulties and cardiac palpitations, not only organic causes but also depression as a cause should be considered. Accordingly, these symptoms should be treated with antidepressants to reduce lethality and further negative consequences of non-treatment.

Disclosure of Interest: None declared

PE025

ANTICONVULSIVES OR ANTIDEPRESSANTS - WHAT IS BETTER IN NEUROPATHIC PAIN?

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Introduction: Aim: Is the interplay consideration of anticonvulsives (AC, for current-like, crawling in-streaming pain) & antidepressants (AD, for burning & stabbing pain) reasonable with regard to an effective pain(quality)-associated therapy?

Materials & Methods: In a retrospective unicenter observational study (design), pain therapy was investigated and compared with regard to AC & AD in a consecutive patients (Pats.) cohort of a representative number over a defined study period.

Results: In total, 403 Pats. were registered from 2015-2019: Prior to admission to the hospital, 95 subjects (23.6%) received AC ($n=72$ alone, $n=23$ together with AD).

After admission, $n=15$ individuals did not receive any further AC, $n=57/95$ Pats. ($n=39$ alone, $n=18$ together with AD; 60%) received an AD instead of AC (47.4% of Pats. became better). Out of the 41 cases, in whom AC administration was continued ($n=23$ alone, $n=18$ together with AD), 41.5% became better.

It is crucial, in which dosage of AC the 57 Pats. were switched to AD:

- In the 6 Carbamazepin-Pats., $n=3$ received minimally 600 mg.

- In the 21 Gabapentin-Pats., $n=19/21$ received minimally 900 mg. If the 39 Pats. with AD alone were evaluated, this was confirmed.

- Only in Pregabalin-Pats.: If Pats. with a low dosage were presented with insufficient pain therapy regimen, it was switched to AD by the Pain Therapy Outpatient Clinic - in $n=13/26$ with a maximum of 150 mg/d.

Conclusion: Out of the Pats. who had been switched from AC to AD by the Pain Therapy Outpatient Clinic, only a trend of Pats. became better by the switch of the drugs. It has to be taken into account that in 22 of 57 Pats., a sufficient AC dosage had been administered but the Pats. had not become better. Only the switch to AD led to therapeutic success, namely, improvement of pain.

It is also important to clarify whether all Pats. with neuropathic pain have received an appropriate medication (AC or AD) - this is actually not the case.

At admission, 252 Pats. had neither AC nor AD but after admission, there were only 145 Pats. with no AC or AD medication left. This means that in 107 cases, therapy of the neuropathic pain was overlooked & these 107 subjects are one fourth of all investigated Pats. ($n=107/403$) & 71.3% more than the number of Pats. with psychiatric drugs at admission ($n=107/151$).

Therefore, at the University Hospital of Magdeburg (Germany), prescription of psychiatric drugs for pain is considered necessary in general as is prescription of a suitable medication according to pain quality.

Disclosure of Interest: None declared

PE026

**SURGEON'S RESPONSABILITY REGARDING MALPRACTICE
ANALYSIS OF 416 CASES BECOMING LAWSUITS**

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Introduction: Surgeons legal liability regarding malpractice has reached great and increasing importance worldwide. Surgeons must provide to patient means in order to reach right diagnosis and treatment and accurate information. In Chile, official analysis about medical actions is carried out in our Service, replying orders of Public Prosecutor(Penal lawsuits) and/or Justice Courts (Civil lawsuits)

Materials & Methods: Legal files of 416 individuals (223 female and 193 male) whose cases became lawsuits due to surgical diseases (except Plastic and Cardiac Surgeries) were analyzed by the author in a period of 90 months (July 2014 to January 2022) in order to determine an eventual breach to Lex Artis, based on the personal surgical and legal experience and bibliographic review and consulting another expert(s) opinion when necessary.

Results: TABLE 1. Distribution according surgical specialities (In remarked, Lex Artis Violations)

	N= 416	
Proximal Digestive Tube (Oe-S-D)	47 (11,3%)	3 (6,3 %)
Middle Digestive Tube (J-I)	29 (6,9%)	2 (6,8 %)
Appendix	27 (6,5%)	4 (14,8%)
Distal Digestive Tube (C-R-A)	51 (12,3%)	2 (3,9%)
Liver, Pancreas, Gallblader & Biliary tree	97 (23,3%)	10 (10,3%)
Abdominal Wall & Contents	35 (8,4%)	3 (8,6%)
Vascular Surgery	43 (10,3%)	2 (4,6%)
Trauma	33 (7,9%)	6 (18,2%)
Breast, Skin & Soft Tissues	27 (6,5%)	2 (7,4%)
Head & Neck	3 (0,7%)	
Miscelaneous	24 (5,7%)	3 (12,5)
	416	37 (8,8%)

Conclusion: The aim of this presentation is only to communicate a personal experience. In spite of the great number of cases, it is not possible to establish an universal and repeatable conclusion, cause of the strictly personal experience and criteria used to judge medically each case. However, some special facts will be discussed in final presentation.

Disclosure of Interest: None declared

PE027

OVEREMPLOYED AND UNDERAPPRECIATED; MRCP USE IN AN ACUTE SURGICAL UNIT RARELY CHANGES MANAGEMENT, DELAYS DISCHARGE AND COMPOUNDS HOSPITAL COSTS.

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Introduction: Most acute biliary presentations involve gallstone disease and cholecystectomy is a common operation. Concern regarding obstructive biliopathy occasionally warrants investigation with MRCP. However, this delays time to intervention and increases length of hospital stay. Given operative cholangiography is within the skill set of general surgeons, can the time and expense of MRCP be justified?

This study examines indications for MRCP in a cohort of acute surgical unit patients. Patients with biliary colic/cholecystitis will form a specific subset of interest and outcomes of this group will be analysed to identify if MRCP led to a change in management. Delays to intervention and costs associated with prolonged hospital admission and "futile" MRCP will be estimated.

Materials & Methods: A 12mth retrospective review of all acute surgical admissions undergoing inpatient MRCP at an Australian metropolitan hospital was undertaken. Clinical and MRCP details (Indication; Time to MRCP; MRCP change in management) were collated. Delay to intervention, wasted bed days and a cost analysis of unnecessary MRCP expenditure was also calculated.

Results: 64 patients qualified for further analysis. 35 (54.7%) were male, 29 (45.3%) female and the mean age was 60yrs (+/-2.12). Lead admission diagnoses were biliary colic (34.4%), cholecystitis (20.3%) and pancreatitis (17.2%). MRCP was indicated for ?choledocholithiasis in 68.8%. Time to MRCP was a mean of 21hrs (+/-20.58) with a range of 2-96hrs. Bed days wasted waiting for MRCP totalled a mean of 1day (+/- 1.64) days. MRCP was deemed to have changed management in 17.2% of all cases and only 11.4% in patients with biliary colic/cholecystitis specifically. The estimated cost (and potential savings) owing to MRCP that did not change management was \$146,900AUD overall and \$85,900AUD in the biliary colic/cholecystitis group.

Conclusion: In an acute surgical environment where cholecystectomy and operative cholangiogram are common, MRCP rarely changes management. The potential for improvements in clinical and bed management efficiency are significant with associated cost savings. The decision to pursue MRCP should be considered carefully, particularly when cholecystectomy and operative cholangiogram is already indicated. There remains small subset of patients in whom MRCP can be of great utility.

Disclosure of Interest: None declared

PE028

HOW DID THE COVID-19 PANDEMIC AFFECT THE NUMBER OF DIGESTIVE SURGERIES AT A JAPANESE UNIVERSITY HOSPITAL?

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Introduction: The purpose of this study is to clarify how the COVID 19 pandemic affected the number of digestive surgeries.

Materials & Methods: Patients who underwent digestive surgery in Nihon University Itabashi hospital from August 2019 to July 2021 are targeted. The first period: August 2019 to March 2020 (before the pandemic), the second period: April to November 2020, and the third period: December 2020 to July 2021. In the third period, the operation was canceled for about 2 months due to a large cluster in our ward. We will compare the total number of operations, the number of cancer (curative / sigmoid surgery) operations, the number of benign disease operations, and the number of emergency operations in each period. The significance test was a χ^2 test.

Results: The total number of operations was 474 in the first period, 370 in the second period, and 267 in the third period. The number of cancer operations was 249 in the first stage, 185 in the second stage, and 119 in the third stage. The ratio of the number of cancer operations to the total number of operations was not significantly different between the first stage (52.5%) and the second stage (50%) ($P = 0.47$), and the second stage and the third stage (44.5%). However, no significant difference was observed ($P = 0.17$).

The number of radical cancer surgery was 235 in the first stage, 164 in the second stage, and 108 in the third stage. The ratio to cancer surgery decreased between the first stage (94.3%) and the second stage (88.6%) ($p = 0.031$), and there was no significant difference between the second stage and the third stage (90.7%) ($p = 0.56$). The number of cancer surgery was 14 in the first stage, 21 in the second stage, and 11 in the third stage. The ratio to cancer surgery increased in the first stage (5.9%) and the second stage (11.3%) ($P = 0.042$), and there was no significant difference between the second stage and the third stage (9.1%) ($P = 0.54$).

The number of benign disease operations decreased to 209 in the first stage, 171 in the second stage, and 142 in the third stage, but the ratio to total surgery was significant in the first stage (44%) and the second stage (46.2%). No difference was found ($P = 0.52$), and no significant difference was found between the second and third stages (53.1%) ($P = 0.08$).

Conclusion: The number of digestive surgeries decreased due to the COVID-19 pandemic.

Disclosure of Interest: None declared

PE029

WHERE ARE WE GOING IN BREAST CANCER SURGERY?

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Introduction: · **Introduction:** Breast cancer surgery practice has evolved from Halsted's radical mastectomy to the current exciting field of oncoplastic surgery. Breast cancer treatment managed by the surgeon alone, is now guided by a multi-disciplinary team consisting of surgical, medical and allied health specialties to produce the best patient outcomes. As a result, breast cancer yearly mortality rates have decreased. The paradigm has shifted beyond total extirpation of the breast, to minimally invasive surgery with an aim towards oncological outcomes and; restoring breast form and function. Our standards of care will continue to evolve with technology, education and research, with an emphasis on patient safety, and quality of care. Patient goals and expectations will continue to increase; this will unconsciously drive direction of breast cancer practice and as surgeons we are to be open and flexible to these needs.

Materials & Methods: · **Aim:** This paper will outline the current frontiers of breast surgery; look at how emerging breakthroughs and innovation in technology and surgery can change how surgeons manage breast cancer; and what we can expect in the future.

Results: · **Results:** Breast cancer management has led to an evolving practice of de-escalating major resection where possible. This has been enabled by advancement of tumour biology knowledge. Other advancements are in extreme oncoplasty, breast surgery oncological and reconstruction techniques and de-escalation in axillary surgery.

Conclusion: · **Conclusion:** Breast surgery practice will continue to change. Over the last century we have seen significant milestones with screening, treating and imaging breast surgery. By looking forward at this era of breast cancer surgery, we hope to stimulate further discussion and innovation. It is exciting to imagine what lies ahead, perhaps breast cancer surgery will be automated by artificial intelligence or robots?

Disclosure of Interest: None declared

PE030

PROPER HANDLING, CONTROL MEASURES AND INDICATED TRENDS OF CURRENTLY RECOMMENDED CANNABIS USE IN DAILY CLINICAL INCLUDING SURGICAL PRACTICE (INITIAL SYSTEMATIC RESULTS)

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Introduction: With the 2017 legislation, a different approach to cannabis prescribing became possible. At the same time, however, the question arised as to where the benefits and dangers of cannabis medication exist now, in particular, in that the public is being given the option to legally use cannabis.

Materials & Methods: Data provided by and obtained from:

- health insurance companies, the medical association, the "Medical Service of the Health Insurance Companies" (German abbreviation, "MdK") on previously approved uses (e.g., in case of tumor cachexia and spasticity in MS).
- Chamber of Pharmacists, professional organization and umbrella group. in particular, on self-purchased cannabis preparations were used.

With regard to possible and identifiable consequences, wich can lead to derive reasonable new regulations, the use of cannabis was compared with that of opioids.

Results: Three various types of administration behaviors exist:

- Physicians using cannabis for "confirmed" indications such as tumor cachexia, nausea, and spastic pain in MS;
- Physicians who also "try cannabis!" for up to 50 other indications;
- Physicians who use cannabis as a bridging measure because they do not have an idea for a particular pain situation (even though there would be other options).

In contrast, there are three types of cannabis preparation:

- As tablet, as flower, as a tetrahydrocannabinol(THC)-free preparation on a green prescription.

A comparison in tabular form shows that a danger of addiction in cannabis medication, which also exists with opioids, originates in the uncritical expansion of indications as well as in the use of flowers against "everything".

Conclusion: Addiction to opioid intake has been already known for a long time. Therefore, countermeasures such as stricter indications and quantity limits in non-cancer patients were taken. Against a possibly threatening wave of addiction to cannabis, a further development as well as careful and approved extension of indications, as well as adequate control over flower users, appear indicated.

Disclosure of Interest: None declared

PE031

RISK OF POSTOPERATIVE DEATH AFTER EMERGENCY SURGERY IN COVID POSITIVE PATIENTS.

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Introduction: In March 2020 the World Health Organisation (WHO) proclaimed a global pandemic of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 or COVID-19). The pandemic heavily influenced health systems throughout the world. An important aspect of COVID is its influence on the postoperative course of a patient with an active infection.

Materials & Methods: We reviewed the data on all patients with a confirmed active COVID infection admitted to the surgical ward due to a surgical emergency between October 2020 and January 2022.

Results: During the fifteen months of the study period forty-eight patients who had an active COVID infection were admitted to the surgical ward with the diagnosis of an acute surgical emergency. Eighteen patients were managed non-operatively. Thirty patients were operated on, with seven undergoing laparoscopic procedures. Two patients underwent endoscopic management of acute cholecystitis. The most common procedures were cholecystectomy (eight patients), appendectomy (seven patients) and laparotomy with different types of bowel resection (seven patients).

Five deaths were reported. One in a patient managed non-operatively for a gastrointestinal obstruction, and four during the post-operative period following a resection due to colonic perforation, a resection of a bleeding soft tissue tumor, a resection of the small and large intestine due to mesenteric infarction and a resection of a strangulated small intestine.

In the group of patients undergoing surgery with the exclusion of endoscopic procedures the risk of death was 14% (4/28) In the group managed non-operatively the risk of death was 5% (1/18).

Conclusion: An active COVID infection in a patient undergoing emergency surgery seems to constitute an important factor in the risk of postoperative death.

Disclosure of Interest: None declared

PE032

PANCREATIC INJURIES IN SOUTHERN MALAYSIA: WHAT OUR REGISTRY TELLS US

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Introduction: Traumatic injury of the pancreas is rare compared to other abdominal solid organ injuries with incidence ranging from 0.2-12% of abdominal trauma. It is difficult to diagnose and may result in considerable morbidity and mortality. Its optimal diagnosis and management remain debatable. This study aimed to evaluate and report our experiences with the management of pancreatic injuries in a Level 1 Trauma Centre in Southern Malaysia.

Materials & Methods: We identified all adult patients (age>15) with pancreatic injuries in our trauma registry over 4 years from January 2018 until December 2021. Data related to patients' demographic, trauma characteristics, operative information, complications, and hospital course were abstracted from the registry and medical records.

Results: A total of 29 patients were evaluated. Road traffic crashes caused 93.1% of blunt trauma resulting in 55.1% of grade 3 or higher pancreatic injuries. Twelve patients (41.4%) underwent laparotomy and 17 (58.6%) received non-operative management (NOM). Nine patients (75%) underwent emergency laparotomy and three (25%) underwent delayed laparotomy. Drainage and hemostasis procedure were performed in 7 patients (58.3%) and pancreatectomy was performed in 5 patients (41.6%) (distal pancreatectomy, n=4; pancreaticoduodenectomy, n=1). In the NOM group, 3 patients (17.6%) had endoscopic retrograde cholangiopancreatography (ERCP) and pancreatic duct stenting. Five (17.2%) pancreas-specific complications occurred but all complications were successfully managed without surgery. Solid-organ injuries (n=20) were the most common type of associated abdominal injuries. The overall mortality rate was 10.3% (n=3), where 2 patients died after NOM (due to sepsis from delayed bowel injuries and myocardial infarction).

Conclusion: Traumatic pancreatic injuries are rare. Non-operative management appears to be safe in selected hemodynamically stable patients and has a favorable outcome. Treatment failure after non-operative management occurs regularly, especially in high-grade injuries.

Disclosure of Interest: None declared

PE033

PEDIATRIC SPLENIC INJURIES: OUTCOME IN A LEVEL I TRAUMA CENTER IN BRAZIL

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Introduction: Trauma is the leading cause of death in children. More than 90% of the pediatric injury admissions are related to blunt trauma, with 10% of these involving abdomen. The spleen is the most commonly injured intra-abdominal organ in children. Non-operative management (NOM) has become the standard care for hemodynamically stable patients with blunt splenic injuries without other surgical indications.

Materials & Methods: This is a retrospective study including 48 pediatric patients with 16 years old or less, with splenic trauma admitted in our institution between 1 January 2009 and 31 December 2020. Information about demographics, mechanism of injury, Injury Severity Score (ISS), injury description (AIS), associated injuries, management and outcome, transfusion requirements, coagulopathy and length of stay were analyzed.

Results: Study population was, in average, eight years and three months old (ranging from 3 months to 15 years) of whom 33 were male (68,75%) and fifteen females (31,25%). Falls from height (8/16,66%) and pedestrian (8/16,66%) were the most common causes followed by vehicle accidents in 05 cases (10,41%) and bicycle accidents in 05 cases too (10,41%). ISS ranged from 4 to 43 (mean-19). Based on their CT scan on admission (AIS), twenty-five patients (52,08%) had low-grade splenic injuries (I-III) and twenty-three patients (47,92%) had high-grade splenic injuries (IV-V). Non-operative management was adopted in forty-five patients (93,75%); only one underwent angio-embolization. Splenectomy was performed in three patients (6,25%). Two patients underwent laparotomy due to major hepatic injury and minor splenic injury was found intraoperatively. Two patients died due to trauma brain injury, and one due to hepatic trauma. Blood transfusion was indicated in five patients (10,41%) e three had a coagulopathy (6,25%). Length of stay ranged from one to 37 days (mean: 5,5 days): considering only NOM patients, it decreases to 1 to 22 days (mean: 4,6 days).

Conclusion: Non-operative management has proven to be a safe and reliable approach to both low-and high-grade splenic injuries in an experienced trauma center. It is imperative to identify the predictors of failure and consideration for operative management should be based mainly on hemodynamic instability rather than injury grade. Pediatric angio-embolization may be considered as an adjunct to non-operative management, and performed in selected cases and not as initial therapeutic.

Disclosure of Interest: None declared

PE034

CHEST INJURIES IN A MALAYSIAN HOSPITAL

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Introduction: Chest trauma is one of the leading causes of morbidity and mortality in developing countries. As part of a broader investment by the government to develop a national trauma system, the first Level 1 Trauma Center in Malaysia was established in 2011. We provide trauma surgery and sub-specialty services to a population of 3.7 million people in the Southern Region. In this retrospective study, we present our 4-year experience in the treatment and outcome of injured patients with chest trauma at our center.

Materials & Methods: We identified all patients with traumatic chest injuries in our registry admitted between January 2018 and December 2021. Patient baseline and injury characteristics were evaluated. Specific processes of care including chest tube insertion and operative procedures were examined. The utilization of critical care resources was measured. Outcomes such as length of stay (ICU and in-hospital) and mortality were analyzed.

Results: During the study period, 2362 patients with chest trauma were treated at our center. The mean age was 42.2 years and 85.4% of patients were male. Blunt chest trauma was the most common (97.9%). The most frequent mechanism of injury (83.5%) was road traffic crashes (RTCs) followed by falls (13.4%). Motorcycle crashes were the most common type of RTC (77.2%). Penetrating chest injury was rare (2.1%) and mostly due to stabbing. Severe injury (NISS \geq 16) was present in 56.6% of patients. Rib fractures were the most common chest injury (67.3%), followed by lung contusion (36.6%) and pneumothorax (15.5%). Diaphragm rupture (0.6%) and blunt thoracic aortic injury (0.3%) were rare. Extremities injuries were the most common associated non-chest injuries (51.7%). Chest tube insertion was performed in 507 patients. Thoracotomy was performed in 11, while video-assisted thoracic surgery (VATS) was performed in only 2 patients. One-quarter of the patients (27.6%) required ICU admission. Median LOS for all chest trauma patients and those with severe injury were 4 and 7 days respectively. Overall mortality was 8.2%. Mortality among patients with severe injury was 13.7%.

Conclusion: Chest trauma is a major health issue particularly in male adults and road traffic crashes are the leading cause of chest trauma in Malaysia. Early diagnosis and multidisciplinary approach are very important to improve outcomes.

Disclosure of Interest: None declared

PE035

MINIMALLY INVASIVE APPROACH TO TRAUMA INJURY

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Introduction: Post traumatic diaphragmatic hernia, a rare condition, may occur after blunt or penetrating injuries and usually is associated with multiple traumatic injuries. The incidence of diaphragmatic hernia in patients with multiple traumatic injuries is around 0.8–5%. However, diagnosis is frequently missed due to lack of typical symptoms and/or due to other major injuries resulting in late presentation of the condition with increased morbidity and mortality.

Materials & Methods: A 31-year-old male driver, with no relevant personal history or medication, was admitted to the Emergency Room victim of a car accident with multiple injuries. He was immobilized on a backboard with a cervical collar in place. Clinically he was stable, GCS score was 15 and had a diminished vesicular murmur in the left hemithorax in the pulmonary auscultation, a painful abdomen to deep palpation of the upper quadrants without signs of peritoneal reaction and also pain with the mobilization of the hip and the left lower limb.

Results: Thoraco-abdomino-pelvic CT scan showed a 5cm rupture of the left diaphragm through which the stomach was inserted assuming an intrathoracic topography, with small left hemopneumothorax coexisting. There were no apparent lesions of other intra-abdominal organs. It was also seen an aligned fracture of the left iliopubic branch of the hip, without any evidence of other fractures. Underwater seal chest drainage was placed. The patient was submitted to urgent laparoscopic surgery, with reduction of the herniated stomach and repair of the rupture with interrupted non-absorbable suture. The exploration of the abdominal cavity only revealed a minor splenic contusion controlled with conservative treatment. He had a clinical and imagiologic favourable evolution. Thoracic drain was removed on the 8th postoperative day and he was discharged on the 12th postoperative day.

Conclusion: Diaphragmatic injury is uncommon, representing less than 1 percent of all traumatic injuries but when identified must be repaired. Minimally invasive techniques can be the choice if there is no more associated abdominal injuries that require a open surgery and if the overall condition of the patient allows it.

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Disclosure of Interest: None declared

PE036

MONSTROUS PSEUDOANEURYSM OF THE SUBCLAVIAN ARTERY SECONDARY TO CLAVICLE FRACTURE

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Introduction: The clavicular vascular nerve bundle is usually well protected by the clavicle and the first rib. Injuries of the subclavian artery with development of corresponding bleeding complications or formation of pseudoaneurysms are extremely rare and then associated with a high morbidity and mortality, which according to literature data can be 15-34 %.

Materials & Methods: Based on a representative case report of a monstrous pseudoaneurysm of the subclavian artery after a clavicle fracture, the diagnostic options and possible therapeutic approaches are discussed.

Results: A 57-year-old female patient suffered a fall trauma to the left shoulder. However, the patient did not present to a doctor. In the course, however, a pulsating tumour of the left clavicular region developed with formation of increasing congestive oedema of the left arm, venous subcutaneous bypass circulation and dermatitis of the left arm. The native X-ray of the left shoulder region and bone reconstruction of the native computed tomography (CT) scan documented extensive osteolysis, which took a longitudinal extension of about 5 to 6 cm compared to the opposite side. The corresponding CT angiography (CTA) showed the monstrous aneurysm in the area of the left shoulder, originating from the left subclavian artery and displacing the surrounding structures. This led to the decision-making: open vascular surgical excision of the pseudoaneurysm from the infraclavicular site and direct vascular suture after temporary cessation of arterial perfusion using catheter balloons at the proximal and distal pseudoaneurysm site of subclavian artery. In the postoperative follow-up, there was no neurological deficit of the left arm indicating plexus damage, regular perfusion of the left arm and reduced swelling confirming regular postoperative result.

Conclusion: A large pseudoaneurysm of the subclavian artery with osteolysis of the middle clavicle secondary to fracture is a rare clinical finding requiring interdisciplinary vascular surgery/traumatology/plastic surgery management. Due to the increasing establishment and safe handling of endovascular techniques, open surgical therapy has taken a back seat. However, open vascular surgical reconstruction also offers advantages in individual cases, especially when compression symptoms lead to vascular and nervous complications due to the sheer size of the aneurysm.

Disclosure of Interest: None declared

PE037

COMPARISON OF EFFICIENCY OF ANIMATION VIDEO VS SIMULATION MODELS FOR UNDERSTANDING OF BREAST SELF EXAMINATION (BSE)IN NORTH INDIAN WOMEN .

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Introduction: Breast cancer(BC) is the most common malignancy among Indian women .Early detection can improve BC outcomes.BSE still plays an important role in our setting . In this study we compared the efficacy of two different modalities Animation VS Simulation for understanding of BSE .

Materials & Methods: Normal women were included in this prospective randomized study .The participant either entered the Animation arm or Simulation arm.The Simulation arm was further randomized into one of the three BSE simulation models. The first model was from delta health care Germany (000047/1000344) were it had three single breast simulators on a single base with normal texture , second one with fibro adenoma and third one with malignancy The second model used was from Health edco UK (ITEM : 26547) resembles normal breasts, with one side containing lump and axillary node and other side normal . The Third low cost validated model with hard tumor and normal breast . The Hybrid animation video had 9 minutes runtime with lecture aregarding the different aspects of BSE and virtual character performing BSE . In Both the groups,participants filled in a validated modified patient satisfaction questionnaire . Statistical Analysis was done using SPSS Version 22.0.

Results: A total of 460 women participated. There was statistically significant difference in the age(Table no:1). In questionnaire part except for better organisation of BSE the other parameters were not significant . (90.48 ± 7.98 VS 84.02 ± 15.09 ≤ 0.001)

Table 1:Comparison of all Four Modalities (n=460)

Variable's	Hybrid	SGPGI Model (n=100)	Delta Health care (n=100)	Health Edco (n=100)	P value	Post hoc test (p<0.05)
	Animation Video (n=160)					
Age (Years)	20.21 ±3.88	19.34 ±2.27	22.94 ±9.6	18.97 ±1.31	<0.001	VG,IG, EG
Education (Graduate and above)	83(51.9%)	50 (50%)	41(41%)	51(51%)	0.349	--
Profession (Working)	157 (98.1%)	100 (100%)	100 (100%)	100 (100%)	0.129	--
Residence (Urban)	160 (100%)	100 (100%)	99(99%)	100(100%)	0.307	--

Improved Understanding	89.36 ±9.18	85.79 ±18.95	86.95 ±12.54	84.97 ±14.03	0.051	--
Better organization of BSE	90.48 ±7.98	81.54 ±19.22	85.45 ±14.84	85.11 ±12.79	<0.001	VI, VG, VE,
Stimulated interest in the relatives	90.68 ±11.2	91.12 ±13.63	90.63 ±10.27	88.81 ±10.23	0.479	--

One way ANOVA test was used followed by Multiple comparisons using Bonferroni corrections. **P<0.05 significant**

BSE- Breast Self Examination

Conclusion: We conclude that all the four models have good efficiency, however large studies in BSE suite set up with combination models may provide more information.

Disclosure of Interest: None declared

PE038

VALIDATION OF INDIAN MODEL FOR BREAST SELF EXAMINATION

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Introduction: Introduction:

The Incidence of Breast cancer in India has increased among women in their 30s and 40s compared to older women and they are being diagnosed at later stages. Breast cancer has become more aggressive in younger women when compared to older women. The burden of breast cancer is very high due to the population. Early detection can save lives and breasts. The breast cancer survive rates (5 Years) are 90.2% in US and in India it is 66.1 %. India is a diverse country with Ethnic, Cultural, and religious and economic infrastructure diversity. In this Scennario BSE is still a tool for detecting Breast Cancer in a curable stage in Indian women> Indian Women are shy and they respond better to a model which resembles their tradition.Breast Self Examination with help of a model can make learning to detect breast cancer in women easier.We evaluated this Indian Breast Self Examination model and interviewed 15 Health Care Workers.We report the feasibility of Indian Model in comparison to validated models.

Materials & Methods: We made an Indian model for breast self examination with tumour in the upper outer quadrant to suit Indian women needs .The model making procedure was through the following stages

First designing of the model

validation by experts

Second making of the model

validation by experts

Validation was done by Breast surgeons, Medical oncologist ,Radiation oncologist and

Model designer. Interviews were conducted by an Endocrine and Breast surgeon after explaining a validated model and then introducing the newly designed Indian model.

Results:

Parameter	value
Have you used any simulation model before	12/15 (80%)
Do you think it would help in teaching women how to detect breast cancer during breast self examination	15/15 (100%)
In comparison to the first model how would you rate the Indian model(0 – 100)	91.33±4.98

Image:

Validation of Indian Model for Breast Self Examination

Designing of Indian Model



Making Indian Models



Interviews



Conclusion: Discussion:

BSE requires help of a breast model so that normal women can learn to detect breast cancer as early as possible with good outcome

We made the model in the following lines

easy to get things

Cheap

durable

Technically realistic

safe

easy to reproduce

Model from Germany and England were costing Rs. 1,50,000 (2000 USD) and Rs. 10,000/- when compared with Indian Model costing Rs. 1500(14 USD) only.

Conclusion:

Indian Breast self examination model can be used in our setting for women to learn to detect breast lump early .It is easily reproducible and cost effective.

Disclosure of Interest: None declared

PE039

INTRAOPERATIVE FROZEN SECTION ANALYSIS OF CAVITY SHAVING MARGINS IN EARLY-STAGE BREAST CANCER PATIENTS UNDERGOING BREAST-CONSERVING SURGERY

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Introduction: Intraoperative frozen section analysis (IFSA) of cavity shaving margins (CSMs) guides the extent of surgery at the time of primary breast-conserving surgery (BCS), and it has been proven effective to reduce the rate of reoperation with positive margins. This study aimed to analyze the effects of CSMs on local recurrence rate after BCS using IFSA.

Materials & Methods: This retrospective study was conducted on early-stage breast cancer (BC) patients who underwent BCS in our hospital from January 2006 to December 2014. The IFSA was utilized to evaluate the influences of CSMs on local recurrence rate in early-stage BC patients who underwent BCS.

Results: A total of 186 cases of early-stage BC patients who underwent BCS were recruited, of whom, 8 and 2 cases were excluded owing to loss to follow-up and requesting mastectomy for fear of recurrence, respectively. Thus, 176 patients who met the inclusion and exclusion criteria were included. The median follow-up time was 99.7 months. The median time to recurrence was 29 months (range, 5-60 months). All local recurrences occurred during 5 years. The local recurrence was found in 10 (5.7%) cases. Among these 10 cases, there were 4 cases of ductal carcinoma in situ (DCIS) and 6 cases of invasive breast carcinoma, including 4 cases of invasive ductal carcinoma, 1 case of mucinous carcinoma, and 1 case of invasive micropapillary carcinoma. The reoperation rate was equal to zero due to positive margins. The rates of 5-year cumulative loco-regional recurrence-free survival, disease-free survival, and overall survival were **94.16%**, **91.34%**, and **94.88%**, respectively. Besides, 5 estrogen receptor (ER)-positive and 4 progesterone receptor (PR)-positive cases were identified.

Conclusion: CSMs evaluated by IFSA could significantly reduce the rate of reoperation and achieve an extremely low local recurrence rate in early-stage BC patients who underwent BCS.

Disclosure of Interest: None declared

PE040

INITIAL EXPERIENCE OF ROBOT-ASSISTED SURGERY FOR THE MANAGEMENT OF BENIGN BREAST TUMOR

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Introduction: A conventional breast operation inevitably results in an external scar on breast. Minimal access breast surgery, such as endoscopy-assisted breast surgery (EABS) and more recently robot-assisted breast surgery (RABS), that optimizes cosmetic outcome, has been successfully and reproducibly performed for the management of breast cancer. We performed RABS through only axillary incision for the management of benign breast tumor. We report our initial experience.

Materials & Methods: From Jan. 2021 to Dec. 2021, the medical records of fifteen female patients who underwent RABS were collected. All patients underwent a robot-assisted local excision of breast through only 2.5cm axillary incision. All surgical procedures were performed in concordance with traditional operation. Data on patient demographics, operation time, hospital stay, postoperative biopsy results, complications, and short-term postoperative outcomes were reviewed.

Results: Mean patient age was 37.6 years (range 20~55 years). The average size of lesion was 2.5 cm (SD+0.43 cm). Some of the lesions were nonpalpable and all of the specimens were benign. Most common pathologic features were fibroadenoma (75.0%) and related lesions. The mean operation time was 105.5±8.2 minute, which was decreased with experience increased. No open conversion case was observed. The overall rate of complications was 6.5%, and were minor and wound-related. No bleeding or infections occurred and most complications were mild and anticipated. The operative scars in axilla became inconspicuous in a few weeks.

Image:



Conclusion: Our initial results show that robot-assisted breast surgery through axillary incision is technically feasible, safe, and effective. This new technique maximizes esthetic effects and may be an appropriate surgical option for benign breast tumor.

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Disclosure of Interest: None declared

PE041

ROLE OF CONTRAST ENHANCED MAGNETIC RESONANCE IMAGING IN EVALUATION OF AXILLA IN PATIENTS WITH BREAST CARCINOMA: A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction: The presence of axillary lymph node metastasis (ALNM) in patients with breast carcinoma carries significant prognostic and management implications. Sentinel lymph node biopsy (SLNB), axillary lymph node sampling and axillary lymph node dissection (ALND) are standard of care to stage axilla at present. However, these modalities are associated with significant morbidities. There is increasing interest in preoperative imaging to stage the axilla accurately to facilitate treatment planning. We assessed the efficacy of magnetic resonance imaging (MRI) using dedicated shoulder coil in excluding axillary lymph node metastasis, potentially replacing and consequently eliminating the risk of SLNB-ALND associated morbidity.

Materials & Methods: We obtained axillary MR images using dedicated shoulder coils of 18 patients evaluated for breast cancer attending General Surgery/Surgical Oncology departments and meeting the predefined inclusion and exclusion criteria from November 2019 to May 2021. Cortical thickness, short diameter (SD), long diameter (LD), loss of fatty hilum, apparent diffusion coefficient (ADC) value, and perifocal edema of each significant node were evaluated using MR images. The image characteristics of each axillary node were correlated with the pathologic diagnosis obtained by ultrasound guided fine needle aspiration cytology (FNAC), core needle biopsy (CNB) or histopathological examination (HPE) of the same node.

Results: We analyzed a total of 72 suspicious lymph-nodes obtained from 18 patients (17 female and 1 male) with mean age of 47.11 ± 8.8 years, ranging 26-64 years. Mean diameter of the nodes was 19.1 ± 6.6 mm. Lymph node diameter, pathologic type, apparent diffusion coefficient value (ADC), time-intensity curve (TIC) type of breast tumors correlated with node metastasis. The ADC value of less than $892.27/10^{-6}$ mm²/s (SD 203.4) and loss of fatty hilum were most consistent finding on MRI associated with malignant nodes. With pathologic diagnosis as the reference standard, MRI-based interpretations were 92.3% sensitive, 60% specific, and 83.3% accurate. Positive predictive value (PPV) and Negative predictive value (NPV) were 85.7% and 75% respectively.

Conclusion: Metastatic axillary lymph nodes can be accurately diagnosed by MR in patients with early breast cancer preoperatively and non-invasively, as the negative predictive value (NPV) approaches the NPV of the SLNB. However, lymph-nodes of size less than 5 mm diameter are difficult to be characterized by MRI.

Disclosure of Interest: None declared

PE042

COMPARATIVE STUDY OF ROLE OF INDOCYANINE GREEN COMBINED WITH METHYLENE BLUE DYE VERSUS METHYLENE BLUE DYE ALONE IN SENTINEL LYMPH NODE BIOPSY IN BREAST CANCER PATIENTS RECEIVING POST NEOADJUVANT CHEMOTHERAPY

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Introduction: Sentinel lymph node biopsy by dual dye method (radioisotope + blue dye) is the gold standard for axillary staging in patients with breast cancer. But due to constraints of logistics, availability, handling and disposal of isotopes, Indocyanine green (ICG) has emerged as an alternative for SLN detection in breast cancer. This study compares the efficacy of Methylene blue (MB) dye alone versus (ICG + MB dye) in SLN detection in post NACT breast cancer patients undergoing MRM.

Materials & Methods: A prospective observational study was performed, which included 61 patients undergoing MRM (n=39 patients for MB dye alone and n=22 patients for combination method) from 2019 to 2021, in whom sentinel lymph node biopsy was done. SLN detection rate and metastatic SLN counts were compared between the two groups.

Results: A total of 61 patients undergoing MRM were analyzed, between 26 to 74 yrs of age (mean age being 45.23 ± 10.37 years in group 1 and 47.55 ± 10.95 years in group 2) in whom SLNB was done. A total of 242 SLNs were identified with the median number of SLNs detected by MB alone and ICG+MB method being 3.66 ± 2.11 and 4.5 ± 2.32 respectively. Both the methods showed a SLN identification rate (IR) of 100% in each case. The SLN positivity detection rate (PDR) of MB and ICG+MB samples were 69.2% and 83.3% respectively. Among 39 patients enrolled for MB dye alone, 143 blue nodes were sampled, of which 18 showed metastases (12.58%) and among 22 patients enrolled for the combination method; 99 double positive nodes were sampled, of which 35 showed metastases (35.35%). No adverse or allergic reactions were encountered to either of the dyes.

Conclusion: The usage of ICG+MB combination exhibits greater potential to detect SLN when compared to using MB dye alone, without involvement of radioactive isotopes, and also the SLN positivity identification is also greater with the use of combination of dyes.

Disclosure of Interest: None declared

PE043

“LOW AXILLARY LYMPH NODE SAMPLING (LAS) IN POST NEOADJUVANT CHEMOTHERAPY CLINICALLY NODE NEGATIVE BREAST CANCER PATIENTS: TERTIARY CARE CENTRE EXPERIENCE IN A DEVELOPING COUNTRY”

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Introduction: Limited axillary surgery in the form of sentinel lymph node biopsy (SLNB) is the standard of care in early breast cancer and is associated with low regional failure rates. The accuracy of SLNB in post- NACT setting is inferior than primary setting. The aim of current study was to test the low axillary sampling (LAS) technique in predicting axillary lymph node status in clinically node negative women undergoing breast conservation or modified radical mastectomy after NACT.

Materials & Methods: This prospective study (January 2019 to August 2021) consisted of breast cancer patients who had no clinically palpable axillary lymph node following NACT (anthracyclin + Taxanes). The index staging of 49 patients included was stage II & III and histology was infiltrating duct carcinoma. All included patients underwent anatomically guided LAS (lymph nodes below inter-costo-brachial nerve) followed by validation axillary lymph node dissection (ALND) in the same sitting. Histology details of LAS and ALND specimens were separately noted.

Results: The mean age of 49 patients included was 47.1 ± 9 years. 59.1% women were postmenopausal. Stage IIb was seen in 46.9% followed by stage IIIb in 22.4%. TNBC and HER-2neu enriched type breast cancer was seen in 40.8% and 20.4% respectively. Twenty- two and 27 women were clinically N0 and N1 prior to NACT. Pathologic complete response was noted in 40.8% patients and axillary lymph node metastases was noted in 16.3% on histology. The lymph node identification rate in LAS specimen was 87.8%. The median number of nodes identified in LAS specimen was 4 (range 0-15) whereas the median number of the metastatic lymph nodes was 2 (range 1-5). The sensitivity and false negative rate (FNR) was 55.6% and 44.4% respectively. FNR for N0 and N1 disease was 60% and 25% respectively.

Conclusion: Though the identification rates of LAS in the study is acceptable, FNR are higher than SLNB in post NACT patients. The utility of LAS as alternative to SLNB needs validation from larger sample size.

Disclosure of Interest: None declared

PE044

ROLE OF WEB BASED APPLICATION (E-CANCER CARE) IN BREAST CANCER PATIENTS IN A DEVELOPING COUNTRY

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Introduction: Breast cancer patients had many issues after being diagnosed as having breast cancer and suffer from lots of symptoms during the treatment. In developing countries, still easily accessible medium is lacking between patient and clinician in between the chemotherapy cycles due to lack of infrastructure and a high percentage of illiteracy in the rural subset of the population. A pilot study was undertaken to determine the effect of the use of mobile technology using a novel web application that sends regular text reminders with a helpline number integrated with it. The study endpoints were to evaluate the effect on treatment compliance, self-efficacy and symptom management.

Materials & Methods: The study was a prospective non randomised comparative study with one year follow up. Index breast cancer patients (n=90) undergoing treatment were recruited and were randomly assigned to the control group (routine care group) and intervention group (received routine with e – care support). Adherence to treatment, quality of life, psychological well-being, patient satisfaction and chemotoxicity incidence were assessed.

Results: Adherence to treatment was expressed as MPR (medication possession ratio). N=44 participants in the control group and N=45 patients in the study group were assessed for MPR. The mean MPR of the control group was 0.758 (\pm 0.127) and the study group was 0.9209 (\pm 0.502) and the association of e-care with adherence to treatment was statistically significant. The e-cancer care group had a better quality of life, patient satisfaction and psychological well-being statistically. Reporting of chemotoxicity (anaemia, neutropenia and vomiting) were similar in both the groups statistically but severity grades were higher in the control group except nausea related complication which was less in the intervention group statistically.

Conclusion: The pilot study using this novel web-based application showed its usefulness in promoting adherence to treatment, improving quality of life, psychological well-being, patient satisfaction and early reporting of chemotoxicity by providing 24 hours call back facility and regular text messages to the patient. This web-based application may also be useful for cancer treatment promotion as mobile users in India have rapidly increased and this digital application can be used to combat the communication gap between clinicians and patients particularly from rural areas.

Disclosure of Interest: None declared

PE045

PATTERN OF CARE AND RESOURCE UTILIZATION IN EARLY-STAGE BREAST CANCER PATIENTS IN A DEVELOPING COUNTRY

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Introduction: Therapy of early-stage breast cancer (EBC) has evolved a lot during the last three decades. Surgical options and adjuvant therapies that were non-existent three decades ago, are now considered to be the standard of care. In developing countries, pattern of care provided to breast cancer patients varies widely along with utilization of those services offered due to multiple reasons. We conducted this study to assess the pattern of care that is being offered to our patients and the utilization of such services by them.

Materials & Methods: This is a retrospective analysis of a prospectively maintained database at a tertiary care institute in a developing country. All cases of EBC treated in our department between January 2018 and December 2021 were included. Data regarding the clinicopathological parameters, treatment options offered/accepted by the patients [breast conserving surgery (BCS), options of breast reconstruction, sentinel lymph node biopsy, chemotherapy, radiotherapy, hormone therapy, and anti-HER-2 therapy] were collected and analyzed.

Results: Eighty four (84) patients of EBC with a mean age of 47.3 ± 11.6 years, mean tumor size of 2.9 ± 1.4 were included. 14(17%) patients received neoadjuvant chemotherapy (NACT) to facilitate BCS. 31(37%) patients underwent oncoplastic BCS. One (2%) patient underwent post-mastectomy autologous reconstruction, none underwent implant-based reconstruction. Three patients (10% of eligible) underwent sentinel lymph node biopsy (SLNB). Among the eligible patients, 59 (98%) patients took adjuvant endocrine therapy (ET), 57 (84)% took adjuvant radiotherapy, 63 (76%) completed neo/adjuvant chemotherapy, and only 2(9%) received anti-HER-2 therapy.

Conclusion: Standard surgical treatment, especially SLNB and implant-based post-mastectomy reconstruction is not offered /accepted by most of the patients. Adjuvant therapies, other than the hormone therapy are also not utilized universally.

Disclosure of Interest: None declared

PE046

EXERCISE ONCOLOGY (THERAPY) FOR BREAST CANCER PATIENTS: MOVING FORWARD AS ADJUVANT THERAPY

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Introduction: Breast cancer is the most common cause of cancer deaths in women worldwide. Its current treatments can lead to fatigue, muscle wasting, and reduce physical function. In turn, this can have a negative impact on activities of daily living, health-related quality of life, and treatment-related morbidity. It can also lead to higher levels of unplanned hospital visits, and other unanticipated costs. Exercise therapy can meaningfully address these issues. Exercise therapy for all cancer patients has recently been made an adjuvant standard of care in Australia.

Materials & Methods: A PubMed review of the literature on exercise for cancer patients was conducted in conjunction with a review of published guidelines on exercise therapy for cancer patients. The Maple Tree Cancer Alliance (MTCA) database of 11,000 patients was queried to see if the MTCA results were compatible with those reported in the literature.

Results: A review of the studies and guidelines on exercise therapy interventions for breast cancer patients found a positive effect on overall fitness levels of patients, as well as demonstrated improvements in fatigue, quality of life, immune function, and chemotherapy complication rates. The studies reviewed reported no unexpected or negative effects of exercise.

The MTCA database found: 58.7% increase in quality of life, 75.9% decrease in depression, 48.7% decrease in fatigue, 15.24% increasing cardiovascular endurance, 18.18% increase in muscular endurance, 4.89% increase in muscle strength, 31.88% increase in flexibility, 6% decrease in inpatient hospital stays, 19% decrease in length of hospital stay, 27% decrease in ER visits, 33% decrease in total patient encounters, and a 47% decrease in readmissions.

Conclusion: The MTCA results on the impact of exercise therapy for breast cancer patients was found to be compatible with or exceeding results in the previously published literature on Exercise Oncology. Physical exercise continues to demonstrate a promising role as adjuvant therapy for all breast cancer patients. In addition to Australia, other international oncology associations and societies should seriously consider adopting exercise for breast cancer patients as adjuvant therapy.

References: References will be provided if the abstract is excepted for oral or poster presentation.

Disclosure of Interest: None declared

PE047

A PROSPECTIVE STUDY TO DETERMINE HORMONAL RECEPTORS, HER2 NEU STATUS ACCURACY IN PREOPERATIVE CORE NEEDLE BIOPSY IN INVASIVE BREAST CARCINOMA IN COMPARISON TO EXCISIONAL BIOPSY

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Introduction: The accuracy of assessment of the predictive factors ER, PR and HER2 neu in core biopsies when compared with excision specimens is still the subject of debate. Therefore, the purpose of this study is to compare ER, PR and HER2 neu status analysis in the CNB with those obtained in the subsequent excision biopsy for patients diagnosed with breast carcinoma to determine level of concordance between CNB and excision biopsy in our tertiary care Institute.

Aim : To find out concordance or discordance in the ER, PR and HER2 neu status between pre-operative CNB and EB.

Materials & Methods: 30 Female patients having malignant breast masses diagnosed by clinical/radiological/histopathological examination were included. The patients' medical records were reviewed for their clinical and histopathological findings. Pathological reports of excisional biopsies, breast-conserving surgery, or mastectomy specimens were reviewed to determine tumor type, tumor stage, histological grade, and the presence of axillary lymph node metastasis. The status of the ER, PR, and HER2 biomarkers was assessed using standard immunohistochemical tests.

Results: Results : The observed concordance between the hormonal receptors Her2 neu status accuracy in preoperative core needle biopsy in invasive breast carcinoma in comparison to excision biopsy was 93 percent, it was found to be 87.2 percent after adjusting for chance factor using Cohen`s kappa statistics, which revealed almost perfect concordance.

Conclusion: Conclusion: The present study provides evidence that Core Needle Biopsy provides an accurate evaluation of the molecular profile of invasive breast cancer, especially PR and HER2/neu status.

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Disclosure of Interest: None declared

PE048

“A STUDY OF HER2NEU STATUS IN PRIMARY BREAST CANCER AND METASTATIC AXILLARY LYMPH NODES WITH BEARING ON POST OPERATIVE TARGETED THERAPY”

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Introduction: Human EGF-like receptor 2 (HER2) is an important prognostic and predictive marker in breast cancer and has a therapeutic implication with the use of trastuzumab based targeted treatment in Her-2/neu positive breast cancers. [3]. The discordance in HER2 staining in the primary and metastatic sites have been unclear and not well studied.

A recent increase in the number of cases of carcinoma breast has been observed which may be attributed to due to various predisposing factors. IHC and FISH are the most commonly used FDA approved tests. [4]

The treatment protocol is usually tailored on the basis of Her 2 neu expression in the primary tumour. However, HER2 expression in metastatic axillary lymph node has been unclear. [3]

Here we explore the prevalence of discordance in her 2 neu expression in primary and metastatic axillary node in the given population.

Materials & Methods: STUDY DESIGN: Prospective observational study.

SOURCE OF DATA:

This study was conducted in a tertiary centre in rural part of Karnataka. Thirty patients admitted with diagnosis of carcinoma breast, confirmed by radiological and histopathology from December 2017 to June 2019 were included in study. Specimen from the primary site as well as metastatic axillary nodes were retrieved and sent in 10% buffered formalin. The paraffin blocks of primary tissue and metastatic lymph node was selected and Immunohistochemistry for HER2neu tumour marker (Dako) was performed based on peroxidase, antiperoxidase principle. Her 2 neu was reported as per the ASCO - CAP guidelines and a score of Her 2neu 2+ was suggested FISH.

Results:

Table 1: Association between HER2 expression in Tumour and lymph node

HER2NEU in Tumour		HER2NEU in Lymph Node			
		Equivocal		Negative Positive	
Count	%	Count	%	Count	%

Equivocal	3	50.0%	1	6.2%	0	0.0%
HER2NEU in Lymphnode Negative	2	33.3%	11	68.8%	4	50.0%
Positive	1	16.7%	4	25.0%	4	50.0%

In the study there was significant association between HER2Neu status between primary tumour and Lymph node. $\chi^2 = 10.326$, $df = 4$, $p = 0.035^*$

Conclusion: This study demonstrated that continued metastatic disease evolution may be associated with different tumour biology. Appropriately measured, lymph node receptor status could be a more accurate measurement for guiding adjuvant therapy.

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Disclosure of Interest: None declared

PE049

THE DELAYED-STERIOD-STRATEGY (DSS) FOR IDIOPATHIC GRANULOMATOUS MASTITIS DURING THE COVID-19 PANDEMIC : A RETROSPECTIVE CASE SERIES

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Introduction: Idiopathic granulomatous mastitis (IGM) is an inflammatory disease forming granulomatous changes around ducts and lobules of the breast. Medical treatment often given consists of corticosteroids. The occurrence of the COVID-19 pandemic around the world has added another challenge in IGM treatment. Steroid treatment may result in an impaired immune defence and recipients are at higher risk of getting more severe infections. Therefore, the aim of this retrospective study was to discuss the role and outcome of prescribing non-steroidal anti-inflammatory drugs (NSAIDs) as a strategy to delay corticosteroids treatment.

Materials & Methods: Three women, aged 26, 37 and 45 years old, were newly diagnosed to have IGM. All patients had not been vaccinated against COVID-19 and were not diagnosed with COVID-19 infection before. Two of them were given tablet ibuprofen 400mg twice a day while the other had tablet diclofenac 50mg three times a day for a duration of two months. The women were seen in the clinic monthly, with clinical breast examinations and breast ultrasonography performed.

This duration was taken in view of the COVAX programme in Malaysia, as the majority required 2 doses of vaccines taken at three weeks interval. The time needed is 2 weeks post second vaccination before the recipient acquires adequate protection. Due to this, steroid initiation can take place only then. We extended the treatment from 5 weeks to 6 weeks (two months) of NSAIDs to allow a week extra in case there was a delay in getting the two vaccination doses.

Results: All three newly diagnosed patients with IGM completed their NSAIDs bridging therapy. None of the patients reported any worsening or progression of disease during the time they were treated with NSAIDs.

Conclusion: NSAIDs can be given to those with IGM to delay corticosteroid treatment. This strategy is to allow the patients to achieve complete vaccination with adequate post vaccination response for better COVID-19 protection prior to commencement of steroids.

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PE050

ADDITIONAL MALIGNANCIES IN PATIENTS RESECTED FOR ESOPHAGEAL CANCER.

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Introduction: With both the improvement of diagnostics and treatment of cancer multiple different primaries during the lifespan of patients are increasingly found. We investigated both the incidence and the prognostic impact of secondary malignancies in patients who underwent curative resection for esophageal carcinoma.

Materials & Methods: Between January 2000 and December 2021, 499 patients with esophageal carcinoma (63 females, 436 males; mean age: 63.2; range: 22 – 88; adenocarcinoma: 311, squamous-cell carcinoma: 184; other types: 5) underwent curative esophagectomy. 170 had induction and 108 had adjuvant therapy. Mean observation time was 80.8 months (1 – 280 months).

Results: 107 patients (21.4%) had at least one other malignancy either before (N=58), synchronous (N=17) after (N=24) and both before and after (N=8) surgery for esophageal carcinoma. 16 patients developed more than one (up to three) additional malignancies. The organs of tumor origin varied considerably: 39 were urologic, 22 cutaneous, 18 gastrointestinal, 17 ENT-region, 15 hematologic, 7 gynecologic, 6 lung, 2 liver and 2 others. Neither cell-type of the esophageal cancer nor induction or adjuvant therapy had a statistically significant correlation to the incidence of secondary tumors. 5 years survival rate was 41% for patients with and 30% for those without a secondary malignancy ($p=0.33$). The predominant cause of death was esophageal carcinoma (N=233).

Conclusion: With one fifth of patients the incidence of additional malignancies in esophageal cancer is high. However, additional tumours have no statistically significant influence on prognosis of esophageal carcinoma which remains the main cause of death in this subgroup of patients.

Disclosure of Interest: None declared

PE051

COMPARISON OF LOSS OF ABDOMINAL MUSCLE MASS RESULTING FROM PRE-SURGICAL TREATMENT (CHEMOTHERAPY) VERSUS THAT RESULTING FROM THE SUBSEQUENT SURGERY IN OESOPHAGEAL CANCER PATIENTS.

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Introduction: Background: Loss of skeletal muscle mass, derived from routine CT scans has been shown to correlate with surgical outcomes in some patient groups. However, the relative magnitude of abdominal muscle mass losses, due to treatment prior to surgery (chemotherapy) versus losses following surgery have not been extensively studied in oesophageal cancer patients. The purpose of this study was to assess comparative muscle mass losses (using routine CT scans) resulting from the pre-surgical treatment (chemotherapy) and resulting from the surgery itself, in patients undergoing elective surgery for oesophageal cancer.

Materials & Methods: A cohort of patients with oesophageal cancer (n=24) received adjuvant chemotherapy and subsequent surgical resection. CT scans were carried out for each patient at time of diagnosis, immediately prior to surgery (within 2 weeks) and 6 months post-surgery. Muscle mass was derived from CT scan muscle cross-sectional (L4; combined left- and right-side) in the rectus abdominis and psoas major muscles. Muscle mass loss due to the pre-surgical treatment and due to the surgery, itself, were compared using repeated measures ANOVA.

Results: Mean rectus abdominis muscle mass losses were 4.45% after the pre-surgical treatment period and a further 20.3% after the post-surgical 6-month period. Corresponding values for psoas major muscle losses were 7.8% and 11.9% respectively. The rectus abdominis muscle mass losses were not significant after the pre-surgery treatment ($p>0.05$) whereas the losses were significant ($p<0.01$) after the post-surgical period. Psoas muscle mass loss was not significant after neither the pre-surgery treatment nor following the 6-month post-surgery period.

Conclusion: Surgery appears to have a much greater impact on abdominal muscle mass than pre-surgical treatment (chemotherapy) in elective surgery oesophageal cancer patients. Further work is warranted, to explore whether intervention can off-set this debilitating significant muscle mass loss after surgery, in this patient group.

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Disclosure of Interest: None declared

PE052

IMPROVING SHORT-TERM OUTCOMES FOR EARLY GASTRIC CANCER. DATA OF THE FIRST 5 YEARS OF ROBOTIC ASSISTED GASTRECTOMY IN A SOUTH AMERICAN CANCER INSTITUTION.

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Introduction: Gastric cancer (GC) is the fourth most frequently diagnosed cancer and the first leading cause of cancer related mortality in Colombia. Less than 14% of the GC patients are diagnosed in early stages the country(1), make this challenging to gain high-volume experience to assess surgical outcomes in these patients. In the last decades laparoscopic surgery has been replacing the open technique, proving it technically safe with better short- and similar long-term oncological results, however this approach has still technical limitations, to overcome these constraints the robotic assisted gastrectomy (RAG) emerged in the field of GC treatment, the superiority of technique is still under discussion as so far there is no strong evidence for benefits in the oncological results (2). The aim of this study is to report and compare the security and short-term outcomes of the robotic approach in early GC patients in our institution.

Materials & Methods: This single-center interrupted case series included patients who underwent curative gastrectomy for early GC in the National Cancer Institute - Colombia, between 2013 and 2017 (open and laparoscopic) and 2017-2021 (RAG). Demographics and surgical performance in each approach are described and analyzed, also short-term outcomes were compared between open, laparoscopic, and robotic techniques.

Results: 28 patients were analyzed. Median age was 58,5 years (41 - 83). The most frequent histological type was moderate or poorly differentiated adenocarcinoma (68%). Tumor location was distal (68%) and 32% proximal. All patients were pT1, 75% pN0 and 14% pN3. Subtotal gastrectomy was the most frequent procedure and a D2 lymphadenectomy was performed in the 93% of the patients. The mean operative time was 207,5 mins for open, 323 for laparoscopic and 324,5 mins for RAG; The estimated blood loss was 50% less in the RAG approach. The 90,9% of RAG procedure had >25 harvested lymph nodes vs. 53% in open and laparoscopic approaches (p 0.036). The hospital stay was less than 7 days in the 91% in RAG vs. 47% in laparoscopic and open gastrectomy (p 0,018). No recurrence or mortality was present in this series during the follow up (7- 50 months).

Conclusion: This preliminary report demonstrate that RAG is safe and effective surgical technique. The interesting results in the short-term outcomes about blood lose, harvested lymph nodes and specially in relation to hospital stay, support the continued use of this approach to make a larger experience with long-term follow-up.

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Disclosure of Interest: None declared

PE053

LAPAROSCOPIC CYTOREDUCTIVE SURGERY AND HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY FOR PERITONEAL METASTASES FROM GASTRIC CANCER: EARLY EXPERIENCE FROM A CENTER OF EXCELLENCE IN COLOMBIA

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Introduction: Peritoneal dissemination is present in about 40% of gastric cancer cases translating into poor survival outcomes. Cytoreductive surgery (CRS) and Hyperthermic Intraperitoneal Chemotherapy (HIPEC) has been considered a treatment option, but there is scarce evidence on its use for gastric cancer. We describe early outcomes in a series of patients with peritoneal metastases from gastric adenocarcinoma (PMGA) treated with laparoscopic CRS/HIPEC.

Materials & Methods: A retrospective (2018-2021) study was conducted, charts were reviewed for patients with PMGA undergoing CRS/HIPEC.

Results: 5 patients with PMGA were taken to laparoscopic CRS/HIPEC. Mean age was 48.2 (SD±13.9) years and three (60%) patients were female. After neoadjuvant chemotherapy with adequate response, all patients underwent a total D2 gastrectomy. Other procedures included pelvic (n=4) and left diaphragmatic (n=1) peritonectomies, cholecystectomy (n=4), hysterectomy + bilateral salpingo oophorectomy (n=3). Median PCI was 2.5 [r, 0-6] and a complete cytoreduction was achieved in 100% of the cases. Cisplatin and Doxorubicin were used for HIPEC. Mean operative time was 12.1 (SD±1.6) hours, no trans operative complications nor conversion to open approach occurred. A mean of 39 (SD±17.2) lymph nodes were retrieved. Mean ICU stay was 2.8 (SD±1.9) days, average time to oral intake was 2 (SD±0.7) days. No Clavien Dindo III-IV complications were reported. Mean hospital stay was 12 (SD±2.9) days and 90-day mortality rate was 0. At current median follow up of 13.75 months [95%CI; 5.2-21.6], there is one patient alive with disease and three patients alive without disease with 31,2 months of longest follow up.

Conclusion: Laparoscopic CRS/HIPEC is a feasible and safe approach for the treatment of PMGA with the advantages of minimally invasive surgery in centers of reference. In our series, hospital stay and postoperative complications were low, which should incentivize further studies in this area.

Disclosure of Interest: None declared

PE054

HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY (HIPEC) IN GASTRIC CANCER – SINGLE CENTER EXPERIENCE

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Introduction: Gastric cancer remains one of the most aggressive malignancies, being associated with very poor outcomes, especially with peritoneal metastasis. Cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) usefulness is still matter of debate due to controversial evidence. The objective of our study is to examine the clinical and surgical outcomes in patients submitted to HIPEC.

Materials & Methods: Single center, cohort retrospective study included four patients with gastric carcinoma, clinically staged as M1c either with positive cytology alone or limited peritoneal carcinomatosis index (PCI) <7. These patients had no progression after total neoadjuvant chemotherapy with FLOT and one added trastuzumab (HER+) and were submitted to CRS and HIPEC by open or laparoscopic approach from September 2019 to February 2021.

Results: Four patients (2 men) with a median age of 56 years (range: 44-68 years), had no significant comorbidities. Two tumors were mixed adenocarcinomas and 2 were intestinal type. Regarding the location, two arose in the gastric body, 1 in the cardia and 1 in the fundus. Staging laparoscopy with positive cytology was found in all patients with PCI between 0-5. Three total gastrectomy (1 with laparoscopic approach) and 1 subtotal gastrectomy with D2 lymphadenectomy were performed, with completeness of cytoreduction (CC) = 0 in all patients. HIPEC was performed with doxorubicin and cisplatin for 60 min with a temperature of 40°C, with a median surgical time of 390min and blood losses of 350mL. Median hospital stay was 26 days (range 8-51 days). One patient had a small duodenal stump leak and a splenic vein thrombosis managed with splenectomy and intensive care admission (Clavien Dindo IV). Another patient had an esophagojejunal leak and was treated with an esophageal prosthesis (CD IIIb). There was no in-hospital mortality. One patient had a R1 proximal margin and completed adjuvant chemoradiotherapy. The median excised lymph nodes was 34,5. There was one complete tumor response to chemotherapy (HER+). The mean overall survival was 27 month (CI 19,8-34,1) and the progression free survival was 17,6 months (CI 6,9-28,30).

Conclusion: Given the high morbidity caused by CRS and HIPEC a judicious selection of patients for this procedure is mandatory. The high variability of tumor biologic response to chemotherapy and the low number of eligible patients for CRS and HIPEC make difficult to conclude about surveillance, so prospective randomized studies are required.

Disclosure of Interest: None declared

PE055

**EMERGENCY APPLICATIONS AFTER BARIATRIC SURGERY.
MOST COMMON CAUSES AND RESULTS DETECTED. IS IT POSSIBLE TO PREVENT UNNECESSARY
APPLICATIONS?**

EVALUATION OF EMERGENCY DEPARTMENT VISITS IN POSTOPERATIVE 30 AND 90 DAYS.

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Introduction: As the practice of bariatric surgery increases, the number of post-operative emergency service applications is also increasing, and this creates a significant burden on the aicl service. In our study, we aimed to define the reasons for applying to the emergency department after bariatric surgery, the rates of hospitalization and how to intervene in cases requiring hospitalization.

Materials & Methods: Patients who underwent different types of BS procedures between January 2016 and March 2021 were included in this study. The preoperative demographic data of the patients, the time elapsed between emergency admission and surgery, main complaints, symptoms and diagnoses, readmissions and post-hospital examinations and treatments were recorded. Applications were analyzed according to the postoperative 30-day and 90-day period.

Results:

A total of 1513 patients, 1432 (94.6%) SG, 63 (4.2%) OAGB, 18 (1.2%) RS, who underwent laparoscopic surgery due to morbid obesity were included in the study. In the postoperative period, 117 (8.17%) of our cases applied to the Emergency Service with different complaints. The rate of admission to the emergency department was 11.1% in the RS group, 4.8% in the OAGB group, and 7.8% in the SG group. The most common complaint in patients who applied to the emergency department after BS was localized abdominal pain with 66.6%, while the rate of hospitalization was found to be 30.7%.

According to the results of physical examination, laboratory findings and imaging tests, 20 (55.5%) of the 36 hospitalized patients were decided to perform endoscopy. Anastomotic leakage was detected in 13 (%) of 20 patients who underwent endoscopy.

Conclusion: Evaluation of the data in emergency applications after bariatric surgery, proper classification, and clarification of cause-effect relationships will enable patients to be followed more consciously. It will also alleviate the burden on physicians and emergency service workers and health expenditures. The collaboration of surgeons, emergency room managers and quality developers will improve the management of this patient group.

Disclosure of Interest: None declared

PE056

MOLECULAR LANDSCAPE OF LOCALIZED AND ADVANCED INTRAHEPATIC CHOLANGIOCARCINOMA

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Introduction: Intrahepatic cholangiocarcinoma (ICC) is a rare GI tumor, but its incidence is increasing worldwide. Surgical resection with adjuvant therapy is the only curative treatment, however only a minority of patients are candidates. Recently, molecular profiling of ICC has revealed greater than 50% incidence of actionable mutations in the advanced setting. Novel targeted drugs have been approved in the second line metastatic setting, but their role in the perioperative treatment for localized disease has not been examined.

Materials & Methods: A retrospective analysis of 149 patients with ICC at a single high volume referral center between 2010 and 2020 was performed. Patients were identified from a prospectively collected institutional database. Their tumor mutational profile was obtained from the electronic medical record, stratified by treatment modality and correlated with outcomes. Survival analysis was performed by the method of Kaplan and Meier and groups compared with a log rank test.

Results: Of 149 patients, 51 patients (34.2%) had molecular profiling data available. Mutational analysis revealed alterations in IDH1 (n=9, 17.6%), FGFR fusion (n=2, 3.9%), FGFR mutation (n=2, 3.9%), KRAS (n=10, 19.6%), ARID1A (n=10, 19.6%), NRAS (n=2, 3.9%), BRAF (n=5, 9.8%), BAP1 (n=17, 33.3%), and CDKN2A copy number loss (n=11, 21.6%). There were 84 patients (56.4%) without evidence of metastasis at diagnosis. Thirty-one (36.9%) patients received neoadjuvant chemotherapy of which 14 (38.9%) were resected. Fifty-three patients (63%) were considered for upfront surgery of which 40 patients (75.5%) ultimately underwent resection (30 open and 10 laparoscopic). Median overall survival (mOS) was 11 months in the metastatic group and 94 months in the resection group (p<0.001). In the entire cohort, ARID1A and BAP1 mutations correlated with a significantly longer survival time mOS not reached, p=0.005 and mOS 32 months, p=0.006, respectively. CDK2NA and BRAF mutations correlate with a significantly shorter survival time, mOS 17 months, p=0.001 and mOS 11 months, p=0.027, respectively.

Conclusion: Complete surgical resection affords the greatest survival benefit. Amongst all patients with ICC, ARID1A and BAP1 mutations correlated with significantly longer survival while patients with CDK2NA and BRAF mutations have a shorter survival. Further large multi-institutional studies are necessary to better delineate the effect of mutations on tumor behavior and response to therapy, particularly in those with localized disease.

Disclosure of Interest: None declared

PE057

VALIDATION OF FONG'S CLINICAL RISK SCORE FOR RESECTION OF LIVER METASTASES FROM COLORECTAL CANCER IN A TEACHING HOSPITAL

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Introduction: Resection of liver metastases from colorectal cancer (CRC) is the treatment that offers the best long-term survival. Given the increase in liver resections due to CRC, it is necessary to establish and validate prognostic criteria to identify the patients who benefit most from this treatment. The Fong Clinical Risk Score (FCRS) represents a tool to stratify patients who will obtain greater benefit in terms of survival after liver resection.

Our objective is to validate the FCRS for the prediction of overall survival in patients undergoing liver resection for CRC at the Clinical Hospital University of Chile.

Materials & Methods: Non-concurrent cohort study, analytical in nature. A retrospective review of electronic medical records was performed. Patients older than 18 years who underwent resection of CRC liver metastases between 2013 and 2020 were included, and those with extrahepatic spread, positive tumor margin, and/or neoadjuvant chemotherapy were excluded. Demographic, clinical, laboratory, survival and tumor characteristics data were recorded. The outcome variable was overall survival and other variables of interest were disease-free survival and mortality. Categorical variables were expressed as numbers and percentages, and numerical variables as median and interquartile range. Kaplan-Meier curves and log-rank test were used for survival.

Results: 53 patients who underwent liver resection for CRC metastases were registered. Age 58 (50-69) years, female sex 24 (45%), follow-up 28 (8-36) months, CEA 7.59 (3.71-67)ng/ml, number of metastases 2 (absolute range 1- 20), size of the largest tumor 2.5 (absolute range 0.48-15) cm, type of resection metastasectomy 21 (40%), minor hepatectomy 21 (40%) and major hepatectomy 11 (20%), mortality < 90 days 2 (3.8%), adjuvant 44 (83%). Median overall survival 34.5 (15.3-47) months, disease-free survival 18 (4-31.5) months, 5-year overall survival 33.3%. Median overall and disease-free survival according to FCRS 0, 1, 2, 3, and 4 were 48, 40, 20, 28, and 25 months and 6, 26, 32.5, 9, and 11 months, respectively. The log-rank tests between the curves of overall survival and disease-free survival, stratified according to FCRS, gave results of p=0.029 and p=0.34, respectively.

Conclusion: Fong's Clinical Risk Score is a valid tool to predict the overall survival of this group of patients undergoing resection of liver metastases for CRC in Clinical Hospital University of Chile.

Disclosure of Interest: None declared

PE058

OUTCOMES IN COLORECTAL CANCER LIVER METASTASIS – RETROSPECTIVE STUDY OF A SINGLE CENTER

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Introduction: It is estimated that between 15 to 30% of colorectal cancer patients develop either synchronous or metachronous liver metastasis. Improvements have been made in the treatment of metastatic colorectal cancer, either in surgery or systemic treatments, improving patient survival. The aim of our study is to examine the outcomes in our center regarding metastatic colorectal cancer patients.

Materials & Methods: Cohort retrospective study including 98 patients with the diagnosis of colorectal liver metastasis between 2012 and 2017. It is shown the descriptive, bivariate and survival data analysis using Kaplan-Meier curves and log rank test.

Results: Of the 98 patients, about 34% are female, with a median age of 65±15.25 years-old. About 27% of patients had right-sided colon cancer, 42% had it left-sided and 31% had rectal cancer. Regarding nodal disease, 27% were node negative and 73% had regional nodal metastasis. Sixty-three patients (64%) had synchronous liver metastasis, whereas 36% were diagnosed with metachronous liver disease. About 69% of patients experienced a recurrence during this period. 76% of patients received preoperative chemotherapy and 82% got it in the postoperative period. Within the synchronous metastasis group, 33% were submitted to colon surgery first, 62% had synchronous surgery and the remainder had liver surgery first. During this period 114 liver resections were performed: 83 patients had one surgery, 14 patients had two and 1 patient had 3. About 47% of these surgeries were liver-sparing and the rest of them involved anatomic resections. About 12% of surgeries resulted in complications Clavien-Dindo IIIb or higher. Node positive patients experienced a higher recurrence rate ($p<0.05$). Pre and postoperative chemotherapy and right vs. left colorectal cancer had no correlation with recurrence ($p>0.05$). Overall 5-year survival (5Y-OS) was 42% and progression-free survival was 20%. We observed a higher 5Y-OS in patients without recurrence (78 vs 35%) with significance ($p<0.05$). Synchronous metastasis where associated with worse 5Y-OS (36 vs 51%) with $p<0.05$. There is a tendency for higher 5Y-OS in node negative patients (61 vs 36%) although without statistical significance.

Conclusion: Given the large spectrum of liver metastasis, the treatment modalities and outcomes can be very different, thus the management of this entity is very challenging. In our center, node positive disease, recurrence and synchronous disease were associated with worse outcomes.

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Disclosure of Interest: None declared

PE059

SARCOPENIA NEGATIVELY IMPACTS RECURRENCE RATES OF CRLM AFTER LIVER RESECTION

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Introduction: The impact of body composition on outcomes after surgery for colorectal liver metastases (CRLM) remains unclear. The aim of the present study was to determine the influence of sarcopenia on recurrence rates in patients undergoing liver resection for CRLM.

Materials & Methods: Between 2005 and 2021, all patients who underwent liver resections for CRLM in our center, and of whom computed tomography (CT) imaging within 3 months before liver surgery was available, were included. Sarcopenia was assessed by measuring the total psoas area at the level of the third lumbar vertebra on the preoperative CT image and normalizing for height square. The lowest gender specific quartile was defined as sarcopenia. Cut offs for sarcopenia were $23.5 < \text{cm}^2/\text{m}^2$ in male and $17.9 < \text{cm}^2/\text{m}^2$ in female patients.

Results: 355 patients (62% male, median age 67a) who had preoperative CT imaging underwent liver resection for CRLM were included. Sarcopenia was prevalent in 55 (22.3%) patients and 132 (37.2%) showed KRAS mutations. Recurrence rates were 46.8% (n=166) in all and 60% (n=33) in sarcopenic patients (p=0.05). Recurrence rate was highest among patients with sarcopenia and KRAS positive CRLM (n=15, 66%), their odds for recurrence were nearly 3 times higher as compared to others (OR 3.45 CI95% 1.19-9.39, p=0.01).

Conclusion: Sarcopenia seems to influence the prognosis of patients with CRLM, especially in case of KRAS mutations.

Disclosure of Interest: None declared

PE060

IS THE SIZE OF HYDATID LIVER CYSTS INFLUENT ON THE FREQUENCY OF LETHAL OUTCOMES AND COMPLICATIONS?

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Introduction: Liver is involved in two-thirds of all patients of hydatid disease. Radical open surgery accompanied by a large percent of complications. At the same time, the effect of cyst size on the incidence of postoperative complications and recurrence is still controversial.

Aim. To analyse the influence of the size of echinococcal cysts on the early and long term results of its open surgical treatment.

Materials & Methods: There were 182 patients (101 (56%) women, 81 (44%) men) with uncomplicated liver echinococcosis. Mean age 35.5 ± 2.0 years. The duration of the disease was 5.2 ± 0.4 years. The mean size of liver cysts was 102.5 ± 2.7 to 82.5 ± 2.2 cm. All patients underwent open echinococcectomy. All patients were divided into three groups, the first group of patients with cysts up to 9 cm, the second group from 10 to 14 cm, and the third group from 15 cm. We analysed 30 days outcomes (mortality, biliary fistula formation, cyst suppuration) and in 5 years follow up period (number of recurrences).

Results: Of 182 patients who underwent echinococcectomy, suppuration of the residual cavity was in 23 cases, fistula in 10 and three deaths. The performed logistic regression showed that the size of cysts does not affect on mortality: for cysts up to 9 cm $\text{Exp}(B)=1.217$, 95% $\text{CI}=0.186-7.938$ ($p=0.838$); for cysts 9-15 cm $\text{Exp}(B)=0.510$, 95% $\text{CI}=0.053-4.893$ ($p=0.559$); for cysts larger than 15 cm $\text{Exp}(B)=1.791$, 95% $\text{CI}=0.174-18.486$ ($p=0.625$). Also, logistic regression revealed that cyst sizes do not affect on recurrence: for cysts up to 9 cm $\text{Exp}(B)=0.896$, 95% $\text{CI}=0.425-1.889$ ($p=0.773$); for cysts 9-15 cm $\text{Exp}(B)=1.017$, 95% $\text{CI}=0.467-2.212$ ($p=0.967$); for cysts larger than 15 cm $\text{Exp}(B)=1.167$, 95% $\text{CI}=0.432-3.153$ ($p=0.761$). No relationship was found between cyst sizes and the appearance of biliary fistulas: for cysts up to 9 cm $\text{Exp}(B)=0.643$, 95% $\text{CI}=0.300-1.377$ ($p=0.255$); for cysts 9-15 cm $\text{Exp}(B)=0.898$, 95% $\text{CI}=0.405-1.993$ ($p=0.792$); for cysts larger than 15 cm $\text{Exp}(B)=2.462$, 95% $\text{CI}=0.955-6.344$ ($p=0.062$). Logistic regression was also carried out to identify the effect of cyst sizes on the process of suppuration of the residual cavity: for cysts up to 9 cm $\text{Exp}(B)=1.614$, 95% $\text{CI}=0.787-3.323$ ($p=0.193$); for cysts 9-15 cm $\text{Exp}(B)=0.784$, 95% $\text{CI}=0.368-1.667$ ($p=0.527$); for cysts larger than 15 cm $\text{Exp}(B)=0.621$, 95% $\text{CI}=0.229-1.686$ ($p=0.350$).

Conclusion: The size of liver echinococcal cysts does not affect the frequency of early up to 30 days and late (up to 5 years) complications and recurrence after open operations

Disclosure of Interest: None declared

PE061

SURGICAL TWO-STAGE TREATMENT OF REFRACTORY ASCITES IN PATIENTS WITH DECOMPENSATED LIVER CIRRHOSIS

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Introduction: The way cirrhotic ascites progresses is strongly linked to severe disturbances of the central lymph circulation and blockage of peritoneal liquid absorption. The purpose of this study was to determine the most effective method of two-stage surgical correction of refractory cirrhotic ascites through decompression of the cervical thoracic lymphatic duct and laparoscopic sanitation of the abdominal cavity.

Materials & Methods: From 2014 to 2021, 143 patients (84 men (58.7%) and 59 women (41.3%),) aged 26 to 73 were submitted to surgery for liver cirrhosis with massive refractory ascites Child C (9-10), without symptoms of hepatic encephalopathy. The etiology comprised: viral hepatitis C (57 patients (39.9%)), B (40 pts (27.9%)), B+D (35 pts (24.5%)), toxicity (11 patients (7.7%)). To prevent bleeding, endoscopic injection blockage of esophageal varices with fibrin glue was performed in 132 patients (92.3%). The first stage of the treatment was performed through cervical decompression surgery of the thoracic lymphatic duct within 5-7 days, under local anesthesia, to improve lymphatic drainage from liver and abdominal organs. As a second stage, laparoscopic sanitation of the abdominal cavity was performed, with complete evacuation of the ascites fluid, rinsing and drainage. Post-surgery rinsing was repeated daily for 3-5 days to remove peritoneum edema and restore its absorptive capacity. Evaluation of results was performed within 3, 6 and 12 months, based on criteria of functional liver reserves and volume of ascites.

Results: Immediate post-surgery mortality due to liver failure occurred in 7 patients (4.9%), with 11 other patients (7.7%) dying of the same cause within the following 3-6 months. The one-year-post-surgery survival rate constituted 87.4%. Total regression of ascites over the course of the following 3-12 months was registered in 66 patients (46.2%), and considerable regression and stabilization was observed in 39 cases (27.3%), while moderate regression requiring periodic decompressive laparocentesis was recorded in 20 patients (13.9%). Both functional liver reserves and overall quality of life significantly improved in all patients.

Conclusion: The two-stage method of surgical treatment of cirrhotic ascites, through (1) decompression of the thoracic lymphatic duct followed by (2) the laparoscopic abdominal sanitation of ascites has proved its efficacy and could become an established clinical practice in preparation for liver transplant.

Disclosure of Interest: None declared

PE063

GALLBLADDER PARAGANGLIOMA WITH HEMORRHAGE

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Introduction: Gallbladder paraganglioma is a rare tumor, with only 12 cases reported in the literature to date. Because the disease is rare, clinical information about it is insufficient. We present a case of gallbladder paraganglioma in a 48-year old woman, and we include a literature review of all cases described to date.

Materials & Methods: A 48-year-old woman presented with intermittent right upper abdominal pain. Preoperative imaging revealed a hematoma in the gallbladder lumen without any definite etiology. Laparoscopic cholecystectomy was performed.

Results: Gross examination of the gallbladder revealed multiple small stones and a large hematoma, as well as a 1.6-cm-sized polypoid mass at the gallbladder fundus. Microscopic study of the polypoid mass showed a Zellballen appearance [A1], and immunohistochemical analysis revealed that the mass was positive for synaptophysin, CD56, and chromogranin, suggesting gallbladder paraganglioma.

Conclusion: Gallbladder paraganglioma is difficult to diagnose because of non-specific clinical findings, and almost all cases are diagnosed based on histologic findings after cholecystectomy. The review of all reported gallbladder paraganglioma cases showed no tumor recurrence or metastasis after cholecystectomy. Thus, simple cholecystectomy is considered to be the appropriate treatment for gallbladder paraganglioma.

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Disclosure of Interest: None declared

PE064

LAPAROSCOPIC COMMON BILE DUCT EXPLORATION (LCBDE) IN PATIENTS WITH CHOLEDOCHOLITHIASIS. 8-YEAR EXPERIENCE IN A SINGLE INSTITUTION WITH A 2-YEAR FOLLOW-UP PERIOD.

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Introduction: LCBDE is widely accepted and highly effective as a one-step treatment option for gallstone disease and coexisting choledocholithiasis. The aim of the study was to share our 8-year experience of the LCBDE.

Materials & Methods: Data of patients with an intermediate and high risk of choledocholithiasis from 2012 till 2019 was collected, including a two-year follow-up period. Intraoperative imaging of the bile ducts was provided by laparoscopic ultrasonography (LUS). Transcystic approach was used in biliary sludge or stones up to 5 mm, however transductal approach for stones over 5 mm and/or dilated bile duct over 10 mm. The main outcomes were retrospectively analyzed.

Results: Overall, 384 patients with intraoperatively proved choledocholithiasis were included in the study. Median age was 61 IQR (72-46). Most of them were females (73,5%), majority of patients classified as ASA II and ASA III (91.5%).

Transcystic approach was used in 295 (76.8%) patients: choledochoscopy in 115 cases with success rate of 82.6%, rinsing of the bile duct in 180 cases. In 79 cases transcystic choledochostomy was made due to unachieved bile duct clearance. Postoperative endoscopic clearance was necessary for 58 patients.

Transductal approach was used in 89 patients (23.2%). Choledochoscopy was used in 35 patients with success rate of 97.1% and in 54 patients stones were extracted mechanically. Bile ducts were closed as follows: choledochoduodenostomy in 35 (39,3%) cases, primary suture in 33 (37,1%) cases and T-tube was placed in 21 (23,6%) cases. In 3 of cases bile duct clearance was not assured and postoperative endoscopic clearance was used. Median operation time differ between approaches: transcystic 75 minutes IQR (105-60) and transductal 105 minutes IQR (135-85), $p < 0.05$. Surgical complications according to Clavien-Dindo classification are shown in Table 1.

Surgical complication/Clavien-Dindo	I	II	III	A III	B IV	A IV	B V
Biliary leakage	13			2			1
Postoperative pancreatitis	4						
Colon fistula	1						
Intraabdominal haemorrhage		2	2		2		
Wound infection		1					
Stricture of ductus hepaticus communis				1			
In total	54	3	5	2	0	1	

Table 1. *Surgical complications.*

Overall, during two-year follow up period 22 patients were readmitted due to residual biliary stones (readmission rate 5.7%).

Conclusion: LCBDE is a safe and efficient with a low readmission rate.

Disclosure of Interest: None declared

PE065

NOVEL THERAPEUTIC OPTIONS OF EUS-GUIDED INTERVENTION FOR CHOLANGIOLITHIASIS IN CHANGED ANATOMY OF THE UPPER GI TRACT AFTER PREVIOUS ABDOMINAL SURGERY - REAL-WORLD DATA OBTAINED FROM A UNICENTER OBSERVATIONAL ENDOSCOPY STUDY

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Introduction: **Aim:** To investigate feasibility & outcome of the novel & favorable option of an endoscopic ultrasonography(EUS)-guided antegrade or even retrograde gall stone extraction via a transhepatic route in patients (pats.) with no option for the usual gold standard, ERCP.

Materials & Methods: All consecutive pats. with cholangiolithiasis & surgically altered anatomy of the upper GI tract w/ & w/o previous attempts of an ERCP were enrolled in this unicenter case study & were characterized with regard to the technical & clinical success of this approach.

Results: From 2004 to 03/2020, overall 449 pats. underwent EUS-guided cholangiodrainage ($n=37$ pats. with cholangiolithiasis). In 8 of these 37 pats., gall stone extraction was achieved using EUS-ERCP rendezvous technique (not included in the study since there was no surgically altered anatomy of the upper GI tract). In 13 of the remaining 29 subjects (45%), there was a failure of previous attempts to reach the papilla of Vater or biliodigestive anastomosis using balloon-enteroscopy-guided ERCP. EUS-guided access to the biliary system was achieved in all 29 pats. Stone extraction was performed in 26 individuals (90%) by means of antegrade push-technique after balloon dilatation of the papilla of Vater & biliodigestive anastomosis, respectively, before. In 11/29 cases (42%), double pigtail prostheses were subsequently placed to track papilla of Vater / biliodigestive anastomosis ("ring drainage"), which were removed with gastroscopy three months later after previous ultrasound- & lab parameter-based follow-up control. In two pats. (7%), gall stones were extracted via a retrograde route using a transhepatic access site; in one patient (3%), stones were removed by means of a combined ante-/retrograde technique. In two subjects (7%), cholangioscopy with electrohydraulic lithotripsy was used.

Technical as well as clinical success rate was 100% (29/29 pats.). Re-interventions became necessary in 6/29 cases (21%), complications occurred in 6 individuals (21%).

Conclusion: EUS-guided stone extraction in antegrade or retrograde technique for pats. with surgically altered anatomy of the upper GI tract can be considered a favorable & safe but challenging approach of interventional endoscopy/EUS. It can provide high technical & clinical success & low complication rates.

Disclosure of Interest: None declared

PE066

CYSTO-BILIARY COMMUNICATION IN CYSTIC LIVER ECHINOCOCCOSIS – IS THERE A "BEST" TECHNIQUE?

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Introduction: Cysto-biliary communication occurs in 3-17% of the cases with cystic echinococcosis of the liver (CEL). Despite the various surgical techniques described in the literature, there is no "best treatment" yet. The study aims to compare two surgical approaches for the management of biliary complications of CEL. Group A included unroofing, suture of the fistula and drainage of the residual cavity, whereas Group B consisted of various drainage techniques (external, transistulary, internal or bipolar biliary drainage and cysto-biliary disconnection) or liver resection.

Materials & Methods: A total of 134 cysts in 89 operated patients were retrospectively evaluated. Cysto-biliary communication was noted in 17 cases (19%). Single cysts were seen in 15 patients, two cysts – in 6 and three cysts – in 4 patients.

Cysto-biliary communication was < 5 mm in six cases (6.7%), > 5 mm in eleven (12.4%), intra-biliary rupture occurred in four cases (4.5%), all of them with fistula > 5 mm. Spontaneous intra-abdominal rupture and abscess formation were noted in two cases. The surgery was planned according to the number, size and location of CEL. Intraoperative cholangiography or choledochoscopy was performed in all cases with intra-biliary rupture. In 6/17 cases (35.3%) suture was performed (Group A), whereas eleven cases (64.7%, group B) underwent the following procedures: external drainage – 2, cysto-biliary disconnection – 2, internal drainage – 4, transistulary drainage – 1, liver resection – 2.

Results: External biliary fistulas developed in 50% in group A (n=3) vs. 18% (n=2) in Group B, both of which occurred in the cases with external drainage. All fistulas were successfully resolved via postoperative ERCP with sphincterotomy.

Two patients in group B developed postoperative liver abscesses managed by re-laparotomy. There was no mortality in both groups.

Conclusion: The suture is an easy and simple technique but is indicated only in small (< 5 mm) and terminal fistulas with healthy surrounding tissue. The external drainage may be associated with a higher postoperative fistula rate and should be avoided. The internal drainage and Perdomo's procedure are suitable for large biliary-cyst communication. Liver resection should be considered in complicated multiple cysts consuming the liver parenchyma. Intraoperative choledochoscopy is a valuable diagnostic and treatment tool in cases of intra-biliary rupture. ERCP is an indispensable part of the multidisciplinary treatment of complicated CEL.

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PE067

LAPAROSCOPIC BILE DUCT EXPLORATION: AN INSTITUTION EXPERIENCE

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Introduction: Choledocholithiasis can be detected in up to 20% of the patients with cholelithiasis. Laparoscopic common bile duct exploration (LBCDE) during laparoscopic cholecystectomy (LC) has the advantage encompassing only one intervention and is as effective as two-stage endo-laparoscopic treatment. The aim of this study is to report the experience of LBCDE in a district general hospital, Centro Hospitalar do Baixo Vouga (CHBV).

Materials & Methods: Retrospective data analysis of patients who underwent LBCDE in CHBV, from January 2011 until December 2020, using the SPSS programme.

Results: A total of 122 patients were included in this study: 66 were female and 55 were male. The mean age was 59 ±17 years old. Around 96.7% (n=118) of LBCDE were performed in an elective setting. The main diagnosis in the initial presentation was acute cholecystitis (n=33, 27.0%) and acute pancreatitis (n=26, 21.1%). Ultrasound was the pre-operative diagnostic exam of choledocholithiasis in 55.7% of the cases (n=68). The transcystic approach was used in 65.6% of the interventions (n=80). Choledochoscopy was executed in 56.8% (n=70) of all cases. Overall, biliary drainage was instituted in 33 patients (26.8%), 6 of these were through the cystic duct. The conversion rate was of 10.7% (n=13), mainly due to difficult dissection (n=5). The mean post-operative stay was 8 ± 5 days. Morbidity and mortality rates were 14.6% (n=18) and 0%, respectively. According to the Clavien-Dindo Classification, 7 (5.7%) of the morbidity cases are grade III or IV, 4 of which need reintervention - 2 iatrogenic bowel perforations and 2 biliary peritonitis. The mean follow up was 14 ± 13 months. Recurrent stones were identified in 16 patients (13.1%).

Conclusion: The results of this study are in line with the findings from expert centers described in literature, namely regarding the success, morbidity and mortality rates. Even though the conversion rate was slightly higher, the data presented reflects the learning curve of the surgeons. LBCDE is a safe and effective option in the treatment of choledocholithiasis.

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PE068

SPONTANEOUS RUPTURE OF AN INTRAHEPATIC BILE DUCT (IBD) CAUSING BILIARY PERITONITIS IN A PATIENT WITH ACUTE CHOLANGITIS

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Introduction: Spontaneous, non-traumatic rupture of bile ducts is a rare clinical condition where bile leakage cannot be attributed to trauma or iatrogenic intervention. It can cause local or generalized peritonitis in a patient with symptoms of cholangitis leading in an unacceptable mortality of 30 to 50%. Only a few cases have been published in the international literature.

Materials & Methods: We present the case of an 81 years-old female patient, admitted to our Surgical Department with septic cholangitis. On admission, she presented with right upper quadrant pain and tenderness with no signs of peritonitis, pyrexia, mildly jaundiced, disturbed hepatic biology and highly elevated inflammatory markers. The patient had a cholecystectomy 25 years ago and receiving medication for hypertension. Abdominal USS and CT scan revealed dilated intra-extrahepatic ducts with a common bile duct of 1cm in diameter and impacted stones at the ampulla of Vater. After a short period of conservative management and while waiting for ERCP, the patient rapidly deteriorated and developed severe, generalized abdominal pain with rebound tenderness and tachycardia. She underwent exploratory laparotomy where biliary peritonitis was found. Bile leakage was obvious from a superficial biliary radicle in hepatic segment V. Choledochotomy was then performed, CBD was thoroughly washed out and a huge stone was removed. Cholangiogram confirmed no lithiasic remnants and a T-tube was placed.

Results: After a short stay in ICU, the patient returned to our Department and recovered uneventfully. Cholangiogram through T-tube 15 days post-op confirmed free passage of contrast into the duodenum with no bile leakage. T-tube was removed on the 25th postoperative day. The patient remains with no further symptoms.

Image:



Conclusion: IBD spontaneous rupture is a very rare clinical entity, caused by rapid increase of intraluminal pressure in combination with inflammation as it is noticed in cholangitis and severe pancreatitis. In about 80% of the cases, occurs to the left radicles. Immediate drainage of the bile ducts is necessary while mortality remains unacceptably high due to late diagnosis and misdiagnosis.

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PE069

RARS2 PROMOTES INVASION AND CHEMORESISTANCE OF PDAC BY P53-DEPENDENT APOPTOSIS SIGNALING

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Introduction: To study the effects of RARS2 on proliferation, invasion, migration and chemotherapy sensitivity of PDAC and to study the mechanism of invasion and gemcitabine resistance of PDAC.

Materials & Methods: 400 pancreatic cancer specimens from 2004 to 2016 were selected for IHC staining to evaluate the expression of RARS2 in cancer and adjacent tissues, and to evaluate the relationship between RARS2 and the prognosis of PDAC patients. The biological function of RARS2 on pancreatic cancer cells were studied by transwell, scratch assays and CCK8 methods in vitro. Subcutaneous xenograft model was used to detect the effects of RARS2 on the proliferation, invasion and chemoresistance of pancreatic cancer in vivo. By means of high-throughput transcriptome sequencing, chromatin immunoprecipitation (ChIP), the mechanism of RARS2 regulating P53-dependent apoptosis signaling to promote invasion and chemoresistance of pancreatic cancer was studied.

Results: The expression level of RARS2 in pancreatic cancer tissues was higher than that in adjacent tissues. The expression level of RARS2 was negatively correlated with the differentiation of pancreatic cancer and positively correlated with N stages. RARS2 can promote the proliferation and chemoresistance of PDAC in vitro and in vivo. The expression level of RARS2 was positively correlated with P53, Bcl2, Caspase3, Caspase9, and negatively correlated with Bax. Therefore, RARS2 can regulate P53-dependent apoptosis signaling to promote the invasion and chemoresistance of pancreatic cancer.

Conclusion: RARS2 has the potential to be a prognostic marker and therapeutic target for pancreatic cancer patients.

Disclosure of Interest: None declared

PE070

EARLY VERSUS LATER ENDOSCOPIC DRAINAGE IN POST-INFLAMMATORY PANCREATIC NECROTIC COLLECTIONS

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Introduction: Transmural endoscopic drainage is commonly used in the treatment of walled-off pancreatic necrosis in the late phase of acute necrotizing pancreatitis. This study aimed to prospectively evaluate and compare early endoscopic treatment in acute necrotic collections and that in walled-off pancreatic necrosis.

Materials & Methods: Overall, 184 patients hospitalized for acute pancreatitis and its complications including pancreatic and peripancreatic fluid collections were screened. Overall, 71 patients with acute necrotizing pancreatitis who underwent transmural endoscopic drainage for pancreatic necrotic collections were included. The procedure was performed within 4 weeks of acute necrotizing pancreatitis in 25 (35.21%) patients (Group 1- acute necrotic collection) and beyond 4 weeks after formation of walled-off necrosis in 46 (64.79%) patients (Group 2- walled-off pancreatic necrosis).

Results: The overall mean (range) age of patients was 49.9 (22–79) years and 59 of them were males. The mean time to active drainage and duration of total treatment was 26.8 and 16.9 days ($P=0.0001$) and 270.8 and 164.2 days ($P=0.0001$) in Groups 1 and 2, respectively. The average total number of endoscopic interventions was 9.5 and 4.5 in Groups 1 and 2, respectively ($P=0.0001$). The clinical success rate, frequency of complications of endoscopic interventions, long-term success rate, and recurrence rate were not significantly different between the groups ($P>0.05$ for each).

Conclusion: Endoscopic treatment is effective and safe in managing early necrotic collections within the first 4 weeks of acute pancreatitis. However, compared with endoscopic intervention in walled-off pancreatic necrosis, more interventions and longer duration of drainage are required.

Disclosure of Interest: None declared

PE071

ENDOSCOPIC TREATMENT OF POST-INFLAMMATORY PANCREATICOPLEURAL FISTULAS

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Introduction: Pancreaticopleural fistula is a serious complication of acute and chronic pancreatitis. Assessment of efficacy of various endoscopic techniques in treatment of patients with pancreaticopleural fistula.

Materials & Methods: Prospective analysis of endoscopic treatment of all consecutive 22 patients with pancreaticopleural fistulas in the course of pancreatitis in years 2018-2021 in the Department of General, Gastroenterological and Oncological Surgery, Collegium Medicum, Nicolaus Copernicus University in Toruń, Poland.

Results: In 22 patients (21 males, 1 female; average age 49,52 [30-67] years) with pancreatitis pancreaticopleural fistulas were diagnosed. In 19/22 (86.36%) patients fistula communicated with left pleural cavity; in 3/22 (13.64%) patients with right pleural cavity. In all 22 cases drainage of pleural cavity was performed. Chronic pancreatitis was recognized in 14/22 (63.64%) cases. In 15/22 (68.18%) patients with pancreaticopleural fistulas symptomatic pancreatic and peripancreatic collections (PPFCs) were diagnosed (11 patients with pseudocyst and 4 patients with walled-off pancreatic necrosis). In 21/22 (95.45%) cases endoscopic retrograde pancreatography (ERP) was performed, during which the presence of fistula was confirmed. In all 21 patients endoscopic sphincterotomy with stenting of main pancreatic duct was performed (passive transpapillary drainage). In 1/22 (4.55%) patient active transmural drainage of pancreaticopleural fistula was performed due to inflammatory infiltration of peripapillary area preventing performance of ERP. Additionally, in all 15 patients transmural endoscopic drainage of PPFCs was performed. Clinical success was achieved in 21/22 (95.45%) cases. Total endotherapy period was average 191 (88-712) days. Long-term success in endoscopic treatment of pancreaticopleural fistulas was stated in 19/22 (86.36%) patients.

Conclusion: Endoscopic treatment of post-inflammatory pancreaticopleural fistulas is an effective method of treatment.

Disclosure of Interest: None declared

PE072

PERCUTANEOUS ENDOSCOPIC NECROSECTOMY IN THE TREATMENT OF WALLED-OFF PANCREATIC NECROSIS

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Introduction: In recent decades we observe constant development of minimally invasive techniques of treatment of consequences of acute necrotizing pancreatitis. The choice of access to the necrotic collection should mainly depend of localization of necrotic changes and experience of the medical center. Prospective assessment of efficiency and safety of innovative method of percutaneous necrosectomy in the treatment of patients with symptomatic walled-off pancreatic and peripancreatic necrosis.

Materials & Methods: 186 consecutive patients with symptomatic walled-off pancreatic and peripancreatic necrosis treated in the Department of General, Gastroenterological and Oncological Surgery, Collegium Medicum, Nicolaus Copernicus University in Toruń, Poland between 2018 and 2021 were included. The analyzed patients were treated with novel method of endoscopic percutaneous necrosectomy, in which percutaneous access to the necrotic collection was achieved with use of retroperitoneal route; consequently, the access was widened and self-expanding metal stent was placed percutaneously, which allowed to introduce the endoscope percutaneously into necrotic area and to perform endoscopic necrosectomy.

Results: In 13/186 (6.99%) patients with symptomatic walled-off pancreatic and peripancreatic necrosis an additional percutaneous drainage was performed during the endotherapy. In 7/13 (53.85%) patients (2 females and 5 males; average age 46.72 [31-65] years) were qualified to percutaneous endoscopic necrosectomy. Average size of the necrotic collection was 24.88 (15.24-32.5) cm. An active percutaneous drainage during transmural endoscopic drainage lasted 15 (11-31) days. Average number of procedures of percutaneous endoscopic necrosectomy was 3.67 (2-7). Complications of treatment were stated in 2/7 (28.57%) patients. Clinical success was achieved in 6/7 (85.71%) patients. Log-term success was stated in 6/7 (85.71%) patients.

Conclusion: Percutaneous endoscopic necrosectomy during transmural endoscopic drainage of walled-off pancreatic and peripancreatic necrosis is an effective method of minimally invasive treatment.

Disclosure of Interest: None declared

PE073

EVALUATION OF PERIOPERATIVE AND QUALITY OF LIFE OUTCOMES ALONG WITH COST EFFECTIVENESS IN LAPAROSCOPIC TARM REPAIR FOR VENTRAL HERNIA: A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction: Laparoscopic ventral hernia repair has its advantages of reduced post-operative complications and early return to work. Owing to the need of a cost-effective technique with similar perioperative outcomes, TARM (Trans Abdominal Retro-rectus Mesh repair) is a suitable and less expensive alternative compared to other methods of laparoscopic ventral hernia repair particularly intraperitoneal onlay repair using a composite mesh. This particular technique entails the placement of simple polypropylene mesh between the rectus muscle and posterior rectus sheath. TARM technique potentially reduces the morbidity by not allowing the mesh to be exposed to intraperitoneal contents.

Materials & Methods: This is a prospective observational study of 24 cases (N=24, Age 20-65 years) from 2019 to 2021 in a tertiary care medical university in northern part of India. Patients with primary (n=7) or incisional (n=17) hernias were selected to be operated on using TARM procedure. Quality of life was evaluated in terms of time to return to usual routine work, the sensation of mesh (using Carolinas Comfort Scale, CCS), tolerance to early oral feed, formation of seroma, suture site infection and hernia recurrence.

Results: The average defect size was 2.8 cm with a mean BMI was 28.17. The average duration of surgery was 165 mins. Mean postoperative pain score on the Visual Analog Scale after 1 day, 1 week, 1 month, 3 months and 6 months were 3.5, 2, 0.58, 0.5 and 0 respectively (on a scale of 1-10). Seroma formation occurred in 6 (25%) and hematoma in 1 (4%) patients. The mean time to resumption of daily activities was 6.25 days. Mean Carolinas comfort scale after 1 month and 3 months (out of 115) are 30 and 16.2 respectively. No cases of recurrence or chronic pain were observed during 6 months follow-up.

Conclusion: Laparoscopic TARM appears to be a feasible, safe and cost-effective method of ventral hernia repair due to standard laparoscopic instruments used, no contact with bowel and use of plain polypropylene mesh respectively. It provides improved peri-operative and quality of life outcomes post-operatively. Seroma formation was a common complication and subsided without any intervention.

Disclosure of Interest: None declared

PE074

APPROACH TO THE PATIENT WITH BOWEL OBSTRUCTION

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Introduction: Even nowadays, bowel obstruction is a challenging condition for surgeons who approach it in the emergency department, namely in the decision of the treatment and in the ideal timing for the surgical intervention.

Materials & Methods: Retrospective and descriptive study that included 636 patients admitted to the emergency department for bowel obstruction between 2013 and 2017.

Results: 331 women (52%) and 305 men (48%) were admitted, with an average age of 72 years. Regarding the location, 74.4% of the obstructions affected the small bowel and 21.5% the colon and rectum. Abdominal wall hernias (40.7%) were the most frequent cause, followed by adhesions (23.4%) and malignancy (16.2%). Most patients underwent urgent surgical treatment (59.4%), 3.5% underwent endoscopic treatment (prosthesis, dilatation), 23.1% received conservative treatment (nasogastric decompression, parenteral fluids) and 14% ended up requiring surgery for maintaining the condition despite conservative measures. The average length of hospital stay was 10 days. Deferred surgical treatment was significantly related to the appearance of complications ($p < 0.001$). While surgical treatment was associated with a greater need for ICU admission ($p = 0.015$), the non-surgical approach was shown to have a statistically significant relationship with in-hospital mortality ($p = 0.049$). The conservative and deferred surgical approach were significantly related to the need for readmission due to a new occlusive condition ($p < 0.001$).

Conclusion: Bowel obstruction is a common cause of admission at our hospital. Surgical treatment, when considered, should not be delayed as it is associated with a higher rate of complications.

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Disclosure of Interest: None declared

PE075

SURGICAL TREATMENT OF ACUTE SMALL BOWEL OBSTRUCTION: CLINICAL, LABORATORY AND INSTRUMENTAL PARAMETERS ASSOCIATED WITH STRANGULATION AND SHORT-TERM IN-HOSPITAL MORTALITY AFTER SURGERY

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Introduction: Small bowel obstruction (SBO) continues being of the most difficult problems in emergency abdominal surgery. It is often difficult to objectively predict severity based on prior information obtained from initial contact with a patient in the emergency department during the initial treatment phase before and after surgery.

Materials & Methods: The results of treatment of 123 patients aged 18-80 years with SBO were evaluated. Patients were divided into two groups: 1st with a positive result (survivors, n = 101), 2nd with an unfavourable result (non-survivors, n = 22).

Results: All these patients underwent emergency surgery. Small bowel ischemia developed in 49 (39.8%) patients: reversible in 21 (42.9%) and irreversible in 28 (57.1%) patients; generalized peritonitis was present in 24 (19.5%) patients, in 18 (75%) of them abdominal sepsis. After the operation, 22 patients (17.9%) died. This study has shown that only four lab parameters (blood leukocytes, lactate, intestinal fatty acid-binding protein, and C-reactive protein levels) and one instrumental (involving the mesentery of the small intestine, free fluid in the abdomen during CT) with 80% probability or more were significantly associated with the strangulation type of SBO ($\Lambda = 0.276$ at $\chi^2 = 86.24$, $p = 0.000$), as well as three lab indicators (WBC count, serum lactate, intestinal fatty acid-binding protein levels) and two clinical parameters (abdominal perfusion pressure level, the presence of abdominal sepsis), were associated with early mortality after surgery ($\Lambda = 0.626$ at $\chi^2 = 20.31$, $p = 0.000$) with the same probability. In both groups, the main operation in 95 (77.2%) patients was adhesiolysis, the transnasal tube of the small intestine and drainage of the abdominal cavity. This made it possible to develop new mathematical models for the diagnosis of strangulated bowel obstruction and early postoperative mortality with an accuracy of 84.5% and 84.2%, respectively.

Conclusion: It was confirmed that four lab parameters and one instrumental with 80% probability or more were significantly associated with the strangulation before surgery and three lab indicators and two clinical parameters, were associated with short-term in-hospital mortality. It was given possibility to develop new mathematical models for the diagnosis of strangulated bowel obstruction and early postoperative mortality with an accuracy of 84.5% and 84.2%, respectively.

Disclosure of Interest: None declared

PE076

ALVARADO SCORE IN THE DIAGNOSTIC OF PAIN IN THE RIGHT LOWER QUADRANT

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Introduction:

La apendicitis aguda no sospechada ni diagnosticada podría desarrollar una perforación o en caso contrario llevaría a la extirpación de un revisado normal. Utilización de un sistema de puntuación clínica para el diagnóstico asistido de esta patología y puede reducir una apendicitis negativa.

Materials & Methods: Estudio prospectivo y protocolizado.

Se estudiaron 1119 pacientes entre agosto de 2000 y diciembre de 2020. 588 varones y 531 mujeres su edad promedio fue de 25,3 años. Se realizó la puntuación de Alvarado en todos los pacientes al ingreso. Según clínica y segunda exploración valoración con el score se cirugía quirúrgica en 1061 (94,8 %) pacientes. Los restantes 58 (5,18 %) fueron excluidos por otra patología. El diagnóstico de apendicitis aguda se obtuvo por hallazgo quirúrgico y estudio histopatológico.

Results: En el hallazgo de cirugía mostramos 962 pacientes (90,6%) con apendicitis aguda. No había mortalidad operativa. Respecto a la morbilidad hubo un 2,2 % de complicaciones médicas y un 16,3 % de complicaciones quirúrgicas. El informe anatomopatológico demostró un cecal normal en el 99 %, mientras que la incidencia de apendicectomía negativa fue del 9,3 %.

Conclusion: La utilización de score relacionado con el hallazgo quirúrgico y la certeza anatomopatológica que fue apreciable desde 6 puntos hasta el diagnóstico de apendicitis aguda.

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Disclosure of Interest: None declared

PE077

HIATAL HERNIA: LATE COMPLICATION OF LAPAROSCOPIC GASTRIC BYPASS

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Introduction:

Laparoscopic Roux-en-Y gastric bypass (RYGBP) is gold standard technique in the surgical treatment of morbid obesity. As it is a complex procedure, it is not exempt from complications. Late complication such as intestinal obstruction, anastomotic stricture, internal hernias, marginal ulcers have been described. Hiatal hernia with pouch migration is a less-known complication and is easy to miss. When these are symptomatic, they require surgical repair.

Materials & Methods: The purpose is to present a case report with an unusual late complication after gastric bypass, the diagnosis of which may require a high index of suspicion.

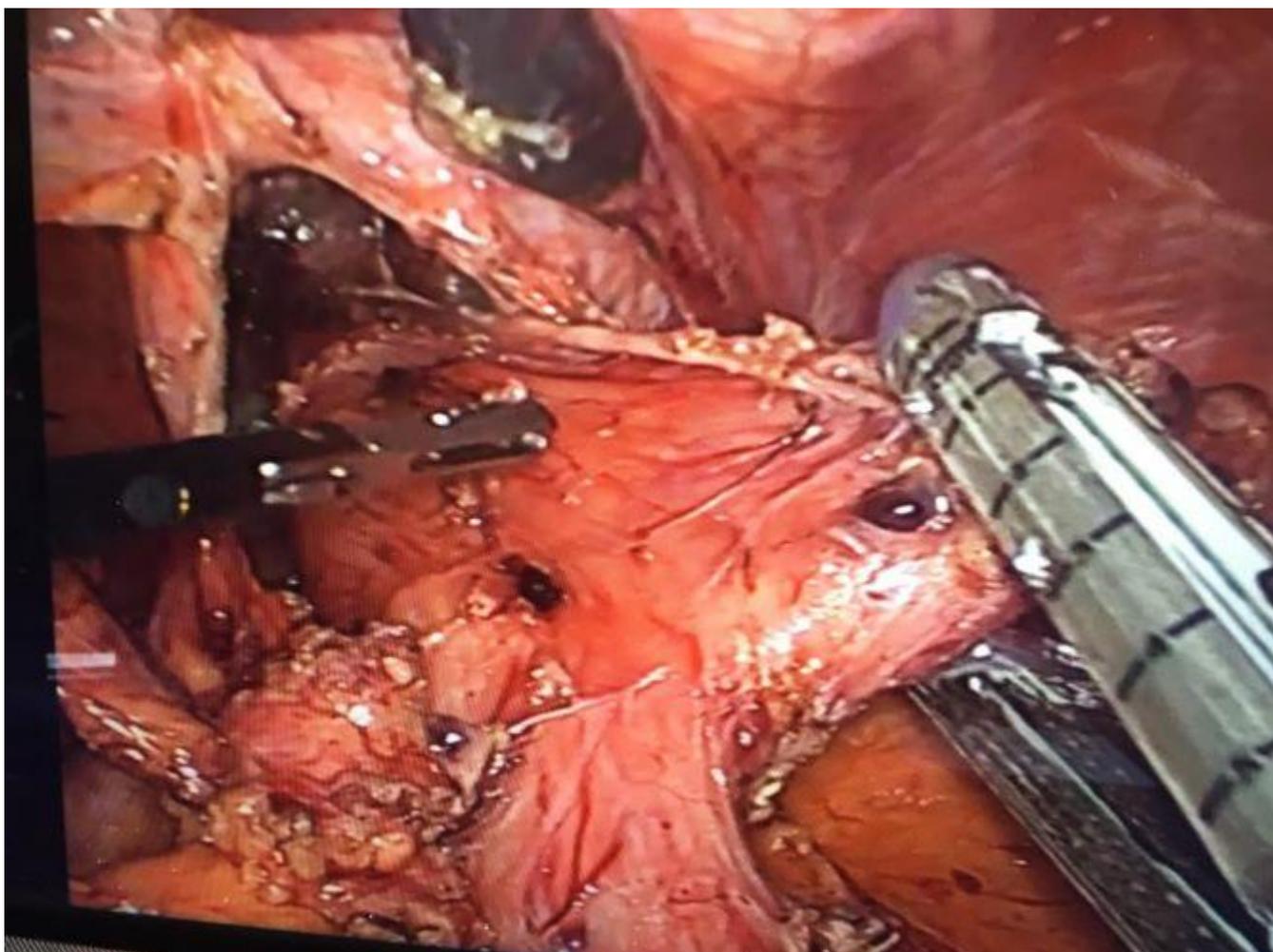
Results: We present the case of a patient submitted in 2010, at the age of 23, to resective gastric bypass by videolaparoscopy, due to morbid obesity (weight 140 kg, height 1.7 m, BMI 48.4 kg/m²), without other pathologies, with evolution favorable, reaching a BMI of 24 kg/m² (70kg), three years after surgery.

In 2014, he presented 3 episodes of intestinal obstruction, surgically resolved satisfactorily.

The year 2018 begins GER symptoms, manifested by heartburn, heartburn and regurgitation. Upper gastrointestinal endoscopy shows grade D esophagitis according to the Los Angeles classification, pouch slightly increased in volume with urease test (+).

Due to persistence of symptoms, despite medical treatment, in 2021 a barium X-ray of the esophagus and stomach was performed, reporting severe gastroesophageal reflux. In addition, an enterogram is requested, which reports an ascended gastroesophageal junction approx. 30 mm through esophageal hiatus of 28 mm, so it is performed an exploratory laparoscopy on November 11, 2021, intestinal loops are found within the normal range, dilated hiatus and intra-mediastinal ascended gastric pouch. The distal esophagus is released, the gastric pouch is taken down, and the pillars closed. Patient is discharged 48 hours after surgery in good condition, with complete remission of symptoms to date.

Image:



Conclusion: Hiatal hernia is an infrequent late complication of gastric bypass, whose main manifestation is GER, so it should be suspected in its presence. EDA and radiological studies are important diagnostic tools.

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Disclosure of Interest: None declared

PE078

EFFICACY AND SAFETY OF VESSEL SEALER IN LAPAROSCOPIC APPENDECTOMY FOR SEALING THE BASE OF THE APPENDIX

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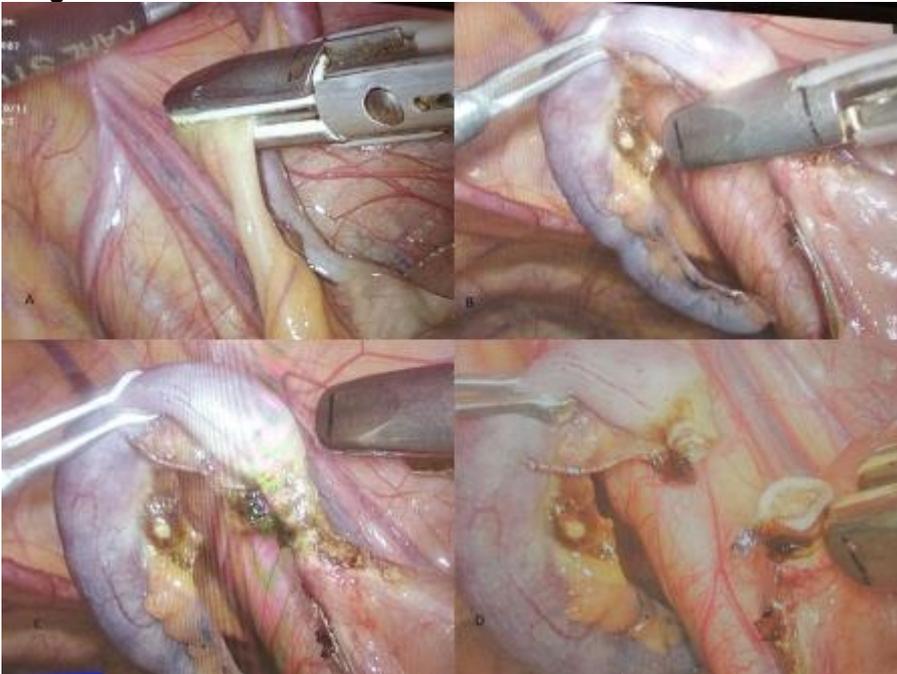
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Introduction: The closure of the appendiceal stump is a crucial step during appendectomy. The aim of this study is to evaluate the LigaSure vessel sealing system in Laparoscopic Appendectomy to divide and seal the base of appendicular stump .

Materials & Methods: Laparoscopic appendectomy was performed using the 5mm/10mm LigaSure Vessel Sealer in 53 patients and the mesoappendix along with the base of the appendix was sealed/divided by Ligasure in a stepwise manner. Patients demographic details, operative time, return to oral feed, duration of hospital stay, post operative complications was recorded and statistical analysis was done.

Results: Out of 53 patients (24 women and 29 men) no complications occur in 51 patients . The mean age and standard deviation (SD) were 26.50 ± 10.46 years. Mean operative time for 53 appendectomy by Ligasure was 27.8 ± 6.72 min . Mean duration of hospital stay after surgery was 3.3 ± 0.72 days . One patient develop mild subcutaneous emphysema over abdomen (1.8%), surgical site infection occur in 1 patient (1.8%) case .

Image:



Conclusion: This study demonstrated that sealing and dividing of base of appendix by ligasure vessel sealing system is safe and feasible. It is associated with low complication rate and may help in simplifying the operative procedure .

Disclosure of Interest: None declared

PE079

COLON ONCOLOGICAL RESECTION IN A PATIENT WITH INTESTINAL MALROTATION

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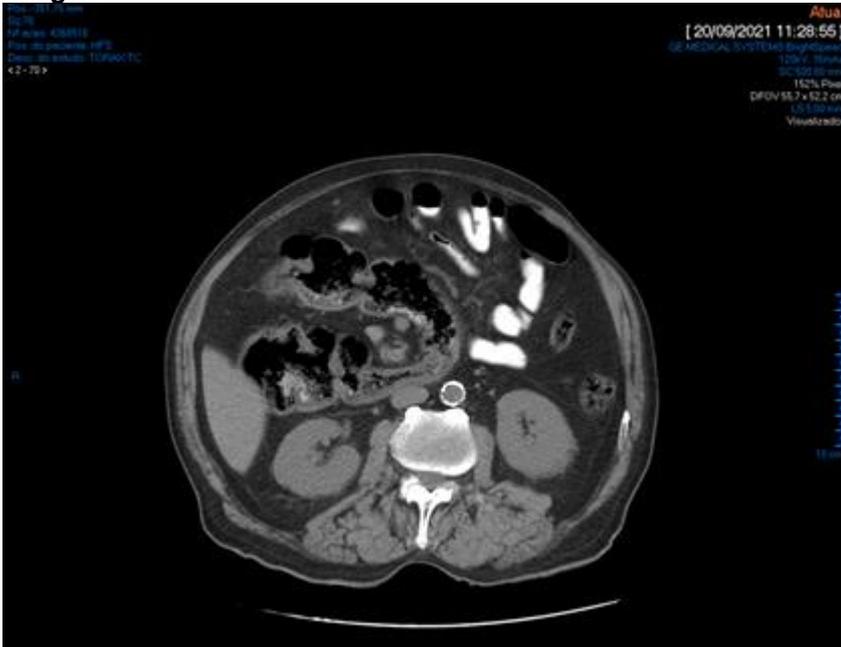
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Introduction: Splenic flexure colon carcinomas are often associated with a worse prognosis due to the advanced stage at diagnosis and the increased risk of bowel obstruction. The surgical management of these carcinomas is challenging because of technical difficulties related to the peculiar dual lymphatic drainage and vascular anatomical variations.

Materials & Methods: A 76-year-old Caucasian male with no relevant personal or familiar history was diagnosed with a transverse colon adenocarcinoma. A staging abdominopelvic computed tomography showed a T4NxM0 transverse colon carcinoma. It was observed a midgut malrotation with the right colic flexure in a retroperitoneal position and posterior to celiacomesenteric trunk, the duodenojejunal flexure located to the right and the whirlpool sign of the mesentery. A surgical resection was planned.

Results: Intraoperatively it was identified a tumor in the transverse colon close to the splenic flexure. Due to the patient's anatomy, a segmental left colectomy was performed with lymphadenectomy. The patient was discharged on the fourth postoperative day with no complications associated. Histology showed a 2cm intermediated-grade adenocarcinoma with visceral peritoneum invasion, without linfovascular or perineural invasion. There were no metastatic invasion of mesenteric lymph nodes (0/22) and no malignant cells in the resection margin (pT4aN0R0). Adjuvant therapy with capecitabine started 8 weeks after surgery.

Image:



Conclusion: Intestinal malrotation is a rare congenital abnormality leading to a range of clinical challenges. This anatomical alteration was preoperatively diagnosed and led to an open surgery approach (segmental resection of splenic flexure). Recent studies showed that limited resection results in the same postoperative, oncological and survival outcomes as extended resections. Despite the challenging anatomic particularities of this case, oncological resection principals were maintained by a straightforward operative plan.

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Disclosure of Interest: None declared

PE080

PREDICTING LONG-TERM RISK OF REOPERATIONS FOLLOWING ABDOMINAL AND PELVIC SURGERY IN A NATIONWIDE COHORT STUDY

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Introduction: The risk of reoperations after abdominal surgery is multifactorial and difficult to predict. The risk of reoperation is frequently underestimated by surgeons as most reoperations are not related to the initial procedure and diagnosis. During reoperation adhesiolysis is often required and patients have an increased risk of complications. Therefore, the aim of this study was to provide an evidence-based prediction model based on the risk of reoperation.

Materials & Methods: A nationwide cohort study was conducted including all patients undergoing an initial abdominal or pelvic operation between June 1st 2009 and June 30th 2011 in Scotland. Nomograms based on multivariate prediction models were constructed for the two- and five-year overall risk of reoperation and risk of reoperation in the same surgical area. Internal cross-validation was applied to evaluate reliability.

Results: Of the 72,270 patients with an initial abdominal or pelvic surgery, 10,467 (14.5%) underwent reoperation within five years postoperatively. Mesh placement, previous radiotherapy, colorectal surgery, IBD diagnosis, younger age, open surgical approach, malignancy, and female sex increased the risk of reoperation in all the prediction models. Intra-abdominal infection was also a risk factor for the risk of reoperation overall. Accuracy of the prediction model of risk of reoperation overall and risk for the same area was good for both parameters (c-statistics 0.72 and 0.72).

Conclusion: The constructed prediction model provides a prognosis of the individual risk for reoperation. Overall, in our cohort one in seven patients had a reoperation within five years after abdominal surgery. Independent risk factors for reoperation were the type of surgical procedure, an IBD diagnosis, surgical area, malignancy as an indication for initial surgery, open approach, younger age, female sex, previous radiotherapy, and mesh placement.

Disclosure of Interest: None declared

PE081**EFFECT OF EPIDURAL ANESTHESIA AND ANALGESIA ON POSTOPERATIVE RESULTS AFTER COLORECTAL SURGERY**Y. M. Kesgin^{1,*}, S. Bulut², E. Gemici³, H. Kandemir³, T. Donmez³, C. Akarsu⁴, M. Karabulut³¹General Surgery, Adiyaman Gölbaşı State Hospital, ADIYAMAN, ²General Surgery, Beylikdüzü State Hospital,³General Surgery, Bakirkoy Dr. Sadi Konuk Training And Research Hospital, ⁴General Surgery, İstanbul Memorial Hizmet Hospital, İSTANBUL, Turkey

Introduction: It has been suggested that the effect of epidural anesthesia and analgesia to suppress peroperative sympathetic stimulation, protect splanchnic circulation and reduce surgical stress, reduces anesthetic and analgesic doses and may reduce complications, paralytic ileus and anastomotic leaks in colorectal surgery. In our study, we aimed to investigate the effects of epidural anesthesia and analgesia on the results of colorectal surgery cases operated in a single center.

Materials & Methods: Patients who were operated in a single center between 2016-2021 for colorectal cancer were included. In these cases, the relationships between epidural catheterization and postoperative ileus, complications, serious complications and anastomotic leakage were questioned. Cases with complications with a Clavien Dindo score of 3 and above were considered as cases with serious complications. It was also investigated how the postoperative saturation levels of the patients were affected.

Results: It was found that epidural catheter application did not make a significant difference in terms of complications and serious complications (p value 0.897 and 0.657, respectively). In particular, we found that there was no statistically significant difference in terms of its effect on anastomotic leakage (p=0.399). Well, also we found no significant difference for postoperative ileus(p=0.0673) We did not find a significant difference for oxygen saturation levels either (p=0.456)

Image:

	<i>Non-epidural (n=191)</i>		<i>Epidural Group (n=105)</i>		<i>p value</i>
	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	
Sex					0,312
Male	116	60,7	70	66,7	
Female	75	39,3	35	33,3	
Plevral effusion	18	9,4	9	8,6	0,807
Pneumonia	4	2,1	5	4,8	0,201
Anastomotic leak	16	8,4	12	11,4	0,391
Intraabdominal abscess	24	12,6	10	9,5	0,432
Surgical site infection	37	19,4	19	18,1	0,788
Postoperative bleeding	3	1,6	3	2,9	0,452
Complications	52	27,2	28	26,7	0,918
Postoperative ileus	5	2,6	7	6,7	0,091
Serious Complications	34	17,8	21	20	0,642

Conclusion: Epidural anesthesia and analgesia is a very functional method in the management of postoperative pain in patients undergoing major surgery. In this respect, our study is a first as far as we can detect effect of epidural on oxygen saturation levels. On the other hand, it has been suggested that epidural anesthesia may have many positive effects on the suppression of the sympathetic effect peroperatively. It has been claimed that the increase in splanchnic perfusion may have a protective role against anastomotic leaks (1). Emphasizing another issue, they argued that early onset of colonic motility creates a "stealing effect" and that perfusion decreases rather than increases(2). In the results of our study, it was determined that there was no significant difference in terms of complications and serious complications, especially in terms of anastomotic leaks. It is thought that prospective randomized studies with a larger number of cases will make more serious contributions to the literature and the controversial points will be clarified.

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Disclosure of Interest: None declared

PE082

CLINICOPATHOLOGICAL FEATURES AND PROGNOSIS OF COLORECTAL NEUROENDOCRINE NEOPLASMS – DATA FROM LATVIAN GEP-NEN STUDY GROUP.

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Introduction: Neuroendocrine neoplasms (NEN) of colon and rectum comprise <1% of all colorectal malignancies. However, the detection rate is increasing and overall prognosis is still poor. We aimed to analyze clinicopathological characteristics and evaluate the risk of overall survival (OS) for colorectal NEN (CR-NEN).

Materials & Methods: A retrospective study of patients with histologically confirmed diagnosis of CR-NEN treated between 2008 and 2020 in tertiary referral hospitals in Latvia. OS was obtained by Kaplan-Meier method, prognostic factors were evaluated by Cox regression.

Results: In total, 64 patients were included. The median age at diagnosis was 55.5 (IQR 36.5-67.3) years, 65.6% were females. Primary NEN were located in appendix (37.5%), followed by colon (35.9%) and rectum (26.6%). Stage IV metastatic disease was present in 21.9%. The majority of patients (92.2%) underwent surgery with radical or palliative intent. Among these, at 5.1% specimens resection margins were positive, 21.7% had lymph node involvement. The most common grade was Grade I with 43.8% of occurrence. Median follow-up period was 18.5 (IQR 6.75-34.5) months. The 1- and 3-year OS rate were 83.0 (95% CI 74.0-93.0) and 69.0 (95% CI 55.0-83.0), respectively. Patients with colon NEN had poorer OS rate compared with other localisation, $p=0.021$. Moreover, factors associated with worse odds of survival were distant metastases at initial diagnosis, grade, and lymph node metastases.

Conclusion: Our study showed that patients with colon NEN associated with poor OS. Further research is needed to clarify the independent factors for prognosis in CR-NEN patients.

Disclosure of Interest: None declared

PE083

EXPRESSION OF PLURIPOTENTIAL GENES (OCT-4, SOX-2, KLF-4 AND NANOG) IN PATIENTS WITH COLORECTAL CANCER TREATED SURGICALLY

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Introduction: Colorectal cancer (CRC) is the third most common malignancy worldwide. Recently, CRC incidence increases gradually. Detailed pathogenesis of CRC is still undiscovered. One of the reasons for treatment failure in cancer patients is the existence of cancer stem cells (CSCs). The detection of specific CSCs biomarkers can be a milestone in improving both early CRC detection and treatment efficacy.

Materials & Methods: The study group consists of 150 patients diagnosed with primary colorectal adenocarcinoma. Material was collected intraoperatively from each patient - two samples from the tumor and one sample from healthy colon tissue (minimum 5 cm from the macroscopic margin of the tumor). Standard RNA isolation was performed and expression of pluripotent stem cell genes (Oct-4, Sox-2, Klf-4 and Nanog) was analyzed. All patients were also specifically described for demographic, clinical and histopathological data.

Results: The entire study group consisted of 85 men and 65 women. The average age in the whole group was about 67.37 years, while the average BMI value was 27.50 kg/m². Analysis showed an average tumor volume of 36.32 cm³. The most common tumor location was rectum (40%) and sigmoid colon (23%). Angioinvasion was demonstrated in 41 patients, while neuroinvasion in 23 patients. Grade 2 tumor differentiation was the most frequent (in 58% of patients). There was a statistically significant difference in the amount of isolated RNA between healthy tissue and tumor samples (810.94 ng/ml vs 964.99 ng/ml, p<0.05). Expression of Oct4 was shown in 43.3% of tumor tissues and 10% of healthy tissues (p <0.05). Sox2 expression was present in 56.6% of tumor tissues and 20% of healthy tissues (p <0.05). Nanog expressed 80% in tumor tissue and 43.3% in healthy tissue (p <0.05). However, Klf4 was obtained in 20% of tumor tissues and 46.6% in healthy tissues (p> 0.05).

Conclusion: Tumor tissues have a statistically higher amount of isolated genetic material than healthy tissues. The expression of key pluripotency genes (Oct4, Sox2 and Nanog) have significantly higher expression level in tumor tissue than in healthy tissue in patients with CRC. Only in Klf4 presence of expression was lower in tumor tissues than in healthy tissues. These results may indicate the usefulness of CSCs markers, however, they still require more advanced research on a larger group of patients.

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Disclosure of Interest: None declared

PE084

SPONTANEOUS COLONIC PERFORATION IN PATIENTS WITH COVID-19 PNEUMONIA

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Introduction: The Coronavirus disease, caused by a virus named SARS-CoV-2, known also as Covid-19, has spread worldwide causing pandemic. Data on the surgical complications of SARS-CoV-2 infection in the gastrointestinal tract are limited to a few cases reports in the present literature. The objective of the study is to highlight a possible new abdominal manifestation of COVID-19 virus infection.

Materials & Methods: At the Covid-19 surgery department of the municipal Hospital of Republic of Moldova - "St. Trinity" Hospital, during August 2020 - May 2021, out of 2200 patients hospitalized with COVID-19 viral pneumonia, 3 patients have developed acute perforated abdomen and COVID-19 pneumonia. Patients were investigated by X-ray examination, blood samples, CT. To all patients was done urgently surgical treatment under general anesthesia. During intervention at the patients was found small perforations of the left colon were associated with small surfaces of colon necrosis. For all of them was performed resection of the affected part of the colon and installed terminal colostomy. None of them present colitis anterior. Analyzed the histological result and postoperative evolution.

Results: Bowel perforation is 0,13 % in the analyzed patient sample. In the postoperative period, only one patient survived and 2 patients died due to the progression of respiratory failure. Histological examination shows necrosis and polymorphonuclear infiltration of the affected colonic wall alternating with unaffected areas of the colon. In the survival, the patient has performed colon reconstruction at 4 months.

Conclusion: Sectoral necrosis and perforation of the colon appear to be a new manifestation seen in patients with COVID pneumonia. Covid-19 induced pneumonia may lead to sectorial mesenteric ischemia. Bowel perforation among patients with COVID-19 pneumonia is a rare manifestation. COVID-19 virus affects not just the lungs.

Disclosure of Interest: None declared

PE085

COMPLICATIONS & LENGTH OF HOSPITAL STAY BEFORE AND AFTER ADOPTION OF ENHANCED RECOVERY PROTOCOL BY A COLORECTAL TEAM IN A GREEK HOSPITAL

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Introduction: Enhanced recovery Protocols(ERPs) have been utilized to reduce the surgical stress response and organ dysfunction in order to enhance recovery and to reduce the postoperative morbidity & mortality. We investigated the complications and the length of hospital stay(LOS) in our patients underwent colorectal surgery in two decades time before and after the ERPs adoption.

Materials & Methods: This is a retrospective study of 155 patients underwent colorectal surgery divided into two groups, the conventional group A:75 patients (1998-2007) and the ERP group B:80 patients (2008-2017), operated for colorectal cancer, electively, open, by the same colorectal team. There was no significant difference in age, sex, or ASA I-III physical status between the two groups. The implemented ERPs parameters ranged between 12 to 20. Tumor location: 44 right colon, 31 left colon, 41 sigmoid colon, 12 transverse colon, 27 rectum. Palliative operations were excluded. Morbidity, mortality, complications, length of hospital stay and readmissions were recorded.

Results: Mortality 3/75(4%) group A, 1/80 group B(1,25%). Complications 26/75(34,6%) group A, 14/80(17,5%) from group B. Major complications 4 group A(2 anastomotic leaks, 2 cardiovascular complications), 2 from group B(intraabdominal infections). Readmission rates mainly caused by paralytic ileus group A: 7 patients, group B: 2 patients. The mean LOS was 9 days for group A, 6 days for group B.

Conclusion: Enhanced Recovery Protocols(ERPs) can be safely implemented by colorectal surgeons in small community hospitals. They are effective in reducing considerably the mortality, the major complications, the LOS without compromising the patients safety and should be considered as a new standard of care in colorectal surgery.

Disclosure of Interest: None declared

PE086

A WEB BASED APPLICATION TO ASSESS THE ADHERENCE TO ADJUVANT TREATMENT IN COLO-RECTAL CANCER BY E-CANCER CARE VERSUS ROUTINE CARE: A NON-RANDOMISED COMPARATIVE STUDY

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Introduction: Considering present cancer services in India, colorectal cancer patients undergoing systemic treatment have to manage side-effects at home without guidance and face various challenges. Easily accessible interventions to combat these challenges are lacking. Web program is an application that sends regular text reminders and is integrated with a helpline number. It aims to promote patients' compliance, self-efficacy and symptom management.

Materials & Methods: In this prospective non-randomised comparative study, 60 patients were included and divided in two groups. A web based application with integrated helpline number, for 24 hour correspondence, was designed. Registered patients were sent regular reminder messages for subsequent cycle of therapy. Outcome was measured in terms of treatment adherence.

Results: 28 (93%) patients reported within 7th day of due therapy date in web application group compared to only 21 (70%) patients in the routine care group (p-0.0208). The mean MPR of the study group was 0.82 (\pm 0.036) which was comparatively better. Well being score and treatment satisfaction score of study group was better. The grade at which the side-effect was reported was earlier in study group.

Conclusion: The pilot study was successful in yielding positive outcome towards patient adherence and well being score. Web application/ehealth may open a new horizon and is a promising prospect for cancer patients especially in developing countries.

Disclosure of Interest: None declared

PE087

LIPOPOLYSACCHARIDE-BINDING PROTEIN AS A RISK FACTOR FOR DEVELOPMENT OF INFECTIOUS COMPLICATIONS IN OPERATED COLORECTAL CANCER PATIENTS

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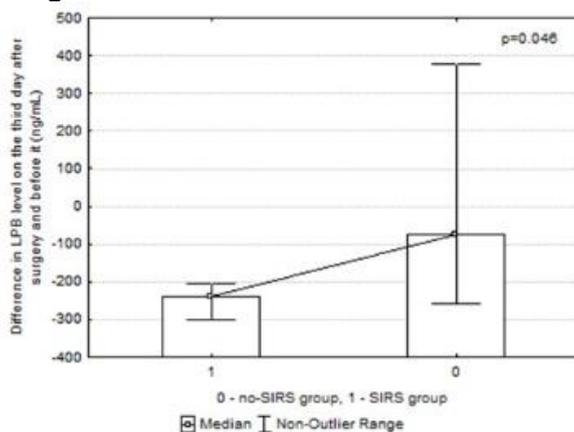
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Introduction: Colorectal cancer (CRC) is one of the most common malignant diseases and one of the most important causes for cancer-related mortality [1]. Today there are still high rates of infectious complications (46-50% of cases) and mortality (up to 32% of cases) after colorectal surgeries [2, 3]. For the early diagnosis of such complications some appropriate markers in the blood serum are to be determined. One of such markers is lipopolysaccharide-binding protein (LBP). In this pilot study dynamic of the LBP levels was assessed as a possible risk factor for development of systemic inflammatory response syndrome (SIRS) and postoperative infectious complications in colorectal cancer patients.

Materials & Methods: Venous blood was taken 1 hour before the surgery and 72 hours after it (3rd day). ELISA Kit for LBP (Human) from Cloud-Clone Corp. was used to determine LBP. The analysis was performed according to the manufacturer's instructions.

Results: 36 patients with colorectal cancer were enrolled in the study. All patients were stratified by the presence or absence of acute bowel obstruction, SIRS and postoperative complications. The LBP level before surgery was 879.8 ± 221.8 ng/ml (IQR 749.3–1028.8); on the 3rd day it was 766.5 ± 159.4 ng/ml (IQR 669.5–847.6), which was a statistically significant decrease ($p = 0.004$). A decrease in LBP level by more than 280 ng/ml increases the probability of SIRS and complications in operated colorectal cancer patients (OR 6.6, 95% CI: 1.1–40.9 and OR 12.0, 95% CI: 1.8–80.4, respectively). In patients with acute bowel obstruction in the presence of SIRS, the LBP value decreased more than in those without SIRS ($p = 0.046$).

Image:



Conclusion: This study showed that the LBP level in the operated colorectal cancer patients tends to decrease on the 3rd day after surgery. A bigger decrease in LBP level increases the probability of SIRS and postoperative infectious complications. Thus, further studies with larger sample size are needed.

Funding: This research is funded by the Science Committee of the Ministry of Education and Science of the Republic of Kazakhstan (Grant No. AP09260597).

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Disclosure of Interest: None declared

PE088

COMPARISON OF EARLY POSTOPERATIVE PERIOD AFTER CONVENTIONAL AND LAPAROSCOPIC ASSISTED RECTOSIGMOID RESECTIONS

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Introduction: Laparoscopic rectosigmoid resections are being performed with increasing frequency since it was first described in 1991 with many benefits to patients. However, conventional resection rate is higher than expected for several patients due to preoperative or intraoperative risk factors. The aim of this study is to evaluate the early postoperative period, benefits and risks in colorectal patients after conventional and laparoscopic assisted surgeries.

Materials & Methods: This retrospective study included 74 patients from Year 2021 with benign and malignant colorectal diseases who underwent an elective conventional or laparoscopic assisted rectosigmoid resection in Clinical University Hospital. Data included patients' sex, age, body mass index, hospital stay, operation duration, use of analgesics in postoperative period, early liquid and solid diet intake, early physical activities and complications. Data were analysed by SPSS v.20.0.

Results: We divided 74 patients into two groups: 37 patients (50.0%) in each - conventional group (CG) and laparoscopic group (LG). Male and female ratio was 42 (56.8%) and 32 (43.2%), respectively. Mean age was 66.85 ± 12.41 ranging from 27 till 87. It was statistically significant that in LG patients' age was lower (62.51 vs. 71.19; $p=0.006$); hospital stay was shorter (4.31 vs. 5.67; $p=0.000$); operation duration was longer (171.49 minutes vs. 150.41 minutes; $p=0.045$); postoperative non-opioid usage was lower (5.26 doses vs. 7.47 doses; $p=0.014$); postoperative opioid usage was lower (1.44 doses vs. 2.29 doses; $p=0.029$); postoperative mobilisation without help was earlier (1.76 days vs. 2.71 days; $p=0.002$). There were no statistical significances in early liquid or solid diet intake in both groups ($p>0.05$). Eight patients (11.2%) in this study had complications – 5 (7.0%) in CG (intestinal obstruction, stoma necrosis, two cardiovascular events and one mortality case) and 3 (4.2%) in LG (one intraabdominal hematoma, two anastomotic leaks). There was no correlation amongst these complications in both groups ($p=0.428$).

Conclusion: Laparoscopical rectosigmoid resection is more superior method associated with better recovery results after surgery. Postoperative complication rate is non-specific for one group in particular but needs to be evaluated further. Laparoscopy ought to be considered as an initial method of choice in rectosigmoidal resections if there are no absolute contraindications for it.

Disclosure of Interest: None declared

PE089

DIRTY MASS VOLUME AS A PROMISING PROGNOSTIC FACTOR IN COMPLICATED ACUTE DIVERTICULITIS

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Introduction: Complications of acute diverticulitis should be promptly diagnosed and treated in order to prevent increased morbidity and mortality. Computed tomography is the main imaging technique in the diagnosis of diverticulitis and its complications. "Dirty mass" is a specific computed tomography (CT) finding that is seen frequently in colorectal perforation. The prognostic significance of this finding in acute diverticulitis is unclear.

Materials & Methods: 65 patients with complicated acute diverticulitis who underwent emergency surgery were retrospectively reviewed in the study. Contrast enhanced CT images demonstrate a "dirty mass" nearby the perforated diverticulitis of the sigmoid colon. Dirty mass was identified on abdominal CT and 3D-reconstructed using volume rendering and its volume was calculated using open source, multiplatform software 3D Slicer.

Dirty mass volume with other clinical factors (WBC, CRP, NLR, CRP/ALB ratio, etc.) was compared between survivor ($n = 51$) and mortality groups ($n = 14$) to identify prognostic factors. Mann-Whitney U test and X^2 test were used in univariate analysis and logistic regression analysis was used in multivariate analysis.

Results: Dirty mass was identified in 52 patients (80%) and located next to perforated sigmoid colon with acute diverticulitis. According to the logistic regression model, dirty mass volume was a significant independent variable ($p < 0.001$). Concerning the other clinical factors, the higher volume was significantly related to poor prognosis. In addition, they had higher preoperative white blood cell and neutrophil/leucocyte ratio level ($p < 0.001$). In the survivor group with higher dirty mass volume longer hospital stay was identified and a longer period to start and tolerate peroral feeding.

Conclusion: The volume of dirty mass in abdominal CT scans is a promising prognostic factor in patients with perforated acute diverticulitis and may be related to a more aggressive course of the disease. In combination with preoperative white blood cell count, CRP and NLR can be used as a basis for new reliable prognostic scoring system.

Disclosure of Interest: None declared

PE090

QUALITY OF LIFE OF STOMA PATIENTS IN CAMEROON. RESULTS OF A PROSPECTIVE COHORT OF 34 CASES AT THE CENTRAL HOSPITAL OF YAOUNDE

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Introduction: The use of a stoma implies changes affecting the life of the patients. The aim of this study was to determine the impact of a digestive stoma on the quality of life of patients operated at the Yaounde Central Hospital
Materials & Methods: We conducted a prospective descriptive study over a period of one year from May 2019 to May 2020 in all patients with a digestive stoma for at least 3 months operated at the Yaoundé Central Hospital. Quality of life was assessed using the sQOL (Stoma Quality of Life). Self-image was assessed using the Body Image Scale (BIS).

Results:

We collected 34 ostomates, 22 men and 12 women, i.e. a sex ratio of 1.8 M/F. The average age was 42.8 years. Tumour pathology represented the majority of indications, i.e. 44.1%. The organ removed was the colon in the majority of cases: 76.6% of colostomies. The stoma was permanent in 32.3% of cases and temporary in 67.7%. The complication rate was 67.6%. The most frequent complication was peristomal dermatitis with 50% of cases. 62.5% of patients knew and applied the rules of stoma hygiene. The average rate of pouch change was 3.7 days. The partner's discomfort was frequent with 76.5% of cases. The average time to resume sexual activity was 8 months for men and 9 months for women. All ostomates had an average to severely impaired quality of life according to the Stoma Quality of Life. 73.5% of patients had an average impairment of self-image according to the BIS.

Conclusion: A stoma requires a long-term follow-up, ideally accompanied by a stomatologist, in order to allow an automation and an early reintegration of the patient into society.

Disclosure of Interest: None declared

PE091

PATTERNS OF LYMPH NODE INVOLVEMENT AND IMPACT OF NEOADJUVANT THERAPY AMONG 418 RECTAL CANCER PATIENTS UNDERGOING CURATIVE SURGERY.

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Introduction: Lymph node count has prognostic implications on rectal cancer. Neoadjuvant treatment in the form of radiotherapy or chemo radiotherapy is given according to the stage of the patient. Current study is an analysis lymph node count and lymph node ratio on rectal cancer patients undergoing curative resections.

Materials & Methods: Lymph Node Count and Lymph Node Ratio were evaluated on patients undergoing curative rectal resection from 1999 to 2020 from a prospectively maintained colorectal cancer database. All patients were managed with standard neoadjuvant protocols according to stage. Lymph node yield and lymph node ratio was compared for upfront surgery and in patients with neoadjuvant therapy group.

Results:

Five Hundred Ninety-Seven patients were evaluated for the feasibility of operability out of which 179 patients were deemed inoperable (30%). 233 patients (38.86%) underwent APR whereas 185 patients (30.82%) underwent Sphincter Sparing Procedures (LAR and Ultralow LAR). Among all patients, 38.76% of the patients had nodal metastasis. Patients undergoing APR (41.6%) were found to have more nodal metastasis than patients undergoing LAR (35.1%). Among 418 operated, 302 patients (72 %) had received Neoadjuvant Treatment in the form of either long course CRT or Short Course CRT, whereas rest 116 patients (28%) underwent upfront surgery. The mean node harvested on upfront surgery group was 6.7 (7-25) whereas the mean node harvested on SCRT and LCRT was 6.5(5-12) and 4.2(3-15) respectively. The Lymph node ratio on upfront surgery group was 0.47 whereas the lymph node ratio on NACT group was 0.53. Upfront Surgery group has nodal metastasis rate of 42.57% whereas it decreased to 28.37 % in the NACT group.

Conclusion: Neoadjuvant treatment in rectal cancer patients decreases the lymph node yield. Pathologic metastatic lymph nodes are low after long course as compared to short course radiotherapy and upfront group.

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Disclosure of Interest: None declared

PE092

NOVEL TECHNIQUE AND COHORT STUDY: STOPPA TECHNIQUE APPROACH TO SCIATIC NOTCH CLEARANCE IN LOCALLY ADVANCED PELVIC CANCER

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Introduction: Locally advanced / recurrent pelvic cancers (LARC) extending into the greater sciatic notch represent a significant clinical challenge. Conventional surgical resection is associated with high rates of R1/2 resection, while locoregional oncological treatments often fail to control the disease. In this study we present the first report of a modified Stoppa approach that facilitates en bloc excision of pelvic sidewall structures with LARC.

Materials & Methods: This is a retrospective review of patients who underwent surgery for LARC with the novel Stoppa approach between 2016 and 2020 at Imperial College Healthcare NHS Trust.

Results: 7 patients (6 female and 1 male) were identified from the institutional database with a mean age of 66 ± 37 . Three separate tumour types were included in the cohort: rectal adenocarcinoma - 4 (57%), anal squamous cell carcinoma - 2 (29%), and prostate adenocarcinoma - 1 (14%). 3 (42%) patients developed Clavien Dindo Class III complications (2 returned to theatre for minor flap revisions; 1 pre-sacral collection required radiological drainage). All patients lost active ipsilateral foot dorsiflexion due to planned nerve root transection. Mean hospital stay was 46 ± 97 . All resections were R0.

Conclusion: This is the first report of a novel Stoppa approach for en bloc pelvic sidewall excision. The presented pathological resection results are promising; however, this procedure is associated with significant morbidity. Future studies will be necessary to confirm the presented oncological results and determine if the associated morbidity can be decreased.

Disclosure of Interest: None declared

PE093

TRANSRECTAL ENDOSCOPIC DRAINAGE WITH VACUUM THERAPY IN PATIENTS WITH ANASTOMOTIC LEAKS FOLLOWING RECTAL CANCER RESECTION

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Introduction: We assessed the efficacy and safety of transrectal endoscopic drainage by vacuum therapy in patients with intestinal anastomotic leakage after surgical treatment of middle and distal rectal tumors.

Materials & Methods: We conducted a prospective analysis of treatment outcomes among patients undergoing surgery for middle and distal rectal tumors at the Department of General, Gastroenterological and Oncological Surgery of the Ludwik Rydygier Collegium Medicum in Bydgoszcz and Nicolaus Copernicus University in Torun from 2016 to 2019.

Results: Seventy-nine patients with middle and distal rectal tumors underwent laparoscopic resection. Intestinal anastomotic leak was identified in 18 (22.79%) patients [all men, mean age 61.39 (43–86) years] during the postoperative period. Primary protective ileostomy was performed in 8/18 (44.44%) patients. All 18 patients were treated with intraabdominal vacuum therapy via transrectal endoscopic drainage (success rate: 94.44%, 17/18). The mean time from surgery to the diagnosis of leakage and initiation of endoscopic treatment was 16 (3–728) days. The mean number of endoscopic procedures per patient was 6 (1–11). The mean duration of endoscopic treatment was 22 (4–43) days. Complications of endotherapy occurred in 2/18 (11.11%) patients treated endoscopically for bleeding from the abscess cavity. Moreover, 5/18 (27.78%) patients required ileostomy during the endoscopic treatment. . The mean follow-up period was 368 (118–724) days. Successful long-term outcome of endoscopic treatment was found in 15/18 (83.33%) patients.

Conclusion: Endoscopic rectal drainage using vacuum-assisted therapy is an effective and safe minimally invasive treatment in patients with intestinal anastomotic leaks following resection procedures within the middle and distal rectum.

Disclosure of Interest: None declared

PE094

USING MINIMALLY INVASIVE SPHINCTER-SPARING TECHNIQUES OF SURGICAL TREATMENT OF TRANSSPHINCTERIC ANAL FISTULAS: A FOCUS ON PRESERVING ANAL SPHINCTER FUNCTION

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Introduction: Around the world, there are several recommendations for the diagnosis and treatment of anal fistulae, cryptoglandular or related to Crohn's disease, but many of them are controversial which makes practical decisions in the treatment of its extremely difficult.

Objectives. Our study aimed to compare and analyze the standard methods of surgical treatment of transsphincteric anal fistulas with the method of ligation of intersphincteric fistula tract and own method of bio-welding of the fistula tract.

Materials & Methods: A retrospective study of surgical treatment of 82 patients with low (n = 38) and high (n = 44) cryptoglandular transsphincteric fistulas of the anus was carried out. All patients were divided into three groups: the first group included patients who underwent fistulotomy (n = 17) and fistulectomy with the primary reconstruction of the anal sphincter (n = 9); the second group, who underwent ligation of the intersphincteric fistula (n = 29); the third group, treated with bio-welding of the fistula tract (n = 27).

Results: Positive short-term results of treatment of patients were obtained in all groups: in 53.8%, 82.8% and 85.2% of cases, respectively. The effect of bio-welding of the fistulous tract was achieved due to electrothermal denaturation and the appearance of common space between protein molecules with a small area of heat propagation, less than 1–2 mm. This method does not repeat the method of tissue electrocoagulation, since it does not cause necrosis. The average follow-up period for patients after bio-welding of fistulas was 8.8 ± 4.6 , after ligation of the intersphincteric fistulous tract - 9.6 ± 4.6 , and in the first group w - 9.8 ± 4.8 months: satisfactory long-term results of treatment were noted in 92.6%, 89.7% and 62.2% of cases, respectively.

This study has shown, at least two links are revealed in the morphogenesis of sclerosis of the tissues of the fistula tract wall: 1) it is availability the cytokine-stimulating function of immune cells which have been done expressing receptors for IL-6 and TNF- α ; and 2) it is present of chronic hypoxia which led to stimulated the synthesis of interstitial fibroblasts, fibrocytes and collagens.

Conclusion: Using minimally invasive sphincter-sparing techniques of surgical treatment of transsphincteric anal fistulas has made it possible to personalize surgical tactics and improve outcomes of the treatment.

Disclosure of Interest: None declared

PE095

TUMOURAL IODINE CONCENTRATIONS PREDICTS AVIDITY IN SUBSEQUENT METASTASES IN PAPILLARY AND POORLY DIFFERENTIATED THYROID CANCER

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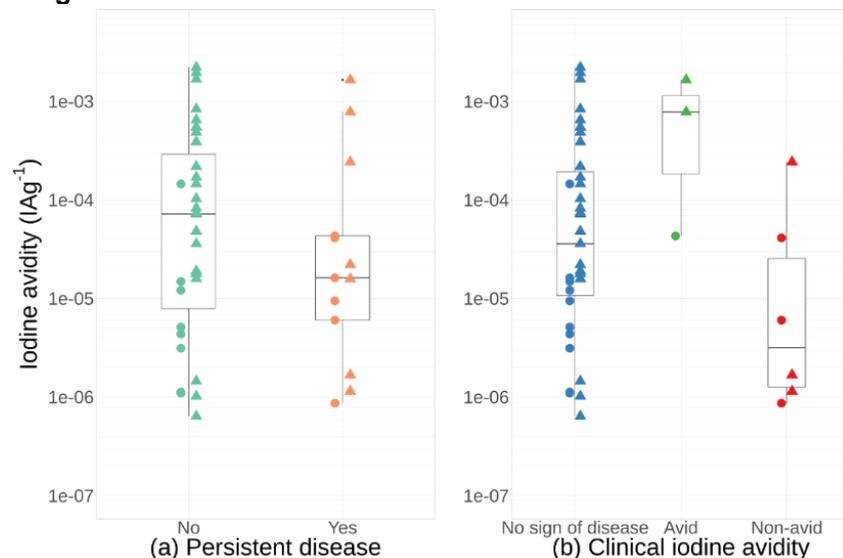
Introduction: Successful post-surgical treatment of persistent metastatic tissue of papillary and poorly differentiated thyroid cancer requires iodine avidity in metastases. Avidity status is often unknown at the time of initial radioiodine treatment, limiting any adaptive approach. Iodine avidity has not been studied in surgically removed primary tumours previously.

Materials & Methods: Tumoural iodine concentrations were measured in connection to total thyroidectomy in 35 patients with pre-operative cytological diagnosis of papillary or poorly differentiated thyroid cancer. Patients were given 5-10 MBq of iodine-131 two days prior to surgery. Representative samples of both primary tumour and lymph node metastases were measured and had their activity concentration calculated. Review of radiological images and medical records were conducted to establish the response and avidity of subsequent metastases.

Results: Out of 35 patients, 8 had persistent disease at presentation or during initial follow-up (1-3 years). As can be seen in Figure 1, in patients with iodine-avid metastases, the tumoural iodine concentration was found to be significantly higher than in non-avid disease ($p=0.04$). Those with non-avid metastatic disease were also of higher age, had lower Tg expression and higher Ki-67 indices in their primary tumour.

Figure 1: Tumoural and lymph node metastatic iodine avidity in relation to (a) persistent disease and (b) clinical iodine avidity. Markers for primary tumour samples (triangles) and lymph node metastases (circles) are separated horizontally only for illustrative purposes.

Image:



Conclusion: The results of our unique measurements of iodine avidity in primary tumour and lymph node metastases suggests a strong link with the avidity in any subsequent metastases. This allows for accurate adaptation of initial radioiodine treatment based on the characteristics of the surgically resected primary tumour.

Disclosure of Interest: None declared

PE096

RADIOFREQUENCY ABLATION OF RECURRENT PAPILLARY THYROID CANCER: A PRELIMINARY US EXPERIENCE

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Introduction: Experience in the United States with radiofrequency ablation (RFA) of recurrent papillary thyroid cancer (PTC) is currently limited.

Materials & Methods: RFA of recurrent PTCs performed at a single institution between 2019-2021 were analyzed. RFA was performed using 5mm active tip electrodes at 5-10 watts of power. Hydrodissection with 5% Dextrose solution was used routinely. Serum thyroglobulin was measured, and nodule volume and volume reduction ratios (VRR) were calculated at 1, 3, and 6 months post-ablation.

Results: RFA was performed in 5 patients with recurrent PTC for a total of 6 masses. The mean age was 44 years and 3 of 5 patients were female. Mean follow up was 5.95 (5.6-7.4) months. Recurrent disease was located in the thyroid bed (n=1), lateral neck levels II (n=2), III (n=2), and IV (n=1). Median ablation time was 6.6 minutes (interquartile range [IQR] 4.7-10 minutes). Median initial volume was 0.35 (0.20-0.50) cc. The median volume reduction ratio (VRR) at 1, 3, and 6 months were 61.6 (55.9-73.5)%, 74.5 (56.4-88.7)%, and 93.1 (87.3-96.5)%, respectively. Median thyroglobulin (Tg) was 6.2 (IQR 0.2-14) ng/mL pre-procedure and 0.37 (IQR 0.03-1.8) ng/mL post-procedure at time of last follow up. Median thyroid stimulating hormone (TSH) was 0.24 (IQR 0.05-0.33) mIU/L pre-procedure and 0.07 (IQR 0.04-1.0) mIU/L post-procedure. No complications including hematomas, voice changes, nodule rupture, or infection were observed.

Conclusion: Our preliminary single institution experience suggests that RFA of recurrent PTC is safe and efficacious, and may be a viable option for patients with recurrent disease who are not good surgical candidates. Longer term follow up is necessary to determine the durability of treatment effect.

Disclosure of Interest: None declared

PE097

OUTCOMES IN DIFFERENTIATED THYROID CARCINOMA WITH PRIMARY HYPERPARATHYROIDISM

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Introduction: The association between primary hyperparathyroidism (pHPT) and differentiated thyroid cancer (DTC) outcomes is not well established. There is controversy whether patients with DTC and concurrent pHPT have worse outcomes for their thyroid cancer compared to those without pHPT.

Materials & Methods: A retrospective case-control study from a prospective surgical database of patients treated for differentiated thyroid carcinoma was performed. Cases were defined as having differentiated thyroid carcinoma and concomitant primary hyperparathyroidism. Matching by age was performed using computer generated randomisation with three controls for each case. Variables of interest were lymphovascular invasion, multifocality, lymph node metastasis, extranodal extension, recurrence, tumour size, extrathyroidal extension and prior neck irradiation.

Results: From 2010-2018, Concomitant pHPT was present in 54 of 1395 (3.87%) papillary thyroid carcinoma (PTC) and 7 of 152 (4.61%) follicular thyroid (FTC) and hurtle cell carcinoma (HTC) cases. Compared to 183 controls, there were no statistically significant differences for the presence of lymphovascular invasion, lymph node metastasis, multifocality, extrathyroidal extension, extranodal extension, or recurrence. Prior neck irradiation however, was a significant risk factor for concurrent PTC with pHPT compared to PTC alone (7.4% v 0.67%, $p=0.006$).

Conclusion: Patients with concurrent primary hyperparathyroidism with differentiated thyroid carcinoma have similar clinicopathological outcomes. A history of prior neck irradiation however, significantly increases the risk of having concomitant primary hyperparathyroidism.

Disclosure of Interest: None declared

PE098

CHILDHOOD PAPILLARY THYROID CARCINOMA: LONG-TERM POSTOPERATIVE OUTCOME AND PREDICTION OF RECURRENT DISEASE IN 189 PATIENTS CONSECUTIVELY TREATED AT THE MAYO CLINIC DURING 1936 THROUGH 2020.

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Introduction: Childhood papillary thyroid cancer (CPTC) often presents with advanced disease but rarely results in cause-specific mortality (CSM). Controversy remains regarding optimal management and association with non-thyroid second primary malignancies (NSPM). We analyzed outcome in 189 CPTC patients (aged <19 yr) and assessed the influence of radioiodine remnant ablation (RRA) and the utility of the American Thyroid Association risk-groups (ATA-R) in predicting tumor recurrence (TR).

Materials & Methods: All patients were operated by Mayo staff surgeons. 88% had bilateral thyroidectomy (BT); at first surgery 86% had neck nodes removed, 17% had pT4a tumors and 78% were pN1, 58% with 5 or more regional metastases (RM). During 1951-2020 RRA was given to 43% of TNM stage I patients having BT with curative intent. Mean follow-up was 29 yr (range 1-71). TR and CSM details were derived from a computerized database and analyzed as previously described (WJS 43: 329, 2018).

Results: During 1936-50, 9/19 died from cancer; one from PTC and 8 from NSPM (7 having received radiation therapy); 15 died from all causes, as compared to expected 6 ($p < .001$). During 1951-2020 none of 170 patients died of PTC but 3 died from NSPM.; 13 died from all causes, as compared to expected 13 ($p = .97$). In 169 patients operated with curative intent 25-yr TR rate was 37%; 57 patients (34%) had recurrence (81% in RM; 19% in DM). Patient ages <11 and pT4a tumors were significantly ($p < .05$) associated with postop RM; tumor size >4cm and pT4a tumors with postop DM ($p < .002$). BT+RRA did not significantly improve the 20-yr TR rates of 28% and 3% seen with BT alone for RM ($p = .75$) and DM ($p = .99$). We applied the ATA-R to 167 patients who had no DM at presentation and had complete tumor excision. 61 were classed as ATA-low risk, 49 as intermediate and 57 as ATA high-risk. 25-yr TR rates for low, intermediate, and high-risk groups were 24%, 34% and 53% ($p = 0.0015$). 25-yr rates for RNM and DM for the 3 risk groups were 19, 34 and 40% ($p = 0.05$) and 0, 4 and 19% ($p < .001$).

Conclusion: During 1951-2020 (the I¹³¹ era), we have noted no excess all-causes mortality in CPTC but we have not found that RA reduces postop TR after BT. Given that 78% present with pN1 disease, persistent/recurrent disease within RNM may be expected. The ATA-R high-risk group seems capable of predicting DM; perhaps in future years many CPTC patients classed as low-risk may require less than BT.

Disclosure of Interest: None declared

PE099

COMPLICATIONS AND PROGNOSIS OF CONVERSION SURGERY AFTER ACTIVE SURVEILLANCE AND IMMEDIATE SURGERY IN PATIENTS WITH LOW-RISK PAPILLARY THYROID CARCINOMA

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Introduction: Although outcomes of active surveillance (AS) for low-risk papillary thyroid microcarcinoma (PTMC) are generally excellent, a small portion of patients show disease progression and undergo conversion surgery. One may concern possible increase in complications and poor prognosis after conversion surgery. Therefore, we investigated whether the incidence of surgical complications and postoperative prognosis differ between patients who underwent immediate surgery and those who underwent conversion surgery.

Materials & Methods: Between 2005 and 2019, 4635 patients were diagnosed with low-risk PTMC at Kuma Hospital. Of them, 1739 underwent immediate surgery (IS group) and 2896 patients chose AS. Of the latter, 242 (8.4%) had conversion surgery (CS group). The median interval from the diagnosis to surgery was 2.8 years in CS group and 0.25 years in IS group. The extent of thyroid resection was similar for both groups, while 5.8% of CS group underwent lateral node dissection as well. The median follow-up period after the diagnosis was 8.0 years for IS group and 8.4 years for CS group. The median follow-up period after the surgery was 7.7 years and 5.0 years, respectively.

Results: At the time of diagnosis, compared with IS group, CS group was significantly younger ($p=0.004$), having more multifocal disease ($p=0.004$), a smaller tumor size ($p=0.004$) and a higher association rate of Graves' disease ($p=0.01$). At the time of surgery, CS group had larger tumor ($p<0.001$), more frequently underwent lateral node dissection ($p<0.001$) than IS group. The CS group tumors had higher incidence of pathological metastases ($p<0.001$), and showed higher cell proliferation activity with high Ki67 labeling index ($p=0.049$) than the IS group tumors. Surgical complications such as postoperative bleeding, temporary/permanent vocal cord paralysis and hypoparathyroidism did not differ between these groups. Ten-year local recurrence rate and overall mortality rates after surgery in CS group and IS group were low at 0.8% and 0%, and 0.7% and 2.4%, respectively. None of the patients had distant metastasis or died of the disease.

Conclusion: CS group had slightly larger tumor and slightly higher incidence of nodal metastasis than IS group. However, both groups had similar rates of surgical complications and similarly excellent prognosis. Higher incidence of high Ki67 labeling index in the CS group tumors might indicate efficient selection of aggressive tumors among many PTMCs by AS.

Disclosure of Interest: None declared

PE100

COMPARISON OF OUTCOMES BETWEEN PATIENTS WHO UNDERWENT ACTIVE SURVEILLANCE AND IMMEDIATE SURGERY FOR LOW-RISK PAPILLARY THYROID MICROCARCINOMA

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Introduction: Active surveillance (AS) for low-risk papillary thyroid microcarcinoma (PTMC) was initiated in Kuma Hospital in 1993, and gradually spread worldwide. To date, however, it remains unclear whether and how patients' outcomes differ depending on managements. We therefore performed a comparative study for patients who underwent AS and immediate surgery (IS).

Materials & Methods: Between 2005 and 2019, 4635 patients were diagnosed with PTMC at Kuma Hospital on cytopathology. Of these, 2896 underwent AS (AS group) and the remaining 1739 underwent IS (IS group). The median follow-up period of the AS group after diagnosis was 5.5 years (1.0-15.7) and that of the IS group after surgery was 7.7 years (0.6-16.0). To date, 242 patients (0.8%) in the AS group underwent conversion surgery (CS) after AS >1 year for various reasons, including disease progression.

Results: At the time of diagnosis, patients in the AS group were older ($p < 0.001$) and had chronic thyroiditis in higher incidences ($p = 0.012$) than those in the IS group. Tumors in the AS group were smaller in size ($p < 0.001$) and more frequently multifocal ($p = 0.009$) than those in the IS group. Five-, 10-, and 15-year novel node metastasis appearance rate was very low, at 0.7%, 0.9%, and 0.9% for the AS group and 0.1%, 0.3%, and 0.3% for the IS group, respectively, although there was a statistical significance ($p = 0.011$) between both groups. None of the patients, including those who underwent CS, showed distant metastasis/recurrence or died of thyroid carcinoma during AS and/or post-operative follow-up. Five-, 10-, and 15-year overall mortality rate was 0.5%, 2.0%, and 6.3% for the AS group and 1.0%, 2.4%, and 3.6% for the IS group, respectively, and there was no statistical significance between them. The incidence of unfavorable events such as bleeding (0% vs. 0.7%; $p < 0.001$), permanent vocal cord paralysis (0% vs. 0.8%; $p < 0.001$), and permanent hypoparathyroidism (0.3% vs. 1.4%; $p < 0.001$) more frequently occurred in the IS group than in the AS group.

Conclusion: Our findings suggest that the outcomes of patients who underwent AS and IS are both excellent. Also, CS after the appearance of progression signs is not too late. Since unfavorable events of surgery are not completely avoidable, AS can be recommended as a first line management for PTMC.

Disclosure of Interest: None declared

PE101

CLINICOPATHOLOGIC AND GENETIC CHARACTERISTICS OF PATIENTS OF DIFFERENT AGES WITH DIFFUSE SCLEROSING VARIANT PAPILLARY THYROID CARCINOMA

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Introduction: Diffuse sclerosing variant of papillary thyroid carcinoma (DSVPTC) is a rare variant of papillary thyroid carcinoma, with a prevalence of 0.7-6.6% of all papillary thyroid carcinoma. It is considered to be aggressive and is associated with poor prognosis.

Materials & Methods: From January 2005 to December 2017, 397 patients who underwent thyroidectomy for diffuse sclerosing thyroid cancer at Gangnam Severance Hospital, Yonsei University who were followed-up for more than 3 years were included and retrospectively reviewed. 40 Patients were selected for NGS study with a specially customized panel for thyroid cancer.

Results: Female patients (276, 69.5%) were more common than male (121, 30.5%). Most of the cases (163, 41.1%) were observed in patients in their 3rd decades. Tumor size increased when the patients were young (<20: 2.69 ±1.56, 21-30: 1.88 ±1.30, 31-40: 1.55 ±0.95), showed a plateau in the ages of 4th (1.38 ±0.85) and 5th (1.29 ± 0.91) decade and increased in patients above 61 (1.63 ±1.45)

BRAF positivity was low in young (<20: 4/15 (26.7%), 21-30: 26/55 (47.3%)) and old patients (3/8 (37.5%)), but showed high positivity in patients of 31-60 years (31-40: 72/111 (64.9), 41-50: 28/43 (65.1), 51-60: 18/25 (72.0)).

Conclusion: To conclude, DSVPTC has different clinical, pathological and molecular profiles when compared to conventional papillary thyroid carcinoma. Patients with DSVPTC show different clinicopathologic pattern dependent on the age. Although DSVPTC is known to be frequent and more aggressive in young patients, DSVPTC occurred in old patients with aggressive behavior.

Disclosure of Interest: None declared

PE102

LONG TERM OUTCOME AFTER TOXIC NODULAR GOITRE

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Introduction: The purpose of treating toxic nodular goitre (TNG) is to reverse hyperthyroidism, prevent recurrent disease, relieve symptoms and preserve thyroid function. Treatment efficacies and long-term outcomes of antithyroid drugs (ATD), radioactive iodine (RAI) or surgery vary in the literature. Symptoms often persist for a long time following euthyroidism, and previous studies have demonstrated long-term cognitive and quality of life (QoL) impairments. We report the outcome of treatment, rate of cure (euthyroidism and hypothyroidism), and QoL in an unselected TNG cohort.

Materials & Methods: TNG patients (n=638) de novo diagnosed between 2003–2005 were invited to engage in a 6–10-year follow-up study. 237 patients responded to questionnaires about therapies, demographics, comorbidities, and quality of life (ThyPRO). Patients received ATD, RAI, or surgery according clinical guidelines.

Results: The fraction of patients cured with one RAI treatment was 89%, and 93% in patients treated with surgery. The rate of levothyroxine supplementation for RAI and surgery, at the end of the study period, was 43% respectively 36%. Approximately 5% of the patients needed three or more RAI treatments to be cured. The patients had worse thyroid-related QoL scores, in a broad spectrum, than the general population.

Conclusion: One advantage of treating TNG with RAI over surgery is lost due to the similar incidence of hypothyroidism. The need for up to five treatments is rarely described and indicates that the treatment of TNG can be more complex than expected. This circumstance and the long-term QoL impairments are reminders of the chronic nature of hyperthyroidism from TNG.

Disclosure of Interest: None declared

PE103

PREDICTION OF THYROID NODULE HISTOPATHOLOGY BY EXPERT ULTRASOUND EVALUATION AND ARTIFICIAL INTELLIGENCE

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Introduction: The cornerstone of thyroid nodule diagnostics is ultrasound-guided fine needle biopsy with cytological evaluation (FNC). The threshold for FNC in the common risk stratifications systems is low for all nodules that are not clearly benign. We asked if it is possible to reliably identify other subgroups of thyroid nodules by ultrasound alone, to avoid unnecessary FNC biopsies, and in some cases unnecessary diagnostic surgeries.

Materials & Methods: One hundred and eighty seven patients with 221 thyroid nodules were examined by experts with ultrasound and prospectively assigned to the expected histopathological diagnosis: colloid nodule, adenomatoid colloid nodule, follicular adenoma, follicular carcinoma, follicular variant of papillary thyroid carcinoma, papillary thyroid carcinoma, or anaplastic thyroid cancer. In 101 of these, we later obtained histopathological reports for comparison. All ultrasound scans were stored as video files and used in a new project to develop a deep learning algorithm for automated detection and segmentation of thyroid nodules.

Results: Overall accuracy for classification into discrete histopathological categories by expert ultrasound was 71.3% and Cohen's Kappa was 0.62. The sensitivity and specificity for detecting malignancy were 97.3% and 78.1%. The diagnostic accuracy for malignancy was 85.1% (Håskjold et al. 2021, Endocrine Connections 10:7). Video files were broken down to smaller parts that allowed us to visually interpret the output of the algorithm.

Conclusion: Dedicated expert high-resolution ultrasound without FNC can reliably distinguish benign vs malignant nodules, but also differentiate between several histopathological entities in thyroid nodules. The ultrasound images contain enough information to diagnose most thyroid nodules with a precision comparable to or higher than cytological evaluation.

Disclosure of Interest: None declared

PE104

CLINICAL VALIDATION OF NERVETREND VS. CONVENTIONAL I-IONM MODE OF NIM VITAL IN PREVENTION OF RECURRENT LARYNGEAL NERVE EVENTS DURING BILATERAL THYROID SURGERY: AN INTERIM SAFETY ANALYSIS OF AN ONGOING PROSPECTIVE RANDOMIZED CONTROLLED TRIAL.

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Introduction: Intraoperative neural monitoring (IONM) has been accepted as an integral safety tool in thyroid surgery. While, intermittent IONM (i-IONM) is useful in prevention of bilateral vocal cord palsy (VCP), continuous IONM (c-IONM) has been demonstrated to be superior to i-IONM entailing the potential to prevent unilateral VCP (1). Despite promising data on benefits of c-IONM this format of IONM still remains rarely utilized. On the other hand, a brand new NIM Vital equipment allows now for using i-IONM in quasi continuous mode which is termed NerveTrend mode. This concept is a natural evolution of i-IONM towards c-IONM mode but is operator dependent and not automatic as in c-IONM mode. Hence, careful clinical validation of NerveTrend mode is needed in order to identify its clinical pertinence with respect to preventing neural damage compared to the standard of i-IONM mode in thyroid surgery. The aim of this study was to compare two distinct modes of NIM Vital application in thyroid surgery: NerveTrend mode vs. i-IONM with respect to prevalence of early postoperative recurrent laryngeal nerve (RLN) injury.

Materials & Methods: A prospective, randomized study was initiated to evaluate the possible benefits of NerveTrend mode vs. i-IONM in first-time, bilateral thyroid surgery. The primary outcome measure was prevalence of RLN injury on postoperative day 1 assessed by direct laryngoscopy. An interim safety analysis was planned following enrollment of 50% of the designed study power (n=264 nerves at risk which is equal to 132 patients in each respective group).

Results: Of 132 nerves at risk in each group (NerveTrend vs i-IONM), transient and permanent RLN injuries were found respectively in 1 (0.76%) vs 7 (5.30%) nerves (p=0.03) and 0 (0%) vs. 2 (1.51%) nerves (not significant difference). Severe combined events occurred in 12 (9.0%) nerves at risk operated on with NerveTrend but were reversible in 11 of 12 cases (91.66%).

Conclusion: The interim safety analysis showed significant difference with regard to the prevalence of RLN injury on postoperative day 1 among patients operated on with NerveTrend mode when compared to i-IONM without NerveTrend mode. The system seems to alert the surgeon about the imminent nerve injury on time as majority of intraoperative nerve events were reversible. This initial observation needs to be validated further in an ongoing randomized controlled trial until a designed power of the study is reached.

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Disclosure of Interest: M. Barczynski Grant/Research Support from: Funding from Medtronic (ERP-2020-12499), A. Konturek: None declared

PE105

THE ASSOCIATION OF SURGEONS' TREATMENT RECOMMENDATIONS FOR LOW-RISK THYROID CANCER AND MEDICAL UTILIZATION PREFERENCES

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Introduction: In the United States (U.S.), the treatment a surgeon recommends for low-risk thyroid cancer has been shown to be influenced by their personal treatment preference and specialty. We sought to evaluate the influence of specific surgeon beliefs—views on medical utilization and worry about cancer—on surgeons' recommendations for low-risk thyroid cancer.

Materials & Methods: A cross-sectional, mixed-mode survey (emailed/mailed) of thyroid surgeons identified through Medicare billing data was performed in September-November 2020. Surgeons were compared based on their recommendation for a healthy 45-year-old female with a solitary, low-risk 2.0 cm papillary thyroid cancer. Those recommending total thyroidectomy with or without a central neck dissection (TT) were compared to those recommending lobectomy. Additional questions included a validated scale of clinician medical utilization preferences and validated, single-item question assessing personal worry about cancer. T-tests and Chi-squared comparisons determined significance.

Results: Of 222 surveys, 153 were eligible and completed (68.9% response). Overall, 54 (35.3%) surgeons recommended TT and 99 (64.7%) Lobectomy. Most surgeons (88.2%) performed >50 thyroidectomies/year. The average time in practice was 20.4 years (SD9.5) and 43.8% practiced in an academic tertiary center.

Surgeons recommending TT were more likely to prefer maximizing medical care for their patients compared to those recommending Lobectomy (2.9±0.8 vs. 2.6±0.8, respectively, p=0.04). Among the subcomponents of the scale, surgeons recommending lobectomy had a higher level of disagreement to the statements "Diagnostic tests always provide helpful information even if their results do not directly impact care" (2.0±1.1 vs. 2.6±1.4 TT, p=0.01) and "When it comes to medical treatment, more is usually better" (1.9±1.0 vs. 2.3±1.0 TT, p=0.01).

When asked how worried respondents were about personally getting cancer someday, there were no significant differences between the two groups, though surgeons recommending TT tended to be more likely to respond that they are moderately or extremely worried about getting cancer (13.0% vs 9.1%, p=0.45).

Conclusion: U.S. surgeons who recommend TT for low-risk thyroid cancer are more likely to prefer maximizing medical care when they practice medicine with their patients. Understanding physicians' tendencies toward medical maximization will be important for reducing overdiagnosis and overtreatment of thyroid cancer.

Disclosure of Interest: None declared

PE106

IS TOTAL TUMOR DIAMETER A MARKER FOR RECURRENCE IN MULTIFOCAL PAPILLARY THYROID CARCINOMA?

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Introduction: Multifocality increases the risk of recurrence in patients with papillary thyroid carcinoma (PTC). Recent studies further investigated the prognostic impact of bilaterality, tumor number, and total tumor diameter in patients with multifocal PTC. However, it is unclear whether those factors improve the overall predictability of recurrence.

Materials & Methods: Between March 2012 and December 2019, 1249 patients who underwent total thyroidectomy for PTC at the Ewha Medical Center. Demographic data, pathologic characteristics including tumor size, extrathyroidal extension (ETE), resection margin involvement, coexisting Hashimoto thyroiditis, lymph node (LN) metastasis, and multifocality, and adjuvant radioiodine treatment were recorded and analyzed.

Results: Multifocality was found in 487 patients (39.0%) and mean follow-up period was 5.5 ± 2.7 years. Multifocality was associated with risk factors of recurrence, such as extrathyroidal extension, lymph node metastasis, and margin involvement. The 5-year recurrence-free survival was 96.2% in patients with multifocal tumors, whereas those with unifocal disease showed 98.0% ($p = 0.011$). Multivariate Cox regression analysis demonstrated that multifocality (HR 1.986, 95% CI 1.015-3.888), bilaterality (HR 1.943, 95% CI 1.002-3.766), tumor number (HR 2.331 for more than 3 tumors, 95% CI 2.331-5.135), or total tumor diameter (HR 3.717 for 2-3cm, 95% CI 1.469-9.404; HR 1.986 for more than 3cm, 95% CI 6.191-23.225) could be an independent predictor of recurrence. However, comparison of predictability as measured by area under the receiver operating curve of prediction models indicated that bilaterality, tumor number, and total tumor diameter did not add substantially to the overall predictability of recurrence ($p = 0.665$).

Conclusion: Although total tumor diameter was an independent predictor of recurrence, it did not improve the predictability of recurrence. A simpler prediction model based on multifocality might be sufficient.

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PE107

ASYMPTOMATIC PAPILLARY THYROID CARCINOMA: THE IMPORTANCE OF PHYSICAL EXAMINATION IN POTENTIALLY 'OVERDIAGNOSED' PATIENT POPULATION

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Introduction: Diagnosing asymptomatic diseases, including thyroid cancer, has become a matter of concern from individuals as well as societal perspectives. The latest US Preventive Task Force statement is against screening for thyroid cancer, including physical exams. The recommendation, however, was not based on solid evidence.

Materials & Methods: To collect clinicopathological data, we reviewed our prospective database on 837 patients who underwent initial surgery for papillary thyroid carcinoma (PTC) between 2010 and 2019. Presence or absence of symptoms and the mode of detection were correlated with the risk classification according to the Japanese revised clinical practice guidelines as follows: very low-risk (T1aN0M0), low-risk (T1bN0M0), intermediate-risk, and high-risk (T > 4 cm, extra-thyroidal extension of the primary tumor, extra-nodal extension of lymph node metastasis, cN1 > 3 cm, or M1). In addition, we used multivariable analysis to determine factors associated with high-risk PTC.

Results: The Female/male ratio was 609/228, and the median age was 51 (IQR: 40 - 64). 679 patients (81%) were asymptomatic, and 215 (32%) of them were detected by physicians' physical exams. 108 patients (16%) with asymptomatic PTC had at least one of the high-risk features, while 155 (23%) were low- or very low-risk PTC. Among the palpable PTC, all tumors larger than 4cm were high-risk by definition, and 20% of those =< 4cm were also high-risk. A multivariable logistic regression model revealed that palpable tumor, age >= 55, and male gender were predictive of asymptomatic high-risk PTC with corresponding odds ratios (95%CI) were 3.0 (2.0 – 4.5), 2.2 (1.5 – 3.0), and 1.5 (1.1 – 2.2), respectively.

Conclusion: One out of six patients with asymptomatic PTC has high-risk features. Physical exam may have a definitive role in the patient-physician encounter, even in a screening setting.

Disclosure of Interest: None declared

PE108

NOVEL TECHNIQUE OF 3-DIMENSIONAL ULTRASOUND WITH GYROSCOPIC GUIDANCE FOR THYROID IMAGING

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Introduction: There is growing interest in technology utilisation for radiological surveillance of thyroid nodules, which are prevalent but uncommonly malignant (7-15%). 2-dimensional ultrasound is the most frequently used modality for initial risk stratification and subsequent follow-up of thyroid nodules, as it is accessible, inexpensive, non-invasive and well tolerated. Surgeon-performed thyroid ultrasound is increasingly becoming a standard skill set, with studies demonstrating beneficial changes in diagnosis and management when ultrasonography is undertaken by the surgeon. However, some limitations include workload and inter-operator variability for measurement and labelling of nodules. These may result in delayed or missed diagnosis of malignancy, or unnecessary procedures with their associated risks economic costs and strain on limited healthcare resources.

Materials & Methods: We present a novel method of semi-automatic volumetric assessment for thyroid nodules using digital 3-dimensional reconstruction with PIUR tUS 2019 software, following 2-dimensional ultrasound with and without gyroscopic guidance using an Infinity Sensor set-up.

Results: 3-dimensional reconstruction after ultrasound with gyroscopic guidance of the live thyroid model yielded the most accurate volume of $8.42\text{cm}^3 \pm 0.94$. Time taken to characterise nodules was reduced to under 10 minutes, compared to 30 minutes in current standard practice. The resultant image can then be easily compared across time intervals for the surveillance of thyroidal nodules. This technique was also evaluated with phantom models to assess accuracy of volume determination with spherical and ellipsoidal shapes.

Image:



Conclusion: 3-dimensional ultrasound with gyroscopic guidance appears promising for improving efficiency and ease in the evaluation and surveillance of thyroid nodules, with potential to include other TIRAD characteristics.

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PE109

THE ROLE OF TARGETED EXOME SEQUENCING IN THYROID CANCER

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Introduction: The incidence of thyroid cancer is increasing worldwide¹. The aim of this prospective study is to determine the gene mutations and chromosomal rearrangements in thyroid cancer using Next Generation Sequencing (NGS) in the Indian subpopulation to generate the genomic database.

Materials & Methods: A total of 38 patients (age= mean+/-SD; 40.2+/-14.4 years; Male: Female= 1:37) undergoing thyroidectomy for benign or malignant disease were studied. Live thyroid tissue samples harvested intraoperatively that passed a qualitative check for DNA and RNA were subjected to NGS using Illumina HiSeq.

Results: Histopathology comprised of colloid goiter (n, %; 12, 31.6%), papillary carcinoma (7, 18.4%), Hashimoto's thyroiditis (5, 13.2%), adenomatous hyperplasia (5, 13.2%), Graves' disease (3, 7.9%), nodular hyperplasia (2, 5.3%), follicular adenoma (2, 5.3%) and follicular carcinoma (2, 5.3%). In thyroid cancer patients (n=9), NGS revealed point mutations in BRAF (8, 88.9%), NTRK2 (7, 77.8%), ALK (5, 55.6%), RET (2, 22.8%), PTCH1 (2, 22.2%), NTRK1 (2, 22.2%) and NTRK3 (1, 11.1%) while RAS mutations and chromosomal rearrangements were absent. BRAF mutation correlated strongly with NTRK2 ($r= 0.862$) and ALK correlated with PTCH1 ($r= 0.811$), each $p < 0.01$.

Conclusion: Next Generation Sequencing detected novel NTRK and ALK (anaplastic lymphoma kinase) mutations in thyroid cancer. However, BRAF mutation was the most frequent while RAS and chromosomal rearrangements were absent in our series. Targeted exome sequencing of these candidate genes has a promising role in precise diagnosis and developing targeted therapy for thyroid cancer. It merits global multi-center large-scale evaluation.

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PE110

SERUM CALCITONIN-NEGATIVE MEDULLARY THYROID CARCINOMA: A CASE SERIES OF 19 PATIENTS IN SINGLE CENTER

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Introduction: Medullary thyroid carcinoma (MTC) is a rare cancer that consists of 5% of thyroid cancer. Serum calcitonin is a good biomarker of MTC that is used for diagnosis, prognosis and monitoring recurrence. Calcitonin-negative MTC (CNMTC) is rare but confounds diagnostic and prognostic direction. This study introduces 19 cases of CNMTC in single center.

Materials & Methods: From 2002 March to 2020 July, 320 patients were diagnosed with MTC (0.4%). Patients had undergone radical thyroidectomy with central compartment lymph node dissection, and additional modified radical lymph node dissection if lateral lymph node metastasis were positive. Postoperative monitoring and out-patient clinic follow-up were done with serum calcitonin acquirement.

Results: There were 19 patients negative for calcitonin in preoperative setting (6%). Mean preoperative calcitonin level was 5.1 if undetectable level is regarded as 0. Only 2 patients were male and female proportional superiority was significant ($p=0.017$). No one except 2 modified radical neck dissection (MRND) cases showed central compartment lymph node metastasis. Every patient's postoperative calcitonin level sustained low. There was no recurrent case and there was only 1 mortality case with overall survival reaching 95%.

Conclusion: Since incidence of CNMTC is not negligible, medullary thyroid cancer should not be ruled out in the diagnostic stage even if serum calcitonin is negative in the preoperative examination. Markers for serum sampling and immunohistochemical stain other than calcitonin should be actively performed afterwards.

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PE111

COMPLICATIONS AFTER THYROID SURGERY FOR HASHIMOTO'S GOITER COMPARED TO OTHER BENIGN PATHOLOGIES

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Introduction: Hashimoto's thyroiditis (HT) presents challenges during surgery. We sought to determine if the complication rate after thyroidectomy is higher for HT vs. other benign pathologies.

Materials & Methods: Patients receiving surgery (total, lobectomy, or completion thyroidectomy) for benign pathology at a tertiary hospital from 2010-2021 were studied. HT diagnosis was from clinical suspicion of HT, or final pathology suggestive of HT, and compared to other benign thyroid pathologies. Postoperative complication included recurrent laryngeal nerve injury (permanent or transient), neck hematoma, or permanent hypoparathyroidism. Logistic regression of factors associated with complication included patient demographics, pathology, year of operation, and operation type. The impact of the degree of TPO antibody elevation was evaluated by comparing complications for patients in the top quartile of TPO antibody levels (≥ 1000 IU/mL) to the bottom 75%.

Results: 2,261 patients underwent surgery for benign thyroid pathology, of which 323 (14.3%) were for HT. Overall complications were higher for HT (10.2% vs. 6.5% other benign, $p=0.01$), and particularly rates of transient nerve injury (8.4% vs. 5.1% other benign, $p=0.02$). Logistic regression revealed HT had 90% higher odds of complication than other benign conditions (OR 1.90 95%CI[1.2-3.0]). 121 patients had available pre-operative TPO antibody levels. When comparing complications among those in the top quartile to the bottom 75%, there was no significant difference (11.1% top quartile vs. 11.5% bottom 75%, $p=0.95$)

Conclusion: HT patients do have a higher rate of surgical complications. However, TPO antibody levels did not predict complications of surgery.

Disclosure of Interest: None declared

PE112

GENDER AND AGE COULD SIGNIFICANTLY AFFECT ANTI-THYROID ANTIBODY CUT-OFF LEVELS AND THEIR DIAGNOSTIC ACCURACY FOR RECURRENCE IN PATIENTS WITH PAPILLARY THYROID CARCINOMA.

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Introduction: Serum thyroglobulin is the traditional tumor marker for recurrence of papillary thyroid carcinoma (PTC). This marker lacks its usefulness when anti-thyroid antibodies (AT-Abs) are present (anti-thyroglobulin and TPO). In this setting, increasing levels of AT-Abs may suggest the presence of targeted antigens as a surrogate of tumor recurrence. In this study we assessed the effect of clinical variables such as age and gender on the recommended AT-Abs cut-off levels for establishing the diagnosis of recurrence in these patients.

Materials & Methods: We retrospectively analyzed our cohort of patients with recurrent PTC and contrasted to patients without recurrence (controls). AT-Abs levels were measured at 6, 12, 24 and 36-60 months after surgery and RAI administration. AT-Abs levels were contrasted in all points in time among groups. Clinical variables exerting influence on AT-Abs levels were further analyzed and classified.

Results: A total of 51 patients with clinical PTC recurrence and 88 patients without recurrence were included in the analysis. The proportion of females was less in the control group (80.4 vs 92%; $p=0.04$). Patients with recurrence were also significantly younger (38.9 ± 15.7 vs 44.6 ± 14 ; $p=0.02$). Patients with positive AT-Abs presented higher levels of these antibodies when clinical recurrence was documented. Interestingly, women and patients younger than 55 years-old displayed higher AT-Abs consistently in all time set points regarding their counterparts in the recurrence group.

Conclusion: If AT-Abs are used as an additional criterion for recurrence in PTC patients, we should bear in mind that gender and age impact their cut-off levels. Based on our results higher set points may be necessary when clinical recurrence is investigated for these groups.

Disclosure of Interest: None declared

PE113

TOMOGRAPHIC ULTRASOUND IN THE EVALUATION OF THYROID NODULES

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Introduction: Ultrasound is an essential tool in the morphological evaluation of the thyroid. It is an exam that is easy to perform, fast, and without any risk to the patient. However, performing an ultrasound is an operator-dependent exam, with results varying according to the expertise and experience of the person performing the exam. Recently a new technology has become available for the analysis of nodules in three dimensions (3D); the tUS system is based on artificial intelligence that transforms the images generated by conventional ultrasound into high definition 3D images.

Materials & Methods: The authors retrospectively evaluated the initial and follow-up results of 40 patients with benign and malignant thyroid nodules performed using conventional ultrasound and the tUS system, comparing their advantages and disadvantages in these assessments.

Results: We evaluated the 40 patients using conventional ultrasound (2D) and the tUS system (3D). Both exams were performed simultaneously on the same ultrasound device associated with the tUS system attached to the linear transducer. The extra time spent to complete the tUS ranged from 3 to 12 minutes, with the longest time spent in the first 8 cases (beginning of the learning curve). In all cases, the three-dimensional visualization of the nodules, whether solid, cystic, or mixed, facilitated their measurement, initial assessment, and response to the treatment performed (especially in cases of radiofrequency ablation). The clinical follow-up of nodules under surveillance showed details in the visualization and ease of volumetric evaluation of these nodules.

Conclusion: The tUS assessment proved to be an easy test to be performed, performed in conjunction with conventional (2D) ultrasound, which does not require excessive time to be completed and provides relevant information in the diagnosis and follow-up of patients with benign and malignant thyroid nodules.

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PE114**PERSISTENT HYPERPARATHYROIDISM AFTER PREEMPTIVE KIDNEY TRANSPLANTATION**M. Okada^{1,*}, T. Hiramitsu¹, T. Ichimori¹, S. Narumi¹, Y. Watarai¹, K. Futamura¹, N. Goto¹, T. Sato²¹Transplant and Endocrine Surgery, ²Diabetes and Endocrinology, Japanese Red Cross Nagoya Daini Hospital, Nagoya, Japan

Introduction: Chronic dialysis is known as a typical risk factor for persistent hyperparathyroidism (HPT) after kidney transplantation. In recent years, preemptive kidney transplantation (PEKT) has increased. However, the incidence, risk factors and clinical implication of HPT after PEKT are unknown. For the purpose of clarifying these questions, we conducted a retrospective cohort study. This study is the first report mentioning to HPT after PEKT.

Materials & Methods: Patients who underwent PEKT from 2000 to 2016 were included in this study. Serum intact-parathyroid hormone (PTH) level > 80 pg/mL was defined as HPT, and the patients were divided into two groups according to the presence or absence of HPT one year after PEKT. The primary outcome was the risk for HPT after PEKT, and the secondary outcome was death-censored graft survival.

Results: Of the 340 patients, 150 had HPT (HPT group), and 190 had normal parathyroid function (HPT-free group) one year after PEKT. Logistic regression analyses showed that the pretransplant PTH level (odds ratio 5.57, $P < 0.001$) and preoperative donor eGFR (odds ratio 0.98, $P = 0.035$) were the independent risk factors for HPT. In categorical analyses, pretransplant PTH of > 400 pg/mL, and preoperative donor eGFR of < 68 mL/min/1.73m² were revealed as the risk for HPT. After propensity score matching 119 patients from each group, the estimated graft survival of the HPT group was significantly inferior to that of the HPT-free group (92.1% vs 98.2% at 10 years, $P = 0.032$).

Multivariate logistic regression for HPT after PEKT

Factor	Odds ratio	<i>P</i> value
Recipient age	1.01 (1.00-1.03)	0.13
Male recipient	0.76 (0.44-1.31)	0.32
Serum Ca before PEKT	1.18 (0.81-1.72)	0.38
Serum P before PEKT	0.94 (0.77-1.15)	0.55
Log PTH before PEKT	5.50 (2.11-14.40)	<0.001
Diabetes mellitus	0.70 (0.37-1.34)	0.28
Donor age	1.01 (0.99-1.04)	0.41

Male donor

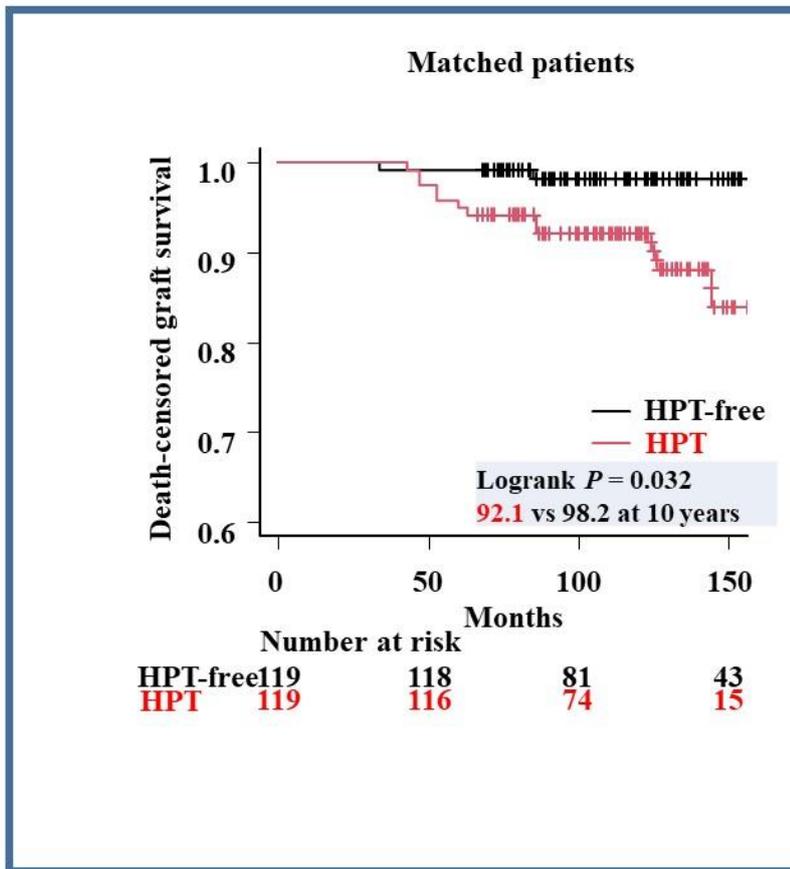
0.71 (0.42-1.20) 0.20

Preoperative donor eGFR

0.98 (0.96-1.00) **0.037**

Ca, calcium; eGFR, estimated glomerular filtration rate; HPT, hyperparathyroidism; P, phosphorus; PEKT, preemptive kidney transplantation; PTH, parathyroid hormone

Image:



Conclusion: Pretransplant high PTH and low donor renal function were identified as the independent risk factors for HPT after PEKT. Additionally, even in PEKT, HPT was associated with worse transplant outcomes.

Disclosure of Interest: None declared

PE115

OPERATIVE SUCCESS IS ACHIEVED REGARDLESS OF IOPTH CRITERION USED DURING FOCUSED PARATHYROIDECTOMY FOR SPORADIC PRIMARY HYPERPARATHYROIDISM

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Introduction: Previous studies have suggested that focused parathyroidectomy (PTX) guided by intraoperative parathormone (ioPTH) monitoring using the >50% ioPTH decrease only or Miami criterion may result in higher operative failure rates due to missed multiglandular disease (MGD) in patients with sporadic primary hyperparathyroidism (spHPT). A >50% ioPTH decrease to normal parathormone (PTH) range, known as the Dual criterion, has been reported to improve success rates. This study examines whether a >50% ioPTH decrease to normal PTH range improves surgical outcomes in patients with spHPT compared to >50% ioPTH decrease only.

Materials & Methods: A retrospective review of prospectively collected data of 690 patients who underwent initial focused PTX guided by ioPTH monitoring at a single institution was performed. Patients ≥ 18 years with biochemical confirmation (i.e., elevated calcium and PTH above upper limit of normal), and normal ranged preoperative creatinine levels for spHPT were divided into two groups: patients who underwent PTX with >50% ioPTH decrease to normal PTH range, and >50% ioPTH decrease only. Operative success (normal serum calcium ≥ 6 mos.), disease recurrence, bilateral neck exploration (BNE), unilateral neck exploration (UNE), and MGD were evaluated using Fisher's exact tests. A *P*-value of <0.05 was considered significant.

Results: For the 690 PTX patients, overall operative success was 99% with disease recurrence, BNE, UNE, and MGD rates of 3%, 11%, 4%, and 4%, respectively. Mean postoperative follow up for the entire group was 46 months (range, 6 mos. to 15 years). When comparing 533 patients who underwent PTX guided by the Dual criterion to 157 patients who underwent PTX guided by the Miami criterion, there were no statistically significant differences found for operative success (99% vs. 97%), disease recurrence (2.4% vs. 5%) BNE (73% vs. 68%), UNE (27% vs. 32%), and MGD (4.3% vs. 3.8%), $p>0.05$. Mean postoperative follow up for Dual and Miami criterion groups were 43 and 57 months, respectively.

Conclusion: In patients who undergo PTX guided by ioPTH monitoring, there were no significant differences in operative success rates ranging from 97% to 99% with no increased rates of operative failure, recurrence, BNE and UNE due to MGD using either Dual or Miami criteria, which is contrary to other studies. Excellent surgical outcomes in patients with spHPT can be expected regardless of the ioPTH criterion used to guide focused parathyroidectomy.

Disclosure of Interest: None declared

PE116

INTRAOPERATIVE INTACT PTH MONITORING IS ESSENTIAL DURING PARATHYROIDECTOMY FOR RENAL HYPERPARATHYROIDISM

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Introduction: The successful parathyroidectomy (PTx) is necessary for treatment of renal hyperparathyroidism (RHPT). The remaining parathyroid glands (PTGs) will be stimulated due to chronic kidney disease and cause persistent or recurrent RHPT in the neck. However, it is difficult to confirm the successful PTx during the operation. We investigated the preoperative and intraoperative factors which can predict the successful PTx.

Materials & Methods: Between August 2010 and February 2020, PTx and bilateral thymectomy with forearm autograft for RHPT was performed for 350 patients. All patients underwent preoperative imaging diagnosis for the localization of PTGs and intraoperative intact PTH monitoring (IOPTH). The sufficient IOPTH decline was defined as 70% decline in intact PTH level measured 10 minutes after the PTx and bilateral thymectomy from the intact PTH level measured before the skin incision. The successful PTx was defined as the intact PTH levels on post operative day 1 < 9 pg/ml (less than a normal range). Logistic regression analysis was used. For the analysis, sex, height, body weight, body mass index, age at PTx, dialysis vintage, the number of localized PTGs in the preoperative CT, ultrasonography, and ^{99m}Tc MIBI scintigraphy, cinacalcet administration, intact PTH levels on admission, alkaline phosphatase levels on admission, albumin-corrected calcium levels on admission, phosphorus levels on admission, the number of identified PTGs during the operation by frozen section, and sufficient IOPTH decline were investigated.

Results: In the univariate analysis, significant differences were identified in sex, height, the number of identified PTGs during the operation by frozen section, sufficient IOPTH decline, intact PTH levels on admission, alkaline phosphatase levels, albumin-corrected calcium levels, and phosphorus levels. In the multivariate analysis, significant differences were identified in the number of identified PTGs during the operation by frozen section (B=1.471, P<0.001, odds ratio (OR) 4.356, 95% confidence interval (CI) 2.499-7.592), intact PTH levels on admission (B=-0.001, P<0.001, OR 0.999, 95%CI 0.998-0.999), sufficient IOPTH decline (B=2.060, P=0.001, OR 7.847, 95%CI 2.443-25.204), and albumin-corrected calcium levels (B=0.542, P=0.001, OR 1.720, 95%CI 1.232-2.400).

Conclusion: Confirming the sufficient decline in the IOPTH before the end of the operation can bring the successful PTx for RHPT.

Disclosure of Interest: None declared

PE117

PRIMARY HYPERPARATHYROIDISM AND TREATMENT FOR PAIN BEFORE AND AFTER PARATHYROIDECTOMY - A POPULATION STUDY

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Introduction: Patients with primary hyperparathyroidism (PHPT) frequently report general musculoskeletal pain and gastrointestinal discomfort that sometimes requires symptomatic treatment. Hitherto, it has been unknown whether the utilization of medication for pain and inflammatory conditions in patients with PHPT differ from the background population, nor if curative parathyroidectomy (PTX) has any effect on the need for symptomatic treatment for pain. This study aimed to investigate the utilization of opioids and anti-inflammatory medication in patients with PHPT and the effects on medication after PTX by comparing with the background population.

Materials & Methods: A retrospective case-control study of the preoperative utilization of opioids and anti-inflammatory medication and a prospective cohort analysis of the utilization after PTX. A total of 8,279 PHPT patients treated with PTX in Sweden between July 1, 2008 and December 31, 2017 was compared to a control cohort (matched for age, gender and region) from the total population (n = 82,790). Information on filled prescriptions administered by pharmacies was collected from the Swedish Prescribed Drug Register (SDR). Conditional logistic regression was used to analyze the relative utilization of opioids and anti-inflammatory drugs (odds ratio, OR) within 3 years preoperatively. The relative incidence of drug treatment (rate ratio, RR) within 3 years after PTX was calculated with repeated measurement Poisson regression models.

Results: Treatment with opioids, non-steroidal anti-inflammatory drugs (NSAID) and corticosteroids was significantly more common in PHPT patients compared to the background population at least three years prior to PTX (OR 1.54 [95% CI: 1.39-1.69]; 1.64 [95% CI: 1.56-1.73] and OR 1.40 [95% CI: 1.29-1.51] respectively. Among prevalent users of opioids and corticosteroids, the excess use normalized within 6 months after PTX, while use of NSAID diminished but still remained somewhat higher three years after PTX (OR 1.05 [95% CI: 1.01-1.09]).

Conclusion: PHPT is associated with increased utilization of opioids and anti-inflammatory medication. This study implies that treatment for pain and inflammatory conditions should be considered in decision for treatment in patients with PHPT and the need for medication should be reevaluated after PTX.

Disclosure of Interest: None declared

PE118

IMPACT OF COVID-19 DELAYS ON PARATHYROIDECTOMIES IN PATIENTS WITH PRIMARY HYPERPARATHYROIDISM

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Introduction: The COVID-19 pandemic has dramatically impacted the provision of health care throughout the world. Surgical treatment of non-malignant conditions including primary hyperparathyroidism (PHPT) were delayed due to operating room (OR) closures necessary for the redeployment of health resources and personal, and workforce issues related to isolation requirements. The objective of this study was to analyse differences in the PHPT patients operated on during OR restrictions.

Materials & Methods: Utilizing a prospectively collected operative database, all patients that underwent parathyroidectomy (PTx) for PHPT by 2 endocrine surgeons at a single institution were identified. No PTx were performed in March or April 2020. Limited, surgeon-triaged OR access occurred up until August 2021. The COVID cohort was defined as patients undergoing PTx from May 2020 to August 2021. This was compared to a pre-COVID cohort from January 2016 to December 2019. Patient demographics, biochemistry, parathyroid-related symptoms and end-organ effects, wait times, and postoperative complications were collected. The data was analysed using t-test for continuous data and chi-square for categorical data.

Results: A total of 632 PHPT patients were included, 189 in the COVID group and 443 patients in the pre-COVID group. Groups were similar in age, gender, preoperative calcium, parathyroid hormone, and vitamin D levels. Average wait time to PTx was 300 days in the COVID group and 267 days in the pre-COVID group ($p=0.14$). The COVID group had significantly lower radial bone mineral density (BMD) ($T-2.08$ vs -1.47 , $p<0.01$) and higher rates of nephrolithiasis (39% vs 28%, $p<0.01$) compared to the pre-COVID group. The rate of PTx was greater in the COVID group than the pre-COVID group (12 vs 9 cases/month, $p=0.02$). There was no difference in length of stay or operative complication.

Conclusion: PTx during the COVID period involved patients with more severe end organ effects, specifically lower BMD and nephrolithiasis, likely reflecting appropriate triage by the surgeons. There was a higher monthly rate of PTx in the COVID group, likely due to the strategic capacity to do less resource-intense surgeries during this period. Although wait times to surgery in the COVID group were not significantly longer, this does not include patients that are still awaiting PTx. These results represent a highly selected group of patients during the COVID period, while the impact of COVID-19 delays on patients with less severe PHPT is still unknown.

Disclosure of Interest: None declared

PE119

LOCOREGIONAL VS GENERAL ANESTHESIA FOR MINIMALLY INVASIVE VIDEO-ASSISTED PARATHYROIDECTOMY: A PROPENSITY MATCHING SCORE ANALYSIS. MAY THE ADVANTAGES FOR PATIENTS COINCIDE WITH THOSE FOR HEALTHCARE SYSTEM?

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Introduction: Focused parathyroidectomy is the procedure of choice in patients with localized primary hyperparathyroidism (pHPT). We aimed to compare the effectiveness, safety, and clinical outcome of locoregional anesthesia (LA) Vs general anesthesia (GA) in patients undergoing minimally invasive video-assisted parathyroidectomy (MIVAP), using propensity score matching (PSM) analysis.

Materials & Methods: A retrospective analysis of patients who underwent MIVAP between January 2013 and December 2021 was conducted using a prospectively maintained Institutional database. Patients were divided in two groups according to the form of anesthesia (LA Vs GA). PSM analysis was performed to overcome patient selection bias between the two procedures. Quick PTH assay monitoring was used in all the patients using the Rome criteria to confirm cure. In patients undergoing LA, post-ablation samples were obtained after wound closure with the patient in the recovery room, resting in his/her own bed.

Results: Overall, 553 patients underwent MIVAP. After PSM, 115 patients for LA-group and 230 patients for GA-group were included. MIVAP under LA was associated with shorter median operative time (20 Vs. 40 minutes - $p < 0.001$), shorter median operative room occupation time (20 vs. 55 minutes – $p < 0.001$), lesser median VAS pain score in the operation day, in POD1 and POD 2 (0 vs. 1 – $p < 0.001$; 2 vs. 3 - $p = 0.031$; and 0 vs. 1 - $p = 0.031$, respectively), with comparable postoperative hospital stay and complication rate. 2 conversions to GA was necessary in LA-group because of unsatisfied intraoperative PTH criteria in order to complete surgical exploration. At a median follow up of 21 months, no recurrence was observed in both groups.

Conclusion: MIVAP under LA is a safe ad feasible procedure with significant advantages over GA in terms of postoperative pain and operative room occupation time. This last can finally result in a more efficient utilization of the operative room and of the Health Care System resources.

Disclosure of Interest: None declared

PE120

THYROIDECTOMY DURING EXHAUSTIVE PARATHYROID EXPLORATION: IS IT FRUITFUL?

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Introduction: Thyroidectomy (Tx) may be required during parathyroid exploration for concomitant thyroid disease, access, hemostasis, suspicion of parathyroid carcinoma (PC), or as an empiric maneuver to identify a missing parathyroid before concluding an otherwise unsuccessful operation. The incidence, circumstances, and outcomes of this surgical maneuver are unknown.

Materials & Methods: With institutional approval, all patients who had concurrent Tx during surgery performed for hyperparathyroidism (HPT) 6/15-10/21 were identified from a prospective database of >7000 patients. Empiric Tx was defined as thyroid lobectomy (L) done for suspected intrathyroidal parathyroid after all other cervical locations were excluded. Indications for and extent of Tx followed current guidelines. Categorical data were analyzed using Chi Square.

Results: 302/1979 (15.3%) patients had Tx (L 57%; total thyroidectomy 43%) during parathyroidectomy. Study patients were 78% women with a mean age of 62 y (range 24-84), mean follow up of 7.9 mo (range 0-38), and 97.9% cure rate at ≥ 6 mo. After L for benign disease, 20% required thyroid hormone replacement. Concomitant thyroid disease was an independent indication for Tx during parathyroidectomy in 223/1979 (11.3%) and was more common in tertiary (25%) than in primary (15%) or secondary (8.4%) HPT ($p=0.02$).

Among the 99/1979 (5%) patients who received Tx specifically to manage HPT, Tx was anticipated based on preoperative imaging or FNA results in 24.2%. Unanticipated Tx was performed for at least one of the following reasons: to avoid capsular disruption of visible/palpable intrathyroidal parathyroid (38.4%), *en bloc* for PC concern (23.2%, with positive histology in 38%); to improve operative access (18.2%), and for hemostasis (7.1%). Empiric L was required in 42/1979 parathyroidectomy patients (2.1%), was prompted by internal jugular or intraoperative tissue PTH levels in 50% and resulted in cure 66.7% of the time.

Conclusion: Concomitant thyroidectomy is indicated to manage thyroid disease in 11 % of patients who undergo surgery for hyperparathyroidism. Thyroid resection is necessary in another 5% of parathyroidectomy patients for technical reasons, to manage suspected parathyroid cancer, and to remove an identified intrathyroidal parathyroid. Empiric thyroid lobectomy during difficult parathyroid surgery is uncommon (2%), but when required, is associated with cure of HPT in two thirds of such patients.

Disclosure of Interest: None declared

PE121

SIMLIFE FOR TRAINING IN ENDOCRINE SURGERY (ADRENALECTOMY, THYROIDECTOMY AND NECK DISSECTION). FIRST FRENCH - AFCE SESSION.

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Introduction: Subspecialization in Endocrine Surgery aims to yield surgeons with an adequate level of proficiency and safety in performing various procedures independently and competently following a proper learning curve. The Simlife Model consists of a simulated patient using a fresh human body donated to science, energized by pulsatile vascularization with simulated blood, heated to 37°C and mechanical ventilation. We report the First National French - AFCE Session of SimLife Training in Endocrine Surgery.

Materials & Methods: A two-days session on endocrine surgery procedures was designed by AFCE for chief residents and junior surgeons or endocrine surgery fellows. Each day was composed by a first theoretical part in which endocrine pathology (adrenal pathology and thyroid malignancies) and related surgical techniques were discussed, followed by a wet-lab session (hands-on practice) on SimLife Model. The primary outcome was to evaluate learners' performance by specifically designed scoring scale to assess competency. Learners' satisfaction was evaluated using a Likert scale of 1 to 10 on four items. Debriefing with the faculty at the end of the practical session was used to assess the overall experience of trainees and to discuss on possible difficulties encountered during simulation.

Results: Six surgeons completed the session. Each trainee acted as first surgeon once and as assistant in each procedure. Overall each trainee performed: a laparoscopic adrenalectomy, a standard thyroid lobo-isthmectomy and an ipsilateral modified lymph node neck dissection. Each pair of surgeons was supervised by a senior board certified endocrine surgeon (DES endocrine surgery). Learners' performance mean score was of 15.9/20 (SD 1.1) on adrenalectomy, 18.9/20 (SD 0.65) on thyroid lobectomy, 16.1/20 (SD 1.4) on neck dissection. Satisfaction scores for the specified four items ranged between 8.43 (SD 0.87) and 8.89 (0.96). No major vascular lesions were reported during the session.

Image:

Question	Score, <u>Mean</u> (SD)
Learning a procedure with SimLife	8.87 (0.86)
Anatomic landmark correspondence	8.65 (0.98)
Realism of SimLife model	8.89 (0.96)
Overall Satisfaction of training	8.43 (0.87)

Conclusion: SimLife is a hyper-realistic training model that allows to train junior surgeons in difficult endocrine surgical procedures, to guide acquisition of skills and correctly evaluate performance progression. It will be implemented by AFCE as a cornerstone in endocrine surgery training to enter academic career.

References:

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Disclosure of Interest: None declared

PE122

SURGICAL MANAGEMENT OF METASTATIC INSULINOMA: IS THERE A ROLE FOR CYTOREDUCTION?

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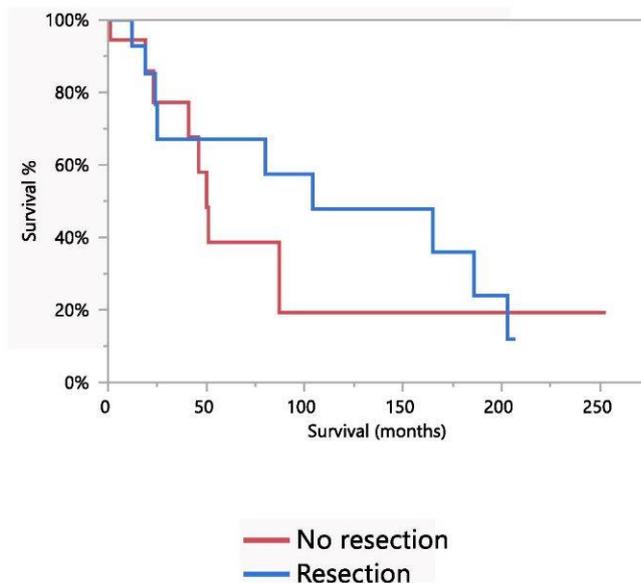
Introduction: Complete resection of metastatic insulinoma is optimal but frequently not possible. The effect of cytoreductive surgery on glycemic control and survival remains unclear.

Materials & Methods: We retrospectively evaluated patients with metastatic insulinoma (1990-2022) at a single institution. Cytoreductive surgery was defined as less than complete (R0) resection. Hypoglycemia control was defined by normoglycemia in the absence of any of the following treatment lines: Diazoxide, somatostatin analogues, systematic chemotherapy, radiation, hepatic artery embolization, hepatic radiofrequency ablation or Peptide Receptor Radionuclide Therapy. Survival was analyzed in the cytoreduction and non-resected groups using Kaplan-Meier curves.

Results: Of 59 patients with malignant insulinoma, 34 (58%) had TNM stage IV metastatic disease at presentation, their median age (IQR) was 52 (40,68) years, 47% were females. All patients had metastases to the liver; 35% also had metastases to other organs in addition including: lymph node, bone, lung, adrenal and breast. Of those with any metastatic disease, 16 (47%) underwent resection: 4 (25%) R0 and 12 (75%) had R2 resection at their initial surgery. The median (IQR) age at time of first resection was 46 (32,55) years, 56% were females. Sixty nine percent underwent a single operation, 19% required two and 13% required 3 operations for disease progression. All patients developed recurrence after their first R0 resection (n=4) over a median of 35 (range 9,48) months; two underwent liver transplant for recurrence. Among the initial R2 group (n=12): one was lost to follow-up, one continued to experience hypoglycemia requiring medical treatment, two required systematic chemotherapy due to progression of their metastases but remained asymptomatic from hypoglycemia, while the rest (n=8) experienced hypoglycemic control without treatment for a median (IQR) of 27 (10,71) months. Notably, patients who did not undergo resection required a median of 3 different treatment lines (range 2,6).

Median overall survival (OS) was 104 months for those who had resection vs 50 months for those who did not, p=0.5. Fig 1. Within the resected, median OS was 194 and 80 months for initial R0 and R2 resections, p=0.4.

Image:



Conclusion: Recurrence after complete resection of metastatic insulinoma is common. Cytoreductive surgery improved hypoglycemia symptom control when part of a multimodal treatment strategy and may improve survival, but larger studies are needed.

Disclosure of Interest: None declared

PE123

DEDICATED MULTIDISCIPLINARY SERVICE IMPROVES SURGICAL SELECTION AND POSTOPERATIVE OUTCOMES FOR PATIENTS WITH PRIMARY ALDOSTERONISM

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Introduction: Primary aldosteronism (PA) is the most common surgically curable cause of endocrine hypertension. It is unclear if the management of patients with the unilateral subtype of PA through a dedicated Endocrine Hypertension Service (EHS) confers better outcomes, compared to standard management offered by independent clinicians.

Materials & Methods: In this retrospective cohort study, patients from the Monash University Endocrine Surgery Database were divided into the EHS group, where patients were managed by a dedicated multidisciplinary team; or the Standard group, where patients were managed by individual physicians. The comparisons included patient selection for unilateral adrenalectomy, perioperative blood pressure, surgical cure rate, and the adequacy of postoperative follow-up.

Results: Despite similar perioperative blood pressure control, patients in the EHS group (n=41) were on fewer antihypertensive medications (1 vs 2, $p=0.011$) compared to the Standard group (n=55). A larger proportion of EHS patients had either bilateral adrenal nodules or no adrenal lesions on CT (41% vs 18%, $p=0.013$). Patients in the Standard group had larger adrenal lesions on CT (median 15mm vs 10mm, $p=0.032$). Postoperatively, biochemical cure rate was higher in the EHS group at 6-12 months (97% vs 76%, $p=0.021$). More EHS patients were followed up with endocrine markers for detecting residual disease and recurrence.

Conclusion: Patients managed by the dedicated endocrine hypertension service were more likely to be diagnosed with surgically curable PA without a unilateral adrenal adenoma on imaging, required fewer medications for perioperative blood pressure control and experienced higher rate of postoperative biochemical cure. We recommend that patients with confirmed PA who are surgical candidates should seek investigations and management from the multidisciplinary team.

Disclosure of Interest: None declared

PE124

USING THE POWER OF 'OMICS' TO CHARACTERISE PAPILLARY THYROID CANCER MESENCHYMAL STEM CELLS, DO THEY HAVE A ROLE TO PLAY IN THYROID CANCER PROGRESSION?

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Introduction: Cancer stem cell theory postulates that a tumour's ability to resist conventional therapy, metastasize and recur may be due to a small subpopulation of tumour cells possessing stem cell properties. The primary aim of this study was to (1) determine transcriptional differences between normal and papillary thyroid cancer mesenchymal stem cell (MSC) populations isolated from human tissue and (2) determine protein translation of genes of interest.

Materials & Methods: Mesenchymal stem cells (MSCs) isolated from tumours, and normal tissue, from two patients undergoing surgery for papillary thyroid cancer (PTC) were processed into a library using 10x genomics and analysed by NovaSeq single-cell sequencing. R studio was used to cluster cells based on genomic similarities, before looking for differential gene expression between cancer and normal MSCs. Wilcoxon test was carried out with Bonferroni false discovery correction to determine statistical significance. Cells from the Nthy-ori 3-1 (normal thyroid), BCPAP (PTC) and SW1736 (Anaplastic Thyroid Cancer) cell lines were then examined for protein expression of markers of interest using immunocytochemistry (ICC) and expression quantified using a quick score system. Images were captured using an Axio Imager 3 microscope.

Results: Multiple genes were identified as being significantly up-regulated in cancer MSC compared to normal MSC, mostly genes involved in the epithelial mesenchymal transition (EMT) pathway but also genes associated with cancer metabolomics: examples include but are not limited to platelet derived growth factor alpha (PDGFR α), hypoxia inducible factor 1 alpha (HIF1 α), transforming growth factor β 1 (TGFB1) and solute carrier family 38 member 2 (SLC38A2). ICC using cell line models was used to determine the percentage of cells expressing proteins of interest to demonstrate that these up-regulated genes were functional.

Conclusion: This is the first report using single-cell RNA sequencing in thyroid cancer to show that genes associated with cancer progression were significantly up-regulated in MSCs from papillary thyroid cancer compared to 'normal' tissue. Targeting these cells therapeutically may have clinical benefits in poorly differentiated / undifferentiated thyroid cancer.

Disclosure of Interest: None declared

PE125

EXTERNAL VALIDATION OF A PROGNOSTIC MODEL FOR THE PREDICTION OF 3-YEAR MORTALITY AND TUMOR RECURRENCE IN PATIENTS UNDERGOING SURGERY FOR PANCREATIC NEUROENDOCRINE NEOPLASMS

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Introduction: Kaltenborn et al. proposed two models for the prediction of 3-year survival and tumor recurrence risk after pancreatic resection for pancreatic neuroendocrine tumor (pNET) as published in J. Surg. Oncol. 2016. These prognostic models have not yet been validated externally.

Materials & Methods: The logits proposed by Kaltenborn et al. (2016) for the prediction of 3-year survival ($-12.492 + (0.054 \times \text{preoperative platelet count in thousand}/\mu\text{l}) + (0.112 \times \text{minimal distance of the resection margin from the tumor in mm}) + (-1.574 \times \text{number of positive lymph nodes}) + (2.292 \times \text{histological tumor infiltration, if yes} = 1; \text{ if no} = 0)$) and tumor recurrence risk ($-4.360 + (0.015 \times \text{tumor diameter in cm}) + (0.010 \times \text{preoperative platelet count in thousand}/\mu\text{l}) + (1.077 \times \text{distant metastases, if yes} = 1; \text{ if no} = 0) + (-0.026 \times \text{Ki-67-positive cells in } \%) + (-1.086 \times \text{upper abdominal pain, if yes} = 1; \text{ if no} = 0)$) were deployed for external validation using ROC curve analysis in a cohort from Graz, Austria (n = 42; male: 40.5%, female: 59.5%; 3-year mortality: 7.1%; tumor recurrence rate: 35.9%) in compliance with the TRIPOD statement (2015).

Results: ROC curve analysis revealed an AUROC (area under the receiver operating curve) = 0.469 for the prediction of 3-year survival and an AUROC = 0.706 for the prediction of tumor recurrence in the cohort from Graz, Austria.

Conclusion: The proposed prognostic model for the prediction of 3-year survival could not be externally validated in Graz but the proposed model for the prediction of tumor recurrence could be externally validated in Graz and can thus now be introduced into clinical practice.

Disclosure of Interest: None declared

PE126

TFF3, MINDIN AND DCR3 EXPRESSION IN SMALL INTESTINAL NEUROENDOCRINE PRIMARY TUMOURS HAS A NEGATIVE IMPACT ON SURVIVAL

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Introduction: Small intestinal neuroendocrine tumours (SI-NETs) are the most common of small bowel malignancies with an annual incidence of about 1 per 100 000. Patients are usually diagnosed when the tumour has metastasised but survival is still relatively favourable for most patients. However, accurate prognostication is challenging and patients with seemingly similar tumours have variable outcomes. The aim of this study is to identify prognostic expression patterns in immunohistochemistry for SI-NET tumours in primary and metastatic SI-NETS.

Materials & Methods: We retrieved paraffin-embedded tumour tissue samples from 41 patients operated at different hospitals for SI-NET in Sweden during the years 1960-2001. Immunohistochemical expression patterns (for chromogranin A, synaptophysin, TFF3, Mindin and DCR3) were graded 0-4 and compared to clinical data and survival. The Ki-67 index was calculated and presented as a WHO grade (G1-G3). Cluster analysis of all stains with k-means clustering was calculated for all immunohistochemistry results.

Results: G2 grade tumours had significantly higher expressions of TFF3 and Mindin, but not DCR3, than G1 tumours.

Interestingly, cluster analysis revealed a separate cluster of primary tumours with low TFF3 expression, tied to decreased survival.

Conclusion: Metastatic disease in SI-NET patients seems to be linked to increased proliferative activity and increased immunochemistry expressions of TFF3 and Mindin in the primary tumours. The interesting finding of low TFF3 in a cluster of primary tumours with poor outcome warrant further studies with a larger cohort of patients.

Disclosure of Interest: None declared

PE127

MINIMALLY INVASIVE ADRENALECTOMY: CAN SURGICAL APPROACH BE TAILORED ON PATIENT CHARACTERISTICS?

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Introduction: Minimally invasive adrenalectomy is the gold standard treatment for most adrenal diseases. Several minimally invasive approaches to adrenalectomy are available: laparoscopic lateral transabdominal adrenalectomy (LTA), posterior retroperitoneoscopic adrenalectomy (PRA), robot-assisted adrenalectomy (RAA). Each approach has peculiar advantages and drawbacks. We aimed to compare the outcomes of LTA, PRA and RAA in a high-volume Center to evaluate whether there are patient/lesion characteristics for whom a specific surgical approach would be preferable.

Materials & Methods: Among a consecutive series of 868 adrenalectomies performed at a single third-care referral Center (January 1997-December 2021), all the patients undergoing unilateral minimally invasive adrenalectomy were considered. Preoperative data, hormonal status, operative time (OT), postoperative complications, and postoperative stay (POS) were compared.

Results: Six-hundred and six unilateral minimally invasive adrenalectomy were included: 309 TLA, 198 PRA and 99 RAA (lateral transabdominal). Median age, gender, lesion side and hormonal status were comparable between the 3 groups (p=NS). The mean preoperative BMI was higher in RAA (29.99 ± 5.52 vs 28.37 ± 8.22 vs 26.03 ± 7.22 kg/m², respectively for RAA, TLA and PRA) (p=0.049). The mean lesion size was significantly smaller in PRA-group (47.50 ± 19.27 vs 50.12 ± 26.37 vs 31.57 ± 14.07 mm, respectively for RAA, TLA and PRA) (p<0.001). No significant differences were found between the three groups in terms of postoperative complications (9, 5 and 3 complications with a Dindo-Clavien grade by 2, respectively for TLA, PRA and RAA) (p=NS). The mean OT was longer in RAA (97.53 ± 47.75 vs 75.23 ± 37.85 vs 67.37 ± 47.72 minutes, respectively for RAA, TLA and PRA) (p<0.001). The POS was similar between the three groups (p=NS).

Conclusion: In our experience, TLA, RAA and PRA were comparable in terms of perioperative outcomes. The quite low complication rate of the series (<3%), is probably due also to the Center strict selection criteria. Our data suggest that surgical approach should be tailored on patient/lesion characteristics. TLA and RAA should be chosen in case of lesions size ≥ 6 cm. RAA should be preferable in challenging cases (obese patients and/or large size lesions). PRA is indicated in the case of small adrenal lesion (≤ 6 cm). In the grey zones, the surgeon's technical expertise should be the guide for the best surgical approach.

Disclosure of Interest: None declared



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