**DVD01 (14:00-14:08: 15.11.19)**

**TRANSANAL MINIMALLY INVASIVE SURGERY (TAMIS) MESH REMOVAL**

**Presenter:** M Okocha
**Author(s):** M Okocha[1,2], K Gash[1], K McCarthy[1]
**Institution:** [1]North Bristol NHS Trust, United Kingdom. [2]Severn Deanery, Bristol, United Kingdom

**Aims:** As TAMIS procedures become more widely accessible new exciting techniques are developed. Evidence shows that 10-27% of patients with Ventral Mesh Rectopexy (VMR) develop Mesh erosion. We present the first described case of TAMIS mesh removal post VMR, to circumvent the significant risks (including rectal perforation) associated with laparoscopic approach.

**Methods:** A 65-year-old female who underwent a Laparoscopic VMR in 2011 for internal prolapse and obstructive defaecation, presented 7 years later with rectal bleeding and faecal incontinence. Mesh erosion was confirmed on Sigmoidoscopy and diagnostic laparoscopy. Patient was discussed at pelvic MDT and decision was made for TAMIS approach.

**Results:** TAMIS mesh excision was successfully carried out and the defect was closed with a 3-0 monocryl V-lock suture. The defect had reduced by follow up endoscopy at 3 months and patients Quality of life scores (EQ5D) demonstrated 2 domain improvement.

**Conclusion:** Mesh removal following erosion can be extremely difficult, and protecting the patient from further complications is paramount. A TAMIS approach can be performed safely, as a day case and leads to significant improvements to a patients QALY.

**Key statement:** As access to TAMIS increases its benefits in dealing with post-operative complications must be considered. In this case we present the first case of TAMIS mesh removal in which a successful partial excision of mesh was completed with demonstrated improvement at 3-month follow up.

**DVD02 (14:08-14:16: 15.11.19)**

**LAPAROSCOPIC PARADUODENAL HERNIA REPAIR**

**Presenter:** M Elniel
**Author(s):** M Elniel, Dr O Abbassi, Mr Z Khan
**Institution:** Furness General Hospital, Barrow-In-Furness, United Kingdom

**Aims:** Paraduodenal hernia (PDH) is a rare condition which may potentially lead to closed-loop bowel obstruction; the consequences of this are potentially catastrophic if not diagnosed and managed adequately. We present a rare case of a PDH causing a closed-loop bowel obstruction with accompanying video footage of laparoscopic repair.

**Methods:** We present a 36-year-old male with a history of recurring lower abdominal pain over a period of 2 years with no positive findings on both endoscopic and outpatient radiological investigation. A CT performed for an episode of acute abdominal pain showed appearances of a possible left PDH.

**Results:** Resolution of symptoms occurred with conservative management, subsequently successful laparoscopic PDH repair was undertaken.

Internal hernias have an incidence of 1%, causing 0.5%-5.8% of all cases of intestinal obstruction.

Our video footage demonstrates complete laparoscopic suture repair of a left PDH with suture repair of the fossa of Landzert.

**Conclusion:** The diagnosis and management of internal hernias remains challenging. Missed diagnoses can lead to the negative sequelae of intestinal obstruction. As a result early diagnosis and surgical management are imperative. From the limited data available, laparoscopic repair of PDH appears to be have satisfactory outcomes.

**Key statement:** The clinician should consider a diagnosis of internal hernia in patients with vague symptoms of abdominal pain and negative investigations.

**DVD03 (14:16-14:24: 15.11.19)**

## LAPAROSCOPIC PANCREATIC NECROSECTOMY WITH ROUX-EN-Y PANCREATICO-CYSTJEJUNOSTOMY AND CONCOMITANT CHOLECYSTECTOMY

**Presenter:** N Ghandi
**Author(s):** N Gandhi, I Bhatti, A Awan
**Institution:** Royal Derby Hospital, United Kingdom

**Aims:** Acute severe pancreatitis complicated by necrosis can be challenging to manage. Minimally invasive strategies to deal the problem have shown promise, however are not applicable to all being limited by anatomical configuration of the collection.

**Methods:** We present a case on the condition, the merits and limitations of the various interventions available, along with a proposed technique, laparoscopic roux-en-y pancreatico-cystjejunostomy which allows necrosectomy and internal drainage as a single definitive procedure.

**Results:** The patient had single stage management of complex sequelae of severe pancreatitis and underwent a laparoscopic pancreatic necrosectomy with Roux-en-Y pancreatico-cystjejunostomy and concomitant cholecystectomy (total operative time of 290 minutes). The patient had a 5 day stay in hospital and was discharged without any complications.

**Conclusion:** Laparoscopic pancreatic necrosectomy with primary Roux-en-Y pancreatico-cystjejunostomy and concomitant cholecystectomy is a definitive and safe operative option. This minimally invasive approach is an alternative to the noninvasive methods traditionally conducted when the latter is ineffective and inaccessible.

**Key statement:** Early experience in multiple centres has shown excellent post-operative outcomes and a laparoscopic approach will further reduce the insult of intervention in already physiologically deplete patients. This is a valid alternative procedure to debride and drain walled off necrosis, used specifically in patients with central solid infra colic collections.

**DVD04 (14:24-14:32: 15.11.19)**

**LAPAROSCOPIC MANAGEMENT OF BOUVERET'S SYNDROME: A CASE REPORT**

**Presenter:** B Moshy
**Author(s):** B Moshy, Mr K Ray, Mr K Singh
**Institution:** BSUH, Brighton, United Kingdom

**Aims:** In this presentation we highlight the case of a patient with Bouverets syndrome, where a 'giant gallstone' was laparoscopically extracted from the duodenum with a novel technique. We aim to explore the unique case and describe the laparoscopic procedure undertaken with comparison to the reported literature.

**Methods:** An overview of Bouveret's syndrome is provided with a review of the available literature. Then the case of an elderly gentleman with morbid obesity and a giant gallstone is presented. Subsequently, laparoscopic footage of the case is displayed and analysed, with comparison to the surgical techniques currently reported.

**Results:** This case displays that laparoscopic 1 stage procedures for management of Bouverets are an effective surgical strategy for patients with a high BMI where an open procedure would be contraindicated. Additionally, fistula incorporation into pylorplasty can be successfully employed with a good outcome.

**Conclusion:** We conclude that the case represents a unique surgical management strategy that has not been previously described, and contend that laparoscopic management of Bouverets is effective.

**Key statement:** This was only the third reported laparoscopically managed case of Bouverets. It demonstrates novel surgical repair of a rare condition in a poor surgical candidate. Laparoscopic footage from the operation clearly displays the procedure and the patient's outcome supports the conclusion of its effectiveness.

**DVD05 (14:32 – 14:40: 15.11.19)**

**ROBOTIC MULTIVISCERAL RESECTION FOR LOCALLY ADVANCED RECTAL CANCER**

**Presenter:** S Stefan
**Author(s):** S Stefan, E Rawlinson, S Naqvi, K Flashman, J Khan
**Institution:** Queen Alexandra Hospital, Portsmouth, United Kingdom

**Aims:** 10-15% of rectal cancers at presentation are locally advanced with invasion in to adjacent organs. R0 resection remains the key to a successful outcome. However, the lack of tactile feedback and limited access makes laparoscopy a difficult proposition in such cases.

**Methods:** We aim to submit a video of case of T4 rectal cancer with invasion in to the bladder, uterus, colon and small bowel, successfully managed by Robotic TME.

**Results:** A single docking fully robotic TME and hysterectomy and BSO alongside small bowel resection was carried out with partial cystectomy. the histology was T4b N0 R0 and the length of stay was 5 days without nay grade III/IV complications.

**Conclusion:** This case demonstrated the ability of robotic platforms to be used for advanced cancers and some tips and tricks that surgeons can use in such situations.

**Key statement:** Robotic multivisceral resection of locally advanced rectal cancers is safe and feasible.

**DVD06 (14:43-14:48: 15.11.19)**

**LAPAROSCOPIC TREATMENT OF BOUVERET'S SYNDROME**

**Presenter:** N Muhibullah
**Author(s):** N Muhibullah, S Awad
**Institution:** Royal Derby Hospital, Derby, United Kingdom

**Aims:** Bouveret's syndrome is rare complication <0.5% of cholelithiasis causing gastric outlet obstruction. Most patients are often older and have multiple co morbidities. Management of this rare condition is often controversial. We aim to describe a case that had laparoscopic gastronomy for extraction of large stone impacted in duodenum.

**Methods:** 70-year-old lady presented to emergency department with generalized abdominal pain and vomiting for one day. Her past medical history includes breast cancer and obesity. Physiologically she was stable. Blood test showed normal inflammatory markers and deranged liver function test. CT scan showed large impacted stone in duodenum.

**Results:** She had unsuccessful endoscopic attempt to retrieve stone and therefore underwent emergency laparoscopic gastrotomy and had extraction of large stone impacted in D1. She made good post-operative recovery.

This video showed laparoscopic gastrotomy and extraction of large stone impacted in D1.

**Conclusion:** Various therapeutic options described in literature for management of Bouvere's syndrome. Common surgical options are laparotomy
with gastrotomy/pylorotomy/duodenatomy proximal to obstruction or bypass procedures with or without cholecystectomy. Open surgical management is associated with high morbidity and mortality. In our experience laparoscopic approach has better outcome.

**Key statement:** In cases of unsuccessful endoscopic removal laparoscopic extraction should be considered as treatment of choice where expertise available.

**FP01 (09:10- 09:20: 15.11.19)**

## EFFICACY OF INTRAPERITONEAL INSTILLATION OF BUPIVACAINE AFTER BARIATRIC SURGERY: RANDOMIZED CONTROLLED TRIAL

**Presenter:** I Omar
**Author(s):** I Omar[1,2]
**Institution:** [1]Furness General Hospital, Cumbria, United Kingdom. [2]King Hamad University Hospital, Muharraq, Bahrain

**Aims:** To assess the efficacy of intraperitoneal instillation of bupivacaine after bariatric surgery.

**Methods:** A hundred patients who underwent bariatric procedures were divided into two groups randomly, 50 each. Group-I had intraperitoneal instillation of (40 ml-bupivacaine-0.25%) at the end of surgery. Group-II had normal saline instillation. We monitored pain in the first 24-h postoperative using (VAS), opioid usage, (PONV), and shoulder tip pain.

**Results:** Pain scores were significantly lower in group-I compared to group-II at recovery, 2, 4 and 6 h after surgery. Additionally, there was a significant difference regarding the need for rescue analgesia at recovery with a lower overall morphine consumption via PCA in group I compared to group II.

**Conclusion:** Intraperitoneal instillation of bupivacaine provides a good analgesia in the early postoperative period, reduces the
overall consumption of opioid, and decreases the rescue analgesia requirement in the first 24 h after surgery.

**Key statement:** Intraperitoneal instillation of bupivacaine. Bariatric surgery. Sleeve gastrectomy. Gastric bypass. Mini gastric bypass. Local anesthetic instillation. IPLAI. Postoperative analgesia.

**FP02 (09:20-09:30: 15.11.19)**

## RECURRENCE OF COMMON BILE DUCT STONES FOLLOWING LAPAROSCOPIC COMMON BILE DUCT EXPLORATION: A MULTICENTER STUDY

**Presenter:** S Park
**Author(s):** S Park[1], TH Hong[2], IY Park[3], SK Lee[4], TH Kim[5]
**Institution:** [1]Department of General Surgery, Yeouido St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea. [2]Department of Hepatobiliary and Pancreas Surgery, Seoul St. Mary's Hospital, College of Medicine, Republic of Korea. [3]Department of Surgery, Bucheon St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea. [4]Department of Surgery, Daejeon St. Mary's Hospital, The Catholic University of Korea, College of Medicine, Republic of Korea. [5]Division of Gastroenterology, Department of Internal Medicine, Wonkwang University Medical School and Hospital, Iksan, Republic of Korea.

**Aims:** Recurrence of primary common bile duct stone (CBDS) occurs after laparoscopic common bile duct exploration (LCBDE). This study aimed to investigate risk factors for the recurrence of primary stones after LCBDE.

**Methods:** Patients who underwent LCBDE between January 2001 and December 2018 in 4 teaching hospitals of South Korea were included. Operation, fluoroscopy, and ERCP records were investigated retrospectively, and the primary outcome was recurrence of CBDS. Multivariate logistical regression was performed to identify independent risk factors for recurrence of CBDS.

**Results:** The study included 230 patients, 31 of whom had recurrence. CBDS size (>9 mm) (adjusted odds ratio [AOR] 4.28, 95% confidence interval [CI] 1.40-13.07, p=0.011), CBD dilatation (≥10 mm) (AOR 5.85, 95% CI 1.69-20.34, p=0.005), and prior history of LC (AOR 3.50, 95% CI 1.31-9.35, p=0.013) were associated with recurrence.

**Conclusion:** Stone size, CBD dilatation, and prior history of LC were risk factors for recurrence of CBDS, and this warrants close monitoring after operation.

**Key statement:** Laparoscopic Surgical Procedure; Biliary Calculi; Common Bile Duct; Recurrence; Endoscopes; Bile.

**FP03 (09:30-09:40: 15.11.19)**

## META-ANALYSIS OF MEDIAL-TO-LATERAL VERSUS LATERAL-TO-MEDIAL COLORECTAL MOBILISATION DURING LAPAROSCOPIC COLORECTAL SURGERY

**Presenter:** R Mankotia
**Author(s):** R Mankotia[1], S Hajibandeh[2], S Hajibandeh[1]
**Institution:** [1]Sandwell and West Birmingham Hospitals NHS Trust, Birmingham, United Kingdom. [2]Glan Clwyd Hospital, Rhyl, United Kingdom

**Aims:** The best approach for laparoscopic colorectal resection is controversial. We aimed to evaluate comparative outcomes of medial-to-lateral and lateral-to-medial colorectal mobilisation in patients undergoing laparoscopic colorectal surgery.

**Methods:** We conducted a systematic search of electronic databases and bibliographic reference lists. Perioperative mortality and morbidity, procedure time, length of hospital stay, rate of conversion to open procedure, and number of harvested lymph nodes were the outcome parameters. Combined overall effect sizes were calculated using fixed-effect or random-effects models.

**Results:** Eight studies were included. Medial-to-lateral approach was associated with significantly lower rate of conversion to open, shorter procedure time and hospital stay compared to lateral-to-medial approach. However, there was no significant difference in mortality, overall complications, wound infection, anastomotic leak, bleeding, and number of harvested lymph nodes between two groups.

**Conclusion:** The medial-to-lateral approach during laparoscopic colorectal resection may reduce procedure time, length of hospital stay and conversion to open procedure compared to the lateral-to-medial approach. Moreover, it may probably reduce overall perioperative morbidity. However, both approaches carry similar risk of perioperative mortality and have comparable ability to harvest lymph nodes.

**Key statement:** The best available evidence may not be sufficient to convince surgeons to change their preferred approach. Future randomised studies may provide stronger evidence in favour either approach. We encourage future research to evaluate the impact of patient's BMI on the clinical outcomes of each approach.

**FP04 (09:40- 09:50: 15.11.19)**

## THE EFFECTIVENESS OF NISSEN FUNDOPLICATION IN PATIENTS WITH RESPIRATORY MANIFESTATIONS OF GASTROESOPHAGEAL REFLUX DISEASE

**Presenter:** M Paranyak
**Author(s):** M Paranyak, V Grubnyk
**Institution:** Odessa National Medical University, Odessa, Ukraine

**Aims:** According to the scientific literature, the effectiveness of surgical treatment of patients with respiratory manifestations of gastroesophageal reflux disease (GERD) is not clear. The aim of this study was to compare conservative and surgical treatment of patients with cough as an extraesophageal manifestation of GERD.

**Methods:** Sixty-six GERD patients with chronic cough were enrolled and divided into two groups. Group I included 41 patients, who underwent Nissen fundoplication and group II - 25 patients who received proton pomp inhibitors therapy. The results were assessed using visual analogue scale for frequency and intensity of cough, GERD-HRQL questionnaire.

**Results:** After a median follow-up of 29 months, patients who underwent surgery to compare with proton pomp inhibitors therapy group had more significant decrease in frequency and intensity of cough ($p < 0.001$). The quality of life was significantly better in the I group 5.9 ± 0.5 vs 10,4±1,7 ($p < 0.001$).

**Conclusion:** This study demonstrates that laparoscopic Nissen fundoplication comparing to proton pomp inhibitors therapy have more significant impact on improvement of respiratory manifestations of GERD.

**Key statement:** In patients whose extraesophageal manifestations are caused by non-acid reflux conservative treatment may not be effective. The effectiveness of laparoscopic Nissen fundoplication in patients with gastroesophageal reflux-related cough is stable, while the effect of conservative therapy is highest in the first 6 months of treatment and gradually decreases over time.

**FP05 (15:10-15:20: 15.11.19)**

## EFFICIENCY OF THE ROBOTIC PLATFORM IN SPHINCTER PRESERVATION IN PATIENTS WITH LOW RECTAL CANCER

**Presenter:** T Petropoulou, S Amin
**Author(s):** T Petropoulou, S Amin
**Institution:** Sheffield Teaching Hospitals, United Kingdom

**Aims:** The aim of this study is to investigate whether the robotic platform can have a positive impact in sphincter preservation in pts with low rectal tumours, undergoing robotic TME, in comparison with laparoscopic or open TME.

**Methods:** A prospectively collected robotic database was reviewed and compared with the trust data. This includes all rectal resections which were performed with the robotic platform, over a period of 4 years, versus the trust data for the same period.

**Results:** 270 patients were analysed. Groups were matched for distance from the anal verge. Demographics for the groups (sex, age, BMI) were similar.

The percentage of APER rate was significant less in the robotic group (11% vs 43%, $p<0.001$). Specimen quality (TME grade, depth of mesocolon, LN harvested) was better too.

**Conclusion:** Robotic surgery for rectal cancer is safe and feasible, and could help surgeons perform ultra- low rectal resections, rather than APER's and save patients sphincters. CRM (+) rate is low, which could lead to improved oncological outcomes.

**Key statement:** Robotic technology is very promising in improving its outcomes and increase the adoption of MIS in the group of difficult patients.

**FP06 (15:20-15:30: 15.11.19)**

## CME WITH D3 LYMPHADENECTOMY: SURGICAL TECHNIQUE OVERCOMING SURVIVAL DISCREPANCY OF COLONIC TUMOUR SIDEDNESS IN THE ADJUVANT SETTING

**Presenter:** H Park
**Author(s):** H Park, SJ Baek, JM Kwak, J Kim, SH Kim
**Institution:** Korea University Anam Hospital, Seoul, Republic of Korea

**Aims:** Whether tumour sidedness had an effect on survival after complete mesocolic excision (CME) with D3 lymphadenectomy in our patients who underwent adjuvant chemotherapy for stage II & III colon cancers as the literature suggests that right colonic cancers fair worse with poorer survival rates regardless of stage or treatment type.

**Methods:** n=584 adjuvant chemotherapy for stage II & III colon cancer (prospectively collected database 2006-2015). CME with D3 lymphadenectomy. Right (n=282. Cecum, ascending, hepatic flexure and transverse colon), left (n=302, splenic flexure, descending, sigmoid colon). 5-year overall survival, systemic and local recurrence free survival rates compared between the two groups.

**Results:** Median f/u 60/12. Right: larger tumor size (5.42vs2.98cm), more advanced pT stages (pT3 and T4; 96.8%vs90.1%), higher retrieved LNs (33vs26), more 30-days postop complications, (ileus 7.4%vs3.0%). No difference in 5-year OS (85.8%vs88.6%), disease free survival (83.4%vs85.0%), local recurrence free survival (97.5%vs98.5%), and systemic recurrence free survival (85.9%vs87.0%).

**Conclusion:** Our data has shown no difference in oncological outcome between right and left colonic cancer resections when Complete Mesocolic Excision with D3 lymphadenectomy was performed in the adjuvant chemotherapy setting for stage II & III colonic cancers.

**Key statement:** Our surgical resection plane for right colonic cancers involves removing the mesorectum with its lymphatic tissue up to its central vascular origin with high lymph node yields. Technique may have an impact on survival and surgical outcome as well as tumour biology.

**FP07 (15:30-15:40 (15.11.19)**

## HOW DOES LAPAROSCOPIC CONVERTED-TO-OPEN COLORECTAL SURGERY IMPACT LENGTH OF STAY IN HOSPITAL WHEN COMPARED TO OPEN AND LAPAROSCOPIC PROCEDURES?

**Presenter:** K McCormack
**Author(s):** K McCormack, O Komolafe
**Institution:** University Hospital Wishaw, Motherwell, United Kingdom

**Aims:** The benefits or laparoscopic surgery and their shorter hospital length of stays compared to open surgery for colorectal cancer are well known. However, there is little data on how 'laparoscopic-assisted' or 'converted-to-open' procedure outcomes are compared with regards to length of stay, which is the focus of this study.

**Methods:** Retrospective review of notes for all patients undergoing elective colorectal cancer resections across 3 district general hospitals between January 2016 and March 2018. The two criteria for Laparoscopic surgery: full mobilisation of the bowel, and division of major vessels prior to delivery of specimen. Laparoscopic-assisted met one, 'converted-to-open' met none.

**Results:** 41 patients underwent elective colorectal cancer resections. In 153 laparoscopic resections the median LOS was 6 days. This was shorter than in 85 laparoscopic-assisted procedures (8 days), 39 laparoscopic converted-to-open procedures (7 days), and 65 planned open procedures (10 days).

**Conclusion:** Even when colorectal cancer resections are unable to be completed with a laparoscopic approach, patients undergoing 'laparoscopic-assisted' or laparoscopic 'converted-to-open' surgery have a shorter median length of stay when compared to planned open colorectal cancer surgery.

**Key statement:** Criteria of what constitutes a 'laparoscopic-assisted' or 'converted-to-open' procedure is poorly defined. With clear differences in median length of stay seen when sub-dividing this data set, further work in this field may unearth more results which may improve post-operative colorectal cancer surgery patient outcomes.

**FP08 (15:40-15:50: 15.11.19)**

**TME FOR RECTAL CANCER: CAN HIGH VOLUME CENTERS SHOW THE DIFFERENCE NOT OBSERVED IN ROLARR**

**Presenter:** S Stefan
**Author(s):** S Stefan, M Rutgers, S Naqvi, F Sagias, J Khan
**Institution:** Queen Alexandra Hospital, Portsmouth, United Kingdom

**Aims:** We aim to analyse prospective data for robotic TME and compare the outcomes of a high-volume single centre with the recently published ROLARR trial.

**Methods:** All rectal cancers operated using the DaVinci Si Surgical platform at our institute between 05.2013-05.2017 were included. Data for patient demographics, tumour staging, operative time, length of stay, postoperative complications, pathology, morbidity, mortality was collected from a prospective database.

**Results:** Median LOS=6days (3-48). Local recurrence=1 patient, 3had both local&distal metastasis. Overall 3-year survival=94.5% and 3 year DFS=87%

| | Local | ROLARR |
|---|---|---|
| Total | 201 | 236 |
| Male | 139 | 161 |
| Age | 70 | 64.4 |
| APER | 20(9.9%) | 52(22%) |
| Op.time | 240min | 298.5min |
| LN | 19.7 | 23 |
| R1 | 14(6.9%) | 12(5.1%) |
| leak | 3/181(1.6%) | 22/180(12.2%) |

**Conclusion:** ROLARR has shown a non-inferiority of robotic approach as compared to laparoscopy. With increasing experience of surgeons the results of robotic surgery will show improved outcomes to make this the approach of choice in rectal cancer patients.

**Key statement:** Although robotic platform gives enhanced views and better access yet high costs have remained a concern. In the recently concluded ROLARR trial there was no oncological differences between laparoscopic and robotic arms, however increasing the experience of robotic surgeon can lead to better outcomes and lower costs.

**P01**

## IS SMOKING COMPATIBLE WITH COLORECTAL ENHANCED RECOVERY AFTER SURGERY: 1 YEAR REVIEW

**Presenter:** TE Jichi
**Author(s):** TE Jichi, M Okocha, N Browning, W Shafiq, H Sumerian
**Institution:** North Bristol Trust, United Kingdom

**Aims:** To demonstrate the relation between smoking and length of hospital stay in Enhanced Recovery after Surgery (ERAS) patients, who underwent elective major colorectal surgery in a tertiary referral centre - North Bristol NHS Trust – (NBT).

**Methods:** Prospective review of data collected from ERAS patients who had elective colorectal resection between January 2017 and January 2018. Outcomes collected included, type of surgery, open or laparoscopic +/- conversion, and length of hospital stay. Smoker and non-smoker groups were compared in terms of post-operative length of stay.

**Results:** Mean age of smokers was 62, range 30-86. Mean age of non-smokers was 66, range (19 -93). All smokers were advised to stop smoking prior to surgery. Of the 200 patients 49 were smokers, 151 non-smokers. Mean length of hospital stay for smokers was 6.81 and non-smokers was 7.13 days.

**Conclusion:** Smokers remain a challenging group in terms of compliance and the majority of patients who are advised to stop smoking prior to surgery did not. Although smokers seemed to mobilise early postoperatively, that did not translate into a reduction of hospital stay.

**Key statement:** Although smokers seemed to mobilise early postoperatively, that did not translate into a reduction of hospital stay.

**P02**

## ESTABLISHING ABSOLUTE IDA BEFORE REFERRING PATIENTS TO CR FT CLINICS CAN INCREASE THE YIELD OF THE BOWEL CANCER SCREENING PROGRAMME

**Presenter:** J Allans
**Author(s):** T Majeed, J Allans
**Institution:** Wirral University Teaching Hospital, United Kingdom

**Aims:** To compare the cancer yield in patients with IDA and other form of anaemia. By establishing association between cancer and certain type of anaemia, we can identify high risk patients who can then be preferentially subjected to investigations mandated by guidelines to increase the diagnostic yield of FT CRC clinics.

**Methods:** A retrospective cohort study was conducted from 2016-18 in a single busy district general hospital providing services to a population of 700,000 people.

**Results:** In our study, patients with true IDA (low MCV and ferritin) were found more likely to have CRC compared to other types of anaemia confirming the latest guidelines for management of IDA.

**Conclusion:** Physicians should be able to stratify patients based on blood indices when referring them to FT CRC clinics. Diagnostic yield of these clinics can be increased if clinicians strictly adhere to fast track guidelines and confirm true IDA before referring patients to clinic.

**Key statement:** There are strict guidelines for referring patients with IDA to FT CRC clinics for further assessment and investigation, patients with other types of anaemia are still referred by primary care physicians in the UK regardless of confirmation of IDA resulting in low yield of cancer clinics.

**P03**

**LAPAROSCOPIC APPENDICECTOMY CAN BE PERFORMED SAFELY AND ECONOMICALLY WITH THE USE OF POLYMER (HEM-O-LOK, HOL) CLIPS**

**Presenter:** VS Kolli
**Author(s):** VS Kolli, J Walker, A Lala, N Abdullah, G Whiteley
**Institution:** Ysbyty Gwynedd, Bangor, United Kingdom

**Aims:** This retrospective study reports our practice of appendicectomy using HOL only for both the stump and mesoappendix.

**Methods:** Emergency LA performed from July 2017 to Oct 2018 were reviewed for age, gender, operative time(OT), Length of stay(LOS), WCC, CRP, Bilirubin, histopathology, complication and readmission rate. Statistical analysis performed using Mann-Whitney or *x2* test.

**Results:** Of 134 LA, 66 had HOL only and 68 had other techniques (NonHOL). There was no difference in median age, sex, BMI, WCC, complication or readmission rate.

| | **HOL** | **NonHOL** | **p Value** |
|---|---|---|---|
| ***n*** | 66 | 68 | |
| **Age (years)** | 25 | 29 | 0.213 |
| **BMI (Kg/m2)** | 26 | 30 | 0.329 |
| **WCC (x 1012/L)** | 11.9 | 12.5 | 0.880 |
| **CRP (mg/L)** | 13 | 44 | 0.006 |
| **Operative time (min)** | 70.5 | 75 | 0.384 |
| **Postoperative LOS (days)** | 1.25 | 1.8 | 0.151 |
| **Total LOS (days)** | 2.35 | 2.85 | 0.041 |

**Conclusion:** LA can be performed safely using HOLclips only for both the appendiceal stump and mesoappendix. HOLclip application is safe, quick, easy and economical. HOLclips are non-energy devices and hence eliminate thermal injury. We conclude that HOLclip application is not inferior to other methods and in fact may be superior.

**Key statement:** Laparoscopic appendicectomy can be performed safely and economically with the use of polymer clips.

**P04**

## ROLE OF BILE ACIDS IN BILE IN THE DEVELOPMENT OF ACUTE CHOLANGITIS

**Presenter:** V Vovk
**Author(s):** V Vovk
**Institution:** Regional Clinical Hospital, Kharkiv, Ukraine

**Aims:** Definition of the trigger mechanism for the development of acute cholangitis during biliary tract obstructions.

**Methods:** Changes in the concentration of bile acids in the bile of the common bile duct have been analyzed, and these results are compared with the parameters of internal pressure in the common bile duct in the presence or absence of acute cholangitis with mechanical jaundice.

**Results:** During mechanical jaundice without acute cholangitis, the bile acids concentration was significantly increased, and the common bile duct internal pressure increased slightly. In mechanical jaundice with manifestations of acute cholangitis it revealed significant reduction of hydrophobic bile acids concentration and a significant increase of the common bile duct internal pressure.

**Conclusion:** Biliary hypertension is caused by increased exudation of biliary tract epithelium under the influence of cytotoxic action of high concentrations of hydrophobic bile acids. Increased exudation of the biliary epithelium leads to biliary hypertension and to decrease in concentrations of hydrophobic bile acids, resulting in weakening of the bile antibacterial properties.

**Key statement:** Changes in the concentrations of cholic and chenodeoxycholic bile acids in bile during biliary tract obstruction contribute to the emergence of the main pathogenic components of acute cholangitis – biliary hypertension and the development of infection.

**P05**

## ENDOSCOPIC DUODENO-CHOLEDOCHOSTOMY

**Presenter:** V Vovk
**Author(s):** V Vovk[1], V Boyko[2], V Hroma[2]
**Institution:** [1]Regional Clinical Hospital, Kharkiv, Ukraine. [2]V.T. Zaytsev Institute of General and Emergency Surgery, Kharkiv, Ukraine

**Aims:** Creation of bile offtake into the duodenum with minimally invasive methods in case of obstruction of the distal part of common bile duct and failure of transpapillary interventions.

**Methods:** The anatomical relationships between the duodenum and the common bile duct in its distal parts have been studied. Also, the possibility of passing light through the walls of the common bile duct and duodenum by a light source introduced into the lumen of the common bile duct experimentally determined.

**Results:** The common bile duct and duodenum are in immediate proximity to each other without voids. The light source from the common bile duct is visualized from the lumen of the duodenum with varying intensity. The method of endoscopic light-oriented duodenal-choledochostomy has been developed and implemented.

**Conclusion:** The results of the endoscopic light-oriented duodeno-choledochostomy statistically do not differ from the endoscopic transpapillary drainage of common bile duct. Statistically significant better results were found in comparison with open biliodigestive anastomosis in all investigated parameters.

**Key statement:** Endoscopic light-oriented duodeno-choledochostomy can be successfully applied in cases of obstruction the distal part of the common bile duct.

**P06**

## A NOVEL DUAL-PHASE ACTIVATION DEPENDANT FOOT-SWITCH MECHANISM FOR SURGICAL ENERGY DEVICES AS AN ASSET IN EARLY SURGICAL TRAINING

**Presenter:** M Abbakar
**Author(s):** M Abbakar[1], A Eisawi[1,2], M Aung[3], R Canelo[3]
**Institution:** [1]York Teaching Hospital NHS, Scarborough, United Kingdom. [2]Torbay Hospital, Torquay, United Kingdom. [3]Cumberland Infirmary, Carlisle, United Kingdom

**Aims:** Human error contributes to the majority of adverse events in the operating theatre environment. Technology and medical device advancement have a potentially expanding role in enhancing patient safety. Developing in-house innovation may be crucial for the NHS. This device was developed to improve patient safety and enhance opportunities in training.

**Methods:** A dual controlled accessory electrical diathermy foot switch (*Permissive* diathermy foot switch or *PDf)* device is only activated if the senior surgeon and the novice surgeon simultaneously activate their interconnected footswitches. Allowing the senior surgeon to control the activation of diathermy(foot on) as well as deactivate it(off).

**Results:** The *PDf* was constructed as a final working and tested prototype in association with the medical engineering department at the North Cumbria NHS Trust. The device was tested on a non-biological model to determine efficacy and safety and passed its laboratory testing phase and was deemed ready for clinical use.

**Conclusion:** We demonstrated the feasibility and functionality of the *PDf* device and propose a positive role in surgical training especially in the context of early surgical training and specific circumstances where more control is needed.

**Key statement:** The activation of the *PDf* accessory footswitch device allows a senior surgeon to exert control on the 'initiation' of activation of diathermy devices operated by a novice surgeon (*foot on pedal*) as well as when desiring to deactivate device (*foot off pedal*).

**P07**

## SURGICAL SITE INFECTIONS: INCIDENCE AND IMPACT ON HEALTHCARE RESOURCES

**Presenter:** C Munday
**Author(s):** C Munday, A Khanna, A Singh
**Institution:** Milton Keynes University Hospital, United Kingdom

**Aims:** Surgical site infections (SSIs) are infections of the incision, organ or space occurring up to 30 days following surgery. 5% of patients develop SSIs. The aims are to identify incidence of SSIs in 2018, to recognise areas requiring improvement to reduce mortality/morbidity and to implement changes to decrease SSIs.

**Methods:** Retrospective data were collected on surgical patients that developed SSIs in 2018. Independent predictors of SSIs were evaluated including type of operation and use of intra/post-operative antibiotics. Consequences of SSIs were then reviewed involving wound swab utilisation, antibiotic duration, subsequent imaging/ further surgical intervention and prolongation of hospital stay.

**Results:** 3996 operations were performed. 58 SSIs were identified (incidence 0.015%). 79% received intraoperative antibiotics. 51% of patients had wound swabs taken. 11 patients had antibiotics prescribed according to sensitives. 30 readmissions, 12 further operations and 27 additional scans occurred. 143 extra bed days and 402 days of antibiotics were calculated.

**Conclusion:** More focused antibiotic prescribing is needed according to wound swab results and sensitivities. The duration/ indication for antibiotics and inclusion of SSIs on discharge summaries require improved documentation. Follow up of patients discharged is recommended to identify SSIs treated in the community, a potential source of bias in this study.

**Key statement:** The consequences of SSIs are multifactorial. Postsurgical infections lead to increased length in postoperative hospital stay, pose a heavy financial burden, cause higher rates of hospital admission and negatively impact upon health outcomes. Attention therefore to pre, intra, and post-operative risk factors are essential in reducing their incidence.

**P08**

## THE INTRODUCTION, EVOLUTION AND OUTCOMES OF LAPAROSCOPIC GENERAL SURGERY AT A TERTIARY REFERRAL CENTRE IN TANZANIA

**Presenter:** B Woodburn
**Author(s):** B Woodburn[1], A Hayes[2], D Light[2], K Chilonga[3], L Horgan[2]
**Institution:** [1]Newcastle University, Newcastle upon Tyne, United Kingdom. [2]Northumbria Healthcare Trust, North Shields, United Kingdom. [3]Kilimanjaro Christian Medical Centre, Moshi, United Republic of Tanzania

**Aims:** To look at the progress of laparoscopic surgery in Kilimanjaro Christian Medical Centre (KCMC) and its implications for patients and the practice of the local surgeons. I examined four key markers of successful laparoscopic surgery: conversion rates, complication rates, duration of the operation and the length of post-operative hospital stay.

**Methods:** KCMC theatre logbook data identified all laparoscopic cholecystectomies (LCs), laparoscopic appendicectomies (LAs) and diagnostic laparoscopies (DLs) since 2005. Data on demographics, diagnostics, operative details and outcomes collected from patients' medical records, was combined with a previously validated database from 2005-2014, providing a total of 785 included patients.

**Results:** Mean results found at KCMC were as followed:

| Outcome | LCs | LAs | DLs |
|---|---|---|---|
| Conversion Rates | 6.71% | 8.33% | 10.14% |
| Complication Rates | 14.1% - Significantly lower than open cholecystectomies (33.33%, p=0.001) | 10.0% | 4.35% |
| Operating Time (Minutes) | 87.43 | 80.50 | 85.67 |
| Length of Post-Operative Stay (Days) | 1.72 | 1.99 | 2.40 |

These were then compared to other previously published results from both Northumbria Healthcare Trust (NHCT) and other low- and middle-income countries (LMICs).

**Conclusion:** Over the past 15 years, laparoscopic surgery has been successful at KCMC, bringing them up-to-date and providing outcomes comparable to high income countries. KCMC proves that donating time, equipment and laparoscopic training to LMICs is valuable and sustainable.

**Key statement:** Laparoscopic surgery has many benefits over open surgery, but is scarcely used in LMICs. From 2004, NHCT surgeons have trained Tanzanian surgeons at KCMC to perform laparoscopic surgeries.

This is the largest laparoscopic audit in Sub-Saharan Africa (excluding South Africa). Previous related publications had little follow-up on later surgical success.

**P09**

## LAPAROSCOPIC TRANSCYSTIC VERSUS TRANS-DUCTAL COMMON BILE DUCT EXPLORATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

**Presenter:** R Mankotia
**Author(s):** R Mankotia[1], S Hajibandeh[2], S Hajibandeh[1]
**Institution:** [1]Sandwell and West Birmingham Hospitals NHS Trust, Birmingham, United Kingdom. [2]Glan Clwyd Hospital, Rhyl, United Kingdom

**Aims:** In view of existence of controversy regarding the most appropriate approach for laparoscopic common bile duct (CBD) exploration, we aimed to evaluate comparative outcomes of laparoscopic transcystic (TC) and trans-ductal (TD) CBD exploration.

**Methods:** We systematic searched MEDLINE; EMBASE; CINAHL; CENTRAL and bibliographic reference lists. CBD clearance rate, perioperative complications, and biliary complications were defined as the primary outcome parameters. Procedure time, length of hospital stay, conversion-to-open procedure were the secondary outcomes. Combined overall effect sizes were calculated using random-effects models.

**Results:** Thirty studies were included. The TC approach was associated with significantly lower overall complications biliary complications and blood loss compared to TD approach. Moreover, the TC approach significantly reduced procedure time and hospital stay. However, there was no significant difference in CBD clearance rate and conversion-to-open procedure between two groups.

**Conclusion:** Laparoscopic TC CBD exploration is safe and reduces overall and biliary complications compared to the TD approach. Moreover, it is associated with significantly shorter hospital stay and procedure time. We encourage surgeons to use the TC approach in the absence of known contraindications and presence of surgical expertise and facilities.

**Key statement:** The best available evidence may not be sufficient to convince surgeons to change their preferred approach. Future randomised studies may provide stronger evidence in favour either approach. We encourage future research to evaluate the impact of patient's BMI on the clinical outcomes of each approach.

**P10**

## LAPAROSCOPIC ADRENALECTOMY FOR LARGE ADRENAL MASSES: A SYSTEMATIC REVIEW OF THE LITERATURE ON FEASIBILITY AND SAFETY

**Presenter:** G Tan
**Author(s):** G Tan[1], M Chew[2], XE Chuang[3], KV Tay[3], T Ho[3]
**Institution:** [1]Nanyang Technological University Lee Kong Chian School of Medicine, Singapore, [2]National University of Singapore Yong Loo Lin School of Medicine, Singapore, [3]Tan Tock Seng Hospital, Singapore

**Aims:** Laparoscopic adrenalectomy (LA) is the standard technique for the excision of adrenal masses. As large adrenal masses (≥5.0 cm) were previously a contraindication for LA, the feasibility and safety of LA for such masses has not yet been determined, and this is what we aim to address in this study.

**Methods:** In July 2019, we conducted a systematic review of all studies involving LA of masses ≥5.0 cm. This was completed using Pubmed, Embase, Cochrane Library and ScienceDirect. Data selection and quality assessment were performed by two reviewers independently. No meta-analysis was conducted due to heterogenous clinical background and data.

**Results:** From the 485 LAs reviewed, most masses were benign, and the most common masses were pheochromocytomas. The average mass size, operating time, blood loss and post-operative hospitalization periods were 9.39 cm, 143.67 minutes, 103.04 ml and 3.22 days respectively. Few cases involved complications (8.87%) or conversions to open adrenalectomy (1.24%).

**Conclusion:** The general trend found in the studies reviewed showed that LA is a feasible and safe procedure for uncomplicated large adrenal masses. Compared to open adrenalectomies, LA is associated with fewer complications and lower post-operative morbidity, as well as shorter post-operative hospitalization periods.

**Key statement:** LA is a feasible and safe approach for the removal of large adrenal masses. Since the inception of LA for the treatment of adrenal masses, advances in LA has negated the relative contraindication for its use in large masses. Hence, LA should be indicated for large uncomplicated adrenal masses.

**P11**

## FEASIBILITY STUDY OF SAFETY AND COST EFFECTIVENESS OF USING JOHAN FORCEPS AS ENDO-LOOP PUSHERS FOR LAPAROSCOPIC APPENDICECTOMY

**Presenter:** MK Bhettani
**Author(s):** MK Bhettani, K Siddique
**Institution:** Royal Oldham Hospital, Oldham, United Kingdom

**Aims:** Aim of this study was to evaluate the safety and cost effectiveness of this technique.

**Methods:** A prospectively cohort study of all patients undergone laparoscopic appendicectomy by this technique (technique published by author) at two separate institutions from 2014-2019 was reviewed. Three standard extra-corporeal endoloops utilizing one vicryl tie were deployed using Johan forceps. Demographics, operative findings, post-op stay, post-op complications as well as re-admissions were recorded & analysed.

**Results:** n=227

**Operative findings**:

57% appendicitis

16.74% complicated appendicitis

18.06% macroscopically normal appendix

7.9% normal appendix & gynaecological pathologies

**Post operative:**

no blowout stump

3.5%= Surgical site infections

0.4% = intra-abdominal abscess

**Mean hospital stay** =1.89 days

**Re-admissions rate** = 4.8%.

None of the complications were related to the surgical technique.

**Conclusion:** Our early experience confirms that use of Johan forceps as endoloop knot pushers is a feasible, safe and reproducible technique with promising results. It is cheap and safe alternative to the standard endoloops. The cost analysis showed this technique to be 99 times cheaper than the standard marketed endoloops. (£0.5 Vs £49.80)

**Key statement:** The self-created endoloops are reliable, safe and cost effective. The base of the appendix can be safely secured without the need for expensive commercial endoloops or knot pusher thus significantly reducing the procedure costs.

**P12**

## TAKE-HOME TRAINING OF SIMULATION-BASED LAPAROSCOPIC SKILLS: A SYSTEMATIC REVIEW

**Presenter:** V Luksanapisitakul
**Author(s):** V Luksanapisitakul[1], J Jelley[1], J Halim[1], B Patel[2]
**Institution:** [1]Barts and The London NHS Trust, London, United Kingdom. [2]The Royal London Hospital, Barts Cancer Institute, QMUL, London, United Kingdom

**Aims:** The primary aim of the review is to explore the effects of using take-home laparoscopic box-trainers in laparoscopic skills training on performance, compared to other training methods. The secondary aim is to evaluate the effect of box-trainers on laparoscopic skill acquisition across basic, intermediate, and advanced skill levels.

**Methods:** A systematic literature search for prospective primary trials, published materials and abstracts exploring the effects of off-site laparoscopic box-trainers with quantitative outcomes in performance was undertaken on PubMed, EMBASE, and Web of Science. This review was performed according to PRISMA 2009 guidelines.

**Results:** 11 studies were included. All studies demonstrated improvement in overall outcomes after training. For basic and intermediate skills training, the results demonstrated a positive impact of 46.74% and 16.67%, respectively. For advanced skills training, there was a large beneficial effect of 87.88%.

**Conclusion:** Off-site laparoscopic training using box-trainers is beneficial in laparoscopic skills acquisition. This method of training can improve overall laparoscopic performance, especially when learning complex and advanced laparoscopic skills.

**Key statement:** We recommend learning advanced laparoscopic skills at home, after acquiring basic levels of competency. Limitations of the review include a small number of studies, as potentially eligible studies were excluded due to unavailable data.

**P13**

## ROLE OF RE-LAPAROSCOPY IN THE MANAGEMENT OF EARLY COMPLICATIONS OF BARIATRIC SURGERY, A SINGLE CENTRE EXPERIENCE

**Presenter:** A Ghosh
**Author(s):** A Ghosh, M Al-Rashedy, O Al-Taan
**Institution:** Luton and Dunstable University Hospital, Luton, United Kingdom

**Aims:** 1. The aim of our study was to review clinical and surgical data of the patients who underwent relaparoscopy at our centre within 30 days following the primary bariatric procedure.

2. Our study also highlights different surgical approaches for the management of complication.

**Methods:** The database of all the patients who underwent BS at our institute was retrospectively reviewed. Between 2013 and March 2019, 1640 patients underwent BS including 981 Laparoscopic Roux-n-Y Gastric Bypass ,659 Laparoscopic Sleeve Gastrectomy, 37 conversion, 4 duodenal switch and 4 Single Loop Gastric Bypass. All procedures were completed laparoscopically.

**Results:** 33 patients (2.01%) developed early postoperative complications. Majority were diagnosed with an oral contrast computer tomography (n=31) and underwent re-laparoscopy. Most common complications were gastrojejunal or jejunojejunal anastomotic leak, jejunojejunal obstruction secondary to haematoma or oedema and bleeding from staple line, which were treated with jejunojejunal revision or gastrojejunal revision.

**Conclusion:** Laparoscopic intervention avoids laparotomy with its associated morbidity in most cases and is associated with a relatively short hospital stay and early recovery.

**Key statement:** Re-laparoscopy is an acceptable approach for the management of suspected early complications following bariatric surgery.

**P14**

## CARCINOID TUMOURS OF THE APPENDIX: AN ANALYSIS OF APPENDICECTOMIES OVER A 24-YEAR PERIOD AND OUTCOMES OF LAPAROSCOPIC VS. OPEN RESECTION

**Presenter:** QD Chai
**Author(s):** QD Chai[1], R Wijesuriya[2], S Pillai[1], R Mcclure[3], A Laycock[4]
**Institution:** [1]Sir Charles Gairdner Hospital, Perth, Australia. [2]St John of God Midland, Perth, Australia. [3]Royal Perth Hospital, Perth, Australia. [4]Fremantle Hospital, Perth, Australia

**Aims:** To conduct a retrospective analysis of the epidemiology, clinicopathologic characteristics, treatment, prognosis of incidental carcinoid tumours of the appendix, and to compare outcomes of laparoscopic vs. open resection.

**Methods:** A retrospective review of all appendiceal carcinoids was performed in six centres from January 1990 until December 2013. Demographic data, clinical presentation, histopathology, operative reports, clinic reviews and survival were recorded and compared with literature.

**Results:** 175 carcinoid tumours were identified. 90.75% were classical carcinoids and 9.25% goblet cell carcinoids. The involvement of resection margins was not influenced by the surgical technique; open 5.0% vs laparoscopic 5.6% (p=0.458). 30 patients required further right hemicolectomy as treatment for high-risk features; open 15.9% vs laparoscopic 20.4% (p=0.234).

**Conclusion:** Appendiceal carcinoid are often diagnosed incidentally during appendicectomy. Incidental goblet cell carcinoids were much less common but were larger in size and more likely to be associated with acute appendicitis. The long-term prognosis of incidental appendiceal carcinoids is good. Laparoscopic appendicectomy did not seem to adversely influence the margin clearance.

**Key statement:** The outcome and prognosis of appendiceal carcinoid are not influenced by surgical techniques (open vs. laparoscopic).

**P15**

## ASCERTAINING THE SAFETY PROFILE OF A SELECTIVE PRE-OPERATIVE GROUP AND SAVE POLICY IN LAPAROSCOPIC CHOLECYSTECTOMY – A FULL AUDIT CYCLE

**Presenter:** N Wong
**Author(s):** N Wong[1], J Cormack[2], B Davies[2], G Conn[2]
**Institution:** [1]East of England School of Surgery, Cambridge, United Kingdom. [2]Mid Essex NHS Trust, Chelmsford, United Kingdom

**Aims:** The full cycle audit aimed to ascertain the safety profile of a selective pre-operative group and save policy to reduce the number of group and save tests obtained in cholecystectomy. The proxy of safety was to establish the post-operative blood transfusion rate and prevalence of pre-operative group and save tests.

**Methods:** Retrospective review of electronic patient records who underwent cholecystectomy from June to December 2018 after implementation of selective pre-operative group and save policy as a result of the first audit cycle. Cholecystectomy cases reviewed included laparoscopic, conversion to open and combined with on table cholangiogram.

**Results:** 150 cholecystectomies were performed. The post-operative blood transfusion rate was 0% with a 32% (n=48) reduction in patients having pre-operative group and save after selective policy implementation. This is compared to the 0.73% post-operative blood transfusion rate and 99.7% of patients having pre-operative group and save in the previous audit.

**Conclusion:** A selective policy for pre-operative group and save in cholecystectomy is safe; procedures can be performed without routine group and save unless patient and case characteristics indicate otherwise. Wider implementation of selective pre-operative group and save policy in multiple centres should be trialled and audited to enhance policy validity.

**Key statement:** Routine pre-operative group and save is unnecessary in laparoscopic cholecystectomy. This complete audit cycle demonstrates a selective pre-operative group and save policy can be safely implemented into standard cholecystectomy surgical practice. The policy enables maintenance of quality without jeopardising safety, whilst reducing clinical, financial and patient stress from unnecessary tests.

**P16**

## THE EFFECT OF EXTERNAL PSYCHOLOGICAL DISTRACTION ON THE PERFORMANCE OF SURGICAL SKILLS IN SIMULATION: A SYSTEMATIC REVIEW

**Presenter:** J Jelley
**Author(s):** J Jelley, J Halim, B Patel
**Institution:** Barts Cancer Institute, QMUL, London, United Kingdom

**Aims:** Distraction is common within surgery and this could negatively affect surgical performance and surgeon experience. The aims of this review are to determine whether distracted practice affects the performance of simulation-based surgical skills and to determine whether distraction resilience training should be implemented into simulated surgical skills curricula.

**Methods:** A systematic literature search of PubMed, EMBASE, Web of Science and PsycINFO was conducted for primary prospective studies investigating distractions and interruptions within the surgical simulated setting. Participants included medical students, surgical trainees and surgical experts. Measured outcomes included performance parameters and subjective questionnaires.

**Results:** 33 studies were included. Where investigated: 83% (n=25) observed deterioration in performance with 63% (n=19) exclusively observing deterioration irrespective of distraction type, experience and surgical speciality; 100% (n=3) observed improvement in a distracted training group versus an undistracted training control; 63% (n=5) observed perceived performance was inconsistent with actual performance.

**Conclusion:** Evidence suggests that distraction is detrimental to surgical performance and should be minimised in the operating theatre. Surgical skills curricula should strongly consider encompassing distraction resilience training, including awareness and management of distractions. More research is required to strengthen evidence overall and to investigate the effect on non-technical skills.

**Key statement:** Distraction can range from cognitive to auditory, interruptive to non-interruptive and necessary to unnecessary. It negatively affects surgical novices, trainees and experts alike, in both surgical and distracting task performance. Training in distraction and knowledge of key distractors along with sensitive phases of surgery may aid in alleviating its effects.

**P17**

## THE EFFECT OF VERBAL-FEEDBACK AND VIDEO-FEEDBACK WITH AND WITHOUT SELF-ASSESSMENT ON SIMULATED LAPAROSCOPIC SKILLS IN NOVICES: A RANDOMISED CONTROLLED TRIAL

**Presenter:** J Halim
**Author(s):** J Halim, J Jelley, N Zhang, M Ornstein, B Patel
**Institution:** Barts Cancer Institute, QMUL, London, United Kingdom

**Aims:** The aim of this study was to establish the most effective form of structured feedback, by comparing the effects of expert verbal-feedback, video-feedback (video-replay with expert verbal-feedback), and self-assessment (video-replay with objective self-assessment), on laparoscopic surgical skills performance in novices.

**Methods:** A prospective, double-blinded, randomised controlled trial comparing verbal-feedback, video-feedback, and self-assessment. Novices were tasked to perform laparoscopic suturing with intracorporeal knot tying. Pre- and post-feedback assessments were undertaken. Suturing performance was measured using an OSATS checklist. A post-study questionnaire was used to measure participant-perceived confidence, knowledge, and experience levels.

**Results:** 51 participants completed the study. There was a significant improvement in the mean OSATS score for the video-feedback (15.9±8.2%, $p=0.000$) and self-assessment groups (8.1±11.2%, $p=0.009$), but not the verbal-feedback group (6.0±11.8%, $p=0.051$). Questionnaire responses demonstrated positive results across all groups, with no differences between the groups ($p>0.05$).

**Conclusion:** Structured self-assessment and video-feedback benefit surgical novices in evaluating their performances objectively, thereby facilitating reflection and self-directed learning, which will improve their ability to develop proficiency in surgical skills. Both self-assessment and video-feedback require active participation and thus proved to be superior over verbal-feedback alone.

**Key statement:** Objective and structured video-feedback and self-assessment can significantly enhance the acquisition of surgical skills compared to verbal-feedback, and should be implemented into surgical education curricula. Future studies should include a longer period of training to analyse the long-term effects of the various feedback techniques.

**P18**

## SUITABILITY OF APACHE-II SCORE IN RISK STRATIFICATION FOR PATIENTS WITH ACUTE CHOLECYSTITIS AND APPLICABILITY OF CHOCOLATE TRIAL TO UK PRACTICE

**Presenter:** J Latif
**Author(s):** J Latif, A Kushairi, P Thurley, I Bhatti, A Awan
**Institution:** University Hospitals of Derby and Burton, Derby, United Kingdom

**Aims:** The CHOCOLATE trial reported the superiority of surgery over percutaneous drainage in high risk patients (APACHE II 7-14) with acute cholecystitis. This study aims to investigate the suitability of APACHE II in risk stratification and a comparative practice in managing acute cholecystitis from a high-volume UK centre.

**Methods:** Retrospective data from patients that underwent acute cholecystectomy, urgent interval cholecystectomy and percutaneous cholecystostomy between 2016-2018. Data included baseline demographics, co-morbidities, ASA grade, APACHE score and morbidity mortality. No scoring system was used pre-intervention by parent clinician to help guide treatment modality. Statistical analysis performed using STATA/SE 15.0 software.

**Results:** In total, 344 patients (266 acute cholecystectomy and 84 cholecystostomy). Significant difference in both co-morbidities (9-14% surgery and 51.61% cholecystostomy) and mean APACHE II score (3 surgery and 8 cholecystostomy) between both groups. No significant difference in complications. Difference in mortality rate (0% surgery and 7.1% (median APACHE-II 17) cholecystostomy).

**Conclusion:** Significant difference in APACHE II score and co-morbidity rates were found between surgery and cholecystostomy patients. Limitations in APACHE II were noted when considering factors important in making treatment choices. Mortality occurred in cholecystostomy group but may represent patients that would be excluded from CHOCOLATE trial due to severe co-morbidity.

**Key statement:** APACHE II may be a 'snap shot' indicator of risk and does not consider factors such as severe co-morbidity (recent (<6weeks) myocardial infarction) and complexity of biliary disease (acute cholecystitis >7 days, liver abscess, Mirizzi syndrome and CBD stones). Therefore, its use as a risk stratification tool is limited.

**P19**

## USING BIOCHEMICAL MARKERS OF INFLAMMATION AS PREDICTIVE VALUES FOR ACUTE APPENDICITIS

**Presenter:** G Williams
**Author(s):** G Williams, M El-Toudmeri Maher, K Hureibi
**Institution:** University Hospital Coventry & Warwickshire, Coventry, United Kingdom

**Aims:** Clinical diagnosis of acute appendicitis can be difficult, and is primarily made on the basis of history and examination, with biochemistry and imaging used to support unequivocal presentations. This author assesses the validity of using CRP and WCC to assist with diagnostic uncertainty, notably neutrophil differential.

**Methods:** WCC, CRP, and Neutrophil differential were retrospectively collected from 1048 patients operated on for suspected appendicitis in a single surgical centre over three years. Incomplete entries were removed and ROC curves were completed for each variable independently and then combined. Histological analysis was used to confirm positive findings of appendicitis.

**Results:** Neutrophil differential greater >75% was the most notable differentiator (AUC .716, 70% sensitivity, 73% specificity). WCC between 10-14.9 was approaching acceptable but had limited specificity (AUC .705, 77% sensitivity, 55% specificity) and CRP had the least favourable result (AUC .699 CRP of >11.5 gave 69% sensitivity with 72% specificity).

**Conclusion:** No single variable nor combined were adequate predictive factors for acute appendicitis. There was no acceptable cut off value for CRP. The neutrophil differential could be a helpful indicator in the context of a raised CRP.

**Key statement:** Clinical suspicion of appendicitis should not be dissuaded by biochemical markers. There is no single nor combined value that gives accurate predictive factors for acute appendicitis. These biochemical markers should form a part of a larger clinical picture to aid diagnosis. Further work regarding repeat testing throughout admission is warranted.

**P20**

## DAY CASE LAPAROSCOPIC CHOLECYSTECTOMY AT KILIMANJARO CHRISTIAN MEDICAL CENTRE

**Presenter:** I Cullen
**Author(s):** I Cullen[1], L Horgan[2], F Shaban[2], O Ali[2], R Walker[2]
**Institution:** [1]Newcastle University, Newcastle upon Tyne, United Kingdom. [2]Northumbria Healthcare, Newcastle upon Tyne, United Kingdom

**Aims:** In 2017, Kilimanjaro Christian Medical Centre (KCMC) in Tanzania introduced a day case laparoscopic cholecystectomy (DCLC) service, which was the first in Sub-Saharan Africa. The aim of this study was to evaluate the feasibility of DCLC in a low-middle income country (LMIC) by identifying its outcomes, and acceptance by patients.

**Methods:** Total number of laparoscopic cholecystectomies (LCs) was collected from theatre logbooks. The medical records of the LC patients were analysed for evidence of DCLC and those planned for DCLC were followed up with a telephone questionnaire to obtain service feedback.

**Results:** 147 LCs were completed over 2 years. 82 (55.8%) were DCLC, of which 1 (1.2%) was readmitted. 62 of the DCLC patients (75.6%) answered the follow up questionnaire and 60 (97%) were extremely satisfied or satisfied. 37 (59.7%) had pain at home but felt it was under control.

**Conclusion:** DCLC rates were comparable to the UK and exceeded those for North Africa. Low rates of readmission with no reported adverse outcomes suggest that same day discharge at KCMC is safe. Importantly, patients had a positive DCLC experience and felt DCLC was a beneficial change.

**Key statement:** DCLC is safe, feasible and accepted by patients at KCMC. Results from this study suggest that the benefits of DCLC can be extended to other LMIC hospitals similar to KCMC.

**P21**

## CHALLENGES INTRODUCING DAY CASE LAPAROSCOPIC CHOLECYSTECTOMY IN LOW RESOURCE SETTINGS

**Presenter:** I Cullen
**Author(s):** I Cullen[1], L Horgan[2], F Shaban[2], O Ali[2]
**Institution:** [1]Newcastle University, Newcastle upon Tyne, United Kingdom. [2]Northumbria Healthcare, Newcastle upon Tyne, United Kingdom

**Aims:** Kilimanjaro Christian Medical Centre (KCMC) in Tanzania has been performing day case laparoscopic cholecystectomies (DCLC) since 2017. The aim of this study was to investigate the challenges faced in implementing DCLC at KCMC.

**Methods:** Staff involved with DCLC at KCMC were interviewed using a semi-structured questionnaire to obtain opinions on the challenges met in achieving same day discharge. Participants included general surgeons, anaesthetists, theatre nurses and ward nurses. The interviews, conducted in either English or Kiswahili, were transcribed and analysed using thematic analysis.

**Results:** 26 interviews were conducted with 8 scrub nurses, 7 surgeons, 5 anaesthetists and 6 ward nurses. 4 major themes were identified as barriers to same day discharge of laparoscopic cholecystectomy patients: patient factors; organisation of the day case pathway; staff mindset; and low resources.

**Conclusion:** It was predicted that the traditional mindset of medical and nursing staff would be the biggest challenge in accepting DCLC. However, the integrity of the day case pathway, distance patients lived from KCMC and lack of anaesthetic drugs were more important in this study.

**Key statement:** Implementing DCLC in low resource settings is possible. Organisational changes such as the development of specific day surgery wards may be identified, however, in low resource settings, changes such as creating printed proformas and advocation of DCLC specific lists is more plausible.

**P22**

## LAPAROSCOPIC NEPHROLITHOTOMY IN A HORSESHOE KIDNEY

**Presenter:** M Breish
**Author(s):** M Breish, S Sriprasad
**Institution:** Darent Valley Hospital, Dartford, United Kingdom

**Aims:** To demonstrate that laparoscopic surgery is an effective and safe approach in the treatment of greater than 2 cm renal stones in anomalous kidneys.

**Methods:** 61-year-old lady who presented initially with recurrent UTI irresponsive to multiple courses of antibiotics. CT Scan revealed Horse-shoe kidney with multiple right renal stones (35mm in right lower pole) associated with severe hydronephrosis of the right kidney.The patient underwent or elective Laparoscopic Nephrolithotomy which showed outstanding outcomes.

**Results:** The laparoscopic nephrolithotomy was preferred not only because of the big stone size but also because there was an absence of extrarenal pelvis and aberrant vessel seen crossing over the renal pelvis. The total duration of hospitalisation was 3 days without complications. Complete stone-free status was achieved.

**Conclusion:** Horse-shoe kidney is the most common renal anomaly and commonly associated with Urolithiasis. Different surgical procedures are available for the management of stones but they are associated with serious complications. Our case demonstrates that laparoscopy is an effective and safe approach to manage large stones in anomalous kidneys.

**Key statement:** The role of Laparoscopic surgery in the management of complicated renal stones.

**P23**

## COMPARING TRADITIONAL VERSUS IMMERSIVE VIRTUAL REALITY LEARNING METHODS IN TEACHING RESIDENTS THE CVS APPROACH IN CHOLECYSTECTOMY: A RANDOMIZED CONTROLLED TRIAL

**Presenter:** K Belhaj
**Author(s):** K Belhaj, Y Khouli, A Morawala, B Alaraimi, B Patel
**Institution:** Queen Mary University of London, United Kingdom

**Aims:** We aimed to pilot a novel virtual reality (VR) safe cholecystectomy immersive learning curriculum based on the SAGES Safe Cholecystectomy Program for adopting a universal culture of safety in cholecystectomy and learning strategies for minimizing bile duct injuries (BDI) using the Medical Realities Application and platform.

**Methods:** This is a double-blinded study which included 26-surgical residents who performed baseline and post-intervention LC on Simbionix Lapmentor. The 13-residents in the control-arm were assigned a textbook curriculum for learning cholecystectomy, whereas the 13-residents in the intervention-arm were given in addition the immersive VR-training curriculum using Medical-Realities Platform and VR-Headset.

**Results:** The assessment was done by calculating the validated 6-point CVS-score from video recordings of simulated LC performed baseline and post-intervention. During the training period the mean CVS score for the control arm slightly increased from 1.54 to 2.00 ($p<0.005$), while the intervention arm enhanced from 2.08 to 5.23 ($p<0.005$).

**Conclusion:** BDI rates have plateaued in the past couple of decades hence showing that the traditional-learning methods have failed to improve the rates of BDI in cholecystectomy. This low-cost Technology Enhanced Learning (TEL) curriculum demonstrates promising results that may help improve cognitive skill retention and reduce BDI rates.

**Key statement:** TEL using VR App (Medical Realities) could enhance cognitive skill retention by complementing SAGES Safe Cholecystectomy program for adopting a universal culture of safety in cholecystectomy.

**P24**

## QUALITY IMPROVEMENT PROJECT ON VENOUS THROMBOEMBOLISM (VTE) PROPHYLAXIS IN ACUTE SURGICAL ADMISSIONS

**Presenter:** MK Bhettani
**Author(s):** MK Bhettani, K Abbas, K Siddique
**Institution:** Royal Oldham Hospital, United Kingdom

**Aims:** To monitor practice regarding VTE prophylaxis of the patients' admitted in the surgical ward against NICE guidelines, and then implement measures to increase compliance if found to be poor. NICE guidelines state that all urgently admitted patients must have a VTE assessment form (within 24 hours) and receive appropriate prophylaxis.

**Methods:** In the initial audit, data collected prospectively over 7 different days of all acutely admitted patients. We introduced VTE check boards on the wards, VTE forms addition in the clerking proforma, VTE checklist on handover sheets, and introduced sessions of education and training on VTE. Re-audited after 6 months.

**Results:** Primary audit: n=43. Proportion of: VTE form done=70%, accurately filled VTE forms=32%, accurate LMWH appropriately prescribed=95%, TEDS=35%. VTE related complications=3%, VTE reassessment after 24 hours=3%.

Re-audit: n=44. Proportion of: VTE form done=92%, accurately filled VTE forms=82%, accurate LMWH appropriately prescribed=97%,TEDS=60%. VTE related complications=0%, VTE reassessment after 24 hours=24%.

**Conclusion:** There has been a significant increase of compliance with the NICE guidelines regarding VTE prophylaxis within our department through the introduction of various steps taken at ward levels and in education and training of doctors. Statistical analysis of the data before and after revealed a significant difference.

**Key statement:** Venous thromboembolism accounts for approximately 25,000 in-hospital deaths in England annually, with an estimated per annum cost to NHS of approximately £640 million. Our suggested interventions significantly improved the practice at our trust. Hence effective and creative measure can help reduce the cost and morbidity associated with venous thromboembolism.

**P25**

## LAPAROSCOPIC SURGERY IN SMALL BOWEL OBSTRUCTION – RETROSPECTIVE STUDY IN A DISTRICT GENERAL HOSPITAL

**Presenter:** B Mothe
**Author(s):** B Mothe, C Smart
**Institution:** Macclesfield General Hospital, United Kingdom

**Aims:** Small bowel obstruction (SBO) is a common emergency with treatment via laparotomy being the accepted standard. But with the advancement of laparoscopic skills more surgeons are undertaking laparoscopic approach to treat uncomplicated small bowel obstruction. We aim to compare outcomes following laparoscopic vs open surgical techniques in District General Hospital.

**Methods:** Retrospective review of patient case notes who underwent operative treatment for small bowel obstruction between January 2012 to July 2018 was carried out. Except for age (Mean) all other results are expressed in Median timescale. Unpaired 'T' Test was used for nominal data and Chi square test for categorical data.

**Results:** 100 surgical procedures were carried out for SBO during this period at our district general hospital with 31 Laparoscopic and 69 Open procedures. 15/31 were completed laparoscopically (LAP) while 16/31 were converted to open procedure to complete the operation. The following Table fully represents the various outcomes:

| Small Bowel Obstruction (SBO) | Laparoscopic | Open (Laparotomy) | P - Value |
|---|---|---|---|
| (n = 100 procedures) | n=31 | n=69 | |
| Age (years) | 71 (23-94) | 69 (26-91) | |
| Charlston Co-Morbidity Index (Median) | 5 (0-12) | 6 (0-13) | 0.21 |
| Time to operation from admission (days) | 1(1-9) | 5(1-16) | 0.074 |
| Causes of SBO | 12 Band Adhesion<br>19 Others (Multiple adhesions/Hernias) | 34 Band Adhesion<br>35 Others (Multiple adhesions/Hernias/ Tumours) | |
| Length of Hospital Stay (Median days) | 8 (2-19) | 11 (4 -140) | **0.017** |
| Pre-Operative C-Reactive Protein (CRP) | 10(1-212) | 21(1-433) | **0.031** |
| Pre-Operative White Cell Count (WCC) | 9.2(4.4-16.8) | 10.2(4.4-29.9) | 0.370 |
| Small bowel resection rate | 6/31 | 28/69 | **0.03** |
| HDU /ITU care | 7/31 | 29/69 | 0.268 |
| Complication – Acute Kidney Injury (AKI) | 4/31 | 18/69 | 0.14 |
| Overall Complication rate | 9/31 | 28/69 | 0.268 |
| 30 day- Mortality | 0/31 | 5/69 | 0.12 |
| 1 year Mortality | 1/31 | 6/69 | 0.13 |

**Conclusion:** Laparoscopic surgical approach for small bowel obstruction seems to have statistically significant lower small bowel resection and length of stay in the hospital when compared to open laparotomy in age matched patients.

**Key statement:** Laparoscopic surgery for uncomplicated Small Bowel Obstruction is feasible and outcomes seem better when compared to open surgery.

**P26**

## ACUTE GALL BLADDER SURGERY FOR BILIARY PATHOLOGY

**Presenter:** MK Bhettani
**Author(s):** MK Bhettani, K Siddique
**Institution:** Royal Oldham Hospital, United Kingdom

**Aims:** 1. To assess the Trust's compliance with NICE Guidance (CG188) section 1.2.4 Offer early laparoscopic cholecystectomy (to be carried out within 1 week of diagnosis) to people with acute cholecystitis

2. To Evaluate the Peri-operative complications, re-admissions and overall mortality following acute gallbladder surgery.

**Methods:** Retrospectively collected data of all patients underwent hot gallbladder cholecystectomy from January 2015 - January 2016. Medical records were abstracted for demographic data; duration of symptoms at initial presentation, white blood cell count and ultrasonographic findings; operative findings; reason for and rate of conversion to open cholecystectomy; major complications; and LOS.

**Results:** N=151.

**Operation:**

74.8% laparoscopic cholecystectomy,

16.5% laparoscopic cholecystectomy with OTC

6.6% laparoscopic converted to open

1.3% subtotal cholecystectomy.

**Per-Operative Complications:**

97.5% none

1.9% per-operative bleeding

0.6% CBD injury

**Post-Operative:**

94.7% uneventful

2% chest infection

2% bile leak

0.7% sub-hepatic abscess

0.6% gallbladder fossa bleed

2.6% critical care admissions

0% mortality

**Conclusion:** Although because of being a retrospective analysis and involving some degree of selection bias in the series, the reported outcomes are acceptably good. It is suggested to increase liaison with the anesthetic team to ensure full understanding and development of acute gall bladder surgery pathway to comply with NICE guidelines.

**Key statement:** Acute gall bladder surgery for biliary diseases is safe, feasible and is associated with low morbidity.

**P27**

## ACUTE PRESENTATIONS OF OBSTRUCTED, CONGENITAL, DIAPHRAGMATIC HERNIAS IN ADULTS – LAPAROSCOPIC MANAGEMENT, CASE REPORTS AND REVIEW

**Presenter:** A Mittal
**Author(s):** A Mittal, P Cay, K Singh
**Institution:** Royal Sussex County Hospital, Brighton, United Kingdom

**Aims:** Congenital diaphragmatic hernia (CDH) occurs in 1/2500 neonates. Hernia of Bochdalek accounts for 6%; hernia of Morgagni for 3%. Our case reports highlight the unusual, acute presentation of CDH in adults, outline the diagnostic process and discuss laparoscopic techniques that can be used by surgeons faced with these rare cases.

**Methods:** Hernia of Morgagni presented in a 62-year-old gentleman with acute abdominal pain and signs of obstruction on CT. Hernia of Bochdalek presented in a 50-year-old lady with acute abdominal pain and vomiting, with obstruction on CT. Literature was reviewed to find optimal laparoscopic technique for management.

**Results:** Laparoscopically, reduction of Morgagni hernia was followed by partial reversal of hernial sac – step where controversies exist in literature. Mesh repair of defect presented challenges. Primary closure of defect was performed for Bochdalek hernia owing to its smaller size, followed by tension pneumothorax – not an uncommon occurrence. Uneventful recoveries followed.

**Conclusion:** Acute, uncomplicated cases of CDH in adults can be successfully managed with emergency laparoscopic surgery. Although there is lack of standardisation currently on best surgical technique, we found good results with reduction followed by primary closure of diaphragmatic defect and use of mesh repair in case of a larger defect.

**Key statement:** Early papers suggest presence of less than 100 reported cases of symptomatic Bochdalek and Morgagni type hernias in adults. Due to limited available evidence, the need to share successes and failures of surgical techniques used is greater than ever. Case reports here discuss successful laparoscopic techniques that can be used.

**P28**

## INTRAOPERATIVE REASONS FOR CONVERSION OF LAPAROSCOPIC CHOLECYSTECTOMY TO OPEN SURGERY: A SYSTEMATIC REVIEW

**Presenter:** K Belhaj
**Author(s):** R Karimov, J Sabanovic, K Belhaj, B Patel
**Institution:** Barts Cancer Institute, Queen Mary, University of London, United Kingdom

**Aims:** To define the unpredictable intraoperative reasons of conversion from laparoscopic cholecystectomy to open surgery. Moreover, we aimed to reveal the popularity of each reason calculating their proportion within the included studies.

**Methods:** Electronic-databases searched to identify the studies reporting intraoperative risk factors of conversion. Primary-outcomes: specifying unpredictable risk factors and identifying most common intraoperative causes of conversion. Secondary-outcomes were comparing the impact of each group reasons on conversion rate (patient-related factors, surgeon-related factors, equipment-related and other factors).

**Results:** 22 studies were eligible. 13 intraoperative patient-related, 11 surgeon-related, 3 equipment-related factors identified. Patient-related factors: adhesion (reported by 18/22 studies), unclear anatomy (16 studies), severe inflammation (13 studies) were more common. Surgeon-related causes: uncontrollable bleeding (19 studies), bile duct injury (16 studies) were popular. Equipment-related factors were insignificant.

**Conclusion:** Intraoperative reasons of conversion were less investigated. Indeed, unpredictable findings and situations in laparoscopic cholecystectomy are common in practice and causing conversion to open surgery frequently. The quality of the studies reporting these factors is poor.

**Key statement:** Deeper learning the unpredictable factors of conversion in laparoscopic cholecystectomy can help to understand the underlying reasons and might be useful in minimization of complications and conversion rate.

**P29**

## DEVELOPMENT OF A VIRTUAL REALITY TRAINING CURRICULUM FOR ERCP

**Presenter:** Y Khouli
**Author(s):** Y Khouli[1,2], K Belhaj[1], B Patel[1]
**Institution:** [1]Barts Cancer Institute, London, United Kingdom. [2]Queen Mary University of London, United Kingdom

**Aims:** To develop a structured evidence-based virtual reality training curriculum and set a proficiency performance benchmark for a set of objective metrics of endoscopic skills during ERCP procedures.

**Methods:** 39 participants were recruited and divided into 3 groups Novices, Intermediate, and Experts according to their level of proficiency. They were required to perform in the GI Mentor 2 Simulator, and upon completion, they were asked to fill a questionnaire about the simulator, simulation, and their previous endoscopic experience.

**Results:** The experts' results were isolated to define a set of benchmark ranges. The new recalculated mean was used to set a reference criterion and a benchmark range for the performance. these results were used as a reference to create an evidence-based virtual reality training curriculum.

**Conclusion:** We have defined a reference criterion level to develop proficiency performance benchmark for all metrics obtained from our studies based on experts. we have demonstrated and managed to set a proficiency performance benchmark range in the ERCP module to be used as a baseline when comparing any operator performance.

**Key statement:** ERCP training has been implemented as part of the surgical traininng. however, there is no structured curriculum set in place to systemically train the trainees. this study has demonstrated that it is possible to define and develop a virtual reality training curriculum for ERCP using structured scientific methodology.

**P30**

## SURGICAL TRAINING IN THE PRIVATE SECTOR

**Presenter:** M Sejka
**Author(s):** M Sejka
**Institution:** Epworth Richmond Hospital, Melbourne, Australia

**Aims:** With the increasing demand for surgeons in Australasia, previous reliance on the public sector for training is insufficient. We aim to review the literature regarding the adequacy and feasibility of training in the private hospital sector.

**Methods:** We performed a literature review, studies were included which described a qualitative or quantitative evaluation of surgical education, cost to the private sector or acceptability of trainees by patients.

**Results:** We found that current supply of training positions in the public sector will be insufficient to sustain the growth in surgical trainees. Few studies describe the adequacy of training in the private sector, the longer operating time of trainees comes at a significant cost to the private healthcare system.

**Conclusion:** It is clear that more studies are required in this field, however current literature has demonstrated both patient and surgeon acceptance for trainees in the private sector. Areas for consideration including cost of training and sufficient primary operator experience.

**Key statement:** Demand for surgeons continues to increase with little scope for the increasing number of surgical trainees require to fill this demand. The private sector will have to play a role in the training of future surgeons, however there remain significant hurdles to overcome.

**P31**

## ANALYSIS OF THE LENGTH OF STAY IN APPENDICECTOMY PATIENTS: FACTORS THAT LEAD TO IN-HOSPITAL DELAYS

**Presenter:** SZ Ahmed
**Author(s):** SZ Ahmed, KW Anwer, M Hemadri
**Institution:** Northern Lincolnshire and Goole NHS Foundation Trust, Scunthorpe, United Kingdom

**Aims:** Acute Appendicitis is the commonest acute surgical emergency and early surgical intervention minimizes the complications associated with appendicitis. Our aim of this study is to analyse the time period taken in each phase of hospitalization of acute appendicitis patient till discharge and the factors that leads to delays.

**Methods:** A retrospective study of all the patients who underwent emergency appendicectomy from September 2018 to April 2019 in a district hospital. Length of stay was calculated from the time of referral to surgeons till time of discharge.

**Results:** 95 patients underwent appendicectomy, average stay of 68 laparoscopic appendicectomy patients was 2.66 while in 22 open appendicectomy was 2.93. Average time interval from referral to admission, to theatre and surgery to discharge was 0.03+1.3,0.60+0.3 and 2.19+2.1 respectively. Postoperative IV antibiotics, administration delays, patient factors were identifiable factors.

**Conclusion:** Prolong length of stay in appendicectomy were post-operative parameters which prevented patients to be discharged early.

**Key statement:** Laparoscopic appendicectomy, Open Appendicectomy, Factors identified for delay in-hospitalization.

**P32**

## SAFETY AND EFFECTIVENESS OF BIOLOGICAL MESH USED IN LAPAROSCOPIC VENTRAL RECTOPEXY. A REVIEW OF SIX YEARS EXPERIENCE

**Presenter:** A Tsiaousidou
**Author(s):** A Tsiaousidou[1,2], L MacDonald[2], K Shalli[2]
**Institution:** [1]Western General Hospital, Edinburgh, United Kingdom. [2]Wishaw Hospital, United Kingdom

**Aims:** Laparoscopic ventral mesh rectopexy (LVMR) continues to gain preference as a treatment option for rectal prolapse, obstructive defecation/ faecal incontinence and rectoceles. We have reviewed all LVMRs carried out using biologic mesh. Our aim was to assess the safety of the mesh and the procedure's outcome.

**Methods:** 86 patients underwent LVMR with permacol mesh from June 2012 to September 2018. Wexner scores for constipation and incontinence were calculated before and after surgery. The patients were followed up in the colorectal clinic 12 weeks and 6-12 months after surgery. The average notes review was 18.3±4.2 months.

**Results:** The average Wexner scores for constipation pre-operatively and post-operatively were 13.68±6.06 and 4.17±3.80 ($p<0.01$) respectively, while for incontinence 10.54±0.71 and 3.44±3.65 ($p<0.01$). There were 4 (4.6%) recurrences, 2 cases with suture erosion through the rectum and one with diskitis. No mesh complications or mortalities were recorded.

**Conclusion:** LVMR using a permacol mesh is a safe and effective procedure for the treatment of obstructive defecation/faecal incontinence, rectal prolapse, rectoceles and internal rectal intussusception.

**Key statement: W**ith an ever-increasing pressure on clinicians and health trusts regarding mesh complications, especially after particular public campaign against usage of mesh in urogynaecology procedures, we took the opportunity to review all LVMRs carried out in our hospital using biologic mesh and confirmed the safety and efficiency of the procedure.

**P33**

## GASTRIC PARITION BYPASS WITH BI-DIRECTIONAL CHEMOTHERAPY FOR OBSTRUCTING GASTRIC CARCINOMA WITH RESECTABLE OLIGOMETASIS AS A BRIDGE TO RADICAL SURGERY

**Presenter:** D Chua
**Author(s):** D Chua[1], ZJ Lee[1], JTH Tan[1], Mr BC Toh[2], Mr EKW Lim[1]
**Institution:** [1]Singapore General Hospital, Singapore. [2]Sengkang General Hospital, Singapore

**Aims:** Gastric cancer remains a condition with poor prognosis. Palliative bypass for unresectable gastric cancer is associated with delayed gastric emptying. We discuss the technique of gastric partition and gastrojejunal bypass.

**Methods:** We present the case of a 59-year-old male who presented with epigastric discomfort and loss of weight. Further investigations confirmed gastric outlet obstruction was secondary to a locally advanced gastric antral tumour. He underwent gastric parition and gastrojejunal bypass.

**Results:** Intraoperatively, there was a small amount of serosal deposits along the pylorus and falciform ligament, confirmed on histology to be foci of adenocarcinoma. The patient then underwent bidirectional chemotherapy. During this time he was reviewed regularly by the dietician. He maintained good oral intake to provide for his nutritional needs.

**Conclusion:** Four months later, he underwent a laparoscopic subtotal gastrectomy, D2 lymphadenectomy and Roux-en-Y reconstruction. Post operatively his recovery was complicated by a duodenal fistula which resolved with conservative treatment. He is currently well, tolerating oral intake and receiving chemotherapy. On his last imaging, there was no local recurrence detected.

**Key statement:** We discuss the successful use of gastric parition bypass with bi-directional chemotherapy for obstructing gastric carcinoma with resectable oligometasis as a bridge to radical surgery**.**

**P34**

## COMPARISON BETWEEN A NOVEL ARTICULATING LAPAROSCOPIC NEEDLE HOLDER (FLEXDEX®) AGAINST TRADITIONAL RIGID NEEDLE DRIVERS IN SURGICAL NOVICES

**Presenter:** N Motahariasl
**Author(s):** N Motahariasl[1], AJ Morawala[1], I Kokotkin[2], SB Farzaneh[2], B Patel[1]
**Institution:** [1]Queen Mary University of London, United Kingdom. [2]St Georges University of London, United Kingdom

**Aims:** The primary aim of this study was to compare the performance of surgical novices using an articulating laparoscopic needle holder (FlexDex®) against standard non-articulating laparoscopic needle holders. The secondary aim was to explore participant's perception on instrument ergonomics by means of subjective surveys.

**Methods:** This was a prospective randomised cohort study. Medical students (n=40) with no previous laparoscopic experience were randomised into group 1 (n=20) which used standard instruments or group 2 (n=20) which used the FlexDex®. Both groups performed 10 repetitions of a validated assessment task. Times taken and error rates were measured.

**Results:** Following 10 attempts, group 1 demonstrated a mean time of 217.9 seconds and mean error rate of 6.2, while group 2 showed a mean time of 339.3 seconds and mean error rate of 9.3. There was a statistically significant difference in the mean times ($P<0.001$) and error rates ($P<0.010$).

**Conclusion:** Participants using the FlexDex® demonstrated inferior performance compared to the group utilising standard laparoscopes. Overall, both groups showed improved mean times after each attempt, which illustrated a learning experience. These results may indicate a longer or more challenging learning curve associated with the FlexDex® in novel users.

**Key statement:** Novices demonstrated inferior task performance in terms of time and errors while using the FlexDex® compared to the standard laparoscopic equipment.

**P35**

## ARE OPERATION NOTE TITLES ACCURATELY DESCRIBING THE PROCEDURE PERFORMED IN ELECTIVE LAPAROSCOPIC COLORECTAL CANCER SURGERY?

**Presenter:** K McCormack
**Author(s):** K McCormack, O Komolafe
**Institution:** University Hospital Wishaw, Motherwell, United Kingdom

**Aims:** The criteria of what constitutes a 'laparoscopic-assisted' or 'converted-to-open' procedure is poorly defined. The variations in procedures make interpreting post-operative outcomes difficult. We propose criteria for defining laparoscopic colorectal resections to determine if the sub-divided cohorts yield significantly different results, which is the focus of this study.

**Methods:** Retrospective review of notes for all patients undergoing elective laparoscopic colorectal cancer resections across a health board between January 2016 and March 2018. The two criteria for laparoscopic surgery: full mobilization of the bowel and division of major blood vessels before specimen extraction. Laparoscopic-assisted met one, while converted-to-open met none.

**Results:** 276 patients underwent surgery. 153 procedures fulfilled criteria to be defined laparoscopic, (median length of stay (LOS) 6 days.) 123 procedures did not meet this criteria: 84 'laparoscopic-assisted' & 39 'converted-to-open' (median LOS 8 days). Operation note titles were inaccurate in 28 cases. 22 over-quantified the amount completed laparoscopically, 6 under-quantified.

**Conclusion:** With nearly 50% of elective colorectal cancer resections not being completed laparoscopically (correlating with a longer median length of stay), we propose introducing standardised guidelines for documenting laparoscopic colorectal cancer surgery. This will improve the quality and accuracy of post-operative outcomes to help guide future treatment plans and pathways.

**Key statement:** 'Laparoscopic-assisted' and laparoscopic 'converted-to-open' surgery are more likely to be associated with larger extraction sites, whose length is often poorly documented. This might explain the longer median length of stay within this cohort, and why surgeons were more likely to over-quantify the amount of the procedure completed laparoscopically.

**P36**

## PAST AND FUTURE — 10-YEAR EXPERIENCE OF LAPAROSCOPIC HELLER'S MYOTOMY WITH FUTURE PRACTICE CONSIDERATIONS

**Presenter:** J Damisa
**Author(s):** Z Zulkeefli, J Damisa, M Samuel, A Gilliam, A Mitchell
**Institution:** County Durham and Darlington, Darlington, United Kingdom

**Aims:** To determine safety, efficiency and long-term outcomes of Laparoscopic Heller's Myotomy (LHM) in a District General Hospital.

**Methods:** The electronic case notes of patients who underwent LHM from 2009-2019 were retrospectively analysed (iSOFT TM).

**Results:** 38 patients (20 male, median age 53 years, 7/38 had Botox/dilatation pre-operatively. Median operative time (<60 min) halved from 120 minutes, due to V lock suture use. Length of stay <24 hours in 32 patients. Median follow-up (66 months), 4 developed symptoms requiring dilatation, one referred for POEM.

**Conclusion:** LHM is safe and effective long-term treatment of achalasia of the oesophagus with two intraoperatively recognised oesophageal mucosal tears and <10% patients developing symptomatic recurrence. All had screening endoscopy at one-year intervals with no oesophageal malignancies detected.

**Key statement:** Consensus is required for postoperative upper GI endoscopic screening. POEM may play an important role in dealing with patients who develop recurrent symptoms.

**P37**

## PLANNED LAPAROSCOPIC INTERVENTION FOR COMPLICATED SEVERE ACUTE PANCREATITIS; BROADENING THE HORIZON OF TREATMENT OPTIONS

**Presenter:** L Creedon
**Author(s):** L Creedon, C Neophytou, I Bhatti, A Awan
**Institution:** Royal Derby Hospital, United Kingdom

**Aims:** The aim of this study was to evaluate the outcomes of single stage laparoscopic approaches to treat complicated severe acute pancreatitis (SAP) including pancreatic pseudocysts and walled off pancreatic necrosis.

**Methods:** Patients that had a laparoscopic procedure were identified from a prospectively maintained database at a single institution between November 2017 and September 2019. Data for demographics, operative details (date, urgency, duration), post-operative length of stay (LoS) and complications were extracted. Outpatient follow up data were collected if available.

**Results:** 21 patients were identified, 12 male, mean age 51 years (19-70 years). Procedures consisted of pancreatic necrosectomy (n=6), roux en-Y pancreaticocyst-jejunostomy (n=15) and transgastric cyst-gastrostomy (n=1). Median LoS was 7 days (IQR 5-11.5 days) with one patient being discharged with a drain in situ. Nine have been discharged from follow-up.

**Conclusion:** Laparoscopic intervention for complicated SAP is both feasible and safe in carefully selected patients that are unsuitable for more conventional endoscopic or radiological techniques. Single staged procedures with concomitant cholecystectomy reduce morbidity in often already physiologically deplete patients with excellent short- and long-term outcomes.

**Key statement:** Laparoscopic techniques to treat complications of SAP provide a single staged procedure when endoscopic or radiological methods are not possible. Outcomes from our series show this to be far superior to traditional open techniques and should form part of the treatment algorithm when dealing with a difficult cohort.

**P38**

## MANAGING GALLSTONE PANCREATITIS: ARE WE DOING ENOUGH?

**Presenter:** A Sultana
**Author(s):** S Zaman, SS Malik, T Evans, A Sultana, M Budhoo
**Institution:** Sandwell and West Birmingham NHS Trust, West Bromwich, United Kingdom

**Aims:** Acute pancreatitis carries significant morbidity and has an estimated annual incidence of 30-50/100,000 in the U.K. Half of these cases are related to gallstones. NICE/BSG guidelines recommend definitive management of gallstone pancreatitis during the index admission or within 14 days of discharge. We audited our compliance against these guidelines.

**Methods:** Retrospective data was collected for patients admitted with acute gallstone pancreatitis over a 12-month period. Patient demographics, admission details, length of stay, previous/future admissions, timing of cholecystectomy and ERCP were recorded.

**Results:** 47 patients (mean age:50.7years) with a mean length of stay of 6.2days. Only 6% had a cholecystectomy during the index admission or within 14 days of discharge. 12(26%) patients had an ERCP performed with a mean time of 45days. The mean time to surgery after initial discharge was 97days.

**Conclusion:** There is poor compliance with guidelines in the management of gallstone pancreatitis in our patients. Definitive management reduces readmissions, resulting in financial savings and improved patient care. This audit demonstrates the need to develop a robust ‘hot gallbladder’ pathway to improve the management of patients with gallstone pancreatitis.

**Key statement:** A robust 'hot gallbladder' pathway is essential to improve compliance with national guidelines/standards in the management of patients with gallstone related acute pancreatitis.

**P39**

## AN AUDIT OF COMPLIANCE WITH NICE GUIDELINES FOR ACUTE CHOLECYSTITIS

**Presenter:** A Sultana
**Author(s):** S Zaman, T Evans, SS Malik, A Sultana, M Budhoo
**Institution:** Sandwell and West Birmingham NHS Trust, West Bromwich, United Kingdom

**Aims:** Gallstone disease is common and affects approximately 10-15% of adults. Laparoscopic Cholecystectomy (LC) is the definitive management of cholecystitis. NICE and RCS guidance recommends a LC should be performed during the index admission or within 1 week of diagnosis of acute cholecystitis. We audited our compliance against these national guidelines.

**Methods:** Retrospective audit of all patients admitted with uncomplicated acute cholecystitis over a 4-month period. Patient demographics, admission details, timing of cholecystectomy, complications, follow-up, and re-admission data was collected.

**Results:** 50 patients (mean age:60.7years) with acute cholecystitis were included. Mean LOS was 4.8days. 10% had a LC within 1 week of diagnosis. Of those discharged without a LC, 14% were readmitted with further gallstone related complications (cholangitis, pancreatitis) within 48.6 days. The mean time to surgery after initial discharge was 125.8 days.

**Conclusion:** There is poor compliance with national standards (NICE) to perform an early LC in our cohort of patients, primarily because of the lack of Trust based guidelines. This audit demonstrates the need to develop a robust ‘hot gallbladder’ pathway within our hospital to improve current practice and patient experience.

**Key statement:** The need to develop a robust 'hot gallbladder' pathway is essential to improve compliance with national guidelines/standards in the treatment of patients with acute cholecystitis.

**P40**

## TENSION CHARACTERISTICS AT THE DIAPHRAGMATIC HIATUS: INDEPENDENT PREDICTORS OF MUSCLE SPLITTING DURING SUTURE CRUROPLASTY

**Presenter:** L Navaratne
**Author(s):** L Navaratne, P Lung, A Isla
**Institution:** Northwick Park Hospital, London, United Kingdom

**Aims:** We have recently demonstrated that tension of crural closure can be reliably measured intraoperatively (Surgical Endoscopy 2019; 33:3040-3049). The aims of this study were to characterise tension at the diaphragmatic hiatus and identify independent predictors of muscle splitting during suture cruroplasty from our prospective study of 77 patients.

**Methods:** Prospective analysis of patients undergoing laparoscopic hiatal hernia repair (2017-2019). Hiatal surface area (HSA) was measured intraoperatively and a Sauter-FH50 Universal Digital Force Gauge was used to measure tension of crural closure during suture cruroplasty. Outcome measures included mean tension of crural closure and presence of muscle splitting during cruroplasty.

**Results:** Crural tension was positively correlated with age ($r=0.3321;p=0.0044$), hiatal height ($r=0.6023;p<0.0001$), hiatal width ($r=0.766;p<0.0001$) and HSA ($r=0.7753;p<0.0001$). Seventeen patients had evidence of muscle splitting during suture cruroplasty. Patients with muscle splitting were significantly older (66 vs 53;$p=0.0029$), had larger HSA (910mm$^2$ vs 347mm$^2$;$p<0.0001$) and higher crural tension (5.69N vs 2.14N;$p<0.0001$).

**Conclusion:** There is now a possibility to optimise this operation with objective measures 100 years after it was first described. Initial findings suggest that crural closure up to ~4N could be the permissible tension threshold for suture cruroplasty and higher tension may benefit from the use of mesh reinforcement.

**Key statement:** The lowest observed mean crural closure tension causing muscle splitting was 3.52N. Multiple regression analysis demonstrated that tension of crural closure, intraoperative hiatal surface area (HSA) and the presence of oesophagitis on pre-operative upper GI endoscopy were independent predictors of muscle splitting during suture cruroplasty.