Royal Belgian Society for Surgery

Abstracts of Free Papers
FP1. — HOMOLATERAL FEMORAL NEUROPATHY – A RARE COMPLICATION AFTER RENAL TRANSPLANTATION.
H. Van Veer, D. Monbaliu, W. Coosemans, J. Pirenne

Introduction and aim. Femoral neuropathy is a rare but disabling complication following renal transplantation and pelvic surgery in general. In a retrospective review, we analyzed the incidence, clinical presentation and outcome of this complication following renal transplantation at our centre.

Patients. Five cases of isolated homolateral femoral neuropathy following renal transplantation could clearly be documented, out of a total of more than 2901 renal transplantations performed during a 33 year period in our centre. All patients presented with a homolateral weakness of both hip flexion and knee extension, immediately following the transplant operation. The presence of a compressing psoas hematoma was excluded in all cases. Neuropathy was documented on electromyogram. The femoral neuropathy was severely handicapping in the postoperative recovery, and intensive physiotherapy was started as soon as possible. One patient recovered completely after 3 months, two made an equally excellent functional recovery apart from minor sensory sequelae. In one patient both mild motoric and sensory impairment persisted. In one patient, no long term follow up was available due to early death.

The etiology of femoral neuropathy is probably multifactorial and may include: 1) indirect nerve compression at the level of the iliopsoas muscle by the use of self-retaining retractors, 2) nerve blood supply interruption and secondary ischemia during arterial clamping, and 3) direct trauma to the nerve.

Conclusions. Homolateral femoral neuropathy is a rare but probably under reported and under recognized complication of renal transplantation. Although usually reversible, it can be significantly handicapping. Intensive physiotherapy should be started immediately. Meticulous attention to the anatomic and vascular integrity of the femoral nerve should be paid, when applying self-retaining retractors onto the iliopsoas muscle and vascular clamps during renal transplantation.

FP1. — SURGICAL BYPASS VERSUS ENDOSCOPIC THERAPY AS PALLIATIVE TREATMENT OF MALIGNANT BILE DUCT OBSTRUCTION.
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Background. There are two possibilities to treat patients with malignant bile duct obstruction: a surgical bypass or an endoscopic stent. This palliative treatment is focused on relief of the symptoms of biliary obstruction.

Method. In this retrospective study, covering a 2-year period, the data of 11 patients, having undergone a bile duct stent, were reviewed. The records of these patients were compared to the data of the last 13 patients, who underwent a surgical bypass for biliary obstruction. The parameters analysed were sex, age, duration of hospital stay related to the operation or bile duct obstruction related symptoms.

Results. The stent group counts 2 men and 11 women with a median age of 74 years (range 48-86), whereas in the surgical bypass group there are 8 men and 5 women with a median age of 66 years (range 45-81). There is no statistical difference found in age between the two groups. The median hospital stay related to bile duct obstruction is for the stent group 25 days (range 4-82), for the surgical bypass group 18 days (range 10-26). This is statistically significant (p = 0.046, Student’s t-test).

Conclusion. The duration of hospital stay related to bile duct obstruction is significant longer in patients with a stent, due to the necessity for stent changes, stent obstruction and cholangitis. Recent evolution in chemotherapy prolongs with some months the survival of these patients. This is the reason why we suggest that all patients fit for surgery should be considered for surgical bypass.
FP3. — HAEMORRHAGE IS THE PREDOMINANT COMPLICATION IN DUODENOPANCREATECTOMY FOR BILIOPANCREATIC CANCER.
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Introduction. Pancreatoduodenectomy (PD) is associated with high morbidity. The aim of the present study was to analyze morbidity and mortality in PD for primary cancer of the ampulla, distal bile duct and pancreas.

Patients and methods. Between 1998 and 2005 PD (classical Whipple 121; pylorus preserving 126) was performed in 247 consecutive patients with cancer of the ampulla (84), distal bile duct (31) and pancreas (132). The male/female ratio was 135/112 and the median (range) age 66 years (32-85). Mean (SEM) duration of surgery and intra-operative blood loss was 267 (6.06) minutes and 1402 (111.5) ml, respectively. Portal vein resection was performed in 27 (11%) patients (pancreas 25, ampulla 1, bile duct 1) for oncological reason.

Results. The overall morbidity and mortality rate was 51.4% and 2.4%, respectively. Pancreatic leakage was observed in 11.7%, i.e. ampulla 14/84 (16.6%), bile duct 6/31 (19.3%) and pancreas 9/132 6.8%) (p = 0.002). In 11 (38%) patients pancreatic leakage was associated with post-operative bleeding. Haemorrhage was the most frequent complication observed: intra-operative 18, post-operative 22 and both intra- and post-operative in 4 patients. Relaparotomy was performed for acute hemorrhage in 14/20 (70%) patients, whereas bleeding was fatal in 3/6 patients who died post-operatively.

Conclusions. Haemorrhage is the predominant complication in PD for biliopancreatic cancer. It is often associated with pancreatic leakage and is responsible for urgent relaparotomy and mortality, indicating the necessity for intensive peri-operative care in a specialized surgical unit.

FP4. — LIVER TRAUMA : EXPERIENCE OF SURGICAL MANAGEMENT IN A TERTIARY CENTER.
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Background. The treatment of liver trauma has evolved considerably over recent decades with the possibility of non-operative management by interventional radiology in selected cases. We evaluated the operative strategies, morbidity and mortality in patients with blunt or penetrating liver trauma.

Methods. We retrospectively reviewed 120 patients (76 males, 44 females; mean age 33 years) with hepatic trauma regarding the cause and severity of liver injury, diagnostic procedures, associated injuries, management, perioperative blood loss, morbidity and mortality.

Results. The major cause of trauma were motor vehicle accidents and falls from height. Among 120 patients only four patients were treated by angiographic embolisation. In most cases liver packing was used as a primary treatment with damage controlling surgery. Associated organ injuries were present in more than 50% of patients and splenic injury as well as pelvic trauma were the most common. Morbidity rate was higher in the surgically treated patients as compared to the ones treated by embolisation. Thirteen patients (10.8%) died of severe liver injuries. Four died of minor liver injuries, due to associated injuries (3%). The overall mortality rate was 14%.

Conclusion. Nowadays non-operative management might play an increasingly important role in haemodynamically stable patients with low morbidity and mortality. However, in clinical setting the indications seem to be rather rare or are not recognized during primary trauma care. Considering surgery, major liver resections are seldom indicated in liver injuries, especially as a primary treatment. Damage control surgery by simple packing of the liver is still the most valuable tool to guarantee hemodynamic stability, which is the crucial factor for the outcome of severe liver trauma.
FP5. — NEUROENDOCRINE PANCREATIC TUMORS.
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Introduction. Neuroendocrine pancreatic tumors (NPT) are rare, less than 0.5% of all pancreatic tumors and derive from the Langerhans islets cells. The origin of NPT is from multipotent cells that can differentiate towards the cell lines found in the pancreas. So they can be functional (more than 50%) or non functional and mainly unexpectedly discovered. Functional NPT are insulinoma, glucagonoma, gastrinoma, vipoma and somatostatinoma. NPT are, sometimes, part of multiple endocrine neoplasia (MEN 1).

Material and method. We report a single center experience of 22 cases of NPT surgically treated.

Results. Medium age is 48 year, 6 patients present a functional tumor (2 insulinomas, 2 gastrinomas and 2 glucagonomas). Surgical resections were 8 pancreaticoduodenectomy, 6 caudal splenopancreatectomy, 2 left pancreatectomy, 1 medial pancreatectomy and 1 enucleation.

One patient presented a pancreatic postoperative leakage, so the postoperative morbidity is 5%. The long term follow-up is marked by tumor recurrence in 5 patients, 2 died 8 and 24 months after surgery, 3 are eligible for chemotherapy. Nineteen patients (86.4%) are alive without recurrence more than 5 years after surgery.

Conclusion. NPT are very rare. Surgical resection is the only curative treatment. NPT differ from pancreatic adenocarcinoma by the younger age of the patients and a better prognosis of the surgical resection.

FP6. — FLEXIBLE CHOLEDOCHOSCOPY IS THE BEST TECHNIQUE FOR LAPAROSCOPIC COMMON BILE DUCT EXPLORATION FOR LITHIASIS.  

Introduction. When surgical proficiency in laparoscopic common bile duct exploration (LCBDE) is available, this technique is more efficient and preferable in patients with cholecystolithiasis and common bile duct stones (CBDs) as compared to ERCP. However, both treatment modalities are performed under X-ray guidance with potential long-term risks for both patient and personnel. The aim of the present study is to evaluate the safety and efficiency of LCBDE using flexible choledochoscopy without X-ray administration.

Patients and Methods. Eighty-three patients (F/M : 57/26 ; median (range) age 65 y. (15-86)) underwent laparoscopic cholecystectomy with LCDBE for CBDs. ERCP was performed unsuccessfully prior to LCBDE in 16 patients, and MRCP to detect CBDs in 45. LCBDE was done in 36 patients on emergency base in the presence of acute cholecystitis. The clinical outcome of patients undergoing LCBDE under intra-operative cholangiography (IOC ; n 35) guidance was compared to those assisted with flexible choledochoscopy (FCD ; n 48). Stone extraction through choledochotomy (IOC 9 ; FCD 10) was performed in case transcystic extraction was not possible.

Results. LCBDE with complete stone clearance was obtained in 77/83 (93%) patients. The median number and diameter of CBDs was comparable in both IOC and FCD-groups. The operation time was significantly shorter in the FCD- as compared to the IOC-group : 75 (30-155) vs 108 (45-240) min. (p = 0.0002). Conversion to laparotomy (5) and intra-operative complications (3) were observed in the IOC-group only. No mortality occurred whereas post-operative complications were encountered in 4 IOC- and 3 FCD-patients. The length of hospital stay was comparable in both groups (IOC : 3 (1-24), FCD 3 (0-15) days).

Conclusion. LCBDE using flexible choledochoscopy to treat patients with CBDs is safe, efficient and preferable above IOC assisted LCBDE.
**FP7. — LAPAROSCOPIC LIVER RESECTION USING RADIOFREQUENCY COAGULATION.**

D. Hompes, R. Aerts, F. Penninckx, B. Topal.

**Introduction.** The aim of this prospective, non-randomized study was to investigate the potential contribution of radiofrequency (RF) energy to the limitation of intra-operative blood loss in patients undergoing laparoscopic liver resection (LLR).

The use of RF energy has been described to perform open liver resection safely and with minimal blood loss. Yet, no data are available on the potential contribution of RF energy to the limitation of intra-operative blood loss during laparoscopic liver resection.

**Patients and methods.** Forty-five patients (male/female ratio 22/23, age 57 years (26-80)) underwent LLR. Eleven benign and 47 malignant lesions (mostly colorectal metastases) were resected. Median number (1 (1-3)) and max. diameter (40mm (8-170)) of tumors as well as median tumor free margins (10mm (1-30)) were comparable in patients undergoing LLR with (20 patients) or without (25 patients) RF-assistance. Twenty-five minor and 23 major resections were performed. Eighteen patients simultaneously underwent additional surgery.

**Results.** No mortality occurred. Median intra-operative blood loss was 200 (5-4000) ml and similar in patients undergoing LLR with or without RF-assistance. The type of surgical procedure was the main determinant for the amount of intra-operative blood loss (p = 0.0002). Significant bleeding occurred from large hepatic vessels at major resections. Median operation time was 115 (45-360) minutes. RF-assistance didn’t seem to reduce peri-operative morbidity.

**Conclusions.** LLR can be performed with minimal intra-operative blood loss, which is determined by the type of hepatectomy. Significant intra-operative bleeding occurs from large hepatic vessels during major resections. In this small patient series RF-assisted parenchymal transsection in LLR doesn’t seem to reduce blood loss, operation time or peri-operative morbidity.

**FP8. — OUTPATIENT LAPAROSCOPIC CHOLECYSTECTOMY : CLINICAL PATHWAY IMPLEMENTATION IS EFFICIENT, COST-EFFECTIVE AND INCREASES HOSPITAL BED CAPACITY.**

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**Background.** Outpatient laparoscopic cholecystectomy (OLC) may decrease the use of hospital resources and save costs. In the present study the effect of the implementation of a clinical pathway has been assessed on the outcome of patients planned for laparoscopic cholecystectomy (LC), on hospital costs and available bed capacity.

**Methods.** Clinical outcome and hospital stay were analysed in consecutive patients planned for LC 1 year before (n = 338) and after (n = 336) the implementation of a clinical pathway. Patients with acute cholecystitis or bile duct lithiasis were excluded from the study. A cost accounting model was developed using the concept of the bill of activities.

**Results.** Before the implementation of the clinical pathway 34 (94%) out of 36 patients planned for OLC were discharged successfully on the day of surgery, as compared to 110 (94%) out of 117 patients after pathway implementation. In patients scheduled for OLC the complication (0 vs. 1.7%), unplanned admission (5.5 vs. 6%) and re-admission (0 vs. 4.3%) rates were comparable before and after clinical pathway implementation. After pathway implementation the increased number of OLC resulted in a significant cost saving (40.5%) and benefit in bed capacity (1.41 beds per day per year) for the hospital.

**Conclusion.** The implementation of a clinical pathway preserves the clinical outcome of patients undergoing OLC. It creates a significant increase of the number of patients treated in an outpatient setting and results in a significant benefit in hospital costs and available bed capacity.
FP9. — EFFICIENCY OF PANCREATICODUODENECTOMY WITH EN BLOC PORTAL VEIN RESECTION FOR PANCREATIC HEAD CARCINOMA WITH SUSPECTED PORTAL VEIN INVOLVEMENT.
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Introduction. Pancreaticoduodenectomy is often avoided in patients with portal or superior mesenteric venous involvement due to the perception that venous resection is complex, morbid and carries a poor long-term survival. Using extensive preoperative staging and strict resection criteria we evaluated our results in all patients operated for tumors of the pancreatic head and neck with or without portal vein involvement.

Patients and Methods. From the 550 patients who had pancreatic surgery during a 6-year period, 90 patients with a tumor of the pancreatic head or neck were included in this retrospective study. To compare a homogeneous population only pancreatico-duodenectomies were considered with (group I, n = 15) or without (group II, n = 75) portal and/or mesenteric vein reconstruction. All perioperative data were analysed in both groups including age, preoperative status, peroperative blood loss, lymph node dissection, operating time, morbidity and mortality, as well as the survival rates.

Results. There were no significant differences in age, preoperative status including stent placement and hospital morbidity and mortality. Patients who required portal vein resection had higher frequencies of microscopic lymphatic permeation and vascular invasion. However, Kaplan-Meier life table analysis shows similar survival curves comparing both groups.

Conclusion. These findings suggest that pancreaticoduodenectomy combined with portal vein resection can be performed safely by a specialized team in a center with high volume of pancreatic surgery and it might offer survival benefit in patients with suspected portal vein involvement compared with survival after palliative adjuvant therapy.

FP10. — SURGICAL RESECTION VERSUS RADIOFREQUENCY DESTRUCTION FOR THE TREATMENT OF HEPATOCELLULAR CARCINOMA IN CIRRHOTIC PATIENTS.
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Background. The optimal treatment for hepatocellular carcinoma (HCC) in cirrhotic patients remains debated. In selected patients, surgical resection (SR) may offer excellent long-term palliation and radiofrequency (RF) has been proposed as an alternative to SR.

Objective. Compare the results of SR versus open approach RF performed as first-line treatment for HCC in cirrhotic patients in 2 different centres.

Patients and Methods. 137 patients underwent either SR at Paul Brousse Hospital (SR group, n = 81) or RF at Erasme Hospital (RF group, n = 55) between 2000 and 2005. Among these patients the analysis was restricted to the results observed in Child A patients without preoperative tumoral portal vein thrombosis, in the SR group (n = 60) versus the RF group (n = 48). Operative morbidity, mortality and 1, 3 and 5-year overall survival were compared.

Results. Operative morbidity and mortality were 51% and 6,6% in the SR group vs 43,7% and 4,1% in the RF group (p = NS). For major hepatectomy (≥ 3 resected segments, 21 patients), operative morbidity and mortality was respectively 66 and 19% compared to 43 and 0% for minor hepatectomies. One, 3 and 5-year overall survivals were 87, 74 and 55% in the SR group, vs 79, 55 and 32% in the RF group (p = 0.12). In patients with single HCC < 3 cm, 1, 3 and 5-years overall survivals were 94, 88 and 70% following SR vs 87, 63 and 44% following RF (p = 0.091)

Conclusion. SR and open RF are associated with similar morbidity and mortality rates in the treatment of HCC in cirrhotic patients. As compared with local destruction using RF, SR offers a trend-for better long-term overall survival. Accordingly, SR remains the first option treatment of small peripheral HCC in cirrhotic patients while RF might represent an acceptable alternative for centrally located tumors requiring major hepatectomy.
FP11. — SIROLIMUS VERSUS MYCOPHENOLATE MOFETIL IN TACROLIMUS BASED PRIMARY SIMULTANEOUS PANCREAS-KIDNEY (SPK) TRANSPLANTATION: 6-MONTH RESULTS OF A MULTI-CENTRE TRIAL


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We present the 6 month analysis of an open, prospective, randomized trial that has been designed to include primary SPK recipients from 13 centers throughout Europe and Israel. Following induction with antithymocyte globulin, patients were either given mycophenolate mofetil (MMF n = 118) or sirolimus (Siro n = 123) concomitant with tacrolimus and short-term steroids.

Results. At month 6, patient, kidney and pancreas graft survival were 98%, 97%, 87% in the MMF group and 98%, 98%, 81% in the Siro group. The rejection rate was respectively 28% and 33%. Respectively 25% of the MMF patients and 39% of the Siro patients were withdrawn from study (p < 0.05). The main reasons for study withdrawal were graft loss (43% vs 46%) followed by immunosuppression toxicity (33% vs 46%). The most frequently reported adverse events were urinary tract infection (39%), CMV infections (16%), early surgical complication (15%), abdominal infection (12%) with no difference between the two groups. Healing problems occurred more frequently in the Siro group (19%) as compared to the MMF group (7%-p < 0.01). Biochemistry results are respectively for MMF and Siro group: serum creatinine: 1.3 and 1.4 mg/dl; fasting glucose: 92 and 93 mg/dl; HbA1C: 5.1 and 5.2%; total cholesterol: 176 and 180 mg/dl; triglycerides: 117 and 132 mg/dl (p < 0.05).

Conclusion. The results of this analysis are in concordance with previously reported data in SPK transplantation with good kidney and pancreas function achieved in both groups. At 6 months, more patients are still in their study group if MMF is associated with tacrolimus.

FP12. — PREOPERATIVE HP SCREENING AND ERADICATION IN GASTRIC BYPASS PATIENTS: CLINICAL ADDITIONAL VALUE OR SCIENTIFIC NON-SENSE.

B. Smet, M. Miserez, F. Penninckx, A. D’Hoore.


Introduction. The relation between HP and peptic ulcer disease is well known. Moreover, there seems also to be a relation between HP and gastric carcinoma. In gastric bypass for morbid obesity the native stomach is excluded from the created pouch. Therefore a policy can be taken to eradicate HP colonisation prior to surgery.

Methods. From 15th March 2005 till 15th February 2006, 120 patients underwent bariatric surgery. Nine patients (Vertical Banded Gastroplasty) were excluded. One hundred and eleven were screened for HP by endoscopic biopsy. Sixteen (14.5%) patients were positive for HP and got a standard treatment of PPI, amoxicillin and clarithromycin. All patients were re-tested using a urea-C14-breath-test.

Results. Five patients (31%) were therapy resistant and still tested positive for the presence of HP. Second regimen therapy was started. One patient is still not eradicated.

Conclusion. The incidence of HP seems similar in the morbid obese population compared with the Western population (~20%). Therapy resistance is high which makes eradication of HP a time-consuming but important undertaking.
FP13. — LAPAROSCOPIC GASTRIC BY-PASS SURGERY: INITIAL 20 MONTHS EXPERIENCE.


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Background. Roux-en-Y gastric bypass (RYGBP) is currently considered the golden standard for the surgical treatment of morbid obesity. The laparoscopic approach has been shown to reduce perioperative morbidity and to improve postoperative recovery. We present our results with laparoscopic RYGBP after an initial 20 months’ experience.

Methods. All patients who underwent L-RYGBP for the treatment of morbid obesity between June 2004 and January 2006 were reviewed. Demographic data, body mass index (BMI), operative reports were reviewed. We also recorded the early complications that we have encountered and their impact on our surgical technique.

Results. A total of 82 patients were included. There were 59 women and 23 men, with a mean age of 39.9 years (range, 16-67 years). The mean preoperative BMI was 41.9 kg/m² (range, 35 - 58.7 kg/m²). L-RYGBP was a primary procedure in 80 cases (75 morbidly obese and 5 superobese patients) and a reoperation after failure or complication of another bariatric procedure in 2 cases. There were 12 additional procedures (6 cholecystectomy, 2 gastric band removal, 1 hiatal hernia reduction, 1 subtotal gastrectomy, 1 subcardial leiomyoma resection, 1 hepatic biopsy for sarcoidosis). The median duration of postoperative stay was 6.9 days (range, 4-14 days). Postoperative complications rate was 10% with half of them, technically related, which required reintervention (internal hernia through the mesocolic window (n = 2), leak at the jejunojejunostomy (n = 2)). There was no death in our study. Modifications in our technique (reinforcement of the distal part of the stapling line on the jejunojejunostomy and antecolic antegatric orientation of the roux limb) permitted to avoid surgical complications in the last 40 cases.

Conclusion. Though a complex procedure performed in a high-risk patient population, L-RYGBP is feasible and safe. We now have a safe surgical technique that has been modified throughout the complications we have encountered.

FP14. — GASTRIC BYPASS REINTERVENTION AFTER FAILED RESTRICTIF BARIATRIC SURGERY: FOLLOW-UP AND FINDINGS.

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Introduction / Study Objectives. In morbid obesity, when gastric restrictive surgery does not produce satisfactory results, a gastric bypass (GBP) reintervention is a valid option. We measured our results considering multidisciplinary medical-staff and patient’s point of view.

Methods. A data-base system was created, including objective multidisciplinary criteria. Also, a ‘quality of life’ score was applied, based on the Bariatric Analysis Reporting Outcome System (BAROS).

Results. Between June 2003 and November 2005, 20 (N = 20) patients underwent a reintervention GBP (15F, 5M). Mean age: 44 (33 <-> 60). 2 Different surgeons (9+11) performed altogether 5 GBP by laparoscopy (all after VBG, where 2 were converted (1 planned gastrectomy) and 15 by laparotomy.

Reintervention after Vertical Banded Gastroplasty (VBG) or Gastric Banding was indicated for various classical reasons. First oesogastrography was at mean 3 days after GBP (2 <-> 6), followed by first food intake at mean 5 days (3 <-> 19). Mean hospital stay after GBP was 9 days (4 <-> 35). 12 Minor complications during hospitalisation, 7 minor long-term complications and 1 major complication obliging reintervention occurred. In total 46 comorbid conditions were diagnosed prior to GBP; 85% were improved or got resolved at time of study. Mean follow-up was 15 months (3 <-> 32). Mean BMI at GBP was 35,85 kg/m² (24,06 <-> 50,77), with a mean excess body weight of 36,25 kg (-1 <-> 70,60). Mean BMI at time of study dropped to 30,40 kg/m² (20,81 <-> 6,80), with a mean excess weight loss of 48,67%. Quality of life score came out positive in 85% of cases.

Conclusions. 1. Overall reintervention reasons and results did not differ significantly from those noted elsewhere. Our results for laparoscopic GBP are encouraging. 2. A GBP reintervention has a positive effect on loss of weight, weight maintenance, co-morbidities and life quality. 3. The data-base system enables evaluation of results within a 5-10-year timeframe.
FP15. — A PLEA FOR ROUTINE POSTOPERATIVE GASTROGRAFIN SWALLOW AFTER LAPAROSCOPIC GASTRIC BYPASS.
B. Smet, M. Miserez, F. Penninckx, A. D’Hoore.

Introduction. Laparoscopic gastric bypass is the gold standard in the treatment of morbid obesity. An anastomotic leak rate from 0.1% to 4.9% is documented in literature. The development of peritonitis is responsible for a considerable morbidity and even postoperative mortality. Every measure to reduce this risk should be explored.

Methods. From March 15th 2005 till February 15th 2006, 100 patients underwent laparoscopic gastric bypass. An end-to-side gastro-enterostomy is performed using a circular 25 mm stapler. Integrity of the pouch and poucho-enterostomy was peroperatively checked using methylene blue. Further suturing was performed in 26 patients (26%). A routine gastograffin swallow on postoperative day 1 was performed regardless the clinical evolution of the patient.

Results. Three leaks (3%) were recognized on upper GI series that were not detected during preoperative methylene blue testing. All three patients underwent a laparoscopic reexploration, confirming the leak. No peritonitis, collections or abscesses were found and suturing was performed. Recovery was uneventful and all three patients were discharged on day 6, 7 and 8 postoperative respectively. No late readmissions were noted and no patients developed a late anastomotic leak.

Conclusion. An early postoperative radiologic control allows to detect and to close a leak before the occurrence of peritonitis or related morbidity.

FP16. — LAPAROSCOPIC ROUX-EN Y GASTRIC BYPASS : PLACE OF ROUTINE PREOPERATIVE UPPER ENDOSCOPY.
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Background. To help to define the role of upper endoscopy (EGD) in morbidly obese patients prior to bariatric surgery, we reviewed the results of preoperative upper endoscopies in a group of obese patients operated in our institution of laparoscopic gastric bypass (L-RYGBP).

Methods. A retrospective analysis was conducted of patients who underwent laparoscopic gastric bypass surgery (L-RYGBP) for the treatment of morbid obesity from June 2004 to January 2006. Demographic data, preoperative body mass index (BMI), operative reports, upper endoscopy reports and Helicobacter pylori (HP) results were reviewed.

Results. A total of 83 patients were included. These were 59 women and 24 men, with a mean age of 39.9 years (Range, 16-67). Preoperative BMI ranged from 35 to 58.7 kg/m2 (Mean, 41.9 kg/m2). All patients had preoperative upper endoscopy (EGD). Data for EGD and material for histologic examination were available for 81 patients. One or more endoscopic lesions were identified in 60 patients (74%). Overall, the most common lesions identified were esophagitis (45%), gastritis (43.3%), Hiatal hernia (HH) (35%), gastric ulceration (1.6%), Barrett’s oesophagus (1.6%), gastric intestinal metaplasia (1.6%), gastric polyps (1.6%), and gastric leiomyoma (1.6%). Of the patients tested for HP infection, 5 were positive (6.1%). Gastric ulceration, severe gastritis, oesophagitis, and HP infection were treated medically before surgery. 1 hiatal hernia was repaired intraoperatively. The patient with gastric intestinal metaplasia underwent distal gastrectomy during laparoscopic gastric by-pass, while the one with a subcardial leiomyoma underwent a laparoscopic resection of this lesion in addition to the L-RYGBP.

Conclusion. Routine use of preoperative upper endoscopy in our institution revealed various pathologies in many patients before L-RYGBP. EGD appears essential for the diagnosis of gastro-intestinal diseases that may change the medical and surgical management of patients undergoing gastric bypass.
FP17. — A SAFE TECHNIQUE FOR TOTALLY Stapled Laparoscopic Entero-Enterostomy.
B. Smet, M. Miserez, F. Penninckx, A. D’Hoore.

Introduction. Laparoscopic gastric bypass is the gold standard in the treatment of morbid obesity. An entero-enterostomy is an inevitable step in the surgical procedure. To avoid technical difficulties with manual anastomosis and to reduce operating time we perform a complete laparoscopically stapled technique. According to literature small bowel obstruction and leaks occur in respectively 0.4 – 3.7% and 0.5 – 2.4% of cases.

This study evaluates the safety and reliability of this technique.

Methods. Prospective data of 100 consecutive patients in which we used our stapled technique for enteroenterostomy were collected.

A side-to-side enteroenterostomy is created using a 60 mm roticulating stapler device loaded with a white cartridge. The enterotomy is closed using another white cartridge of the same stapling device placed across the insertion site. The enterotomy is not only closed but in the same manoeuvre the biliary limb is divided.

Results. In the early postoperative phase no clinical leaks became evident.

At a mean follow-up of 5.8 months (range 1-11), no small bowel obstructions occurred.

Conclusion. This complete stapled technique is reproducible and safe.

FP18. — THE EFFICACY OF A POLYHYDRATED IONOGEN IMPREGNATED DRESSING IN THE TREATMENT OF RECALCITRANT DIABETIC FOOT ULCERS: A MULTI-CENTRE PILOT STUDY.
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Objective. Diabetic Foot Ulcers (DFU) continue to present a formidable challenge in terms of morbidity and health care costs. Increasing evidence ascertains the important role of Matrix MetalloProteinases (MMPs) and their tissue inhibitors, TIMPs, in wound healing. Imbalance of MMPs in the DFU microenvironment has been associated with poor wound healing. Current research is directed towards therapeutic agents that could redress the imbalance of MMPs/TIMPs.

Poly Hydrated Ionogen (PHI) formulation is based on metallic ions and citric acid. PHI application aims to positively restore MMP ratios within chronic wounds. This initial multi-centre pilot study aimed to investigate the efficacy of the PHI formulation in achieving stable wound closure in recalcitrant DFUs.

Research Design and Methods. Twenty patients with therapy resistant DFUs of at least 1 cm² and 3 months duration were treated with PHI formulation in an acetate carrier dressing. Wound debridement, digital imaging and wound perimeter tracing was performed weekly. Off-loading was performed by the use of appropriate shoe-wear (cut-out sandals) and crutches. Patient satisfaction was assessed with a questionnaire. A detailed evaluation sheet was kept for every patient and updated at each visit.

Results. Stable wound closure with high patient satisfaction was achieved in 16 (80%) DFUs. The mean time to full closure was 18 weeks. A stable wound epithelisation was seen in all full closure patients up to latest follow up of one year.

Conclusions. This pilot study’s encouraging results prompt us to further investigate the PHI efficacy in DFU treatment in a multicentre, randomised controlled trial.
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FP19. — SURGICAL TREATMENT OF SPLENIC ABSCESSES COMPLICATING INFECTIVE ENDOCARDITIS: 3 CASE-REPORTS.
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We report three cases of splenic abscesses complicating bacterial endocarditis. All three patients initially presented fever and general malaise on admission. Blood cultures revealed growth of *Streptococcus spp.* in all three cases and the inflammatory parameters were significantly elevated.

All 3 patients developed splenic abscesses most likely due to septic embolism and bacterial seeding to the infarcted region. Abdominal CT scan and/or MRI was diagnosed in all cases.

All patients were treated by laparotomy and splenectomy. Two patients fully recovered and one patient, who was operated on in hypovolemic shock after splenic rupture, died.

Splenic abscess is one of the potential complications of infective endocarditis and its outcome can prove fatal.

Abdominal CT scan should be performed if there is clinical suspicion of splenic abscedation. Splenectomy combined with valve surgery is the treatment of choice. Splenic tissue is very fragile (especially if the abscesses are located subcapsular) and a splenic rupture can result from a minimal trauma. Depending on the patient’s general condition, it is best to perform splenectomy prior to cardiac surgery to prevent reinfection of the prosthetic valve after valvular surgery.

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Introduction. Colorectal cancer is a common disease in the western world. In the last few years, many changes in the standard treatment of colon and rectal cancers have occurred, due to changes in staging, surgery, chemotherapy and radiotherapy with the aim of improving long-term survival. Since July 2003 the MOC, (multidisciplinary oncologic consult), was operational in our hospital. Oncological patients are systematically evaluated by a multidisciplinary team in order to improve their treatment. Our aim is to investigate the influence of the MOC on the treatment and outcome of patients with colorectal cancer.

Patients and methods. We retrospectively reviewed all patients who underwent surgery for colon or rectal cancer in our hospital from January 2001 to December 2005. Data were collected with emphasis on histological results and TNM classification. Furthermore we reviewed if the patients underwent neo-adjuvant and/or adjuvant therapy.

Results. Between 2001 and 2005, 114 patients underwent surgery for colon or rectal cancer: 56 patients were treated before foundation of the MOC in July 2003 (group I) and 58 patients after (group II). The groups seem comparable concerning age, disease stage etc…

In the first group, 73% (41/56) of the patients were treated by surgery alone and only 27% (15/56) of the patients received neo-adjuvant and/or adjuvant therapy.

After July 2003, 40% (23/58) of the patients in group II underwent surgery alone and 60% (35/58) received neo-adjuvant and/or adjuvant therapy.

This is a two-fold increase.

Conclusion. Preliminary results show a remarkable increase of neo-adjuvant and/or adjuvant therapy for patients with colorectal cancer, since the multidisciplinary approach of patients in July 2003, coordinated by the MOC.

Further analysis is going on to determine the reasons of this rather abrupt change and it’s effect on long term outcome. Finally this ongoing analysis can neither be neglected by medico-economical experts.
FP21. — LONG-TERM OUTCOME FOLLOWING SURGICAL TREATMENT OF NONPARASITIC SPLENIC CYSTS.
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Introduction. The optimal treatment in patients with nonparasitic splenic cysts is controversial. The aim of this study was to evaluate the clinical outcome of patients treated for a symptomatic splenic cyst, and to define a surgical strategy.

Patients and methods. Spleen preserving surgery (laparotomy 9; laparoscopy 6) was performed for a primary cyst in 6 and a secondary cyst in 9 patients. Median follow-up time was 37.5 months. Partial splenic resection was performed in 8, and cyst decapsulation in 7 patients.

Results. Cyst recurrence was observed in 4 patients following decapsulation of a primary splenic cyst, compared to none following resection. Post-operative complications were encountered only after laparotomy (5/9). Median duration of hospital stay was 3.5 days (2-5d) after laparoscopy, as compared to 9 days (5-14d) after laparotomy.

Conclusion. Symptomatic splenic cysts should be treated laparoscopically. In patients with recurrent or suspected primary splenic cysts, laparoscopic partial splenectomy is preferable. In other cases a laparoscopic decapsulation is advocated.

FP22. — THE NEW ROLE OF THE SURGEON AS A MEMBER OF A MULTIDISCIPLINARY TEAM IN HEAD & NECK ONCOLOGY.
Institut Jules Bordet, Bruxelles, Belgium.

Introduction. It is now established that head and neck squamous cell carcinomas represent a major group of tumours for which a significant improvement of the overall survival could be demonstrated by a multimodality approach. The role of the surgeon as a member of a multidisciplinary team is changed, particularly in the treatment of advanced (pharyngo) laryngeal carcinomas.

Methods. Prior to the Department of Veterans Affairs Laryngeal Cancer Study Group’s prospective randomized organ preservation trial, the standard of care for most advanced (pharyngo)laryngeal carcinomas was total (pharyngo)laryngectomy and postoperative radiotherapy. Actually, the role of surgeon is more limited. Advanced (pharyngo) laryngeal carcinomas are treated with chemoradiotherapy but some patients will require a more complex salvage (pharyngo)laryngectomy.

Results. Forty four patients were treated with neoadjuvant chemoradiotherapy. In this CTx and RT group, median survival was 6.7 years. The overall 5 year survival rate was 52.2%. The disease free survival at 5 years was 50%. 20/44 (50%) of patients retained their larynx.

Conclusion. Neoadjuvant CTx and RT is an effective strategy to achieve organ preservation without compromising the survival of patients with locally advanced pharyngolaryngeal carcinoma.
FP23. — CARCINOID TUMOUR OF THE APPENDIX: A CONSECUTIVE SERIES FROM 1,237 APPEN- 
DECTOMIES.
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C. Coimbra, A. De Roover, M. Meurisse, P. Honoré. 
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Background. Although rare and usually detected incidentally after appendectomy, carcinoid tumour is the most common 
appendiceal primary malignant lesion. There is still controversy over its management following appendectomy. The aim 
of this study was to help to define appropriate guidelines for the management of carcinoid tumours of the appendix.

Methods. A retrospective review of 1,237 appendectomies performed in one single centre from January 2000 to May 
2004 searched for primary carcinoid tumours of the appendix. Analysis of demographic data, clinical presentation, 
histopathology, operative reports and outcome is presented.

Results. Among 1,237 appendectomies, 5 appendiceal carcinoids were identified (0.4%). There were 4 male and 
1 female patients, with a mean age of 29.2 years (range: 6–82 years). Acute appendicitis was the clinical presentation 
for all patients. Four underwent open appendectomy and one laparoscopic procedure. One patient was reoperated to 
complete the excision of mesoappendix. All the tumours were located at the tip of the appendix with a mean diameter 
of 0.6 cm (range: 0.3–1 cm). No adjuvant therapy was performed. All patients are alive and disease-free during a mean 
follow-up of 33 months (range: 21–49 months).

Conclusion. Appendiceal carcinoids are uncommon and most often present as appendicitis. They can be managed by 
simple appendectomy except tumours larger than 2 cm, which are most appropriately managed by right hemicolecto-
my. It is important to mention that patients with appendiceal carcinoids have a high incidence of synchronous and 
metachronous colorectal cancer, consideration should then be given to screening this susceptible group of patients.

FP24. — RE-TRAINING OF A MULTIDISCIPLINARY TEAM IN A NEW SURGICAL TECHNOLOGY.
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Objective. The transfer of tacit and codified knowledge on a surgical technology is studied in a consecutive cohort of 
teams participating in interactive multimodal re-training.

Methods. 50 Teams of 1.3 ± 0.5 surgeons and 1.1 ± 1.9 anesthetists, visited 2.2 ± 0.7 days. Variables describe the pre-visit 
activity and attitude, complexity score (10 frequently-cited complexity criteria), application and conversion rate. The 
multimodal approach to knowledge transfer included interactive discussions (commitment; resistances; levers and 
process of change; methods; outcome; resource optimisation), active participation in 3.8 ± 1.3 unselected cases, low-
fidelity bench model and CD-ROM.

Exit and Late endpoints (3 months) included attitude, complexity score and application rate.

Results. The new surgical technology was considered, upon exit, beneficial for all patients by 90% of the teams 
(versus 29% pre-visit), but only by 62% of the teams at 3 months. The complexity score downgraded at exit from 3.6 ± 2 
(pre-visit) to 1.2 ± 1 (P < .001), but increased again at 3 months to 1.6 ± 1 (p = .001 vs. pre-visit and P = .001 vs exit). 
Multivariate logistic regression analyses identify the important variables.

The 3-month application rate of the surgeons was 49 ± 32% versus 23 ± 28% pre-visit (P < .0001). This was influenced 
by the pre-visit rate and education, as well as by the post-visit changes in complexity scores and attitude. The conver-
sion rate towards the old technology improved from 3.5 ± 5% (pre-visit) to 1.3 ± 3% (3-months, P = 0.006).

Conclusions. The multimodal re-training resulted in a substantial increase of the application, concomitant with a 
decrease in conversion. The positive impact on attitude and complexity score, at exit, was somewhat reduced in the 
following clinical confrontation.
FP25. — THE PERCEPTION OF THE ABDOMINAL COMPARTMENT SYNDROME IN THE BELGIAN SURGICAL COMMUNITY: PRELIMINARY RESULTS FROM AN ELECTRONIC QUESTIONNAIRE.
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Introduction. Although first described decades ago, the abdominal compartment syndrome (ACS) has been recognised in recent years as a significant factor in organ failure and mortality in critically ill patients. The syndrome frequently occurs in surgical patients, mainly after abdominal surgery or trauma, and the treatment of ACS, regardless the cause, is often surgical. Therefore, we conducted a survey to assess the perception of ACS in the Belgian surgical community

Methods. A questionnaire was sent electronically to all email addresses (a total number of 689) featured on the official website of the Royal Belgian Society for Surgery (www.belsurg.org) in October 2005 and a reminder was sent to the same addresses in December 2005. The questionnaire consisted of 6 general questions, designed to reflect the clinical practice and experience of the surgeon involved, and 15 ACS specific questions.

Results. Twenty eight emails bounced and 13 surgeons replied that they had no experience with ACS or ACS was not relevant to their clinical practice. We received completed questionnaires from 41 surgeons. Most answers came from surgeons working in academic hospitals (72.5%) or large hospitals (mean number of beds 612), surgeons training residents (83%) and surgeons practicing abdominal surgery (mean percentage of abdominal surgery 75%). Eighty percent of surgeons claim to be familiar with ACS while 41% have ever measured intra-abdominal pressure (mostly through intermittently measured bladder pressure). The surgeons who answered generally had a good knowledge of normal intra-abdominal pressures and criteria for ACS. Only 27.5% of surgeons routinely measure IAP. They associate ACS mostly with situations of abdominal trauma, intra-abdominal bleeding and abdominal sepsis. Seventy five percent of surgeons have performed at least one decompressive laparotomy and all claim they would consider doing so, if indicated. Most cited indications were ventilation difficulty, oliguria, acidosis and decreased cardiac output. Sixty percent of surgeons have left the abdomen open at least once to prevent ACS.

Conclusions. The low response rate to this survey suggests that interest in ACS in the general surgical community in Belgium is low. However, those who did respond are mostly surgeons from academic or other large hospitals and have a good basic knowledge of the definitions, measurement techniques and clinical setting related to ACS, although a minority measures intra-abdominal pressures regularly.

FP26. — ROLE OF INTRA-OPERATIVE TOUCH IMPRINT CYTOLOGY IN THE TREATMENT OF BREAST CANCER.
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Academisch Ziekenhuis V.U.B., Brussel, Belgium.

Background and objectives. Sentinel lymph node (SLN) biopsy is now widely accepted as standard method for staging and treatment of early-stage, clinically node-negative breast carcinoma. However, there is no standard method for intra-operative evaluation of the SLN. A prospective study was carried out to evaluate the role of intra-operative touch imprint cytology (TIC) in the assessment of SLN involvement.

Methods. Forty-five consecutive patients with early-stage, clinically node-negative breast cancer underwent a SLN biopsy with intra-operative TIC. The SLN was bisected through its long axis if its width was less than 4 mm or sliced every 2 mm if it was more than 4 mm and at least two touch imprint preparations of both cut surfaces were made on a glass slide. The imprint specimens were stained with haematoxylin and eosin (H&E). Additional rapid immunochemistry (IH) was performed in case of equivocal cytological result. Permanent sections were evaluated with H&E and IH staining.

The results of TIC were compared to final histopathological results.

Results. The sensitivity, specificity and overall accuracy of TIC on a node basis were 65.5%, 96.3%, 85.5%, respectively. When calculated according to the size of SLN metastasis, the sensitivity of TIC for overt metastasis was 84.6%, while it was 62.5% for micrometastasis and 37.5% for sub-micrometastasis. The mean size of nodal metastasis was 5.08 mm and 1.25 mm for true positive and false negative results, respectively (P = 0.0236). Because of intra-operative TIC, 76.5% of the patients who needed further axillary lymph node dissection (ALND) could undergo this during the same operating time.

Conclusions. TIC is a rapid, reasonably cheap and reliable method for the intra-operative assessment of metastatic sentinel node involvement in patients with early-stage, clinically node-negative breast carcinoma. For a comparable low sensitivity as frozen section (FS) in detecting micro- and sub-micrometastasis, the technique offers the advantage of full tissue preservation for subsequent histological analysis.
FP27. — PREDICTIVE FACTORS OF MORBIDITY AND MORTALITY IN ONCOLOGIC THORACIC SURGERY.
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Objective. Assessment of diffusion capacity, FEV1 as predictive factors of morbidity and mortality for patients operated of thoracic neoplastic lesions.

Method. Retrospective study of patients operated from January 2001 to December 2005 in our institution for neoplastic lesions. We study the incidence of major complications and 30-day mortality and correlate them with preoperative and postoperative functional tests (FEV1, FEV1%, Diffusion Capacity, Diffusion Capacity%).

Results. We reviewed 437 patients. Atrial fibrillation (57/437) and bacterial pneumonia (61/437) were the most frequent complications. ARDS was observed in 16 patients (3.6%), among them, there is only six survivors (37.5%). 30-day mortality rate was 2.28% (10/437). ARDS (5/10) and bacterial pneumonia (3/10) were the major causes of death. We observed a significant difference in predicted postoperative diffusion capacity% between survivors and death patients.

Conclusion. Low predicted postoperative diffusion capacity% is associated with a high risk of mortality in patients operated of thoracic neoplastic lesions. This measure is an important selection criterion for these patients.

FP28. — MALIGNANT PLEURAL MESOTHELIOMA: A MULTIDISCIPLINARY APPROACH.
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Purpose. We propose a multidisciplinary treatment of malignant pleural mesothelioma combining induction chemotherapy (Pemetrexed-cisplatinum), followed by extrapleural pneumonectomy (EPP) and radical hemichest radiotherapy.

Patients. Prospective study of 26 consecutive MPM patients proposed for multidisciplinary treatment between March 2003 and May 2005. Inclusion criteria’s were age not more than 65 years, physiological characteristics making completion of treatment possible and with oncological staging for the epithelial type T2N2M0 or less and for all other types T2N1M0 or less.

Results. 22 patients presented epithelial type, 2 patients desmoplastic type, 1 patient sarcoma type and 1 mixed type. 9 patients were excluded based on mediastinoscopy (n = 7) or laparoscopy (n = 2) findings. 2 more patients presenting progressive disease after termination of induction chemotherapy were refused for surgery. 13 patients underwent an EPP, 2 patients were irresecable due to chest wall invasion. Post op mortality of EPP was 7.7% (n = 1). Post surgical complications were re-thoracotomy for bleeding (n = 1), atrial fibrillation (n = 7), ARDS (n = 2), DVT (n = 1). 3 patients couldn’t finish the radiotherapy course due to tumour recurrence and 1 patient died shortly after the radiotherapy due to BOOP. Survival of resected patients (n = 13) was 17 months and of patients who completed the full multidisciplinary treatment (n = 9) was 22 months after diagnosis.

Conclusion. This study shows the feasibility of this multidisciplinary approach showing a benefit for patients able to complete the all treatment. Careful selection is mandatory to define potential target groups.
**FP29. — POLYSOFT SELF EXPANDING HERNIA PATCH FOR PREPERITONEAL REPAIR OF GROIN HERNIAS.**

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**Introduction.** Mesh repair has become the standard therapy in groin hernia repair. Although there is no consensus about which technique to use each technique has its limitations. Recently the open ‘Lichtenstein’ technique has been reported with rather high percentages of chronic pain at long-term follow-up. To overcome this complication we investigated the use of a new self-expandable hernia patch with a minimal invasive preperitoneal technique.

**Patients and Methods.** During a 6 month period 30 patients were treated for unilateral groin hernias using a Bard Polysoft® hernia patch. After a small incision between the tuberculum and the spina iliaca anterior superior the inguinal canal was exposed as in a classical Lichtenstein approach. The fascia transversalis was incised and the preperitoneal space was created as in a laparoscopic preperitoneal repair. The mesh was introduced and only once fixed to the transversalis fascia. This patient population was compared with a retrospectively studied comparable group of patients using the Lichtenstein approach with a Vypro II mesh (Ethicon-Johnson and Johnson, Norderstedt, Germany). Patients were studied for operative time, hospital stay, pain scores at day 0, 1, 7 and 21 and after 3 months, perioperative complications and recurrence rate.

**Results.** Both groups were comparable for gender, age, anatomical hernia side and previous groin surgery. Over 80% of all patients in both groups were treated in day care hospital.

In the Polysoft group 1 patient had to be ‘converted’ to a Lichtenstein procedure due to adhesions of the peritoneum after previous sacral bone trauma. VAS pain scores were significantly lower in the Polysoft group at all time points.

Operative time was significantly reduced in the Polysoft group from 55 minutes in the Lichtenstein group to 28 minutes. No perioperative complications were observed in both groups. No recurrences were seen at short term follow-up.

**Conclusion.** The use of a Polysoft self expanding hernia patch is an easy and safe procedure in groin hernia repair that reduces operative time and gives less concern of chronic postoperative pain than a Lichtenstein repair probably due to a minimized surgical dissection in the area of the nerves of the inguinal canal.

**FP30. — REPAIR OF INCISIONAL HERNIAS BY AN INLAY-ONLAY MESH TECHNIQUE.**

A. M. Wolthuis, T. Tollens, C. Aelvoet, J. P. Vanrijkel.

A.Z. Imelda Bonheiden, Belgium.

**Background.** Incisional hernia is a frequent complication after abdominal surgery. Historically various types of repair have been described and are recommended for incisional hernia repair. A change has been made from conventional sutured techniques to mesh implantation and more recently from open to laparoscopic procedures. The authors discuss their results of a modified technique with a Marlex® inlay-onlay prosthesis.

**Materials and Methods.** From January 2004 to January 2006 all consecutive midline incisional hernia repairs were prospectively analyzed in our centre. Endpoints were : Incidence of seromas, wound infections and recurrence rates. All patients underwent the same standardized procedure by an inlay-onlay Marlex® mesh-prosthesis. Postoperatively all patients received Cefazoline 1g 8-hourly intravenously for 48 hours and 2 suction drains. Drains were removed if they drained less than 25 ml/24h.

**Results.** We identified 50 patients, predominantly males (66%), with a median age of 64 years old. Mean hospital stay was 6 days. Average time for removal of the last suction drain was 5 days. Two patients (4%) developed a seroma, which had to be punctured twice. One patient had a wound infection requiring readmission, drainage and antibiotics. There was 1 recurrent hernia (2%) with a median follow up of 12 months. There was no operative mortality.

**Conclusion.** The presented procedure is a safe and easy repair with a low recurrence rate and acceptable morbidity. Randomized controlled trials are necessary to compare different open techniques with laparoscopic repairs.
FP31. — LONG-TERM FOLLOW-UP AFTER UMBILICAL HERNIA REPAIR: IS SIMPLE SUTURE REPAIR REALLY SAFE?
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Introduction. Adult umbilical hernia is a common surgical condition mainly encountered in the fifth and sixth decades of life. Despite the high frequency of the umbilical hernia repair procedure, disappointingly high recurrence rates, up to 54% for simple suture repair, are reported. Since both mesh and suture techniques are used in our clinic we set out to investigate the respective recurrence rates and associated complications, retrospectively.

Patients and methods. Patients who were treated between January 2000 and July 2005 were identified from our hospital database and invited to attend the outpatient department for an extra follow-up, history taking and physical examination. The use of prosthetic material, occurrence of surgical site infection, body mass and height as well as recurrence were recorded at the time of this survey.

Results. In total 95 consecutive patients underwent operative repair of an umbilical hernia. Thirty percent of the patients were female (n = 29). In 32 patients (34%) umbilical hernia repair was achieved with simple suture when the hernia appeared smaller than 1cm. Fourteen umbilical hernia recurrences were noted (15%), all in the simple suture group (43%); no recurrences were noted after a median follow-up of 28 months in the patients using a mesh. No relationship was found between wound infection or obesity and umbilical hernia recurrence.

Conclusion. In the light of these results it is necessary to re-evaluate our clinical “guidelines” on mesh placement in umbilical hernia repair: apparently every umbilical fascial defect needs a mesh to overcome high recurrence rates.

FP32. — SHORT- AND LONGTERM RESULTS AFTER KUGEL® PATCH INGUINAL HERNIA REPAIR: PROSPECTIVE, MULTICENTRE STUDY ON 450 REPAIRS.
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Background. In search for an ideal inguinal hernia repair technique which combines maximal patient comfort with the lowest cost and an easy learning curve, the open preperitoneal hernia repair with the Kugel® patch is most promising. Patients and methods: In 404 consecutive patients with unilateral or bilateral, primary or secondary reducible inguinal hernia 450 Kugel® patch repairs were performed. Patient demographics as well as perioperative and long term follow-up data were recorded prospectively.

Results. During a mean follow-up period of 18 months there were 8 (1.78%) recurrences. Of the 62% patients treated in ambulatory way, less than 1% needed prolonged hospital stay. Persisting inguinal pain was reported in 2.7% and 3.3% of cases, respectively 6 and 12 months after surgery. The most common complications were haematomas (4.7%) and seromas (5%). In most cases (69%) sufficient pain relief was achieved with paracetamol in the perioperative period, and 13% did not take any painkiller at all. Normal activities could be regained after 9 days (SD 8 days) and return to work was possible after 14 days (SD 11 days).

Conclusion. The Kugel® patch technique combines the advantages of both open and laparoscopic inguinal hernia repairs with a low recurrence rate of less than 2%. Furthermore there is an excellent patient comfort and the procedure can be performed quickly and at a relatively low cost.
FP33. — THE FEASIBILITY OF SYNCHRONOUS LAPAROSCOPIC-ENDOSCOPIC APPROACH IN THE TREATMENT OF MID-ESOPHAGEAL DIVERTICULA.
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Introduction. Mid-esophageal diverticula are very rare. There is no consensus about the most appropriate surgical approach.

Material en methods. Two cases of symptomatic mid-esophageal diverticula treated by minimally invasive approach are retrospectively reviewed.

Results. One patient (79 years) suffered from retrosternal pain and invalidating dysphagia. Gastroscopy and upper GI studies showed a large mid-esophageal diverticulum 11 cm above the GE-junction. A second patient (83 years) suffered from postprandial vomiting and recurrent pneumonia due to a mid-esophageal diverticulum 10 cm above the GE-junction.

Both patients were treated by entirely laparoscopic approach. Technique is described. Resection was performed with an endoscopic linear stapler with associated myotomy. Peroperative gastroscopic evaluation of the suture was performed.

Histology showed esophageal diverticula of 4.5 x 3.0 x 2.5 cm and 2.5 x 1 x 0.5 cm, with no evidence for malignancy. Two years after surgery they do well and have no symptoms.

Conclusion. Mid-esophageal diverticula are rare. Symptoms are diverse. Entirely laparoscopic resection with concomitant gastroscopic evaluation is feasible, safe and adequate.

FP34. — GASTRIC CANCER.
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Introduction. When treating gastric cancer, gastrectomy remains the golden standard. We investigated the prognostic value when more or less than 20% of the retrieved lymph nodes were invaded by tumor after gastrectomy. The survival rates after gastrectomy with D1 versus D2 lymphadenectomy were analysed too.

Materials & Methods. 71 patients (42 men, 29 women, mean age 69.2 ± 12.0 years), who have been operated on between 1985 and 1999 because of gastric cancer in the Stuivenberg Hospital in Antwerp, Belgium, were included.

Results. The average number of retrieved lymph nodes was 10.4 ± 8.6. In 51 patients (78.5%) less and in 14 patients (21.5%) 15 lymph nodes or more were retrieved. According to the American Joint Committee on Cancer (AJCC), adequate staging can be performed when 15 lymph nodes or more are retrieved. We demonstrated however that there is a statistically significant difference in prognosis between patients with less or more than 20% of the retrieved lymph nodes invaded by tumor, independent of the total number of lymph nodes resected.

There was no significant difference in prognosis after gastrectomy with D1 versus D2 lymphadenectomy.

Conclusion. Patients with gastric cancer in whom less than 20% of the retrieved lymph nodes are invaded, have a significantly better prognosis compared with patients in whom more than 20% of the lymph nodes are invaded by tumor, independent of the total amount of lymph nodes.

There is no significant difference in prognosis and outcome between patients who underwent gastrectomy with D1 versus D2 lymphadenectomy.
FP35. — LAPAROSCOPIC TOTAL GASTRECTOMY FOR CANCER CAN BE PERFORMED WITH HIGH QUALITY HISTOPATHOLOGICAL CRITERIA.
D. Hompes, F. Penninckx, B. Topal.

Introduction. Laparoscopic surgery is associated with low surgical trauma and limited immunosuppression, and therefore may improve quality care in cancer patients as long as the principles of surgical oncology are respected. The aim of the present study was to analyze the short-term clinical outcome in patients undergoing laparoscopic total gastrectomy for cancer and to assess the quality of resection on histopathological examination.

Patients and methods. From April 2003 to December 2005, 27 patients (M/F 17/10; median age 68 (42-85) y. underwent laparoscopic total gastrectomy with omentectomy for cancer of the proximal (6), mid (13) and distal (8) stomach. Median (range) maximum tumour diameter was 51 (8-110) mm. Laparoscopy was converted to an open classical procedure in 1 patient to accomplish the oesopagho-enteral anastomosis.

Results. The duration of surgery was 200 (150-300) min. Intra-operative blood loss was 10 (5-300) ml. One patient died 14 d. after surgery due to cerebral haemorrhage, whereas post-operative complications were observed in 9 patients. Length of hospital stay was 11 (6-73) days.

On histopathological examination tumour-free margins (R0) were obtained in all resection specimens. The number of resected and counted lymph nodes was 15 (3-43) whereas lymph node metastases (pN+) were observed in 14 (52%) patients. The majority of the carcinomas were less differentiated (pG3 : 24) and penetrated through the muscular layer (pT2b : 9 and pT3 : 9).

Conclusion. Laparoscopic total gastrectomy for cancer is technically demanding, though can be performed safely and with good short-term clinical outcome. The quality of surgical resection can be preserved if the principles of surgical oncology are respected.

FP36. — ANASTOMOTIC LEAKAGE AFTER LAPAROSCOPIC RECTAL RESECTION FOR CANCER.
R. Rubay, E. Cambier, B. Navez.
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Objective. Risk factors of anastomotic leakage after rectal resection are well-known. We reviewed our experience and the way to treat it safely.

Methods. This is a retrospective study of 88 patients having undergone laparoscopic oncological rectal resection from January 1999 to January 2006.

Results. Overall rate of anastomotic leakage was 9.1%. After laparoscopic partial mesorectal excision with resection of upper rectum (25 patients), 1 (4%) presented an anastomotic partial leakage at day 5, treated laparoscopically. After laparoscopic total mesorectal excision with low colorectal anastomosis (29 patients), 2 (7%) presented an anastomotic leakage : 1 partial leakage at day 3 treated laparoscopically, 1 late complete leakage at day 17 treated by laparotomy. After laparoscopic TME with stapled colo-susanal anastomosis (26 patients), 5 (19%) presented an anastomotic leakage : 1 early leakage at day 5 treated laparoscopically, 4 late leakages, 3 were treated laparoscopically, 1 presented a complete leakage treated by laparotomy. After laparoscopic TME with handsewn endoanal anastomosis (9 patients), no leakage was observed.

Conclusions. “The lower the anastomosis, the higher the risk of leakage” is well-known. This is probably a consequence of insufficient blood supply to the small rectal stump especially if irradiated. It is important to detect and to treat leakage as soon as possible to avoid worsening of local and general condition. When treating a low rectal cancer, it might be better to consider a hand sewn endoanal anastomosis than to leave a small rectal stump with doubtful blood supply.
FP37. — LATE RESULTS AFTER TOTAL PERINEAL RECONSTRUCTION WITH DOUBLE GRACILOPLASTY AND MALONE APPENDICOSTOMY FOR RECTAL CANCER.
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Aim. Late results assessment after total perineal reconstruction (TPR) with double graciloplasty (DG) with Malone appendicostomy (MA) for rectal cancer.

Patients and methods. From 1999 to 2004, TPR with DG and systematic MA were performed in 10 patients [7 females-3 males; mean age: 42 y. (range, 32-55)] for rectal cancer (1uT2, 6uT3, 3uT4). Stimulation device (Interstim”, Medtronic, Inc) implanted in all but one because of pulmonary metastases. One patient died, one had a device explantation with definitive colostomy and 8 patients were assessed. Late results (median follow-up: 37 months, range: 11-63) included remote complications and their treatment, functional results (modified WPASR scoring system: 0-20 scoring scale) and quality of life (QoL, maximum score of 100, EORTC QLQ-C30-CR38 questionnaire with permission).

Results. There were 13 remote complications: stenosis (5) and mucosal prolapse (1) of the coloperineal anastomosis, stenosis related to gracilis (3), stenosis (2) or reflux (1) of the MA. All underwent minor or local surgical corrections. Regarding the functional results, the median modified WPASR score was 9.5 (scores <=12/20 in 6 patients, and 13/20 in 2 patients). The median EORTC Global health status score was 72 (range: 42-100).

Conclusions. After TPR with DG and MA, the remote morbidity rate was high, but requiring only minor and local surgery. Regarding functional outcome, the results obtained in terms of incontinence and evacuation with modified WPASR scoring system were satisfactory. Quality of life 3 years after ileostomy closure seems to be acceptable.

FP38. — PAIN IN THE HEAD CAN BE A PAIN IN THE ASS … NEED FOR A MULTIDISCIPLINARY APPROACH.
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Introduction. Non-steroidal analgesic suppositories are often used in the treatment of chronic pain, such as migraine headache. Most patients receiving this medication are given gastric protection to prevent gastritis or gastroduodenal ulcers. A far less common complication due to the abuse of these suppositories is anorectal ulceration, which may even lead to rectal stricture and stenosis, mimicking other more frequent pathologies such as Crohn, solitary rectum ulcer (SRUS) or carcinoma. This rare anorectal disease needs a multidisciplinary approach in the digestive clinic.

Patients and methods. We reviewed the data of all patients who presented to our hospital with symptoms due to anorectal ulceration or substenosis of the rectum. Six of these patients, all female, admitted prolonged use of analgesic suppositories for the treatment of chronic headache. The medications used were combinations of acetyl salicylic acid, caffeine and paracetamol.

Results. All six patients presented with anorectal symptoms such as pain, dyschezia and blood loss in the stool. Further rectal examination showed the presence of a rectal ulcer in two patients, and severe rectal stenosis in the other four. Two patients were treated by medication and needed no further intervention after cessation of the suppositories. Follow-up showed full regression of the ulcer in these two cases. More invasive intervention by means of dilatation of the rectal stenosis under general anaesthesia was necessary in four patients. Two of them eventually needed a protective colostomy to achieve full healing of the stenotic segment. The pathology report on biopsies obtained during examination showed a form of chronic, fibrotic inflammation of the rectum without any evidence of malignancy, Crohn or SRUS in all six patients.

Conclusion. In patients with a history of chronic pain (e.g. headache) presenting with anorectal pathology, one should always consider the abuse of non steroidal analgesic suppositories. Though the clinical features may be similar, anatomopathologically differentiation should be made from other pathologies, such as Crohn rectitis, SRUS or malignancies of the anorectum. Cessation of suppository use is an important part of the treatment. In cases with long-standing abuse, surgical intervention can be necessary in order to achieve full recovery.
FP39. — A ROLE FOR IMAGING AFTER CURATIVE TREATMENT OF COLORECTAL CANCER?

Background. The primary goal of follow-up after curative treatment of colorectal cancer is to improve survival by means of early detection and treatment of recurrent disease.

Aim. Assessment of the role of imaging in the follow-up.

Patients and Methods. One hundred and nineteen consecutive patients with curative resection of a colorectal carcinoma in 1998 with a minimum standard follow-up of 2 years in our institution. FU included examination, serum CEA, chest X-ray and abdominal ultrasound (US) every 3-6 months. The incidence, timing, means of detection and resectability of recurrence were studied.

Results. The recurrence rate was 20% (24 patients): liver metastasis (11), extra-hepatic recurrence (10) and combined recurrence (3). Recurrent disease occurred in stage II or III cancer, except for 2 patients. It was diagnosed at 21.5 months (range 4-79) after surgery. Means of detection were: symptoms in 2 patients (8%, peritoneal disease), increasing CEA in 15 patients (63%), standard imaging in 6 patients (25%), and abdominal CT-scan in 1 patient (4%). Curative resection of recurrent disease was possible in 9/24 patients (38%): in 6/15 recurrences detected by CEA, in 2/6 recurrences detected by standard imaging, in 1 liver metastasis detected by CT and in none of the symptomatic patients. The recurrences in both low risk patients were resectable.

Conclusion. A CEA level increasing above 5.0 µg/L was the most important diagnostic tool. However, one quarter of the recurrences were detected by standard imaging. These data support the performance of imaging for detection of recurrence during follow-up.

FP40. — THE FAITH OF A PROTECTIVE ILEOSTOMY AFTER TME WITH RECONSTRUCTION.

Introduction. Temporary ileostomy has been advocated to avoid septic complications after total mesorectal excision (TME) with reconstruction. The faecal diversion can be established at the time of reconstruction (primary ileostomy) or subsequently in case of an early anastomotic leak (secondary ileostomy).

Aim. To study the rate of primary and secondary ileostomy function and the faith of this protective diversion.

Methods. Between January 2000 and December 2004, 233 patients had TME with reconstruction for rectal carcinoma. The primary and secondary ileostomy rate is recorded as well as the timing of closure.

Results. In total, 75 patients out of 233 (32.2%) received a defunctioning ileostomy. A primary protective ileostomy was constructed in 59 cases (25.3%). Of the 174 patients who had a resection without ileostomy, 16 (9.2%) needed an ileostomy during a subsequent procedure.

Seven patients (9.3%) never had their ileostomy closed. The non closure rate respectively was 8.5% (5/59) and 12.5% (2/16) for primary and secondary ileostomies (p = 0.029).

Progressive disease (5/7) was the main cause for non closure. Persistent pelvic sepsis and death (at 9 months post-operative) was the reason in another patient. There was one 79-year old female patient who refused the closure of her secondary ileostomy after a complicated postoperative recovery from the TME procedure. Time of closure between primary and a secondary ileostomy is not different. The mean time to close a primary ileostomy was 6.5 months (1.5-12) compared to 5.5 months (2-14) for a secondary ileostomy.

Conclusion. Around 10% of all constructed defunctioning ileostomies will never be closed. However, there seems to be no difference in time to closure between primary and secondary ileostomy. Around 70% of patients can avoid a temporary defunctioning stoma if a selective policy to create ileostomies after TME with reconstruction is used.
FP41. — LAPAROSCOPIC SIGMOID COLECTOMY WITH INFERIOR MESENTERIC VESSEL PRESERVATION FOR DIVERTICULITIS.
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Introduction. Laparoscopic sigmoid colectomy (LSC) has become an acceptable minimally invasive procedure for treatment of diverticulitis. In literature the reported risk of bladder and/or sexual impairment after laparoscopic left colectomy for benign disease varies from 1 to 4%. Sparing inferior mesenteric vessels (IMV) could potentially reduce the risk of ischemia of the colorectal anastomosis and the risk of injury to autonomic nerves.

Aim. To assess feasibility and early results of the preservation of IMV in LSC for diverticular disease.

Patients and methods. 79 patients [41 females, 31 males; median age 54 y. (range, 26-81); 9 ASA I, 64 ASA II, 6 ASA III] were treated laparoscopically for diverticular disease using the IMV-sparing technique. Forty four patients had undergone previous abdominal surgery. Intraoperative, early and late complications were reviewed especially in terms of anastomotic leakage, remote anastomotic stenosis, bladder, sexual and ano-rectal dysfunction. The latter parameters were assessed by standardized questionnaire.

Results. There were no death cases. Laparoscopic IMV-sparing technique was feasible in all cases without specific complications. The conversion rate was 8%. The median length of stay was 7 days. There were no anastomotic leakage and no modification of sexual urinary and ano-rectal functions. One patient had an anastomotic stenosis requiring surgery.

Conclusion. Conservation of the IMV is a feasible and reproducible technique with low specific intra- and postoperative morbidity. IMV-sparing LSC may prevent bladder, sexual and ano-rectal dysfunction. A prospective comparative trial is needed and is currently being set up.

FP42. — PERCUTANEOUS CT SCAN-GUIDED DRAINAGE VERSUS ANTIBIOTHERAPY ALONE FOR HINCHEY STAGE II DIVERTICULITIS: A CASE-CONTROL STUDY.
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Introduction. CT scan-guided percutaneous abscess drainage (PAD) of Hinchey stage II diverticulitis is considered the best initial approach, in order to treat conservatively the abscess and to subsequently perform an elective sigmoidectomy. However, PAD is not always technically feasible, may expose the patient to additional morbidity, and finally has, so far, not been critically evaluated in this indication. Therefore, this study was undertaken to compare the results of PAD versus antibiotherapy alone in patients with Hinchey II diverticulitis.

Methods. This was a case-control study of all patients who presented in our institution with Hinchey stage II diverticulitis between 1993 and 2005. 34 patients (median age 71 [range 34-90] years) underwent PAD under CT-scan guidance (group I). 32 patients (median age 70 [range 32-95] years were treated with antibiotherapy alone (ceftriaxone+metronidazole) (group II), in most cases because PAD was considered technically unfeasible by the interventional radiology team. Initial treatment was considered a failure when emergency surgery had to be performed.

Results. The median size of abscess was 6 [range 3-18] cm in group I and 4 [3-10] cm in group II (p = 0.002). Median duration of drainage was 8 [1-18] days. Conservative treatment failed in 11 patients (33%) of group I, and in 7 patients (25%) of group II. Causes for failure among 18 patients included persistent sepsis (10), recurring abscess (7) and fistula (1). 10 patients (29%) in group I and 6 patients (18%) in group II underwent an emergent Hartmann procedure; there were 4 postoperative deaths (25%) in this subgroup. Twelve (35%) patients in group I and fifteen (47%) patients in group II underwent an elective sigmoidectomy, with a median delay of 113 [40-600] days between the initial admission and surgery. In this subgroup of patients, there was no anastomotic leakage or postoperative death.

Conclusions. Emergency surgery for Hinchey stage II diverticulitis carries a high mortality rate and should be avoided. In order to achieve this, systemic antibiotherapy alone seems to be a safe alternative, whenever percutaneous drainage is technically difficult or hazardous. Actually, our data did not demonstrate any benefit of PAD, suggesting that the role of interventional radiology techniques in this indication deserve further critical evaluation.
FP43. — LONG-TERM EXPERIENCE WITH TRANSANAL ENDOSCOPIC MICROSURGERY OR BUESS PROCEDURE.

Aim. To review our 15-year experience with transanal endoscopic microsurgery (TEM) in terms of mortality, morbidity, recurrence rate and functional outcome.

Patients and methods. From 1991 to 2005, 94 patients underwent TEM [58 males, 36 females ; median age 69 y. (range, 21-89)] for excision of 60 tubular, villous or tubulo-villous adenomas with low-grade dysplasia, 19 adenomas with high grade dysplasia, 2 intra-mucosal carcinomas (IMC), 6 invasive carcinomas [2 curative and 4 palliative], 2 carcinoid tumours, 1 leiomyoma, 3 TEM excision for further staging after previous endoscopic resection, 2 pelvic abscess drainages and 5 rectal stricturoplasties for stenosis.

Intraoperative, early and late complications were reviewed. Postoperative evaluation was based on questionnaire, clinical exam, endoscopy and manometry.

Results. There were no death cases. One patient had intraoperative rectal perforation requiring conversion and one postoperative pneumoperitoneum treated medically. Late bleeding requiring surgical haemostasis occurred in one acenocoumarol-treated patient. Median follow-up was 45 months (range, 1-164). Four patients developed local recurrence (4.3%): 3 patients had high grade dysplasia adenomas [2 after initial benign adenomas and one after pT1 adenocarcinoma] and one with IMC presented an adenocarcinoma. Pelvic abscesses were successfully treated. None of the 5 stricturoplasty patients did recur. Anal manometry didn’t show functional alteration. One patient experienced minor soiling although anal manometry was normal.

Conclusion. TEM is a safe and effective procedure for local excision of rectal lesions, with a low recurrence rate and without anorectal function alteration. TEM is also effective for pelvic abscess drainage and rectal stenosis treatment.

FP44. — LAPAROSCOPY SIGNIFICANTLY INCREASES THE RISK FOR A PELVIC COMPLICATION AFTER TME WITH RECONSTRUCTION.

Introduction. Pelvic complications arise in around 10% of cases after total mesorectal excision (TME) with reconstruction.

Aim. To study the incidence of pelvic complications in a consecutive series of patients.

Methods. Retrospective review of the hospital records of all patients who had a reconstruction after TME for rectal carcinoma in the Department of Abdominal Surgery from the University Hospital Gasthuisberg Leuven between January 2000 and December 2004.

Results. In this 4-year period 233 patients had a TME with reconstruction for rectal cancer. We note on overall rate of pelvic complications of 9.4% (22/233). There were 15 leaks at the coloanal anastomosis (6.4%). A manual coloanal anastomosis was performed in 101 patients ; in 132 a double stapling technique was used. There were 5 leaks in the first (4.9%) and 10 in the latter group (7.5%), which was statistically not significant (p = 0.418). We observed significant more leaks in the laparoscopic assisted procedures (8/35, 17.1%), compared to the open procedures (9/198, 4.5%) (p = 0.005). A protective ileostomy had no influence on the risk of leakage (2/59 patients with a primary ileostomy (3.4%) vs. 13/175 without (7.4%), p = 0.284).

Three patients developed a pouch necrosis (1.2%). After pouchectomy a Hartmann’s resection was performed in one patient. Two had a secondary reconstruction, one of which was a straight coloanal anastomosis, the other had an ileocaecal interposition. There were two pelvic abscesses (0.85%) and two pelvic haematoma’s (0.85%) requiring surgical drainage.

The 30-day in hospital mortality rate was 0.85% (2/233). One patient died on the fifth postoperative day of a massive myocardial infarction, one died on the 30-th postoperative day in the ICU after a major leak at the coloanal anastomosis for which a Hartmann’s resection was performed.

Conclusion. The rate of pelvic complications remains substantial. A laparoscopic approach significantly increases the risk for an anastomotic leak. This should be further explored!
FP45. — LAPAROSCOPIC VENTRAL MESH RECTOPEXY : AN END TO THE PROBLEM OF POST-RECTOPEXY CONSTIPATION?
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Introduction. Surgical treatment for rectal prolapse remains debatable. Perineal procedures have low morbidity, high recurrence, impair anorectal function and are usually restricted to the elderly. Abdominal posterior rectopexy has low recurrence, higher morbidity and induces constipation in 50%. Laparoscopic Ventral Mesh Rectopexy (LVMR) is a new technique described by D’Hoore and colleagues. It avoids posterior rectal mobilisation, correcting existing constipation and avoiding the onset of new constipation.

Methods. Consecutive cases of LVMR for rectal prolapse were analyzed prospectively. We compared results to traditional procedures performed concurrently: Delorme (DEL) and Open Posterior Rectopexy (OPR). Endpoints were hospital stay, morbidity, mortality, recurrence and pre- and postoperative function (Incontinence FISI score and Constipation Score).

Results. 40 patients were followed up for median 8 months (range 1-17). Median hospital stay was 3.0 days (DEL 4.0, OPR 8.0 days), morbidity was 15% (DEL 20%, OPR 60%) and mortality 0%. Recurrence rate was 0% (DEL 40%, OPR 10%). Constipation improved in 78% of patients. New constipation was induced in 1 patient (3%). Median constipation scores fell from 7.0 to 4.0 (p < 0.0001). Continence improved in 90% of patients. One patient developed incontinence (3%). Median incontinence scores fell from 40.0 to 8.0 (p < 0.0001).

Conclusions. LVMR is a safe and effective procedure for the treatment of rectal prolapse. LVMR offers the advantages of a minimal invasive (low morbidity), abdominal approach (low recurrence). It provides good resolution of incontinence and avoids development of constipation.