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Book of abstracts

Faculty lectures & Oral presentations

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Gastric venous congestion and bleeding in association with total pancreatectomy

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Background:

We sometimes encounter gastric venous congestion and bleeding in association with total pancreatectomy (TP). The possibility of whole or subtotal stomach preservation and the necessity of gastric resection combined with TP are unclear.

Methods:

Thirty-eight patients who had undergone TP were retrospectively analyzed to evaluate gastric venous congestion and bleeding. TP was classified as TP with distal gastrectomy (TPDG), pylorus-preserving TP (PPTP), subtotal stomach-preserving TP (SSPTP), and TP with segmental duodenectomy (TPSD).

Results:

Portal vein or superior mesenteric vein resection and reconstruction was performed in 24 patients (62.2%). Gastric bleeding occurred immediately after tumor resection in one of eight patients who underwent SSPTP, and urgent anastomosis between the right gastroepiploic and left ovarian vein stopped the bleeding. Another case of gastric bleeding was observed a few hours after TP in one of nine patients who underwent PPTP, and hemostasis was achieved after conservative therapy. Gastric bleeding was not observed in 16 patients who underwent TPDG and 5 who underwent TPSD. Some patients underwent preservation of gastric drainage veins (left gastric vein, right gastric vein, or right gastroepiploic vein). Neither patient with bleeding underwent preservation of a gastric drainage vein.

Conclusions:

Distal gastrectomy may be a safe method with which to prevent gastric venous congestion and bleeding after TP. To preserve the subtotal or whole stomach when performing TP, one of the gastric drainage veins should undergo preservation or reconstruction, and anastomosis between the right gastroepiploic vein and left ovarian vein may be beneficial.

Lymphadenectomy issues in Esophageal cancer

Vashist Yogesh

Fluorescence guided surgery for GI cancers

Bouvet Mike

Adenocarcinoma of the esophagogastric junction siewert II: total gastrectomy or superior polar esogastrectomy?

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Objective:

Optimal surgical approach for patient with type II AEG is still debated although these tumors are now considered as esophageal cancers in the seventh edition of TNM classification. The objective of this study is to assess and compare surgical and oncological outcomes of two surgical approaches (superior polar esogastrectomy (SPE) or total gastrectomy(TG) in patients with type II adenocarcinoma of the esophagogastric junction (AEG).

Methods:

183 patients with type II AEG treated from 1997 to 2010 in 21 French centers by SPE or TG were included in a retrospective study. The surgical and oncological outcomes were compared between these two surgical approaches.

Results:

A TG was performed in 64 (35%) patients whereas 119 (65%) patients were treated by SPE with transthoracic approach in 100 patients (83.2%), transhiatal approach combined with cervicotomy in 19 patients (16.8%). Surgical outcomes were comparable between the two approaches with a postoperative mortality rate of 4.9% and a severe operative morbidity within 30 days observed in 28 patients (15.3%). Median survival in patients operated on by TG was of 46 months compared to 27 months in patients treated by SPE ($p=0.118$). At multivariate analysis, TG approach appears being an independent good prognostic factor compared with SPE approach (HR=1.847; $p=0.008$). However, TG was also associated with a higher rate of incomplete resection, (12.5% vs 5.9%; $p=0.120$).

Conclusion:

When TG allows obtaining tumor-free resection margins, this approach should be preferred to SPE approach. A new pragmatic classification of AEG is proposed to facilitate the preoperative choice of the optimal surgical approach.

Milestones in oesophageal resection for oesophageal carcinoma in The Sudan.

Ahmed Mohamed ElMakki

Antethoracic free jejunum reconstruction for esophageal cancer

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Background:

Gastric tube is the first choice as an esophageal substitute for reconstruction after esophagectomy. Colon or jejunum is selected for patients in whom stomach cannot be used. However, due to anatomic reason, pedicled jejunum reconstruction has a weakness in the limited access to upper thorax. To solve this issue, the authors adopted free jejunum reconstruction as the operation in patients with esophageal cancer who had no stomach to use as an esophageal substitute and limitation to harvest sufficient pedicled jejunum flap.

Objectives:

The aim of this presentation is to review our experience with this technique.

Method:

From 2004 to 2011, esophagectomy and antethoracic free jejunum reconstruction was performed in 5 patients at the Department of Gastroenterological Surgery (Surgery II), Nagoya University Hospital. Medical records of these 5 patients were retrospectively reviewed to determine demographic data, diagnosis and perioperative course.

Surgical technique:

A skin flap of the chest wall was created as far as the medioclavicular line by dissecting along the fascia of the greater pectoral muscle to accommodate the jejunum. In the abdomen, we commonly used first or second branch vessel as donor vessel and harvest free jejunum flap 20 cm in length. After esophagojejunum anastomosis revascularization was performed by plastic surgeons, after removing the third rib cartilage and isolate right internal mammary artery and vein.

Results:

Median operating time, blood loss and hospital stay were 540 min, 520 ml and 28 days, respectively. There were no in-hospital death. Anastomotic leakage occurred in 2 patients.

Conclusion:

Although antethoracic free jejunum reconstruction is technically demanding, it is reliable technique for patients in whom pedicled jejunum flap is not available for reconstruction.

To evaluate the outcomes of physical activity in patients who have undergone thoracic esophageal cancer surgery

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Objective:

Cardiopulmonary **EXERCISE** testing (CPX) and Shuttle walking test (SWT) are non-invasive, objective methods of assessing integrated response of the **heart**, lungs, and musculoskeletal system to incremental **EXERCISE**. This study aimed to evaluate the impact of physical activity using CPX or SWT in patients who underwent a transthoracic esophagectomy.

Methods:

34 patients who underwent a transthoracic esophagectomy were enrolled into the Enhanced recovery after surgery (ERAS) program that included early post-operative enteral nutrition and mobilization. Each patient was evaluated using CPX on both the day of an admission day (pre) and day of discharge (post). On the other hand, 22 patients were enrolled into this program using SWT.

The program was started on the first postoperative day (POD 1). Routine postoperative bronchoscopy for toileting sputum and mechanical bowel preparation (MBP) before surgery were only performed when considered to be necessary. Outcome metrics comprised peakVO₂, peak workload, and anaerobic threshold (AT) in CPX, the distance in SWT.

Results:

In CPX, PeakVO₂ (mL/kg/min) was 21.9 ± 4.4 (pre) and 17.0 ± 3.7 (post) ($p < 0.01$). Peak workload (watt) was 101.8 ± 23.5 (pre) and 76.5 ± 22.0 (post) ($p < 0.01$). AT(mL/kg/min) was 12.6 ± 2.2 (pre) and 11.3 ± 1.7 (post) ($p < 0.01$). The rates of decrease for peak VO₂ and workload were 26.4% and 24.9%, respectively. In SWT, 521.4m in preoperative status, 477.1m in postoperative month 6 (POM 6), and 491.4m in POM 12.

Conclusions:

Physical activity on the day of discharge decreased by approximately 25% and 4.9 METS which was calculated based on peakVO₂. This level is not limited in daily usual life, but not enough to keep quality of life. The data of SWT indicated about 94% in POM12 compared with preoperative status.

Early results of lapthoracoscopic esophagectomy with curative three field lymphadenectomy for esophageal cancer

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Objective:

Esophageal cancer (EC) is one of popular cancers in Vietnam. Some studies recently showed better survival rate with three field lymphadenectomy (TFL). We conduct this study to evaluate the feasibility and results of lapthoracoscopic esophagectomy (LTE) with curative TFL for EC at Choray hospital Vietnam.

Method:

Prospective study. Patients with squamous cell carcinoma (SCC) of esophagus will be included. Patients with cervical EC or distal metastasis will be excluded.

Results:

From 11/2015 to 5/2017, 56 patients with SCC of esophagus have been included into the study. There was 52 male and 4 female with mean age of $60 \pm 4,3$ (45 – 75). Eight patients had neoadjuvant chemoradiation. 5 patients with stage I, 26 with stage II and 25 with stage IV. Tumor located in middle 1/3 was 50 (59.5%), lower 1/3 was 21 (25%) and upper 1/3 was 1 case. Mean operation time was 6 hours with minimal blood loss. Mean hospitalisation was 9.5 ± 2.8 days (7 – 22). Mean lymph nodes harvested in cervical, mediastinal and abdominal fields was 3, 2 and 4 respectively. Mean metastatic lymph nodes in cervical, mediastinal and abdominal fields was 3, 2 and 4 respectively. Postoperative mortality was 1.7% (1 case) due to severe pneumonia. Overall morbidity was 35.7% included 4 cases with pneumonia, 4 cases with anastomotic leak (conservative treatment), 1 case with cervical lymph leak which required reoperation, 6 cases with temporary coarse voice.

Conclusion:

LTE with curative TFL for EC is feasible and safe with good capability of lymphadenectomy. It needs longer follow-up time to better evaluate oncological and functional outcomes of this operation.

A pilot trial of S1 and Paclitaxel in esophageal carcinoma pretreated by 5FU, CISPLATIN and docetaxel – Follow-up report

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Objectives:

This study is the follow-up study demonstrating the clinical efficacy and toxicity of S1 and paclitaxel (S1/PTX) in patients with unresectable or postoperative recurrent esophageal squamous cell carcinoma (ESCC) who had been previously treated with 5FU, cisplatin and docetaxel.

Methods:

Thirty-one ESCC patients treated using S1/PTX at our institute since 2010 were enrolled in this study. S1 was administered orally at a dose of 80 mg/m²/day from days 1 to 14, and paclitaxel was administered intravenously on days 1 and 8 at a dose of 80-100 mg/m². To compare the clinical outcomes, 35 patients who did not receive aggressive treatment (BSC group) and 33 patients who were treated with chemotherapeutic regimens other than S1/PTX (non-S1/PTX group) at our institute during the same period were enrolled.

Results:

A total of 117 cycles (median 3.0 cycles, range 1-12 cycles) were administered. The response rate was 20.0%, including 3 complete responses (CR). The median progression-free survival time (PFS) was 139 days, and the median overall survival time (OS) was 306 days. Severe neutropenia occurred in 14 patients, and 3 showed febrile neutropenia. All non-hematological toxicities were mild, and peripheral nerve paralysis was observed in two patients. Regarding the clinical results of the non-S1/PTX group, 1 patient achieved CR, and the overall response rate was 6.3%. The median PFS was 85.5 days, and the median OS was 336 days. Compared with S1/PTX, although there was no significant difference in the best overall response, PFS and OS, S1/PTX showed higher CR rate. Regarding the BSC group, the median OS was 71 days, and S1/PTX resulted in a significantly better prognosis.

Conclusion:

S1/PTX was found to have tolerable clinical efficacy in terms of the response rate, survival and toxicity in patients with unresectable or postoperative recurrent ESCC who had previously been treated with 5FU, cisplatin and docetaxel.

Prognostic value of Serum Inflammation Markers in Gastrointestinal Stromal Tumor

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Objectives:

Treatment of Gastrointestinal Stromal Tumors (GISTs) is driven by well-known characteristics such as tumor size and mitosis number. Several inflammation markers have been linked to development and prognosis of GISTs. The aim of this study was to investigate the value of preoperative serum inflammation markers in determining GIST prognosis.

Methods:

Clinical and pathological features of patients who underwent surgery at our institution for primary GIST between 2000 and 2014 were reviewed. Peripheral blood inflammation markers were calculated: neutrophil-lymphocyte ratio (NLR), monocyte-lymphocyte ratio (MLR), platelet-lymphocyte ratio (PLR), lymphocyte-white cell ratio (LWR), monocyte-white cell ratio (MWR), platelet-white cell ratio (PWR) and lymphocyte-monocyte ratio (LMR).

Results:

One hundred and forty patients, 65 females and 75 males, median age 66, were included in the study. Most GISTs were located in the stomach (70,7%), while the remaining were found in the duodenum (12,1%), ileum (9,3%), esophagus (2,9%), jejunum (2,9%) and sigma (2,1%). Ninety-seven patients were asymptomatic; 39 had concomitant cancers. Neoadjuvant therapy was administered to 9 patients. Median follow-up was 58,5 months. Three and 5-year overall survival (OS) were 83,5% and 78,7%, respectively; 3 and 5-year disease free survival (DFS) were 89,7% and 86,9%. Median OS and DFS were not reached. On univariate analysis, factors associated to DFS were tumor diameter ($p=0,003$), gastric location ($p=0,024$), cell type ($p=0,024$), mitosis ($p<0,001$), MLR ($p=0,014$), NLR ($p=0,016$), LMR ($p=0,029$). Independent prognostic factors on multistep multivariate analysis (DFS) were: mitosis ($p=0,001$), NLR ($p=0,015$), MLR ($p=0,015$), PLR ($p=0,031$). Correlations were found between MLR, NLR, PLR and tumor diameter, and between PLR and number of mitosis.

Conclusions:

Serum inflammation indexes such as NLR, MLR and PLR are independent prognostic factors for DFS in GIST. They can be used as markers to preoperatively stratify patients. Inclusion of NLR, MLR, PLR in GIST management should be considered to improve the accuracy of risk estimation.

Bile duct injury during cholecystectomy - what to do? and what not?

Rajneesh K Singh

Management of biliary injuries & strictures during cholecystectomy a Jordanian experience /Biliary

Breizat Abdelhadi

Prospective comparison of systemic inflammatory responses in cholecystectomy by means of access; single-port umbilical incision, transvaginal notes, laparoscopy and laparotomy access.

Kumar Rahul.

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Objectives:

Surgical injury is associated with inflammatory stress, often due to ischemia/reperfusion injury. This study was designed to evaluate and compare clinical and inflammatory responses to surgical trauma caused by cholecystectomy through various access approaches: single-port umbilical incision (SILS), transvaginal natural orifice transluminal endoscopic surgery (NOTES), laparoscopy, and Laparotomy access.

Methods:

This prospective study enrolled 60 patients equally divided into four groups with symptomatic cholelithiasis, of whom 11 underwent open, 32 laparoscopic, 10 single-port umbilical incision and 7 transvaginal natural orifice transluminal endoscopic surgery cholecystectomy. Patients were monitored perioperatively regarding anesthesia, surgical procedure times and surgical complications. Postoperatively, patients were assessed regarding ambulation time, feeding and for presence of clinical complications. Peripheral venous blood was collected to measure Procalcitonin, C-reactive protein (CRP) and Interferon-gamma (IFN- γ) preoperatively, immediate post operative period and on day 2 and 7.

Results:

All procedures were successfully performed. Only minor complications, such as gallbladder perforation and bleeding from the liver bed, were observed during surgery in all groups. The vaginal NOTES group showed higher anesthesia and surgical procedure times compared to the other groups ($p < 0.001$). It was found that inflammatory markers were significantly raised in post operative period in open cholecystectomy group as compared to minimally invasive cholecystectomy groups. No other between-group differences in perioperative or postoperative times, clinical evolution, or serum inflammatory markers were observed.

Conclusion:

On the basis of these findings, it can be hypothesized that open cholecystectomy causes more tissue responses as compared to its laparoscopic alternative. The single-port umbilical and transvaginal NOTES access approaches were feasible and safe compared to laparoscopic and laparotomy for cholecystectomy.

Early cholecystectomy improves outcomes in acute cholecystitis in pregnancy. Multicenter study.

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Objectives:

Acute cholecystitis is rare in pregnancy with an estimated incidence of 0.2–0.5 per 1,000 pregnancies. Different methods of management have been reported, ranging from conservative treatment with antibiotic, percutaneous transhepatic gallbladder drainage, laparoscopic cholecystectomy. The aim of this study is to determine the benefit and outcomes of early cholecystectomy in these patients.

Methods:

A multicenter retrospective study of pregnant women with acute cholecystitis including 15 centers from 2009 to 2015 was done. We have not includes patients with non complicated symptomatic cholelithiasis, choledocholithiasis, gallstone pancreatitis.

Results:

One hundred and seven pregnant women were admitted. 99 patients underwent surgical treatment during pregnancy (30 in first trimester, 45 in second trimester and 24 in the third trimester) and 3 after deliverance. Laparoscopic approach was done in 72 cases with 3 conversions. Median delay between admission and surgery was 2 days. 66 patients were operated before 72 hours. No death was observed in our study. Overall maternal morbidity was 6, %. Predictive factors of morbidity were: age >35 years, delayed cholecystectomy CRP>150 and biliary peritonitis. After multivariate analysis only delayed cholecystectomy and biliairy peritonitis were predictive factors of morbidity.

Conclusion:

Early surgical treatment of acute cholecystitis reduces morbidity of acute cholecstitis in pregnant women. Laparoscopic approaches is safe when we respect some rules and we have experience.

Early Versus Late Cholecystectomy After Clearance of Common Bile Duct Stones by Endoscopic Retrograde Cholangiopancreatography: A Prospective Randomized Study

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Introduction:

The time interval between ERCP and laparoscopic cholecystectomy (LC) is a matter of debate that may vary from days to months. This study was planned to compare early LC (within admission) versus late LC (after 1 month) after ERCP as regard technical difficulties and surgical outcomes

Patient and methods:

This is a prospective randomized study on patients who are presented with concomitant gall bladder (GB) and common bile duct (CBD) stone. The study population was divided into two groups: group (A) managed by early laparoscopic cholecystectomy (LC) within 3 days after ERCP and group (B) managed by late LC one month after ERCP. The primary outcome is the conversion to open surgery. Secondary outcomes will include recurrent biliary symptoms, degree of adhesions, blood loss, postoperative morbidity, and hospital stay.

Results:

110 patients included in this study. The conversion rate from LC to open occurred in 11 (10%) cases. No significant difference between both groups as regards the conversion rate, the degree of adhesion, cystic duct diameter, and intraoperative CBD injury or bleeding. Recurrent biliary symptoms were significantly more in delayed LC group in 7 (12.71%) patient versus one patient in early LC ($P=0.03$). Four (7.3%) patients developed postoperative bile leakage from the cystic duct stump in delayed LC group and all patients managed conservatively.

Conclusion:

LC after ERCP and ES is more difficult, it must be operated by an experienced laparoscopic surgeon to reduce the conversion rate and decrease the morbidity rate. No significant difference between both groups as regards the conversion rate. Recurrent biliary symptoms were significantly more in delayed LC while waiting LC. Morbidity was significantly more in delayed LC.

Left sided gallbladder: Technical challenges for laparoscopic cholecystectomy

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Aim:

The aim of our study is the presentation of technical aspects at resection for left sided gallbladder.

Material-method:

The study presents two cases of left-sided gallbladder and their intraoperative management. We had two cases during the last three years, one man 31 years-old and one woman 45 years old. Both patients had gallstones with history of biliary colic. Preoperative imaging was done with ultrasound.

Results:

During laparoscopy after the placement of umbilical trocar, we identified an anatomic variation to the position of gallbladder. The position was under the Liver segment III, to the left of round ligament. Therefore it was appropriate the modification of trocar's placement. The subxiphoid trocar placed more laterally under the left subcostal region for easy maneuvers. The other two trocars placed to the traditional sites under the right hypochondrium. The operation was performed with the standard technique of critical view. We hadn't intraoperative or postoperative complications.

Conclusions:

The left-sided gallbladder is a rare condition with prevalence of 0.3%. It's surprising for a surgeon the identification of such variation intraoperatively. It's needs modification to trocar's placement with transposition of the hypoxiphoid trocar laterally under the left subcostal region. Because of the many variation at biliary anatomy, this rare condition results to change the standard trocar's position to achieve the maximum safety for cholecystectomy.

Long-term Outcome of Small Diameter Hepaticojejunostomy for Treatment of Post-cholecystectomy Bile Duct Injuries.

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Background/Aims:

Bile duct injury (BDI) is the most dreadful complication of cholecystectomy. The aim of this study is to evaluate the long-term outcome of patients presented with post-cholecystectomy BDI and treated with small diameter hepaticojejunostomy (HJ) Roux-en-Y.

Method:

Between January 1992 and September 2016, all patients who underwent HJ Roux-en-Y for treatment of post-cholecystectomy BDI were retrospectively studied. Group A (HJ with a diameter 10mm or less) and group B (HJ with a diameter more than 10mm). Long-term follow up was done for detection of the rate of anastomotic stricture.

Results:

A total number of 353 patients were included in the study with 35 patients (9.9%) were missed during long-term follow up. Group A included 66 (18.7 %) patients while group B included 287 (81.3%) patients. There was a significant difference in the level of injury between 2 groups ($P= 0.034$). The long-term follow up was performed after a median 75 months, range (2-246) for 318 patients. The overall long-term complications were higher within group A (16/64- 25%) than group B (32/254- 12.6%), ($P = 0.009$). The incidence of anastomotic stricture within group A was higher than group B ($P= 0.015$).

Conclusion:

The incidence of anastomotic stricture is higher in small diameter hepaticojejunostomy. Technical skills are important to ensure wide patent mucosa-to-mucosa hepaticojejunostomy to avoid development of anastomotic stricture.

Efficacy of the laparoendoscopic “rendez-vous” to treat bile duct stones in 210 consecutive patients. A single center experience.

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Objectives:

The simultaneous laparo-endoscopic “rendez-vous” (LERV) represents an alternative to sequential or totally laparoscopic approaches for patients affected by cholecystocholedocholithiasis. The aim of this study was to analyze the results in a large series of 210 consecutive patients.

Methods:

From 2002 to 2016 all patients affected by cholecystocholedocholithiasis were treated with a standardized “tailored” LERV. The relevant technical features of the procedure were recorded. An analysis of feasibility, effectiveness in stone clearance and safety was performed.

Results:

Among 214 patients with CBD stones, 210 were treated with LERV and 4 with open rendez-vous approach. Intra-operative cholangiography (IOC) confirmed common bile duct (CBD) stones in 179 patients (85.2%) or sludge in 18 (8.5%) and in 98.9% stone clearance was obtained endoscopically. Endoscopic papilla cannulation was feasible in 161 patients (76.7%) whereas in 49 (23.3%) a trans-cystic guide wire was needed. The overall LERV feasibility was 96.6%. The conversion rate to open surgery was 3.3%. Minor morbidity was observed in 1.9% of cases, mortality in 0.47% and the mean hospital stay was 4.3 days.

Conclusions:

These results confirm the high effectiveness of LERV. This approach to treat cholecystocholedocholithiasis should be preferred and therefore implemented where a strong collaboration between surgeons and endoscopists is possible.

Long Term Outcomes of Choledochoduodenostomy for Common Bile Duct Stones in the Era of Laparoscopy and Endoscopy

Rami Said, Ayman El Nakeeb, Talaat Abd Allah.

Background:

Choledochoduodenostomy (CDD) has been reported as an effective treatment of Common bile duct stones (CBDS). This study was designed to analyze short term and long term outcomes of CDD for CBDS

Methods:

Demographic data, preoperative, intraoperative and postoperative variables were collected. The long term assessment was done in a prospective manner included clinical examination, liver function, abdominal ultrasound, MRCP, upper GIT endoscopy and assessment of quality of life using Gastrointestinal Quality of Life Index (GIQLI).

Results:

A total of 388 consecutive patients underwent CDD, the mean age was 57.92 ± 13.25 years. The mean CBD diameter was 18.22 ± 4.01 mm. The mean operative time was 81.21 ± 20.23 minutes. Two patients had recurrent stone (0.06%) and managed successfully by endoscope. Gastritis was observed in 16.9% patients. No patient developed sump syndrome, deterioration in liver function or cholangiocarcinoma. Total and subgroup scores on the GIQLI before and after CDD differed significantly at follow-up ($P=0.0001$).

Conclusion:

CDD is a safe and effective method of drainage of CBD after clearance of CBDS. Long term outcomes are acceptable with good quality of life. Sump syndrome is extremely rare; CDD may be associated with mild to moderate gastritis. CDD doesn't lead to development of cholangiocarcinoma.

Key words:

Common bile duct stone, cholangiocarcinoma, biliary drainage.

Management and Outcome of Borderline Common Bile Duct with Stones: A Prospective Randomized Study.

Ayman El Nakeeb, Waleed Askar.

Introduction:

Management of common bile duct stones (CBDS) in patients with borderline CBD presents a surgical challenge. The aim of this study was to compare conservative treatment with endoscopic stone extraction for the treatment of borderline CBD with stones.

Patients and methods:

This prospective randomized controlled trial includes patients with CBDS in borderline CBD (CBD <10 mm) associated with gallbladder stones who were treated with conservative treatment or endoscopic stone extraction followed by laparoscopic cholecystectomy (LC) and intraoperative cholangiogram (IOC). The primary outcome was successful CBD clearance. The secondary outcomes were the overall complications, cost, and hospital stay.

Results:

LC and IOC revealed complete clearance of CBDS in 48 (96%) cases in the endoscopic retrograde cholangiopancreatography (ERCP) group (52% of patients by ERCP, and 44% of patient passed the stone spontaneously), and in the remaining two patients, the CBDS was removed by transcystic exploration. In the conservative group, LC and IOC revealed complete clearance of CBDS in 90% of cases, and in the remaining 10% of patients, the CBDS was removed by transcystic exploration. Post-ERCP pancreatitis (PEP) is noticed significantly in the ERCP group (2 [4%] versus 8 [16%]; $P = .04$). The average net cost was significantly higher in the ERCP group. Recurrent biliary symptoms developed significantly in the ERCP group after 1 year (10% versus 0%; $P = .02$) in the form of recurrent cholangitis and recurrent CBDS.

Conclusions:

Management of CBDS in patients with borderline CBD represents a surgical challenge. Borderline CBD increases the technical difficulty of ERCP and increases the risk of PEP. Conservative management of CBDS in borderline CBD not only avoids the risks inherent in ERCP and unnecessary preoperative ERCP, but it is also effective in clearing CBDS. The hepatobiliary surgeon should consider a conservative line of treatment in CBDS in borderline CBD in order to decrease the cost and avoid unnecessary ERCP.

Open liver surgery: surgical anatomy and anatomical surgery of glissonean approach

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The extrafascial dissection of Glissonean pedicle is a very important technique that can be extremely useful in particular circumstances during liver surgery, such as in multi-operated patients or in patients with cirrhotic liver or anomalous vascular and biliary variations. Regarding this technique some terminology confusion still exists (Glissonean approach, extra-Glissonean approach, Glissonean pedicle transection method, posterior intrahepatic approach, suprahepatic vascular control, perihilar posterior approach, superficialisation of Glissonean pedicles).

Nevertheless, despite many titles the main surgical concept is the same, and it's based on the anatomical fact and observation of Couinaud that portal triad elements inside the liver substance, are enveloped with fibrous Glissonean sheet, thus representing an important structure of internal architecture of the liver. The extrafascial-Glissonean pedicle approach in liver surgery provides new knowledge of the surgical anatomy of the liver and advances the technique of liver surgery. Opposite to "classic" intrafascial dissection, this technique includes extrafascial isolation of the whole sheet of Glissonean pedicle and its division "en masse". Glissonean pedicles can be approached intrahepatically or extrahepatically. The use of vascular staplers in this situation allows quick and safe transection of the pedicle, as well as appropriate hepatic vein. The second advantage of this technique presents the quick and easy definition of the anatomic territory of the liver to be removed. Selective clamping of the appropriate isolated pedicle demonstrates the further ischemic demarcation of anatomical liver part of interest (hemiliver, section or even segment) as well as delineation of resectional planes. Recent advances of presented surgical technique includes liver hanging maneuver and some modifications with two tapes to control the main fissure of the liver or various liver resections using hanging maneuver by three Glisson's pedicles and three hepatic veins.

All about Glissonean approach technique for laparoscopic liver resection

Chanwat Rawisak

Postoperative liver failure after major hepatectomy with extrahepatic bile duct resection: Validation study of clinical definitions of PHLF for detecting mortality.

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Background:

Postoperative liver failure (PHLF) is the most serious complication after major hepatectomy (Hx) with extrahepatic bile duct resection (EBDR), and could be a cause of hospital mortality in its severe cases. The purpose of this study was to evaluate several PHLF criteria as predictors of PHLF related mortality following Hx with EBDR for perihilar cholangiocarcinoma (PHCC).

Methods:

183 PHCC patients who had undergone Hx with EBDR were evaluated. The study protocols were approved by our institutional review board (016-0405) and this study was enrolled in UMIN-CTR (No: UMIN000025709).

Results:

Seven patients (3.8%) died of PHLF-related causes. We compared several criteria for PHLF: a) 3-50-50 criterion (Total bilirubin: T-Bil > 3 mg/dl and prothrombin time: PT% < 50% on POD 3); b) 65-50 criterion (T-Bil > 3.5 mg/dl and PT% < 65% on POD 5); c) Max T-Bil criterion (T-Bil > 7.3 mg/dl before POD 7); d) International Study Group of Liver Surgery (ISGLS) criterion; and e) 50-50 criterion. The 3-50-50 and Max T-Bil criteria showed higher positive predictive values (25.0% and 23.1%, respectively) and accuracies (88.5% and 90.7%, respectively) than other criteria.

Conclusions:

The 3-50-50 and Max T-Bil criteria were proved to be useful for defining PHLF-related death after Hx with EBDR for PHCC.

Stapler hepatectomy versus LigaSure Transection in Elective Hepatic Resection: A Randomized Controlled Trial

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Objectives:

Earlier studies have demonstrated stapler hepatectomy and various energy devices as safe alternatives to the clamp-crushing technique in elective hepatic resection. In this randomized trial the effectiveness and safety of stapler hepatectomy was compared to parenchymal transection with the LigaSure vessel sealing system.

Methods:

Patients scheduled for elective liver resection at two tertiary care centers were randomized intraoperatively to stapler hepatectomy or transection with the LigaSure device. Total intraoperative blood loss was the primary efficacy endpoint. Transection time, operating time, perioperative complications and length of hospital stay were recorded as secondary endpoints.

Results:

A total of 138 patients were randomized, 69 to the LigaSure and 69 to the Stapler hepatectomy group. Baseline characteristics were balanced well between groups. Intraoperative blood loss was significantly higher in the LigaSure (850 [100-4000] ml) vs. stapler hepatectomy group (600 [30-4200] ml) ($p = 0.03$). Duration of parenchymal transection was significantly lower in the stapler hepatectomy groups (23 ± 12 min vs. 8 ± 5 min; $p = 0.03$), as was the total operating time (199 ± 86 min vs. 168 ± 70 min; $p = 0.03$). Surgical morbidity did not differ between the LigaSure and the Stapler hepatectomy groups (27 [39%] vs. 30 [44%]; $p = 0.37$), nor did the grade of complications ($p = 0.14$).

Discussion:

Stapler hepatectomy is associated with reduced blood loss and shorter operating time compared to the LigaSure device for parenchymal transection in elective partial hepatectomy.

Overview of the learning curve in laparoscopic liver surgery: what are the challenges?

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Objectives:

The learning curve (LC) for laparoscopic liver surgery (LLS) is longer and demanding and it's difficult to draw final conclusions because many factors influence outcomes, such as center experience and individual surgical skills. We here present a review on the definition of the LC for LLS.

Methods:

A literature review was performed regarding different aspects related to the LC in LLS with no specific restriction. Because the published evidence has focused on single centers experience with different surgeons and specific procedures, we defined the single surgeon learning curve (SSLC) as a continuously evolving process by analysing our 11 years experience.

Results:

Vigano et al. described the LC based on a CUSUM analysis of conversions, comparing three different periods. They concluded the 60 procedures are needed to attain a minimal conversion rate. However, four different surgeons shared this experience. Cai et al. described a single center experience on four specific procedures, claiming 15-30 left hemihepatectomy, 43 left lateral sectionectomy, 35 non-anatomic and 28 segmentectomies as the numbers needed to achieve best results. Nomi et al. recently published a paper focusing on laparoscopic major hepatectomies analysing the OT. They suggested that 45 procedures were required to reduce the OT. According to our analysis based on 319 different laparoscopic liver resection (LLR) performed by a single surgeon during 11 years, the SSLC could be considered completed after 160 cases, in which the surgeon progressively challenged himself with various procedures through stepwise difficulties; the gradual increase in the types of procedures and degree of difficulty has led successively to the safe management of major hepatectomies and resections of postero-superior segments.

Conclusions:

A long LC should be anticipated to broaden the indications for LLR. Certainly, in LLS, the continuous monitoring of performance and results is a crucial step in completing the LCs of younger fellows, who will master laparoscopic techniques in the future.

Preventing missing liver metastases: evaluation of a pretherapeutic strategy using fiducial placement

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Objectives:

Surgery offers prolonged survival in selected patients with colorectal liver metastases (CRLM). A large part of these patients receives preoperative chemotherapy, in neoadjuvant or conversion intent. The incidence of metastases disappearing from pretherapeutic cross-sectional imaging is increasing. At least half of these lesions are still active. It asks the question of their elective treatment when they are part of the future remnant liver. This retrospective study aimed to evaluate the pretherapeutical marking of these missing metastases using fiducial placement.

Methods:

Patients with CRLM treated in curative intent between 2009 and 2016 were included. According to multidisciplinary team decision, lesions of less than 25mm, more than 10mm deep in hepatic parenchyma and located out of the field of a planned resection were marked. The fiducial was placed at the edge of the lesion, with US- or CT-guiding. Rate of complication by procedure, clinical and pathologic data were analysed.

Results:

We marked 76 CRLM in 43 patients. Twenty-three marked CRLM (30 per cent) did disappear. Their mean size at diagnosis was 11mm (8-25). After a median follow-up of 26,5 months (3,9-76,2), 4 complications occurred on 89 procedures (4,5 per cent) (2 hepatic hematomas, 1 fiducial migration and 1 misplacement). They were all of Clavien-Dindo grade 1. No needle-track seeding was noted. Four MM were treated by surgery with persistent disease in half of them. The others MM were treated by thermal ablation.

Conclusion:

This technique does not lead to major complications and seems usefull in the CRLM curative intent strategy aiming at treating all initial metastatic site with parenchymal-sparing.

Oncological and Surgical Outcomes of Hepatocellular Carcinoma after Robotic Hepatectomy: A comparison study to conventional open hepatectomy

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Most liver resections are currently performed using an open approach. Minimally invasive surgery gradually became mainstay for liver surgery in recent decade. Robotic hepatectomy has been suggested to be a safe and effective approach for hepatocellular carcinoma (HCC); however, studies regarding oncological and surgical outcomes are still limited. Accordingly, we performed this study to compare the surgical and oncological outcomes between robotic and open hepatectomy.

Methods and Materials:

Between June, 2013 and July 2016, a total of 63 patients with primary HCC underwent robotic hepatectomy (RH), and 177 patients underwent open hepatectomy (OH) by the same surgical team in our department, were included in this study to assess the surgical and oncological outcome after a liver resection. These patients were followed up regularly in outpatient department of this hospital, the follow-up period is 726.10 ± 248 days for the open group and 791.05 ± 323.48 days for the robotic group.

Pre, peri- and post-operative data of all patients with undergoing a liver resection for HCC were collected prospectively and analyzed retrospectively.

Results:

The demographic and clinical features of patients with HCC in both groups are statistically comparable. The postoperative complications rate is slightly lower in robotic group (11.1% vs. 15.3%, $p=0.418$). The rate of R0 resection is similar in both groups (92.1% vs. 96%, $p=0.56$). The length of hospital stay is significantly shorter in robotic group (6.21 ± 2.06 days vs. 8.18 ± 6.99 days, $p=0.001$). The overall recurrence rate of HCC is lower in robotic group although the difference is not significant (27% vs. 37.3%, $p=0.140$).

The 1,2,3 year disease free survival is 72.5%, 64.3% and 61.6%, respectively, for open group, while it is 79.5%, 71.9% and 71.9% respectively for robotic group, ($p=0.325$). The 1,2,3 year overall survival rate is 95.4%, 92.3% and 92.3% respectively for open group, while it is 100%, 97.7% and 97.7%, respectively, for robotic group ($p=0.137$). Multivariate analysis using Cox regression model showed Child-Pugh B, satellite module, Ishak's score and α -FP are independent risk factors for HCC recurrence.

Conclusion:

The robotic surgery is a safe and feasible procedure for liver resection. The oncological and surgical outcomes of robotic hepatectomy are comparable to open surgery. The robotic hepatectomy, however, carried a benefit of significantly shorter length of hospital stay.

Liver arterial blood supply after clamping of common hepatic artery. Us data of 110 cases.

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Aim:

To study liver collateral arterial supply after temporary occlusion of the common (CHA), right gastroepiploic (RGEA) and accessory/replaced left hepatic arteries (a/rLHA).

Background:

Distal pancreatectomy with celiac artery resection (DPCAR) is in use for borderline-resectable pancreatic cancer. It is believed that considerable reduction of the liver arterial supply after DPCAR may cause severe liver ischemia. Although the artery reconstruction is not a problem anymore the decision to reconstruct CHA has to be justified.

Patients and methods:

Arterial anatomy, diameters of CHA, proper hepatic (PHA), gastroduodenal (GDA) and pancreatoduodenal arteries (PDA) were registered before surgery in 110 consecutive patients with pancreatic body/tail cancer (n35), gastric cancer with pancreatic involvement (n30) and liver tumors (n45) by CT. For DPCAR (n20) the data were obtained after surgery as well. Arterial blood flow in the liver and mean systolic velocity in hepatic arteries before and after clamping were measured intraoperatively by Doppler ultrasound.

Results:

Classical arterial anatomy was identified in 67% and replaced right hepatic artery (rRHA) from the SMA in 24% of cases. Pulse had disappeared in 9(8%) cases after clamping of CHA, RGEA and aLHA/rLPA. Collateral arterial blood flow in the liver parenchyma was revealed in all cases. DPCAR led to increase of GDA, rRHA, PDA and RGEA blood flow in 0,9-12 times; PD arcades were detected only once before DPCAR and every time afterwards.

Conclusion:

Doppler ultrasound is a reliable modality for intraoperative assessment of liver arterial blood supply after DPCAR; Hepatic artery reconstruction may be necessary after DPCAR if arterial Doppler signal disappeared upon the liver parenchyma.

Laparoscopic anterior rectal resection with synchronous hepatic segmentectomy

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The mainstay of surgical treatment for colorectal cancer with synchronous hepatic metastases has been under discussion and remains controversial. Although some studies recommend a staged approach advocating that the timing of metastatic resection (synchronous versus staged) does not affect the prognosis, it is known that 15-30% of patients fail to complete the treatment plan.

Thus, the synchronous resection has been emerging as a valid and safe option, with proven short-term outcomes similar to the staged approach regarding morbidity and mortality. This is true for selected patients that require a minor hepatic resection in experienced high-volume centers.

We present a video of a laparoscopic anterior rectal resection with synchronous hepatic segmentectomy (II and III). The patient was a 50-year-old man diagnosed with colorectal cancer (rectal-sigmoid transition) and synchronous single hepatic metastasis (segment II). Pre-operative CEA and CA 19.9 were 14,02 ng/mL and 83,4 U/mL, respectively. Total operative time was 245 minutes, without noteworthy complications on post-operative period. The patient was discharged at the 6th postoperative day and is being submitted to adjuvant FOLFOX chemotherapy.

Kasai-like procedure for multiple biliary duct reconstruction after extended liver resection for Perihilar Cholangiocarcinoma.

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Introduction:

In patient with perihilar cholangiocarcinoma (PCC), complete resection of tumour remain the best therapeutic option for a long term survival.

In patient with Bismuth type IV lesions, left or right extended liver resection has been shown to be feasible. The Achilles heel of the procedure remain biliary reconstruction due to multiplicity and small diameter of remnant liver ducts. In this video, we show how a Kasai-like portoenterostomy allow to circumvent this difficult.

Method:

A 57-years-old Caucasian female with a PCC type IV, underwent right trisectionectomy, using “no-touch technique”. Cross section of the left biliary plate was tumour free at frozen section analysis, but it showed three small biliary duct for segment II (x1), segment III (x1) and remnant segment IVb. The biliary plate was large (2,5 cm) a distance between each duct was too large to allow unification.

Roux-en-Y portoenterostomy, with interrupted 5/0 PDS suture, was performed between the left biliary plate level and extramucosa wall of efferent Roux-en-Y jejunal limb. Two trans-portoenterostomy drains were placed according to the Voelker technique.

Results:

The post-operative course was uneventful. The patient was discharged on 8th post operative day. The two trans-portoenterostomy drains were removed after six weeks.

Conclusions:

In extended PCC, Kasai-like portoenterostomy may broaden the indication for liver resection.

Advanced laparoscopic liver resection in patients with liver cirrhosis

Cheung Tan To

Challenging and updates in Laparoscopic Liver Surgery

Troisi Roberto

Controversies of Robotic Liver Resection

CN Tang

Chief of Service, Department of Surgery

Director of MAS Training Centre

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Interest in laparoscopic liver surgery has increased in last two decades. Previous series have demonstrated the safety and feasibility of laparoscopy for minor hepatectomies. Laparoscopy is now considered a standard approach for left lateral sectionectomy and minor resections. Comparative studies have suggested that laparoscopy is associated with less bleeding, fewer complications, and a better subsequent quality of life than open liver surgery. However, there are still a lot of limitations of conventional laparoscopic hepatectomies, such as tumor location, tumor size and extent of liver resection. The recent introduction of robotic surgical systems has revolutionized the field of minimally invasive surgery. It was developed to overcome the disadvantages of conventional laparoscopic surgery. Robotic surgical systems can enhance a surgeon's dexterity in the surgical field through a magnified three-dimensional view, instruments with seven degrees of freedom, and intuitive hand-control movements. The robotic devices can also shorten the learning curve of difficult laparoscopic procedures for inexperienced laparoscopic surgeons and enable expertise to conduct more complex laparoscopic procedures easily. Early outcomes from robotic hepatectomies are comparable with those of laparoscopic and open approaches. In clinical practice, the robotic system has broadened the indications of minimally invasive surgery into the more complex liver surgeries such as major hepatectomy with biliary reconstruction, donor hepatectomy. Technological innovations and increased surgeon familiarity with this approach will improve, likely leading to greater adoption and acceptance.

Early enteral versus total parenteral nutrition in patients undergoing pancreaticoduodenectomy: a randomized multicenter controlled trial (nutri-DPC)

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Hepatectomy for intrahepatic stone disease: the robotic approach

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Objectives:

Management of intrahepatic stone disease is difficult. Liver resection has emerged in recent years as a promising treatment option.

Methods:

Robotic liver resection (RLR) has been adopted in our center for the management of patients with intrahepatic stone disease. The operative and short-term outcomes of this cohort of patients were compared with those of a historical cohort of patients in whom an open approach (OLR) was used. A subgroup analysis was performed for patients who underwent left lateral sectionectomy, which was the most common type of liver resection done for intrahepatic stone disease.

Results:

Between September 2010 and April 2015, 15 RLR procedures were performed in patients with intrahepatic stone disease. The historical cohort consisted of 42 patients who underwent OLR between January 2005 and January 2014. No differences were found in patient demographics, disease characteristics, or types of resection. No operative deaths occurred, and no difference was seen in the complication rates. The RLR procedures had significantly less blood loss (100 ml vs. 235 ml; $p = 0.011$) and shorter hospital stays (6 days vs. 8 days; $p = 0.003$). After a median follow-up of 19.4 months for the RLR group and 79.2 months for the OLR group ($p < 0.001$), there were no differences in the residual stone rate, the recurrent stone rate, or the rate of recurrent cholangitis. The subgroup analysis of patients who underwent left lateral sectionectomy (10 RLR vs. 27 OLR) revealed similar outcomes, i.e., less blood loss and shorter hospital stays in the RLR group.

Conclusions:

RLR reduces blood loss and shortens hospital stays compared with OLR. A longer follow-up period is needed to assess the long-term outcomes of RLR regarding the prevention of recurrent stones and cholangitis.

Critical appraisal of the impact of individual surgeon experience on the outcomes of laparoscopic liver resection in the modern era: collective experience of multiple surgeons at a single institution with 324 consecutive cases

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Background:

Most studies analyzing the learning experience of laparoscopic liver resection (LLR) focused on the experience of 1 or 2 expert pioneering surgeons. This study aims to critically analyze the impact of individual surgeon experience on the outcomes of LLR based on the contemporary collective experiences of multiple surgeons at single institution.

Methods:

Retrospective review of 324 consecutive LLR from 2006 to 2016. The cases were performed by 10 surgeons over various time periods. Four surgeons had individual experience with < 20 cases, 4 surgeons with 20-30 cases and 2 surgeons with > 90 cases. The cohort was divided into 2 groups: comparing a surgeon's experience between the first 20, 30, 40 and 50 cases with patients treated thereafter. Similarly, we performed subset analyses for anterolateral lesions, posterosuperior lesions and major hepatectomies.

Results:

As individual surgeons gained increasing experience, this was significantly associated with older patients being operated, decreased hand-assistance, larger tumor size, increased liver reresections, increased major resections and increased resections of tumors located at the posterosuperior segments. This resulted in significantly longer operation time and increased use of Pringle maneuver but no difference in other outcomes. Analysis of LLR for tumors in the posterosuperior segments demonstrated that there was a significant decrease in conversion rates after a surgeon had experience with 20 LLR. For major hepatectomies, there was a significant decrease in morbidity, mortality and length of stay after acquiring experience with 20 LLR.

Conclusion:

LLR can be safely adopted today especially for lesions in the anterolateral segments. LLR for lesions in the difficult posterosuperior segments and major hepatectomies especially in cirrhosis should only be attempted by surgeons who have acquired a minimum experience with 20 LLR.

Laparoscopic formal right and left hepatectomy versus open approach: a propensity score matching analysis

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Objective:

To analyse intra-operative and post-operative outcomes of pure laparoscopic right and left vs. open hepatectomy matched by the propensity score analysis. The aims of the study were perioperative and short-term outcomes of laparoscopic right and left hepatectomy.

Methods:

From 2006 to 2014, 201 pure formal right hepatectomies and left hepatectomies were performed of which 48 were laparoscopic.

After a 1:1 propensity score matching, right hepatectomies and left hepatectomies were compared to 34 open right and left hepatectomies. The matching was based on the following parameters: age, gender, BMI, ASA score, underlying liver disease, previous abdominal surgery, type of hepatectomy, preoperative chemotherapy, number, dimension and nature of lesions. An Intention-to-treat and a Per-protocol analysis were carried out.

Results:

Mean overall surgical time was 344.3 ± 109 minutes in the laparoscopic group and 300.8 ± 69 in the open group ($p=0.058$); conversion rate in laparoscopy was 20.6%; median blood loss was 300 ml (50-3000) vs. 500 ml (50-2500) respectively for laparoscopic and open ($p=0.534$). Pringle manoeuvre was used in 8.8% of cases in the laparoscopic group and 12.1% of cases in the open group ($p=0.709$). Lengths of post-operative analgesia and hospital stay were significantly shorter in the laparoscopic group ($p=0.03$ and $p=0.0001$, respectively). Post-operative complications occurred in 11.8% of laparoscopic cases and in 32.4% of open cases ($p=0.410$). Median Complication Comprehensive Index was 20.9 (20.9 – 33.5) in the open group vs 20.9 (8.7 – 26.2) in the open group ($p=0.571$).

Per protocol analysis (only patients without conversion in lap group were compared to patients with standard approach), showed a better trend in favour of laparoscopy concerning postoperative hospital stay, blood loss, days of analgesia and complications.

Conclusions:

Laparoscopic formal right and left hepatectomies are safe and feasible procedures allowing a similar complication rate with a shorter hospital stay and diminished post-operative pain respect to the standard approach.

Laparoscopic hepatectomy for segment I, IV, V and VIII

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Objectives:

According to difficulty scoring system, laparoscopic hepatectomy (LH) for caudate lobe and middle segments should be considered as the most difficult case. We here report the first case of LH for segment I, IV, V and VIII in China.

Methods:

The patient was a 31-year-old man without hepatitis history. Preoperative MRI revealed a 5.0cm×5.2cm mass located in the paracaval portion. Preoperative liver function tests and tumor markers were normal. Preoperative diagnose was hepatic adenoma. Informed consents were obtained from the patient himself and his parents. The West China Hospital administration and the ethics committee authorized the surgery.

Results:

After cholecystectomy, the right hemi-liver was mobilized. Intraoperative ultrasonography was used to locate the tumor precisely. A rubber tube was placed through the tunnel between liver and vena cava for the preparation of Hanging maneuver. Parenchymal transection started from segment IV under Pringle maneuver. The superficial of liver was dissected by ultrasonic shears and the deeper tissue was dissected by ultrasonic aspirator. The hemi-hepatic vascular inflow occlusion was then adopted after dissection of hepatic hilum. The caudate lobe was completely separated from the left lateral lobe and the right posterior lobe. The root of middle hepatic vein and the right anterior Glisson's branch were transected by linear stapler. The cephalic transection was carefully performed along the root of right hepatic vein. Finally, the transection was completed after an exposure of right and left hepatic vein and vena cava, as well as hepatic hilum. The specimen was put into a retrieval bag and removed from suprapubic incision. The operation time was 410 minutes and blood loss was 300ml. Hepatic adenoma was postoperatively diagnosed. The postoperative course was uneventful for the patient.

Conclusions:

LH for segment I, IV, V and VIII can be safely performed in selected patient in experienced center.

Laparoscopic Hybrid NOTES Liver Resection with Natural Orifice Specimen Extraction (NOSE) for Complex Cyst at Segment 6

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Background:

Laparoscopic liver surgery is upcoming surgical technique. Multiple series have reported on the safety and efficacy of laparoscopic liver surgery. Nevertheless, extension of port site is needed for specimen retrieval. This abdominal wound extraction site remains to be a major source of morbidity after laparoscopic liver surgery. The common incisions for transabdominal specimen retrieval are lower quadrant, midline, or transverse suprapubic incision. This case shows the alternative method of specimen extraction after laparoscopic liver surgery.

Objectives:

To evaluate the effectiveness and benefit of the alternative method of specimen extraction after laparoscopic liver surgery.

Materials & Methods:

A 69-year-old Thai woman with incidental and asymptomatic complex cyst lesion at liver segment 6 during annual ultrasonographic checkup was presented. The magnetic resonance imaging showed complex cyst at liver segment 6. A combined laparoscopic-transvaginal approach was applied with 10-mm camera port placed at her vaginal posterior fornix. The 10-mm and two 5-mm ports were placed at her abdomen. The liver parenchyma was divided using the Cavitron Ultrasonic Surgical Aspirator (CUSA) and vessel sealing device. The specimen was placed in the Endobag and extracted transvaginally.

Results:

Operative time was 135 minutes and blood loss was 120 ml. The patient was discharged on postoperative day 3. She complained of a pain at incisional wound which was relieved without intravenous analgesia. No postoperative complication was found after 30 days.

Conclusion:

Our technique of transvaginal specimen retrieval effectively prevents wound-related complications by completely eliminating mini-laparotomy for specimen extraction. NOSE technique results in shorter recovery period, less postoperative pain, and fewer potential wound-related complications. This technique is safe and effective with excellent aesthetic results.

Modern minimally invasive surgical treatment of ulcerative colitis, short and long term results

Lázár György

Attitude of surgeons for minimally invasive surgeries in resource limited countries.

Haile Henok

Robotic resection of presacral (retrorectal) masses

Akmal Yasir

American society for gastrointestinal endoscopy guidelines for colonoscopy indications: are they suitable for african patients.

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Objectives:

The need for colonoscopy as a diagnostic and therapeutic modality is increasing worldwide. In country like Sudan with limited resources, this may increase the work load of the endoscopy units and the waiting time of patients with an adverse effect on disease progression. So, we need defined criteria for colonoscopy referrals. The objectives of this study were to: investigate the appropriateness of colonoscopy referrals to Soba University Hospital using the ASGE guidelines and to evaluate the diagnostic yield of appropriate and inappropriate referrals according to these guidelines.

Methods:

This is a prospective, descriptive, cross-sectional, hospital based study carried out at Soba University Hospital, Khartoum, Sudan, from January to July 2016. All patients referred for colonoscopy during the study period were included in the study after obtaining an informed consent. Those under 18 years or those who declined to participate were excluded. The ASGE guidelines were used to assess the appropriateness of colonoscopy. Data was collected using a special data sheet and analyzed using SPSS version 20.

Results:

A total number of 222 patients were included in the study with a mean age of 50.2 years +/- 16. 217 patients (97.7%) were outpatients and 121 patients (54.5%) were males. The examination was completed up to the caecum in 206 patients (92.8%). Bowel preparation was described by the endoscopist as optimal in 80.6% and suboptimal in 15.3%. There were (62.6%) appropriate referrals, (27%) inappropriate referrals and 10.4% not listed referrals. The diagnostic yield of colonoscopy was 35.1% and was highly dependent on appropriate colonoscopies.

Conclusion:

ASGE guideline for colonoscopy revealed high rate of diagnostic yield and can be adopted in our settings with some modification regarding certain indications which were not listed in the guidelines and found to be associated with small but significant pathology.

Efficacy and safety of infliximab tolerance induction in patients with inflammatory bowel diseases who experienced acute infusion reactions

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Introduction:

Immediate hypersensitivity reactions (IHR) are one of the reasons of infliximab (IFX) failure. We aimed to report efficacy and safety of a tolerance induction protocol in inflammatory bowel diseases (IBD) patients who had previously experienced IHR during IFX infusions.

Aims & Methods:

We reported all cases of IBD patients who had previously experienced IHR to IFX and who were submitted to a standardized protocol of drug immune tolerance induction to IFX from 2010 to 2015.

Results:

Sixteen patients were included in our study. IHR occurred in a majority of patients (69%) during the first 3 infusions and for half of them after a period of IFX withdrawn. Seventy-five percent of the patients exhibited moderate symptoms. All skin Prick tests were negative and only 2 intradermal tests were positive. Basophil activation tests and anti-drug antibody measurements were performed in 8 out 16 patients and were positive in 3 and 4 patients, respectively. The IFX induction of tolerance was successful in 69% of patients without safety issue and IFX was pursued with clinical efficacy for more than a year in 7 patients (44%). No link between the results of the allergologic investigations and the success of the tolerance induction was found.

Conclusion:

A majority of acute reactions to IFX infusions occurred during the beginning or restarting of treatment and was related to a non-allergic hypersensitivity mechanism. Induction of tolerance to IFX is feasible and effective and may safely allow retreatment of IFX in almost 70 % of IBD patients.

Enrichment of circulating double positive interleukin-17 producing foxp3+ cd4+ t cell subsets are associated with a higher risk of further relapse in crohn's disease in remission

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Introduction:

The balance between Foxp3+ regulatory T cells (Tregs) and effector T cells, including Th1 and Th17 CD4+ T cell subsets are critical for protecting the host from infection while maintaining gut homeostasis. All these T cell subsets contribute to the pathogenesis of Crohn's disease (CD). The dynamics of most of the peripheral effector and regulator T cell subsets during the course of CD in remission and their relationships with the risk of relapse remain unknown. We aimed to systematically analyse the evolution of frequencies of circulating Th1, Th17 and Tregs with respect to disease remission - relapse in CD.

Aims & Methods:

A cohort of 113 CD patients in clinical remission were regularly followed up on a 3-month basis. Blood samples were collected at each visit for routine monitoring inflammatory markers, including ultrasensitive CRP and for measurements of various serum cytokines, including IL-6, IL-8, IL-10, IL-13, IL-17A, IL-23, TNFa, IFNg, TGFb, by an ultrasensitive Erenna method. The frequencies of circulating single positive Th1, Th17 and Tregs CD4+ T cell subsets, as well as double positive CD4+ T cell subsets co-expressing IFNg-IL17, Foxp3-IFNg and Foxp3-IL-17 were analysed by multicolour flow cytometry.

Results:

Among the whole cohort, 34 (30%) out of 113 patients relapsed within the follow-up period. The prevalence of circulating IFNg-secreting CD4+ T cells (Th1), IL-17-secreting CD4+ T cells (Th17) and Foxp3-expressing CD4+ T cells (Treg) as well as the concentrations of a wide broad of cytokines (IL-6, IL-8, 17A, TGFb, TNFa, IFNg, IL-13, IL-23) measured in the serum were not significantly different all over the time between patients who relapsed and those who stay in clinical remission. Various circulating double positive CD4+ T cell subsets co-expressing Foxp3 and IL-17, Foxp3 and IFNg and triple positive Foxp3+ IL-17+ and IFNg+ were detectable in CD patients in remission. The subset of CD4+ T cells co-expressing IL-17 and Foxp3 was found significantly enriched (\approx 2-fold increase) in the circulating compartment in the cohort of patients in remission who further experienced a clinical relapse 3 months later compared with that of CD patients who stayed in remission all over the follow-up period. In a multivariate analysis, elevated serum usCRP, low serum IL-10 and high number of double positive IL-17 and Foxp3 CD4+ T cells were 3 independent factors significantly associated with the risk of further clinical relapse in CD patients in remission.

Conclusion:

Detectable circulating crossover immune CD4+ T cell subsets co-expressing Foxp3, IL-17 and IFNg in CD patients in remission argues in favour of the recent concept of T cell plasticity. A significant enrichment of a unique CD4+ T cell subset co-expressing Foxp3 and IL-17 that preceding the occurrence of a flare suggests the potential contribution of this double positive T cell subset in the pathogenesis of CD.

IBD-INFO questionnaire: a multicenter French up-to-date survey of patient knowledge in inflammatory bowel disease

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Introduction:

It has been demonstrated in many chronic conditions, including inflammatory bowel disease (IBD), that better patients' knowledge about pathology and treatment improves the course and management of disease. The aim of this study was to develop an updated self-questionnaire to assess patients' level of knowledge of IBD.

Aims & Methods:

The IBD-INFO included 3 parts: an original part (Q1), and 2 parts from the translation of the pre-existing questionnaires Crohn's and Colitis Knowledge score (CCKNOW) (Q2) and Crohn's and Colitis Pregnancy Knowledge score (CCPKNOW) (Q3). The reliability and discriminatory ability of the questionnaire were validated with 3 groups of non-IBD volunteers with various theoretical knowledge levels. The final questionnaire (64 validated questions) was then tested on 364 in- and out- IBD patients from 4 French university hospitals. The score for each part of the questionnaire was calculated and factors associated with low scores were identified by uni- and multivariate logistic regression analyses.

Results:

The scores obtained by the 3 non-IBD volunteer groups differed significantly ($p < 0.0001$) and the IBD-INFO questionnaire showed excellent internal reliability and consistency ($\alpha = 0.98$). The median total score obtained by the IBD patients was 27/64 [0-59], and scores for Q1, Q2 and Q3 were, respectively, 10/23 [0-21], 11/24 [0-23] and 4/17 [0-16]. In multivariate analysis, lack of a university degree, not being a member of a patient association, not receiving anti-TNF α treatment, duration of IBD ≤ 3 years, male sex and age > 38 years and were independent risk factors of poor IBD-INFO knowledge score. The areas of knowledge least mastered were vaccination, IBD-related cancers, treatments and pregnancy.

Conclusion:

Using the IBD-INFO, an updated self-administered questionnaire built to assess IBD patients' knowledge, several risk factors have been highlighted that allow better targeting of patients and areas requiring an improvement in the level of information.

Novel methods of interventional management for hepatocellular carcinomas

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Objective:

There are several treatment modalities for advanced-stage HCC patients. Usually, many clinicians select sorafenib. However, sorafenib does not have survival benefit for HCC with portal vein tumor thrombus (PVTT). On the other hand, portal vein invasion easily occurs arterioportal shunts (APS). The aim of this study was to assess the efficacy of TACE during corresponding portal vein occlusion (TACE-PVO) in patients with hepatocellular carcinoma (HCC) and marked arterioportal shunts (APS).

Methods:

The study design was a prospective, non-randomized study of TACE-PVO vs. TACE with embolization of APS. The subject comprised 47 patients (24 pts for TACE-PVO, 23 for TACE with embolization of APS). We evaluated effectiveness of APS treatment, tumor response, adverse events, and survival.

Results:

Both the effectiveness of AP shunts treatment ($p = 0.002$) and target tumor response ($p < 0.001$) were significantly better in TACE-PVO group than in TACE with embolization of APS. Concerning complications, no major procedure-related complications occurred in either group. The median survival time was significantly better ($p = 0.00164$) in the TACE-PVO group (31.0 months) than TACE with embolization of APS (16.8 months).

Conclusion:

TACE-PVO may be a safe and useful therapy for selected patients with unresectable HCC and marked APS.

Results of neoadjuvant hepatic arterial infusion chemotherapy in inoperable HCC patients with Child-Pugh class A

Yun Sung Su

Updates in managements of HCC

Masatoshi Kudo

Prognostic significance of preoperative hyaluronic acid level in patients with hepatocellular carcinoma

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Background:

It is known that serum hyaluronic acid (HA) levels are increased in patients with various tumors and serum high HA level predicts the prognosis for such cohort. However, as HA also correlates with liver fibrosis, the prognostic significance of serum HA in patients with hepatocellular carcinoma (HCC) is still unclear. The aim of this study is to investigate the impact of preoperative serum HA level on postoperative prognosis for HCC patients.

Methods:

A total of 837 consecutive patients who underwent hepatic resection for HCC between April 2000 and April 2015 were enrolled to this study. One hundred and eighty patients were excluded because preoperative HA levels were not available. Then the patients were divided into two groups according to the levels of serum HA (high HA (≥ 200) group: $n=248$, low HA (<200) group: $n=408$). The clinicopathological characteristics and postoperative survivals were compared between the groups. Moreover, additional propensity score matching analysis was performed to adjust the characteristics between the groups.

Results:

Both the 5-year overall and relapse-free survival rates (OSR and RFSR) in low HA group were significantly better than those in high HA group (59.8% vs. 38.6%, $p<0.001$ and 24.5% vs. 13.1%, $p<0.001$). However, patients in low HA group showed significantly better background liver function than those in high HA group. In contrast, patients in low HA group showed larger median tumor size than those in high HA group (3.3cm vs. 2.6cm, $p<0.001$). After propensity score matching, two comparable groups consisting of 139 patients were obtained. There were no significant differences in clinicopathological characteristics between the two groups. However, both the 5-year OSR and RFSR in low HA group were still significantly better than those in high HA group (57.4% vs. 38.3%, $p=0.006$ and 22.5% vs. 14.7%, $p=0.003$).

Conclusion:

High preoperative HA level predicts poor postoperative survival of HCC patients.

The usefulness of albumin-bilirubin grade for predicting the late recurrence of hepatocellular carcinoma after curative therapy

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Background:

The predictive factors for late recurrence of hepatocellular carcinoma (HCC) after 5 years from curative therapy are still unknown. In recent years, the albumin-bilirubin (ALBI) grade (ranging from 1 to 3, higher grade representing worse liver function), which can be calculated simple from serum albumin and bilirubin level, has been proposed as a useful assessment model of liver function. We aimed to investigate the usefulness of ALBI grade as a predictive factor for the recurrence of HCC after 5 years from curative therapy.

Methods:

Among consecutive 849 HCC patients who underwent liver resection or ablative therapies with curative intent between January 2000 and June 2011, the patients who survived for 5 years without recurrence after curative therapy were investigated retrospectively. The relationships between clinicopathological parameters including ALBI grade and late recurrence were analyzed.

Results:

A total of 184 patients survived for 5 years without recurrence. Of these, 61 (33.2%) patients had developed recurrence at the time of the final evaluation. In univariate analysis, indocyanine green retention rate at 15 min and number of tumors were related to a late recurrence as a pre-treatment parameter. Although pre-treatment aspartate aminotransferase level, alanine aminotransferase level, Child-Pugh class and ALBI grade were not related to a late recurrence, those at five years after treatment were related to a late recurrence significantly. By multivariate analysis, ALBI grade 2-3 was an independent factor for a late recurrence (RR5.17, $P < 0.0001$). Moreover, the increasing of ALBI grade during 5 years after initial treatment was related to poor recurrence-free survival significantly.

Conclusions:

Post-treatment ALBI grade was a more useful factor for the late recurrence of HCC after 5 years from curative therapy compared to pre-treatment ALBI grade. This finding suggests that the preservation of liver function after therapies may decrease the late recurrence.

Pure laparoscopic right hepatectomy using individual inflow vascular control for HCC following TACE - PVE

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Objectives:

Laparoscopic right hepatectomy is technically demanding procedure particularly for liver tumor following sequential TACE - PVE. Because of shifting of parenchymal transection plane from atrophy-hypertrophy phenomenon of PVE, parenchymal transection is more difficult. Besides, TACE - PVE induce inflammation around right portal pedicle making individual inflow vascular control is more challenging.

We present the case of pure laparoscopic right hepatectomy using individual inflow vascular control for patient with hepatocellular carcinoma (HCC) with tumor thrombus in right anterior portal vein who underwent preoperative TACE - PVE.

Methods:

After careful searching for intra- and extra-hepatic metastases, cholecystectomy was performed to facilitate right portal pedicle exposure. Individual dissection and ligation of right portal vein and right hepatic artery were performed sequentially. Limited liver mobilization was performed to facilitate parenchymal transection. Ultrasonic device and Cavitron Ultrasonic Surgical Aspirator were used for transection. Branches of middle hepatic vein and small glissonian pedicles were clipped. Right hepatic duct was encircled and then divided. After complete parenchymal transection, right hepatic vein was divided by using stapling devices. Right lobe liver was mobilized completely and placed in plastic bag and removed through Pfannelstiel incision.

Results:

Pure laparoscopic right hepatectomy was performed successfully without intra-operative complications or blood transfusion. Operative time was 360 minutes and estimated blood loss was 150 ml. Pathology revealed HCC 5.5 cm in diameter with tumor thrombus in right anterior portal vein and uninvolved resected margins. Patient was discharged on postoperative day 6 without peri-operative complications.

Conclusions:

Pure laparoscopic right hepatectomy using individual inflow vascular control is feasible procedure for hepatocellular carcinoma following sequential TACE - PVE.

Laparoscopic S8 anatomical segmentectomy – A modified approach to improve exposure

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Objectives:

Laparoscopic anatomical S8 resection has been a surgical challenge. Standard technique remains to be established even by open approach.

Methods:

A retrospective review of a prospectively established database of 745 laparoscopic liver surgery had been done to collect patients receiving laparoscopic anatomical S8 segmentectomy.

Surgical techniques: Test Clamping of the right anterior Glissonean pedicle was applied to define the demarcation along the Cantlie's line. After opening the liver parenchyma, the main trunk of MHV was identified by tracing down along MHV branches of segment 4. Glissonean pedicle to segment 8(G8) can be identified by dissection at the point where MHV branch of segment 5(V5) joining the main trunk. Test clamping of G8 helps to define the whole S8. Then parenchyma dissection continues to complete anatomical S8 resection.

Results:

Total 5 patients received laparoscopic anatomical S8 segmentectomy by this technique has been collected from May 2016 to April 2017. The mean age is 66.4 years (54~76). The perioperative outcome included the following: mean tumor size: 2.9 cm (1.7~4.6), estimated blood loss: 290 c.c. (50~580), no patient needed blood transfusion, operation time: 255 min (195~375), postoperative hospital stay: 4.8 days (3~7). No open conversion happened in this series. Postoperative pleural effusion developed in one patient.

Conclusions:

Opening the liver parenchyma along the Cantlie's line in laparoscopic S8 segmentectomy improves the surgical exposure. Dissection of G8 and anatomical resection could be completed more reproducibly.

Screening programs for pancreatic cancer in high-risk individuals: screening goals achievement, overall and unnecessary surgery - a meta-analysis

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Background:

Surveillance programs based on EUS or MRCP have been able to detect pancreatic cancer (PDAC) or premalignant lesions (PanIN3, high-grade dysplasia/carcinoma in situ IPMNs) in familial high-risk individuals (FPC-HRI). However, the pooled rate of screening goals achievement (SGA) has never been reported to date. In addition, screening programs exposes FPC-HRI to a certain risk to receive surgery at a time point and, possibly, to receive unnecessary surgery. The aim was to assess the prevalence of SGA, as well as the prevalence of surgery and unnecessary surgery rates, through a systematic review and a meta-analysis of proportions.

Methods:

We searched MEDLINE and EMBASE from January 2000 to September 2016 to identify controlled or uncontrolled studies of FPC-HRI enrolled in surveillance/screening programs based on EUS and/or MRI/MRCP. The main outcome measures were pooled proportion of SGA (resectable PDAC, PanIN3, HGD-IPMNs), overall and unnecessary surgery, using a random effects model.

Results:

In a meta-analysis of 16 studies reporting of 1662 FPC-HRI the pooled proportion of surgical procedures (including explorative laparotomy) was 6.4% (CI 95% 4.25-8.97; I²=72.79; p<0.0001). The pooled proportion of SGA was 2.12% (CI 95% 1.31-3.12; I²=35.59%; p=0.073). In 73 out of 106 FPC-HRIs submitted to surgery, the final pathology revealed a diagnosis not in line with the SGA. The pooled proportion of unnecessary surgery was 63.17% (CI 95% 40.16-83.39; I²=87.26; p<0.0001), the most frequent diagnoses being low-grade IPMNs and serous cystadenoma (23 and 19 cases, respectively).

Conclusions:

Despite the bias of the heterogeneity among the studies considered, this meta-analysis suggests that the pooled proportion of SGA is higher than the lifetime risk of pancreatic cancer in non-HRI. However, being included in a surveillance program means also to accept either a low risk of receiving surgery, often unnecessary. Several efforts should be made to avoid the overtreatment of pancreatic anomalies found during the screening.

Clinical Impact of venous invasion in pancreatic cancer

Addeo Pietro

Exvivo resection and intestinal autotransplantation for the treatment of tumors at the root of the mesentery

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Background:

Pancreatic tumors involving the root of the mesentery continue to be a management problem in hepatopancreaticobiliary field, these tumors constitute a wide spectrum of pathology NET, PDAC, GIST. Previously these tumors were labeled as irresectable tumors, late stage and untouchable.

Material and Method:

Between the period January 2015-June 2016, Twenty one patient underwent exvivo resection and autotransplantation of the small bowel for tumors of the pancreatic head, neck involving the root of the mesentery, in Shiraz Center for Organ Transplantation, Namazi hospital, Islamic Republic of Iran. Tumors and mesenteric vessels were evaluated using triphasic CT and MRV. Internal jugular, great saphenous veins and Deep venous system of the lower limbs were assessed preoperative by duplex examination for venous graft of the resected portal vein

Results:

Mean operative time 780 ± 46 min, mean blood loss 1900 ml, short term mortality 14%, three patients. Main cause of death is respiratory complications (pneumonia, ARDS). Mean cold ischemic time 110 ± 25 min. Exploration rate 42%, nine patients were explored for different causes. R0 resection could be achieved in most of the cases, and symptoms relief was pleasantly accepted by the patients.

Conclusion:

Exvivo resection and autotransplantation of small bowel is good and justifiable option for pancreatic tumors involving the root of the mesentery. It provides good relief of symptoms, long disease free survival and potential cure.

Multidisciplinary approach is essential after surgery for chronic pancreatitis to achieve best patient outcome

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Introduction:

Adequate treatment for chronic pancreatitis includes a wide variety of options being conservative management, endoscopic and surgical treatment. In recent years the role of surgery for these patients increased with several publications showing better outcome than after endoscopic treatment in selected patients.

Methods:

Retrospective assessment of the patients surgically treated for chronic pancreatitis from 2005 till 2013 was performed. The aim of this study was to evaluate the indication for surgery, the previous treatment modalities used and the long-term follow-up, considering complications, quality of life, pain coping and this in relation with the abstinence of alcohol and tobacco. Several questionnaires were used including the EORTC QLQ – PAN28, the PCCL, the McGill and EQ-5D.

Results:

In total 45 patients were surgically treated with chronic pancreatitis as the main indication. Only 19 patients agreed on participation and a free outpatient visit. Seven patients died during the follow-up period. Six patients had a drainage procedure, while 13 had a classical or pyloruspreserving pancreaticoduodenectomy. Mean age was 50 years with a range in follow-up from 2 till 10 years. The overall outcome considering QoL was 69% with no difference between drainage and resection procedures. As soon as a complete alcohol abstinence was achieved patients had a significantly better EQ-5D score than alcoholic patients. As only 2 patients stopped smoking completely, no correlation could be detected between QoL and tobacco use after surgery. Using the PCCL questionnaire for coping, surgery showed that the mean score for internal coping was 3.16 (out of 6-scale), but most patients still have some degree of pain.

Conclusions:

Patient outcomes after surgical treatment for chronic pancreatitis are acceptable but longterm multidisciplinary guidance and follow-up are essential to improve quality of life and coping.

Is splenectomy still justified for left-sided pancreatic cancer? A histological reappraisal.

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Background:

Splenectomy is recommended during resection for left-sided pancreatic ductal adenocarcinoma (PDAC) to perform lymphadenectomy of station 10 (splenic hilum), but there is no level I evidence available to justify this procedure. Our objective was to evaluate the rates of lymph node involvement and contiguous involvement of the splenic hilum in resectable distal PDAC.

Methods:

We retrospectively reviewed all patients who underwent splenopancreatectomy for PDAC from January 2008 to March 2017. A pathologist reinterpreted all the microscopic slides of station 10 lymph nodes. CT-scans of patients with a tumoral involvement of the spleen or of the splenic hilum by contiguity (TISOSH) and those with a distance between tumor and spleen <10 mm at pathologic examination were reviewed blindly by a radiologist to measure the capacity of the CT-scan to diagnose TISOSH.

Results:

We included 110 consecutive patients, including 104 with analysable nodes at station 10. Tumor was N+ in 59 patients (54%). The median number of nodes identified at station 10 was 2.0 ± 3.0 (range: 0-12). No patients had tumor-positive lymph nodes at station 10 (0/104). A TISOSH was found in 9 patients (8%). A TISOSH was significantly associated with tumor size ($p=0.005$) and multivisceral involvement ($p=0.045$). Sensibility and specificity of the evaluation of the TISOSH by CT-scan were respectively 89% and 95%.

Conclusion:

Splenic conservation seems possible in case of left-sided PDAC in selected patients without suspected TISOSH at preoperative CT.

Splenic vessel invasion of pancreatic cancer of the body and tail: impact on prognosis and patterns of recurrence

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Objectives:

Prognostic impact of pancreatic adenocarcinoma (PDAC) invasion to the splenic vessel is unclear. The aim of this study was to assess the clinical value of pathological and radiological splenic vessel invasion in PDACs of the body and tail.

Methods:

Medical records of patients with PDAC of the body and tail who underwent distal pancreatectomy between 2003 and 2016 at Kobe University Hospital were retrospectively analyzed with attention to pathological splenic vessel invasion. Moreover, preoperative computed tomography (CT) images were reviewed in correlation with pathological splenic vessel invasion.

Results:

Seventy patients (32 females and 38 males) were enrolled. Twenty-two patients (31.4%) were identified on pathological studies as having splenic vein (SV) invasion, while 6 (8.6%) had splenic artery (SA) invasion. Pathological SV invasion (but not SA invasion) was an independent prognostic factor on multivariate analysis ($P = 0.049$). On analysis of recurrence patterns, patients with PDAC positive for SV invasion were at higher risk of liver metastasis ($P = 0.007$); the associations were not significant for lung metastasis and local/peritoneal recurrence. SV deformity/stenosis/occlusion on preoperative CT effectively predicted pathological SV invasion with a sensitivity of 95.5% and specificity of 79.2%. Radiological SV invasion was associated with liver metastasis and shorter postoperative survival, reflecting pathological invasion.

Conclusions:

Pathological SV invasion was independently associated with poor survival in consequence of liver metastasis in patients with PDAC of the body/tail. Radiological SV involvement may be a surrogate marker for pathological invasion.

Organ-preserving surgery for pancreatic and duodenal tumors. Experience of 70 procedures

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Background:

Modern pre- and intraoperative diagnostics of pancreatic and duodenal tumors with low and indefinite malignant potential makes organ-preserving surgery justified for these entities.

Aim:

To assess the efficacy of organ-preserving procedures (OPP) for treatment of pancreatic and duodenal tumors.

Method:

Retrospective analysis of short- and long-term results of 70 consecutive OPP (2007–2016).

Results:

Distal pancreatectomies with spleen preservation with (6) and without (29) spleen vessels preservation (Sutherland–Warsaw procedure), central pancreatic resections (15), duodenum-preserving total pancreatic head resections (4) and center-preserving pancreatic resection (1) were performed for 19 neuroendocrine (NEN), 3 solid-pseudopapillary, 3 serous and 29 mucinous cystic tumors. Fifteen pancreas-preserving duodenectomies were performed for (GIST) (10), villous adenoma (2), gigantic leiomyosarcoma (1), gangliocytic paraganglioma (1) and solitary metastasis of endometrial cancer. In 3 cases duodenectomy was subtotal with replantation of pancreatic and common bile ducts and in 13 cases the procedure was infrapapillary, once associated with aorta and IVC resection. Pancreatic tumors were diagnosed before surgery in 51 of 55 and duodenal tumors in 10 of 15 cases. The most precise tools were EUS and CT. For pancreatic diseases the main symptoms were pain or discomfort (35) or NEN functioning (7), for duodenal tumors—bleedings (6) and obstruction (3). Ninety days mortality was 0. Morbidity rate—44%. There were no cases of local relapses and new diabetes. Three patients were treated by liver resection in 1,5–3,5 years after duodenal resections for GIST and target therapy.

Conclusion:

OPP is safe and oncologically justified for treatment of pancreatic and duodenal tumors with low and indefinite malignant potential.

Omission of adjuvant therapy after pancreatic surgery is correlated with post-operative complications, age and marital status

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Objective:

A quality parameter after pancreatic surgery might be the receipt of adjuvant therapy post-surgery. The aim of this study was to evaluate postoperative complications in relation to receipt of adjuvant chemotherapy and survival in patients treated for pancreatic cancer in a tertiary referral hospital.

Methods:

All consecutive pancreatic adenocarcinoma patients (2009-2015) undergoing surgical resection were included. Receipt of adjuvant therapy was compared between patients with and without postoperative complications according to Clavien Dindo classification, age and marital status.

Results:

153 patients were identified (median age 66 years), of which 42.5% had at least 1 postoperative complication. Only 3% of the patients with complications had Clavien Dindo IV. 6.5% of all patients needed surgical or radiological intervention due to a pancreatic fistula, chyle leakage, collections or abscess formation. Omission of adjuvant therapy is more frequent in patients with complications (21.7% vs. 9.9%; $p=0.039$). Other factors significantly associated with omission were age > 65 and single status. 2-year survival is significantly improved for patients who received adjuvant therapy versus no therapy (51.9% vs. 25.0%; $p=0.049$). The presence of postoperative complications versus none did not affect long-term survival (45.0% vs 41.4%, 2009-2013, with follow-up trough 2015). Patients' own choice to refuse adjuvant therapy was the main reason for omission (38.8%). Medical reasons for omission counted for 22%.

Conclusions:

Although standardized surgical techniques and postoperative management lead to low 30-day morbidity and mortality in our series, patients' own choice, higher age and single status seem to be the most frequent reasons for omission of adjuvant therapy. It is important to identify these subgroups to achieve best outcomes in terms of survival.

Hepatic stellate cells: unique characteristics in cell biology

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Hepatic stellate cells (HSCs), a mesenchymal cell type in hepatic parenchyma, have unique features with respect to their cellular origin, morphology, and function. Normal, quiescent HSCs function as major vitamin A-storing cells containing over 80% of total vitamin A in the body to maintain vitamin A homeostasis. HSCs are located between parenchymal cell plates and sinusoidal endothelial cells, and extend well-developed, long processes surrounding sinusoids in vivo as pericytes. However, HSCs are known to be 'activated' or 'transdifferentiated' to myofibroblast-like phenotype lacking cytoplasmic lipid droplets and long processes in pathological conditions such as liver fibrosis and cirrhosis, as well as merely during cell culture after isolation. HSCs are the predominant cell type producing extracellular matrix (ECM) components as well as ECM degrading metalloproteases in hepatic parenchyma, indicating that they play a pivotal role in ECM remodeling in both normal and pathological conditions. Recent findings have suggested that HSCs have a neural crest origin from their gene expression pattern similar to neural cell type and/or smooth muscle cells and myofibroblasts. The morphology and function of HSCs are regulated by ECM components as well as by cytokines and growth factors in vivo and in vitro. Liver regeneration after partial hepatectomy might be an invaluable model to clarify the HSC function in elaborate organization of liver tissue by cell-cell and cell-ECM interaction and by growth factor and cytokine regulation.

Portal vein embolization and stem cells application is a good option for enlargement of future liver remnant volume.

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Supported by the Research Project PROGRES Charles University in Prague.

Objectives:

Insufficient future liver remnant volume (FLRV) is one of the main causes of colorectal liver metastases (CLMs) non-resectability in majority of patients. Recently some methods are used for the enlargement of FLRV. Portal vein embolization (PVE) together with application of autologous hematopoietic stem cells (HSC) can be the useful method of FLRV growth stimulation.

Method:

PVE with autologous HSC application have been used in 20 patients with primary non-resectable CLMs (3/2011 – 8/2015). Indications for PVE with HSC were: FLRV<30%, no extrahepatic metastases and no general contraindication for liver surgery. PVE was performed on the site of CLMs (in all cases on the right lobe) by mixture of lipiodol and histoacryl. Next day after PVE autologous HSC were applied via vena ileocolica to the contralateral liver lobe. HSC were used from peripheral blood in 12 patients, and from bone marrow in 8 patients. Metastasectomy or radiofrequency ablation (RFA) of CLMs in the left liver lobe was performed in six (28.6%) patients as the first step before PVE and application of HSC. The growth of FLRV was examined each week after procedure by computed tomography (CT). Liver resection was performed as soon as FRLV was $\geq 30\%$ of the total liver volume (healthy liver tissue), or $\geq 40\%$ in patients with more than 6 series of chemotherapy. The adjuvant chemotherapy, patient's age, number and volume of CLMs, FLRV and contralateral liver volume changes were evaluated as factors for overall (OS) and disease free survival (DFI).

Results:

All procedures were without any complications. In all patients, FLRV growth was sufficient in interval of 2-3 weeks after HSC applications. FLRV (cm³) before, 2 and 3 weeks after procedure was 545.5 ± 175.1 ; resp. 645.2 ± 155.5 and 684.2 ± 154.5 ($p < 0.0001$). R0 hepatectomy (right, or extended right hepatectomy) was performed in 16 patients (80 %), exploratory laparotomy in four patients (3x tumor progression, 1x severe adhesions). One and two years OS was 76.6, resp. 50.3%, DFI was 67.2, resp. 32.1% in patients after liver resection. More than three CLMs were only significant factor for DFI ($p < 0.04$) not for OS. The growth of CLMs volume was found in 17(85%) of patients ($p < 0.003$), but it was significant neither for OS nor for DFI. Four patients (20 %) died in the interval of 9 to 13 months after R0 hepatectomy due to tumor progression. Ten patients are without any tumor recurrence in the interval of one and 38 months after R0 liver resection. Pulmonary metastasis was diagnosed in one patient after nine months. It was successfully treated with laser metastasectomy. Six patients had CLMs recurrence (6-9 months) in the resection line. In two patients the recurrences were solved by radiofrequency ablation under CT guidance. In four patients we were not able to perform any surgical procedure and patients were treated by oncologists.

Conclusion:

Combination of PVE with application of autologous HSC appears to be save and promising method for stimulation of FLRV growth with a subsequent possibility of radical liver resection in patients with primary non-resectable CLM. The unresolved issue is a danger of CLMs progression in the liver parenchyma following the PVE with HSC application.

Preoperative right portal vein embolization (PVE) after intra-arterial chemotherapy (IAC)

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Aim:

To evaluate effectiveness of PVE for inducing preoperative hypertrophy of small (<30%) future remnant liver (FRL) in patients previously treated with IAC.

Methods:

Between 2003 and 2015, PVE was performed in 42 pts (Group 1) with previous IAC (HAI or TACE; 1 to 6, mean 1.7 treatments) of their colorectal liver Mts (n=29), HCC (n=7) or other liver malignancy (n=6). In control Group 2, PVE was done in 27 chemo-naïve pts with colorectal Mts (n=19), HCC (n=6) or other tumor (n=2). Lipiodol, ethanol, and Gelfoam were used for occlusion.

Results:

IAC resulted in partial tumor response (n=20) or stabilization of tumor growth (n=22) in all Group 1 pts, and the decision of potential resectability was made by multi-disciplinary team. After PVE, FRL became 38% (+52%) in Group 1 and 39% (+60%) in Group 2 (NS). In 28-50 (median 31) days, right or extended right hepatectomy was made in 23/42 (55%) and 15/27 (56%) pts, respectively. One patient of Group 2 with FRL=32% died from hepatic failure on the 21st day. No significant hepatic insufficiency was seen in 38 other pts. The remaining pts were not resected because of intra- or extrahepatic metastases or small FRL, and they received IAC.

Conclusion:

PRPVE is a safe and well-tolerated procedure decreasing risk of postoperative liver failure including patients with previous IAC.

Cellular characteristics of the liver Toxic Injury and Regeneration

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Background:

The morphological basis of liver's acute insufficiency is cytological syndrome, which leads to cell membrane and cell structures destruction leading organ's functional insufficiency. As already known liver has unique ability of reparative regeneration, which is manifested by increasing in number of the peroxisomes, oval shaped mitochondrias and endoplasmic reticulum. Study and research of livers tremendous regeneration ability is highly important in study already known methods of liver's pathologies treatment methods and in developing new ones (cell transplantation).

Methodology:

Hepatic stem/progenitor cells also known as "oval cells" in rodents have been implicated in liver tissue repair, at a time when the capacity for hepatocyte and bile duct replication is exhausted or experimentally inhibited (facultative stem/progenitor cell pool).white Wister line rats were been selected as experimental animals. They were divided into the 4 groups. I group animals used for modelling of acute liver failure by injection hepatocytotoxic agent CCL4 "carbon tetrachloride". In II group were performed 60% liver resection. III group hepatocyte donors (progenitor hepatocytes) for antihepatocytotoxic serum. On the fourth day after liver toxic damage and hepatic injury by 60% liver resection, was starting treatment by antihepatocytotoxic serum which was made from progenitor hepatocytes which were on reparative regeneration activity. Liversections was studied by morphometric analysis.

Results:

The performed research has shown that antihepatocytotoxic serum prevents liver-cell necrosis, promotes reparative regeneration process in damaged liver cells, and helps in organ function restoration. Morphological evaluation have shown regeneration process increasing of bipolar hepatocytes number, increasing of hepatocytes mitogenic activity.

Key words:

Liver, toxic damage, regeneration.

Reaction of regenerating rat liver after 70% hepatectomy to carbon tetrachloride toxicity: immuno-histochemical and electron microscopic study.

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Objectives:

Evaluate tolerance of regenerating rat liver after 70% hepatectomy to CCl₄ toxicity early and late throughout regeneration.

Methods:

In Mansoura Experimental Research Center, from 2015 to 2016, 60 male albino rats divided equally into 6 groups. Group I; sham operated. Group II; sham operated, injected CCl₄. Both groups sacrificed 3 days after operation. Group III; 70% hepatectomized, sacrificed 6 days after operation. Group IV; 70% hepatectomized, sacrificed 31 days after operation. Group V; 70% hepatectomized, injected CCl₄ three days after operation, sacrificed 6 days after operation. Group VI; 70% hepatectomized, injected CCl₄ four weeks after operation, sacrificed 31 days after operation. CCl₄ injected intraperitoneal "3ml/kg"

Results:

Hematoxylin & Eosin revealed extensive hepatocyte loss in group II, marked loss in group VI, mild loss in group V. Masson's trichrome revealed that fibrosis grade was grade six in group II, grade three in group V, grade four in group VI. Alpha-fetoprotein Immuno-expression was mild positive in groups II and IV, moderately positive in group VI, strong positive in group III and very strong positive in group V. Transmission electron microscope revealed that group VI hepatocytes more damaged than group V and both less affected than group II. Hepatocytes nuclei were pyknotic. Fat globules markedly deposited. Large electron lucent areas and scanty glycogen. Endoplasmic Reticulum dilated with dispersion of ribosomes. Bile canaliculi dilated with atrophic microvilli. Liver enzymes & bilirubin showed high significant increase in groups II, III, V and VI. Groups II & VI showed high significant increase as compared to V which showed high significant increase as compared to group III. Liver weight showed high significant increase in groups III, IV, V and VI.

Conclusion:

Hepatic stimulator substance extracted from regenerating rat liver 96 hours after partial hepatectomy protecting it against hepatotoxic effects of CCl₄. Early regenerating liver tolerate CCl₄ toxicity better than late regenerating liver.

Clinicopathological study of igg4 cholangitis and autoimmune pancreatitis – a single center experience

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Objectives:

IgG4 sclerosing cholangitis (IgG4-SC) and autoimmune pancreatitis (AIP) are hepatobiliary presentations of systemic IgG4 related disease (IgG4-RD). They are recognized increasingly owing to their distinct clinicopathological characteristics. We try to clarify the demographic features, reliable diagnostic modalities, and response to treatment.

Methods:

We recognized 46 patients with IgG4-RD from January 2009 to December 2016 in our institute. Thirty-four of the cohort (74%) present with either solitary IgG4-SC (group A, n=8), solitary AIP (group B, n=14), or both (group C, n=12). The diagnoses were achieved according to the JPS2011 criteria and the HISORT criteria, respectively.

Results:

40% of group C patients were designated as autoimmune disease by CT scan whereas none of the group A and B was. However, MRCP achieved the impression of autoimmune disease in 92% of the cohort. Among the group A patients, 75% of them were designated as hilar cholangiocarcinoma as the initial diagnosis. For serology, 85% patients have elevated IgG4 serum level (median 453 ng/dL). Twenty patients (59%) disclosed relapse of disease during follow up. Univariate analysis demonstrated that pancreatitis and primitive level of IgG4 are risk factors related to disease relapse after treatment.

Conclusions:

The diagnosis of IgG4-SC and AIP remained a distinct category requiring multi-modalities. MRCP demonstrated high sensitivity in diagnosis than CT among our cohort. Primitive level of IgG4 and pancreatic involvement are factors related to relapse of disease.

Liver fibrosis and cirrhosis: Role of the fibroblastic cell subpopulations

Tophuria Davit

“TransAbdominal Sonography of the Small & Large Intestines”

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University, Pune, Maharashtra, India.

TransAbdominal Sonography of the Small & Large Intestines can reveal following diseases. Bacterial & Viral Enterocolitis. An Ulcer, whether it is superficial, deep with risk of impending perforation, Perforated, Sealed perforation, Chronic Ulcer & Post-Healing fibrosis & stricture. Polyps & Diverticulum. Benign intramural tumours. Intra-mural haematoma. Intestinal Ascariasis. Foreign Body. Necrotizing Enterocolitis. Tuberculosis. Intussusception. Inflammatory Bowel Disease, Ulcerative Colitis, Crohn's Disease. Complications of an Inflammatory Bowel Disease – Perforation, Stricture. Neoplastic lesion is usually a segment involvement, & shows irregularly thickened, hypoechoic & aperistaltic wall with loss of normal layering pattern. It is usually a solitary stricture & has eccentric irregular luminal narrowing. It shows loss of normal Gut Signature. Enlargement of the involved segment seen. Shouldering effect at the ends of stricture is most common feature. Primary arising from wall itself & secondary are invasion from adjacent malignancy or distant metastasis. All these cases are compared & proved with gold standards like surgery & endoscopy.

Some extra efforts taken during all routine or emergent ultrasonography examinations can be an effective non-invasive method to diagnose primarily hitherto unsuspected benign & malignant Gastro-Intestinal Tract lesions, so should be the investigation of choice.

Biography:

Dr.Vikas Leelavati BalaSaheb Jadhav has completed PostGraduation in Radiology in 1994. He has a 23 Years of experience in the field of Gastro-Intestinal Tract Ultrasound & Diagnostic as well Therapeutic Interventional Sonography. He is the Pioneer of Gastro-Intestinal Tract Sonography, especially Gastro-Duodenal Sonography. He has delivered many Guest Lectures in Indian as well International Conferences in nearly 27 countries as an Invited Guest Faculty, since March 2000. He is a Consultant Radiologist & the Specialist in Conventional as well Unconventional Gastro-Intestinal Tract Ultrasound & Diagnostic as well Therapeutic Interventional Sonologist in Pune, India.

A new device for intracorporeal intestinal anastomosis during laparoscopic colo-rectal surgery

Tanaka Jun-ichi

Laparoscopic colonic resection without urinary drainage: is it feasible ?

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Background:

Urinary retention following colorectal surgery is a known and costly morbidity. Increasing effort is being made to streamline patient recovery following colon resection, though the ideal timing and duration of urinary catheterization (UC) and its effect on urinary retention (UR) and urinary tract infection (UTI) remain controversial.

Methods:

Our program prospectively enrolled patients undergoing elective segmental colon resection through our Bfast track protocol, in which UC is completely avoided unless required for fluid management or to facilitate dissection. Patient demographics and perioperative data including type of analgesia, duration of anesthesia, timing of UC, and rates of perioperative UR and UTI were prospectively recorded.

Results:

Sixty-five patients met inclusion criteria. Sigmoid colectomy was the most common procedure (76.9 %). The average duration of anesthesia was 274 min, and epidural analgesia was employed in 32 (49.2 %). Twenty-two patients (33.8 %) required temporary perioperative UC. All patients left the operating room without a urinary catheter. Urinary retention occurred in six patients (9.2 %, three with and three without epidural analgesia). One patient who was not catheterized developed a UTI (1.5 %). There was no perioperative mortality. Overall, 39 (60.0 %) patients successfully underwent segmental colon resection and hospital discharge without any UC.

Conclusions:

Fast track enhanced recovery after elective segmental colon resection without requiring UC is safe and feasible. Epidural analgesia does not mandate the use of UC. In light of the considerable morbidity and cost of UR and UTI, this approach merits further investigation for this patient population.

Laparoscopic versus open restoration of the gut continuity after Hartmann's procedure

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Aim:

The aim of this study was to compare the outcome of the laparoscopic and open restoration of the gut continuity after Hartmann operation as regard operative and post-operative complication.

Methods:

All patients who underwent restoration of the gut continuity after Hartmann's procedure either laparoscopic Hartmann's closure or open Hartmann's reversal between December 2013 and December 2016 were included.

Results:

Between December 2013 and December 2016, 32 patients underwent restoration of the gut continuity after Hartmann's procedure in Sohag university hospitals, Egypt, were enrolled in this study. 14 patients had a laparoscopic reversal of Hartmann's colostomy and 18 had an open reversal of Hartmann's colostomy. There was no significant difference between both groups as regard age, sex, body mass index, length of remaining rectal stump or time interval between primary operation and Hartmann reversal. The most common indication for Hartmann's colostomy was obstructed rectosigmoid cancer [13/32]. The operative time was significantly shorter in LHR group (107 minutes versus 124 minutes $p=0.031$), time to pass flatus was significantly earlier in LHR (1.70 days versus 3.33 days $p=0.000$), wound complications were significantly lower in LHR (1 case versus 8 cases $p=0.044$), LHR had less post-operative pain 24 hours after procedure (VAS was 5.93 versus 8.72 $p=0.000$). The length of hospital stay was significantly shorter in the LHR group (6.55 days versus 12.14 days $P=0.038$) no significant difference between both groups as regard intraoperative complications, leakage, reoperation or postoperative complications. No mortality was detected in this study.

Conclusion:

Laparoscopic reversal of Hartmann's operation is safe as open surgery and had less postoperative pain, wound infection and shorter hospital stay. It should be the procedure of choice for reversal of Hartmann's operation.

Intracorporeal versus extracorporeal anastomosis following laparoscopic right colectomy: short-term outcomes

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Background/Objectives:

There has been a growing enthusiasm in developing new techniques of intracorporeal anastomosis following laparoscopic colectomy, more challenging than extracorporeal techniques. We have two aims: to evaluate the feasibility and safety of intracorporeal anastomosis following laparoscopic right colectomy; to compare post-operative outcomes of intracorporeal and extracorporeal anastomosis following laparoscopic right colectomy.

Methods:

We designed a retrospective study comparing intracorporeal and extracorporeal anastomosis following laparoscopic right colectomy. A total of 115 consecutive patients operated for right colon disease were identified, during the period from September 1st 2014 to 31st May 2017. Patient demographics included age, sex, ASA score, past abdominal surgery, anticoagulant and steroid therapy, Diabetes Mellitus and pre-operative diagnosis. The analysed outcomes included length of stay, operative time, blood loss, extraction site, post-operative complications (ileus, anastomotic failure, abdominal abscess and surgical site infection), and 30-day mortality.

Results:

The extracorporeal group included 84 patients and the intracorporeal group 31 patients. Mean length of stay was significantly shorter for the intracorporeal group (10,5 versus 8,5 days). There was no statistically significant differences in operative time, blood loss, ileus, anastomotic failure, infection or mortality.

Conclusion:

Our study reveals similar outcomes for both intra and extracorporeal anastomosis following laparoscopic right colectomy. Therefore, intracorporeal anastomosis presents as a feasible and safe technique in the hands of experienced laparoscopic surgeons.

Options for perineal defect closure following extralevator abdominoperineal excision in resource-limited setting

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Objectives:

Extralevator AbdominoPerineal Excision (ELAPE) is an oncologically acceptable surgical procedure for the management of low rectal cancer involving the sphincters. Management of the perineal defect resulting from wider resection at the level of levator muscle remains a challenge for the surgeon. This is especially true in resource limited settings where biological mesh or a flap closure of these defects may not be readily available. We report our institutional experience in management of the perineal wound defect following ELAPE at a specialist cancer hospital.

Methods:

Cases undergoing ELAPE between October 2014 and June 2016 were included. Clinical details, operative data and postoperative outcomes were retrieved from electronic case records. Management of the perineal defect and perineal wound infection as outcome was recorded.

Results:

A total of 52 patients underwent ELAPE during the study period. The mean age was 52 years (IQR 31-57). Median duration of surgery was 325 minutes (IQR 300-368). Median blood loss was 75 ml (IQR 50-150). The perineal defect was closed in 45 patients (86.5%) using omentoplasty. One patient had the defect closed by gracilis muscle rotational flap. Non-biological mesh was used in 27 patients (51.9%). Dual mesh was used in one patient, while in the remaining patients polypropylene or composite mesh containing polypropylene were used. Perineal wound healed well in 35 patients (67.3%) while 17 patients (32.6%) required wound opening and care with dressing. Re-exploration of perineal wound was required in 2 patients (3.8%). Median hospital stay was 6 (IQR 5-6.25).

Conclusion:

Non-biological mesh is a good alternate option for perineal wound closure in ELAPE in limited resource settings. Omentoplasty can be safely performed with overlying placement of synthetic mesh for closure of perineal defect in ELAPE. This avoids the use of expensive biological mesh or plastic surgery for closure of defect.

Laparoscopic left nephrectomy combined with abdomino-perineal resection of the rectum for synchronous primary malignancies

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Objectives:

Synchronously occurring primary malignant lesions of the colon and kidney are rare, occurring in 0.03-0.5% of the cases. Data on this topic is scarce and consists mainly of case reports with small sample sizes. We demonstrate a technique for combined laparoscopic abdomino-perineal resection and left nephrectomy for concomitant low rectal and renal cell cancers. To the best of our knowledge this is the first peer to peer presentation of this original surgical approach.

Methods:

Sixty-three-year-old male was referred to our unit with histologically verified symptomatic rectal cancer, lying in close proximity to the internal anal sphincter. The diagnostic work-up revealed synchronous lesion in the left kidney. After multidisciplinary guided decision, the patient was subjected to laparoscopic abdomino-perineal resection, combined with left nephrectomy. He was placed supine, in lithotomy position. Open laparoscopy was performed supra-umbilically and in total 6 trocars were inserted. After transection of inferior mesenteric artery and vein, colon was mobilized to allow access to the left kidney. The nephrectomy was done initially, followed by abdomino-perineal resection with total mesorectal excision and paraaortic lymphatic dissection. Both specimens were extracted through the perineal incision, sparing the need for an abdominal one.

Results:

The operative time was 330 min and the estimated blood loss 150 ml. The post-operative period was uneventful, and the patient was discharged on the 5th day. Currently he is healthy, with no sign of recurrence 6 months after the procedure.

Conclusions:

Combined multi-visceral laparoscopic resection for synchronous neoplasia is feasible in selected patients. When performed by an experienced team, it offers similar oncologic outcomes, compared to the conventional approach, yet having the advantage of fast recovery, with less surgical complications.

Abdominoperineal excision of the rectum. First experience.

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Laparoscopic surgery appeared on the territory of Ukraine almost simultaneously in the mid-90s of the last century. Spectrum of such techniques as appendectomy and cholecystectomy was mastered by all the centers, and further expansion of the spectrum of operations (primarily operations on the intestine) was overcome only by single centers. One of the reasons for this is that the cost of consumables for laparoscopic appendectomy or cholecystectomy is about \$ 10, and for example, laparoscopic anterior resection with the application of colorectanastomosis is at least \$ 700.

In colorectal surgery exist not a frequent operation that does not require significant material costs. This is laparoscopic abdominoperineal excision of the rectum (Miles operation).

This operation is not only possible, but it should also be performed laparoscopically, because tumor can be extracted through the perineal hole without injuring the anterior abdominal wall.

14 laparoscopic operations were done in chair surgery and proctology if Zaporizhzhya medical academy of postdiploma.

The advantages of laparoscopic surgery are a reduction in the cost of treatment, as well as an easier postoperative rehabilitation of the patient

Developing new combination therapies for liver cancers

Duda Dan

HCC: new therapeutic targets

Kaseb Ahmed

Anterior approach with hanging maneuver can improve long-term outcome for hepatocellular carcinoma: A multi-institutional propensity score-matching study

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Objectives:

Anterior right-side hepatectomy with hanging maneuver (ARH-HM) for large hepatocellular carcinoma (HCC) is gradually increasing; however its efficacy is still unknown. This study was designed to assess the short-term and long-term benefits of ARH-HM compared with conventional right-side hepatectomy (CRH).

Methods:

Between January 2000 and December 2012, 306 patients with HCC ≥ 5 cm were divided into two groups: ARH-HM (n = 104) and CRH (n = 202). "ARH without hanging maneuver" or "ARH with hanging maneuver after liver mobilization" were excluded. A one-to-one propensity-score matching analysis was applied to balance the perioperative background factors. Subgroup analyses were additionally performed.

Results:

- 1) In the propensity-score matching cohort, 72 ARH-HM and 72 CRH patients showed equivalent clinicopathological characteristics.
- 2) In comparison with CRH group, patients in the ARH-HM group demonstrated significantly less intraoperative blood loss (480 g vs. 1242 g, $P < 0.001$); a lower frequency of red cell concentrate transfusion (21.1% vs. 50.7%, $P < 0.001$); and similar operation time, morbidity (Clavien-Dindo classification \geq III) and mortality. The recurrence-free survival rates were equivalent in the two groups; however, the overall survival rate was significantly better in the ARH-HM group (5-year survival rates: 50.2% vs. 31.4%, $P = 0.021$).
- 3) In the subgroup of HCC ≥ 10 cm, 5-year recurrence-free survival (16.6% vs. 10%, $P = 0.049$) and 5-year overall survival (44.7% vs. 23.4%, $P = 0.005$) was significantly better in the ARH-HM group.

Conclusions:

Compared to the CRH, ARH-HM can provide better overall survival rates with a decrease in intraoperative blood loss and transfusion rates for large HCC. Survival impact was evident especially in patients with HCC ≥ 10 cm.

Combined ipsilateral liver lobe devascularization and alcohol treatment (CILDAT) for the large hepatocellular carcinoma (HCC)

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Objectives:

This study aims to evaluate the long term outcome of the combined ipsilateral liver lobe arterial devascularization augmented postoperatively, by percutaneous ethanol alcohol injection (PEI) for the patients with large hepatocellular carcinoma (HCC).

Methods:

The clinical data was reviewed for the adult patients suffering from large HCC and underwent surgical ligation of the ipsilateral hepatic artery as well as isolation of their extrahepatic collateral arteries; followed four weeks later by a complimentary PEI.

Results:

16 patients were subjected to the combined treatment. Their mean age was 62.6 years. 12 (75.0%) patients were ASA grade III. Two patients (12.5%) were classified as intermediate and 10 (62.5%) patients were advanced stage. The mean size of their tumors was 12.9 centimeters. Nine patients (56.3%) had tumor sizes > 10 cm. The mean operative blood loss was 279.4 mls, where the mean postoperative hospital stay was 7.69 days. The 30 days` operative mortality was encountered in one patient (6.25%) due to postoperative pulmonary embolism. The mean number of alcohol sessions was 5.7, and the mean alcohol volume was 78.1 mls. The mean follow up duration was 14 months. The mean survival duration was 14.7 months. The one, three and five years` survival rates were 40%, 13.4% and 6.7%, respectively. One patient (6.3%) underwent a major complication (Clavien-Dindo grade \geq III). Grade 3/4 and 4 Common Toxicity Criteria for Adverse Effects (v4.03) were met in 11 (68.8%) and one (6.3%) patients, respectively. The objective response rate was 62.6%, while the mean objective response duration was 13.8 months.

Conclusions:

These preliminary findings show that our combined treatment can be a good alternative to the HCC treatment to the patients with large sizes.

Clinicopathological features and surgical outcome of patients with fibrolamellar hepatocellular carcinoma.

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Objectives:

Fibrolamellar hepatocellular carcinoma (FL-HCC) is a rare histologic variant of hepatocellular carcinoma (HCC) which arises in young individuals and has been considered to be less aggressive than common HCC. The aim of this study was to evaluate the clinicopathological features and the surgical outcomes of patients with FL-HCC over a 15-year period.

Methods:

This is a retrospective study including 22 patients with a pathologic diagnosis of FL-HCC who underwent hepatectomy over a 15 year period. Tumor characteristics, survival and recurrence were evaluated.

Results:

There were 11 male and 11 female with a median age of 29 years (range from 21 to 58 years). Two (9%) patients had hepatitis C viral infection and only 2 (9%) patients had alpha- fetoprotein level >200 ng/ml. The median size of the tumors was 12 cm (range from 5 – 20 cm). Vascular invasion was detected in 5 (23%) patients. Four (18%) patients had lymph node metastases. The median follow up period was 42 months and the 5- year survival was 65 %. Five (23%) patients had a recurrent disease, 4 of them had a second surgery with 36 months median time interval. Vascular invasion is the only significant negative prognostic factor

Conclusion:

FL-HCC has a favorable prognosis than common HCC and should be suspected in young patients with non cirrhotic liver. Aggressive surgical resection should be done for all patients. Repeated hepatectomy should be considered for these patients as it has a relatively indolent course.

Ability of IGF-1 score to sub-stratify CTP classes and predict response to systemic therapy in hepatocellular carcinoma

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Objectives:

Our recent studies showed that lower insulin like growth factors-I (IGF-I) associated with shorter overall survival (OS) in HCC. Furthermore, integrating IGF-I into Child Pugh Score (CTP) (IGF-CTP) led to better prognostic stratification (Kaseb et al., JNCI 2014). Since CTP class A is the standard criterion for active therapy and trials entry, we aimed at assessing the ability of IGF-CTP to predict systemic therapy outcome.

Methods:

78 patients were prospectively enrolled and treated with sorafenib. Pre-treatment blood sample were tested for IGF-I and IGF-CTP was calculated after study completion. Survival analysis was done to measure the estimated median OS and progression free survival (PFS), and log rank test was used to compare PFS and OS between subgroups of IGF-CTP score of patients.

Results:

For CTP A patients, the estimated median OS in months (95% confidence interval, CI) was 9.1m (5.3 – 19.7) and PFS was 5.6m (3.8 – 7.9). Patients who were reclassified as IGF-CTP (B) (OldA/newB = AB) had significantly shorter OS 5.2m (2.8 - NA) and PFS of 4.3m (2.1 – NA), as compared to patients' who classified as class A by both scoring systems (AA), who had OS of 11.1m (5.7 – 21.3) and PFS of 7.2 m (3.9 – 15.1), $P < .001$. Interestingly, patients who classified as CTP-B but IGF-CTP-A (= BA) had significantly longer OS 10.2 (2.89 – NA) and PFS 8.1 (2.9 – NA), as compared to (BB) patients who had OS of 5.8 (3.2 –NA) and PFS of 5.1 (3.19 – NA), $P < .001$

Conclusions:

Our study concluded that IGF-CTP score was more accurate than original CTP score in predicting survival outcomes of systemic therapy in HCC. If validated, this approach may change the standard stratification criteria for active therapy in routine clinical practice and patient selection for clinical trial entry in HCC.

A phase II study of sorafenib and yttrium-90 glass microspheres for advanced hepatocellular carcinoma, BCLC stage C

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Objectives:

Combined use of sorafenib and local therapy for treating unresectable hepatocellular carcinoma (HCC) is not well established. Our study aimed to assess the efficacy and safety of combined use of sorafenib and yttrium-90 resin microspheres (Y90 RMS) in unresectable HCC defined as Barcelona Clinic Liver Cancer class C.

Methods:

Between October 2013 and August 2016 we enrolled 40 advanced stage HCC patients, 38 patients were treated with sorafenib followed (after 4 weeks) with Y90 RMS at MD Anderson Cancer Center. Survival analysis was done to evaluate median overall survival (OS) and progression-free survival (PFS). We used modified Response Evaluation Criteria in Solid Tumors (RECIST) to assess response to treatment and the Common Terminology Criteria for Adverse Events (CTCAE) v4.0 to evaluate the grading of treatment related toxicity.

Results:

The majority of our patients were males (74%), white (47%), 66% had underlying liver cirrhosis, 26% had vascular invasion, and 26% had extrahepatic disease. The estimated median OS and 95% confidence interval (CI) in months was 18.46 (12.29 – NA) and the estimated PFS was 12.29 months (5.72 – 18.79). Stable disease (SD) was observed in 44.74% of patients, while 28.95% achieved partial response (PR). Grade III-IV adverse events included fatigue (n = 3), hyperbilirubinemia (n = 2), thrombocytopenia (n = 1), proteinuria (n = 1), hyponatremia (n = 1), elevated liver enzymes (n = 4), hypertension (n = 4), diarrhea (n = 1), nausea (n = 1) and vomiting (n = 2).

Conclusions:

This is the first prospective study to evaluate sorafenib followed by Y90 in HCC. Our study included patients with metastatic HCC and showed that combined use of sorafenib and Y90 was tolerable and was associated with longer OS and PFS compared to previous studies which evaluated sorafenib alone. However, future randomized phase III studies are warranted to assess sorafenib+/-Y90 in metastatic disease setting.

Treatment outcome of rupture hepatocellular carcinoma; A single center experience

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Objectives:

Ruptured tumor is one of the leading cause of death in hepatocellular carcinoma (HCC) patients. The best strategy of treatment is still a matter of debate. Herein, we evaluate and discuss the outcomes of different treatment modalities in our center for ruptured HCC.

Methods:

A retrospective review was performed of all patients who presented with ruptured HCC between 2006 and 2015. Data on clinical features, treatment strategies, and survival outcomes were collected.

Results:

187 (7.6%) from 2557 HCC patients were diagnosed ruptured HCC during study period. Hemostasis was achieved by transarterial embolization (TAE) in 74 (40%) and by emergency laparotomy for stop bleeding in 10 (5%) patients. Fifteen (8%) patients were underwent emergency or urgency liver resection and 9 (5%) patients received staged approach (TAE first and liver resection later). There were 74 (42%) patients who received best supportive care (BSC). The resectability rate in this cohort is 13%. The overall median survival is 3.2 months. The best outcome was observed in emergency liver resection group. The 1, 3 and 5 years survival is 50, 50, 30% respectively. The staged approach is also a favorable option. The 1, 3 and 5 years survival is 69.2, 30.8, 15.4% respectively. The median survival in TAE and BSC group is only 3.8 and 2.2 months.

Conclusion:

The good outcome can be expected in ruptured HCC patients who can received liver resection especially in emergency liver resection group. Median survival in patients who treated with surgery was significant better than that observed in patients who underwent TAE or BSC.

Robotic pancreaticoduodenectomy: How to overcome difficult cases

Liu Rong

Technical evolution of robotic Whipple - a personal experience

Yiengprugsawan Anusak

Vascular resection during robotic pancreaticoduodenectomy: our initial experience

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Objectives:

Firstly described in 2003, the robotic approach for pancreatic surgery is nowadays applied for complex vascular reconstruction and for pancreatic transplant. Unfortunately the wide acceptance of this technology is still low due to its high costs and the lack of a standardized training program. We evaluated the potential benefits of the robotic surgery when a vascular resection is deemed necessary.

Methods:

Since August 2015 to May 2016, a total of 15 patients underwent to robotic pancreatico- duodenectomy (PD) for borderline resectable tumors.

Results:

We performed 10 cases of latero-tangential portal vein resection, 3 end-to-end venous direct anastomosis and 2 cases employing a synthetic graft. The overall operative time was 450 ± 170 min while the estimated blood loss was 180 ml (70-520 range). We had an acceptable postoperative morbidity rate (20%). We observed one pancreatic fistula and one biliary leakage both treated conservatively, and one massive bleeding which required a conversion to open surgery. The readmission rate was 6.6%, and the overall length of stay was 12 days. We achieved a 1-year overall survival of 86.6%, and no one patient experienced local recurrence.

Conclusions:

Robotic PD with vascular resection is still a complex and technically advanced procedure that requires a specific training, but it seems to be safe and feasible in hands of expert surgeons. Despite our initial experience, we achieved a good control of haemostasis obtaining an oncologic adequacy.

The complications in robotic pancreatic surgery: our experience

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Objective:

Despite its potential benefit, the acceptance of robotic approach in pancreatic surgery is still poor due to the complexity of the procedures and the potential fatal complications. We analyzed all complications occurred in our 5 years experience in robotic pancreatic surgery.

Methods:

We have performed a retrospective evaluation of a prospectively maintained database on robotic pancreatic surgery since 2012 to 2017.

Results:

A total of 36 patients (20 male) underwent to robotic pancreatic surgery. We performed 16 pancreatoduodenectomies (PD 44.4%), 12 distal pancreatectomies (DP 33.3%), 6 tumor enucleations (16.6%) and 2 pseudocyst-gastrostomy (5.5%). The overall operative time was 425±140 min, the median blood loss was 150 ml (70-600). The morbidity rate we observed was 12/36 (33.3%), and 5 event were classified like major according to Clavien-Dindo score. The pancreatic fistula rate was 7/36 (19.4 %): 3 in the DP group, 2 in the PD group and 2 in the enucleation group. The reoperation rate was 2/36 (5.5 %) all in the PD group, while the readmission rate was 11%. There was one postoperative death during 30 days post surgery in the PD group.

Conclusion:

The robotic pancreatic surgery seems to be associated with an acceptable risk of complications rate, it offers a low blood loss and conversion rate also in case of pancreatic surgery.

Robotic Distal Pancreatectomy with Spleen-preservation by Warsaw Technique and Splenectomy

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Background:

Outcomes after robotic distal pancreatectomy with spleen preservation (RDP-SP) by Warsaw technique and with splenectomy (RDP-S) were compared.

Methods:

All the data for patients undergoing robotic distal pancreatectomy (RDP) were prospectively collected.

Results:

A total of 66 patients were included, with 33 in each group. The console time was significantly shorter in RDP-SP group than that in RDP-S group (165 vs. 220 min.). The median blood loss was 50 c.c. in RDP-SP group and 100 c.c. in RDP-S group. The surgical morbidity was significantly lower in RDP-SP group (18% vs. 58%). Spleen infarction (15%), gastric (6%) varices and perigastric (45%) varices after RDP-SP were not associated with any subsequent complication. Postoperative platelet count and white blood cell (WBC) count were significantly higher in RDP-S group.

Conclusions:

Both RPD-SP and RPD-S are feasible in selected patients. RPD-SP is feasible and time-saving. Although gastric/perigastric varices and spleen infarction are not uncommon after RPD-SP, they appear to be clinically irrelevant.

Robotic Pancreatic Surgery- from Distal Pancreatectomy to Pancreaticoduodenectomy

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Objective:

This study was to identify the learning curve of console time (CT) for robotic distal pancreatectomy (RDP) and robotic pancreaticoduodenectomy (RPD). Perioperative outcomes were compared between early group before the learning curve and late group after the learning curve.

Summary Background Data:

Pancreaticoduodenectomy has been a technically demanding and challenging procedure carrying a high morbidity.

Methods:

Data for RDP and RPD were prospectively collected for analysis. The learning curve was assessed by cumulative sum (CUSUM). Based on CUSUM analyses, patients were divided into early group before learning curve and late group after learning curve.

Results:

There were 70 RDP and 61 RPD cases. It took 37 cases to overcome the learning curve for RDP and 20 cases for RPD. The median console time was also significantly shorter in the late group for both RDP (112 min. vs. 225 min., $P < 0.001$) and RPD (360 min. vs. 520 min., $P < 0.001$). The median blood loss was significantly less in the late group for both RDP (30 c.c. vs. 100 c.c., $P = 0.003$) and RPD (100 c.c. vs. 200 c.c., $P < 0.001$). No surgical mortality in both groups. Clinical relevant pancreatic fistula (CRPF) was 22.9% for RDP (32.4% in early group vs. 12.1% in late group, $P = 0.043$), and 11.5% for RPD (0 in early group vs. 17.1% in late group, $P = 0.084$).

Conclusions:

Robotic approach is feasible for both RDP and RPD with less blood loss. Early experience of RDP contributes to developing of complicated RPD.

Conservative surgery for duodenal and ampullary lesions: a retrospective analysis of a single center experience.

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Introduction

Pancreaticoduodenectomy is the treatment of choice for the treatment of periampullary neoplasms. However, benign, premalignant and early stage malignant duodenal and ampullary lesions can undergo to a more conservative surgical approach (duodenal resection or ampullectomy). The aim of the study was to review our experience of pancreas-preserving procedures for the treatment of duodenal and ampullary lesions.

Material and methods

We retrospectively reviewed by a prospective collected database all patients underwent conservative surgery for duodenal and ampullary lesions in our center. Surgical data and post-operative results were collected and evaluated.

Results

From January 2010 to May 2017 forty-five patients underwent to pancreas-preserving surgery for duodenal and ampullary lesions: ampullectomy and duodenectomy were performed in 26 (57.8%) and 19 (42.2%) cases, respectively. Surgical indications were: duodenal cancer (4 cases, 8.9%), benign duodenal lesion (16 cases, 35.5%), ampullary cancer (7 cases, 15.5%) and benign ampullary neoplasm (18 cases, 40%). Mean time of surgical procedures was 251.3 minutes. Overall post-operative morbidity was 38% and 42% for ampullectomy and duodenal resection, respectively. Severe complications (grade IIIb-V according Clavien-Dindo classification) occurred in only 1 case (3.8%) of ampullectomy and 1 case (5.3%) of duodenal resection. Reoperation was necessary in only in 2 cases (1 in case of ampullectomy (3.8%) and 1 in case of duodenal resection (3.8%)) for abdominal bleeding. Median hospital stay was 9 (8-24) and 10 (7-39) days for ampullectomy and duodenal resection. No post-operative mortality was recorded.

Conclusions

Surgical ampullectomy and duodenal resection have excellent morbidity and mortality in high-volume pancreatic centers and they should be considered a valid option for the treatment of benign, borderline or early stage malignant duodenal and ampullary lesions.

Why HPB surgeon has to know about the anastomoses between main hepatic arteries? Experience of 9 cases

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Background:

The resources of anastomoses between major hepatic arteries are underestimated and do not used by HPB surgeons. It is supposed that this is only theoretical knowledge

Aim:

To show the importance of this knowledge to practical purposes

Method:

Analysis of 9 cases of liver survival due to communicating interlobar artery after major pancreatic and gastric resections and hepatic artery embolization, accompanied by dearterialization of one of the liver lobes. Monitoring of liver arterial supply intraoperatively was carried out by US Doppler of liver parenchima, and after surgery - by CT angiography(CTA) and angiography.

Results:

Distal pancreatectomy with celiac (CA) and gastroduodenal artery resection (Michels IV), total duodenopancreatectomy with CA resection (Michels III), pancreaticoduodenectomy with common hepatic artery resection (Michels IX), total gastrectomy with resection of right hepatic artery originated from the CA (Michels I), total duodenopancreatectomy with resection of the left hepatic and embolization of the right hepatic artery and embolysatioembolization of the right hepatic arteries for multiple gunshot injuries (Michels I) and for huge hepatocellular carcinoma (Michels I) were performed without vascular reconstructions and ischemic sequelae within short- and long- term postoperative period. Postsurgical CTAs have shown that arterial supply to the liver lobes lacking their main arteries is provided through the anastomoses between major hepatic arteries.

Conclusion:

The knowledge about the capability of anastomoses between major hepatic arteries allows to resect the main feeding lobar hepatic artery without reconstruction. In so doing intraoperative monitoring of blood supply must be used, which depending on circumstances can be ultrasound Doppler or angiography.

How to start liver transplantation in a developing country

Abdo Abdelmounem Eltayeib

A new surgical strategy in the treatment of advanced alveolar echinococcosis of the liver

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Aim:

Show the modern methods, technical possibilities and results of the radical surgical treatment of the Alveolar Echinococcosis of the liver.

Material and methods:

112 patients with Alveolar Echinococcosis of the liver were operated from December 2011 to June 2017. 23 living donor liver transplantations have been performed. 2 liver transplantations from the cadaveric donor have been performed. 23 extended liver resections with autotransplantations of unaffected liver segments have been performed (22 - «ante situm», 1 - «ex situ»). 6 Associated Liver Partition and Portal vein ligation for Staged hepatectomy have been performed. 39 extended liver resections with resection and plasty of the main vessels have been performed (20 – Portal Vein, 5 – Inferior Vena Cava, 3 Hepatic Artery, 2 – Hepatic Veins, 9 – Multivisceral Resections). 19 standard liver resections have been performed.

Inferior Vena Cava resections and linear prosthesis of the Inferior Vena Cava by the PTFE-conduits have been performed. Resections of the right atrium with atrium-caval prosthesis by the PTFE-conduits have been performed in 8 patients.

All patients were treated by Albendazole for 6-12 months after surgery.

Results:

Resectability was 100%. The morbidity after liver transplantations was 36.0%. The morbidity after liver autotransplantations was 39.1%. The morbidity after extended liver resections was 28.2%. The morbidity after standard liver resections was 21.1%. The morbidity after ALPPS was 50.0%. The morbidity among all patients was 31.2%. Biliary complications (grade A, B (ISGLS, 2011)) and fluid accumulations in the abdominal cavity were the main complications. Frequency of the biliary complications (grade A, B (ISGLS, 2011)) was 27.7%. Frequency of the postoperative liver failure (Grade A,B (ISGLS, 2011)) was 15,2%. Hospital mortality was 2.7%. The mortality is 0% in the long term period after surgery. The maximum follow-up was 70 months. Отдаленная выживаемость составила 100%. Median of survival is 26 months. Disease-free period is 97,2%. Median of disease-free survival is 24 months.

Conclusion:

The concept of inoperability of Alveolar Echinococcosis of the liver is currently absent. Only transplantological technologies enable radically resected of the locally advanced alveolar disease of liver with the total defeat of the portal gates and/or hepatic confluence, provide satisfactory immediate and long-term results of the surgical treatment. These operations must be carry out in the specialized centers.

Laparoscopic management of hepatic hydatid disease, what makes it safe and effective?

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Objective:

To determine factors that increases the effectiveness and safety of laparoscopic surgery for the management of hepatic hydatid cyst.

Design:

A prospective study.

Setting:

Department of surgery at Aljamhori Teaching Hospital in Mosul, during the period from June - 1- 2009, to June – 1- 2012.

Participants:

Forty-eight patients who met our criteria for laparoscopic surgery were selected from 80 patients complained of liver hydatid cyst.

Main Outcome Measures:

The diagnosis was settled by ultrasonic evaluation and CT scan, the exclusion criteria was as follows: Deep intra-parenchymal cysts, posteriorly situated cyst (segment 7), More than 2 cysts, cysts with calcified wall, other intra abdominal organ involvement by hydatid cyst, recurrent hydatid cyst in the liver, previous upper abdominal surgery and patient refusal. Exposure of the cyst done by a 30° telescope inserted through the umbilical trocar, a 10-mm trocar was inserted from a point as close as possible to the cyst where a high negative pressure suction tube introduced. The cyst was punctured with a 14-gauge 6F aspiration needle surmounted by second suction device inserted through 5 mm trocar. 100mg Hydrocortisone was given to the patient at time of aspiration, the 10mm canulla introduced inside the cavity were the germinal layers sucked completely. At time of penetration and during suction, the flow rate of CO₂ increased to maximum L /M and the intra abdominal pressure decreased to 12 mmhg. Intracystic visualization was performed by the camera, the cavity washed by isotonic saline, omentoplasty done after deroofing of the cyst, tube drain at the vicinity of the cyst was put.

Results:

There were 29 male and 19 female patients, their age varied from 14 to 58 years. The study included 42 patients with solitary cyst and 6 patients with 2 cysts in their liver. The size of the cyst according to ultrasonic measures were varied from 6 to 12cm, 34 cysts were in the right lobe and 20 cysts were in left lobe. The mean operative time was 52 minutes. There was no intra operative complication. All patients had uneventful recovery from anesthesia. Cavity infection occurred in 1 patient, bile leakage was observed in 2 patients. The mean length of hospital stay was 2 days. No reported recurrences in any patients during 12 months follow up period. No conversion was needed, no mortality was recorded.

Conclusion:

Laparoscopic surgery for hepatic hydatid cyst is a safe and effective method when there is selection, with the use of special maneuvers to decrease spillage and recurrence. Further studies should be encouraged in this field because there is no universally accepted standard technique.

Keywords:

Hepatic hydatid cyst. Laparoscopic treatment for hydatid cyst.

The liver tunnel – Intention-to-treat validation of a new type of hepatectomy

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Objective:

We prospectively validate the liver tunnel (LT) on an intention-to-treat basis for patients with one or more tumors occupying segments 1, 8, and eventually 4 superior (4s), with or without invasion of the middle hepatic vein (MHV).

Given that major hepatectomies have no negligible morbidity and mortality and that intrahepatic tumor-vessel detachment is oncologically suitable, LT was proposed.

Methods:

Eligible patients were prospectively enrolled to undergo LT. A minimum postoperative follow-up of 6-months was demanded. Sparing of segments 4 inferior (4i) and 5 and whether the MHV was resected were established based on preoperative imaging and intraoperative ultrasound.

Results:

Among 729 consecutive hepatectomies, 20 (3%) met the inclusion criteria: all but one received the LT. MHV was resected in 6 patients, always sparing segments 4i and 5. Overall, 180 lesions were removed (median 7; range 1–37): 79 lesions were included in the LT specimen (median 3; range 1–13). In-hospital 90-day mortality was nil. Overall morbidity occurred in 10 (50%) patients: major in 2 (10%). All complications were managed conservatively. After a median follow-up of 15 months (range 6–48), 2 cut-edge local recurrences occurred.

Conclusions:

This procedure is a safe, oncologically suitable surgery in patients who are unsuitable for resection or large hepatectomies.

Alternative laparoscopic intracorporeal Pringle maneuver by Huang's loop

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Objectives:

This paper aims to describe an intracorporeal tourniquet (IT) method for laparoscopic Pringle maneuver (PM).

Methods:

The IT method was prepared according to the following steps: one shortened Foley tube with side-hole on the tip was put into the abdomen. We pulled out the tail through the side-hole to make a loop to encircle porta hepatis for inflow control. It is easy to keep the tension by a metallic clip and when released, the clip can be removed and the loop loosened; therefore, PM is performed inside the abdomen without special instrument.

Results:

From August to October 2016, we performed this method on 13 patients. The techniques included 3 laparoscopic right hemi-hepatectomy, 2 laparoscopic right posterior sectionectomy, 1 laparoscopic left lateral hepatectomy, 1 robotic left lateral hepatectomy, 1 laparoscopic left hemi-hepatectomy, 2 laparoscopic partial hepatectomy, 1 laparoscopic S7 segmentectomy, 1 laparoscopic S8 segmentectomy and 1 laparoscopic S4+S6 sectionectomy. In every patient undergoing laparoscopic PM, no unsuccessful attempts were made. The median time to perform this procedure was less than 5 mins. The average time of performing IT in every patient was one. The ischemic duration were 20.1 mins per time. No injury of porta hepatis was noted when performing laparoscopic PM by Huang's loop.

Conclusions:

The intracorporeal Pringle maneuver with Huang's loop could be routinely used during laparoscopic liver resection even for a laparoscopic beginner because it is so easily learnt, safe and effective.

Single incision laparoscopic cholecystectomy with lagiport

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Objectives:

Laparoscopic cholecystectomy (LC) has been the golden standard procedure for the treatment of gallbladder diseases. It's a safe and efficient surgery. However, as the improvement of the instruments and surgical technique, single incision laparoscopic cholecystectomy (SILC) becomes popular.

Materials and Methods:

During January 2014 to April 2017, 171 patients received SILC. Lagiport, a commercial platform made in Taiwan, was used for the single incision laparoscopic surgery. The port was composed by three items. A transverse skin incision was made at subumbilical region, and then longitudinal fascial dissection was done to approach into the peritoneal cavity. The wound retractor was applied into the peritoneal cavity, and through the above dissection method, the wound defect will be in a circle fashion. A removable cap was then locked onto the wound retractor. Multiple ports of two 5mm seal and two 12mm seal enabled use of a wide range of instrumentation. Camera system with 5mm elongate scope was introduced for vision of the peritoneal cavity. The manipulation of the cholecystectomy is via Endograb retraction system, 5mm straight grasp and dissector.

Results:

Male-to-female ratio was 2:3. Mean age was 50.98 years, body mass index 24.59 kg/m², operation time was 67.07 minutes, mean blood 14.31 ml and mean length of stay 4.18 days. Percentages of acute cholecystitis and intraoperative bile leakage were 34 % and 18 %, respectively. Three patients (1.75%) were converted to multiports. Two patients (1.17%) suffered from post operative bile leakage. The mean length of the wound was 1.5cm. The groups for non-cholecystitis and acute cholecystitis were also compared, and the data will be showed in oral presentation.

Conclusion:

Single incision laparoscopic cholecystectomy with the assistance of Lagiport and Endograb retraction system is a safe and fast method for benign gallbladder disease.

Predictive factors of external biliary fistulas after surgical treatment of hydatid cyst of the liver

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Objectives:

Hydatid cyst in the liver is a major health problem in endemic areas. Surgical management is still the best choice for treatment of the hydatid cyst of the liver. This treatment expose to high morbidity especially biliary fistula. The aim of this study is to evaluate the predictive factors for specific morbidity after conservative surgical treatment of the hydatid cyst of the liver.

Methods:

A retrospective study including 220 patients who underwent a surgical treatment for a hydatid cyst of the liver

Results:

The median age was 33 years. The cysts were located in the hepatic dome in 96 cases (41.5% of cases), the anterior part of right lobe of the liver in 66 Cases and the left lobe in 18.1%.The diameter of the cysts ranged from 4 to 20 cm. Conservative treatment was achieved in 165 cases and radical treatment in 55 cases. Directly suture of biliary fistula was done in 25 cases, included internal fistula drainage through the sphincter of Oddi (37.3%), The overall morbidity rate was 26.6%.The major specific complications were infection of the residual cavity in 10 cases and an external biliary fistula in eight cases. In univariate analysis. The predictive factors of morbidity were bilious cyst content, location of the cyst in the hepatic dome, and size >10 cm. After multivariate analysis, only the size of the cyst was an independent predictive factor of morbidity.

Conclusion:

Hydatid cyst of the hepatic dome and cyst over 10 cm diameter are the major predictive factor of post operative biliary fistulas. Management of hydatid cyst with these characteristics rigorous surgical techniques biliary communication must be examined systematically.

Variants of reconstruction of afferent and efferent blood flow for living donor liver transplantation

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Aim:

The immediate and long-term results of the liver transplantations at its terminal lesions have been studied.

Material and methods:

250 liver transplantations were performed in the Center for Surgery and Transplantology of the State Research Center Burnazyan FMBC of the FMBA of Russia between June 2010 and June 2017. 196 living donor liver transplantations (LDLT) in the form «adult-to-adult» have been performed. Liver cirrhosis in the outcome of autoimmune hepatitis, primary sclerosing cholangitis, viral hepatitis, Wilson's disease, Budd-Chiari syndrome, primary and secondary biliary cirrhosis, unresectable hepatic Echinococcus Multilocularis, alimentary cirrhosis and cryptogenic cirrhosis have been indications for surgical treatment. 168 (85.7%) difficult liver transplantations have been performed because of the features of donors liver vascular anatomy or defeat portal gates and/or hepatic confluence and/or inferior vena cava by Echinococcus Multilocularis. Complex reconstructions of the portal venous inflow or outflow from the cava vein from liver graft have been required. Resections and reconstructions of the inferior vena cava and/or the right atrium by PTFE-grafts due to the parasitic lesions of the inferior vena cava near the hepatic confluence have been performed. Saving the middle hepatic vein in the living donor's liver was a prerequisite. Isolated venous outflow from the 8 segment of the liver to middle hepatic vein according computed tomography and its diameter was more than 5 mm were an indication for vascular reconstruction, which was carried out by implantation in the embouchment hepatic veins, right or middle hepatic vein and the inferior vena cava. In addition, its implantation was performed in the inferior vena cava with the right hepatic vein after the formation of the common fistulas at "back table". Isolated venous outflow from the 6 segment of the liver according computed tomography was an indication for vascular reconstruction, which was carried out by isolated implantation of the right hepatic vein to the inferior vena cava. Reconstruction and formation common embouchment of the portal vein via using autovenous Y-shaped portal graft at «back table» was performed at trifurcation of the portal vein. Anastomosis between the portal vein of the recipient and autovenous portal graft was formed for a short stump of the right portal vein of the transplant. Reconstruction of the portal vein at its complete fibrous obliteration was performed by autovenous grafts.

Results:

Mortality among recipients was 4.0% at all transplantations. Mortality after LDLT was 2.6%. Morbidity was 38.4% at all transplantations. Frequency of the vascular complications was 1.5%. Frequency of the biliary complications (grade A, B (ISGLS, 2011) was 14.8%. Mortality among living donors was not. The morbidity among living donors was 12.8% and was mainly represented of the bile leakage (grade A, B (ISGLS)). Postoperative hospital stay for recipients was 27 (23-32) days. Median of survival is 30 months.

Conclusion:

Presented technologies allow achieving a good venous inflow and outflowing from the liver transplantat and thereby ensure satisfactory early and long-term results of the liver transplantations, even in difficult cases.

WeLEDJI'S CLINICOPATHOLOGICAL CLASSIFICATION OF PERIANAL PAGET'S DISEASE.

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Objectives:

Perianal disease is exceedingly rare. First discovered by Paget in 1874 as a breast lesion, similar findings in the perianal area were reported 20 years later by Darier. As perianal Paget's disease is a heterogenous entity, the author proposed a clinicopathological classification system.

Methods:

The clinicopathological classification has been developed from the cases reported in the literature and texts on perianal Paget's disease.

Results:

The presenting author classifies perianal Paget's disease into four clinicopathological groups. In the first group (Type 1), there is a high frequency of an associated distant malignancy with similar immunoprofile requiring an aggressive search for the primary. This is akin to a paraneoplastic syndrome and has the worse prognosis. In the second group (Type 2) which is the commonest presentation, perianal Paget's disease represents a cutaneous manifestation through the intraepithelial spread of an underlying anorectal or vulvar adenocarcinoma (i.e. secondary). The third group (Type 3) represents true primary intraepithelial cutaneous apocrine adenocarcinoma. The fourth group (Type 4) represents a primary perianal Paget's disease with an associated malignancy but with discordant immunoprofile.

Conclusions:

Clinicians and pathologists should carefully examine the perianal epidermis in anorectal carcinoma and vice versa if the anorectal tumour shows intraepithelioid pagetoid (signet ring) cells. Preoperative staging of perianal Paget's disease should include the Weledji's clinicopathological classification before deciding treatment. Long-term follow-up after definitive treatment is required as local recurrence may occur many years later with the risk of metastatic spread.

Outcomes of nonsurgical management in patients with history of Hinchey I and II diverticulitis

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Objectives:

The objective of this study was to evaluate recurrence rates and severity of disease after nonsurgical management of nonperforated diverticulitis.

Methods:

All patients admitted to our hospital with the diagnosis of diverticulitis between January 2009 and December 2014 were included. Patients with Hinchey III and IV were operated and then excluded from the study. One patient operated for sigmoid adenocarcinoma discovered on follow-up colonoscopy was also excluded. History of previous episodes and recurrence of disease until May 2017 were recorded.

Results:

A total of 47 patients met the inclusion criteria. Patients age was 26 to 93 years old (mean 62). Seven patients had diverticulitis complicated with an abscess (Hinchey Ib or II). Three patients died on the index admission and other three patients were lost to follow-up. All the 3 patients that died were 90 years or older, one of them had complicated diverticulitis (Hinchey II) and none had previous records of diverticulitis. Recurrence occurred in 9 out of the 41 patients that were followed (22%). The total number of episodes *per patient* ranged from 1 to 5 (mean 1.3). Only one patient recurred with complicated diverticulitis (Hinchey Ib). Time until first recurrence episode was approximately 4 months and a half to three and a half years (mean 2 years). Minimum follow up time was 2 years and eight months and maximum follow up since first recorded episode was 12 years (mean 5 years). None of these patients died from the disease.

Conclusions:

Although the recurrence rate was 22%, all the new episodes were successfully treated with medical therapy alone. A nonsurgical management of nonperforated diverticulitis seems to be feasible and safe. Elective resection of the sigmoid colon might be only necessary in the highly symptomatic patient that is fit for surgical intervention. Follow-up colonoscopy should be undertaken to exclude malignancy.

Surgery for Diverticular Disease of the Colon: Single Center Experience

Ahmed ElGeidie, Ahmed Abdelrafee.

Introduction/background:

Diverticulosis of the colon is a widespread disease, and its incidence is increasing especially in the developing world. Many complications of the colonic diverticulosis may occur during the course of the disease. The aim of this study was to evaluate the role of the surgical treatment of diverticular disease of the colon in high-volume referral center.

Methods:

This was a retrospective study included all consecutive patients with colonic diverticulosis who were treated with surgical intervention in the period from January 2006 to June 2016 in Gastroenterology surgical center, Mansoura university. Patients demographics, preoperative data and surgical details were analysed. Short-term outcome including early post-operative complications were detected.

Results:

A total 62 patients with complicated diverticular disease of the colon were surgically treated during the study period. Of 62 patients, there were 51 (82.3%) males and 11 (17.7%) females with median age 55 years, range (31- 72 years). The complications occurred and indicated for surgery included recurrent attacks of diverticulitis in 8 (12.9%) patients, pericolic abscess (15 – 24.2%), diffuse peritonitis (3-4.8%), bleeding (16 -25.8%), stricture (1-1.6%), and colovesical fistula in 18 (29%) patients. As regard the extension of the disease, the sigmoid colon was the most common site affected by diverticulosis (48.4%). Surgical resection was done by open approach in 55 (88.7%) patients, laparoscopically in 6 (9.7%) patients, and one patient converted to open approach. In 18 (29%) cases, faecal diversion was done including 12 (19.4%) cases with covering colostomy and 6 (9.7%) cases with covering loop ileostomy. Faecal leakage was the most common post-operative complications (9.7%).

Conclusion:

The elective surgical treatment of colonic diverticular disease is an effective and safe option. Laparoscopic approach is feasible and satisfactory. Covering stoma should be limited for high risk patients.

How changed pattern of mesh implant fixation lead to results improvement of pelvic bottom repair after extended pelvic surgery

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Background:

A huge cavity is formed after extended pelvic surgery (extended rectal resections; exenterations). The remaining peritoneum is not sufficient to close the pelvic entry. Reconstruction of pelvic floor is necessary to preclude small bowel from entering the pelvis and to prevent bowel obstructions.

Aims:

We present and compare two patterns of pelvic bottom mesh repair –advantages, disadvantages and complications of these patterns.

Materials and methods:

We reconstruct pelvic floor with mesh implant at the pelvic entry. We used Bulgarian Antibacterial Polycapronamid Mesh (BAPP) or Prolene mesh.

For 2001-2015 mesh pelvic reconstruction was done in the course of 38 total, 37 anterior and 16 posterior pelvic exenterations (females–86; males–5; aged from 28 to 75) and 65 abdomino-perineal resections (females– 29; males–36; aged from 56 to 78).

Two patterns of mesh fixation (2 groups):

- 1) Mesh fixed highly at the pelvic entry (2001-2009), preventing bowels from entering the pelvis; fixed with tension; forms amputation cavity, that is easily infected;
- 2) Mesh without tension lays in pelvis covering pelvic walls – no amputation cavity (2010-2015).

Results:

- Pelvic cavity discharge exists for 25-65 days or more (1st group); 25-35 days (2nd group).
- Pelvic cavity infection–in 1st group (63%); 2nd group (29%).
- Ileus-3 patients from 1st group due to mesh suture leakage and bowel incarceration, resulting in re-operation; 0 patients in 2nd group.
- Perineal fistula-in 9% from 1st group and 3% in 2nd group.

Discussion:

The implanted mesh increases pelvic floor stability and separates visceral organs from the formed pelvic cavity. It is a simple, reliable, and not time-consuming technique.

Conclusions:

The change in the pattern of mesh fixation to the pelvic walls results in significant decrease of pelvic bottom complications

Cecopexy, a reemerging treatment for cecal volvulus: case report and review of the literature

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Objectives

Cecal volvulus accounts for 25-40% of volvulus of the large bowel causing obstruction with varying degrees of presentation from obstructive symptoms to bowel necrosis and perforation. In the presence of viable bowel, cecopexy has previously been demonstrated as a treatment method of surgery. The authors aim to demonstrate the reemergence of cecopexy as a laparoscopic and open technique.

Methods

We hereby present a case of open cecopexy in a patient with severe hyponatremia with cecal volvulus and a review of the literature. A systematic search (January 2017) of PubMed, Scopus, Cochrane and EMBASE databases was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for literature regarding cecal Volvulus and cecopexy. Papers without cecopexy, non-English language, and non-adult cases were excluded. Final papers meeting criteria were secondarily screened for analysis.

Results

Total of 1080 articles were identified from all four databases. 44 articles were then evaluated for surgical procedure performed; only 20 articles described Cecopexy. A total of 316 cases were documented for cecal volvulus with a mean age of 51.6+/-13 years. Further analysis demonstrated 83 cases of resection and 114 cases for cecopexy. Overall cecopexy recurrence rate of 8.8%.

Conclusion

Operative intervention is the preferred management of cecal volvulus. Cecopexy can be performed in patients who have viable bowel and require further resuscitation. This can be performed either via open or laparoscopic approach. Patient with non-viable bowel require resection with either primary anastomosis or colostomy.

Elective colostomy improves outcomes of left side malignant colonic obstruction

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Objective:

Acute left sided colonic obstruction is most often caused by malignancy. Management of colonic obstruction remains controversial. The treatment may involve either an acute resection or a colostomy followed by a resection. The purpose of the study is to identify the predictive factors of morbi-mortality and to evaluate the long-term prognosis.

Methods:

All patients with malignant left sided colonic obstruction treated between 2008 and 2015 in department of surgery in Bizerte University hospital-Tunisia were retrospectively identified.

Results:

In total, 51 patients were included. The mean age was 68 years with a male predominance.

Treatment was surgical in all cases. A deviating colostomy was performed in 9 patients and a colonic resection was performed in 42 patients. A primary anastomosis was performed in 3 patients.

The morbidity and mortality were 39% and 10% respectively.

The predictive factors of mortality were ; duration of operation greater than 240 minutes, the Hartman intervention, resection of adjacent organs ,the tumor effraction, the bleeding and per operative transfusions, the occurring of post operative complications.

The predictive factors of morbidity were: the cardiovascular co morbidity, the segmental resection, the tumor effraction, the tumor perforation, bleeding and per operative transfusions, the existence of peritonitis and a surgery time exceed three hours. The derivation colostomy was associated with a lower postoperative morbidity.

The five years overall survival was 70%. The factors affecting overall survival were; Time between admission and surgery greater than ten hours, the presence of distant metastasis, the invasion of adjacent organs, the presence of vascular emboli and the R2 resection. These factors decreased in a statistically significant way the global survival. The derivation Colostomy was associated with better overall survival.

Conclusion:

Colonic obstruction is still associated with a high morbidity and mortality rate. A bridging strategy with derivation colostomy may be valid alternative because it was associated with a lower morbidity rate and a better overall survival rate.

Outcome of compression anastomosis in colorectal surgery: a comparative case series

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Objective:

To compare the ColonRing™ device (CRD) and stapled anastomoses in left colectomies and low anterior resections.

Methods:

A study evaluating consecutive patients undergoing left colectomy or low anterior resection with anastomosis performed via CRD to a group of patients undergoing the same procedures via end-to-end (EEA) stapled anastomosis. Intraoperative and immediate postoperative outcomes were recorded.

Results:

A total of 80 patients were enrolled for the analysis; CRD group N=17 and control group N=63. We initially planned to include 40 patients in CRD group but terminated the study prematurely because of a higher complication rate. There were no significant differences in preoperative clinical demographics including age, sex, BMI, ASA score, or comorbidities. There was no 30 day mortality in both groups. Anastomotic leaks (AL) occurred in 4 (23.5%) patients in the CRD group and 2 (3.2%) in the control group ($p=0.0168$). Overall postoperative complications arose in 8 (47.1%) patients in the CRD group and 13 (20.6%) in the control group ($p=0.0584$). Major complications (Clavien-Dindo Grade \geq III) were observed in 4 (23.5%) patients in the CRD group and 4 (6.3%) in the control group ($p=0.0583$).

Conclusion:

With a significantly increased rate of anastomotic leak compared to the conventional stapled technique, CRD should not be recommended in routine for colorectal anastomoses.

Laparoscopic partial splenectomy

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Objectives:

Laparoscopic partial splenectomy is a delicate surgical procedure that can be proposed in select cases to decrease postoperative complications related to total splenectomy.

Methods:

The authors present the video of the case of a suspected inflammatory pseudotumor of the spleen discovered by ultrasound in a 56-year-old woman. After a spleen CT-scan biopsy, the diagnosis of inflammatory pseudotumor was done, and a simple clinical and radiological overseeing was proposed. The patient accepted it, but she developed psychiatric complications and was hospitalized some weeks later in a psychiatric unit for nervous breakdown and suicidal risk. The patient didn't support the idea to have a spleen tumor, and the psychiatric team asked for the removal of the tumor.

Results:

The surgery was done by laparoscopy. The harmonic scalpel was used to dissect the splenic hilum and to cut the spleen. The lower quarter of the spleen was not removed. The postoperative course was uneventful, and the patient recovered all physical and mental functions.

Conclusions:

Laparoscopic partial splenectomy must be proposed in select cases, such as benign tumor, to decrease early and late postoperative complications related to total splenectomy.

Tissue engineered abdominal wall using muscle derived stem cells in the treatment of ventral hernia in an animal model

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Background:

Upto 23% of mesh ventral hernioplasty operations will recur. The aim of the study was to use muscle derived cells to tissue engineer anterior abdominal wall in an animal model. This can enhance hernia repair by providing a living muscular layer which will better incorporate with normal abdominal wall musculature and reduce intra-peritoneal adhesions.

Methods:

Three experimental groups consisted of Sprague Dawley rats (n=12 each). A defect (2x1cm) created in the anterior abdominal wall was either closed with polypropylene (PP) mesh, PP+ poly-caprolactone (PCL) scaffold or PP + PCL + autologous muscle derived cells (MDC). Culture expanded muscle derived cells were characterized for CD34 and Sca-1. 100,000 cells/cm² was seeded on PCL and attached for 48 hours before transplant. Outcome at six and ten weeks (n=6) was assessed for grade of adhesions, tensile strength, histology (haematoxylin & eosin and Masson's trichrome) and immuno-histochemistry(PAX7, MyoD and CD 31).

Results:

All animals in the MDC group survived with no hernia recurrence. The mean adhesion score among MDC (3.5), PCL (6.5), PP (7) group was significantly lower ($p<0.05$). The tensile strength (N/m²) was similar across all three groups MDC (72), PCL (60) and PP (80) respectively ($p=0.18$). Evidence of muscle regeneration was observed in 9/12, 1/12 and 0/12 animals in the MDC, PCL+ PP and PP group respectively ($p<0.01$). This was corroborated by 3.5% of the regenerated fibres showing PAX7 staining in the MDC group while negligible in other groups. Regenerated muscle bundles were significantly higher in the MDC group ($p<0.001$). Histology showed higher inflammation, cell infiltration and neovascularization in the MDC group ($p<0.05$).

Conclusion:

There were significantly fewer intra-peritoneal adhesions and significant muscle regeneration with better cellularization and vascularity of the neo-abdominal wall when stem cells were used to treat ventral hernia. This study establishes feasibility of a live tissue engineered abdominal wall in rat model.

To study the effect of octreotide on magnitude and duration of lymphorrhea in patients undergoing modified radical mastectomy

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Objectives:

To study the effect of octreotide in decreasing lymphorrhea after axillary node dissection in Modified Radical Mastectomy.

Methods:

We evaluated 30 patients who underwent Modified Radical Mastectomy between September 2015 and March 2017. Lymphorrhea volume from 24 hours to 5 days and number of days until axillary drain removal (duration of lymphorrhea) were evaluated along with incidence of seroma formation and duration of hospital stay.

Results:

The amount of lymphorrhea was almost half in the octreotide group (mean 194 ± 240.6 ml) as compared to the control group (mean 354.6 ± 346.2 ml) but was not statistically significant (p value 0.081). The duration of lymphorrhea was lesser in the octreotide group (3.133 ± 1.356 days) than the control group (4.933 ± 2.491 days) and was statistically significant (p value 0.029). The duration of hospital stay was lesser in the octreotide group (5.13 ± 1.060 days) than the control group (7.066 ± 2.404 days) and was found to be statistically significant (p value 0.010). Post-operative complications like wound infection and flap necrosis were similar in both the groups. The incidence of seroma formation in the octreotide group was significantly lower (p value 0.010) than the control group.

Conclusions:

We concluded that the injection octreotide can be used safely and effectively to decrease the amount and duration of lymphorrhea in patients undergoing modified radical mastectomy with axillary dissection with minimal or no complications and adverse reaction. In addition, it reduces the duration of hospital stay and seroma formation and its related morbidity.

Feasibility of Catheter Placement Under Ultrasound Guidance for Progressive Preoperative Pneumoperitoneum for Large Incisional Hernia with Loss of Domain

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Introduction:

Large incisional hernias with loss of domain (LIHLD) of the abdominal wall remain a therapeutic challenge due to the difficulty of replacing the contents of the hernia sac into the peritoneal cavity. Preoperative progressive pneumoperitoneum (PPP) is a valuable option. The purpose of this study was to evaluate the feasibility of peritoneal catheter insertion under ultrasound guidance for PPP and to compare the morbidity and mortality of this new technique to previously used techniques in our department.

Methods:

Medical records were reviewed retrospectively from February 1989 to April 2013 in a single institution. Three different techniques of PPP were evaluated: surgical subcutaneous implantable port (SIP), surgical peritoneal dialysis catheter (PDC), and radiologic multipurpose drainage catheter (MDC). Collected data included patients' age, sex, body mass index, medical and surgical history, hernia location, PPP technique, length of hospitalization, volume of air injected, morbidity and mortality linked to PPP, and the procedure of hernia repair.

Results:

Thirty-seven patients with a mean age of 63.1 years were evaluated. Progressive preoperative pneumoperitoneum was performed using SIP, PDC, and MDC for 14, 11, and 12 patients, respectively. Overall morbidity related to the technique was seen in 36 % of SIP, 27 % of PDC, and 0 % of MDC. One patient from the SIP group died on the 3rd postoperative day due to septic shock following aspiration pneumonia. No postoperative mortality in the other groups was observed.

Conclusion:

The MDC is an interesting modification of the original technique and is a safe procedure. It is a minimally invasive technique with a very low risk of perforation of the viscera. Therefore, the use of a nonabsorbable prosthesis with MDC technique can be offered for all patients undergoing PPP without increasing the risk of infection.

Conversion chemotherapy in colorectal liver metastases, which regimen to whom?

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It has been reported that only %10 to %30 percent of the patients with unresectable liver metastases have a sufficient objective response to allow a subsequent complete resection. Patients who have undergone metastasectomy have significantly higher survival rates than the patients who do not. However, the definition of unresectability in the literature is a bit subjective and mainly based on the aggressiveness of the liver surgeon. We know that the majority of radiographic completely responding lesions contain viable tumor. Thus, even in the case of a complete clinical response, resection is still required. The optimal regimen for conversion therapy is not established yet, but since there is a correlation between response rate and a subsequent resection rate, a chemo regimen with a high response rate is generally chosen. Although, for young healthy patients FOLFOXIRI may be chosen as chemotherapy regimen, for others FOLFOX or FOLFIRI with or without biologics may be preferred. Doublets regimens containing irinotecan or oxaliplatin plus a fluoropyrimidine are considered to be equivalent colorectal cancer; therefore the choice is typically preferred according to side effects profile. The benefit of the addition of a biologic agent such as cetuximab or panitumumab for RAS wild tumors or bevacizumab to a chemotherapy backbone containing oxaliplatin or irinotecan may increase the resectability rates and improve outcomes. On the other hand, in patients with potentially resectable liver metastases, a phase III trial showed that the addition of cetuximab was associated with a significantly worse progression-free survival. Due to the potential liver toxicity, the number of preoperative cycles in patients with resectable liver metastases should be limited to four regardless of the chemo-regimen. Two to four additional preoperative cycles may be beneficial if further tumor shrinkage would significantly reduce the complexity of liver resection.

In Conclusion, patients undergoing liver resection live longer. Our aim should be to increase the resectability rates of colorectal cancer patients by administering the best systemic therapy based on the characteristics of the patients and the tumors.

Outcomes of simultaneous Liver resection and colorectal surgery for colorectal liver metastases

Dulundu Ender

Surgical treatment of synchronous liver metastases of colorectal origin

Popescu Irinel

Tissue engineering for HPB diseases

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Tissue engineering has blossomed great success in developing therapeutic strategies aimed at the replacement, repair, maintenance, or enhancement of tissue function. Tissue engineering is a relatively new field that uses living cells, biocompatible materials, and suitable bio-physiological factors, as well as combinations thereof, to create tissue-like structures. Most frequently, the ultimate goal is implantation of these tissue constructs into the body to repair an injury or replace the function of a failing organ.

Our library has fulfilled some items using cell sheet engineering. In 2013, we reported a rapid and efficient technique for generating multi-layered human hepatic cell (HepaRGH cell) sheets using pre-cultured fibroblast monolayers derived from human skin (TIG-118 cells) as a feeder layer on a temperature-responsive culture dish (PLoS ONE 2013;8: e70970). This technique is considered a promising modality for rapidly fabricating multi-layered human hepatocyte sheets from cells with limited proliferation potential, and the engineered cell sheet could be used for cell transplantation with highly specific functions. In 2015, we describe a subcutaneous human liver construction allowing for rapidly vascularized grafts (VSLT) by transplanting engineered cellular sheets consisting of human primary hepatocytes adhered onto a fibroblast layer (Biomaterials 2015;65:66e75). Study describes this new approach for vascularized human liver organogenesis under mouse subcutaneously. At the same time, it was demonstrated that viable dermal fibroblast sheets induce the migration of hepatic progenitor cells and cause their differentiation into hepatic structures in the incised host liver in allogeneic rat model (J Tissue Eng Regen Med 2015;9:E108–5). Data showed that the proliferation and differentiation of liver progenitor cells were not influenced by hepatectomy, and clarified that the origin of BD-like structures and hepatocyte-like cells was the recipient liver. Those items help to get many valuable experience about the cell sheet engineering technology.

Except for the liver diseases, we also have experienced on the islet and ADSC cell sheet engineering (Tissue Eng Part C Methods. 2015;21:1205-15, Cell Transplant. 2016;25:1525-37). Moreover, we have several on-going projects using those technologies, such as the observation of healing process of porcine biliary duct anastomosis using ADSC and obtaining the functional bile duct using co-culture with biliary epithelial cells and fibroblasts method.

Liver-first approach for synchronous colorectal liver metastases is a feasible and oncologically safe strategy: Long-term follow up and predictive factors of survival.

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Background:

Three different approaches have been implemented for patients presenting with colorectal cancer and synchronous liver metastases (CRLM): the conventional approach addressing surgery of the primary tumor first, the combined approach and the liver-first approach (LFA). This study investigates the outcomes of LFA in patients with synchronous CRLM, evaluating short- and long-term outcomes and evaluating predictive factors of survival.

Methods:

Sixty-two patients who underwent a LFA with a minimum follow-up of 2 years were selected for the study. All patients underwent neoadjuvant chemotherapy. Re-evaluation after neoadjuvant therapy was performed to classify patients according to the RECIST criteria. Liver resection was performed 4-6 weeks after chemotherapy. Primary tumor resection was scheduled 4-8 weeks following liver resection, or after completion of chemotherapy. The 90-days mortality and morbidity as well as survival parameters and predictive factors of survival were analyzed.

Results:

Five patients (8.1%) were categorized as "Progressive Disease", 22 (35.5%) as "Stable Disease" and 35 (56.5%) as "Partial Response" at re-evaluation after neoadjuvant chemotherapy. After liver resection, 14 patients (22.6%) experienced complications mainly classified as minor according to Clavien-dindo classification. An R0 liver resection was recorded in 46 patients (74.2%). Thirty-seven patients had a liver recurrence. The 5 year survival rate was 55% while 5 year disease free survival (DFS) rate was 16%. Multivariate analysis showed that RECIST criteria after neoadjuvant treatment, T-stage and N-stage were independently associated with overall survival (OS). Bilobar presentation of disease, RECIST criteria after neoadjuvant treatment and R1 margin were independently associated with DFS.

Conclusions:

LFA is a feasible and oncologically safe strategy with good short-term and long-term outcomes. Patient selection is a critical point and therefore all patients should be discussed in a multidisciplinary board at different time points from diagnosis, including all possible predictors of outcomes. This should eventually lead to improved survival.

Local ablation-assisted liver resection for colorectal liver metastases

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Objective:

Local ablation-assisted liver resection is one of the methods to enable unresectable colorectal liver metastases (CRLM) to be operated. Oncological consequences of this method are controversial due to a lack of comparative prospective studies. The aim of this study is to evaluate survival data of patients with CRLM who received resection only or in combination with local ablation.

Methods:

Prospective data obtained from patients treated in the Haydarpaşa Numune Education and Research Hospital between 2004-2016 were retrospectively evaluated. Local ablation was performed with radiofrequency until 2012, after which microwave ablation was preferred.

Results:

141 patients were operated for CRLM. 36 patients received resection assisted with local ablation (25.5%). Perioperative mortality was 1.4% (2 patients) and morbidity 26% (Clavien-Dindo classification). Mean follow-up period was 42.8 months, during which 102 (72%) patients demonstrated recurrence and 31 patients received re-resection. Overall 5-year survival was identified as 58.5% and disease-free survival as 35.5%. In the local ablation assisted group, 5-year survival and disease-free survival were found to be 41.8% and 19.6%, respectively.

Conclusion:

Liver resection assisted with local ablation may render unresectable patients eligible for a potential cure. In our study group, the rate of re-resection after recurrence was higher compared to the literature (30%), which may be attributed to local ablation assisted for hepatectomy.

The changing face of two-stage hepatectomy: how the interval between the two stages may not be as pejorative as it looks ?

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Background:

Two-stage hepatectomy with portal vein embolization (TSH) has evolved with the advent of parenchymal sparing techniques and alternatives such as ALPPS. Interstage time is a matter of concern in TSH given the risk of progression. The goal of this study was to evaluate the changes in the practice of TSH and the impact of interstage management on long-term results especially in case of tumor progression.

Study design:

A retrospective monocentric study including patients undergoing PVE after a 1st hepatectomy was conducted. The pre-PVE risk factors for tumor progression were evaluated in uni- and multivariate analysis. The impact of interval chemotherapy and tumor progression on long-term survival was evaluated. A review of the literature was conducted to evaluate the correlation between R0 rate and survival in the setting of initially unresectable colorectal liver metastases focusing on TSH and ALPPS.

Results:

A total of 107 patients were included and 85 patients (79%) underwent the 2nd stage. There was a significant increase in the tumor load treated during the first stage with increased use of RFA. An increased proportion of patients with tumor progression underwent the second stage. Whereas tumor progression significantly impacted overall survival ($p=0.003$), this was not the case when considering only patients completing the TSH ($p=0.533$). Tumor progression after PVE was predicted by an increase in portal pressure during PVE greater than 4 ($p=0.018$). Preemptive interval chemotherapy increased overall survival ($p=0.053$) whereas curative interval chemotherapy did not ($p=0.889$). The review of the literature showed that ALPPS significantly altered the correlation between R0/R1 feasibility and survival.

Conclusion:

TSH is still a good option for advanced bilobar CRLM. Interstage time should not be looked at as a pejorative factor as it can be used to enhance oncological control. Portal pressure increase during PVE may be an objective tool to select patients for the interstage management.

Preoperative targeting of liver tumors using real-time fused US with CT/MRI

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Objectives:

Liver tumor removal may need local resection or thermoablation through preoperative or percutaneous approaches. To do so, US guidance is in most cases used to target the treatment. However, some lesions may be not clearly visible due to very small size, isoechogenicity to the liver, deep location, disappearance after neoadjuvant therapy, and also heterogeneous liver echo pattern in cirrhosis. MRI and CT are the reference techniques to detect and to localize most of liver tumor masses, but at the same time may not be used as a guidance method during operative or interventional procedures.

Therefore, an option is to place a metallic marker clip before treatment as near as possible to the tumor, using fused MRI/CT for tumor detection and real time US for puncturing. We conducted a study to assess the precision of such clip placement for optimal spotting when tumors are expected to be difficult or impossible to localize by US alone at the time of the treatment.

Methods:

21 lesions, difficult (16) or impossible (5) to detect by ultrasound alone, were included. A marker clip was placed using fusion with MRI (16) or CT (5). The performance of the clip placement was evaluated by measuring the distance between the target lesion and the clip on a control imaging (CT/MRI).

Results:

The average distance between the clip and the lesion was 3.8 mm on control imaging. All lesions were easily found during treatment or follow-up imaging controls.

Conclusion:

This study confirms the precision of marker clip targeting of hepatic lesions with the help of fused images even in case of invisible or ill-defined lesions at US.

This technique is now available with most US equipments and should probably be generalized as a preoperative procedure in such cases.

Endovascular treatment for post-operative bleeding after hepato-pancreato-biliary surgery

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Objectives:

To evaluate the efficacy of endovascular treatment for post-operative bleeding after hepato-pancreato-biliary (HPB) surgery.

Methods:

Fifty three sessions of endovascular treatment was performed for 38 patients between December 2005 and May 2017. Pancreaticoduodenectomy (PD), major hepatectomy (resection of more than 4 Couinaud' segments), minor hepatectomy, and other procedures were performed for 23, 6, 5 and 4 patients, respectively, mainly for HPB malignancies. Technical success rate, clinical success rate, mortality rate, and the cause of death were evaluated.

Results:

Isolation of the parent artery and stent graft deployment was primarily performed for bleeding from the gastroduodenal artery stump or the proper/ common hepatic artery (PHA/CHA) in 34 sessions and one session, respectively. Packing of the pseudoaneurysm were performed in 3 sessions; however, recurrent bleeding required subsequent isolation of the parent artery in one session. Selective embolization was performed for bleeding from branch vessels in 14 sessions. Technical success was achieved in all cases. Rebleeding occurred in 10 cases (26.3%), and additional TAE was performed. Haemostasis was finally achieved in 8 cases, while control of bleeding was not possible in 2 cases. Extensive biloma and pancreatic fistula was observed in these two cases, and insult to multiple vessels was revealed by angiography. In-hospital mortality was observed in 12 patients (31.6%). Four patients died of liver failure after isolation of the PHA/ CHA following major hepatectomy, while liver ischemia was not observed after the procedure following PD and minor hepatectomy. Two patients died of refractory bleeding as stated earlier, three of multiple organ failure, one of acute respiratory distress syndrome, one of sepsis, and the other of massive pulmonary thrombosis.

Conclusions:

Endovascular treatment is effective for post-operative bleeding after HPB surgery. Liver ischemia is a drawback to isolation of the parent artery after major hepatectomy.

Intraoperative endoscopic retrograde cholangio-pancreatography: A useful tool in the hands of the hepatobiliary surgeon

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Aim:

To evaluate the efficacy of intraoperative endoscopic retrograde cholangio-pancreatography (ERCP) combined with laparoscopic cholecystectomy (LC) for patients with gall bladder stones (GS) and common bile duct stones (CBDS).

Methods:

Patients treated for GS with CBDS were included. LC and intraoperative transcystic cholangiogram (TCC) were performed in most of the cases. Intraoperative ERCP was done for cases with proven CBDS.

Results:

Eighty patients who had GS with CBDS were included. LC was successful in all cases. Intraoperative TCC revealed passed CBD stones in 4 cases so intraoperative ERCP was performed only in 76 patients. Intraoperative ERCP showed dilated CBD with stones in 64 cases (84.2%) where removal of stones were successful; passed stones in 6 cases (7.9%); short lower end stricture with small stones present in two cases (2.6%) which were treated by removal of stones with stent insertion; long stricture lower 1/3 CBD in one case (1.3%) which was treated by open hepaticojejunostomy; and one case (1.3%) was proved to be ampullary carcinoma and whipple's operation was scheduled.

Conclusion:

The hepatobiliary surgeon should be trained on ERCP as the third hand to expand his field of therapeutic options.

Laparoscopic left lateral sectionectomy extended with IVb segment on 74-year old woman with Juvenile Liver Hemangioma

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Objectives:

Infantile hepatic haemangioendothelioma/haemangioma (IHE) is a rare benign tumor.

Most cases are diagnosed in patient younger than 6 months. It is the third most common liver tumor in childhood (12%), but the most common with manifested symptoms.

In 45-50% of the patients skin hemangiomas are present, more often in girls 2:1.

Liver lesions can be single or multiple with calcifications in 50% of the patients.

Most tumors grow until the end of the first year followed by spontaneous regression, probably because of thrombosis.

Cases of malignant sarcoma are reported to arise in existing hemangioendothelioma. IHE presents as mesenchymal tumor composed of a connecting network of small diameter vascular channels lined by endothelial cells.

Unlike cavernous hemangiomas, which contain larger blood filled spaces lined with endothelial cells, IHE are not obviously vascular tumors at gross examination of the cut surface.

Material and Method:

Here we present a case of a vascular tumor, morphologically corresponding to infantile hemangioendothelioma in 76 year old female.

Identified liver tumor – hemangioma spreading all over the left liver lobe, hemangioma on a pedicle attached to IVB segment and a smaller one in VII segment.

The patient suffered from severe abdominal pain with nausea and vomiting.

We didn't find weight loss, anemia, thrombocytopenia, coagulation disorders. No heart involvement symptoms are present. Performed procedure – laparoscopic left lateral sectionectomy extended with IVb segment.

Pathology report show infantile haemangioma of the liver.

IPMN - when surgery is indicated?

Radenkovic Dejan

Nutritional supports before and after pancreaticoduodenectomy

M. Marino.

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Objectives:

Pancreatic cancer still have very high frequency in the world, and is the fifth most common cause of death from cancer in the United Kingdom and fourth most common in United States. Those patients typically present in a different severity malnourished state. Malnutrition is a medical condition, what caused by improper or insufficient diet, especially together with cancer cachexia, considered as independent risk factor for morbidity and mortality in patients undergoing surgical procedures. This is could include increased incidence of superficial and deep infections, sepsis, impaired wound healing, failure of ventilator weaning, pneumonia, renal insufficiency, cardiac and neurogenic events, re-admission, length of stay and overall costs. Surgery remains the only curative treatment for tumors of pancreaticobiliary area, but for the outcomes and prolongation of survives of the patients crucially important is choosing of the correct before and after pancreaticoduodenectomy nutritional support.

Methods:

Early enteral and total parenteral nutrition must be choosing individually for each patient according to the malnourished status, involving of adjacent organs and comorbidities. Early enteral nutrition could be performed by temporally nasal tube (nasogastric, nasojejunal, or combined nasogastrojejunal tube) or surgically placed tube (gastrostomy, jejunostomy, gastrojejunostomy tubes). Parenteral nutrition typically performed intravenously.

Results:

Oral before operative nutrition (when it is possible according to the symptoms of the patients) is most effective among a wide variety of nutritional modalities for the malnourished patients. According to the ERAS recommendation fast-track oral feeding strategies results less delayed gastric emptying than normal oral feeding strategies. Parenteral nutrition is crucial for the patients in whom oral or enteral nutrition is not possible.

Conclusions:

For the better outcomes, prolongation of surviving and less morbidity and mortality rates must be individual multidisciplinary approach for evaluation and choosing the best before and postoperative nutritional support for the patients undergoing pancreatic surgery in malnourished state.

Bicentric experience and comparison between parenchyma-sparing and standard pancreatectomies for presumed non invasive IPMNS

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Introduction:

Studies comparing standard resections (SR) and parenchyma-sparing pancreatectomies (PSP) for presumed non-invasive IPMNs are scarce and included few patients. We aimed to compare PSPs versus SRs in two high volume centers regarding early complications and distant functional results.

Methods:

From 2000 to 2016, 240 consecutive patients were operated in these institutions with a preoperative diagnosis of IPMN without high risk stigmata.

In Group 1 (n=110), enucleations and uncinata resections (EN/UR,=59) were compared to pancreaticoduodenectomies (PD=51); in Group2 (n=130), central pancreatectomies (CP=62) were compared to distal pancreatectomies (DP=68).

Results:

In Group 1, EN/UR had an overall morbidity rate equivalent to observed with PD (60% versus 57%) and POPF was in total more frequent (55% versus 17%, $p<0.05$).

In Group2, CP had a significant higher overall morbidity rate (75% versus 40%, p -value <0.05 ; one death occurred after CP) and a higher incidence of POPF (grade A+B+C, 64% versus 17%, p -value <0.05).

Hospital stay was longer for PSPs (EN/UR=20 \pm 9 versus PD=13 \pm 6 days, CP=29 \pm 14 versus DP=10 \pm 8 days).

PSP showed better long-term results, with an inferior rate of new onset of both exocrine and endocrine pancreatic insufficiency (Group 1: EN/UR=6% versus PD=43%, p -value <0.05 ; Group 2: CP=35% vs DP=50%, p -value <0.05).

Conclusion:

PSPs represent a valid alternative to SRs to preserve pancreatic function in selected patients, at the price of a higher early morbidity and a longer hospital stay.

Fate of the remnant pancreas after resection of PDAC concomitant with IPMN

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Objectives:

While intraductal papillary mucinous neoplasm (IPMN) is known as a precursor lesion of pancreatic ductal adenocarcinoma (PDAC), it has been recognized that pancreas harboring IPMN occasionally develop PDAC distinct from IPMN, namely PDAC concomitant with IPMN. It is considered that PDAC concomitant with IPMN reflects cancer susceptibility of pancreas harboring IPMN. Therefore, it is expected that remnant pancreas after resection of PDAC concomitant with IPMN is also susceptible to PDAC. The purpose of this study was to analyze long-term outcomes after resection of PDAC concomitant with IPMN and clarify incidence of PDAC in the remnant pancreas.

Methods:

Thirty patients who underwent partial pancreatectomy for PDAC concomitant with IPMN were retrospectively reviewed.

Results:

Initial operations were pancreatoduodenectomy in 12 patients and distal pancreatectomy in 18 patients. Stages of the initial PDAC according to UICC classification were 0 in 7 patients, IA in 3 patients, IIA in 3 patients and IIB in 17 patients. Median follow-up period was 26 months (1-166). Recurrences of the initial PDAC were observed in 15 patients, of whom 11 patients died of the disease. 5- and 10-year overall survivals were 48.2% and 40.2%, respectively. Secondary PDAC in the remnant pancreas developed in 5 patients. Median duration between the initial operation and the diagnose of the secondary PDAC was 55 months (33-160). 5- and 10-year cumulative incidences were 32.7% and 49.5%, respectively. Total remnant pancreatectomy was performed in 3 patients, while the remaining 2 patients had unresectable disease. 3 patients died of the disease, and the remaining 2 patients are still alive without recurrence.

Conclusions:

PDAC frequently developed in the remnant pancreas after resection of PDAC concomitant with IPMN. Long-term surveillance of the remnant pancreas is necessary for the patients who underwent resection of PDAC concomitant with IPMN.

Effect of oral bcaa supplementation on postoperative blood lactate levels in patients undergoing pancreatoduodenectomy

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Background:

Elevations in blood lactate levels have been associated with poor postoperative outcome. The aim of the present study was to determine if preoperative supplementation with branched-chain amino acids (BCAA) decreases postoperative blood lactate levels in patients undergoing pancreatoduodenectomy.

Methods:

A total of 223 consecutive patients who underwent pancreatoduodenectomy were retrospectively reviewed. Postoperative blood lactate levels in patients who were treated with BCAA supplementation before pancreatoduodenectomy (December 2011 to December 2014) were compared to levels in patients who were not pretreated (January 2008 to November 2011).

Results:

Postoperative lactate levels were significantly lower in patients who received preoperative BCAA supplementation than in patients who did not (2.6 mmol/L vs. 3.1 mmol/L, $P = .005$), although preoperative blood lactate levels were statistically equivalent between the two groups. In the univariate analysis, preoperative BCAA supplementation, preoperative lactate levels, operation time, and postoperative glucose levels were associated with postoperative lactate levels. A multiple regression analysis was performed between the four factors, and the preoperative use of BCAA supplementation was independently correlated with postoperative lactate levels ($P = .046$).

Conclusions:

Preoperative BCAA supplementation decreased postoperative blood lactate levels. These results suggest that preoperative BCAA supplementation may help patients recover after surgery.

Impact of diabetes mellitus on the Outcomes after pancreaticoduodenectomy for pancreatic ductal adenocarcinoma

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Objectives:

Pancreatic ductal adenocarcinoma (PDAC) is a life-threatening health problem. Surgical excision is the principal step of multimodal treatment, but it is associated with poor outcomes.

Several risk factors have been identified to be associated with the development of post-operative morbidity and poor long term outcomes, but the role of pre-operative diabetic status in this setting is still unclear.

Few studies have evaluated the impact of preoperative Diabetes Mellitus (DM) on perioperative and long term outcomes after pancreatic resection for PDAC. The results of these studies are very controversial.

Methods:

We reviewed the data of patients who underwent PD for PDAC during the period between 1993 and 2016. Patients were divided into 2 groups according to presence or absence of preoperative DM.

Results:

Our study included 451 patients. DM group included 113 patients (25.1%), and Non-DM group included 338 patients (74.9%).

Firmer pancreas was found in DM group, and more clinically relevant postoperative pancreatic fistula was found in Non-DM group. There was more delayed gastric emptying, especially grade C, in DM group which required longer nasogastric tube decompression. Also, there was more wound infection rate in DM group.

The median follow up period was 24 month (4 – 120 month). Recurrence occurred in 53 patients (11.8%), 10 patients (8.8%) in DM group and 43 patients (12.7%) in Non-DM group, ($p = 0.269$).

Mortality occurred in 306 patients (67.8%), 56 patients (49.6%) in DM group and 250 patients (74%) in Non-DM group, ($p < 0.001$).

The long-term oncological outcomes were comparable between groups regarding the overall ($p=0.55$) and disease-free ($p=0.972$) survival rates.

Conclusion:

Preoperative DM did not affect the perioperative outcomes after PD for PDAC. Preoperative DM is not associated with postoperative pancreatic fistula; however, it is significantly associated with delayed gastric emptying and wound infection.

Feasibility of enhanced postoperative recovery pathway in emergency minimal access surgery

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Objectives:

Minimal access surgery is an imperative element of Enhanced Recovery after surgery (ERAS) and has significantly improved the outcomes. Largely described for colorectal surgery and reported to be feasible. Most of the patients who present for emergency surgery are not adequately prepared and many have abnormal parameters. The feasibility of ERAS protocol in such emergency minimal access surgery remains indistinct. The objective of this study was to validate an ERAS program in such scenarios.

Methods:

The subjects were patients who underwent emergency minimal access surgery between Feb 2016 and March 2017 at the Victoria hospital, Bangalore. They received perioperative care according to ERAS protocol. All data were collected and analyzed. The end points were the incidence of hospital stay, pain and postoperative complications.

Results:

A total of 135 patients were studied. Majority were hollow viscus perforation (37.7%) these included gastric, duodenal and ileal perforations. Second most common condition was appendicitis (26.5%) others were liver abscess, cholecystitis etc. Postoperative complications were assessed using Clavien-Dindo classification. Only 3.5 % were \geq grade 3. The average postoperative hospital stay was 6 days. There was 8.5 % (11 cases) mortality.

Conclusions:

Our results suggest that our ERAS program is feasible in patients who undergo emergency minimal access surgery.

Compliance of Operation Note Contents with the Royal College of Surgeons General Surgical Practice 2014 Guidelines

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Background & Aims:

The Royal College of Surgeons Good Surgical Practice (RCS GSP) 2014 guidelines recommend including 18 particulars in an operation note. Our aim was to determine the effectiveness with which our operation notes comply with the RCS GSP guidelines.

Methods:

We retrospectively analysed medical records for 50 patients who underwent operations in November & December 2017 in both Queen Elizabeth Hospital and Lewisham University Hospital using a pro-forma based off of the RCS guidelines. We then presented our initial findings at a trust departmental meeting, and afterwards we repeated the audit on 20 patients operated on in March 2017.

Results:

Generally the key elements to operative notes (date, elective vs emergency, signature, surgeon, procedure, incision, findings closure, tissue removed/added) were completed in >95% cases. The poorest completion rate was with time, problems & complications, extra procedures, prosthesis usage, and blood loss (<60% compliance). There was variation within the trust with Queen Elizabeth Hospital performing better than Lewisham University Hospital.

Conclusions:

Operation note proforma's significantly enhanced compliance with the RCS guidelines, however there is still room for improvement with the operation notes. The optimal solution perhaps would be prompted electronic operation notes.

Postoperative advantage of proximal parenchymal pancreatectomy (; PPP) as an organ function preserving surgery

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Objectives:

Proximal Parenchymal Pancreatectomy (PPP) has been established for resecting low-malignant lesion arisen in the pancreatic head. With this procedure, the duodenum and the entire biliary tract is able to be preserved anatomically. The aim of this study was to evaluate postoperative advantages of PPP regarding operative outcomes and postoperative clinical course in comparison with those of standard pancreaticoduodenectomy (PD).

Methods:

PD and PPP were performed from January 2009 to March 2017 in 15 and 14 patients respectively, who had been diagnosed as IPMN, NET or SPN. Postoperative cholangitis, operative blood loss, time of operation, postoperative complications, and length of hospital stay were evaluated in each procedure.

In addition, the body weight loss rate, serum-Alb, AST, and ALT values at postoperative 3, 6, and 12 months were evaluated, respectively.

Results:

There was no postoperative mortality in all 29 patients during median follow-up period of 35 (2 -97) months. Regarding the perioperative factors, operative blood loss was significantly lower ($p=0.0346$) and in-hospital stay was shorter ($p=0.0383$) in PPP patients than those in PD. Also, in terms of postoperative clinical course, rate of body weight loss was significantly lower in PPP patients at 3 months after the operation ($p=0.0253$). Serum-Alb levels were significantly higher in PPP patients at 3 and 6 months after the operation. Furthermore, AST and ALT levels were significantly lower in PPP at every time of observation. Postoperative cholangitis had been observed in 3 patients with PD, whereas only 1 patient with PPP in whom choledochoduodenostomy with bile duct resection was performed due to biliary ischemia. Otherwise, no postoperative cholangitis occurred in 13 PPP patients whose biliary system were preserved.

Conclusions:

PPP for the pancreatic head low-malignant lesion was superior to PD in terms of postoperative nutrition status. Complete preservation of biliary tract in PPP could decrease the risk of postoperative cholangitis compared with PD.

Trends and Outcomes of Pancreaticoduodenectomy for Periampullary Tumors: Results of a 25 Years Single Center Study on 1000 Consecutive Cases

Ayman El Nakeeb, Waleed askar, Talaat Abd Allah

Objectives:

to evaluate the evolution, trends in surgical approaches and reconstruction techniques, and important lessons learned from performing 1000 consecutive Pancreaticoduodenectomy (PD) for periampullary tumors

Backgrounds:

PD is a complex abdominal procedure. The hospital mortality rate has decreased to less than 5% however the rate of postoperative morbidities remains high, from 40 to 50%. Pancreatic reconstruction following PD is still debatable. The long survival rate after PD is clearly improved with time but still poor.

Methods:

This is a retrospective review of the data of all patients who underwent PD for periampullary tumour during the period from January 1993 to April 2017. The data were categorized into three periods, early period (1993-2002), middle period (2003-2012) and late period (2013-2017).

Results:

The frequency of PD is increasingly performed after 2000. With time, elderly, cirrhotic, obese patients, patients with uncinata process carcinoma and borderline tumour are increasingly selected for PD. The median operative time and postoperative hospital stay decreased significantly over the periods. The hospital mortality is declined significantly from 6.6% to 3.1%. The postoperative complications is significantly decreased from 40% to 27.9%. There was significant decrease in POPF in the second ten years from 15% to 12.7% . There was a significant improvement of median survival and the overall survival among the periods.

Conclusion:

Surgical results of PD were significantly improved with mortality rate nearly reach 3%. Pancreatic reconstruction following PD is still debatable. The survival rate was also improved but the rate of recurrence is still high 36.9%

Surgical management of pancreas divisum

Varshney Subodh

Central pancreatectomy – Safe surgery for middle segment pancreatic pathology

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Objectives:

Pancreatic pathologies in the neck and body when treated by pancreaticoduodenectomy or distal pancreatectomy result in a significant loss of normal pancreatic parenchyma and impairment of exocrine and endocrine function. We assess the safety and effectiveness of central pancreatectomy regards preservation of the pancreatic function

Methods:

27 patients underwent central pancreatectomy between 2004 to 2017. 11 patients had serous cystadenoma, 5 patients neuroendocrine tumor (NET), 4 -solid cystic pseudopapillary tumour of the pancreas. Two patient each of IPMN and focal chronic pancreatitis and 1 each of post trauma, inflammatory myofibroblastic tumour of the pancreas and mucinous cystadenoma. The proximal end was transected with a linear stapler and edges oversewn, and the distal stump was anastomosed to roux en y- jejunal loop (21) or pancreaticogastomy (6). All patients were followed up for exocrine and endocrine insufficiency with fecal elastase and fasting blood sugar levels

Results:

18/27 patients had uneventful recovery. Eight patients had post operative grade A pancreatic fistula and 1 patient had grade B fistula. Preoperative diabetes mellitus in 8 patients did not worsen during follow up. None of the patients had denovo exocrine or endocrine insufficiency on mean follow up of 80 months (10 - 154 months). Mean operative time, blood loss, length of segment excised were, 128 mts, 100ml, & 4 cms respectively

Conclusion:

Central pancreatectomy is a feasible and safe option for patients with benign tumors /trauma/ lesions of low malignant potential in the neck / body of the pancreas preventing the loss of exocrine and endocrine functions.

Pancreaticoduodenectomy in patients with chronic liver disease

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Objectives:

There were few reports of pancreaticoduodenectomy in chronic liver disease (CLD) patients. We describes short- and long-term outcomes after pancreaticoduodenectomy in CLD patients.

Methods:

We reviewed consecutive 469 patients who had undergone pancreaticoduodenectomy in our institution from 2003 until 2016 and identified 26 patients (5.5%) with CLD, included 21 Child-Turcotte-Pugh (CTP) class A, four B, and one C. Outcomes were assessed also in 26 age-, sex-, disease- and UICC-stage-matched controls.

Results:

Preoperatively, significantly higher serum creatinine and lower serum albumin were noted in CLD group. There was no significant difference between the two groups in operative factors, although higher use of fresh frozen plasma (FFP) was found in CLD group. Postoperative morbidities were 92% in CLD group and 44% in non-CLD group whereas no in-hospital mortality occurred. Some CLD patients experienced severe complications and required intensive management: prolonged course of antibiotics; use of diuretics and FFP. The 2-year disease free survivals for CLD and non-CLD group were 65% and 61%, and overall survivals were 54% and 71%, respectively. Four of CLD patients had liver-related death. Adjuvant chemotherapy was indicated for 15 patients with CLD and 17 without CLD patients, whereas 7 (47%) and 14 (82%) were received.

Conclusion:

In CLD patients, the decision for the surgery should be made carefully with consideration of the risk of poor outcomes: difficult early postoperative course associated with hepatic decompensation; and worsening liver dysfunction late after the surgery that makes adjuvant chemotherapy impossible, and may cause liver-related death.

Modified Blumgart Method for Pancreaticoduodenectomy

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Pancreatic reconstruction has been the Achilles tendon after pancreaticoduodenectomy (PD). Currently, there is no universally accepted technique to reduce the pancreatic leakage. In our institute, two techniques have been adapted, Blumgart pancreaticojejunostomy (PJ) and pancreaticogastrostomy (PG). A matched case-control study of modified Blumgart PJ and PG after PD was conducted, and the experience and outcome of open Blumgart PJ and PG are to be shared.

Data of patients undergoing Blumgart PJ and PG were retrieved from prospectively-collected database. Matched patients in each surgical groups were included based on the Callery risk scoring system for clinically relevant postoperative pancreatic fistula (CR-POPF) (grades B and C). Surgical parameters and risks were compared between these two groups.

A total of 206 patients undergoing PD were included. Blumgart PJ was associated with shorter postoperative hospital stay (median (range) 25 (10 – 99) vs. 27 (10 – 97) days, $P = 0.022$). There was no surgical mortality in the Blumgart PJ group, but a 4.9% perioperative mortality in the PG, $P = 0.030$. The CR-POPF by Blumgart PJ is significantly lower than that by PG for overall patients (7.8% vs. 19.4%, $P = 0.024$), as well as for those with soft pancreas parenchyma (10.2% vs. 26.2%, $P = 0.033$), ampullary, duodenal, cyst, neuroendocrine tumor pathology (11.1% vs. 29.9%, $P = 0.010$), pancreatic duct diameter = 2 mm (7.3% vs. 31.3%, $P = 0.012$), intermediate fistula risk zone (3 – 6 Callery risk scores) (6.0% vs. 20.7%, $P = 0.048$) and high fistula risk zone (7 – 10 Callery risk scores) (14.3% vs. 47.4%, $P = 0.038$).

In conclusion, Blumgart PJ is superior to PG in terms of pancreatic leakage and surgical mortality. Blumgart PJ can be recommended for pancreatic reconstruction after PD for all pancreatic remnant subtypes.

Results of 27 pancreas-preserving duodenectomies not associated with FAP

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Background:

Pancreas – preserving duodenectomies (PPD) are uncommon procedures usually reserved for duodenal adenomas associated with familial adenomatous polyposis (FAP). PPDs performed for other entities are much more rare operations.

Aim:

To assess possibility of PPD use for lesions not associated with FAP

Method:

Prospective analysis of 27 consecutive cases of PPD (2006 – 2016). with assessment of preoperative (US,CT,MRI,EUS) and hystological diagnosis, short- and long-term results, including QoL for benign and survival for malignant diseases

Results:

Duodenal dystrophy in 14 cases, duodenal GIST in 10 cases, villous adenoma, gigantic leiomyosarcoma, paraganglioma and solitary endometrial cancer metastasis in 1 case each were met. In 22 cases the diagnosis was established before surgery. The most precise diagnostic modalities were CT and EUS. The main symptoms were pain(12), GI bleeding(11) and vomiting(4). Infrapapillary duodenectomy(ID) was performed in 12 cases, one with aorta and inferior vena cava resections, and in 50% of cases duodenal resection with replantation of common bile and main pancreatic ducts in neoduodenum was performed. Morbidity rate 29%. One patient with duodenal sarcoma had died on 100th day after ID due to complications of pancreonecrosis. Other patients are alive demonstrating long-term survival and good QoL.

Conclusion:

Well-timed PPD is an efficient method of treatment as for benign so as for some malignant duodenal lesions and can be an alternative for pancreaticoduodenectomy.

Acute pancreatitis in pregnancy

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Acute pancreatitis in pregnancy is a rare entity with an incidence ranging from 1 in 1000 to 1 in 10000 pregnancies. Gallstones are the most common cause of pancreatitis in pregnancy. High triglyceride levels are the second commonest cause followed by drugs, connective tissue disorder, alcohol abuse and trauma.

It concerns two lives. Imaging controversies, limitation in the use of medication, nutrition and fetal monitoring are aspects that need to be thought through when approaching these patients.

A shift in the treatment paradigm - from a conservative approach to surgical ventures such as ERCP and laparoscopic cholecystectomy has significantly improved fetal and maternal outcomes.

Objective:

To analyze the maternal and fetal outcomes of acute pancreatitis in pregnancy.

Materials and Methods:

A retrospective audit 12 years (2004-2015) was conducted. All pregnant patients diagnosed with acute pancreatitis were included in the study. Data was recorded on a designed performa and SPSS 19 was used for data analysis

Results:

22 patients were included in the study. Mean Age was 28 years. The mean gestational age was 27.7 weeks. Gallstones were the cause in 13/22 patients, while in the remaining patients no etiology was identified. All patients were managed conservatively. 6 patients underwent interval laparoscopic cholecystectomy following delivery.

15 patients delivered at our institution. Two patients delivered during the acute attack. There was one intra-uterine death and one patient delivered triplets; the total live births were 16. 7 were term and 8 were pre-term deliveries while. There was no significant association of pre-term delivery or birth weight with disease severity. The maternal mortality rate was zero.

Conclusion:

Acute Pancreatitis in Pregnancy is a rare disease, but the maternal and fetal outcome in our institution is promising. The sample size in our study is small, hence multi centre studies should be considered.

Seventy five cases of duodenal dystrophy (groove or paraduodenal pancreatitis) treatment. Which way and which name is better?

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Background:

The term "paraduodenal pancreatitis (PP)" was proposed as an umbrella for cystic dystrophy in heterotopic pancreas (duodenal dystrophy, DD), paraduodenal cyst and groove pancreatitis, by reasoning that these conditions mimic pancreatic head tumors and share certain histological evidences. The reasons for amalgamation of these terms are unclear.

Objective :

To assess the results of different types of DD treatment.

Method:

- 1) Prospective analysis of 75 cases of DD (2004-2015), comparing 75 pretreatment and 57 histopathological findings;
- 2) Assessment of clinical presentation and the results of DD treatment.

Results:

Preoperative diagnosis was correct in all the cases except one, when cystic tumor of the pancreatic head was suspected (1,9%). Patients were presented with abdominal pain (100%), weight loss (76%), vomiting (30%) and jaundice (18%). CT, MRI and endoUS were the most useful diagnostic modalities. Nine patients were treated conservatively, 35 underwent pancreaticoduodenectomies (PD), pancreatico- and cystoenterostomies (8), Nakao procedures(4), duodenum-preserving pancreatic head (DPPH) resections (5), and 14 pancreas-preserving duodenal resections(PPDR). No mortality. Full pain control was achieved after PPRDs in 93%, PDs in 83%, and after PPPH resections and draining procedures in 18% of cases. Diabetes mellitus developed thrice after PD. In 3 PD cases only moderate pancreatitis was revealed in specimen.

Conclusions:

- 1) The diagnosis of DD can be confidently determined by modern methods preoperatively;
- 2) Early diagnosis of DD saves pancreas;
- 3) Late diagnosis convert DD in PP and leaves patient only PD;
- 4) The efficacy of PPDR proves that DD is an entity of duodenal, but not paraduodenal origin.

Pancreaticogastrostomy vs Pancreaticojejunostomy (simple and isolated loop). Prospective Randomized study.

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Introduction:

Since the first description of PD, management of the pancreatic remnant has been considered the most important determinant of post-operative outcome. Although the technique of PD has been standardized over the past decades, the optimum method of pancreatic reconstruction is still a controversy. Various surgical approaches have been described to manage the pancreatic remnant aiming to decrease the incidence of POPF.

Methods:

60 patients admitted to Gastrointestinal Surgery Center, Mansoura University were randomized into three groups intraoperatively after resection; pancreaticogastrostomy (PG), simple loop pancreaticojejunostomy (SPJ) and isolated loop PJ (IPJ). The primary end point was the incidence and severity of post operative pancreatic fistula (POPF). ISGPS definitions were followed.

Results:

The three groups were comparable regarding the patients demographics, DM and pre-operative biliary drainage. The rate of overall post operative complications was similar among the groups. POPF occurred in 11/60 cases (18.3%); 10 % for PG group, 20 % for SPJ group and 25 % for IPJ ($p= 0.46$). Grade C fistula was higher in IPJ group (10%) however the p value was non-significant. Reconstruction operative time was significantly higher in IPJ group ($p <0.001$).

Conclusion:

The results of this study contribute evidence that there is no difference between PG, simple loop PJ and isolated loop PJ regarding the rate and severity of POPF and other post-operative complications. However, further RCTs are required to confirm our results.

Pancreaticoduodenectomy in young patients. A single center experience

R. Dama, R.Pradeep, G.V. Rao, D.N. Reddy.

Introduction:

As pancreatic and periampullary pathologies are uncommon in young populations, pancreaticoduodenectomy (PD) is not a frequently performed procedure in pediatric and young adults. In a statistical review performed by the National Cancer institute, the incidence of pancreatic tumors in young population (below 19 years) is 0.19 per million population. Given this rare incidence in young adult population, the impact of young age on the short-term and long-term outcomes after PD is not well studied. The aim of our work is to report the surgical outcomes after PD in young adult population (< 35 years) and to compare it to a cohort of adult patients who underwent PD at our institute at the same study period.

Methods:

After Institutional Review Board approval, we retrospectively analyzed the data of all patients who underwent PD at Gastro-intestinal Surgery Center, Mansoura University in the period between 2000 and 2016. Patients under 35 years were defined as young adults (YA) according to previous studies. The adult cohort represents adult patients who underwent PD in the same study period at our institute. Patients data were collected in a web based hospital registry. All patients underwent a subtotal stomach preserving PD through a bilateral subcostal incision. The severity of post-operative complications was graded according to the Dindo–Clavien complication classification system. ISGPS definitions were followed. Patients were followed up 1 week after discharge then at 1, 3, 6 months intervals.

Results:

The most common pathological diagnosis in the YA cohort was adenocarcinoma (41.4%) followed by solid pseudopapillary tumor (SPT) (29.3 %). The mass was found to reach significantly larger sizes in the YA cohort reaching 15 cms in some patients ($P = 0.001$).

The overall incidence of post-operative complications in the YA cohort was 36.3 % which was comparable to that in the adult group (32.5 %). The most common post-operative complication was POPF (19 %), however, the majority of pancreatic fistulae were grade A. The overall survival in the YA cohort was significantly higher than the adult group ($P = 0.0001$) where the 5 year survival reached 58 %. The median overall survival for SPT was 280 months with 5 years survival of 94 %, while, the median survival for adenocarcinoma in the YA group was only 34 months with 5 years survival of 35 %.

Conclusion:

This study concludes that PD in young adults when performed in tertiary centers with good surgical experience is relatively safe. However, given the rarity of the procedure in this age group, we suggest that further well designed studies involving multiple centers to be carried out to draw more accurate conclusions.

Laparoscopic Excision of Adenoma of Left Lobe of Liver

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Objectives:

Minimally invasive surgery for liver tumours is truly amazing for obese patients as it has no morbid incisions, post operative respiratory issues or any wound problems. We present a video of laparoscopic excision of adenoma in the segment 3 of the liver.

Methods:

55year old morbidly obese patient underwent laparoscopic excision of segment 3 liver lesion, of size 5x4 cms, which was inconclusive on FNAC and imaging. 3 ports were used-one 5mm and two 10 mm. A percutaneous suture through the specimen was used for retraction. Harmonic scalpel was the energy source and a single vascular stapler was used for transecting the pedicle of the tumour. Specimen was removed in a glove bag by extending the 10 mm port by a cm.

Results:

Total surgical time was 75 mts. Patient was extubated on table and had no post operative morbidity. No blood transfusion required. Post op stay was for 3 days. No pain, wound infection or prolonged icu stay or any pulmonary issues. Final histopathology was suggestive of a liver adenoma.

Conclusion:

Laparoscopic liver resection is feasible and safe, especially in a non cirrhotic liver and peripheral tumours. Patient has less pain and post op stay and can have early return to work

Miniinvasive surgical treatment of portal hypertension complicated by bleeding gastroesophageal varices

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Objectives:

Variceal bleeding is a life-threatening complication of portal hypertension with a high probability of recurrence and mortality. Treatment to prevent first bleeding or rebleeding is mandatory. The goal of our research to improve outcomes of patients with portal hypertension complicated by bleeding from gastroesophageal varices and increase the survival of patients with this disease.

Methods:

During the period from 2014 to 2016 in the surgical center of gastrointestinal bleeding Vinnytsa Regional Hospital treated 195 patients with portal hypertension complicated by bleeding from gastroesophageal varices. In this cohort of patients there were 105 men (53,8%) and 90 women (46,2%). An average age of patients was $54,8 \pm 10,6$ years. All patients were conducted laboratory and instrumental examination. Source bleeding installed at esophagogastroduodenoscopy conducted. Patients were divided into 3 groups. The first group of patients received only conservative therapy, the second group of patients received conservative treatments and performed endoscopic ligation of bleeding gastroesophageal varices, the third group of patients received conservative therapy performed endoscopic ligation of varices and performed endovascular embolization of the splenic artery.

Results:

Mong the 195 patients treated with portal hypertension complicated by bleeding from gastroesophageal varices discharged from the surgical department 152 patients (77.95%), 43 patients died (22.05%). All dead patients received only conservative symptomatic therapy. In patients who underwent ligation of gastroesophageal varices - made reliable hemostasis, after splenic artery embolization - a steady decrease in pressure in the portal vein. Following the combined miniinvasive surgery all patients were discharged home, mortality was not.

Conclusions:

Patients with portal hypertension complicated by bleeding from gastroesophageal varices should receive comprehensive treatment: to stop the bleeding - endoscopic ligation of varicose veins, to reduce the pressure in the portal vein and prevention of rebleeding - endovascular embolization of the splenic artery and symptomatic supportive therapy on the every stage.