Surg Endosc (2007) 21: S107–S255
DOI: 10.1007/s00464-007-9273-1

SURGICAL ENDOSCOPY
and Other Interventional Techniques

10th World Congress of Endoscopic Surgery
14th International Congress of the European Association for Endoscopic Surgery (E.A.E.S.)
Berlin, Germany, 13–16 September 2006

Poster presentations

ABDOMINAL CAVITY AND ABDOMINAL WALL

P001

LONG-TERM RESULTS OF TOTALLY EXTRAPERITONEAL INGUINAL HERNIA REPAIR (TEP)

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Background: Laparoscopic totally extraperitoneal groin hernia repair (TEP) was introduced more than 15 years ago and the short term results and benefits are well documented. The long-term results however remain unclear. We reviewed our first series of patients treated with TEP to assess the long-term outcome regarding hernia recurrence and chronic pain.

Methods: From 10/94–03/96 124 patients (mean age 55 (20–87) years) with 158 TEP repairs were included in a prospective study. These patients were followed up in 2004 with an interview and physical examination with particular reference to hernia recurrence, local complications and reinterventions.

Results: After a mean follow up of 114 (105–122) months outcomes of 72 patients with 92 treated hernias (follow-up 58%) were evaluated. 24 patients (mean age 72 years) had died of unrelated causes; 28 patients had moved untraceable. In 81% of all patients the clinical examination was inconspicuous. Hernia recurrence rate was 4%; 15% developed a hydrocele, two thirds necessitating a reoperation. Chronic pain occurred in 17% and was mild to moderate in all patients. All patients were satisfied with their repair and would recommend TEP to others.

Conclusions: Long-term results of TEP demonstrate it to be a effective and safe procedure. The recurrence rate of 4% may seem quite high, but is explained by the learning curve as all occurred in the first 50 interventions. The incidence of chronic pain equals the results in other publications. The rate of local complications may be due to technical details as we used heavy weight meshs that were slit.

P002

TOTAL EXTRA - PERITONEAL (TEP) REPAIR OF GROIN: PROSPECTIVE EVALUATION AT A TERTIARY CENTER

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Introduction: The present prospective study was undertaken to evaluate the laparoscopic total extraperitoneal (TEP) repair of groin hernia.

Patients and methods: The present study was undertaken at the Department of Surgical Disciplines, All India Institute of Medical Sciences, New Delhi, India between January 2004 - December 2005. Consecutive adult patients presenting with groin hernia were offered laparoscopic total extraperitoneal repair of recurrent or primary, unilateral or bilateral groin hernia. Patients unsuitable for general anaesthesia were not included in the study. Balloon or telescope was used for the creation of extraperitoneal space. Polypropylene mesh was used in all the patients and fixation was done with tackers.

Results: Of the 159 patients, there were 154 male and 5 female patients of all age groups. Of the 159 patients; 142 (89.3%) and 17 (10.7%) patients had primary and recurrent hernia respectively. 77 (54.2%) patients had bilateral groin hernia. A total of 276 TEP repairs were performed on 142 patients. There were 124 (44.9%) indirect and 152 (55.1%) direct hernia repairs. Majority of bilateral hernia were direct however 20 (12.6%) bilateral hernias were indirect. Balloon and telescopic dissection were used to create extraperitoneal space in 110 (69.2%) and 49 (30.8%) patients respectively. Size of the polypropylene mesh varied from 9×7.5 cm to 15×15 cm. The procedure was converted to transabdominal preperitoneal (TAPP) repair in 15/159 (9.4%) and open mesh repair in 2 (1.4%) patients. Peritoneal breach was noted in 48/142 (33.8%) patients. Operating time ranged from 30 to 240 minutes (Mean 65 minutes). There were 38 (13.7%) postoperative untoward events in 276 repairs. 85.5% and 97.6% patients were discharged from hospital within 24 and 48 hours respectively. Two (1.4%) patients developed recurrence. There was no death or major morbidity in the present study.

Conclusion: Total extraperitoneal (TEP) repair of groin hernia is the preferred technique. TEP repair may become the standard of care for a bilateral groin hernia in young as well as older patients.

P003

USE OF PAIN PUMP IN OUTPATIENT LAPAROSCOPIC CHOLECYSTECTOMY

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Introduction: This study was designed to determine whether the use of a subcutaenous pain pump improved successful same day discharge after outpatient laparoscopic cholecystectomy.

Methods: We retrospectively reviewed all outpatient elective laparoscopic cholecystectomies performed by a single surgeon from 10/10/2003 to 9/10/2005. The early group of patients (group 1) had standard post-op analgesia and the latter group (group 2) also had use of the subcutaenous analgesic delivery system (On-Q Pain Buster produced by I-flow corporation). The pain buster delivers a local anesthethic via a small catheter placed in the subcutaenous tissue at the subxyphoid port site with the tip placed in the peritoneal cavity. The pump delivers a continuous dose of local anesthetic to the subcutaneous tissue and peritoneal cavity. The number of patients successfully discharged on the same day of surgery was determined. Chi-square test was used to compare the two groups.

Results: A total of 27 patients underwent elective outpatient laparoscopic cholecystectomy during the study period. In the initial group of patients (group 1) 5 of 14 (36%) were successfully discharged on the day of surgery. In the latter group (group 2) 11 of 13 (85%, $p = 0.028$) were successfully discharged. The two patient groups were similar in terms of age, M:F ratio and pre-op diagnosis.

Conclusion: The use of a pain pump in outpatient laparoscopic cholecystectomy significantly improved the likelihood of same day discharge. Improved immediate post op analgesia is likely the basis for the difference in outcome.

P004

SPLENIC ABSCESS IN A PATIENT WITH WEGENER'S GRANULOMATOSIS TREATED WITH LAPAROSCOPIC SPLENECTOMY

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Splenic abscess complicating Wegener's granulomatosis (WG) has not been previously described. We report the occurrence of a splenic abscess in a 45-years-old white male suffering of WG. The patient presented with persistent fever and abdominal pain. Magnetic resonance imaging showed two splenic cystic lesions. The differential diagnosis was splenic hematoma or abscess. The patient underwent diagnostic laparoscopy and laparoscopic splenectomy. Pathology revealed a centrally located cavity full of pus and necrotic material. Although there were no signs of active vasculitis, no other cause (infectious, hematologic, neoplastic, or otherwise) for splenic abscess was found. The patient had an uneventful postoperative course and his disease is on remission with corticosteroids and cyclophosphamide.

P005

THE SITUATION OF LAPAROSCOPY IN THE CONTINUOUS AMBULATORY PERITONEAL DIALYSIS PROCEDURES

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Continuous ambulatory peritoneal dialysis is widely accepted for the management of end stage renal disease. However patients with intraabdominal adhesions and peritoneal dialysis catheter malfunction decrease the success of this method.
The aim of this study was to determine the safety and efficacy of diagnostic/therapeutic laparoscopy in the management of peritoneal Tenchoff catheters placement in patients who had previous abdominal surgery and had malfunctioning peritoneal dialysis catheters.
Between 1999–2004, 16 videolaparoscopic procedures were perfomed. In 7 patients who had previous laparotomies, laparoscopy was performed before peritoneal catheter placement (group I). Nine patients with peritoneal dialysis catheters in place underwent laparoscopy for the management of peritoneal dialysis catheter dysfunction (group II). All laparoscopic procedures were performed under general anesthesia.
In group I, release of adhesions and peritoneal dialysis catheter placement were performed in four patients. Additional cholecystectomy was done in one patient in this group. In 2 patients there were no adhesions and the catheter was placed without any incident. In the last patient the extensive adhesions precluded any safe interventions.
In group II, the catheter was freed of occluding omentum and function was restored in 4 patients. In 2 patients, adhesions were the cause of non-function and adhesiolysis was performed. Fibrin clot was the cause in the remaining 3 patients; it was cleared with flushing in one patient. The catheter in the last patient was replaced with a new one. Postoperative peritonitis developed in one patient and late port site hernia developed in one patient.
In conclusion, laparoscopy has resulted in the placement/salvage of peritoneal dialysis catheter dysfunction and placement of catheter in patients that would have been previously designated as unsuitable candidates. Laparoscopy is a useful tool in every step of peritoneal dialysis program.

P006

LAPAROSCOPIC INGUINAL HERNIA REPAIR BY EXTRAPERITONEAL APPROACH-USEFULNESS OF PERITONEAL EDGE ORIENTED METHOD

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The argument about merits and demerits of the laparoscopic inguinal hernia repair (LH) compared with other open techniques is still going on. Why is there so much argument despite LH having various advantages such as rapid recovery in addition to the low recurrence rate? This is probably because LH currently in use is by TAPP (transabdominal preperitoneal approach) not without potential complications such as organ damages and ileus and also because it is not a minor surgery unlike the conventional method. Now is the time to shift to TEPP (totally extraperitoneal preperitoneal approach) and to establish LH which is less invasive and of a minor surgery. TEPP has been deemed as a very difficult surgical technique because of the difficulty in securing the extraperitoneal space as a surgical space. At present, this problem has been resolved by the balloon dissection method.
Nevertheless, TEPP has not become popular. As the reason for it, mention can be made of the difficulty in making a differential diagnosis of the hernia during operation and the complicated procedure required in treating the hernia sac. The author has developed a new operative technique for TEPP (peritoneal edge oriented method) capable of making a correct diagnosis and treating the hernia sac during operation by following the peritoneal edge continuously and worked it out into a manual, thereby making it possible to perform a sure and stable TEPP. Based on the experience with more than 1000 cases on which the author performed operation, the actual surgical technique is presented with explanation.

P007

LAPAROSCOPY VS MINI-LAPAROTOMY PERITONEAL DIALYSIS CATHETER INSERTION

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Introduction: End stage renal failure can be effectively treated with peritoneal dialysis. The peritoneal dialysis (PD) catheter can be placed by either a mini-laparotomy or by laparoscopy.

Objectives: To compare the outcome of the two PD catheter insertion techniques.

Methods: A retrospective audit of a prospectively collected database of 56 cases performed from 2002 to 2004.

Results: 42 patients underwent laparoscopy and 14 patients had a mini-laparotomy. The mean age and sex of the two groups was similar. The mean operative time for the laparoscopic procedure was less than the open technique (31.3 8.9 vs. 56.8 22.1 min; $p < 0.05$). There was no significant difference in mean length of stay (1.23 1.54 vs. 1.33 0.78; $p = 0.76$) or median length of stay. Laparoscopy was used in 3 of the mini-laparotomy cases to reposition the catheter because of poor flow noted at the time of surgery. There were no intraoperative complications. Post operatively, with a mean follow-up of 14 months, there were no statistically significant differences in complications between groups. Interestingly, the infection rate was numerically higher in the laparoscopy group (12% vs. 0%) while the rate of catheter dysfunction/blockage tended to be higher in the mini-laparotomy group (21% vs. 10%). Four of the seven catheters in the laparoscopy group that failed to work were either rescued or reinserted laparoscopically.

Conclusion: Complications following the insertion of a peritoneal dialysis catheter are not uncommon. Laparoscopy is a reasonable alternative for catheter insertion and appears faster to perform than mini-laparotomy.

P008

THE INCIDENCE OF OCCULT FASCIAL DEFECTS DISCOVERED IN LAPAROSCOPIC VENTRAL HERNIA REPAIRS IN 200 PATIENTS

NO SHOW

P009

DIAGNOSTIC LAPAROSCOPY: A SURVEY OF 42 PATIENTS

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Introduction: Diagnostic laparoscopy is an easy and safe procedure, which provides valuable information regarding the diagnosis and treatment of surgical patients. The aim of this project was to record the efficacy of this method in selected groups of patients.

Method: From January 2003 to February 2006 we performed 42 diagnostic laparoscopies when physical examination, laboratory tests, and non invasive imaging techniques failed to provide accurate diagnosis. Fourteen patients (33,5%) were evaluated for chronic abdominal pain; 17 patients (40,5%) were evaluated for acute abdominal pain; 5 trauma patients (12%) were evaluated to exclude or confirm penetration of the peritoneum or laceration of intra-abdominal organs; 6 patients (14%) were evaluated for suspected intra-abdominal malignancy or to assess the operability in the cases of known cancer.

Results: Of the 42 patients, laparoscopy led to diagnosis in 37 patients (88%), a laparotomy was avoided in 35 patients (33,3%), and operative treatment was done laparoscopically in 32 patients (76%).

Conclusion: Diagnostic laparoscopy in selected groups of patients can be used to yield diagnosis when non-invasive procedures have failed and to avoid unnecessary laparotomy. However it can not replace laparotomy in every instance.

P010

EXPERIENCE WITH TOTAL EXTRAPERITONEAL HERNIA REPAIR (TEP) IN A DISTRICT GENERAL HOSPITAL

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Aims: Recent reports from both multicentre and specialist centre studies have confirmed less postoperative pain and earlier recovery in laparoscopic hernia repair. Recurrence rates are equivalent to open surgical approaches. The aim of this study was to prospectively assess recurrence rates, complications, patient satisfaction, postoperative pain, and numbness in patients undergoing TEP within a district general hospital.

Methods: Consecutive patients undergoing TEP hernia repair by one surgeon were followed up prospectively between July 2001 and June 2005. All patients were eligible for analysis, including those in the early operative experience, or learning curve. Details of patient demographics, operative procedure, complications, recurrence rates, postoperative pain, and numbness were collected on a proforma. A telephone questionnaire was conducted in February 2006 for all patients. Any patient with a suspected recurrence was assessed at clinic.

Results: Of 117 patients, there were 111 males with a median age of 55 years (range 17–83). A total of 136 repairs were performed for primary unilateral (98), bilateral (14) and recurrent hernias (14). Conversion to open repair occurred in 2 patients (excluded from analysis). Eighty-seven patients completed follow up (75.7%), while 28 were lost to follow up (including one death). The following complications were seen: haematoma 8, retention 2, postoperative bleeding requiring laparoscopic washout 1, aspiration 1, cord hydrocele 1 and haematospermia 1. Hernia recurrence at median follow up of 2 years (range 8m - 4.8 yrs) occurred in 7 of 134 repairs (5.2%). Postoperative pain occurred in 15 of 115 patients (13%) - all but one had mild/occasional pain. Occasional numbness occurred in 7 of 115 patients (5.2%). Overall, 82 (94.3%) of patients were highly satisfied with the procedure.

Conclusion: This study shows that TEP repair of inguinal hernia is feasible within a district hospital setting, with low rates of recurrence equivalent to open surgery. In keeping with other studies, rates of postoperative pain and numbness are superior to those seen following open hernia repair.

P011

IMPACT OF LAPAROSCOPIC ADHESIOLYSIS AND RECURRENT INCISIONAL HERNIA REPAIR WITH MESH ON GASTROINTESTINAL QUALITY OF LIFE

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Introduction: To establish the impact of laparoscopic adhesiolysis and hernia repair with mesh (LAHR) on gastrointestinal quality of life index (GIQLI) in patients with large recurrent incisional hernia (RIH).

Methods and Procedures: Data were collected prospectively on consecutive patients. RIH was defined as a large abdominal wall hernia recurring after surgical repair. LAHR was performed through 3 to 4 ports with intraperitoneal mesh placement. GIQLI included symptoms, emotions, physical status, social functioning, and effects of medical treatment and ranges from 1 to 5. GIQLI was evaluated prior to surgery and at 12-month follow-up. Adhesions were classified intraoperatively according to Muellers classification (0, none; 1, avascular; 2, vascular with moderate extent; 3, vascular with severe extent). The required sample size was 60 RIH patients with Mueller 2 or 3 adhesions (80% CI z value = 1.282, type I error = 0.05). Statistical analysis was performed with analysis of variance on SPSS 8.0 software.

Results: 85 patients underwent LAHR with neither mortality nor re-operations. There were 15 RIH patients with Mueller 1 adhesions and 60 with Mueller 2–3 adhesions. All patients were available at 12-month follow-up. With the exception of medical treatment (3 vs 3.05, $p > 0.05$), symptoms (2.76 vs 3.21, $p < 0.01$), emotions (2.88 vs 3.4, $p < 0.01$), physical status (2.92 vs 3.48, $p < 0.01$), and social functioning (3.05 vs 3.25, $p < 0.01$) were improved at follow-up as compared to preoperative GIQLI. A subgroup analysis showed that symptoms (1.46 vs 1.5, $p < 0.01$), emotions (1.2 vs 1.5, $p < 0.01$), physical status (1.22 vs 1.54, $p < 0.01$), and social functioning (1.32 vs 1.47, $p < 0.01$) were also improved at follow-up in Mueller 2–3 patients. However, GIQLI did not improve in Mueller 1 patients.

Conclusion: GIQLI was significantly improved at 12-month follow-up after LAHR in RIH patients with vascular adhesions of moderate to severe extent.

P012

AN INITIAL TROCAR INSERTION TECHNIQUE BASED ON THE UMBILICAL ANATOMICAL FEATURES - FOR A REDUCTION OF TROCAR SITE INFECTIONS

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Purpose: Umbilical cicatrix adheres to the linea alba without fusing. Tunica muscularis and adipose tissue are absent in a pillar of umbilicus. The initial trocar placement begins with a skin incision of the inferior annulus umbilicalis, followed by a blunt detachment of the adhesive site between the cicatrix and linea alba. The blunt detachment of the site between the cicatrix and fascia is accomplished without passing through the tunica muscularis or panniculus adiposus, hence the risk of trocar site infection (TSI) is too low to pose a significant threat of inflammatory spread to the surrounding tissue.
In the present study we compare the actual results of this trocar insertion procedure with postoperative TSI results reported previously from other institutions.

Subjects and Methods: The laparoscopic surgery procedure was introduced in 1996. Since then, 1,138 patients with 86 diseases have undergone the procedure. The underlying condition was intraperitoneal inflammatory disease in 380 of these patients, including appendicitis (n = 364), urachal remnant (n = 7), ovarian torsion (n = 3), cholecystitis (n = 2), and others (n = 7) (as an overlapping condition in some the aforesaid cases). The patient age ranged from 7 days to 16 years (mean, 10.01 years) and the male-to-female ratio was 229:151. Our investigation focused on the trocar insertion procedures and the results in these cases.

Results: Among the 380 surgical cases with intraperitoneal inflammatory disease, 97 had peritonitis, most commonly a perforating appendicitis. The initial trocar placement was usually accomplished within 1 minute and no complications associated with the insertion procedures were encountered. Postoperative TSIs were reported in 4 panperitonitis cases (1.05%). The infections were alleviated by conservative treatment within a few days in all 4 of these patients.
There have been 6 TSI cases reported in pediatric tabulations since 1991, all of which were perforating appendicitis. In tabulations of populations ranging from 13 to 217 cases, the incidence of TSI ranged from 0.0% to 23.1%. The mean level from all tabulations (n = 454) was 8.4%. The incidence of TSI in our peritonitis cases (n = 96) was 4.2%, significantly lower than that in previously reported cases ($p < 0.05$).

P013

LAPAROSCOPIC REVISION OF FAILED PERITONEAL DIALYSIS CATHETERS

CANCELLED

P014

MANAGEMENT OF HERNIATED RETROPERITONEAL ADIPOSE TISSUE DURING ENDOSCOPIC EXTRAPERITONEAL INGUINAL HERNIOPLASTY

NO SHOW

P015

SAFETY AND LONG TERM OUTCOME OF A NEW CONCEPT FOR SURGICAL ADHESION-REDUCTION STRATEGIES (PREVADH): A PROSPECTIVE, MULTICENTER STUDY

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Aims: No agent has been consistently effective in preventing formation of peritoneal adhesions and postoperative bowel obstruction after abdominal surgery. The aims of this prospective multicenter study were to evaluate clinical safety and efficiency of a new adhesion-reduction barrier
Methods: Between September 2000 and April 2001, Prevadh was applied in 78 patients. Operative procedures included 25 hepatic resections, 7 cholecystectomies, 32 colonic resections, 7 protectomies, 3 colostomy or recovery of continuity, 1 gynaecologic surgery and 3 others. Eleven patients were operated on by laparoscopy and 67 by laparotomy.
Results: The overall incidence of abscesses and wound complications was 2.4% and 9% respectively. After a mean follow-up of 36 months (range 4 to 51 months), no patients experienced adverse events related to the adhesion barrier. Surgical reoperative procedures were performed in 5 patients for unrelated causes and no bowel obstruction occurred on protected area.
Conclusions: This study confirmed the safety of Prevadh adhesion barrier and suggested that this resorbable barrier might provide prevention from adhesion formation of peritoneal injured surfaces. However, a large randomized controlled trial seems to be necessary in order to prove the real effectiveness of adhesion barrier on clinical long-term outcome.

P016

VENTRAL HERNIA REPAIR IN THE OBESE PATIENTS: LAPAROSCOPIC VS OPEN TECHNIQUE

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Background: Incisional hernia (IH) is a common problem for general surgeons, occurring in up to 20% of patients who undergo major abdominal surgery. In the United States more than 100.000 IH repairs are performed each year.
Obese patients (OP) are considered poor surgical candidates for open repair because of their associated morbidities and risk of postoperative wound infection and recurrence.
In our study we evaluated our experience with Laparoscopic and open ventral hernia repair in this particular population.

Methods: Between May 2004 and April 2005, 73 patients who underwent ventral hernia repair were entered prospectively into data base. Of those patients, 37 (50.7%) were obese (BMI $>$ 30).

Results: Twenty four patients (65%) underwent open repair and 13 (35%) patients were operated laparoscopically. There were no significant differences in terms of BMI, age, gender, ASA, and hernia size between both groups. The mean operative time was longer in the laparoscopic group (106 vs 67 minutes) $P < 0.05$. The mean postoperative length of stay was longer in the open group (mean 3.5 vs 2.8 days). Five (20%) wound infections occurred in the open group and only one (7.6%) in the laparoscopic group $P < 0.05$. One patient (7.6%) in the laparoscopic group was re-operated due to small bowel incarceration between the mesh and skin. One patient (4%) in the open group underwent wound debridment due to severe wound infection.

Conclusions: Laparoscopic repair of ventral hernias in OP is both safe and feasible, and can be performed with minimal morbidity. At this writing, there have been no recurrences, but long term follow up evaluation is required.

P017

THERAPEUTIC LAPAROSCOPY FOR PENETRATING AND BLUNT ABDOMINAL TRAUMA

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Background: At present, Laparoscopy is used mainly as a diagnostic tool in patients with abdominal trauma. The purpose of this study was to evaluate the role of therapeutic laparoscopy in the management of trauma patients with penetrating and blunt abdominal injuries.

Patients and Methods: All patients with abdominal trauma who were treated with laparoscopy were identified.

Results: A total of six patients were included in the study. Five patients with penetrating abdominal trauma and one patient with blunt trauma. All patients were hemodynamically stable, and all of them underwent exploratory laparoscopy. During the exploration a total of 7 intra-abdominal injuries were identified and treated. Three stomach lacerations were sutured primarily in two layers. One diaphragmatic hernia was repaired using interrupted 0- silk sutures. One jejunal perforation was repaired using a two layers 2-0 silk running suture; two liver lacerations and one spleen laceration were treated with conservative surgical tools. Mean length of stay was 3 days. The mortality and morbidity rates were Zero.

Conclusions: Laparoscopy can avoid a number of unnecessary laparotomies and can treat most of the lesions found in hemodinamically stable patients in penetrating and blunt abdominal trauma

P018

TENSION FREE OPEN INGUINAL HERNIA REPAIR USING AN INNOVATIVE SELF GRIPPING SEMI-RESORBABLE MESH

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Aims: Inguinal hernia repair according to Lichtenstein technique has become the most frequently tension free procedure performed by general surgeons.
This technique is easy to learn, easy to perform under local anaesthesia and demonstrate a low rate of recurrence.
The most commonly used material in this technique is polypropylene, although published results on multifilament polyester meshes demonstrated safe and efficient results. Heavy weight Polypropylene meshes have been reported to stimulate inflammatory reaction responsible for mesh shrinkage when scar tissue evoluated. Additionally, some concerns remain regarding the relationship between chronic pain and mesh fixation technique.
In order to reduce those drawbacks some authors have recommended the use of low-weight meshes and to limit the extent of fixation or to use non compressive absorbable devices.
In order to reduce those complications and to combine both approaches, we have developed a new mesh for anterior tension free inguinal hernia repair which exhibits self-gripping resorbable properties.

Methods: This new mesh (Manufactured by SOFRADIM France) is made of low-weight isoelastic large pores knitted fabric which incorporated resorbable micro hooks. The resorbable PLA based micro-hooks provides the self gripping properties to the mesh during the first months post-implantation. The fixation of the mesh onto the muscle and surrounding tissues is significantly facilitated. The mesh can be secured around the spermatic cord with a self gripping flap that can be easily repositioned. After complete tissular ingrowth and complete resorption of the polylactic acid hooks, the low-weight ($40g/m^2$) polypropylene mesh insures the long term wall reinforcement. By such a way, an improved comfort for the patient is expected.

Conclusions: This unique concept of low density self gripping mesh should allows an efficient treatment of inguinal hernia treatment via Lichtenstein technique and should reduce postoperative complications by creating less fibrosis reaction.

P019

USE OF PORCINE SMALL INTESTINAL SUBMUCOSA AS A PROSTHETIC MATERIAL FOR LAPAROSCOPIC HERNIA REPAIR IN INFECTED AND POTENTIALLY CONTAMINATED FIELDS: 5 YEARS FOLLOW-UP

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Introduction: The treatment of hernias remains controversial, several prosthetic meshes with variety in their characteristic, such as strength, biodegradability, susceptibility to infection and resistance to adhesion are available over 40 years. Still some problems with their use are reported such as postoperative pain, long-term discomfort, intestinal obstruction, fistulization and infections and not to mention that in the event of incarcerated/strangulated hernias and other potentially contaminated fields, placement of prosthetic material remains controversial because of increased risk of infection. The porcine small intestinal submucosa mesh, (Surgisis, Cook Bloomington, IN) has been demonstrated a safety and feasibility in laparoscopic hernia repairs in this scenario. We present our 5-year experience, with placement of Surgisis mesh in potentially or grossly contaminated fields.
Methods: From May 2000 - May 2005, 81 patients (30 male, 51 female) and a total of 90 procedures were performed. Patients underwent placement of Surgisis mesh for either incisional, umbilical, inguinal, femoral or paraestomal hernia repairs in an infected or potentially contaminated setting, and were studied in a prospective nonrandomized fashion.
Once the hernia was identified and reduce, its borders were cleared of any adhesion so as to allow the placement of mesh over the defect with at least a 3cm margin in all direction. Results: All procedures were performed laparoscopically with different techniques (IPOM and two layered 'Sandwich' technique). 14 in an infected field and 74 in a potentially contaminated field. Thirty two were done concurrently with a biliary procedure, 12 with colon surgery and 7 with appendectomy. 16 presented as intestinal obstruction, 11 were strangulated hernias and 11 required small bowel resection. 17 were inguinal hernias, 39 incisional, 25 umbilical. In 15 patient more than 2 different hernias was repair. In five years follow-up we identify 3 recurrences, 7 seromas that eventually resolved and 8 patients report mild pain. 4 second looks were performed and in all cases was observed that the mesh was totally integrated to the tissue with strong scar tissue corroborated macro and microscopically.
Conclusion: In our experience the use of small intestine submucosa mesh in contaminated or potentially contaminated fields is a safe and feasible alternative to hernia repair with minimal recurrence rate and satisfactory results in long term follow up.

P020

LAPAROSCOPIC VENTRAL HERNIA REPAIR -WHAT MAKES THE OUTCOME BETTER?

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Objectives: Laparoscopic ventral hernia repair has been reported to have a better outcome compared to open mesh repair. However, the factors which make the outcome better have not been well investigated. The aim of this study was to clarify those factors.
Methods and Procedures: Between April 2002 and August 2005, 20 patients with ventral hernia underwent laparoscopic repair in our hospital. The patients consisted of 5 men and 15 women with a mean age of 69.7years. There were 17 midline hernias and 3 right lower quadrant hernias. Ultrasonography was performed on all patients to map the adhesion area. After the gneral anesthesia was induced, the initial port was inserted at the left upper abdomen with minilaparotomy followed by the additional insertion of two trocars at the left lateral abdomen. The size of the hernia defect was measured extracorporealy before the adhesiolysis and re-measured laparoscopicaly after the adhesiolysis. Composix E/X meshTM was fashioned so that the defect was overlapped in all dimensions by 3–5 cm. The mesh was fixed intracorporealy on the anterior abdominal wall by O nonabsorbable suture materials and tucks. The outcome of the operation was evaluated.
Results: There was no intraoperative complication and no conversion to an open repair. There was no mortality. Mean operation time and the length of hospital stay was 127 min and 7.5 days, respectively. The size of hernia defect measured laparoscopicaly after the adhesiolysis was significantly larger than that measured extracorporealy before the adhesiolysis (56.1 ± 9.8 cm^2 vs 20.1 ± 4.3 cm^2, $p = 0.00013$). Other hernia defects which had not been detected before adhesiolysis were found in five patients (25%) after adhesiolysis and were successfully repaired together with the extracorporealy detected hernia defects. Intestinal obstruction occurred in one patient, which was well treated with re-do laparoscopic adhesiolysis. Seroma occurred in three patients (14.3%), one of whom required continuous drainage for two days. There was no mesh infection but one port site infection. During a median follow up period of 16 months, there has been no recurrence.
Conclusion: Laparoscopc ventral hernia repair had an excellent outcome with very low morbidity. Laparoscopic view after adhesiolysis has a great advantage of detect ing and measuring the hernia defect correctly, which makes the outcome of laparoscopic ventral hernia repair better than that of open repair.

P021

LAPAROSCOPIC MESH REPAIR OF A MORGAGNI HERNIA IN ADULTHOOD: A CASE REPORT

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Morgagni hernia is a rare type of diaphragmatic hernia, which accounts for 1%–3% of them. A 47-years-old woman who had a dyspnea on effort was referred to our hospital as a diaphragmatic hernia. Chest X-ray, CT, MRI and barium enema were effective diagnostic modalies. At laparoscopy, the patient was placed in a spine, modified lithotomy position. The operator inserted the camera port above the umbilicus with 12mm incision, and insufflated CO_2 gas into the abdominal cavity at the low pressure (6mmHg). A 43cm oval shaped defect on the right side and a 11cm small defect on the left side were recognized in the anterior aspect of the diaphragm, the transverse colon and part of the omentum were herniated through the right side defect. After inserting three working ports into the abdomen, the herniated organs were replaced into the abdominal cavity, and A 10.215.2cm Bard Composix Mesh was placed over the defect and fixed to diaphragm using a hernia stapler (Davol Salute fixation System) without resecting the hernia sac. Postoperative recovery was uneventful and the patient was discharged on the sixth postoperative day.
This technique is easy, safe, curative and minimal invasive to repair Morgagni hernia, therefore should be considered as the first line approach.

P022

IMPACT OF GAS TYPE ON ABDOMINAL WALL WOUND HEALING

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Background: Especially with regard to hernia recurrence after endoscopic repair knowledge about the gas dependent effects of pneumoperitoneum on wound healing within the abdominal wall is rare.

Materials and Methods: A CO_2 or a helium pneumoperitoneum of 3 mmHg was maintained before and after laparotomy in rats, the control group received no pneumoperitoneum. Animals were killed after 5 and 10 days and the laparotomy wound was explanted: foreign body reaction, infiltration of macrophages (CD 68), expression of matrix metalloproteinases and expression of the collagen I/III ratio were analysed histologically.

Results: After 5 and 10 days percentage of CD 68 positive cells, granuloma formation and expression of MMP-8 did not differ between the groups. In contrast, both after 5 and 10 days, expression of MMP-13 and collagen I/III ratio were significantly elevated after helium pneumoperitoneum.

Conclusion: Our results suggest that helium pneumoperitoneum might alter the quality of wound healing within the abdominal wall.

P023

EXPERIMENTAL STUDY TO REDUCE PERITONEAL ADHESIONS IN LAPAROSCOPIC SURGERY OF VENTRAL HERNIA USING INTRAPERITONEAL MESH COVERED WITH FIBRIN GLUE AND HYALURONIDASE GEL

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Aims: When we need to place a biomaterial in direct contact with visceral peritoneum one of the factors to have into our mind is necessarily to know its behaviour in that location, and the perito-neal ability to cover it. This ability of mesothelialisation
Methods: Twenty pigs were included in this study and divided in two groups. Using helical staplers fasteners, performed four implants (squares 4 × 4 cms.): two of them (in a lower location) were in PTFE (Dualmesh Plus Corduroy), and two uppers in polypropylene mesh (PPL)). Group A: The implants located in the right of animals were painted with fibrin glue. Group B: Usin the same technique right implants were painted with an hyaluronidase gel. After a five weeks period, pigs were re-operated, determinating the intraperitoneal adhesions ratio and grades, mesothelialisat ion percentil of the visceral surface of prosthetic materials, and evaluating the retraction of prosthesis and later sacrificed. Samples having abdominal wall and implants were taken for histological studies.
Results: Intraperitoneal adhesions decreased both in implants painted wth fibrin glue and hyaluronidase gel in a comparative study with implants located in left side of animals (not painted). In a comparative study intergroups group B have a better results. By the other hand a material said a typical producer of intraperitoneal adhesions is almost without any adhesion in many animals, whose had an high degree percentil of mesothelialisation. Retraction of PTFE implants arose a 70% in area, meanwhile in polypropylene mesh 8–10% only.
Conclusions: Fibrin glue and hyaluronidase gel both reduce postoperative peritoneal adhesion ratio and grades, having an high degree of mesothelialised areas. By the other hand hyaluronidase gel has a great advantage: is a very cheap product. And Prosthesis used in laparoscopic treatment for ventral hernias must be bigger than abdominal wall defect. We think they must have a diameter 6–7 cms. bigger than herniary ring diameter, itll be a warranty of a successful surgical procedure.

P024

LAPAROSCOPIC INGUINAL HERNIA REPAIR ON A GENERAL SURGERY WARD: 5 YEARS EXPERIENCE

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Introduction: Potential benefits of laparoscopic hernia repair include decreased pain, equal or reduced recurrence rate in expert hands as compared with open tension free repair, the ability to visualize and repair all potential hernia sites in a single session, decreased recovery time and earlier return to work.

Methods: This study was designed to retrospectively analyze the outcome of 220 consecutive patients who underwent laparoscopic inguinal hernia repair between January 1999 and December 2003, in a medium volume university hospital as opposed to specialized hernia centers. All the operations were performed by general laparoscopic surgeons and chief residents in the last year of training.

Results: Long-term follow-up was performed by questionnaire, clinic visit or both in 182 of the 220 patients (82.7%). Median follow-up time was 27.5 months (range, 4–61 months). Two hundred and three (92.3%) hernias were bilateral. Fifty seven patients (25.9%) had recurrent hernias. The average operative time was 71 (range, 40–135) minutes. There was no conversion to an open hernia repair. There were 10 recurrences (2.3%). Minor complications (abdominal wall hematoma, epigastric vessels injury, urinary retention requiring catheterization) occurred in 17 (7.7%) patients. There were no cutaneous nerve or bowel injuries. A bladder injury occurred in one patient (0.45%). There was no mortality. Mean postoperative stay was 1.1 days (range, 1–10 days). Satisfaction with the laparoscopic repair was expressed using a scoring system of 1 to 5, with 85.2% being very content (score of 4–5), whereas 8.2% being dissatisfied (score of 1–2).

Conclusion: Our data shows that laparoscopic herniorrhaphy offers a safe and effective repair with acceptable complication and recurrence rates. Good results with the TEP technique can be achieved by general laparoscopists and not only in highly specialized hernia centers. It is especially suited for the bilateral repair and for recurrent hernias utilizing a posterior approach avoiding the anterior scarred tissue and distorted anatomy. An important advantage of laparoscopic herniorrhaphy is the ability to visualize all potential hernia defects on both sides and repairing them by mesh overlaying of the entire myopectineal orifices.

P025

BILATERAL PNEUMOTHORAX COMPLICATING LAPAROSCOIC TEP REPAIR OF INGUINAL HERNIA

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Pneumothorax, pneumo-mediastinum and subcutaneous emphysema are well known complications of Laparoscopic intraperitoneal surgery especially upper abdominal surgery, but there have been only rare instances where these complications have occurred following Laparoscopic totally extraperitoneal repair of inguinal hernias. A number of explanations have been suggested for its occurrence by various authors.
A MEDLINE search revealed eight such cases in the past with similar findings. All cases were promptly diagnosed and managed. The recovery was rapid following stoppage of insufflation of carbon dioxide and adjusting ventilation. Intercostal chest tube was inserted in only three out of these eight cases.
We present two cases, both adult males who underwent Laparoscopic TEP repair and developed bilateral pneumothorax during the course of surgery. Chest tubes were promptly inserted bilaterally in both these cases and the TEP inguinal hernia repair was completed. Both the surgeon and the anaesthesiologist must be aware of this potentially lethal complication of Laparoscopic TEP hernia repair and take prompt measures for its management.

Keywords: Pneumothorax, Inguinal Hernia, Laproscopy.

P026

SPIGELIAN HERNIA: A CASE SERIES

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Introduction: Spigelian hernias are rare defects of the anterior abdominal wall that occur through the Spigelian fascia. The incidence of Spigelian hernias is approximately 2% of all abdominal wall hernias, and many surgeons have limited or no experience with Spigelian hernias secondary to the rarity of their occurrence. We report a single surgeon's experience with Spigelian hernias over the past 9 years.

Methods: A retrospective study of patient records from February 1996 to May 2005 revealed 8 patients that had undergone repair of a Spigelian hernia.

Results: Average age was 63 years (range 44–80), and the male to female ratio was 1:1. Eight patients were found to have a Spigelian hernia. Six patients had a unilateral, primary hernia; one patient had a recurrent unilateral hernia; and one patient had bilateral recurrent hernias. Four hernia repairs were performed using an open preperitoneal approach with placement of polypropylene mesh. The bilateral recurrent Spigelian hernia repair was performed laparoscopically with placement of a 20x12 cm piece of Gore-Tex DualMesh on the intra-abdominal side of the peritoneum. The remaining three repairs were performed using a totally extraperitoneal laparoscopic appproach with placement of Gore-Tex DualMesh or polypropylene mesh in the preperitoneal space. Average length of surgery was 104.5 minutes, and there were no intra-operative complications. Post-operatively, one patient had urinary retention, but otherwise there were no additional complications. Length of stay post-operatively was less than 24 hours in seven patients and approximately 48 hours for one patient that also underwent abdominoplasty at the same time as the Spigelian hernia repair.

Conclusion: Spigelian hernias are rare abdominal wall defects that a surgeon may never see in his/her career. However, if a surgeon encounters such a defect, he/she must be able to recognize and treat the hernia using any one of the multiple techniques described for repair.

P027

LAPAROSCOPIC TRANSABDOMINAL PREPERITONEAL (TAPP) REPAIR OF INGUINAL HERNIA: OUR INITIAL EXPERIENCE IN SMALLER HOSPITALS

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Introduction: Open hernia repair is still considered the Gold Standard in most hospitals because of safety and low cost. Many larger teaching hospitals across the world are performing more and more laparoscopic hernia repair. The benefit of laparoscopic procedure has been questioned by many authors, particularly the safety in the smaller hospitals. We present the results of our first 87 cases of Laparoscopic Transabdominal preperitoneal (TAPP) mesh repair of inguinal hernia.

Materials & Method: Between April 2004 and December 2005, 87 patients had Laparoscopic (TAPP) repair of inguinal hernia. 31 patients had the procedure carried out in Louth County Hospital, Dundalk, Republic of Ireland and 46 patients had it done in Lagan Valley Hospital, Belfast, Northern Ireland by the same Surgeon. All patients were analysed retrospectively. The authors are analysing the operating time, local & systemic complications and hospital stay of the patients.

Result: The average operating time was 51 minutes (range 36 - 103 minutes). 5 patients had local complications (3 groin haematoma and 2 seroma). 3 patients had systemic complication (2 pneumonia and 1 UTI). The average hospital stay was 1.3 days (range 1 - 5 days). There was 1 recurrence in the short term follow-up.

Conclusion: The authors believe Laparoscopic Transabdominal Preperitoneal (TAPP) is a safe procedure with acceptable complications and short term recurrence even in the smaller hospitals in Ireland.

P028

LAPAROSCOPIC VENTRAL HERNIA REPAIR-THE EARLY EXPERIENCE

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This is an audit of all laparoscopic incisional and ventral hernia's done at a major tertiary hospital in the UK.
An audit of all laparoscopic repairs has been done. The technique has been standardised using a peritoneal prolene mesh secured with intra abdominal tacks.
There have been over 50 laparoscopic repairs done thus far.We have assessed conversion rate, complications, recurrence and length of hospital stay.
Our figures conclude there is a learning curve assiciated with the procedure with most complications occuring in the first 20 repairs. Our figures also show that this is a safe and reliable alternative to open surgery for this potentially difficult problem.

P029

LAPAROSCOPIC PERCUTANEOUS REPAIR OF INCISIONAL HERNIA: INDICATIONS, TECHNIQUE AND RESULTS

NO SHOW

P030

LAPAROSCOPIC CHOLECYSTECTOMY AND APPENDECTOMY USING SUPRAPUBIC PORTS

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Background: Laparoscopic procedures as cholecystectomy and appendectomy have been improved last several years. The goal is to improve the cosmetic result and recovery time modifying the operation technique, reducing the number and size of trocars, or moving two trocars in the suprapubic region. Our experience in performing cholecystectomy and appendectomy using three trocars and moving two ports below the pubic hairline is described.

Methods: Between January 2002 and Mach 2006, 83 patients underwent cosmetic laparoscopic cholecystectomy and 68 underwent laparoscopic appendectomy with two suprapubic trocars.

Results: The median operating time for cholecystectomy was 38.39.9 min and appendectomy 36,38,3 min. The hospital staying were 2.20.6 days. None of the patients required additional trocars in the usual positions or conversion to open procedure. There were no intraoperative or postoperative complications during and after cholecystectomy. It was one postoperative ileus in patient operated of perforated gangrenous apendicitis. All patients reported satisfaction with their postoperative cosmetic results.

Conclusion: Laparoscopic cholecystectomy and appendectomy with two suprapubic trocar is a safe procedure with good cosmetic results. However use of cosmetic cholecystectomy should be based on careful evaluation in each individual case.

P031

'LOW-BUDGET' LAPAROSCOPIC APPENDICECTOMY ON 1000 PATIENTS

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Aim: Recent budgetary limitations, compounded by the escalating costs of laparoscopic consumables have catapulted the evolution of surgical techniques towards optimal cost-effectiveness. Laparoscopic appendicectomy (LA), being the commonest emergency laparoscopic operation, is the case in point.

Methods: Starting from the turn of the century, we have standardized our LA technique for our on-call residents. There are several modifications that are aimed at reducing costs
1. The technique is ergonomically favourable so much so that it can be readily mastered by our residents. Under visual guidance with the videoscope in the primary umbilical port, two 5-mm reusable cannulas are introduced on either side of the pubis. The videoscope is then switched to the left suprapubic port, whereby better visualization of the under surface of the caecum is provided and two-hand technique allowed.
2. Only robust 5-mm reusable instruments are used. They can be used over 500 times.
3. The appendix is skeletonized with cautery by sweeping movements of an endodissector close to the appendix wall. In most cases, the naked appendix could be retrieved through the 10-mm port without the use of an endobag.
4. Should an endobag be required, a home-made one is used.
5. Suture loops are made from an ordinary suture using the reusable metal knot-pusher (Cushieri). We have developed a simple and expedient technique for tying a slipknot aided by a haemostat (Figure).
6. Gauze swabs are used liberally.

Results: Of the 1000 LA performed by our residents, 8.4% required conversion to open operation. Operative time was on average 57.6 minutes. The complication rate was 6.6%, with intraabdominal abscess occurring in 1.1% of cases and port-site infection in 14%. The mean postoperative hospital stay was 4.2 days. Cost-analysis revealed that the only consumable used is a suture thread.

Conclusion: We have reaffirmed and validated the cost-effectiveness of our 'low-budget' LA on a large number of patients.

P032

THE USE OF AUTOLOGOUS FIBRIN SEALANT (VIVOSTAT) FOR MESH FIXATION IN LAPAROSCOPIC TRANSABDOMINAL PREPERITONEAL HERNIA REPAIR

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Aim: The use of human- or animal derived fibrin glue was described as an alternative method of mesh fixation instead of staples. However, fibrin sealants have a potential risk of virus transmission or immunological reactions to foreign proteins. This risk can be avoided by the application of autologous, patient derived fibrin.

Patients and methods: We present the first series of 10 patients undergoing laparoscopic transabdominal inguinal hernia repair using autologous fibrin. We compared the peri-and postoperative results with those of a controlgroup of 20 patients with the use of conventional fibrin (Tissucol, Baxter, Wien, Austria). Autologous fibrin (Vivostat, Vivolution A/S, Denmark) was produced of 120 ml patients blood during the hernia repair. The production time of the autologous fibrin was 20 minutes. Mesh fixation was performed with either 1 ml for unilateral hernias $< 3{,}5$ cm (2 ml in case of unilateral hernias $> 3{,}5$ cm or bilateral hernias) conventional fibrin or 46 ml autologous fibrin.

Results: The production and application of the autologous fibrin was uncomplicated. No difference in the outcome was found between the two groups. One patient in the conventional fibrin group developed a seroma. None of the patients complained of persistent pain. After a mean follow-up time of 9 months (range: 6–12 month; conventional fibrin) and 7 months (range: 6–8 month; autologous fibrin) no recurrences occurred. The costs for a kit of autologous fibrin (4–6 ml) are about 300 versus 95 for a 1 ml tissucol fibrin-kit and 162 for a 2ml-Kit.

Conclusion: Both, conventional and autologous fibrin sealant achieve an adequate mesh fixation. Although more expensive in unilateral hernias, the use of autologous fibrin may be an interesting alternative for mesh fixation in laparoendoscopic hernia repair, especially in cases of bilateral occurence.

P033

APPLICAT OF ENDOVIDEOSURGERY IN DIAGNOSTICS AND TREATMENT OF ABDOMINAL ONCOLOGY

NO SHOW

P034

INVENTARISATION STUDY ON THE RECURRENCE RATE AFTER LONG TERM FOLLOW UP OF ENDOSCOPIC REPAIR OF PRIMARY AND RECURRENT INGUINAL HERNIA

NO SHOW

P035

ENERGETIC COST AND METABOLIC RESPONSE TO INJURY IN LAPAROSCOPIC TREATMENT VS OPEN SURGERY OF ABDOMINAL EVENTRATIONS

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Introduction: Laparoscopic surgery has been considered a more aggressive procedure than the open surgery. Laparoscopic repair of abdominal wall hernias is still a controversial and nongenerelized therapeutic option. We present a prospective and randomized study that compares energy cost and metabolic response between open surgery and laparoscopic approach.

Material and Methods: A total of 20 patients with abdominal eventration. Half of them were operated upon laparoscopically and the rest with open surgery using in both cases a PTFE (GoretexR) preaponeurotic mesh. Non significantly differences about sex and age. In all the patients, 3 indirect calorimety were done. One before surgery and the others, 24 and 48h after surgery. The same was done with the blood test. A comparative study of outcomes was performed.

Results: Non significantly differences between two groups were found. A significative increase of IL-6 ($p = 0,023$) in laparoscopic group was found. A significative increase of ACTH ($p = 0,15$) in open surgery group was found. The rest of variables a non significantly differences were found.

Conclusions: Energetic cost was similar in both techniques, but metabolic response to injury seems to be least in laparoscopic approach. Laparoscopic treatment reduces operative time, and considerably shortens the hospital stay.

P036

ENERGETIC EXPENDITURE AND BIOLOGICAL RESPONSE TO SURGICAL AGRESSION IN LAPAROSCOPIC INGUINAL HERNIA REPAIR

NO SHOW

P037

A NEW SIMPLE TECHNIQUE- TWO WAY LAPAROSCOPIC ABDOMINAL LAVAGE

NO SHOW

P038

IS LAPAROSCOPY REPLACING IMAGE GUIDED BIOPSY FOR THE DIAGNOSIS OF RETROPERITONEAL LYMPHADENOPATHY?

CANCELLED

P039

LAPAROSCOPIC PLACEMENT OF TENCKHOFF CATHETERS: A SAFE TECHNIQUE FOR OPTIMAL PERITONEAL DIALYSIS ACCESS

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Peritoneal dialysis is a well-established method for managing patients with end-stage renal disease. Laparoscopy has recently been used to facilitate peritoneal dialysis catheter insertion under direct vision. Since 2004, all peritoneal dialysis (Tenckhoff) catheters have been placed laparoscopically (barring contraindications) at our Center using a technique incorporating their suturing to the anterior abdominal wall. The aim of this study was a retrospective analysis of the safety and efficacy of this procedure.
Method: between 4/2004 and 3/2006, 32 peritoneal dialysis catheters were placed laparoscopically in 30 patients (mean age 49 years, range 25–79), 6 of whom had a history of abdominal surgery. Follow-up ranged from 1 to 24 months (median 11). The same surgeon performed all procedures. Under general anesthesia, an open Hasson minilaparotomy was performed to place the initial 10/5-mm camera port through a supraumbilical incision. If intra-abdominal/pelvic adhesiolysis was required, one or two 5-mm ports were placed. The Tenckhoff catheter was inserted in the abdomen through a 10 mm mini-laparotomy involving the rectum sheath about 3 cm under the umbilicus. Finally, a laparoscopic needle was used to fix the catheter to the anterior abdominal wall.
Results: All procedures were completed laparoscopically and took 35 to 120 min (median 48). There was no surgical mortality or intraoperative complication; surgical re-exploration was never needed. One patient developed leakage at the catheter exit site, which was treated conservatively. Twenty (62.5%) catheters are still being used for dialysis. Six patients required catheter removal due to peritonitis (2), exit site infection (1), port site hernia (1), catheter blockage (1) and hemicolectomy (1). Three catheters were removed when the patients received a renal transplant and, in another 3 cases, a well functioning catheter was removed at the patient's request.
Conclusions: Laparoscopic peritoneal dialysis catheter placement is a safe and effective procedure even for patients with prior abdominal surgery. This procedure should be implemented by a surgeon so as to minimize surgical complications. In our albeit limited experience, fixing the catheter to the pelvis was never associated with catheter migration.

P040

LAPAROSCOPIC VENTRAL/INCISIONAL HERNIA REPAIR: THE FIRST 50

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Background: 14% of patients undergoing an abdominal operation will experience the development of an incisional hernia. The introduction of laparoscopic ventral hernia repair has increased the options available to surgeons and is rapidly becoming the gold standard for ventral/incisional hernia repair. Several studies have reported benefits over open surgery.
Aims: We report the outcomes for the first 50 consecutive LVHR performed at our institution by a single surgeon.
Methods: A prospective cohort study was performed between 1st June 2004 and the 1st December 2005, at King George Hospital. The exposure for inclusion into the cohort was attempted laparoscopic incisional ventral hernia repair with Gortex Dualmesh. The main outcome measures were post-operative complications (in hospital or within 30 days), operative time (from incision to closure), and length of hospital stay.
Results: The median age was 56years (38–88). The median follow up time was 12 months. The overall post-operative complication rate was 17 (34%). The commonest complication was seroma, 10 (20%) of which 1 required aspiration, then post operative ileus, 4 (8%) and persistent pain, 4 (8%). The infection rate was 1 (2%). There were 2 (4%) recurrences and 2 (4%) patients developed a port site hernia. Other minor complications included unacceptable cosmesis, 2 (4%), urinary retention, 2 (4%) and DVT 1 (2%). There were no bowel perforations or obstruction. The median operating time was 80mins (40–180mins). The median length of hospital stay was 1 day (1–7days).
Conclusion: The LVHR is a safe procedure for the new consultant with the appropriate training and should be regarded as the primary method of repair. Long term results are now available from a number of units further supporting this form of intervention.

P041

QUALITY OF LIFE AND LAPAROSCOPIC COLON-RESECTION

CANCELLED

P042

LAPAROSCOPIC LIVER RESECTION AND THE USE OF THE WATERJET-DISSECTOR - A RETROSPECTIVE ANALYSIS

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Aims/Background: This study has been carried out to scrutinize practicality, feasibility and results of laparoscopic liver resections and the use of the waterjet-dissector ('jetcutter'). The waterjet-dissector applies a high-pressure jet of fluid with a pressure of 20–50 bar and it allows to spray parenchyma apart from vascular and biliary ductal structures. In open liver resections, it has proven excellent control of parenchymal bleeding. But is it equally applicable to the laparoscopic technique?

Methods: We carried out laparoscopic liver resections in 41 patients, 14 with the jet cutter. Results were compared to results of conventional and laparoscopic hepatic resection in literature.

Results: Following the laparoscopic liver resection, patients were discharged from our hospital after 11 (3–43) days, mean operation time was 61 ($\pm$31) minutes, mean blood loss was less than 100 ml (0–500 ml, resp. 22 ml $\pm$ 106 ml), no patient needed blood transfusions. R0-resection-rate for patients with malignoma who were treated under curative intention was 86% (6/7).

Conclusions: Laparoscopic liver resection is a safe technique for both benign and malign liver tumors, delivering an adequate quality of oncological treatment for malignoma. The waterjet-dissector has proven as a suitable instrument for laparoscopic parenchymal dissection. Careful patient selection is still required, but the indications for a laparoscopic procedure have widened.

P043

LAPAROSCOPIC TREATMENT OF NONPARASITIC CYSTS OF SPLEEN

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Bening nonparasitic cysts of the spleen are a rarely encountered entity. Their frequency is about 0,5–2% of all diseases of a spleen. Literature information is published approximately 1000 cases of nonparasitic cysts of spleen. The choice of the procedures remains a subject of discussion. Splenic conservative techniques (partial splenectomy, total cystectomy, cyst fenestration) are the procedures of choice, because the spleen plays an important immunological role.
From January 2003 to December 2005, there were treated 8 patients with nonparasitic cyst of spleen. The age of patients are from 19 till 62 years. The basic symptom of the patients was a pain. The diagnosis has been verified by ultrasounds. All patient were operated using laparoscopic surgery. For all cases we performed fenestration-unroofing the cyst of spleen. After aspiration of contents of the cyst, the entire extrasplenic cystic wall was completely resected down to less than 3–5 mm dictance from the splenic parenchyma by using of a Harmonic Scalpel. The operation was finished by draining abdominal cavity.
We have not observe any specific intraoperation complications. There was no conversions. Average duration of operation made 64 minutes. A drainage deleted on 2–3 days after operation. Criterion of success of operative intervention is absence of liquid congestions in a residual cavity or a projection of a spleen.
Bening nonparasitic cysts of the spleen can be treated safely and effectively using laparoscopy with splenic preservation. Thus, laparoscopy should be considered as the treatment of choice for nonparasitic cysts of the spleen given the advantages of the minimally invasive approach.

P044

INDICATION FOR LAPAROSCOPIC COLOSTOMY

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Aim: Aim of this presentation is to show benefit of laparoscopic colostomy in specific and eclectic indications.

Method: This is retrospective analysis in cases which performed laparoscopic colostomy. We analysis benefits of this approach.

Results: Indications for this procedure in our material have been: Definite procedure in patient with inoperabile colorectal carcinoma when we could not performed by – pass procedure and ileus caused by colorectal carcinoma. We performed in last 5 years 8 laparoscopic colostomy, 5 of them in colorectal inoperabile carcinoma like definite procedure and 3 in ileus due to colorectal carcinoma like temporary colostomy.
We have analyzed every aspect and benefits with this approach.

Conclusion: We have concluded that this approach in specific indication is the best choice in these patients due to less postoperative stay, less analgesic consumption and the other benefits.

P045

THE VALUE OF LAPAROSCOPY AS A DIAGNOSTIC TOOL AND AS A STAGING PROCEDURE IN ABDOMINAL SURGERY

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Aims: Diagnostic laparoscopy has been used for more than 100 years in surgery. Despite the rapid development of imaging techniques and preoperative diagnostic tools, modern laparoscopy remains an important procedure in acute and chronic abdominal pain and in the staging of oncological patients.

Methods: In a retrospective study authors determine the role of laparoscopy in 123 patients with (I) 86 abdominal malignancies, (II) 10 chronic abdominal pain and (III) 27 abdominal emergencies.

Results: (I) 47% of the oncological staging laparoscopy was perfomed because of liver malignancies and 22% because of gastric cancer. In 19 patients with gastric cancer, irresecable situation was detected in 12 patients, while in 7 patients radical surgery could be obtained. 70% of the oncological patients with liver malignancies (28/40) had an incurable disease verified by laparoscopy; in 11 patients laparoscopy predicted the possibility of curative resection. In one patient malignant disease could not be verified even by laparotomy. By 4 of the 11 potentially resectable patients resection could not be performed. (II) 3 malignancies and 7 diseases of other origin were diagnosed in the patients with chronic abdominal pain. (III) In the group of critically ill patients surgical disease was found in 50% of these cases and immediate laparotomy was performed. In 8 cases mesenteric ischemia were verified, 3 of these with an incurable situation.

Conclusions: The use of diagnostic laparoscopy still has an important role in the evaulation of surgical-oncological patients. By oncological staging in some cases laparoscopy is the only diagnostic procedure to confirm carcinosis, cirrhosis or propagation to other organs. Laparoscopy can help many oncological patients to avoid unnecessary laparotomy. In case of obscure abdominal emergency of critically ill patients laparoscopy might be guarantee for the lack of surgical disease.

P046

LAPAROSCOPIC HERNIA REPAIR AFTER TRANSVERSE RECTUS ABDOMINIS MYOCUTANEUS FLAP RECONSTRUCTION (TRAM)

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Aims: The development of TRAM procedure has provided the plastic surgeons an attractive means to reconstruct the breast mound. However TRAM is also associated with certain complication including incisional hernia at the donor site. The aim of the study was to assess the value of IPOM laparoscopic repair in treatment of those hernias.

Methods: 3 patients underwent unilateral breast reconstruction using TRAM flap were treated in 2005 according to incisional hernia. All hernias occurring at the site of excised rectus muscle (medium surface 315 cm^2). IPOM mesh repair war used for the repair: Proceed mesh (Ethicon Inc.), 4 to 6 transabdominal nonabsorbable sutures and spiral tacks were used to cover the hernia orifice. Primary outcome of 6 month follow-up was: recurrence, acute and chronic pain and satisfaction of the patient.

Results: No complications were noted. Postoperative hospital stay was max. 3 days. Time of return to normal physical activity was 3, 4 and 7 weeks. One patient reported pain till 6 weeks after the procedure at the site of transabdominal suture. All patients were satisfied with the abdominal shape. No recurrences in 6 month were observed.

Conclusion: IPOM laparoscopic incisional hernia repair is a valuable method of abdominal wall reconstruction in the case of hernia following TRAM flap procedure.

P047

ONE HUNDRED FIFTY FOUR LAPAROSCOPIC REPAIRS OF UMBILICAL HERNIA

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Introduction: Currently there is no consensus on the optimal repair for umbilical hernia in adults. We analyzed our experience with 154 consecutive laparoscopic repairs of primary (n = 136) and recurrent (n = 18) umbilical hernia.

Aims: In all patients, a DualMesh® (WL Gore) prosthesis overlapping all hernia margins by = 3 cm was fixed with either tacks (ProTack®, TycoUSS) alone (n = 34) or tacks and sutures (n = 120).

Results: There were no conversions to open surgery and no intraoperative complications. Mean operating time was 54 ± 21 min. The only frequent postoperative complication was prolonged seroma (n = 10;6.5%) that always resolved spontaneously but often required a few months for complete resolution. Two patients had pneumonia and one patient prolonged ileus. There were no wound/mesh infections. Hospital stay averaged 1.5 ± 1 days. Three patients (2%), all with recurrent hernias and mesh fixation with tacks and sutures, had a chronic (>6 months) postoperative pain resistant to conservative therapy. These patients underwent relaparoscopy and removal of sutures at all apparent pain sites which relieved symptoms in 2 patients. No recurrences have been observed during a mean follow-up of 22 ± 13 months.

Conclusions: In this large series of umbilical hernias, laparoscopic repair had no conversions to open surgery or intraoperative complications, a minimal postoperative complication rate, a short hospital stay, and was devoid of recurrences. Laparoscopic repair seems to be the procedure of choice for repair of umbilical hernia in adults.

P048

BLEEDING FROM THE TACKS' SITES IN LAPAROSCOPIC VENTRAL HERNIA REPAIR (IPOM)

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Aim: The intraperitoneal onlay mesh procedure in ventral hernia repair is growingly popular worldwide. Although there are some publications on this technique, neither the type of fixation (sutures and tacks or tacks itself) nor the best types of tacks for the best mesh fixation has been indicated. Bleeding according to the lesion of vasels has been reported as one of the most common cause of convertion to the open procedure.

Material and methods: In 2005 there were 12 IPOM procedures performed in our department with Anchor ® (Ethicon Inc., USA) tacks usage, out of total number of 27. Primary outcome of the study was to analyse the cases of bleeding in the early postoperative period. Also retrospective analysis of DVD records has been searched in order to find a potential bleeding site.

Results: In three cases bleeding into abdominal cavity in postoperative period has been observed, all of them in case of Anchor takcs usage. In two cases bleeding was not severe. In one, 8 hours after the operation the decrease of the blood pressure, hematocrit and hemoglobin value of more than 30% was observed. In the ultrasound examination the presence of blood was found in the abdominal cavity. All patients were cured with the intensive fluid infusion and iron supplementation afterwards. There was no need neither for blood transfusion nor reoperation. Patients were dismissed from the department after three days of observation. There were no further complications in a 10 month follow up period. In more than 30 percent of records small bleeding from the Anchor fixation place has been revealed.

Conclusions: In authors opinion in case of application of the Anchor tacks special attention should be paid to a potential bleeding.

P049

SUPRAVESICAL HERNIA REVISITED

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Introduction: Supravesical hernia is a rarely reported type of abdominal wall hernia that is more commonly observed with the advent of laparoscopic surgery. We present a case series of groin hernia cases that were identified as having supravesical component on laparoscopy and were treated successfully with transabdominal preperitoneal repair (TAPP) repair.

Case reports: During the study period 2004–2005, five patients were identified to have supravesical hernia. The age range of these five patients was 30 55 years. One patient had recurrent inguinal hernia. All of them were operated upon through laparoscopic approach to repair clinically identified inguinal hernia. In addition to inguinal hernia in all of them, two of the patients were identified to have external supravesical hernia while the remaining three patients had internal supravesical (paravesical) hernial component. The peritoneum was dissected off beyond the midline and mesh was secured so as to cover supravesical, direct and/indirect defects in all the patients. All patients had uncomplicated recovery with good results in the median follow up period of 11 months.
(Pictures will be presented)

Discussion: Less than 100 cases have been reported in literature since the identification of supravesical hernia by Astley Cooper in 1804. Supravesical fossa is bounded by median and medial umbilical ligaments superiorly and peritoneal reflection over the urinary bladder inferiorly. A hernia starting in the supravesical fossa can progress either through anterior abdominal wall (external) or into the spaces around the bladder (internal, rarer variety as in our series). Bowel strangulation due to internal supravesical hernia has been reported. CT scan might be helpful in preoperative diagnosis.
It is vital to identify this rare type of hernia even in unobstructed patients as the mesh has to be fixed covering the defect, usually up to or beyond midline. Failure to treat the supravesical component may lead to persistence or recurrence of groin hernia.

P050

LAPAROSCOPIC VENTRAL HERNIA REPAIR IS SAFE AND EFFECTIVE

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Aims: Ventral abdominal hernias represent a frequent and often formidable clinical challenge. The aim of this study is to present our experience with laparoscopic ventral hernia repair (LVHR) as a safe and effective technique, even in recurrent cases.

Methods and Procedures: Twenty-seven patients are included in this study, 9 males and 18 females. The mean age was 46 years. Three patients previously had failed open repairs. The first trocar was inserted under vision in all patients, usually in the left upper quadrant of the abdomen. Two more trocars were inserted under vision. The hernia was reduced then adhesiolysis was carried out using sharp dissection and ultrasonic shears. Four stitches were inserted at the edge of the mesh to help fixation. The mesh was rolled and deployed intraperitoneallly. The mesh was fixed using the stitches and metal anchors, usually 3 cm (or more) beyond the edge of the defect.

Results: All but two cases were completed laparoscopically. Conversions were due difficulty in adhesiolysis. One of the two cases had a prior open repair. Mean overall operative time was 156 minutes. The mean hospital stay was 3.5 days. Five patients had minor postoperative complications that responded to conservative treatment. These included three wound infections, one deep venous thrombosis and one pulmonary complication. There was no mortality and no recurrence in these cases. The mean follow up time is 11 months.

Conclusion: LVHR is associated with low morbidity rate. It is feasible even in recurrent cases. Patients enjoy the benefits of minimally invasive surgery.

P051

SYMPTOMATIC RECURRENCE FOLLOWING LAPAROSCOPIC REPAIR OF INGUINAL HERNIA AND THE ROLE OF FURTHER LAPAROSCOPIC REPAIR A CASE SERIES

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Introduction: TAPP (Transabdominal Pre Peritoneal) repair of inguinal hernia has gained popularity in recent years due to less post operative & chronic pain and earlier return to normal activities, especially in bilateral and recurrent hernias. We present a case series of Laparoscopic repair of inguinal hernias which recurred after previous TAPP, followed by a review of literature considering measures for prevention of recurrence and appropriateness of repair of recurrence by laparoscopic method.

Case report: Three patients are included in the series with an age range of 27 - 43. All of them had previous TAPP repair and presented with clinically recurrent and symptomatic inguinal hernia. Laparoscopic exploration showed that the previously placed Prolene mesh has migrated either superiorly/ supero-laterally causing medial recurrence. A Prolene mesh of size 10×15 cm was fixed in place followed by reperitonisation. All of them had uneventful postoperative recovery. There is no recurrence in the follow up period with a median of 11 months.

Review of literature: Factors leading to recurrence following TAPP repair include surgeon inexperience, inadequate dissection, insufficient prosthesis size, insufficient prosthesis overlap of hernia defects, improper fixation, prosthesis folding or twisting, missed hernias, mesh lifting secondary to haematoma formation or inadequate lateral inferior and medial inferior mesh fixation (Lowham et al 1997). To avoid hernia recurrence after transperitoneal hernia repair operations a sufficiently large mesh (at least 15×10 cm) has to be implanted (Leibl et al 2000). The prosthetic mesh must be placed so that it reaches or crosses the midline and fixed securely ('bikini repair') (Deans et al 1995).
The endoscopic reoperation for recurrence can be done in a transperitoneal way and is effective with comparably low complication rates. The procedure is significantly easier for a medial recurrence compared with a lateral recurrence. This method of reoperation should be reserved for endoscopically experienced surgeons (Lowham et al 1997). The TAPP approach has been proven to be a reliable technique for recurrent inguinal hernia repair after previous endoscopic herniorrhaphy (Knook et al 1999).

P052

LAPAROSCOPIC HERNIA REPAIR (TAPP) OF AN INCARCERATED SPIEGHELIAN HERNIA: CASE REPORT

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Spieghelian hernia (Hernia linea semilunaris) presents a rare case of abdominal wall herniation. Little data about this type of hernia is available in literature and only a few cases are published using different operation methods. To our knowledge this is the first presentation of case of a Spieghelian herniotomy using the transabdominal preperitoneal patch technique (TAPP) with a partially absorbable lightweight mesh.
We report the case of a 66-year-old male patient with clinical and sonographic diagnosed left sided, incarcerated, abdominal wall hernia (Spieghelian Hernia). The hernia repair was performed in TAPP technique using a partially absorbable lightweight mesh (Ultrapro, Ethicon). The operation was performed as described for groin hernia repair in TAPP technique. The mesh was fixed with titanium clips and the peritoneal wall was closed using an absorbable suture.
The patient left the hospital on the fourth postoperative day in good general condition without pain. Two weeks after surgery he returned to every day activities. After a follow-up period of six month he is still doing fine with no signs of recurrence.
Spieghelian herniotomy using the transabdominal preperitoneal patch technique (TAPP) presents a safe operation method resulting in good clinical and cosmetic outcome with little postoperative pain and high patient satisfaction.

P053

LAPAROSCOPIC TRANSABDOMINAL PRE-PERITONEAL (TAPP) INGUINAL HERNIA REPAIR - OUTCOME AND COST BENEFIT ANALYSIS

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Aim: Laparoscopic trans-abdominal preperitoneal (TAPP) inguinal hernia repair was criticised by the National Institute for Clinical Excellence (NICE), UK. This study is an evaluation of outcome and cost benefit analysis of TAPP repair.

Methods: 100 consecutive patients undergoing laparoscopic TAPP inguinal hernia repair were studied retrospectively. Data were collected with regard to operative time, in-patient stay, complications and resumption of normal activity by review of case notes and telephone/ postal questionnaire. Operating costs for open and laparoscopic procedures were calculated for comparison.

Results: The mean age was 56 (range 21–88) years and ninety-five (95%) patients were male. The mean follow-up period was 29.1 months. Three patients were lost for follow up. Of the 97 patients studied 68 (70%) were day cases, 13 (13%) had bilateral hernias and 5 (5%) had recurrent hernias. Mean operating time was 64 and 78 minutes for unilateral and bilateral hernia repair respectively. 21 (21%) patients developed post-operative seromas; two (2%) developed port-site hernias and one (1%) developed a recurrence of his groin hernia. 50% of patients resumed work within 2 weeks. Laparoscopic TAPP repair was 179.90 more expensive compared with open hernia repair.

Conclusion: Laparoscopic trans-abdominal preperitoneal (TAPP) inguinal hernia repair of is safe and associated with excellent results. The slight increase in cost for laparoscopic repair is justified by the high day case rate and early return to work.

P054

LAPAROSCOPY-ASSISTED TOTAL GASTRECTOMY FOR GASTRIC CANCER COMPARED WITH CONVENTIONAL OPEN TOTAL GATRECTOMY

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The purpose of this study was to compare retrospectively the clinical outcomes and postoperative parameter between laparoscopy-assisted total gastrectomy (LATG) and open total gastrectomy (OTG) for gastric cancer in experience of single institution
This study included 51 patients from single institution during the period from January 2004 to March 2006. Nineteen patients underwent LATG and thirty patients underwent OTG. LATG was performed in fourteen patients with advanced gastric cancer. The patients demographic data, surgical procedures and outcomes, postoperative course were studied.
Surgical procedure included 5 tocar with upper vertical midline incision. Pursestring suture device was attached to abdominal esophagus via mini-laparotomy site under direct vision. Reconstruction was done by esophagojuejunostomy with Fernando pouch formation through the mini-laparotomy site in all cases. In most case, jeujunojejunostomy was performed extracorporeally before than an end-to-side esophagojejunostomy that was performed under direct vision.
Mean number of retrieved lymph node was 29.10 in LATG group and 38.45 in OTG group. Length of hospital stay was 16.42 days in LATG group and 16.09 days in OTG group. Mean operation time was 527.9 minutes in LATG group and 321.12 minutes in OTG group. Two postoperative complication occurred after LATG.
In this retrospective study in single institution of LATG for gastric cancer, LATG could be considered the same as OTG in safety, curability and postoperative course. We think laparoscopic approach for early and advanced gastric cancer is valuable in comparison with conventional open surgery.

P055

THE LAPAROSCOPIC TREATMENT OF COMPLICATED ACUTE APPENDICITIS: AN ADVANCED CHALLENGING PROCEDURE?

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The aim of this work is to show how many difficulties the surgeon could face in trying to treat laparoscopically a complicated acute appendicitis, when a diffuse faecal peritonitis or a localized abscess, frequently with strong pericolic adhesions, occur. Beyond the well-known advantages of the laparoscopic procedure, we believe the magnification of the imaging and the wide control of the abdominal field as the real benefits of the endoscopic approach. Particularly the Surgeon can wash and clean the peritoneal cavity in case of diffuse peritonitis, searching for hidden abscess. The drainages could be put in perfect fashion. Otherwise, in case of strong pericolic adhesions, due to an inveterate abscess, the magnification of the field can help in a precise dissection avoiding a tear in the bowel or a tedious bleeding. In our experience all the patients were operated laparoscopically form the beginning. The main reasons for a conversion were the obesity with difficulties in orientation and the strong adhesions with obscured anatomy. Continuos bleediong during dissection is another possible reason. Considering the personal experience of each surgeon in performing laparoscopic advanced procedure (colectomy, adrenalectomy, gastric resection, emergency cholecistectomy, and so on), we found an indirect correlation between the experience and the number of conversions. We believe the laparoscopic approach of an acute complicated appendicits feasible and convenient, but requires skilfull surgeons to avoid bleeding and bowel injuries.

P056

ENDOSCOPIC PREPERITONEAL INGUINAL HERNIA REPAIR USING AN ANATOMICAL SHAPED MESH

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Introduction: Endoscopic preperitoneal inguinal hernia repair is a widely accepted option for the treatment of primary and recurrent inguinal and femoral hernias. We report on our experiences with an anatomical preshaped polyester mesh.

Methods and patients: The preperitoneal space is created by blunt dissection using three standard trocars. The hernia sac is reduced and the anatomical mesh is placed, covering the medial, lateral and femoral region. From 1/2005 to 5/2006, preperitoneal Endoscopic hernia repair was performed in 187 patients (167 male, 20 female, aged 5729[38–82] years) with primary (n = 178) and recurrent (n = 33) inguinal (n = 195) and femoral (n = 16) hernias. In all patients, a specially designed, anatomically preshaped two-component polyester-mesh (TECT 1510A, Sofradim, France) was used.

Results: Procedure time was 4527[18–72min.]. Perioperative complications occurred in 3% of the patients, postoperative complications rate was 3,5%, respectively. No transfusions were necessary, 5 revision procedures had to be performed for hematomas and 1 for infection. Postoperative stay was 21.8[1–7] days. No hernia recurrence or nerve irritation syndrome occurred in the postoperative period up until now.

Discussion: Endoscopic preperitoneal inguinal hernia repair with an anatomical preshaped polyester mesh is feasible, safe, economic and comfortable for the patients and the surgeons. The optimal position of the mesh allows for low recurrence rates.

P057

LAPAROSCOPIC VENTRAL HERNIA REPAIR

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Background: Postoperative ventral hernia is a common problem (2–11% after abdominal surgery); recurrence after traditional repair is high even using a mesh (25%). Laparoscopy has been recently suggested in ventral hernia repair as a safe and feasible method with shorter postoperative hospital stay, lower complication and recurrence risk.

Methods: From 2002 116 patients with mean age of 60.6 (29 81; 61 Male: 55 Female) underwent laparoscopic ventral hernia repair. Laparoscopic repair was performed using three to four ports laterally to the fascial defect Intraperitoneal onlay mesh technique was used with transfascial stapler fixation of the mesh.

Results: The mean ventral defect dimension were 112.7 (28.2 471) cm^2. Mean BMI was 31.3 (22–41) In 19 cases (16.7%) it was a recurrent ventral hernia. The majority of the defect were in the midline position (88.6%). Conversion rate was 2.6% (3 pts), Mean operative time was 78 min (40–210). The mean mesh dimension was 282.8 (78.5–647.6) cm^2. Intraoperative bowel injury were 3 (2.6%). Morbidity rate was 8.6%. Mean postoperative hospital stay was 3 days. Recurrence rate is 2.6% (3 pts; mean follow-up 20 months).

Conclusions: Laparoscopic ventral hernia repair is feasible and safe with a shorter hospital stay.

P058

LAPAROSCOPIC PLACEMENT OF PERITONEAL DIALYSIS CATHETER -TECHNIQUE AND RESULTS OF A NOVEL METHOD

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Introduction: Laparoscopy offers minimal invasive access and enhanced diagnostic features during peritoneal dialysis catheter-placement. We report on our novel technique using a special pull-through tool.

Methods and patients: After open access to the peritoneum, the anterior rectus sheath is perforated and the tunnel intrument is positioned along the posterior rectus sheat, which is then perforated at the semilunate line. After exteriorisation of the tunnel-tool through a suprapubic trocar, the catheter is connected to the tool, which pulls the catheter now under laparoscopic control through the rectus sheath into the left upper quadrant. Finally, the catheter end is postioned into the Douglas cavity.

Oreopoulos- and Tenckhoff catheters were placed in 136 patients (85 male, 51 female, aged 4521[28–63] years, BMI 28,55,1[22,2–35,1]Kg/m^2) using the novel technique.

Results: Procedure time was 3512[18–52min.]. In 26 patients, 29 additional procedures were performed for pathologies discovered during laparoscopy. Perioperative complications occurred in 2% of the patients, postoperative complications rate was 3,5%, respectively. After a cumulative usage time of 2210 months, 10 catheters had to be removed for complications (mainly exit site infections) and 22 catheters were removed after kidney transplantation.

Discussion: Laparoscopic peritoneal dialysis catheter-placement is feasible, quick, safe, economic and effective and offers excellent long term catheter results.

P059

LAPAROSCOPIC COLON SURGERY: A SINGLE CENTER EXPERIANCE

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The laparoscopic colon resections are now accepted for the treatment of benign diseases as well as for malignant diseases. We performed the first laparoscopic colon resection on December 12th 2002. Since then we performed 94 operations, for benign and malignant diseases. Different procedures, like sigmoidectomy, right and left hemicolectomy, anterior resections, subtotal colectomies, Hartman procedures (and reconstructions) and colostomies were performed. During same period we have 16 conversions. The main reason for conversion was locally advanced malignant disease or bulky tumors with infiltration of surrounding organs. We have four major complications minor dehiscence, small bowel injury, urinoma after left urether lesion and left urether transection reconstructed during the same procedure. The cost of laparoscopic colon resection is comparable with open colon surgery. Considering our short experience and literature data, we can conclude that laparoscopic colon resection is comparable with open colon resection, including malignant disease treatment.

P060

NEW LAPAROSCOPIC METHOD OF INCISIONAL HERNIA REPAIR BY TECHNIQUE 'SUBLAY' USING POLYPROPYLENE MESH

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Background: Traditional approaches to incisional hernias - particularly in cases with large fascial defects are plagued by a significant reccurence rate as well as frequent wound infections. Failures in the treatment of the big incisional hernia stimulate in search of the new operative techniques and new plastic materials.
The aim of study was to evaluate the efficacy and safety of laparoscopic repair of incisional hernia by technique 'sublay' using polypropylene meshes.
Method: During last two years, 10 patients with big incisional hernias were operated by laparoscopic method using polypropylene meshes by technique 'sublay'. There were 8 females and 2 males, ages ranged from 42 to 60 years (median 48,2 years). Four of them had severly obese with BMI >35 kg/m^2. 8 cases were primary hernias and 2 were recurrences. Trocars were inputed in abdomen cavity around of the hernias gate for better visualisation from different sides. After separating of unities and freeing of the abdomen wall, all hernias bags and places of new hernia formation were good visible. The next operation step consisted in maximal elimination of hernias bag by coagulation and scissors. Then we cut peritoneum and rectus abdomonis sheath, separated posterior leaf from rectus muscles. Polypropylene mesh were used and positioned by technique 'sublay', so that least 5 sm overlaps the defect in all directions and fixed be 'endoclose'-needle. We took nonabsorbent ligature at the centre and lateral margins of the mesh simultaneously grasping anterior leaf of rectus sheath, polypropylene mesh and posterior leaf of rectus sheath. Area of the mesh always was twice or more bigger than gate area.
Results: Early postoperative complications were seromas in three patients. Postoperative hospital stay ranged from 2 to 10 days. There were not recurrences after our laparoscopic repair method of hernias by technique 'sublay' during 1–40 months follow-up period. This method allowed separate polypropylene mesh from organs of abdominal cavity, what is very important.
Conclusion: Our new laparoscopic repair of incisional hernias by technique 'sublay' demonstrates the safety and feasibility of this method. It is an effective, easy and reproducible procedure with minimal discomfort and significantly economy effect.

P061

ROLE OF LAPAROSCOPY FOR THE MANAGEMENT OF CAPD CATHETER PROBLEMS

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Introduction: Continous Ambulatory Peritonal Dialysis (CAPD) as an outpatient procedure is gaining importance as an alternative option in end stage renal disease. Different catheter models can be used for access to the peritoneal cavity (e.g. Tenckhoff, Oreopoulos Zellermann catheter), which are usually implanted by open surgery. Previous abdominal operations may be a contraindication, but even after successful catheter placement problems with solution inflow or outflow may arise. Furthermore some patients develop abdominal wall bulges in hernia typical, but also atypical sites after starting with CAPD. Laparoscopy may be helpful in all these cases.

Patients and methods: We usually use the Oreopoulos-Zellermann catheter which is implanted by open surgery via a transrectal incision. During the last five years additional laparoscopy was performed, if troublesome adhesions were to be expected. All interfering adhesions are dissected by scissors and/or coagulation in order to enable a correct catheter positioning. Laparoscopy was also used in patients with postoperative catheter malposition or malfunction. The catheter is liberated from adhesions, rinsed, or resited and fixed in correct position. In atypical abdominal bulges laparoscopy helps in localising the peritoneal defect.

Results: From 2000 to 2005 170 patients with end-stage renal disease had to undergo a catheter implantation for the first time. In 5 patients the operation was performed with laparoscopic assistance; three patients needed an extensive peritoneal adhesiolysis to enable correct catheter placement, in two more patients with postoperative outflow obstruction the catheter could be freed from adhering intestinal loops in one and sutured to the region of the cul de sac in the other. All these catheters showed proper postoperative function. In 2 patients with abdominal wall bulges untypical for a hernia the tiny peritoneal defects were precisely localised and repaired by an open procedure. CAPD was continued in both shortly later.

Conclusion: In selected patients, laparoscopy can be very helpful in achieving correct CAPD catheter placement, but also in managing mechanical catheter problems. In the rare postoperative atypical abdominal wall bulges the peritoneal defect can be precisely localised enabling a safe repair.

P062

DOES LAPAROSCOPIC INGUINAL HERNIORRHAPHY ACHIEVE A DECREASE IN RECURRENCE AND GROIN NUMBNESS RATE

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Background: Despite the recent success of minimal access surgery, laparoscopic repair of groin herniae is a subject of debate in surgical community.
Aim: of this study was to compare postoperative groin numbness and recurrence rate of laparoscopic i.e. Trans-abdominal preperitoneal (TAPP) to open conventional repair in a district general hospital.
Methods: This is retrospective study involving 204 patients with 226 herniae repaired from May 2000 April 2004. TAPP and open repairs were carried out on similar number of patients i.e. 102 patients in each group with mean age of 55 & 57. There were bilateral inguinal herniae repaired i.e.12 and 10 patients while further 12 and 15 were recurrent (previously open repair) herniae in TAPP and open groups.
The size of the trimmed prolene mesh used was 15x10 cm while the median follow up period was 30 months, ranging from 12–48 months. Visual analogue scores and follow-up clinical examination were used for assessment. Chi square used for statistical analysis with p-value set at 0.05.
Results: There was significant difference for postoperative groin numbness (16.7%) 17 and 6.9% (7); p-value < 0.03. Recurrence rate for open and laparoscopic groups was insignificant i.e. 6.9% (7) & 2.9% (3) respectively; p-value < 0.19.
Conclusions:
1. Incidence of postoperative numbness was significantly less in laparoscopic group.
2. However, there was no significant difference for hernia recurrence rate but the trend favoured laparoscopic group, which needs further studies.

P063

ABDOMINAL WALL RECONSTRUCTION AFTER ABDOMINAL COMPARTMENT SYNDROME: ASSESSMENT OF INTRAABDOMINAL ADHESIONS BY USING CINE MRI

NO SHOW

P064

COMPLICATIONS AFTER LAPAROSCOPIC REPAIR OF LARGE HIATAL HERNIA

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Aims: The assessment of postoperative complications in case of patients treated laparoscopically with sewing branches of diaphragm or sewing on patch with funduplication in large hiatal hernias.

Methods: In Department of General, Oncological and Thoracic Surgery in Military Institute Of The Health Services, Warsaw, within the period of 2000–2005, 81patients were operated on, because of hiatal hernia. Anti-reflux surgeries, in laparoscopic method were taken. They were connected with lengthening abdominal section of oesophagus, narrowing of branches of diaphragm and funduplication.

Results: Research took 69 people into consideration: 27 women aged 17–72, and 42 menaged 23–80. Among all the 69 hernia cases, 19 were classified as very large. Hospitalization period was between 2 and 18 days. Operative procedure time fluctuated from 60 till 265 minutes. 5 times area of oesophageal hiatal was strengthened with net. During 17 surgeries, one cholecystectomy was performed and as well as plasty of ingiunal hernia inanother case.The following complications were observed:jatrogenic perforation of oesophageal-1, mid-operative cut of pleura with pneumothorax-1, temporary postoperative dysphagia-2, hernia recurrence-1.

Conclusions: It was stated as follows: statistical relationship between occurance ofhiatal hernia and gender and in various age groups, connection between hernia size and time of repair surgery, simultaneously taken two procedures;and between hernia size and postoperative complications.

P065

LAPAROSCOPIC EXTRAPERITONEAL HERNIORRAPHY WITH LOCOREGIONAL ANESTHESIA - NEW TECHNIQUE WITH ROPIVACAINE

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The goal of this study is to report teh efficiency and safety of the laparoscopic preperitoneal inguinal herniorraphy using locoregional anesthesia with ropivacaine, describing the technique. The procedure was performed in a 16 years old, male patient, with a right inguinal hernia, Nyhus type II, at the Red Cross - UnicenP Universitary Hospital, in Curitiba, Brazil. The procedure was done without technical problems and it was not observed any side effectc related to the anesthesic drug.
The pos-operating pain was mild and had adequate clinical solution. The autors concluded that the extraperitoneal laparoscopic repair of inguinal hernia is feasible under locoregional anesthesia, adding a new treatment option in the management of this desease.

P066

LAPAROSCOPIC PORT SITES DO NOT REQUIRE FASCIAL CLOSURE WHEN TROCARS (=12MM) ARE USED

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Background: Laparoscopic surgery has many advantages but it is not without complications. The complexity of the surgery significantly influences the complication rate. Hernias have been reported to occur at trocar sites and small anterior wall defect has been casually identified during and/or after laparoscopic surgery. The aims of this article are to present our cases of trocar site hernia and to describe a simple, fast, and cheap technique for the safe closure of trocar sites in laparoscopic surgery when trocars (=12mm) are used.
Patients and Methods: During 2003 to 2005, all patients underwent different laparoscopic procedures including cholecystectomy, appendectomy, herniorrhaphy; diagnostic biopsies and gastric banding were enrolled in the study. All procedures were performed by our team. Patients files were reviewed for further details required during/after operation. Duration of follow-up at least 6 months was achieved in all cases.
Results: Four hundred sixty three (463) patients were operated. Two hundred fifty nine cholecystectomy cases, 115 patients with appendectomy, 47 patients for herniorrhaphy; 39 patients underwent diagnostic biopsies and three cases of gastric banding were enrolled in the study. For all mentioned cases closure were accomplished with a # 3/0 non-absorbable (nylon) suture, applied in a simple manner using cutting needle, without fascial closure. Four cases (0.8%) with trocar site hernia were identified, all of which were in cholecystectomy cases (1 from umbilical and 3 from sub-sternal trocar).
Conclusion: Despite wide range of laparoscopic procedures advantages, post-operation complication should be taken into account. In our study a simple technique using the regular curved needle and sutures for closure of the abdominal wall skin without fascial closure is enough for proper closure of the incisions for ports, especially = 12-mm.
Key words: Laparoscopy, port site hernia and fascial closure.

P067

LAPAROSCOPIC NON-TENSION HERNIOPLASTIC OF LOWER LUMBAR HERNIA

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Background: Lumbar or Petit hernia is a rare condition, traditional open operative treatment with reparation of hernia opening and surrounding tissue is difficult, painful for patient, and with uncertain outcome.

Patient and treatment: This is an attempt to present a 51-year old female patient with painful lump in the left lumbar region suspended over the cervical ridge edge in standing position. Hernia proved to be reponible, and confirmed by ultrasound.
Laparoscopy was performed in general anesthesia, accessed the retroperitoneal area, de-prepared hernial sack, and closed the muscular defect with PTFE screen. Operative surgery was concluded with the reparation of peritoneum.
After the surgery the patient exhibited no difficulties, got out of bed on the very day of the surgery, and left the hospital two days later. Subsequent control indicated no problems.

Conclusion: Laparoscopic approach to the lumbar hernia reparation is simple, safe and very comfortable for patient.

P068

ENDOSCOPIC MANAGEMENT OF SUBCUTANEOUS VENO-VENOUS MALFORMATION IN ILEO-INGUINAL REGION FOLLOWING OPEN INGUINAL HERNIA REPAIR

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Introduction: A 40 years old male patient presented with the history of painfull swelling in the left groin for last 5 years which developed few weeks following the open inguinal hernia repair on the same side. Patient noticed sudden disappearance of swelling & pain, and development of bluish discoloration of the inner aspect of left upper thigh 2 days ago. The swelling was earlier misdiagnosed as reducible recurrent inguinal hernia elsewhere. On local examination patient had a widespread ecchymotic patch over the medial and postero-medial aspect of the left thigh extending upto the knee. A 5×4 cm tender, irregular, firm and noncompressible, nonreducible swelling was palpable in the left inguinal region with no signs of local inflammation. Patient's hematological and coagulation profile was in normal limits. Color doppler study reported a 43 mm size partially thrombosed veno-venous fistula of superficial vein in the anterior abdominal wall with a hematoma extending in to upper thigh.

Material & Methods: Endoscopic vascular disconnection of veno-venous fistula was done with one camera and 2 working ports. Postoperative period was uneventful and ecchymosis gradually disappeared in 3 weeks time.

P565

LAPAROSCOPIC MANAGEMENT OF DISTAL VENTRICULO-PERITONEAL (VP) SHUNT COMPLICATIONS

NO SHOW

P566

HOW LAPAROSCOPY BROUGHT OUT THE TRUTH BEHIND AN ABDOMINAL WALL ABSCESS:- VIDEO CASE REPORT FROM A VILLAGE IN RURAL INDIA

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We present a video of a case of what seemed like a simple abdominal wall abscess. The history of repeated episodes of pain in the abdomen prior to formation of abscess, prompted us to first do a laparoscopy. We entered the abdomen via an open technique, but through the left iliac fossa. Laparoscopy revealed that the abscess had originated from a perforated Mekel's diverticulum causing a pre-peritoneal abscess. The cause of perforation being ascariasis (roundworm). This case taught us, that the technique of using a blunt trocar along with open technique of lapaoscopy is safe and can be safely used to enter any quadrant of the abdomen. The video shows a very rare presentation of peforated Mekel's diverticulum presenting as an abdominal wall abscess. The abscess cavity contained pus and roundworms!

ANAESTHESIOLOGY

P069

EPIDURAL ANALGESIA CONTINUES BEING THE MOST EFFECTIVE POSTOPERATIVE PAIN RELIEF METHOD IN MAJOR ABDOMINAL SURGERY

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Background: When laparoscopy approach became generalized in colorectal surgery, epidural analgesia looked was going to be abandoned as technique of choice for pain relief after major abdominal surgery. However, although postoperative pain after laparoscopy has been shown lower than open surgery most studies recognize that severe pain after this surgical approach may be quiet intense and last at least 48 hours.
Aim: To investigate efficacy of epidural analgesia, in terms of pain relief and gastrointestinal recovery, in laparoscopic colorectal surgery.
Patients and Methods: 45 patients underwent colorectal resection were randomized to receive epidural analgesia (group EP; n = 25) or continuous intravenous combination of non-esteroidal anti-inflammatory and minor opioid (group IV; n = 20) during first 48 postoperative hours with patient-controlled analgesia (PCA) device. Intraoperative and postoperative opioid consumption, intraoperative hemodynamic stability, postoperative pain assessed by visual analogue score (VAS), time to reinitiating peristalsis, time until first defecation, and time to hospital discharge, were analyzed.
Results: Clinical demographics and type of surgery were similar in two groups. Intraoperative opiod requirements and incidence of hypertensive picks that needed hypotensor treatment were higher in IV than in EP group (fentanil, 7.81.9 vs 4.51.3 g/kg, and 9 vs 0 patients, $p < 0.05$ respectively). EP analgesia provides better postoperative analgesia than IV analgesia at 0, 2, 12, 24 hours after surgery (0h: 0.80.8 vs 4.02.0; 2h: 0.91 vs 3.81.4; 12h: 0.560.7 vs 2.01.6; 24h: 0.70.9 vs 1.61.5 on the VAS, $p < 0.05$ respectively). The first bowel movement was documented similar in both groups (EP: 1.60.9 dys and IV: 2.01 dys). Defecation occurred on median day 2 postoperatively in both groups. Incidence of complications and time to discharge (EP: 6.24.7 dys and IV: 5.92.8 dys) did not differ between groups.
Conclusion: Perioperative epidural analgesia during colorectal surgery provides an adequate hemodynamic stability and more effective postoperative analgesia than intravenous regimen without clinical relevant effect on the gastrointestinal transit recovery.

P070

EFFECT OF MUSCLE RELAXANTS ON THE ABDOMINAL PRESSURE-VOLUME RELATION IN BARIATRIC LAPAROSCOPIC SURGERY

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Aims: Aim of this study was to evaluate the effect of muscle relaxants on the abdominal pressure-volume relation in bariatric laparoscopic surgery.

Methods: Thirty-three patients, ASA class I or II, and scheduled for a bariatric laparoscopic intervention were included in this study with approval from the hospital ethical committee. Age, length, body mass index (BMI), sex, and gravidity were recorded. General anaesthesia was induced with Propofol 200 mg, Sufentanil 20 g, Nimbex 0,2 mg/kg and Sevoflurane 1,5 Mac in a 50% O_2/N_2O. Patients were asked to empty the bladder before surgery. The stomach was emptied by suction through a gastric tube. The insufflator Olympus UHI-3 was initialised and during a stepwise insufflation at a flow of 1 l/min the abdominal pressure and volume were measured. Twenty mg Cisatracurium was given and after confirming muscle relaxation with a post-tetanic count stimulation, the second insufflation and measurement were performed.

Results: Pressure-volume data were fit by a linear least-squares regression and used to calculate the abdominal volume at 15 mmHg pressure. A logistic regression analysis was done to find the variables determining the abdominal volume before relaxation. The abdominal volume increase by muscle relaxants was analyzed by a paired student-t test and by a logistic regression analysis for its variables. We observed multiparae to have a significantly larger final abdominal volume ($p = 0{,}027$). Abdominal volume also increased significantly ($p = 0{,}003$) 0,95 l with a large standard deviation of 1,22 l. The increase was larger in tall patients ($p = 0{,}047$) and in patients with a small abdominal volume before insufflation ($p = 0{,}003$).

Conclusion: Muscle relaxation during laparoscopy for bariatric surgery helps to increase the abdominal volume and therefore the surgical visibility, certainly in a small abdomen.

ARTHROSCOPY

P071

ARTHROSCOPIC AND ULTRASONIC PARALLELS OF KNEE INVESTIGATION

NO SHOW

BASIC AND TECHNICAL RESEARCH

P072

A NEW AND EASY MODEL FOR THE CREATION OF EXPERIMENTAL PNEUMOPERITONEUM MULTIPL STAP COCK

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Laparoscopic surgery is considered as the 'golden standard' and accepted. Short hospitalisation period and rapid return to normal activity, less post-operative pain, more acceptable cosmetic results and lesser morbidity and mortality rates, are the principleadvantages of this technique. However, the incidence of complications is much more when compared to open surgical procedures. Peritonel insufflation with carbon dioxide (CO_2) iscommonly applied to establish laparoscopy, providing adequate visual and operative conditions and a few technique have been determined for the installation of a CO_2 pneumoperitoneum.
Herein, we introduce a new experimental pneumoperitoneum model which can be used by easily and quickly.
Purse string sutures can be performed 4/0 polipropilen suture matherials before the beginning of CO_2 insufflation and then for achieving the steryl system has been used by multipl sterile catheter (Mediflon Catheter, $20 \times 1.1 \times 3.3$ mm, Eastern Medikit Ltd., India) adding to each other. Each serum set is inserted to the abdominal cavity for CO_2 insufflation. Pneumoperitoneum can be realized by multipl sterile catheter which was inserted through a mid-line incision after the preparing of the rat abdomen under the steril conditions. Air leaks can be prevented by the repeat sutures during the insufflation. Intra-abdomina pressure values can be maintained and followed by the manometre of laparoscopic system easily.
As a conclusion, this method is a safe and valuable approach for the creation of experimental pneumoperitoneum.

P073

EFFECT OF LAPAROSCOPIC SURGERY ON SURGEONS' HEALTH-SURVEY IN A MIDDLE-EAST EUROPEAN COUNTRY

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A lack of understanding the ergonomics of laparoscopic surgery has a potential to pose health problems for the surgeons. This study was planned to assess the prevalence of ergonomic problems associated with laparoscopy.
A questionnaire designed to assess the frequency and degree of physical discomfort practicing surgeons experienced was distributed to approximately 140 attendants of the 57th Congress of the Hungarian Surgical Society. The response sheets were analyzed.
Eigthy-four attendees completed the questionnaire, all of them perform laparoscopic surgery. The average age of answering surgeons was 44.8 years (29–62 years) 28.5% of them play any racket sports. Most of them (71.4%) use single monitors and can't alter the height of the monitor (83.3%). The camera is usually held by assistant surgeon or resident (66.6%). The answer for number of operative/advanced laparoscopic procedures per month were as follows: 1–5 (33.3%), 6–10 (35.7%), 11–15 (16.6%), more than 15 (9.5%). The following problems were experienced during or after performing laparoscopic procedure: eye strain (61.8%), neck ache (57.1%), upper back pain (54.6%), lower back pain (54.6%), numbness or tingling in the palm or fingers (52.3%), wrist pain (30.8%), varicose veins (35.6%).

Conclusion: Surgeons performing laparoscopy have ergonomic problems, especially eye strain, neck ache, upper-lower back pain, and numbness or tingling in the palm or fingers. These findings indicate that laparoscopic surgical technique is more taxing on the surgeon.

P074

ERGONOMY OF LAPAROSCOPIC GRASPING FORCEPS IN SIGMOID COLON RESECTION

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The aim of this study is to present detailed multidimensional ergonomical comparisons of curved and straight grasping forceps in laparoscopic sigmoid colon resection. The study was designed as a sequential randomized self-controlled experiment, and contains experimental and clinical parts. The experimental part was divided into three groups according to the type of forceps used. Thirty operations have been performed with MIS phantom as solo-surgeries. Ten operations (first group) were performed using curved grasping forceps in the mono-lateral position, with one port for the right-hand instrument (placed in the right lower quadrant), and a second port for the left-hand instrument (in the right flank). The straight grasper in the second group of operations (ten in total) was also used in the mono-lateral trocar position. In the third group of operations (ten in total), the straight instrument was used through a 5-mm port in the lower left abdomen (bilateral trocar position).
Methods: To find ergonomical differences, several observations and measurements were conducted:
1. Using a quad split, three different perspectives (one front view and two side views of the surgeon) and an endoscopic perspective were registered on a video tape.
2. For finding the range of movements of an instrument around its x-, y- and z-axis, an ultrasound tracking system was used.
3. The surface EMG signals were recorded from 5 muscles in the left-upper extremity.
4. Immediately after every procedure, the surgeon answered a questionnaire, which was based on SAGES Ergonomic questionnaire.
In Clinical Part, five patients underwent laparoscopic sigmoid colon resection for sigmoid diverticulitis using a curved instrument in the mono-lateral trocar position. The surgeons left-hand movement and body posture were recorded for further analysis.
Results: Bilateral positioning of the working instruments exerts substantially higher muscle forces than mono-lateral positioning. Our results demonstrate that a curved grasper requires a smaller range of movements than a straight grasper, thereby requiring less physical workload for the surgeon.
Conclusion: Using a curved grasper in the mono-lateral position can reduce musculoskeletal injury, and increase work efficiency and comfort.

P075

EXPERIMENTAL MODELS IN BARIATRIC SURGERY: TECHNICAL ASPECTS

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Introduction: Bariatric surgery is constantly evolving not only in its technical aspects, but also in the metabolic changes that it involves. The continual advances in our knowledge of the pathogeny and hormonal disorders of morbid obesity lead to new studies in experimental animals and the development of new technical options.

Aim: To describe three types of surgical intervention in experimental animals (Sprague-Dawley rats): restrictive (gastroplasty), mixed (gastrojejunal bypass) and experimental (ileal transposition) with important hormonal implications (? GLP1)

Methods: Experimental model: female Sprague-Dawley rats (300 g). Gastroplasty: Medial laparotomy. Dissection of the greater curvature. Ligature of vasa recta. Longitudinal linear gastrectomy (2.5 cm long). Double continuous suture. Gastrojejunal bypass: Roux-en-Y. Medial laparotomy. The gastric reservoir is created by horizontal division of the upper third of the gastric chamber. Jejunal section 15 cm from the Treitz ligament. Gastrojejunal anastomosis in the gastric reservoir. Jejuno-jejunal termino-lateral anastomosis. A Roux loop of 10 cm.
Ileal transposition: Medial laparotomy. Localisation of 10-cm ileal segment, 10 cm from the terminal ileum. Vasoligature of adjacent omentum. Segment is sectioned and transposed to the jejunum 2 cm distal to the Treitz ligament in peristaltic direction. Termino-terminal anastomosis.

Discussion: Gastroplasty requires a second continuous suture over the first line to reinforce the leakage points. The bypass and ileal transposition involve various intestinal anastomoses with the difficulty characteristic of small diameters (0.5–1 cm). Once these techniques have been completed, several variables are monitored: intake volume, weight loss, variations in the glycemic index and other hormonal determinations (ghrelin, insulin, GLP-1).

P076

DEVELOPMENT OF A NOVEL SHADOW-PRODUCING ENDO-ILLUMINATOR

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Aim: To develop a shadow-producing endoscopic illumination source, the endo-illuminator, provided by light emitting diodes (LED) for minimal access surgery.
Methods: The endo-illuminator was constructed using a 1W LED mounted at the tip of a 10mm steel rod. A rechargeable Li-ion battery provided power via a battery unit connected to the proximal end. Endoscopic static images were taken using the LED endo-illuminator or a 10mm endoscope as a fixed secondary light source. The images were analysed at each pixel position along a line to determine the spatial variation in intensity, as an indication of illumination uniformity and shadow sharpness. The photometric measurements of the LED and arc-lamp light sources were also measured.
Results: The spatial variation in intensity across an image was more evenly distributed with the LED than the endoscopic illumination, especially at closer distances (4cm vs 8cm). The shadow casted from an instrument from the LED source was sharper as shown by the steepness of the pixel intensity curve at both sides of the shadow edges. This was due to the small size of the LED emitter compared to the endoscopic fibre-optics arranged as an extended source. The photometric intensity of the LED endo-illuminator was less than the intensity at the end of a 10mm endoscope (22mW of the self-powered LED compared to 88mW of the arc-lamp at 15% power). However, using a steady maximum current supply of 350mA to the LED, the photometric intensity was comparable to a 4mm endoscope at 33% power.
Conclusion: The LED endo-illuminator provided an evenly distributed illumination and sharp shadows. The present system was not as powerful as an arc-lamp source especially when the battery unit was used. However, at close distances from the target where a less intense light was necessary, the photometeric intensity from the LED was comparable to a paediatric endoscope and would provide adequate illumination with the LEDs currently available.

P077

DYNAMIC FRICTION IN TROCARS

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Aims: In minimally invasive surgery, it is important for surgeons to be aware of the amount of force being applied to tissue so as not to damage it. However, force feedback information is plagued by numerous distortions, in particular by friction between the instrument and the sealing mechanisms of trocars. Currently available trocars all have different sealing caps, membranes and valves. It is unknown how these different characteristics influence the friction forces. The present study investigates the dynamic changes in friction for various trocars at different instrument velocities.

Methods: We determined the friction characteristics for six common types of trocars. The trocars differed both in design as well as in the materials of which they consisted. All trocars were suitable for use with 5 mm laparoscopic instruments. A force sensor was attached to the shaft of a standard disposable grasper to measure the forces required to move it through the trocars. The movement velocity (range: 1 to 70 mm/s) and movement direction (inward or outward) of the shaft were controlled by a servomotor.

Results: The frictional force depended on both the type of trocar and the movement direction and varied between 0.25 and 3.0 N. Highest values were obtained for outward movements at movement velocities larger than 5 mm/s. At lower velocities, large fluctuations in frictional forces occur for all types of trocars due to stick-slip motion. The magnitude of these fluctuations varied between 0.2 and 2.5 N.

Conclusions: When laparoscopic instruments move at high velocities, frictional forces are generated at the trocar that can be as large as the forces associated with instrument-tissue interaction. At lower velocities, large fluctuations in frictional forces may occur due to stick-slip motion. Such high frequency variations could deteriorate surgical performance during high precision tasks, like suturing, that typically involve low velocities and many changes in movement direction. Comparisons of the investigated trocars show that the main determinant of friction magnitude and variance is the inner diameter of the sealing cap. Especially in non-disposable trocars and in disposables that require reducer caps, the cap fitted too tight around the instrument, resulting in high friction.

P078

THE CREATION OF A PNEUMOPERITONEUM: IS THE VERRES NEEDLE AN ACCEPTABLE INFLATION TOOL TO MEASURE THE ABDOMINAL PRESSURE-VOLUME RELATION ?

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Aims: It is possible to measure the abdominal pressure-volume relation (APVR) during insufflation through a verres needle. Is a measurement through the verres needle acceptable with an insufflation of 100 ml/min?

Methods: Ten patients, ASA class I or II, aged between 21 and 75 years, without any abdominal intervention and scheduled for a bariatric laparoscopic surgery were included in this study with approval from the hospital ethical committee.

General anaesthesia was induced with Propofol 200 mg, Sufentanil 20 g, Nimbex 0,2 mg/kg and Sevoflurane 1,5 Mac in a 50% O_2/N_2O. Patients were asked to empty the bladder before surgery. The stomach was emptied by suction through a gastric tube. After insertion of the verres needle a stepwise insufflation at a flow of 1 l/min was given with the Olympus insufflator UHI-3. Measurements were taken every 100 ml till the abdominal pressure reached 15 mmHg. After placement of the 10mm trocar the CO_2 was allowed to escape. The insufflator was reinitialised and the measurement repeated.

APVR data were fit by a linear least-squares regression. The coefficients of the fitted linear relations were analyzed by a paired Wilcoxon signed ranks test. Significant difference cannot indicate an abdominal stiffness change in such a short time but a measurement error by resistance.

Results: The paired Wilcoxon test gives a significant difference for the slope m ($p = 0{,}005$) and the intercept b ($p = 0{,}022$) between measurements through a verres needle compared with measurements through a trocar. No air remained after the first insufflation as this would shift the APVR in the opposite direction. Slope and intercept are higher with the verres needle indicating a higher resistance during measurement with the verres needle.

Conclusion: The verres needle does not allow abdominal pressure measurements at a flow of 100 ml/min. The measured pressure-volume relation is clearly several mmHg higher compared with the measurement through a trocar.

P079

WHAT MINIMAL ACCESS SURGEONS SHOULD KNOW ABOUT INSTRUMENT DESIGN AND WHY?

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Aims: Designing a laparoscopic instrument is a multidisciplinary process and a similar approach is needed for the best outcome. Inspite of a huge instrument-developing industry, there are two inescapable facts about instrument design:
1) The person who first of all feels or should feel the need for an instrument or its modification is a surgeon.
2) The person who will ultimtely use the new or modified instrument will also be the surgeon.
He is the source of initiation and the means of manifestation of instrument (development) technology. The middle part of the process, i.e., technical and mechanical aspects of the development is where a communication gap between surgeon and the technology developer occurs. Eliminating this gap is necessary for optimal instrument design process. It is this desirable interaction that greatly underscores the need for making the surgeons better comprehend the process of instrument design. This writing is intended to be a useful contribution to that end.
Method: A multidisciplinary literature search was done using Pubmed, Medline, ISI Web of Knowledge, and miscellaneous biomedical engineering resources.
Results: Consciously or subconsciously, design process for a surgical instrument usually passes through the following phases:
1) Identification of a problem area in surgeon's work.
2) Assessment and understanding of this issue at an ergonomic level.
3) Translation of ergonomic need to technical form involving considerations of materials and design.
4) This leads to matching of above with available technology to create a solution, i.e., an initial form of instrument is constructed.
5) The lab evaluation and study of the new device to refine its design parameters using non-viable or animal tissue.
6) Use on cadaver/live animal to study further the operational aspects of the new design.
7) Putting the new instrument to test, using in real operations.
8) If found useful, then subject it to clinical trials comparing with the available tools.
All the above steps are overlapping and can be approached at, with many different themes.
Conclusion: A better awareness and acquaintance of the design process on the surgeon's part is crucial to the evolution of optimal laparoscopic instruments.

P080

CLINICAL APPLICATION OF ULTRASONICALLY ACTIVATED DEVICES IN ENDOSCOPIC SURGERY

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It was tested 3 type of 5mm ultrasonically activated device (USAD) experimentally and reported their features and clinical applications in endoscopic surgery.
The burst pressure of the harvested arteries (BP), grasping force (GF), the temperature change on the active blade with thermography (TC), and cavitation effect were studied in order to evaluate the feature of Harmonic scalpel II (HSII), AutoSonix (AS), and Sonosurge (SS).
In experimental study, HSII and SS were superior in BP, and SS and AS were superior in GF. In all devices, TC increased gradually and reached to 90–120C. The stabilized cavitation effect was observed both in HSII and SS. Because HSII generated a stabilized carvitation from the active blade, dissection around Calots triangle and liver bed using HSII was easy especially in laparoscopic cholecystectomy. With the use of AS, dissection of the dense adhesion around gallbladder was feasible because it generated excellent cutting power and GF from the wedged shape blade. With the use of SS, pick-up dissection could be done easily when Calots triangle or thicked gallbladder wall was manipulated.
In conclusion, understanding the feature of these devices should lead us to perform endoscopic surgery safely whenever precise dissection is needed.

P081

ANTI-ANGIOGENIC EFFECTS OF NEW ANTINEOPLASTIC SUBSTANCES AND COMPOUNDS FOR ABDOMINAL INSTILLATION AFTER TUMOR RESECTION - AN IN VITRO STUDY

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Background: Surgical excision remains the primary treatment of choice for most solid gastrointestinal tumors. Nevertheless, spreading of tumor cells might be possible during resection procedure. Thus, even in early tumor stages cells can adhere, implant, and grow. Taurolidine (TRD) has been found to reduce intraperitoneal cytokine production and tumour growth without relevant side effects in experimental models. Here we demonstrate the use of a novel conformational drug database for the search of new compounds (in silico screening) with an inhibiting effect on angiogenesis by using two- and three-dimensional structural similarity.
Methods: TRD and new identified compounds (e.g. 5X-0835) were tested against human tumor cells (colon: HT-29, SW-480; cervix: HeLa; leukemia: HL-60, and physiological HUVEC). Cells were incubated for 2h and 4h with increasing doses (70microM-10milliM). Proteinbiosynthesis was calculated using SDS-page and Western Blot to analyze angiogenic proteins (pos. control ID-1, neg. control Tubulin). Thus, inhibition of translation or apoptosis could be differentiated. Cell viability was studied by mitochondrial XTT-test. Anti-angiogenic impacts were analyzed by micro vessel formation (tubulogenesis) with the Matrigel-proliferation assay (HUVEC).
Results: ID-1 concentration decreased after 0.7milliM TRD, whereas neg. control remains stable until 7mM. Cell viability decreased dose dependently (50% after 0.01 mM TRD versus 15% after 1 mM TRD). Similar effects were observed using the new compounds. Micro vessel formation was inhibited. TRD and compounds are highly anti-angiogenic and totally inhibited tubulogenesis after a direct contact.
Conclusion: TRD inhibits tubulogenesis, the most important step in angiogenesis. In silico screening method is feasible and leads to prompt detection of new anti-angiogenic substances. Identified compounds showed similar anti-angiogenic effects. Therefore, new substances are now tested in different doses to analyze side- and antineoplastic effects in resectable malignancies of the intestine in an animal study. Its clinical influence is still obscure. It should be rather seen as an additional means against metastatic tumor growth following the resection of the primary solid tumor.

BREAST SURGERY

P082

LONG-TERM RESULTS OF VIDEO-ASSISTED LOBECTOMY AND MEDIASTINAL LYMPH NODE DISSECTION FOR CLINICAL STAGE 1 LUNG CANCER PATIENTS

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Aims: We prospectevely performed video-assisted lobectomy and mediastinal lymph node dissection (VATS lobectomy) for lung cancer patients from April 1997, if we thought possible to do it technically. Five years ago, we reported in this meeting that a short-term result of this procedure was acceptable. This time, we will report long-term results of this procedure.

Methods: Between April 1997 and December 2000, 24 clinical stage 1 lung cancer patients (aged 46 to 76 years) were performed VATS lobectomy. The clinical characteristics, site of tumor, operating time, bleeding, drainage period, post operation hospital stay, amount of pain killer and complications were examined and compared with those of who performed standard thoracotomy until March 1997.

Results: The operating time ranged from 120 to 355 minutes (ave.207.7), drainage period ranged from 1 to 13 days (ave.4.7), post operation hospital stay ranged from 8 to 23 days (ave.14.6), smaller amount of pain killer, less complication, survival rate, all factors of this procedure were better than standard thoracotomy.

Conclusions: Long-term results of VATS lobectomy for clinical stage 1 lung cancer patients are acceptable; we think that this procedure will be standard operation for clinical stage1 lung cancer.

CLINICAL PRACTICE AND EVALUATION

P083

HARD OPERATIVE COST OF BARIATRIC SURGERY

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Aims: We compared the operative costs of laparoscopic gastric bypass (LGBP) to those of laparoscopic gastric banding (LGB).

Methods: Data from the Southwest region of the United States were used to derive cost estimates. Operative costs were summarized into three categories: 1) anesthesia professional charges; 2) operating room charges; 3) instrument charges.

Results: Anesthesiologist charges accrue from the beginning of induction until the patient is received by the post-anesthesia recovery room. Their professional charges for LGB, $1400, are nine-tenths of those for LGBP, $1540.
Operating room costs are proportionate to procedural duration. LGBP costs $7553 and LGB costs $5546. There is, however, a range of charges.
The cost of the band makes the disposable instrument costs for LGB, $3195, three-halves those for LGBP, $1901.
The total operative costs for LGB, $10,141, are over five-sixths those of LGBP, $11,761, notwithstanding that LGB takes less time compared to LGBP.

Conclusion: Disposable instrument costs for LGB, as a fraction of total operative costs, are twice those of LGBP. Because the greatest potential price reductions due to technologic innovation and competition among vendors in this area, cost containment efforts as regards LGB should focus upon disposable instrument costs.

P084

LAPAROSCOPIC RECTAL RESECTION WITH PREOPERATIVE RADIOTHERAPY

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Background: Combination therapy of total mesorectal excision and a short-term regimen of high dose preoperative radiotherapy is one of standard method for advanced rectal cancer in open surgery. On the other hand, very few case of preoperative radiation therapy with laparoscopic resection was reported. In this paper, we reported the preliminary trial of laparoscopic total mesorectal excision with preoperative radiation for advanced rectal cancer.

Method: Between July 2002 and August 2004, 63 cases laparoscopic resection for rectal cancer was performed by a well-trained surgeon. We applied preoperative radiation therapy with laparoscopic total mesorectal excision for 11 cases lower rectal cancer with mp or deeper invasion of main tumor. 5Gy X 5days (total 25 Gy) applied to patients 3 weeks before radical operation.

Results: All cases in the non-radiotherapy group had anastomosis after resection. 5 cases of abdominoperineal resection, 4 of low anterior resection and 2 of Hartmann operation were performed after radiotherapy. 55 percent of patients have CR or PR in preoperative CT study and 64 percent of patients have pathological changes. Average operation time of radiotherapy group and non-radiotherapy group were 35747 minutes and 233.288.6 minutes ($p < 0.05$), respectively. The overall postoperative morbidity was 27 percent in the radiotherapy group and 6 percent in the non-radiotherapy group. No anastomotic leakage was observed in both groups. There was no postoperative mortality in all cases.

Conclusion: This study shows preoperative radiotherapy leads to prolong the operation time. However, laparoscopic total mesorectal excision with a short-term regimen of high dose preoperative radiotherapy is safe procedure in terms of postoperative outcome. This should be one of suitable strategy for advanced rectal cancer.

P085

IMPACT OF A NEW TECHNOLOGY, HAND-ASSISTED LAPAROSCOPIC SURGERY (HALS) IN A SPECIALTY COLORECTAL SURGICAL PRACTICE AT A SINGLE INSTITUTION

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Introduction: Our aim was to evaluate the impact on the introduction of a new technology, hand-access laparoscopic (HALS) devices on a specialty colorectal practice at a single high volume institution.

Methods: A prospectively maintained database of all laparoscopic colorectal operations performed in a practice of board-certified colorectal surgeons was analyzed for the years 2002 and 2004. During 2003, one surgeon left, two were added, and HALS was first introduced into the practice.

Results: In 2002, 121 laparoscopic-assisted (LA) procedures were performed by 5 of 7 surgeons, no HALS procedures were performed. BMI was 24.11 4.71 with a 5% conversion rate. In 2004, 270 laparoscopic procedures were performed (174 LA, 116 HALS) by seven of eight surgeons. BMI in each technique increased significantly 26.02 4.90 and 26.40 5.30 ($P < 0.05$ compared to 2002) with a conversion rate of 9% and 7% respectively. Between 2002 and 2004, the total number of laparoscopic colorectal procedures grew by 123%, however, LA procedures increased by only 22%, while HALS procedures increased by 78%.

Conclusion: The introduction of HALS to a specialty colorectal practice increased the number of laparoscopic colorectal procedures by expanding both the number of new and established surgeons performing the operations. This technique, which simplifies laparoscopic colectomy, may increase acceptance of laparoscopic colectomy in the larger surgical community.

P086

BROAD-BASED FELLOWSHIPS: A CORNERSTONE OF MIS EDUCATION AND DISSEMINATION

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Introduction: This is a pilot study intended to: 1) assess the practice patterns of surgeons trained in a broad based minimally invasive surgery (MIS) fellowship and 2) access opinions regarding methods of dissemination of advanced laparoscopic skills.

Methods: A survey was mailed to all fellows who completed a broad based (esophagus, foregut, colorectal, end organ, donor nephrectomy) MIS fellowship at one of the longest running programs in North America. A five point Likert scale was utilised for responses.

Results: 85% of surgeons completed the survey. The mean age was 36.5 years, and 82% were male. 64% completed a clinical fellowship, 36% completed a combined clinical and research based fellowship. 73% are practicing in an academic setting, and 27% are pursuing a community based practice. Eighteen percent are involved with training fellows; none have initiated a fellowship program. Clinical duties are the most significant portion of practice in both academic (62%) and community (93%) settings. The median number of advanced MIS cases prior to fellowship training was 18 (range 0–49) vs. a median of 172 (range 89–328) during the fellowship. No individual felt prepared to do advanced laparoscopic procedures at the conclusion of their residency while 100% were comfortable post fellowship. All surgeons currently work in divisions which promote advanced laparoscopy; during residency surgeons felt their surgical divisions did not do this. With regards to skill acquisition, weekend courses and week long courses were perceived to be less effective as compared to proctorships. Although technical skills labs were viewed as a good method for learning basic skills, it was not viewed favorably for acquiring advanced skills. Formal fellowship training was unanimously viewed superior to all alternatives for the acquisition of advanced MIS skills.

Conclusions: The majority of fellowship trained MIS surgeons are practicing in an academic setting. The consensus of opinion was that Fellowship training was the most effective strategy for the acquisition of advanced MIS skills.

P087

5MM INSTRUMENTS THREE TROCARS - LAPAROSCOPIC CHOLECYSTECTOMY

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Laparoscopy has rapidly emerged as the preferred surgical approach to a number of different diseases because it allows for a correct diagnosis and proper treatment. Its natural evolution seems to be the use of mini-instruments (5 mm or less in diameter) and, when possible, the reduction of number of trocars used. Laparoscopic cholecystectomy is a gold standard technique. The aim of present work is to illustrate the results of an experience of all 5 mm instruments - three trocars cholecystectomy performed at our Institutions vs conventional laparoscopy approach (four trocars - optic of 10 mm in diameter).
Materials and Methods: Between July 2002 and July 2005 a total of 518 patients (mean age 45 years) underwent a laparoscopic cholecystectomy. Amongst them, 268 (51.7%) were operated on with a 5 mm instruments - three trocars approach. The primary endpoint was the feasibility rate of the technique. Secondary endpoints were safety and the impact of the technique on duration of laparoscopy.
Results: We had two convertions to laparotomy - one in each group - while a convertion to the classical approach (need to add a trocar) for the 5 mm instruments - three trocars group was registered in the 9.3% of the cases (25 patients). There was one case of redo-laparoscopic approach in the latter group due to bleeding from a cystic artery and one case in the conventional due to a bleeding from the gallbladder bed. Minor occurrence ranged as high as 3.6. (9 cases) in the conventional approach while it was 3.7 (10 cases) in the three trocars approach.
Conclusions: The present experience exhibits that the 5 mm instruments - three trocars cholecystectomy is a safe, easy, effective and reproducible approach to the gallbladder diseases. Such features make the technique a challenging alternative to conventional laparoscopy in the approach cholecystopaty, both in acute and scheduled setting.

P088

EXPERIENCE WITH OPEN LAPAROSCOPY FOR PNEUMOPERITONEUM PERFORMED DIRECTLY THROUGH THE UMBILICUS

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Aim: We evaluate retrospectively our experience of open Laparoscopy performed directly through the umbilicus in a small peripheral hospital in Ireland. Umbilical wound infection is a major concern of many Surgeon. We evaluate the safety, efficacy and complications of the approach for Laparoscopic Surgery.

Materials and Methods: From August 2000 to December 2004, 708 Laparoscopic procedures were performed in our institute with open Laparoscopy performed directly through the umbilicus. There were 291 men (age 16 - 83) and 417 women (age 17 - 81) in our series. The indications for Surgery were cholecystectomy, appendicectomy, hernia repair, diagnostic laparoscopy, colectomy and different Gynaecological procedures.

Results: In most cases pneumoperitoneum was achieved in less than 5 minutes. Difficulties were however encountered in some obese patients (BMI greater than 35), where it took upto 15 minutes to achieve pneumoperitoneum. There was no incidence vascular or bowel injury in our series. Two patients had minor bleeding at the umbilical port site which settled spontaneously. Three patients with gangrenous appendicitis and peritonitis developed wound infection, two at umbilical port site and the other one at supra-pubic port. All 3 patients settled with antibiotics and regular wound dressings.

Conclusion: The Authors believe, open laparoscopy directly through the umbilical scar is a safe and efficient method of inducing peritoneum for laparoscopic Surgery. Our study does not support the theoretical risk of umbilical wound infection and the cosmatic results are excellent.

P089

RETROPERITONEOSCOPIC LIVING RELATED-DONOR NEPHRECTOMY: CLINICAL OUTCOMES OF 100 CONSECUTIVE CASES AND COMPARISON WITH OPEN DONOR NEPHRECTOMY

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Aims: To determine whether living related retroperitoneoscopic donor nephrectomy (RDN) is a safe and effective procedure.
Patients and Methods: From September 2001 to June 2005, RDN was performed in 100 consecutive patients at our hospitals. All patients were followed longitudinally with office visits. Perioperative and postoperative data for these RDNs, including operative time, blood loss, and complications, were compared with those of open donor nephrectomies (ODNs) performed between January 1999 and December 2001.
Results: Conversion to open surgery was needed in four cases. The average warm ischemia times were 3.9 minutes (range 1.0–8.5 minutes) and 2.9 minutes (range 2.3–5.5 minutes) in the RDN and ODN groups, respectively (P = NS). The mean operative time for RDN was significantly longer than that for ODN ($P < 0.01$). The mean blood loss for RDN was significantly less than that for ODN ($P < 0.01$). There was no significant difference between the groups in number of doses of analgesics administered after the operation. Perioperative and early postoperative major complications occurred in 10 recipients (10%) in the RDN group and consisted of lymphocele in 4, ureteral complication in 3, and delayed graft function in 3 patients. All of these complications were treated successfully. No postoperative major complications were occurred in donors. Conclusions: The RDN is a safe and effective procedure for both donor and recipient. Although the benefits of RDN have been demonstrated, further long-term studies of graft function and patient survival are needed.

P090

INCIDENCE OF INCISIONAL HERNIA AFTER LAPAROSCOPIC CHOLECYSTECTOMY. IS IT NECESSARY TO SUTURE THE 10MM PORT SITES?

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Aims: Trocar-site incisional hernias after laparoscopic surgery are reported in 1% to 6% of patients. It is our practice not to suture the 10 mm port sites following laparoscopic cholecystectomy, unless they are extended to extract the gallbladder, and to remove CO_2 above the surface of the liver from the epigastric port which we believe it prevents herniation of underlying structures. The aim of this study is to evaluate whether the incidence of the port site incisional hernias is increased using this practice.
Methods: We reviewed the records and operation notes of 293 patients that underwent laparoscopic cholecystectomy. We also reviewed the records of all the patients from this group that had been either re-admitted under the surgical team or re-examined in the outpatient clinics, in an effort to determine the incidence of port site hernias in this population.
Results: In 129 patients (44.03%) the umbilical port incision was extended and sutured, whereas in the rest 164 patients (55.97%) there was no extension of the incision. In 38 patients from the non-extended group the defect was also sutured, whereas in the rest 126 patients it was not. Out of the 293 patients, 72 were either re-admitted in the surgical department, or re-examined in the surgical outpatient clinics in a period of 8 49 months (mean: 23.98 months), following surgery. There were only 3 patients (1%) that developed an umbilical port site hernia. In two of these patients the umbilical incision was not extended but sutured and one had an extended and sutured incision. None of the patients developed hernias in the epigastric port site.
Conclusions: The incidence of laparoscopic port hernias in our study (1%) is very small and comparable with that mentioned in the literature. According to our experience, suturing of the 10 mm port defects is not essential in order to reduce the risk of hernia formation, provided that the pneumoperitoneum is inserted with the Veress needle and that the port defect has not been widened. At the end of the operation we ensure the CO_2 is expelled through the epigastric port above the surface of the liver.

P091

NURSE PROTOCOL IN LAPAROSCOPIC SURGERY

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Introduction: Sant Joan Universitary Hospital in Reus has got 274 acutes beds and 45 of them belong to Surgery Service. In 1992–1993 laparoscopic surgery started in our medical centre, being the colecistectomy first election surgery. It supposed a radical change on diary work. We had to do a quickly learning and create rules to unify criteria and to teach the staff by nurse sessions and a later protocol elaboration. That had driven us to a greater and better adaptability to the actual laparoscopic surgery, elected technique in most of interventions. Actually between 60–70% of interventions in our centre are made by laparoscopic way.
Objective: Protocol elaboration to:
- To adapt the changes in the conventional surgery pass to laparoscopic surgery.
- To teach the nurse staff.
- To unify acting criteria and elaborate a practical tool for all the staff.
- To make a surgery team coordination so that the intervention is made in optimal conditions.
Material and method: For the beginning of laparoscopic surgery a surgery team integrated by surgeons, anaesthetists and nurses, moved to a first level hospital where they learned and had got practical formation. That team assisted also to specific laparoscopic courses. This learning was transmitted to the rest of staff by weekly work sessions.
Results: Agreed protocols were elaborated by the nurse staff of every intervention made by laparoscopic way, like colecistectomy, apendicectomy, gastroyeyunal by-pass, duodenal switch. The protocols are revised and actualized according to the technical changes and giving the knowledge to all nurse staff by sessions in every turn of work.
Conclusions: The operating room protocols are a useful guide for the infirmary staff because they give security, a good to the operating room work and short the chirurgical time. Also they are a good media for educational diffusion and a quickly way of learning for new incorporated professionals. The work nurse sessions represent a comfortable way to introduction and information in the new techniques, changes and evolution in laparoscopic surgery. All this, is an efficacy media to warranty the quality asistencial and optimize human and material resources.

P092

LAPAROSCOPIC SURGERY FOR EARLY GASTRIC CANCER - EXPERIENCE IN OUR INSTITUTE-

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Recent advancement of endoscopy-related instruments and technique enable us to perform an entirely new surgical approach to early gastric cancer as a minimally invasive surgery. In Japan, laparoscopic wedge resection of the stomach (Lesion Lifting Method) and laparoscopic mucosal resection (Intra-Gastric Surgery) were first performed in 1992 and in 1993 respectively, and laparoscopy-assisted partial gastrectomy (LADG, LAPPG, etc) in 1994. These laparoscopic surgeries have showed a lot of benefits for the patients, reduced postoperative pain, shorter hospital stay and quicker convalescence.
The laparoscopic surgery for early gastric cancer has been introduced in our institute since 1995. And according to Gastric Cancer Treatment Guidelines by the Japanese Gastric Cancer Association, we have experienced 20 cases with laparoscopic local resection of stomach (13 with Lesion Lifting Method and 7 with Intra-Gastric Surgery) and 28 cases with laparoscopy-assisted partial gastrectomy. Then, we compared the outcomes of laparoscopic surgery with those of open surgery that performed in the same period. The laparoscopic surgery is associated with less bleeding, rapid recovery of bowel movement, faster initiation of oral intake and shorter hospital stay. Although procedure of laparoscopy-assisted partial gastrectomy is much different in that of laparoscopic local resection, the recovery after laparoscopy-assisted partial gastrectomy is as successful as after laparoscopic local resection. We conclude that the laparoscopic surgery for early gastric cancer is feasible, with favorable short-term outcome.

P093

A NEW LOW COST INSTRUMENT TO FACILITATE THE CANNULATION OF CYSTIC DUCT

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Cannulation of the cystic duct is an essential step of laparoscopic cholecystectomy with intra-operative cholangiography and laparoscopic exploration of the bile ducts. Many devices and techniques have been proposed to execute this manoeuvre but most of them entail expensive disposable tools. This study evaluates a simple, low cost, reusable cannula designed to facilitate the insertion of cholangiography catheter and Dormia basket in the cystic duct. The cannula is called Cannula of Falchero (CF), it is 18 cm long, has an external diameter of 3 mm and it is made in stainless-steel with a rubber valve on the top. The last 2 cm towards the intra-abdominal end are slightly curved and the tip is bevelled. The curved and bevelled tip makes easy to insert the cholangiography catheter and the Dormia basket in any kind of cystic duct even if it is very small, short or very inflamed. Once a cholangiography catheter is inserted in the cystic duct it can be fixed with a clip or the Olsen forceps. Between January 1998 and September 2005, 1236 consecutive patients operated on for laparoscopic cholecystectomy routinely underwent operative dynamic cholangiography. CF was always used to execute intraoperative cholangiography and the manoeuvre was successful in 1226/1236 (99%) patients; in only 10 cases was impossible to insert a catheter into the cystic duct. Bile duct stones were present in 122 patients. Transcystic laparoscopic exploration of the common bile duct with complete stones clearance was possible in 81 (66%). Again, CF was always used to insert the basket in the cystic duct. No complications were related to the use of the cannula but there were 1 severe pancreatitis and 1 cistic duct lesion due to the passage of the Dormia basket. The Cannula of Falchero is a safe, simple and cost effective option to facilitate the insertion of both cholangiography catheter and Dormia basket in the cystic duct.

P094

SURGICAL WORKFLOW ANALYSIS IN ENDOSCOPIC SURGERY

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Aims: Endoscopic surgery has changed the surgical routine dramatically and will continue to do so in the future due to new approaches and emerging information guided instruments. It is hard to foresee, which of the possible enhancements will lead to a real benefit for the patient or the surgeon. Surgical Workflow Analysis can help with this by providing a clear process description of the surgical intervention which subsequently can be analysed. For endscopic surgery, several specific issues have to be addressed when performing such an analysis. For this study we selected a common procedure from ENT-surgery, the functional endonasal sinus surgery (FESS).
Methods: We analysed different variations of FESS: conventional FESS, navigated FESS, usage of a self irrigating endoscope with included suction and Navigated Control. We used the ICCAS-Workflow software for our studies which has been enhanced to address endoscopic specific questions. In addition to the routinely recorded properties of a task (instrument, anatomic structure, performed action, acting body part, acting person) it is possible to monitor the view direction of the surgeon, ergonomic limitations due to rigid instruments, instrument collisions and events like system failures or others. Changes of strategy can also be acquired. The workflows are recorded by one or two trained medical student co-workers under professional supervision using tablet PCs in the OR.
Results: The enhanced editor allowed a smooth recording of the complete intervention. In cases of intensive use of mechatronic assistance (Navigated Control), two recording persons were needed, otherwise one recording person is sufficient. The recording does not interfere with the intervention. Using the data, it was possible to verify the subjective feelings of the surgeons before the recording. In a first study we were able to define the needed characteristics for an endoscopic holding device for FESS. The system was used to evaluate the usefulness of Navigated Control in FESS.
Conclusion: Surgical Workflow Analysis is a powerful tool for objectively evaluating the course of endoscopic surgical interventions. The recording using tablet PCs is useful using manual position location, but could be further improved by automatic tracking of the used instruments.

P095

COMPLICATIONS OF LAPAROSCOPIC CHOLOCYSTECTOMY

NO SHOW

P096

ASSESSING THE TRUE POTENTIAL OF STAGING LAPAROSCOPY IN LOWER ESOPHAGEAL AND GASTRIC CANCERS

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Background: Laparoscopy is considered to be an essential staging modality for upper gastrointestinal cancers. The aim of this study is to evaluate the rationale and limitations of such an approach.

Methods: Data was collected for consecutive patients undergoing staging laparoscopy for radiologically resectable lower oesophageal and gastric cancer in the period between 2000 and 2004. All procedures are carried out according to a standardised 3- port protocol with a 30- degree laparoscope. Any suspicious lesions were biopsied and sent for pathological examination.

Results: There were 201 staging laparoscopies performed in the 5- year period. 80 were performed for gastric cancer, 65 for cancers of the gastro-esophageal junction and 56 for lower oesophageal cancers. Procedure failure rate was 1.4% secondary to intra-abdominal adhesions (n = 2) and cardiac arrythmia (n = 1). Abnormal findings were detected in 38 patients (19%), of whom 25 (12.5%) had diffuse intra-abdominal metastatic disease or biopsy proven metastases. 6 had liver metastasis, 5 had extensive lymph node involvement while the others had omental and/or peritoneal disease. Thus laparotomy was avoided in 12% of patients. Of the 163 with normal findings, staging laparoscopy was associated with a false negative rate of 1.9% (n = 4) and a negative predictive rate of 97.5%. However, in 20% of resections, the surgeon considered the procedure to be palliative due to local extension (60%), 26% of which were retrogastric. Other reasons for the resection to be classified as palliative were macroscopic lymph node involvement outside the limits of resection (8.3%), ascites (8.3%) and others (13%). Yield of metastatic disease on staging laparoscopy was lower for esophageal (7%) as compared to junctional (13%) and gastric cancers (15%).

Conclusions: Staging laparoscopy in esophago-gastric cancers avoids a laparotomy in 12% of cases with a low false negative rate. However, its limitations in assessing the lower retrogastric area and its lower value in esophageal cancers should be appreciated.

P097

LONG TERM RESULT OF TRANSANAL ENDOSCOPIC MICROSURGERY (TEM) FOR SUBMUCOSAL INVASIVE RECTAL CANCERS

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Recently, the number of early colorectal cancers has increased due to improvements in diagnostic modality. Selection of appropriate therapy for early rectal Rb cancers remains controversial between curability and ractoanal function. Transanal endoscopic microsurgery (TEM) is good choice for rectal adenoma and mucosal cancers. However, curability of TEM for rectal cancers with submucosal invasion is yet to be clarified because there of the lack in long-term results. In this report, we evaluated long term outcome of TEM for submucosal invasive Rb cancers of the rectum.
Objects and method: During a period between January 1995 and December 2002, 105 TEM operations were performed for patients with rectal Rb tumor at Jikei Aoto hospital. Of there, 71 (76.1%) were diagnosed pathologically as rectal cancer. Their age varied from 38 to 84 (mean 65.1) years, and 32 of them were female.
Result: The depth of cancer consisted of mucosal invasion in 41, submucosal invasion (sm) in 27, and muscularis propria invasion in 3 cases. No major postoperative complications were encountered. In sm cases, one patient underwent abdominoperineal resection (APR) after TEM and 5 patients underwent postoperative radiation. The remaining 21 patients have been followed up without additional therapy. The mean follow up period was 6.0 years. Four of the 26 patients (15.4%) developed recurrence, two local and the other two with lymph node metastasis, of whom two died at 3.3 years and 6.8 years after TEM, respectively.
Discussion: TEM is minimally invasive surgical technique for rectal tumor. However, recurrence rate of TEM for simple rectal sm cancers was 15.4%. Therefore, careful patient selection and pre/post chemo radiotherapy seem indicated for Rb rectal cancer with sm.

P098

THE INCIDENCE AND MACROSCOPIC ASPECTS OF UNEXPECTED CARCINOMA AFTER CHOLECYSTECTOMY: LITTLE NEED FOR ROUTINE HISTOPATHOLOGICALEXAMINATION

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Introduction: Many surgeons are being trained with the motto that everything worth removing is also worth examining histopathologically (HE). However, the incidence of unexpected gallbladder carcinoma is very low and the routine use of HE has been questioned. Therefore we have determined the incidence of unexpected gallbladder carcinoma in our patients and related this incidence to its macroscopic features.
Method: Histopathological exams of all cholecystectomies were analysed retrospectively. The reason of resection, their macroscopic aspects as described by the pathologist (thickened, irregular or hardened wall, polyps, ulceration) and there microscopic outcome were scored. The medical files of all patients with a histologically proven or preoperative suspicion of gallbladder carcinoma were restudied. Statistical analysis (spec, sens, LR+, LR-, pre- and posttest odds) was performed after deducting all patients in whom a cholecystectomie was performed for a different carcinoma (n = 89) or a primary suspicion for gallbladder carcinoma (n = 18).
Results: In 5 years 4546 cholecystectomies were performed. In this group the overall incidence of unexpected gallbladder carcinoma was 0.248%, ranging from 0.06% (2/3194) if no macroscopic abnormalities were found to 5,5% (2/37) if three abnormalities were found. 18 patients had a strong suspicion of gallbladder carcinoma before HE. 6 turned out to have a chronic fibroid cholecystitis. In 7 patients the pre-operative diagnosis of carcinoma was confirmed and in 5 patients there was a clear diagnosis during the operation. 25 patients turned out to have a HE proven gallbladder carcinoma, leaving 13 patients to have an unexpected carcinoma.
Conclusion: If there is no suspicion for gallbladder- or any other carcinoma preoperatively, and no macroscopic abnormalities during operation are found, the incidence of unexpected gallbladder carcinoma is very low (0.06%). In these cases routine histopathological examination seems superfluous.

COMPLICATIONS AND THEIR LEGAL CONSEQUENCES

P099

THE USE OF AN ENDOBAG AND THE ACCIDENTAL INTRAOPERATIV INJURY OF THE GALLBLADDER AS PROGNOSTIC FACTORS

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Introduction: The accidental intraoperative opening of the gallbladder is a problem of the laparoscopic surgery, if an incidental gallbladder carcinoma exists at the time of operation. According to the literature this complication comes up to 30% of the laparoscopic operations.
In order to prevent the dissemination of tumorcells the use of an endo bag is proclaimed.
The question is if the intraoperative perforation of gallbladder carcinoma really leads to an prognostic deterioration and if the patients which have been treated with an endo bag have an prognostic advantage.
Material and method: To obtain data we are using the CAES/ CAMIC- register of incidental gallbladder carcinoma. We are collecting our data with a standarized questionaire, which has been sent to all German and now to all Austrian surgical clinics as well. In a period of 3 months we are actualizing the data.
Results: 417 cases of incidental gallbladder carcinomas are registered. 220 were operated laparoscopically, 67 (30,5%) of them get a relapse of the tumor. 99 patients were treated with the support of an endo bag, the rate of an relapse was 37,4% (n = 37). 121 of the laparoscopic group have treated without an endo bag, the rate of an relapse was 24,8% (n = 30). In 44 of 220 laparoscopic treated patients there was an intraoperativ accidental opening of the organ, the rate of a relapse was 43% (n = 19). In 28 of 44 cases an endo bag was used, the rate of a relapse was 46% (n = 13). The other 17 of 44 patients who were operated without an endo bag have a rate of relapse of 35% (n = 6).
The group without an intraoperative perforation (n = 176) have 27,3% (n = 48) of tumor reccurence. 71 of this 176 were treated with the use of an endo bag, 22 (31%) of them had a tumor reccurence, the other 105 of the 176 patients treated without a bag had a reccurance rate of 23% (n = 24).
Discussion: In our register, the intraoperative perforation leads to a significant prognostic disadvantage (p = 0.0463 Fishers exact test). The patients treated with an endo bag have a tendency of a higher rate of tumor reccurences (p = 0,055 Fisher's exact test). The endo bag seems not to have a protective effect.

P100

USAGE OF THE TRANSESOPHAGEAL ECHOCARDIOGRAM FOR MONITORING OF THE GAS EMBOLIZATION WITH LAPAROSCOPIC HEPATECTOMY

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Aim: Transesophageal ecocardiogram (TEE) had been used for evaluating of intraoperative cardiac function. We report, in this study, usage of the TEE for keeping watch on intra cardial gas embolization during the laparoscopic hepatectomy.

Patients: Fifteen patients were performed the TEE for monitoring of gas embolization, ten were laparoscopic cholecystectomy and five was laparoscopic or open hepatectomy. Methods: TEE were performed during pneumoperitoneum with CO_2 gas under 6mmHg to monitor in the bilateral atrium and left ventricle. Hepatectomy were performed with microwave coagulator, radiofrequency wave coagulator, ultrasonic coagulator and Argon plasma coagulator.

Result: Laparoscopic partial hepatectomy was performed for four patients and only coagulation therapy for one patient with radiofrequency wave coagulator. No patients were occurred gas embolization. But, under TEE monitoring, few small babble were observed in four patients in laparoscopic cholecystectomy and one case of partial hepatectomy. A lot of small micro-bubbles were detected 3 cases in partial hepatectomy or coagulation therapy with radiofrequency or microwave coagulator. But, almost air bubbles were absorbed in lung and disappeared in the left atrium and ventricle.

Summary: Air embolization during hepatectomy was not related with amount of bleeding, pneumoperitoneum but also related with surgical devices such as microwave coagulator and radiofrequency coagulator. TEE was useful for the monitoring of gas intraoperative embolization.

P101

MOTOR INSURANCE COVER (MIC) AFTER LAPAROSCOPIC SURGERY: THE NEED FOR GUIDELINES

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Introduction: Following surgery patients are advised as to when they can resume normal activities including driving. Laparoscopic cholecystectomies (LC) allow faster post-operative recuperation and an earlier return to normal activities. Doctors give differing advice regarding driving after LC. The aim of this study was to assess whether insurance companies and the DVLA were aware of the implications of LC and if they had any policies or guidelines in recognition of these.

Methods: A telephone survey was conducted of 40 UK insurance companies and the DVLA. The questionnaire covered their knowledge of LC and any modifications in MIC related to this. The DVLA was asked if there was any alteration in advice for driving after LC.

Results: 50% of insurers knew that laparoscopic surgery is utilised for gallbladder procedures. None were aware of issues such as day-case LC, reduced analgesia requirement and early return to normal activities. None had altered their advice regarding the period of abstaining from driving in recognition of LC relying on the operating surgeon to advise on this. The DVLA did not recognise any potential difference for advice regarding driving between LC or open procedures.

Conclusion: Insurance companies have negligible knowledge, understanding or awareness of LC. Advice is ad-hoc and is not evidence based. There is need to develop sound and specific guidelines for doctors who give advice regarding when to drive after LC.

P102

COMPLICATIONS CAUSED BY INSERTION OF VERESS NEEDLE AND TROCAR DURING GYNECOLOGICAL LAPAROSCOPY - ANALYSIS OF 1,703 CASES

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Aims: To determine the amount of complications caused by insertion of Veress needle and trocar, and then to prevent visceral and vascular injury during gynecological laparoscopy.
Methods: Between January 1995 and December 2004, 1,703 patients undergoing laparoscopic surgery were studied. The patients were assigned to the following groups: the conventional closed technique using Veress needle/trocar (group 1, n = 1,270, 1995–2002) and the open technique without blind procedure (group 2, n = 433, 2003–2004). The 2 test was used for statistical analysis.
Results: Total complication rate throughout this entire period was 1.8% (n = 29), 2.1% (n = 27) in group 1 and 0.5% (n = 2) in group 2. Complication rate was significantly higher in group 1 (2.1% versus 0.5%, p = 0.0360). These complications were almost minor trouble that could be managed by laparoscopy; however, four patients (0.2%) were carried out laparotomy. These cases consisted of 2 patients of retroperitoneal vessel injury and 2 patients of abdominal wall vessel injury with blade-type trocar. No major visceral injury was observed. Making a comparison between the primary trocar site on periumbilicus and the secondary trocar site on lateral region, complication rate was higher in the former (primary trocar site 1.2% versus right- and left secondary trocar site 0.6%; p = 0.0867, 0.4%; p = 0.0247, respectively). The blind insertion using Veress needle/trocar via periumbilicus was a significant cause of laparoscopic complications. The disposable blunt-type trocar used in group 2 must be improved the risk of complication on lateral abdominal wall.
Conclusions: It is difficult to completely avoid the complication induced by Veress needle/trocar insertion during laparoscopy. However, it was suggested that the incidences of these complications can be reduced to less than 1% through the implementation of prevention and countermeasures against these injuries. We also strongly favor the open access technique and usage of blunt-type trocar based on our experience.

DAY SURGERY

P103

LAPAROSCOPIC CHOLECYSTECTOMY AT AN UNIT OF AMBULATORY SURGERY. RESULTS AT 5 YEARS OF POST-OPERATIVE PERIOD

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Aims: Laparoscopic cholecystectomy (L.C.) is the gold standard procedure for chronic symptomatic cholelithiasis. Our aim is to asses the laparoscopic activity at a Unit of Ambulatory Surgery upon a postoperative period of 5 years.
Methods: During 4 years we performed 321 L.C., of which 306 built the study group. We used including and excluding criteria, analysed the patient characteristics, operative aspects, hospital stay, morbi-mortality and patient satisfaction. All of this through clinical history follows up at outpatient clinics and phone call questionnaire for clinical analysis and satisfaction at 5 year postoperative period.
Results: Population was 290 women and 31 men. 15 cholecystectomies were turn to open procedure due to difficulties at identifying structures (10 patients), adhesions (3 patients), and haemorrhage (2 patients). Obesity: 38 patients. Medium aged: 45 years old. ASA groups: 67 patients for group I, 156 for group II and 98 for group III. Surgical procedure took 67 minutes. Open technique was performed in 29 patients and close procedure was performed in 292. Number of ports was 3 for 50 patients and 4 ports for 271. Medium postoperative time: 10 hours. Morbidity: gallbladder perforation in 6 patients, hiliar bleeding in 2. Two patients were back at hospital due to biliar peritonitis (Luschka leak). Mortality was null. Only 11 patients had some symptoms: 8 with pain in right upper quadrant, 1 retained stone which needed of ERCP, 2 subhepatic leakage of serum. 99.06% of patients would repeat experience.
Discussion: Postoperative time has been kept mean-time under 10 hours. During last years, it has been increased the number of day surgery procedures and residents which participated in the surgical procedure. We performed the close approach better than the open technique, and we preferred 4 ports.
Conclusion: At five years of practice, this technique has become as a safe procedure at our day surgery unit. Residents take an active role in the learning and performing of this surgical approach. The optimal recovery of patients allow to nurses to attend other patients which needed more critical care. We think this procedure is perfectly performed in our area while patients keep well selected.

P104

SEPSIS OF ABDOMINAL ORIGIN WITH LONGO'S ANOPEXY TECHNIQUE: A CASE STUDY

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Aims: To describe the clinical evolution of a case of sepsis of abdominal origin after Longo's CMA technique. One of the main advantages of this technique, is the significant reduction in post-operation pain. The most frequent complication is haemorrhaging but sepsis is extremely rare.
Methods: The patient was a fifty-five year old woman with a history of sigma diverticulosis and osteoporosis who presented grade III-IV haemorrhoids. To prepare the colon for surgery, the patient self-administered enemas before leaving home. Prophylactic antibiotherapy was administered before the operation. Faeces observed in the rectal ampulla were recovered with gauze. The rest of the operation proceeded without incident.
Results: The initial post-operation phase was normal. However, 12–24 hours after the operation, the patient began to feel widespread abdominal pain. A simple X-ray of the abdomen revealed signs of peritonism and pneumoperitoneum. Punctiform perforation at the rectum-sigma junction (10–12 cm) was observed with spiculate faeces on the inside, and peritonitis. The perforation was sutured, and peritoneal wash and colostomy discharge were performed. Five days later, however, she suffered hypertension, oliguria, septic shock and multiorgan failure. Alithiasic gangrenous cholecystesis and right subphrenic abscess were observed and the imperviousness of the colon suture was checked. The patient did not recover and died following the operation.
Discussion: Perforation of the intraperitoneal rectum has not been described in the literature (the suture is performed 3–4 cm from the anal margin and the blunt endostapler is designed to be inserted into the anal canal). Self-administered enemas (which may be inefficient) could have caused the perforation since this is more frequent when enemas are not administered by health staff. There were no manoeuvres or complications during the operation that would point to any instrumental perforation and, in any case, the perforation region was 10–12 cm away. The inefficiency of the enemas may have caused faecal material to be discharged from the peritoneal cavity, thus leading to sepsis and the patient's poor post-operation evolution. We recommend the systematic use of antegrade colonic lavage and antibiotic prophylaxis for the surgical treatment of haemorrhoids, specially in One Day Surgery and minimally inavasive programs.

P105

FEASIBILITY OF LAPAROSCOPIC NISSEN FUNDOPLICATION AS A DAY-CASE PROCEDURE

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Aim: Postoperative recovery is accelerated by recent developments in perioperative care such as tailored anaesthesiology, minimally invasive surgery and enhanced postoperative mobilisation and oral intake. This enhanced recovery shortens hospital stay and enables day-case surgery.
Aim of this study was to assess the feasibility of day-case laparoscopic Nissen fundoplication.
Methods: This study consists of a prospective series of patients with refractory gastro-esophageal reflux disease who underwent day-case laparoscopic Nissen fundoplication. Only patients with American Society of Anesthesiologists (ASA) grade I-II were included. The Euroqol questionnaire was used to assess postoperative health-related quality of life, with 1 as best and 0.594 as worst possible outcome.
Results: From October 2005 to January 2006, 10 consecutive patients were included consisting of 6 male and 4 female patients. Median age was 45 years (range 37–60) and median Body Mass Index was 28.1 kg/m^2 (range 21.4–36.2). The ratio between ASA grade I and II was 4:6. In all patients the operation started in the morning, and median operating time was 88 minutes (range 73–149). Nine patients were discharged the same day, one patient was observed for one night due to subcutaneous emphysema. Three patients were seen on the First Aid with minor complaints or pain. These patients were sent home after reassurance and if necessary additional pain medication. There were no readmissions. Postoperative 30-day morbidity was seen in 2 patients in both cases consisting of extended subcutaneous emphysema. The mean Euroqol values on postoperative day 1–4 and 7 were respectively; 0.17 (0.12), 0.16 (0.11), 0.33 (0.11), 0.45 (0.08), and 0.57 (0.06).
Conclusions: This preliminary data suggest that day-case laparoscopic Nissen fundoplication is feasible with no increase in morbidity or readmissions.

P106

LAPAROSCOPIC CHOLECYSTECTOMY AS A SAFE, COST-EFFECTIVE DAY SURGERY PROCEDURE IN LITHUANIA

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Aims: Laparoscopic cholecystectomy (LC) has been routinely performed since 1994 at our institution, and patients were traditionally admitted for 3–4 days. Many recent studies, mostly from abroad, report that it can be performed safely in the day surgery setting. Since February 2005, LC has been performed as one-day surgery (LC/DS) at our institution. The purpose of this study was to review the results of our experience with this procedure and to determine acceptability and safety of LC as an outpatient procedure in Lithuania.
Methods: The data of patients who had undergone LC/DS because of symptomatic uncomplicated cholelithiasis between February 2005 and March 2006 in the Day Surgery Centre of Kaunas district hospital were collected and reviewed. The selection criteria for patients undergoing LC/DS included American Society of Anesthesiologists risk classification I-III, and the availability of a competent adult to accompany the patient home and look after them for 24 hours. LC was performed using a four-trocar technique.
Results: There were 81 patients (64 female and 17 male) with a median age of 65 years (range 25–83). The median body mass index was 25 (19–39). Median operation time was 65 minutes (20–90). There was no conversion to open cholecystectomy. Most patients (94%) mobilized in hospital within 6 hours of surgery. Of the patients, 38,6% (30) were discharged within 8 hours of surgery (on the same day); 51 (61,4%) were discharged after an overnight stay (less than 24 hours). There was no major complication and no return visits to the emergency room (ER) or hospital. Altogether, 97% of the patients were satisfied with the care they received. The mean procedural cost to the hospital was 1301 Lt (377) for LC/DS compared with 1532 Lt (444) for an inpatient operation. The main postoperative savings were in the postoperative costs.
Conclusions: Our results confirm that LC as a day surgery procedure is safe, effective, acceptable to patients and their relatives. LC is feasible outpatient procedure in Lithuania, with high levels of patient satisfaction and some economic benefit to the hospital.

P107

AMBULATORY LAPAROSCOPIC COLECYSTECTOMY IN THE REGIONAL HOSPITAL

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Introduction: In the developed countries laparoscopic cholecystectomy is an ambulatory procedure. According to foreign authors its basic advantages are: shortened hospital stay, a quick recovery and return to normal life and work activities, lower hospital costs. The aim of this study is to assess feasibility of ambulatory laparoscopic cholecystectomy in the regional hospital in the country of Western Balkans.

Methods: During the last two years 85 patients with symptomatic cholecystolithiasis underwent ambulatory laparoscopic cholecystectomy at department for minimal-invasive surgery in the regional hospital. Selection of patients was according to the following criteria: ASA I and II, age < 65, without previous operations in the upper abdomen, patients with low risk for common bile duct stones, US findings (gallbladder calculosis with wall < 5mm), educated patients from urban environment (< 30 km away from our hospital). Operations started no later then 12 AM, on same day as admission. Patient satisfactory was assessed by independent telephone questionnaire 4 weeks postoperatively.

Results: There were 67 (78.8%) women and 18 (21.2%) men. Laparoscopic cholecystectomy was successfully accomplished in 84 patients; accept one (1.8%) that ended with conversion due to difficulties in identification of anatomic structures. Average operating time was 35 minutes (25–60). All patients were discharged on the same day. Average hospital stay was 11h (10–12). There were no postoperative complications (US on the first postoperative day showed normal findings). Eighty-four patients described their experience as 'pleasant', 1 described as 'unpleasant'. All patients stated that they would recommend this operation to close friends and relatives.

Conclusion: In selected patients, ambulatory laparoscopic cholecystectomy is safe and feasible in the region hospital of the country in development, and should be performed more often, since its benefits for the patients and the community.

DIFFERENT ENDOSCOPIC APPROACHES

P108

COMBINED MINIMAL-INVASIVE PROCEDURES FOR RESECTION OF GASTRIC WALL TUMORS

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Introduction: With the increased number of diagnostic endoscopies, the rare, benign submucosal gastric tumors are beeing detected more frequently. We report our results with a combined laparoscopic and endoscopic approach for minimal-invasive resection of these tumors.

Patients and Methods: This combined procedure was performed in 20 patients. The intraoperative endoscopy allows precise localization of the lesion by direct visualization and diaphanoscopy. Ectragastral wedge resection of the stomach using the lifting method was carried out in patients with tumors of the anterior wall, lesser curvature and greater curvature. In case of tumors of the posterior wall, near the cardia or pylorus, we performed an intragastric resection. One trocar with a balloon was inserted into the stomach. This trocar was used, to introduce the endostapler into the gastric lumen.

Results: We performed this combined laparoscopic-endoscopic resection in 20 patients (12 extragastral, 6 intragastral and 2 conversions) The tumor size of extragastral resections was 314mm (range 28–41mm) and of intragastral resections was 376mm (range 26–47mm). Histological examination revealed 14 gastric stromal tumors, 1 lipoma, 2 leiomyomas and 2 adenocarcinomas. There were no intra- or postoperative complications. The oral nutrition was started on p.o. day 2. Hospital stay ranged from 4 to 8 days (mean 6.4 days)

Conclusions: The minimal-invasive combined laparoscopic-endoscopic resection of benign gastric wall tumors is a safe procedure with a low morbidity and mortality rate. The main criterion for an extra- or intragastral approach is the localization of the tumor.

P109

RIGHT HEMICOLECTOMY FOR CANCER - HAND-ASSISTED LAPAROSCOPIC SURGERY OF COLECTOMY VS LAPAROSCOPIC COLECTOMY

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Aims: The laparoscopic approach confers particular benefits that include decreases in postoperative pain, length of hospital stay, and time to gastrointestinal recovery, as well as reductions in stress. However, legitimate concerns have been raised regarding the prolonged operation time, the steep learning curve. To conquer these limitations, surgeons developed the new technique of hand-assisted laparoscopic surgery.
Methods: We compared the outcomes achieved with hand assisted laparoscopic surgery of colectomy (HALS) and laparoscope assisted colectomy (LAC) for the management of right colon cancer. We compared HALS and LAC for operation time, estimated blood loss, any complications, and length of hospital stay.
Results: From March,1998 to January,2006, sixty patients with right colon cancer were performed curative laparoscopic surgery, including LAC (n = 42) and HALS (n = 18). There were no significant differences in age, gender distribution, disease pattern, operative procedure in the two groups. The incision of HALS is longer than that of LAC, but it reduces the number of trocars. The HALS patients had significantry shorter operation time : HALS (191.140.3 minutes) than LAC (213.842.8 minutes) and less estimated blood loss :. HALS (60.367.0gr) than LAC (65.357.8gr) There were no significant differences in hospital stay and complications.
Conclusion: In addition to HALS group received the benefits and advantages of LAC, including early recovery of gastrointestinal functions, shorter hospital stay, and better cosmetic results than those of open surgery, HALS is easier to learn and requires short operative times than LAC. HALS is a safe and efficient approach that makes it possible to make enough space for oparation by fingers as role of retractor, and to control any bleeding by finger pressure. However, to address the role of HALS in curative management of malignancies, long-term follow-up is essential.

P110

LAPAROSCOPY AND PERITONEAL CYTOLOGY IN PATIENTS WITH GASTROINTESTINAL MALIGNANCY

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Aims: Preliminary work by our group has show that peritoneal cytology and laparoscopy is superior in detecting patients with gastrointestinal malingnancy.

Methods: Our experience at Bijeljinas General Hosapital with staging laparoscopy and peritoneal cytology over the past 8 years (N-131) reveals that approximately 18% of patients without metastases by computed tomographiy harbor occult metastatic diseases at laparoscopy. The telescope is introduced through a 10 mm trocar and examination begins by inspection of the lower abdomen and pelvis. Free fluid is aspirated and seved for cytology.

Results: Peritoneal cytology and laparoscopy was performed in 131 patients in helth district in the north-east of Bosnia (population 180.000). Our data reveal that positive cytology occurs in 30,5% (40/131) of patients with visible metastases, but in only 9,1% (12/131) of those without ($p < 0{,}001$). We advocate the classification of patients with positive peritoneal cytology as M1 in the TNM system as is the case for gastrointestinal cancer.

Conclusions: Laparoscopy with peritoneal cytology detects metastasis in greter then 24% of patients with negative CT scans, and assessment of unresectability may be improved by lasparoscopic ultrasound or extended dissection.

P111

A NOVEL TRANS-COLONIC ENDOSCOPIC APPROACH TO INTRA-ABDOMINAL SURGERY IN THE PORCINE MODEL

NO SHOW

P112

EVALUATING AN OPTIMAL GASTRIC CLOSURE METHOD FOR TRANSGASTRIC SURGERY

NO SHOW

P113

EXPERIENCE OF LAPAROSCOPIC SURGICAL TREATMENT IN PATIENTS WITH GASTROESOPHAGEAL REFLUX DISEASE

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Gastroesophageal reflux disease (GERD) is an increased esophageal exposure to gastric juice caused by a mechanical failure of the antireflux mechanism. About 60–70% of patients with documented reflux have a mechanical failure of the distal esophageal sphincter.

The aim of this work was to evaluate the outcome following laparoscopic antireflux surgery in GERD patients.

Materials and methods: We studied the GERD cases treated laparoscopically in Endoscopic Department of Lviv Emergency Hospital during 2005 year. We gathered a group of 15 patients, 11 males and 4 females with an average age of 49,1 years. The patients had either a simple GERD, small and medium hiatal hernias (12 cases) and giant hiatal hernias (3 cases).

The patients were studied by means of a symptom questionnaire, endoscopy, 24-hour esophageal pH monitoring, and a barium esophagogram. The presence of esophagitis was recorded and graded by the Savary Miller score and the Muse classification. All patients had medical therapy with proton pump inhibitors preoperatively. A laparoscopic Nissen fundoplication was performed in all patients.

Results: We used surgical techniques: 1.full mobilization of the lower esophagus and gastroesophageal junction, 2. reapproximation of the diaphgramatic crura, 3. mobilization of the gastric fundus by dividing the short gastric vessels, leading to the use of a different part of the stomach to construct the fundoplication, 4. construction of a short and floppy wrap (< 2 cm). The mean operative time was 210 minutes.

Among all patients after Nissen fundoplication early (chest infection, pulmonary embolism, abdominal infection, mediastinitis) and late complications (dysphagia, wrap disruption, intrathoraric migration of the wrap, slipped Nissen, heartburn) was not revealed. The mean stay in the hospital was 5 days. All patients were examined by us through one and three months.

Conclusion: A laparoscopic surgical approach is a satisfactory method for correcting gastroesophageal reflux disease. Anti-reflux surgery is a safe, effective and alternative to long term medical treatment of GERD. We consider for necessary to get of experience similar operations and to expand the indication for laparoscopic treatment.

P114

UNCOMMON PATHOLOGIES DISCOVERED DURING DIAGNOSTIC LAPAROSCOPIES FOR MALIGNANT DISEASES

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Aim: In spite of the most sophisticated diagnostic tools, final diagnosis in malignant diseases may require a laparoscopic procedure to confirm diagnosis through a bioptic specimen: this is true for malignancies whose diffusion is beyond surgery and in case of lymphoma where histology is mandatory for medical treatment.
Methods: From January 03 to December 05, 7 cases of diagnostic laparoscopies were performed to confirm and stage a carcinoma with peritoneal involvement (group A, 4 cases) and to obtain suitable histology for lymphoma (group B, 3 cases). The patients were 5 males and 2 females with age ranging from 21 to 74 years. All cases were Caucasians except one case of black African race. Laparoscopy was in both groups the final step of a diagnostic work up which always included ultrasound and TC scan.
Results: Group A: in 3 cases laparoscopy confirmed peritoneal spreading of a carcinoma originating from gall bladder, pancreas and colon respectively; in one case the nodular spreading was due to multiple tubercular lesions mimicking a neoplastic diffusion. Diagnosis was obtained only after histology and antitubercolar therapy properly started. Group B: Hodgkin and NH lymphoma were diagnosed in two cases respectively; in one patient bioptic specimen showed only features of necrosis in spite of two consecutives bioptic procedures; final diagnosis was obtained ex iuvantibus: the abdominal mass was due to a previous subclinical acute pancreatitis.
Discussion and conclusion: Effectiveness of laparoscopy was confirmed in the present experience: uncommon pathologies have been detected in not a negligible rate (28%): in both cases proper therapy was established and patients do well at the follow up.

P115

SURGICAL ENDOSCOPY COMBINED TO LAPAROSCOPIC PROCEDURES - WHO SERVES WHOM?

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Aim: Throughout the last 2 decades intraoperative surgical endoscopy gained increasing value: From diagnostic or controlling intention over therapeutical intervention in open surgery it finally was applied in laparoscopic procedures. Moreover it even served to complete certain operations. Exemplary case reports show this development.
Method: Case-reports: 1.: Merendino procedure, 2.: Intra-operative ERCP, 3.: Zenkers diverticula, 4.: Gastric wedge-resection, 5.: Oesophageal leiomyoma, 6.: Colonic polypectomy, 7.: Stenosis of hepato-biliairy anastomosis
Results: The role of diagnostic or interventional surgical endoscopy has been well established in conventional surgery. Some endoscopic procedures first had to proof their usefulness in conventional surgery before being adapted to laparoscopic interventions. Interventional surgical endoscopy is way different from gastro-enterologic endoscopy. The awareness for these needs seem to be better, if endoscopy is performed by a surgeon. Flexible endoscopy may even simplify minimally invasive procedures by avoiding complex and risky surgeries.
Limits of resection of neoplastic lesions should exclude recurrence, residual remnants as well as reduce complications. Location, shape and dimensions of a lesion may define a certain risk. Primary combined endoscopic-/laparoscopic procedures have proven their efficiency allowing immediate management of occurring complications and adapting necessary surgical steps. Therapy-optimizing may even be obtained for more complexe pathologies such as stenosis of an hepatico-biliary anastomosis through laparoscopic preparation. Furthermore some primary surgical strategies were described to allow secondary endoscopical therapy.
Conclusions: Laparoscopy and surgical endoscopy seem to enrich themselves mutually. Conception of laparoscopic-optimized endoscopic therapy seems to lead to new surgical procedures. Advantages may be seen in conserving surgical principles, in increasing patient comfort, simplifying procedures, managing complications without delay. Multimodality in treatment, the rise of interventional endosonography and new technologies open a wide range of therapeutical options. Combined laparoscopy and surgical endoscopy contribute to critical considerations and allow discerned indications.

P116

INTRODUCTION OF LAPAROSCOPIC COLORECTAL SURGERY IN THE NETHERLANDS

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Introduction: Introduction of the laparoscopic colorectal surgery started at 1991. After initial enthusiasm, abdominal wall metastases after laparoscopic surgery caused a lot of concern. Randomized controlled trials recently showed less blood loss, less postoperative pain and shorter hospital stay for patients who underwent laparoscopic colorectal surgery and no significant higher rates of portside metastasis. Nowadays this technique is used frequently and is part of the protocol in many hospitals. The purpose of this study is to determine the presence of this upcoming technique in Dutch hospitals.

Materials and Methods: A questionnaire was sent to all hospitals in The Netherlands and was answered by surgeons practicing laparoscopic colorectal surgery.

Results: We received a questionnaire from 93,3% of the written hospitals. Laparoscopic colorectal surgery is practiced in 80,8% of the teaching hospitals and in 59,7% of the non-teaching hospitals. Our responders had taken lessons to learn this technique in one or more of the next hospitals. Hamburg (40%), Strasbourg (29%), Leeuwarden (19%) and Rotterdam (11%). 19,7% of the surgeons had never taken lessons but learned it by doing it. The first laparoscopic resection was in 58% of the responders a sigmoid-resection. 33% started with the ileocaecal resection and 5,8% with a right hemicolectomy. 2,8% started somewhere else. 9,2% of the hospitals started to use this technique between 1991 and 1995, 29,3% between 1996 and 2002 and 61,5% started in 2003 of after this time. At this moment 36,3% of the practicing hospitals use fast-track techniques for the laparoscopic colorectal surgery.

Conclusion: In a lot of teaching hospitals laparoscopic colorectal surgery is used beside the conventional open procedure. Though teaching this technique is rare. In 2003 also a lot of non-teaching hospitals began practicing laparoscopic colorectal surgery, but they are still far behind the teaching hospitals.

P117

MINIMALLY INVASIVE SURGERY IN TREATMENT OF 'STROMAL' TUMORS OF THE ESOPHAGUS

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Aims: The benign tumors of the esophagus represent a large group of tumors, formerly called stromal tumors. They represent only a subgroup in the group of mesenchyme tumors of GIT now. The prognosis of these tumors depends mainly on its mitotic activity and invasion to the neighborhood.
Method: Minimally invasive surgery may play an important role in treatment of these tumors. The most important goal of these procedures is to resect the tumor with no injury to the mucose of the esophagus. A rendez-vous technique performed via video-thoracoscopic or video-laparoscopic approach with employing of the endoscope seems to be the best method.
Results: The described technique of rendez-vous procedures was used in three patients with leiomyomas at The 1st Dep. of Surgery, University Hospital Olomouc in the last three years. Videothoracoscopy was used for dissection and removal of the tumor.
In one case it was necessary to convert the procedure to the open approach due to a size of the tumor, which was not safe to manage vie video-thoracoscopic approach. Two remaining patients were successfully treated my means of video-thoracoscopic resection with endoscopical control. No complication occurred; no recurrence was seen, yet.
Conclusion: The experience of the authors supports opinions considering minimally invasive surgery to be a method of choice in treatment of benign tumors of the esophagus. Such a procedure may be a quite easy method of treatment of these patients with reasonable operation risk, especially in case of smaller tumors. On the other hand, it is necessary to take heed of possibility of malignant transformation previously benign tumors, especially when the tumor is larger than 5 cm. In such a case, it may be better to take a bioptic sample via endoscopy and use an open approach in treatment of the tumor. In cases of smaller tumors, the desribed method of renedez-vous operation should be preferred in all patients in which it is not contraindicated.

P118

RANDOMIZED CONTROL STUDY IN COSTS AND BENEFITS OF LAPAROSCOPIC CHOLECYSTECTOMY: ABDOMINAL WALL LIFTING VS. PNEUMOPERITONEUM PROCEDURE

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Objectives: Gasless laparoscopic surgery using the abdominal wall lifting (AWL) method was first developed. The AWL method allows the use of conventional reusable surgical instruments. The purpose of this study was to compare the cost-effectiveness of laparoscopic cholecystectomy (LC) using the AWL method in relation to that using pneumoperitoneum (P) method.
Methods: Randomized control analysis of 741 LC procedures between 1998 and 2006 was performed in consecutively operated patients with a diagnosis of cholecystolithiasis or gallbladder polyps in relation to costs and benefits. One group consisted of 357 LC performed using the AWL method and the other group comprised of 384 LC procedures performed using the P method. All trocars, scissors, dissectors, graspers and L-hook electrodes (excluding clips) used in the AWL method were reusable, whereas all surgical instruments in the P method were disposable. Hospital expenses, length of hospital admission and complication rates were analyzed.
Results: Mean hospital cost per case for LC using the AWL method ($6343) was 9% less expensive than that using the P method ($7115). Costs of operative equipment contributed to the difference (mean $901 per case) in total cost. Conversion to open cholecystectomy occurred in 7 cases (2.0%) using the AWL method and 13 cases (3.4%) using the P method. There were no significant differences in length of hospital admission or morbidity between the two groups.
Conclusions: LC using AWL method was less expensive than that using P method. This is mainly due to the use of reusable instruments in the AWL method. If LC is performed using the AWL method instead of using disposable equipment, considerable savings can be achieved without compromising patient safety.

P567

ENDOSCOPIC HEMOSTASIS IN MELLORY-WEISS TEAR

NO SHOW

P568

EVOLUTION OF THE PEG: THE SLIC TECHNIQUE

NO SHOW

EDUCATION

P119

LAPAROSCOPIC LEARNING CURVES

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Objective: Many different predictors of the acquisition of surgical expertise in laparoscopic surgery have been proposed. We aimed to generate learning curves, which might be used to predict the numbers of laparoscopic procedures required to achieve surgical proficiency.

Method: A retrospective analysis of the trends in theatre times for a single consultant surgeon undertaking a new laparoscopic herniorraphy practice from January 2000 was undertaken. Mean theatre times per five consecutive procedures were recorded. This was validated against laparoscopic cholecystectomy times over the same period where the surgeon had substantial previous independent operative experience (over 300 completed procedures). All theatre times were retrieved from an electronic theatre log completed at the time of each operation by the operating surgeon.

Results: For laparoscopic bilateral inguinal hernia repair a plateau of theatre time was reached between operations 21 and 25 and for unilateral hernias between operations 25 to 30. There was no further reduction in operative time. Conversely with laparoscopic cholecystectomy no shortening of operative time was found throughout the five-year period.

Conclusion: Operative time offers an indicator of surgical proficiency. Analysing these times and seeing when they plateau gives an indication of how many procedures are required to achieve competence. These data would be useful for both training and optimising theatre usage.

P120

TECHNICAL SKILLS ASSESSMENT AS A PART OF THE SELECTION PROCESS FOR FELLOWSHIPS IN MINIMALLY INVASIVE SURGERY

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Introduction: Selection of candidates for surgical fellowships is based traditionally on subjective evaluation by the program directors and references from previous positions. This system of selection has been used for many years in well-established fellowship programs producing excellent, skilled surgeons. However the introduction of new and well-validated objective methods of assessment has allowed us to evaluate the candidates technical skills and base the selection process on valid, reliable and transparent criteria.
Objectives: To validate the applicability of technical skills assessment in the process of selection of candidates for a fellowship position.
Methods: Prospective, descriptive single center study. Eight surgeons, applying for a fellowship position in Minimally Invasive Surgery, performed a previously validated assessment curriculum using a Virtual Reality Laparoscopic Trainer (LapSim - 3.0, Surgical Science, Gothenburgh, Sweden). Technical performance was evaluated using criteria registered by the simulator, i.e. time, error score and efficiency of movements score. The candidates performed all the tasks in easy end medium level until reaching pre-defined criteria. Assessment was performed using the hard level of the software. If the applicants did not reach the proficiency criteria on easy or medium level after 9 repetitions the test was considered as failed. Additionally, an evaluation form completed by two independent interviewers, assessed and ranked the applicants, based on a 30 minute interview impression.
Results: Five out of the 8 candidates failed the technical skills assessment test. One candidate failed to achieve proficiency criteria on easy level, 1 on medium level and 3 on difficult level.
Evaluation scores, based on the interview of the candidates showed a good inter-rater reliability (Cronbachs - = 0.8).
There was no significant correlation between the interviewers rating, and the applicants technical skills demonstrated during the test on the VR trainer (Spearmans - = 0.182, p = 0.696).
Conclusion: The study showed that evaluations by senior surgeons are reproducible and reliable. However, these ratings failed to correlate with technical proficiency demonstrated by the candidates during testing on a Virtual Reality laparoscopic trainer. The introduction of technical skills assessment has the potential to improve the current method of candidate selection, making it more valid, objective and transparent.

P121

EVALUATION OF RESIDENT LAPAROSCOPIC CHOLECYSTECTOMY PERFORMANCE USING GLOBAL OPERATIVE ASSESSMENT OF LAPAROSCOPIC SKILLS (GOALS)

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Background: The Global Operative Assessment of Laparoscopic Skills (GOALS), developed by Fried et al., has been shown to have construct validity in the assessment of surgical residents laparoscopic skills in dissection of the gallbladder from the liver bed. We hypothesized that GOALS would have construct validity for the entire laparoscopic cholecystectomy procedure.

Methods: Using GOALS, Attending surgeons evaluated PGY 1 through PGY 5 surgical resident performance during laparoscopic cholecystectomy. Scores for the 5 domains (depth perception, bimanual dexterity, efficiency, tissue handling and overall competence) were recorded by computer. For analysis, residents were divided into 2 groups. The novice group ($n = 16$) included PGY 1 through PGY 3; the experienced group ($n = 10$) included PGY 4 and PGY 5. Biostatistical analysis was performed using single factor ANOVA and the paired T-test.

Results: In the domains of depth perception, bimanual dexterity and efficiency the experienced group scored higher than novices ($p < 0.04$). There was no difference between the groups for tissue handling and autonomy. When a mean of all 5 factors were evaluated the difference between the groups was ($p < 0.03$). Difficulty of operation was evaluated in 9 cases; no significant differences were noted.

Conclusions: GOALS is a valid objective assessment tool for evaluating residents performance of the entire laparoscopic cholecystectomy procedure.

P122

GLOBAL OPERATIVE ASSESSMENT OF LAPAROSCOPIC SKILLS (GOALS) IN THE EVALUATION OF RESIDENTS PERFORMING LAPAROSCOPIC APPENDECTOMY

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Background: The Global Operative Assessment of Laparoscopic Skills (GOALS) has construct validity in the assessment of surgical residents performance of laparoscopic cholecystectomy. We used GOALS to evaluate novice and experienced surgical residents to determine whether GOALS would have construct validity in laparoscopic appendectomy.

Methods: PGY 2 through PGY 5 surgical residents were evaluated by the Attending surgeon at the end of a laparoscopic appendectomy. Using the GOALS scale developed by Fried et al., scores for depth perception, bimanual dexterity, efficiency, tissue handling and overall competence were recorded by computer. For analysis, residents were divided into novices (PGY 2 and PGY 3) and experienced (PGY 4 and PGY 5) groups. Biostatistical analysis was performed using single factor ANOVA and the paired T-test.

Results: 10 novices and 14 experienced residents were included in the analysis. The experienced group scored significantly higher for depth perception, bimanual dexterity and efficiency ($p < 0.05$). No difference was noted between the groups for tissue handling and autonomy. When a mean of all 5 factors was evaluated a statistically significant difference was noted ($p < 0.032$). Difficulty of operation was evaluated in only 10 cases, but no significant differences were noted.

Conclusions: GOALS is a valid assessment tool for objectively evaluating the technical performance of surgery residents during laparoscopic appendectomy. This study combined with previous validation studies for laparoscopic cholecystectomy document that GOALS is an appropriate assessment tool to evaluate residents performance during basic laparoscopic procedures.

P123

MIS FELLOWSHIP TRAINING: SKILL TRANSFER IS A MAJOR COMPONENT OF A BROAD BASED FELLOWSHIP

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Aims: As the number of institutions offering Minimally Invasive Surgery (MIS) Fellowships increases it is important to quantify the volume of procedures required to create a valuable experience for the trainee.
Methods: A survey was mailed to all fellows who completed a broad based (foregut, colorectal, end organ) MIS fellowship at one of the longest running programs in North America. Data was collected with regards to cases done prior to and during the fellowship. In addition, the number of cases that the surgeon felt necessary to perform the procedure independently was elicited. Further opinion based questions were rated on a five point Likert scale.
Results: The median number of advanced MIS cases done prior to the fellowship was 18 (range 0–49). None of the fellows felt comfortable performing any advanced laparoscopic procedure prior to the fellowship. The median number of cases performed during the fellowship was 172 (range 89–328). All fellows felt comfortable operating on foregut, hindgut and end organ at the completion of the fellowship. The median number of cases completed before attaining a comfort level for independent operating were the following: Nissen - 13.5 (5–30), Paraesophageal Hernia - 6.5 (5–15), Heller - 5.5 (5–10), Partial Gastrectomy - 3 (1–5), Total Gastrectomy - 3 (2–3), Small Bowel Resection - 2 (1–4), Right Hemicolectomy - 10 (5–20), Transverse 3 (1–5), Left Hemicolectomy - 5 (3–8), Sigmoid - 12.5 (5–20), Anterior Resection - 10 (8–20), APR - 4 (2–5), Total Colectomy - 2.5 (2–5), Splenectomy - 6 (5–20), Adrenalectomy - 10 (3–20), Distal Pancreatectomy - 3.5 (2–5).
Conclusion: The numbers needed to become independent in a specific procedure must be interpreted within the context of a broad based MIS fellowship as it appears that there is an element of skill transfer. This is evident from the small volumes needed to feel comfortable performing the most complex procedures. The data also give an indication of the minimum volumes required to offer a valuable fellowship experience.

P124

THE COMPARISON OF DIFFERENT TRAINING SYSTEMS IN DEVELOPING OF LAPAROSCOPIC SURGICAL SKILLS

NO SHOW

P125

VIRTUAL PARACENTESIS SIMULATOR (DEX): THE BENEFICIAL EFFECT OF HAPTIC INTERACTION ON THE LEARNING CURVE OF NOVICE TRAINEES

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Aims: The acquisition of skills required to safely perform invasive procedures is difficult to assess in clinical settings. We have developed a prototype VR simulator platform to enable training for accessing central vessels. The pilot study presented here treats the specific application case of subclavian vein paracentesis. Aim of this study was to evaluate the impact of haptic display in the performance of the simulator, regarding (a) the learning curve for novice users, and (b) the correlation of the system-generated assessment scores with the actual experience of the user.
Methods: Twenty users in two user groups participated in the study, namely: (I) novice and (II) experienced surgeons. Each user performed ten trials in DEX simulator, with or without active haptic interaction during needle insertion. Performance scores generetad by the simulator were collected and analyzed with SPSS 14.0.
Results: The evolution of the performance scores in the course of the experimental sessions (i.e. from trial-1 to trial-10), demonstrate a clear tendency for a 'steeper' improvement rate in the learning curve, when haptic display is active. This improvement concerns both: (i) average absolute values for the scores as well as (ii) the reliability of these measures as related to the variance of these values.
Discussion: There is a statistically significant correlation between the objective performance scores, automatically generated by the system, and the level of experience / skill of the user. Furthermore, this important correlation seems to appear only when haptic display is active. This finding supports our experimental hypothesis about the significant importance of haptic display in such interactive surgical simulator and training system. Without this haptic component the experienced users seem to be unable and fail to apply on the simulator their skill and dexterity acquired over long-time training and hands-on clinical practice.
Conclusions: Haptic display adds an irreplaceable component for the realism of the simulation, contributing significantly to an efficient emulation of the dexterity and skills required to perform the considered invasive procedures.
Acknowledgments: This work was partially supported by the Greek General Secretariat for Research and Technology and the European Commission, under Grant EL4-2003.

P126

TELEMEDICINE-TELEASSISTANCE AND TELEMENTORING FOR LAPAROSCOPIC SURGICAL EDUCATION EXPERIENCE IN TURKEY

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In basic laparoscopic surgery courses, it is important for the participant to have workshop practice in trainer box as well as live surgical practice on pigs initially. On the other hand, the advanced course covers the new laparoscopic surgical techiniques and the procedures are demonstrated on patients during live surgery usually. Teleconferance and telesurgery is being used more and more in this type of advanced courses. There are two basic ways of doing this: teleteaching and telementoring. The new laparoscopic techniques, performed on patients, are shown and taught to surgens at distant places by using real time as well as interactive live surgery teletransmission, during the advanced courses organized by expert centers. In Telementoring application the surgeon performing the laparascopic surgery on a patient for the first time is supervised by an experienced surgeon via visual and audio connection. A teleconference system established between the operating room and a distant experienced surgeon, enables the operating surgeon who has less experience, to benefits from the knowledge of the distant experienced surgeon with real time interactive connection.
This way, the praticing surgeon is gaining experience on the new techniques while performing live surgery in a safe and secure manner. During the last three years, ISTEM has successfully used Teleconferencing, Teleassisting and Telementoring applications at laparoscopic surgery courses, which has been continuously organized by ISTEM in Turkey for the past twelve years.

P127

DEVELOPING PSYCHOMETRIC ASSESSMENT OF LAPAROSCOPIC SKILLS USING THE PROMIS SIMULATOR

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Aims: In an evolving climate of reduced operative exposure and competency-based assessment, reliable and validated methods of objective skills training and assessment are required for trainee surgeons. The ProMIS Simulator (Haptica, Dublin, Ireland) potentially offers a method of assessing laparoscopic psychomotor performance. We present initial data from our Centre and Royal College of Surgeons Basic Surgical Skills (BSS) Courses.
Methods: Volunteers comprising 17 experienced laparoscopists (>100 laparoscopic cholecystectomies) and 38 medical students novices (no laparoscopic experience) were assessed on a complex sharp dissection task (glove over balloon). A further group of 28 basic surgical trainees (experience limited to 1st assistant) attending BSS Courses were assessed on the same task before and after training in laparoscopic skills. Data metrics of time, smoothness and path length were measured via optical tracking of instrument movement. Objective observations of specific errors were also recorded.
Results: Data analysis (ANOVA) demonstrated experienced laparoscopists performed target dissection at least 50% faster, smoother and with more economy of instrument movement than students ($p < 0.05$). Experienced participants performed sharp dissection more accurately ($p < 0.01$) although no difference in balloon puncture frequency was seen. Similarly significantly better performance over trainees was demonstrated. Trainees showed only significantly smoother instrument handling when compared to students, possibly reflecting greater baseline dexterity in this selective group. Repeat assessment following course training showed significant improvements in all metrics by 32–40% (Paired T test, $P < 0.05$). Whilst significant improvements were also demonstrated in repeat assessment of the untrained student group, these were less marked (15–18%).
Conclusions: The gross analysis of these metrics can distinguish between experience levels supporting the construct validity of this simulator task. These results suggest a potential role for objectively measuring baseline skill level and response to training in distinct psychomotor challenges. Further work in progress is examining the effect of interface familiarisation and repeated task performance on novice learning curves and defining target levels of performance in a range of simulated tasks.

P128

DETERMINATION OF CONSTRUCT VALIDITY OF THE URO MENTOR, A VIRTUAL REALITY SIMULATOR FOR ENDOUROLOGICAL PROCEDURES

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Aims: Residents learn operative skills by an apprentice-type of training. Due to ethical concerns this type of training is no longer acceptable. Nowadays skills labs are arising with different type of training models. Selection of models is mostly based on their costs and looks. Proper validation studies are necessary to use models in an evidence-based manner. This study determines the construct validity of the URO Mentor, a virtual reality simulator for endourological procedures. Construct validity answers the question: 'Can the simulator distinguish between novices and experts?'.

Methods: Ten interns (novices) and 21 urologists (experts) performed a cystoscopy task with biopsy taking and coagulation of the biopsy site on the URO Mentor. Novices performed this task 5 times, experts once. Afterwards they filled in a questionnaire.

Results: Experts are significantly faster (Wilcoxon, $p < 0.0005$) and cause less traumata ($p = 0.015$) during the first task when compared to novices. Data show a decrease in total performance time over runs, which is significant for all tasks compared with the first one ($p = 0.0010$). The number of traumata is significantly smaller during the fourth and fifth tasks, compared to the first task ($p = 0.023$).

Conclusion: This pilot study shows the URO Mentor can distinguish between novices and experts and proves there is a significant improvement in total time and number of traumata after training, thus demonstrating construct validity. Further study is needed to distinguish between true task learning and the effect of learning how to use the URO Mentor.

P129

THE VIRTUAL REALITY SIMULATOR THE URO MENTOR IS A REALISTIC AND VALID TRAINING MODEL: DETERMINATION OF FACE VALIDITY.

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Background: At the moment more and more training models become available for training in urology. In order to know whether such models improve learning curves of residents and contribute to the educational program, these models need to be validated. We are performing a validation study on the URO Mentor, a virtual reality simulator which simulates endourologic procedures. Face validity is one aspect of the validation process. It addresses the question: 'To what degree does the URO Mentor resemble reality as judged by a specific (target) population?'.
Aim: To determine face validity of the URO Mentor virtual reality simulator in order to investigate realism and usefulness of this educational tool.
Methods: We questioned 70 urologists and residents after they performed a urethrocystoscopic task (bladder inspection, biopsy and coagulation) or a ureterorenoscopic task (stone manipulation of a distal ureter stone). We also investigated possible questionnaire bias related to performance on the URO Mentor.
Results: The overall appraisal was 7.2 in a scale of 1 to 10 (1 is poor, 10 is good). A regression analysis showed that this judgment is independent of age, experience or task performance ($p > 0.05$). Of all interviewees, 86% considered working with the URO Mentor as realistic. Usefulness was judged from average to very useful by 89% of the urologists and residents. On average, over 73% would consider purchasing a URO Mentor if financial means were available, but subjects who caused more traumata during the task were less likely to answer positively to this question.
Conclusion: According to our study, the URO Mentor is a realistic and useful training model for educational purposes.

P130

USE OF INTERACTIVE IMAGERY FRAMES FOR TRAINING AND PERFORMING LAPAROSCOPIC OPERATIONS; AN INNOVATIVE APPROACH

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Aims: This account introduces a new method for proficient and safe performance of laparoscopic operations. Minimal access surgery (MAS) carries an inherent nature of risky and stressful performance, especially for a beginner, due to its peculiar ergonomics. Any new approach which can eliminate or reduce these elements of manipulational difficulty and uncertainty is worth giving a serious thought and trial. Imagery, as a technique for learning and performing tasks involving cognition along with manual skills like sports, aviation, and military, is well established. The significance of its application to MAS is beginning to be understood by its experts all over the world. The methodology suggested is based on imagery principles.
Methods: This technique is supported by a literature search of Pub-med, Medline, Educational Resources Information Center (ERIC), and miscellaneous educational psychology resources and is exemplified by its application to learning laparoscopic cholecystectomy.
Results: The salient features of this methodology include:
1) Establishing the carefully chosen facts essential for efficient and safe performance of the given operation. 2) Converting and organizing these facts into a series of key check points and maneuvers. 3) Arranging these points into a set of imagery frames. Each frame is designed to contain visual items pertinent to various stages of the operation. 4) Lining up these frames sequentially according to the flow of the operation mechanics. 5) These frames once developed for any operation can be mentally rehearsed before real operations. 6) This whole exercise of developing a set of mind frames for any operation can in itself be a learning project.
The unique advantages of this style are as follows:
1) Extremely cost effective and simple. 2) Ease of skill assessment. 3) Flexibility with regards to trainee, trainer, patient, procedure, and institution. 4) Efficiency in learning. 5) Less uncertainty and stress. 6) Less complications and errors. 7) Feasible for research geared to refine manual skills.
Conclusion: This imagery based technique for learning MAS operations using mind frames is based on sound principles of accelerated learning and psychology of performance. Hence, it should be explored, refined, and given a chance to develop its potential.

P131

LAPAROSCOPIC CHOLECYSTECTOMY AS A GUIDE TO ADVANCED LAPAROSCOPY

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Since the advent of laparoscopic surgery, the widespread acceptance and institution of minimally invasive techniques has been slow. One of the major reasons sited in the literature for this, has been a lack of standard teaching protocols to aid during basic surgical training. As a result, there remain a number of inadequately trained surgeons attempting to perform advanced laparoscopic procedures with inadequate skills. In addition, residents are produced who do not acquire the necessary skills in order to perform advanced laparoscopy upon completion of their residency training. The aim of this paper is to present an easily applicable approach to teaching minimally invasive surgery that can be utilized in both the academic as well as the private sector.

Key Words: Laparoscopic Cholecystectomy, Advanced Laparoscopy, Teaching, Education

EMERGENCY SURGERY

P133

LAPAROSCOPY IN ACUTE ABDOMINAL PAIN

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Background: The cause of acute abdominal pain may form a dilemma after applying the conventional investigations. This study aimed to determine the role and effectiveness of laparoscopy in this issue.

Patients and methods: Prospective study included patients with undiagnosed acute abdominal pain after conventional diagnostic methods such as blood, radiological, ultrasound and submitted to laparoscopy during the period from 2001 to 2005 in Babylon, Iraq.

Results : In series of 47 patients with undiagnosed abdominal pain, 44 females and 3 males with an age range between 13 - 48 years. After laparoscopy definitive diagnoses were possible in 44 and in 4 no cause was found but their condition improved, 17 had acute appendicitis, 9 postoperative adhesions, 8 ectopic gestation, 3 pelvic inflammatory diseases, 7 twisted tub ovarian cyst.Thirty-seven were treated by therapeutic laparoscopy and 7 did not need surgical treatment, no patient needed conversion to laparatomy, no mortality and no morbidity.

Conclusions: Laparoscopy plays a significant role in diagnosis and treatment of unclear acute abdominal pain. Early laparoscopy is advisable to save the patients delay and efforts.

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LAPAROSCOPY METHODICS IN SURGERY OF PERFORATIVE ULCERS

NO SHOW

P135

LAPAROSCOPIC OPERATIONS FOR ABDOMINAL TRAUMA

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Objective of the Study: The sickness rate of abdominal trauma has been increasing in Russia during the last years. Laparoscopic technologies help to solve this problem, but are limited by concerns of potential for missed injuries.

Material and Methods: There were 64 patients with abdominal trauma from 01.01.2004 to 31.12.2005. There were 53 male and 11 female and mean age was 36 (18 72) years. Most of the patients were hospitalized after 1–6 hours after a trauma. There were close trauma in 37 causes: there were a liver and spleen injuries in 14 patients, combined injuries in 12, a bleeding from omentum, mesocolon in 6, hematoma in 5. The character of injuries with knifes trauma were: without trauma abdominal organs- 8 patients, a liver wounds 7, a mesocolon wounds- 2, a colon wounds 2, combined injuries 3, diaphragmatic 2, bowel 1, many wounds of small bowel with general peritonitis- 1. There is the iatrogenic trauma of the uterus in 1. We use laparoscopy widely for correct diagnosis and approach for treating. Laparotomy was made without a laparoscopy in 8 (12,5%) causes because of shock and bad haemodynamic examination. There were laparoscopic operations in 18 (28,1%) patients. Parenchymal wounds were coagulated or sealed, and wounds in the diaphragm (2) sutured.

Results: 18 of 64 patients totally treated laparoscopically had an uneventful post-operative course. Their median hospital stay was 6 days, with no late complications. There were 3 conversions.

Conclusion: Laparoscopic approach can avoid a number of unnecessary laparotomy in abdominal wounds and can treat most of the lesions found in haemodynamically stable patients.

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LAPAROSCOPY IN THE EMERGENCY SERVICE OF OUR HOSPITAL

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Objective: To determine the role played by laparoscopy in the Emergency Surgery Service of our hospital during the last 6 yrs.
Material and Methods: We have revised all the cases undergoing laparoscopic surgery from November 2000 through January 2006 in our Emergency Surgery service. We have included all patients who were indicated for laparoscopic surgery, although some of the cases were converted into open surgery.
Results: A total of 576 laparoscopic interventions have been performed, of them 346 were laparoscopic appendectomies, 204 laparoscopic cholecystectomies, 4 adhesiolysis, 3 gastric perforation repairs, 3 colostomies, 2 splenectomies, 2 hemicolectomies, 2 oophorectomies and 8 blank laparoscopies.
Of these interventions, 188 were performed in male patients (32.63%) and 388 in females (67.36%). The average age of patients was 34.96 yrs, ranging from 13 to 84. The age peaks were 18 and 23 with 23 interventions performed in each age group (3.99% of the total). Mean length of in hospital stay required for each type of intervention was:
3.75 days in the case of adhesiolysis, 2.48 days for laparoscopic appendectomy, 2.33 days for simple gastric perforation repair, 20 days for colostomy, 15 for splenectomy, 11 for hemicolectomy, 4.8 days in the case of laparoscopic explorations, 5 for oophorectomy and 2.85 days for laparoscopic cholecistectomy. Conversion to open surgery was necessary in 31 cases that is 5.38%.
Conclusions: Laparoscopy has proved a safe technique which equals or even surpasses open surgery in many respects. It does not increase average length of in hospital stay; quite on the contrary, it may even reduce it in some cases. It also allows for the diagnosis and resolution of pathologies and shows a smaller incidence of mortality and post-operative pain than open surgery.

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ACUTE APPENDICITIS: LAPAROSCOPIC VS OPEN SURGERY RESULTS

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Objective: To calculate the theoretical length of in-hospital stay of patients attending the Emergency Service with an episode of acute appendicitis and undergoing laparoscopy. To compare hospitalization periods required for laparoscopic and laparotomic appendectomy.
Material and Methods: The patients have been classified according to the terminology used in our hospital management unit into: - Appendectomy with complicated principal diagnosis without complications. - Appendectomy with complicated principal diagnosis with complications. - Appendectomy without complicated principal diagnosis without complications. - Appendectomy without complicated principal diagnosis with complications.
Results: From November 2000 through January 2006, a total of 346 laparoscopic interventions were performed in patients diagnosed with acute appendicitis. The classification of these interventions was: - 21 laparoscopic appendectomies with complicated principal diagnosis without complications and an average length of stay of 3.94 days. - 13 laparoscopic appendectomies with complicated principal diagnosis with complications:11.00 days. - 304 laparoscopic appendectomies without complicated principal diagnosis without complications: 2.07 days. - 8 laparoscopic appendectomies without complicated principal diagnosis with complications: 7.00 days.
Using the index of facility care use, we have calculated standard theoretical length of in-hospital stay. The total hospitalization period corresponding to our series is 859 days. If we apply the index of facility care use (0.98) used in our hospital, the standard theoretical length of in-hospital stay for an episode of acute appendicitis treated by means of laparoscopy in our series is 2.53 days. We have compared our series with another group of patients undergoing open surgery: - 85 appendectomies with complicated principal diagnosis without complications and an average length of stay of 5.67 days. - 18 appendectomies with complicated principal diagnosis with complications: 12.65 days. - 449 appendectomies without complicated principal diagnosis without complications: 3.24 days. - 22 appendectomies without complicated principal diagnosis with complications: 7.95 days.
The total hospitalization period corresponding to this group was 2.410 days. The standard theoretical length of in-hospital stay for an episode of acute appendicitis treated by open surgery in our series is 4.47 days.
Conclusions: Laparoscopic appendectomy is an effective technique which reduces average length of in-hospital stay in all types of interventions.

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LAPAROSCOPIC REPAIR OF PENETRATING ABDOMINAL INJURIES BY STAB WOUNDS

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Background: Laparoscopy offers several advantages in the treatment of penetrating and perforating abdominal stab wounds. We report our experience during the year 2004 where patients, hemodynamically stable with abdominal stab wounds, were treated by laparoscopy.

Methods: Between January and December 2004, 8 hemodynamically patients (7M, 1F) presenting anterior abdominal stab wounds were admitted through the Emergency Unit of our Hospital. Average age was 31 years (17–55). Four patients had a left flank injury, two patients a left upper abdomen injury and two patients a middle upper abdomen injury. A diagnostic laparoscopy was proposed to all hemodynamically stable patients.

Results: Laparoscopy showed a peritoneal penetration in 100% of cases and visceral lesions in 87,5% of cases. The following-therapeutic laparoscopic procedures were performed: 1 right diaphragmatic repair, 3 left diaphragmatic repairs (movie), 1 gastric wall repair, 2 small bowel repairs (movie), 1 transverse mesocolon controlled-bleeding (movie). Mean operative time was 135 minutes (45–200). Operative mortality was 0% and early morbidity was 11,1%. Average hospital stay was 5,3 days (1–11). During a mean follow-up of 97,5 days (10–301), no late complications were achieved.

Conclusion: In hemodynamically stable patients presenting with a penetrating abdominal stab wounds, the laparoscopic approach is indicated, feasible. It decreases the rate of non-therapeutic laparotomies, lowering morbidity and decreasing length of hospitalisation.

P139

LAPAROSCOPY IN TRAUMA

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Background: The concept of diagnostic laparoscopy for abdominal trauma developed in the early 1960s and it now plays an increasing role as a diagnostic and potentially therapeutic modality in trauma. Not only can laparoscopy reduce the rate of unnecessary laparotomies in blunt and perforating abdominal trauma, it can also detect injuries to the diaphragm and solid organs that might otherwise be missed. We evaluate the diagnostic accuracy and therapeutic efficiency of laparoscopy in a small group of selected trauma patients.
Material and methods: Ten male patients underwent diagnostic laparoscopy between June 2000 and December 2004. All were stable prior to surgery and 9 had a blunt trauma. In two cases we also performed therapeutic procedures, once closing a stapling injury to the gastric wall and once suturing a mesenteric injury. In 8 cases we found non-bleeding liver, spleen and mesenteric injuries which did not require further treatment. None of the mesenteric injuries were diagnosed preoperatively and the source of the significant amount of intraperitoneal blood seen in the CT scan could not be explained prior to laparoscopy.
Results: Laparoscopy was performed successfully in all cases and we had no laparoscopy-related complications. In one case, the laparoscopy was converted to open surgery due to severe bleeding of the mesentery which ultimately required small bowel resection. This patient was re-operated on the third postoperative day due to a laparotomy pad forgotten in situ during the open surgery. No other patient required a second operation and/or developed any major complication. The operating time was between 45 and 82 minutes. The number of blood units transfused depended on the patients injuries.
Conclusions: Diagnostic laparoscopy in trauma is a safe diagnostic method and it has significant potential for treatment in selected hemodynamically stable patients with blunt and penetrating abdominal injuries. Avoidance of nontherapeutic negative laparotomies greatly reduces morbidity and length of hospitalization. The major risks are the potential delay to definitive treatment, missed injuries and procedure-related complications.

P140

A CLINICAL STUDY OF LAPAROSCOPIC REPAIR OF PERFORATED DUODENAL ULCER

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Aim: This study was conducted to clarify the efficacy of laparoscopic repair of perforated duodenal peptic ulcer compared with open method of perforated ulcer repair.

Methods: From 1996 to 2004, 37 patients were clinically diagnosed as perforated duodenal peptic ulcer. Patients were divided into 2 groups: 21 patients underwent laparoscopic repair (lap group), and 16 patients underwent open repair (open group).

Surgical procedures of laparoscopic repair: The initial 12-mm umbilical port was inserted for Video camera, and two additional working ports were inserted in the epigastrium. One or two stitches were applied to suture the perforation of ulcer, and the omentum was fixed on the sutured perforation.

Results: The two groups were comparable in sex, time to operation, preoperative and postoperative blood test. The patients in the lap group were younger than in the open group. The operation time in the lap group (median: 109 minutes) was significantly longer than that in the open group (median: 67 minutes) ($p = 0.003$, Mann-Whitney U test).
The postoperative stay in the lap group (median: 12 days) was significantly shorter than that in the open group (median: 16 days) ($p = 0.005$). The day to resume diet in the lap group (median: 6 day) was significantly earlier than that in the open group (median: 8 day) ($p = 0.011$). The laparoscopic repair was contributed to shorter postoperative hospital stay, and earlier return to normal diet.

Conclusion: Laparoscopic repair of perforated duodenal ulcer is thought to be useful and reliable.

P141

LAPAROSCOPY FOR LOWER G.I.T EMERGENCY

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We introduce a new indication for the lower gastro-intestinal pathology were these condition were been treated through a conventional technique, these patient they gain the full advantage of minimal invasive surgery, these procedure such as coloectomy. ilio-cacual resection, small bowel resection, tumor torsion of the pelvic pathology. The patient had been saved from emergency condition and also had the definitive therapy, we collected patient with sigmoid volvolus, iliocaecal lesion (T.B, Leiomyoma, mucoceal small bowel, appendix) as well as a gyn pathology.
We conclude that with development in the field of laparoscopic surgery, increase the experience of surgeon and introduction of new modality of instrumentation that can improve the research and can add a new era and indication & therapy of such pathology.

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LAPAROSCOPIC VENTRICULOPERITONEAL SHUNT PLACEMENT: A SINGLE TROCAR TECHNIQUE

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Background: Ventriculoperitoneal shunts (VPS) are the most common treatment modality for hydrocephalus. Placement of the abdominal portion of VPS can be difficult in the setting of previous abdominal surgery, prior failure of VPS, or obesity. The purpose of this study was to evaluate prospectively the safety and efficacy of laparoscopically assisted ventriculoperitoneal shunt placement, using a single-port technique.
Methods: While the neurosurgeon places a right frontal ventricular catheter and valve, a 5 mm umbilical trocar is placed utilizing the open Hasson technique. A 5-mm laparoscope is used to inspect the abdomen and identify the VPS entry site. Under laparoscopic visualization, a supra-pubic introducer is placed through a 5-mm incision in the right upper abdominal quadrant, and the VPS tubing is tunneled to that site. The VPS is delivered through the sheath, which is sectioned and removed. Function of the VPS is assessed visually while compressing the valve.
Results: Laparoscopically assisted ventriculoperitoneal shunt placement using a single trocar, was performed in eight adult hydrocephalus patients from September 2005 to February 2006. There were 4 males and 4 females with a mean age of 54 +15 years. Four patients underwent previous abdominal operations and three patients were operated due to VPS failure. All of the procedures were successfully accomplished and conversion to laparotomy was not required. There were no intraoperative or postoperative complications. The operative time was 42 + 18 minutes. The mean hospital stay was 2 + 1 days.
Conclusions: The technique of VPS placement assisted by laparoscopy is safe, allows for precision placement of the abdominal portion of VPS, and confirms appropriate function. Larger comparative studies and longer follow up may help to establish this approach.

P143

LAPAROSCOPIC VS OPEN APPENDECTOMY

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Aims: A randomized retrospective study was performed to compare open appendectomy and laparoscopic appendectomy.

Methods: From 2004 to 2005 there were 45 patients consecutively operated by one group of surgeons and laparoscopic appendectomy was done. Operative time, reintroduction of diet, postoperative pain, use of analgesia, hospital stay and complication were documented. Data were compared with open appendectomy group of 42 patients which were operated during the same period. Both groups were comparable by age and severity of disease.

Results: Operative time was longer for the laparoscopic group (46 min vs 38 min for open group). Second statisticaly significant difference ($p < 0,05$) was shorter hospital stay in laparoscopic group (3,5 days vs 4,6 days for open group). Reintroduction of diet, postoperative pain, use of analgesia and rate of complications were similar in both groups.

Conclusion: The laparoscopic procedure is technically more demanding to perform, but offers faster recovery and reduces hospital length of stay.

P144

IS THE LAPAROSCOPIC SUTURE OF RECENT PERFORATED DUODENAL ULCER THE BEST CHOICE FOR YOUNG PATIENTS?

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Due to the efficacy of the antiulcerous therapy, the simple suture followed by adequate medicamentous treatment is the standard intervention in perforated duodenal ulcer (PDU) in emergency. After 16 years from the laparoscopic approach of PDU, the controversy between open (OS) vs. laparoscopic suture (LS) still persists. Due to the coexistence of peritonitis, the results of the laparoscopic approach werent very convincing. In random cases, the only advantages of LS were the decrease of analgesics doses and that of parietal complications.
Our paper is a OS/LS prospective non-randomized comparative study, in selected patients, who didnt have the Boey risk factors (shock at admission, evolution over 24 hours, major associated illnesses), as these would significantly increase the postoperative morbidity and mortality. Selection criteria: age < 50 years, evolution under 24 hours, no major associated illnesses.

Results: We had 78 LS and 174 OS (we excluded 5 conversions). In 5 cases from the OS group the initial intervention was for acute appendicitis. In the LS group, compared to the OS group, we noticed less analgesics doses and perfusion days, earlier enteral transit recovery and shorter hospital stay: 3,9 vs. 5,4 doses; 3,5 vs. 4,2 days; 2,5 vs. 3,2 days; respectively 6 vs. 7,7 days ($p < 0,05$). The complications incidence was 6/78 vs. 12/174 and that of reoperations was 2 in the OS group. The length of the intervention was significantly greater in the OS group, as compared to the LS group: 78 vs. 55 minutes.

Conclusions: For young patients with recent PDU, without any of the Boey risk factors, we may consider LS as the intervention of choice. Randomized studies are necessary.

P145

EMPLOYMENT OF AN ULTRACISION SHORTENING OPERATIVE TIME OF LAPAROSCOPIC APPENDECTOMY

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Aim: Open appendectomy (OA), by virtue of its small incision, is already a type of minimal access surgery, and any advantage of laparoscopic appendectomy (LA) is likely to be small and difficult to prove. However, some recent meta-analysis of the literature and prospective studies confirm the advantages of LA. Conversely, the main disadvantage of LA is longer operating time. The aim of this study was to compare the operative time of the standard OA with this of LA with use of UltraCision.

Methods: From January 1998 to January 2006, 583 patients underwent appendectomy at our department. The authors personally performed two hundred sixty four appendectomies: 125 OA and 139 LA. There were 74 (59%) male and 51 (41%) female patients with median (range) age of 25 (7–80) years, and 42 (30%) male and 97 (70%) female patients with median (range) age of 25 (14–74) years in OA group and LA group, respectively. OA were performing through Mc'Burney incision using standard technique without inversion of appendicial stump. A three-port approach (10-mm Hasson cannula at umbilicus, two 5-mm working trocars) was using for LA. The appendix is grasped and mesoappendix dissecting by LaparoSonic Coagulating Shears (LCS, Ethicon Endosurgery, Inc., USA). Then, the Endo-loop is placing across and above the base. The appendix has divided with UltraCision and than introducing into the small Endo-bag without any contact with other organs or with abdominal wall, than, if necessary, irrigation is performing, and the bag is withdrawing through the umbilical wound.

Results: There were two conversions (1.4%) from LA to open surgery with a midline incision, both for severe suppurative thyphlitis necessitates the ileo-cecal resection.
The mean (SD), median (range) operative time was 27.5 (12.8), 25 (8–75) minutes for OA, and 27.2 (13.8), 25 (15–100) minutes for LA (NS).

Conclusions: In our experience, the operative time of LA performing with the UltraCision is as it is of OA. The employment of ultrasonic dissection significantly reduces operative time of LA, when compared with reports from the literature.

P146

THE ROLE OF LAPAROSCOPY IN THE MANAGEMENT OF STABLE TRAUMA CASES (THE FIRST AUDIT FROM I.R.IRAN)

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Objective: The main objectives of this study were to find out the rate of correct diagnosis of acute abdomen, the exact pathologies in positive cases and treatment of it, in above cases by laparoscopy. Laparoscopic management decreases the rate of laparotomy including negative or minimal cases.
Design: This prospective study performed on selective trauma cases with stable homodynamic, without sepsis or without any history of multiple surgeries in Sina Hospital, 2003 to 2005 ($n = 25$).
In candidates for operation, before laparotomy, laparoscopy was performed under general anesthesia to screen the existence of any pathology in the abdomen, to diagnose the exact site of pathology and to treat the pathology if possible. Unstable patients (35% to 40% of all traumatic patients) were excluded, as they are not good candidates for laparoscopy.
Main Outcomes: In 9 out of 25 cases no pathologies were detected (36% negative). In 8 cases, bleeding was the main problem, originating from liver ($n = 4$), spleen ($n = 3$) and small intestine mesentery ($n = 1$). Homeostasis was performed by washing in 3 cases (all were liver trauma), by coagulation or clips in 3 cases (liver, mesentery and spleen) and by conversion to laparotomy due to profuse bleeding in 2 cases (spleen). In 3 cases small intestine perforation was the problem, which was successfully repaired by laparoscopy. In 2 cases it was inverted to open surgery due to multiple traumas. Thoracoscopy was performed in 3 cases due to persistent pneumothorax to repair the site of air leak ($n = 2$) or hemothorax to coagulate intercostal artery bleeding ($n = 1$).
The rate of correct diagnosis based on patient's follow up was 100%. The rate of exact diagnosis of the site of pathology was 92% and the rate of treatment of pathology was 75%. The rate of laparotomy was decreased in 84% of cases.
Conclusion: The satisfy results with laparoscopy in our series (100% in diagnosis, 92% in localizing the pathologies and 75% in treatment) which were in accordance with prevailing literature (98–100%, 60–75% and 10–70% respectively) makes it an advisable method of choice for stable trauma patients.

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LAPAROSCOPIC TREATMENT OF ABDOMINAL FLUID COLLECTIONS

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Materials and methods: Laparoscopic technology was applied for medical treatment of 56 patients with fluid collections of upper part of abdominal cavity: cysts (31) and abscesses (11) of liver, subhepatic abscesses (4), pseudocysts of pancreas (8) and abscesses of spleen (2). In all cases the essence of operation was emptying of fluid collections and drainage of remaining cavity. The exception was made for patients with the liver cysts (congenital and posttraumatic): excision of free part of cyst wall was performed. Hydatid cysts (3) were isolated from an abdominal cavity and then emptied, washed by solution of formalin and a chitinous shell was removed without its damage. The volume of cysts of liver and pancreas ranged within the limits of 150–2500 ml, abscesses 10–250 ml, subhepatic abscesses 50–3500 ml. 'Karl Storz' laparoscopic system was used for laparoscopic procedures.

Results: Good and excellent results (rapid recovery and absence of recurrences) were obtained in patients with liver cysts and formed pseudocysts of pancreas (including infected pseudocysts). Drainage of the forming pancreatic pseudocysts (in the terms of 2–4 weeks from the onset of pancreatic necrosis) in most cases has positive effect, however at one third of patients obtaining of recovery was not succeeded because of sequesters presence and protracted drainage of detritus.
Laparoscopic drainage of subhepatic abscesses and abscesses of spleen appeared effective in case of their large size (200 and more ml). Significant improvement of the condition was observed from the second-third postoperative days. We observed rapid recovery in patients with liver abscesses located in V-VI segments and close location to the surface of liver regardless of their size. In the same time, prolonged hospitalization was characteristic for abscesses located in VII-VIII segments. Redrainage was required in two cases. Therefore application of drainages of large diameter (20 mm) or laparotomy is indicated in the last case.

Conclusions: Laparoscopic technology is highly effective method of treatment, first of all, of liver and pancreatic cysts.

P148

URGENT LAPAROSCOPIC CHOLECYSTECTOMY - DOES TIMING MATTER?

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Background: The optimum time window for surgery in acute gallbladder disease remains controversial. Aim to assess the outcome of urgent laparoscopic cholecystectomy (LC) in relation to the timing of surgery.
Method: Data were collected prospectively from Dec 2003 to July 2005 for all patients who underwent urgent LC during the index emergency admission under a single surgeon. Surgical management, operative findings and outcomes were reviewed.
Results: 43 patients were studied. The median age was 56 (range 15–87). Comparisons were made for those who had operations within or after the following time frames: 48, 72, 96 and 120 hours post admission.
Results were stated as median:

	< 48hr	> 48hr	< 72hr	> 72hr	< 96hr	> 96hr	< 120hr	> 120hr
Number	13	30	18	25	21	22	24	19
Op time [min]	80	90	80	90	80*	92*	80	90
Conversion	7.7%	6.7%	5.5%	8.0%	4.8%	9.1%	4.2%	10.5%
Post op stay	2 days	2 days	2 days	3 days	2 days	3.5 days	2 days	3 days
Complication	5/13	4/30	5/18	4/25	5/21	4/22	7/24	2/19

None of the parameters compared were significantly different except the operation time between those operated within and after 96 hours of admission (*$p = 0.043$). The overall conversion rate to open surgery was 6.97%. There was no operative death.
Conclusion: Urgent LC performed by experienced surgeons is safe and effective in managing acute gallstone disease. Timing of urgent LC does not influence the length of postoperative stay, complication or conversion rates.

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TREND TOWARDS MORE FREQUENT LAPAROSCOPIC APPENDICECTOMY VERSUS OPEN IS NOT ASSOCIATED WITH MORE COMPLICATIONS

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Aims: To compare laparoscopic appendicectomy (LapA) and open appendicectomy (OpenA) in an acute general hospital.

Methods: Retrospective comparison of non randomised cohorts of patients undergoing appendicectomy from 2002–04. Data collected were postoperative stay and complications. Operation choice was determined by level of training of surgical resident/consultant, with a tendency towards diagnostic laparoscopy and appendicectomy for females later in the series.

Results: Between 2002–04 there were 531 appendicectomies (age range 16–65) with 486 OpenA (median age 26, 253 M, 233 F) and 45 LapA (median age 26, 4 M, 41 F) ($p < 0.01$ for the M:F ratio due to a trend for diagnostic laparoscopy in women). There was no mortality. Four LapA (9%) were converted to open. Twenty (4%) patients after OpenA had a complication (retention, wound infection, haematoma, DVT, pneumonia) compared to 3 (7%) patients after LapA (retention, pneumonia or haematoma) (NS). Median length of stay in each group was 3 days (range for OpenA 1–21, range for LapA 1–11) (NS). The trend over time was to perform LapA more frequently (1 in 2002, 12 in 2003 and 32 in 2004, $p < 0.01$).

Conclusions: Laparoscopic appendicectomy can be completed safely with similar complication rates to the open operation. Since 2004 LapA has been used widely in our hospital as experience with the technique has improved.

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COMPARISON OF NORMALIZATION RATES OF HOMEOSTASIS OF BLOOD PLASMA AFTER OPEN AND LAPAROSCOPIC APPENDECTOMY ACCORDING TO THE DATA OF LASER CORRELATION SPECTROSCOPY

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The purpose of our research was the study of laser correlation spectroscopy (LCS) possibilities in objective determination of the terms of blood plasma homeostasis restoration in patients having undergone laparoscopic and traditional (open) appendectomy depending on the type of surgical intervention. Timely objective estimation of patients condition will allow to prognosticate the course of the postoperative period and shorten the patients hospital stay.
The suggested method of biophysical screening is based on registration of changes of blood plasma subfractional composition of patients in the postoperative period relying on dynamics of function of distributing dissolved and weighed particles from 1 to 1x104 nm in diameter in blood plasma. Practically all biologically active components of blood plasma get into this range.
We have studied the spectra of blood plasma of 323 patients who had been performed laparoscopic and opened appendectomy for acute appendicitis (165 and 158 patients, accordingly). LCS of blood plasma was made on the 1st, 2nd, 3rd and 5th day of the postoperative period on an empty stomach in the morning. The LCS results were verified on the basis of laboratory data of peroxide oxidation of lipids on the 1st, 2nd, 3rd and 5th day of the postoperative period.
According to the LCS data in the nondestructive form of appendicitis normalization of subfractional composition of blood plasma was revealed in 92% of patients on the 2nd day after laparoscopic appendectomy, a similar picture was observed only on the 5th day (90% of normologic spectra) after open one. In the destructive forms of appendicitis, normalization of spectra of blood plasma was found in 81% of patients on the 3rd day after laparoscopic appendectomy, and only on the 5th day in 78% of patients after open one.
Thus, LCS allowed to estimate objectively the rates of homeostasis restoration in patients depending on the form of appendicitis and type of the surgical approach. The results obtained are evidence of advantages of laparoscopic appendectomy, which allowed to shorten the terms of patients hospital stay at least 2 times.

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LAPAROSCOPIC DIAGNOSIS AND TREATMENT OF PRIMARY TORSION OF THE GREATER OMENTUM

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Aims: Clinical presentation of primary torsion of the greater omentum is aspecific and may mimics other more common causes of acute abdomen, so, rarely allowing for a preoperative diagnosis. When etiology is unclear, diagnostic laparoscopy has been proved to be safe and effective even in emergency patients, sometimes enabling the surgeon to treat preoperatively undiagnosed conditions. The aim of this report is to evaluate effectiveness, feasibility and safety of laparoscopy in diagnosis and treatment of omental necrosis.
Methods: Three patients presented with acute but aspecific abdominal symptoms (limited peritonitis of the right iliac fossa in two cases and left flank in one), associated to nausea and fever in two cases. Two patients had neutrophilic leukocytosis. Since US and radiological findings were negative or unclear, all patients underwent diagnostic laparoscopy.
Results: In all cases, laparoscopy allowed to achieve the diagnosis, to place the operating trocars in the most convenient places, to perform a resection of necrotic omentum and to deliver the specimen by enlarging the suprapubic port-site incision. The procedure lasted 56 minutes (range 42–76). Patients were discharged on postoperative day 3 (one case) and 1 (two). The postoperative course and follow-up (14, 42 and 60 years) were uneventful.
Conclusion: The value of diagnostic laparoscopy increases when the disease can be treated laparoscopically. The laparoscopic approach allows for the exploration of the whole abdominal cavity and the possibility to aspirate and wash the peritoneum, which are not allowed by laparotomy (unless a wide longitudinal xifo-pubic incision is performed). In the reported cases, after having diagnosed omental necrosis, the correct placement of the operative trocars at the most convenient places under laparoscopic vision facilitated the procedure. The laparoscopic resection of the greater omentum is an easy task even for inexperienced laparoscopic surgeons, allowing patients to benefit of advantages of mini-invasive approach.

ENDOCRINE SURGERY

P152

THE ASSESSMENT OF CONVENTIONAL AND LAPAROSCOPIC METHODS IN ADRENALECTOMY

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The surgery of the adrenal glands is difficult and interesting due to their anatomical location and associated endocrinological abnormalities. With the advent of laparoscopic techniques, laparoscopic adrenalectomy (LA) has become the primary choice in adrenal surgery.
Between 1999–2005, 31 patients (26 female, 5 male) with adrenal disorders have been operated in our center. The average age of the patients was 44.7 10.7 years. The median time lapse between the time of diagnosis and surgery was 2 (1–180) months. Hormonally active mass was present in 21 (67.7%) patients. The most frequent pathological diagnosis was cortical adenoma (n = 16; 51.6%). The following diagnoses were pheochromocytoma (n = 5; 16.1%), cortical hyperplasia (n = 3; 9.6%), cortical carcinoma (n = 2; 6.4%) and miscellaneous disorders (n = 5; 16.1%). Laparoscopic adrenal surgery has been commenced in 2002 in our center and LA was attempted in 13 patients out of 19 patients who were operated during 2002–2005. During 2004, retroperitoneal LA was started (n = 7). Laparoscopic resection was completed in 10 (76.9%) patients. There was no difference between LA (n = 10) and conventional surgery (n = 18) regarding age, sex, comorbid diseases, previous laparotomy, hormonally active status, intraoperative blood transfusion, and postoperative complications. However, left-sided disease was more prevalent (p = 0.031) and duration of operation was longer (p = 0.006) in the LA group. Conversely, the size of the mass (p = 0.006) and length of stay (p = 0.007) was longer in the conventional group. There was no difference in long-term complications between groups during a median follow-up of 13 (1–74) months.
We conclude that LA is a successful operation, which does not result in an increased risk than conventional surgery. Although there was no appropriate measure of life quality, we believe that LA is a comfortable operation than conventional adrenalectomy.

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PREVIOUSLY UNREPORTED HIGH GRADE COMPLICATIONS OF ADRENALECTOMY

NO SHOW

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PHARMACOLOGIC MANAGEMENT OF PATIENTS WITH PHEOCHROMOCYTOMA PRIOR TO LAPAROSCOPIC ADRENALECTOMY: A SYSTEMATIC REVIEW OF THE LITERATURE

NO SHOW

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THE EXPERIENCE OF LAPAROSCOPIC ADRENALECTOMIES

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As a result of development of new methods of topical diagnostic the considerable number of hormonal-inactive ('dumb') small in size tumours of adrenals are revealed. The using of traditional open surgical operations on such tumours is unjustified.

Our experience of endoscopic interferences on adrenals includes 12 operations: 5 - left-side adrenalectomies and 7 - right-side. Five patients had an adrenocortical adenoma with a syndrome of Connes, 3 - adrenocortical adenoma with a syndrome of Cushing, 3 - adrenocortical adenoma without tags of hormonal activity and 1 - thick-walled adrenal cyst. The lateral transperitoneal access has been used. The trocars, as a rule, were placed directly under a rib arc. Quantity of trocars was 3–4. At right-side operations the mobilization of ligamentum triangularis hepatic, the medial abduction of a dextral hepatic lobe, dissecting of pariental peritoneum of retroperitoneal space adrenals with a tumour and the right kidney were to be done obligatory. At left-side operations there were done the mobilization of a splenic corner (angle) of a thick (hevy-gauge) intestine, the medial abduction of a lien, dissecting of a pariental peritoneum, the visualization of a left kidney and the adrenal with tumour. After clipping of a central vein of the adrenal, the adrenal with a tumour was ablastically ablated as the whole unit. The duration of the operation time has compounded 143,7 + 37,4 minutes, the intraoperational hemorrhage - 68,3 + 18,2 mls, the duration of postoperative stay in a hospital - 6,7 + 2,4 days. The complications were not observed. Thus, the laparoscopic adrenalectomy is to be less invansive method of operations on adrenals ensuring efficiency of treatment, small operational trauma and fast postoperative reabilitation. The indications (readings) for laparoscopic adrenalectomy are to be as follows: the size of a tumour less than 6cm, the absence of tags of a malignancy, the absence of inflammatory process in a zone of operation. More than 60% patients with tumoral and hyperplastic diseases of adrenals can be operated with the usage of laparoscopic engineering.

To our opinion, the laparoscopic ablation of a tumour is to be the most suitable by selection the tactics of management the adrenal incidental.

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ONE HUNDRED CONSECUTIVE MINIMALLY INVASIVE PARATHYROIDECTOMIES IN ENDEMIC GOITER REGION

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Aim: To summarize our experience in both minimally invasive video-assisted parathyroidectomy (MIVAP) and minimally invasive open parathyroidectomy (OMIP) in primary hyperparathyroid patients from endemic goiter region. Material and methods: 138 consecutive patients with primary hyperparathyroidism referred to the Department since January 2003 were considered. 52 eligible patients underwent MIVAP whereas 48 eligible patients underwent OMIP combined with intraoperative parathyroid hormone assay (IOPTH). In selected patients MIVAP was extended for one-step video-assisted thyroidectomy (MIVAT). All the procedures were performed by the same surgical team using instruments for MIVAP (STORZ GmbH). The analysis included eligibility criteria for either MIVAP or OMIP, with special emphasis put on inevitable modifications of the technique in goiter patients, the effectiveness of the procedure, its duration and cosmetic effects.

Results: 100/138 individuals (72.4%) were found eligible for minimally invasive parathyroidcetomy (MIP), either video-assisted or open. Reasons for exclusion were: large goiter (volume > 30ml) in 28/138 patients (20.3%), prior thyroid surgery in 7/138 (5.0%) individuals and suspected multiglandular disease (MGD) in 3/138 subjects (2.2%) treated at the early stage of the study. MIVAP was successfully completed in 50/52 patients (96.2%) whereas OMIP was successfully completed in 45/48 patients (93.8%). Mean duration of surgery was similar for MIVAP vs. OMIP (52.326.3min vs. 49.321.3min). Five conversions were necessary from MIP to bilateral neck exploration. During the study the inclusion criteria were extended for MGD (three successful video-assisted sPTX) and concomitant goiter below 30ml requiring one-step thyroid surgery (8 video-assisted adenomectomies with one-step MIVAT lobectomy for follicular tumor and 2 video-assisted adenomectomy with one-step MIVAT total thyroidectomy for papillary thyroid cancer).

Conclusions: MIVAP is suitable for surgeons experienced in endocrine neck and video-assisted surgery. For those with limited endoscopic experience OMIP is a valid alternative as the cosmetic effect is much better as compared to classic parathyroidectomy. Combining MIP with IOPTH is necessary. Intraoperative recognition of MGD requires consideration of video-assisted bilateral neck exploration with sPTX as the first choice. MIVAP can also be successfully extended for one-step MIVAT lobectomy or even total thyroidectomy which allows for increased inclusion rate for video-assisted approach in the endemic goiter regions.

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COMPARISON LEVELS OF INTERLEUKIN 17 AND INTRACELLULAR ADHESION MOLECULE 1 AFTER ENDOSCOPIC AND OPEN ADRENALECTOMY

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Conventional surgery characterized by more profound immunological changes compared with endoscopic procedures.

The goal of this study was to compare influence of laparoscopic and open adrenalectomy on immulogical status.

Methods: Plasma levels of interleukin (IL) 17 and intracellular adhesion molecule 1 (ICAM-1) were studied in 48 patients with adrenal tumors. Open adrenalectomy was performed in 32 patients (control group) and endoscopic adrenalectomy in 16 patients (first group). Levels of mediators were measured, using the ELISA technique, before, immediately after operation, at the first and third day after operation.

Results: There were 30 (62.5%) female and 18 (37.5%) male Median age of patients was 48.2 4.7 years. Hormonal active tumors were in 24 (50%), nonfunctional tumors in 16 (33.3%), and adrenal cancer - in 8 (16.7%) of patients. Tumors size varied from 28 mm to 120 mm (median size 59.1 4.3 mm). Lumbotomy approach was applied for open adrenalectomy, endoscopic adrenalectomy by retroperitoneal approach was performed in 15 patients, and in one patient the trasabdominal approach was applied. Serum levels of IL-17 and ICAM-1 did not differe in both groups of patients before operation. The significant elevation of both mediators was noted in patients after conventional adrenalectomy in compared with endoscopic adrenalectomy immediately after operation. The peaked levels of IL-17 and ICAM-1 were noted at the next day after operation in patients of the control group. Besides that, the mediators level practically did not changed in patients of the first group. IL-17 levels clear correlated with the hematological changes (increased quantity of leukocytes and polymorphonuclear neutrophils) and ICAM-1 levels correlated with the hematocrite level and development of MODS in the postoperative period.

Thus, on the immulogical point of view, the laparoscopic interventions have advantages in compared with the open procedures.

P158

COMPARISON RESULTS OF OPEN AND ENDOSCOPIC ADRENALECTOMY IN PATIENTS WITH ADRENAL CANCER: OUR EXPERIENCE

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The goal of this study was to compare early and remote results of laparoscopic (LA) and open anrenalectomy (OA) in patients with primary adrenal cancer.
Method: From 1997 year 21 patients with malignant adrenal tumors were operated. Among these patients, in 15 OA was applied and in 6 LA was performed. Primary malignant adrenal tumors include adrenocortical carcinoma (15 patients), malignant pheochromoblastoma (5 patients), and malignant lightcell adenoma (1 patient). Tumors size varied from 33 mm to 127 mm (median 76.6 9.4 mm). Diagnosis of cancer was established in 3 patients after operations with tumors size less than 4 cm. OA was performed using the lumbotomy approach. LA by transabdominal approach with excising of retroperitoneal fat was applied in cases of tumor localization in the right adrenal gland and LA by retroperitoneal approach in the cases of the leftlocalization. Retroperitoneal approach during left side LA was more safety than transabdominal approach in our experience. Tumor recurrence was noted in 1 patient after 11 month after LA operation and implantation of cancer in port site in 1 patient also after 6 month. Recurrence of tumor was observed in 4 patients after OA, metastasis into other organs observed in 3 patients. Five (23.8%) patients survived for 5 years after operation. Duration of survival after surgery clear depends from tumor size.
Two patients died during OA (size of tumor more than 10 cm, with penetration of capsule and invasion into vena cava inferior). Purulent-septic complications were observed in 5 patients after OA.
Conclusion: Number of local or trocar sites recurrence developed after EA not bigger then tumor recurrence after OA. Duration of postoperative survival after both types of operation is approximately same. Number of early postoperative complications is less in patients after EA.

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CYTOKINES AND ADHESION MOLECULES LEVELS AFTER OPEN AND ENDOSCOPIC ADRENALECTOMY

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Conventional 'open' surgery induces a series of inflammatory responses that mediated by cytokines and adhesion molecules and may aggravate the postoperative clinical course. Laparoscopic surgery result in less postoperative complications due to reduce the tissue trauma and less local and systemic cytokine and adhesion molecules production. Unfortunately kinetics of cytokines and adhesion molecules after these operations studied insufficiently.
During 2001–2004 years 34 patients with the different adrenal tumors were operated, 22 of them underwent the open adrenalectomy (1st group) and 12 - endoscopic adrenalectomy (2nd group). Endoscopic adrenalectomy was performed using the lateral retroperitoneal approach. The blood levels interleukin (IL) 8, 17, and 18 and adhesion molecules (ICAM-1 and E-selection) were measured using the ELISA technique in all patients before, immediately after operation, at the first and third day after surgery.
The pre-operations levels of all mediators had no differences in both group of patients. Significant increase of all mediators level was noted in the first group vs. insignificant changes of mediators level in patients of endoscopic group immediately after operation ($p < 0.05$). These changes clear correlated with the signs of inflammatory response. The highest levels of IL-8, IL-18, and E-selectin were noted in 3 (13.6%) patients with ARDS that developed in the early postoperative period after open adrenalectomy. The gradually increase of all mediators plasma level were noted in both groups up to the third day after operation but this rise was more pronounced in the first group ($p < 0.05$).
Thus, open adrenalectomy was accompanied by significant increase of inflammatory mediators expression that reflects the degree of surgical trauma.

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LAPAROSCOPIC ADRENALECTOMY: TRANSPERITONEAL VERSUS RETROPERITONEAL

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Aims: Laparoscopic adrenalectomy (LA) has become the standard technique for the surgical removal of the adrenal gland. Both, transperitoneal and retroperitoneal endoscopic access are currently used for surgical removal of benign adrenal lesions. There is still some debate about the indications and optimal access used for a minimal invasive approach.
Methods: Patients who underwent LA for benign adrenal disorders at Vilnius University Santariskiu hospital between October 1999, and March 2006 were grouped according to one of the two laparoscopic approaches - transperitoneal (group A) and retroperitoneal (group B). For each group demographics, comorbidities, clinical presentation, imaging studies, operative intervention, and outcome were analyzed retrospectively.
Results: Sixty patients (50 women and 10 men, mean 52.9 years old) underwent unilateral LA during study period. A transperitoneal approach was used for the first 38 patients (A group) and a retroperitoneal endoscopic approach was used for the last 22 patients (B group). A total of 42 right-sided lesions and 18 left-sided lesions were removed. The most common indications for adrenal surgery was non-functioning adrenal adenoma (n-27, 45%). Median adrenal mass size was 3.29 cm (range 1.6 to 6.5) in the A group and 4.12 cm (range 2 to 6.9) in the B group ($p = 0.014$). Average operative time of retroperitoneal approach was significantly shorter than that of the transperitoneal approaches (mean 101.8 min vs 127.2 min, $p = 0{,}012$). There was no statistical difference in blood loss during the operation in the two groups. Conversion to open surgery was required in 6 (15.8%) patients in the A group and in one patient in the retroperitoneal approach group. Postoperative complications developed in 6 (15.8%) patients and 1 (2.4%) patient died due to trombosis a.pulmonalis in the A group. There were no postoperative complications and mortality in the B group. The mean hospital stay was 7.7 days in the A group and 4.2 days in the B group ($p = 0.003$).
Conclusions: Uneventful postoperative period, shorter operative time and hospital stay were achieved in patients undergoing retroperitoneal endoscopic adrenalectomy. These findings indicate that retroperitoneal endoscopic adrenalectomy is the treatment of choice for benign adrenal lesions.

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CONVERSIONS AND COMPLICATIONS OF LAPAROSCOPIC TREATMENT OF ADRENAL LESIONS

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Objective parameters of safety and effectiveness of laparoscopic method, besides good cosmetic and technical results (time of the operations, hospitalization, recovery) are the numbers of postoperative and intraoperative complications. Therefore, the aim of this study is to present the operative difficulties of laparoscopic adrenalectomy (LA) which can cause conversions and complications. Operative difficulties to obtain safe operating field and technical problems are associated mostly with gland laceration (bleeding) and adrenal localization. Additional problems are: the evaluation of metastatic lesions and unsuspected adrenal carcinoma.
Material and methods: Evaluated material comprises 293 patients who underwent 302 LA via lateral transabdominal approach from 29.10.1997 to 28.02.2006. The indication for LA in 138 (47%) was nonfunctional adrenal tumor, in the remaining 155 (53%) functional adrenal tumor. Functional tumors were confirmed by biochemical exams (hypercortisolism associated with ACTH-dependent and independent Cushing's syndrome - 53, pheochromocytoma - 53, Conns syndrome - 48, adrenogenital syndrome -1). Simultaneous bilateral LA was performed in 8 (2,7%) patients, and two-stage (a 4-week interval) bilateral LA in 1 (0,3%). 275 (94%) patients had coexisted diseases and 115 (39%) had at least one abdominal operation.
Results: Conversions were necessary in 11 (3,7%) LA, occurred in 9 (82%) patients with functional tumors and were located on the right side in 9 (82%) cases. Complications were noted in 15 (5%) patients: intraoperative in 3 (bleeding from the lacerating tumor, from the splenic artery and trocar site), postoperative in 12 (hematoma in the port site - 9, pancreatic fistula -1, clotting disturbances - 2).
The main cause of conversion (fully controlled decision of changing the method of operation) were difficulties to obtain safe operating field ($6/11 = 55\%$), like: adhesions, anatomical anomaly (megacolon, hepatomegaly).
In patients with incidentaloma type tumors the main issue is the evaluation of the invasiveness. Among them 7/138 (5%) had metastases confirmed by postoperative histological examinations and 6/138 (4,3%) unsuspected adrenocortical carcinoma.
Conclusions: 1. Practice learned from previously made laparoscopic and open adrenalectomies helps to avoid unnecessary intraoperative difficulties. 2. The transabdominal approach decreases the risk of conversion and allows to reduce the number of contraindications for LA.

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LATERAL TRANSPERITONEAL LAPAROSCOPIC ADRENALECTOMY

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Videoscopic methods of treatment in adrenal surgery very fast gained acceptance in many medical centers around the world.

The aim of this study: Presenting our over 8 years experience of laparoscopic adrenalectomy (LA) via lateral transperitoneal approach.
Material and methods: From 29.10.1997 to 28.02.2006 we performed 302 LA in 293 patients. 207 women and 84 men were operated with the mean age of 51,8 (11–80) years. The indication for LA in 138 (47%) patients was nonfunctional incidentaloma type tumor with the mean diameter of 45,6 mm (7–90) and in the remaining 155 (53%) functional adrenal tumors confirmed by biochemical exams (Cushing's syndrome - 53, pheochromocytoma - 53, Conns syndrome - 48, adrenogenital syndrome - 1). 41 (14%) patients had bilateral lesions. In 9 (3%) cases we performed bilateral LA (simultaneous or two stage), in the remaining 34 unilateral LA (remaining adrenal tumors are under clinical observation). All patients underwent LA via lateral transperitoneal approach using routinely 4 trocars (3–6). In the last 8 LA we used ligasure.
Results: 284 (97%) patients had unilateral LA (right - 177, left - 107), 10 (3,4%) simultaneous laparoscopic cholecystectomies (SLCH) and 1 (0,3%) simultaneous laparoscopic umbilical hernia repair. The mean operating time was for: unilateral LA - 149,6 minutes, simultaneous bilateral LA - 303,6 min., unilateral LA with SLCH - 187 min. Among incidentaloma type tumors the most often we found adenoma in 95/138 cases (69%). In 6/138 (4,3%) cases the unsuspected adrenocortical carcinoma was found, and in 7/138 (5%) metastases suspected before operation.
The operating time depended mostly on the tumor type (size and hormonal activity), patient type (obesity and previous surgical history), operative technique (patient positioning) and the used surgical equipment. The mean postoperative hospital stay was 5,7 days (2–16), for nonfunctioning tumors 5,4 days, for functioning 5,9 days. We had: 11 (3,7%) conversions, 15 (5%) complications. One patient with severe hypercortyzolemia died on the 56th postoperative day because of cardio-pulmonary insufficiency.
Conclusions: 1.Obtained results proving effectiveness and safety of LA via lateral transabdominal approach for surgery of the adrenal pathology. 2.This method should be accepted as an alternative to conventional adrenalectomy.

P163

MINIMAL INVASIVE APPROACH FOR COLORECTAL CARCINOIDS

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The carcinoid is the most common neoplasm among neuroendocrine tumors. Its typical localization is appendix and small bowel but approximately 20% of tumors are localized within colon and rectum. The aim of the study was to retrospectively asses the safeness of minimal invasive approach to carcinoid tumors localized in colon and rectum.

Material: Between 1982–2005 in I Department of Surgery 53 patients with carcinoid of GI tract were treated. In 5 cases the tumor was localized within colon and in 15 within rectum (37.7%). In the study group there were 12 women and 8 men. The mean age of the patients was 61.1 year. Within this group 15 patients was treated with minimal invasive approach and was analyzed for presence of carcinoid syndrome, performed surgical procedure, staging and follow-up.

Results: The carcinoid syndrome with high level of 5-hydroxyindoleacetic acid was diagnosed in 3 cases. In 3 cases the hemicolectomy was performed as well as 2 anterior rectal resection because of the size and stage of the tumor (locally advanced tumors bigger than 2 cm). In case of 8 patients we performed endoscopic polipectomies and in case of 7 patients local excision in TEM technique. In case of all these patients the tumor size was below 2 cm without muscular layer infiltration. All removed tumors were examined histologically for free margins. The mean follow up observation is 5 years (9 to 1 year) and there is no recurrence or death related to the disease.

Conclusion: The location of the carcinoid tumor within colon and rectum may be more often that it is estimated. The local excision or endoscopic polipectomy is very safe way of treatment carcinoid tumors smaller than 2 cm without local infiltration and signs of distant metastases. If it is possible to remove tumor with free margins it should be the treatment of choice.

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THE EXCEEDING SIZE LIMITATION IN SOLID ORGAN LAPAROSCOPY

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Laparoscopic approach remains a controversial procedure for large solid organs. We evaluated the outcomes and complications after laparoscopic adrenalectomy for large tumors and laparoscopic splenectomy in patients with enlarged spleen. A total of 155 patients underwent laparoscopic adrenalectomy in 7 years period, of whom 30 patients had large ($>$ or $=$ 6 cm, mean 8.5, range 6 12.5) tumors. The MRI with chemical shift examination was obligatory for the large tumors to exclude the potentialy malignant leasions. They were compared with patients whose adrenal tumors were $<$ 6 cm. From total number of 146 splenectomized patients evaluated in 7 years period, 22 cases of organ enlarged over 15 cm (mean 18.5 range 15–25) where distinguished.
Adrenalectomies: The large-tumor group had a mean operating time of 152 min (range 70–245 min) vs.105 min (40–185) in goup of patients with tumors $<$ 6 cm. Patients required approximately 5.0 days of hospital stay vs. 4.7 in control group. The overall incidence of complications was 8% in the large-tumor group, and was not significantly different from that in the control group 6,8%. The convertion rate was calculated for both group: 8 vs 6.8%.
Splenectomies: The enlarged spleen group had a mean operating time of 166 min (range 80–245 min) vs105 min (40–185) in goup of spleen $<$15 cm. The duration of the hospital stay was respectively 5.8 and 4.0 days. The overall incidence of complications was 10.2% in the large spleen, and was not significantly different from that in the control group 9.5%. The convertion rate was calculated for both group :9% vs6.8%.The parameters of short time outcome after laparoscopic solid organs resections did not differ between the patients in separated groups indicating that experienced surgeons can safely and effectively use laparoscopy as an access for larger laesions. The only limitations seem to be the type of the tumors and the laparoscopic equipment.

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MINIMALLY INVASIVE VIDEO-ASSISTED THYROIDECTOMY WITH USE OF ULTRASONIC SCALPEL AN ANALYSIS OF 179 CASES

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The aim of this study was to compare the potential benefits in surgical technique from using any electrical devices or vascular ligatures the superior thyroid vessels with ultrasonic scalpel (US) on the postoperative outcomes. Minimally invasive video-assisted thyroidectomy (MIVAT) has been used for removal of small thyroid nodules to improve cosmetic results and diminish postoperative pain.
Material and methods: Since introduction of MIVAT technique at the Department of Endocrine Surgery in Krakow in December 2003 a total number of 179 MIVAT operations has been performed (unilateral thyroid lobectomy), including initial 78 operations with clipping the superior thyroid vessels and bipolar coagulation without US (group A), and 101 operations in which US was used to secure the thyroid vessels (group B). Routine closed drainage (12Fr) of the wound was used with Redon technique. Both groups were similar in respect to sex, mean age, indications to surgery and mean thyroid volume. Statistical analysis included: mean operative time, postoperative blood loss, postoperative morbidity, scar length and cosmetic satisfaction assessed on visual-analogue scale (VAS) at 1 months following surgery.
Results: Mean operative time was significantly longer in group A vs. B (54.514.2 vs. 35.48.7min, respectively; t-test; $p < 0.001$). Mean postoperative blood loss was significantly higher in group A vs. B (32.813.0 vs. 12.95.7ml, respectively; t-test; $p < 0.001$). Transient recurrent nerve palsy appeared in 1 patient of group A and none of group B patients (Chi^2-test; $p = 0.36$). Mean scar length at 1 month following surgery was significantly longer in group A vs. B (21.51.9 vs. 15.61.4mm, respectively; t-test; $p < 0.001$). Cosmetic satisfaction was significantly lower in group A vs. B patients (81.95.4 vs. 88.99.7pts., respectively; t-test; $p < 0.001$).
Conclusions: The use of ultrasonic scalpel in MIVAT technique a reduction of mean operating time, achieving better hemostasis, shorter incision and scar, and also improved cosmetic results without increased risk of morbidity.

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SURGICAL TECHNICAL DETAILS IN LAPAROSCOPIC ADRENALECTOMIES OF SOLITARY ADRENAL GLAND METASTASIS FROM NON-SMALL CELL LUNG CANCER

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Aims: Laparoscopic adrenalectomy (LA) of solitary adrenal gland metastasis in patients operated on for non-small cell lung cancer (NSCLC) is moving towards a more liberal approach. A better oncological outcome with surgery is controversial but most lesions are confined within the adrenal capsule and are resectable laparoscopically with short hospitalization, low morbidity and mortality. We contribute here with two cases operated with success and commentaries and pictures about surgical technique.
Methods and Results: From 1997 to 2006, 43 LA have been operated. Two patients who had undergone lung resection for NSCLC in 1999 and 2004 respectively presented with metacronous solitary adrenal gland metastasis at the follow-up. Staging to exclude local invasion or other sites of metastasis was performed. A 58-years-old male with a 10 cm left adrenal metastasis in CT scan in Mars 2000 was operated and survived 6 months. A 45-years-old woman, disease-free for 16 months after chemo radiotherapy, presented a right isolated adrenal metastases of 2.5 cm in PET scan in December 2005 and right LA was performed. The lateral transperitoneal approach is appropriate for radical surgery. Pictures in our poster show key points to avoid the risk of tumour-cell dissemination: to have a wide working space, to grasp the periadrenal fat tissue, to carefully handle the ultrasonic scalpel and endoaspirator without touching the tumour surface, to remove tumour and surrounding fat en bloc without disruption of the adrenal capsule and with adequate margins.
Conclusions: These are rare patients and operations and LA should be offered only if technically safe and feasible, with low morbidity and mortality. An improving survival results from improvement in patient selection by better imaging studies.

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QUALITY OF LIFE AT FIVE YEARS AFTER THYROID SURGERY

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Background: Quality of life (QOL) is one of the most important outcomes following surgery. Thyroidectomy, if performed by experienced endocrine surgeon involves only minimal risk of morbidity. However, if complications appear the sequel can be disappointing for patients. This study aimed to evaluate health related QOL at 5 years after surgery for benign goiter.

Material and methods: Among 881 patients operated in the department between 1/2000 and 12/2000 due to benign goiter, 271 randomly selected (1:3 ratio) patients were invited to assess their QOL before surgery and at 5 years after thyroidectomy. Among 271 selected patients 159 (58.7%; 153 females, 6 males; mean age 47.7 years) responded and they were included into final analysis. Two well-recognized items were adopted for QOL analysis: University of Washington QOL questionnaire for head and neck cancer and SF-36 form. QOL analysis was matched to type of goiter, extent of surgery, complications, if present, and cosmetic results.

Results: General QOL after surgery was assessed as better than before surgery, the same and worse than before surgery by 127 (80%), 16 (10%) and 16 (10%) patients, respectively. Patients with negative assessment of their QOL experienced significantly higher incidence of postoperative complications ($p < 0.05$) including: 10 (6.3%) patients with transient hypoparathyroidism, 4 (2.5%) cases of persistent unilateral recurrent laryngeal nerves palsy, 1 (0.6%) recurrent goiter in Graves disease, and 7 (4.4%) patients with postoperative hypoparathyroidism with good response to thyroxin replacement therapy, but not accepting the need for continuous medical treatment. Patients reporting better QOL after surgery had significantly better physical and psychological domains with no change in social domains of SF-36 evaluation.

Conclusions: Majority of patients after thyroidectomy for benign goiter report significant improvement in QOL at 5 years after surgery. However, patients with postoperative complications or recurrent disease report significantly worse outcomes than those without morbidity. Surprisingly, the need for a continuous replacement therapy with thyroxin was not accepted by 4.4% of patients.

FLEXIBLE SURGERY

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ENDOSCOPE ASSISTED PERCUTANEOUS TRANS-ESOPHAGEAL GASTRO-TUBING (EA-PTEG)

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In 1994, we developed a new technique of non-surgical esophagostomy called percutaneous trans-esophageal gastro-tubing (PTEG) for the patients who percutaneous endoscopic gastrostomy (PEG) could not be performed and more than 7000 patients were already treated by PTEG in Japan.
However, PTEG is done under ultrasonographic and fluoroscopic control and not always easy for the endoscopists who perform PEG. Therefore, we developed a new product called double balloon over tube equips rupture-free balloon (DBOT-RFB) for safer and easier PTEG.
Endoscope assisted PTEG (EA-PTEG) using DBOT-RFB allows direct endoscopic observation during the puncture and reduces x-ray exposure. Moreover, clearer ultrasonographic view is obtained with DBOT-RFB's internal and external balloons for safer puncture.
We performed 10 EA-PTEG since 2003, and all cases were successful without any complications.
In this presentation, the details of DBOT-RFB and EA-PTEG will be introduced to generalize this innovative technique for not only interventional radiologists but also surgical endoscopists.

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LONG-TERM RESULTS OF ENDOSCOPIC MANAGEMENT OF BILE DUCT INJURIES AFTER LAPAROSCOPIC CHOLECYSTECTOMY

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Background: The outcome of endoscopic biliary dilatation and stent insertion for postoperative bile duct injuries was retrospectively evaluated.

Methods: Seventy-nine patients with biliary stenosis postcholecystectomy laparoscopic were included from January 1995 to December 2004. One to five stents were inserted for average of 15 months, with stent exchange every three months to avoid chlolangites caused by obstruction.

Results: Endoscopic stricture stent insertion successful was achieved in 70/76 (92,1%) patients. No procedure-related mortality was observed. The endoscopic therapy was feasible only in 58/70 the success rate was 82,8%. Endoscopic treatment was interrupted in three patients. Stricture relapse occurred in nine patients. Early complications occurred in three patients (1 perfuration, 1cholangites 1 stent migration) and stent occlusion that required early exchanges occurred in 6 patients.

Conclusion: Endoscopic retrograde cholangiopancreatography is a safe and feasible mode of therapy for patients presenting with suspected bile duct injuries. This form of intervention should be considered as the initial step in the diagnosis and treatment of postchlocystectom laparoscopic complications.

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AGGRESSIVE ENDOSCOPIC THERAPY WITH INCREASING NUMBERS OF STENTS: SUCCESSFUL TREATMENT OF A COMPLETE TRANSECTION OF THE BILE DUCT AFTER LAPAROSCOPIC CHOLECYSTECTOMY

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A 37-year-old woman underwent laparoscopic cholecystectomy at another institution with discharge the following day. After discharge a patient evolution with upper abdominal pain and distension, jaundice, fever and tachycardia. Transabdominal US demonstrated a fluid collection into the peritoneal cavity. An urgency laparotomy with lavage the cavity and T-tube inside the right hepatic and cavity drain. The cholangiography through the T-tube revealed a normal intrahepatic duct. At the expected level of the common bile duct there appeared to be a complete trasnsection and there was mild leakage of contrast into the peritoneum and no opacifiaction of the proximal biliary system only two metallic clips were noted in the common bile duct (Fig 1). The patient was transferred to our institution.
ERCP on the twenty postoperative days, cholangiography revealed a normal distal common bile duct (Fig 2). The guidewire passed the metallic clips and a step series of dilatators, biliary stent was insert the left intrahepatic system (Fig 3). Remove the T-tube. Pneumatic dilatation with balloons was performed and 10Fx 12 cm long biliary stent was inserting the right intrahepatic system (Fig 4).
After approximately 12 weeks, second session, three stent was inserted. At a third session 12 weeks later, the stricture was further dilated if necessary, 2 stent (Fig 5, 6, 7) in place were exchange. At a forty session 12 weeks later, stents was exchange with similar technique. At later data (12 months after first stent placement) all stent were extracted and the patient was followed clinically (Fig8). At 48 months' follow up the patient was asymptomatic.

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INTERVAL COMMON BILE DUCT STENTING FOR NONEXTRACTABLE COMMON BILE DUCT STONES

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Common bile duct (CBD) stones are a common cause of morbidity. Since the evolution of laparoscopic cholecystectomy, surgeons have managed CBD stones with different modalities. Despite widely available technology for the removal of CBD stones, 3% of patients with CBD stones fail extraction. The goal of this study is to facilitate extraction of CBD stones that failed extraction during endoscopic retrograde cholangiopancreatography (ERCP) by using interval stenting of the CBD.

Method: Six patients diagnosed with CBD stones, ranging from 1.5 to 2.0 cm in diameter, underwent ERCP. Extraction of stones failed at the initial attempt after sphincterotomy. An endostent was placed with the intent to alleviate patient symptoms and reduce the risk of cholangitis. Most patients were started on Ursodeoxycholic acid empirically to help soften the stones. After three to six weeks, patients underwent a second ERCP which successfully removed all CBD stones.

Conclusion: Interval stenting is a useful technique to facilitate extraction of multiple CBD stones that cannot be extracted at the initial attempt.

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FOLLOW-UP OF ENDOSCOPIC STENTING IN PATIENTS WITH MALIGNANT OBSTRUCTIVE JAUNDICE

NO SHOW

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ENDOLUMINAL GASTROPLICATION IS EFFECTIVE FOR GASTROESOPHAGEAL REFLUX DISEASE DEVELOPED AFTER PYROLUS-PRESERVING GASTRECTOMY FOR GASTRIC CANCER

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Introduction: Endoluminal gastroplication (ELGP) is one of the newly developed endoscopic treatments for gastroesophageal reflux disease (GERD). We had first reported the efficacy of ELGP for GERD developed after the lymph nodes dissection along the lesser curvature of the stomach simultaneously performed with left lateral segmentectomy for metastatic liver cancer as a good model of post gastrectomy GERD. In this paper, we report the first case of GERD developed after pylorus preserving gastrectomy (PPG) successfully treated by ELGP.
Case report: A 57 year-old man presented with heart burn, regurgitation and dysphagia which had appeared 2 months after PPG with D1 lymph nodes dissection for the treatment of T1 gastric cancer. Esophagogastrofiberscopy showed grade B esophagitis and small hiatal hernia. Since the symptom had not been controlled by medical therapy, ELGP was performed. Using BARD endoscopic suturing system (EndoCinchTM), three plications were placed at the esophagogastric junction (EGJ). The procedure time was 60 min. There were no adverse events without a slight chest pain which disappeared within few days. The patient had liquid food the first postoperative day (POD) and solid food on the third POD. The patient discharged on the fifth POD. The symptoms associated with GER markedly reduced after the treatment. Symptom score composed of heart burn, dysphagia, regurgitation, chest pain and abdominal pain (0–4: none to severe) was also reduced after the treatment (Table 1).

Table 1. Symptom score

	Pre-treatment	Post-treatment
Heart burn	4	1
Dysphagia	1	1
Regurgitation	4	0
Chest pain	1	0
Abdominal pain (0-0, none to severe)	0	0

Acid exposure time and bile reflux time were improved after the procedure (pH < 4: from 5.9 to 1.7%, bile reflux: from 11.1 to 5.7%).
Conclusion: This is the first case report which showed that ELGP was safe and effective for GERD developed after PPG with lymph nodes dissection for gastric cancer. ELGP can be useful for the treatment of GERD developed after B-1 gastrectomy, which is most common procedure for gastric cancer in Japan.

P174

PYLOROPLASTY WITH FULL THICKNESS MYOTOMY AND CLOSURE WITH ENDOSCOPIC SUTURES

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Background: Pyloroplasty may be performed for gastric outlet obstruction due a variety of causes.
Materials and methods: Pyloroplasty was performed in acute and survival studies in pigs (28–35 kg). A double channel gastroscope was used for the procedure. Using grasping forceps to hold the duodenal side of the tissue and expose the deep muscle a needle knife incision was made through the full thickness of the pyloric muscle. A stitch was then placed in the deep muscle at the apex of the duodenal incision and another at the proximal margin of gastric portion of the incision. These were tied together thus opening up the pylorus. Further stitches were placed on either side of the first stitch until the defect was effectively closed and water-tight. Suturing was preformed using a 19 gauge needle on a flexible shaft passed through one channel of the double channel gastroscope and threads were locked together in pairs.
Results: The technique was used in 4 pigs including two survival studies. Incisions were 1.5–2 cm in length. 3 or 4 pairs of stitches were placed in each animal.. There was no significant bleeding or other complications. The surviving animals appeared fully recovered on awaking from the anesthetic and there were no complications. It was demonstrably easier to enter the pylorus after these experiments. The average time for these procedures was 30 minutes. Post-mortem examination showed effective healing of the incision and there was no evidence of peritoneal inflammation or peritonitis.
Conclusions: Pyloroplasty with fullthickness pyloromyotomy and transvers closure of a linear incsion thus substantially increasing the diameter of the pylorus was accomplished using a simple flexible endosurgical technique testing a new flexible suturing system.

P175

COMPUTER ASSISTED STAPLING IN GI-SURGERY

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Introduction: A flexible shaft stapling system has been introduced into open and minimal access surgery. The purpose of this study is the assessment of initial clinical experience, the problems of the learning curve and technical feasibility in open and laparoscopic procedures.
Methods: Initially an experienced GI-surgeon was trained in an experimental center in the application in both open and laparoscopic application of the flexible shaft stapling system. After 4 experimental sessions the system was trained in clinical open surgery in 20 cases, before laparoscopic approach was used. A stepwise learning curve from laparoscopic appendectomy, colon resection to laparoscopic gastric resection and esophageal resection was developed. For intraabdominal application for the linear stapler a 15 mm trocard and for the circular stapler a 33 mm trocard war used. Technical problems, ortime and complications were prospectively documented.
Results: 134 patients were operated upon with the flexible stapler, 57 of whom were performed laparoscopically (age 59, range 24–72); cases: appendectomy 9, colon resections and total colectomy 41, partial gastrectomy 7; average firing per patient: 2 (1–6).
Intraoperative problems in the learning phase: 1 computer failure during esophageal reconstruction with gastric tube and 3 in colon anastomoses were solved by repetition of anastomoses; leakage rate 6%; Applications/complications: esophageal: 16/2; gastric: 21/1; colorectal: 76/6. Advantage: laparoscopic handling possible for any location and angle in the abdomen, which allows for angeled COLLISPlasty within the abdomen and subtotal colectomy with circular stapled anastomosis at higher level of the colon above rectum.
Conclusion: Laparoscopic application of the new flexible shaft stapling system allows for special indications in minimal invasive approach. The problems and complications are within the limits of conventional stapling. Since there is a learning curve for handling, proper training in laparoscopic and open surgery is advised.

P176

FOLLOW-UP AFTER ENDOSCOPIC POLYPECTOMY USING NARROW-BAND IMAGING (NBI) - PRELIMINARY DATA

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Narrow-band imaging is one of the latest technological achievements of the digital endoscopy. The technique is using interference filter to light surfaces in narrow bands of red, green, and blue colour that visualizes the differences in mucosa colouring and enhances contrast between the mucosa surface and submucosa vascular network. The NBI makes easier differentiating between pathologic lesions from normal mucosa.
The study evaluates the possibility of using NBI for monitoring of the patients after endoscopic polypectomy of the colon.

Material and Method: The study was conducted in 20 patients after endoscopic polypectomies for colonic adenomas with high-grade dysplasia. Control NBI endoscopy was performed 3 months after polypectomy using HDTV Olympus equipment series 180. During the study the attempts were made to localize polypectomy site, and the polypectomy scar was evaluated in the traditional light and using narrow band light. The material was taken for histopathological examination.

Results: Endoscopy failed to localize endoscopic polypectomy site in 8 patients, in 9 localized polypectomy scar and in the remaining 3 remaining polyp. NBI illumination detected remaining adenoma in 2 patients with the localized polypectomy scar. Histopathological examination revealed low-grade adenoma in 3 patients with the remaining polyp and in 2 with polypectomy scar, as well as inflamatory reaction in the remaining cases.

Conclusions: A new technique of NBI enhances the visibility of lesions in mucosa, and the preliminary results are encouraging for the assessment of the endoscopic treatment accuracy.

P177

A NEW METHOD FOR PERFORMING GASTRO-JEJUNAL ANASTOMOSIS

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Background: Transgastric flexible endoscopic anastomosis might offer advantages over open and laparoscopic surgery especially for baryatrics or patients with obstructive malignancy.
This study was performed to develop a method for performing transgastric anastomosis.
Methods: 12 gastro-jejunal anastomoses were formed in 12 pigs (28–37 kg), 6 non-survivals and 6 survival animals, using a double-channel gastroscope. The stomach was penetrated using a needle-knife guidewire combination, and bow-sphincterotome incision. The small-intestine (SI) was grasped with a snare over forceps method and pulled into the stomach for suturing. Sutures, T-tagged anchored prolene, were placed in pairs through deep muscle of the stomach and small-intestine. They were pair-wise locked together with a plastic lock to join the tissues securely. SI was incised with a needle-knife to open the anastomosis. Anastomoses were placed close to the cardio-esophageal junction for baryatric purposes or in the antrum for pancreatic bypass. All animals were given antibiotics before and after the procedure.
Results: In the non-survival animals the anastomsosis was examined at an immediate post-mortem. There was an orifice joining the stomach and the small intestine and the lumen of the small intestine was also preserved.
Survival animals were postoperatively able to eat ordinary feed, and were survived for 7–10 days. They were gastroscoped before euthanasia and all animals had an open anastomosis. Four of them required endoscopic dilation before the scope could be brought into the small intestine, but in two pigs the anastomsosis was wide enough for the scope without dilatation. None of the pigs had signs of infection, but one had plenty of fibrin on the external surface of the anastomosis.
Conclusion: Gastro-jejunal anastomosis was successfully performed via the transgastric route using a new double-channel endoscopic method both, in acute and survival animals.

P178

MEASUREMENT AND REGULATION OF INTRA ABDOMINAL PRESSURE DURING FLEXIBLE TRANSGASTRIC PROCEDURES USING A FEEDBACK CONTROL VALVE

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Background: During flexible transgastric procedures there is a need for establishment and maintenance of pneumoperitoneum, just as in rigid laparoscopy. This is usually achieved by inflation through the scope, but unlike at laparoscopy, without monitoring, or control of the intra-abdominal pressure. Over-inflation of the peritoneal cavity can reduce diaphragmatic movement, cause impaired ventilation, reduce venous return with consequent fall in blood pressure, and may even cause air embolism.
Methods: Intra-abdominal pressure was monitored during transgastric procedures, such as full thickness resection, gastrojejunal anastomoses and gallbladder surgery, in pigs weighing 30–35 kg. Measurements through the scope were compared with those through a Verres needle, placed in the lower part of the abdominal wall. Both the needle and the scope were connected with a Stortz insufflation tower for laparoscopic surgery, allowing both monitoring and regulation of the intra-abdominal pressure. Several tools were tried out with or through the scope to obtain gas insufflation and pressure monitoring; catheters, needle-knife, sphincterotome. A prototype valve connector was attached to an Olympus double channel endoscope, enabling CO_2 insufflation as well as pressure monitoring and control through the scope.
Results: Over-inflation occurred in all cases when intra abdominal pressure was measured but not controlled. Peak-pressures of about 30 mm Hg were achieved in several cases with air-insufflation through the scope, often resulting in elevated heart rate and lowered blood pressure. The laparoscopic insufflator was then used for pressure monitoring and control, enabling establishment and maintenance of pneumoperitoneum at 12 mm Hg. This type of controlled insufflation worked well through the prototype valve connector, but not through endoscopic catheters. The small diameter lumen of the catheters did not allow enough gas-velocity for insufflation and performed badly for pressure measurements.
Conclusion: Direct measurements showed, that over-inflation of the peritoneal cavity was common during experimental transgastric procedures using flexible endoscopes. A modified valve attached to the accessory port of a gastroscope allowed automatic regulation and monitoring during transgastric surgical procedures.

P179

DOUBLE BALLOON ANASTOMOSIS: A NEW TECHNIQUE TO ACHIEVE TRANSGASTRIC GASTRO-JEJUNOSTOMY

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Background: Simpler methods for forming anastomoses at flexible endoscopy would be valuable. Transgastric endosurgical methods using suturing are effective but rather slow if many stitches are placed.
Aim: to test the feasibility of forming anastomoses with a new catheter device passing through the scope which allows compression of tissue between two balloons.
Methods: Double balloons were developed and tested in non-survival ($n = 5$) and survival studies in pigs ($n = 4$). Balloons were designed with new one-way valves to allow inflation and prevent deflation. Double balloons were formed, which allowed effective compression of tissue interposed between the balloons. The balloons were capable of withstanding 2–6 atmospheres of pressure and were folded around the catheter to allow the balloon to be passed through endoscopes with a 3.8mm working channel over a guide-wire. The stomach wall was penetrated with a needle knife followed by balloon dilation (15 mm) of the transgastric route to allow the gastroscope to enter the peritoneal cavity. Small intestine was grasped on the ante-mesenteric border with forceps passed through an open snare. The snare was closed and locked on a small portion of tented small intestine and the forceps were withdrawn. A needle knife incision was made in the small intestine to allow insertion of the double balloon over a guide-wire. The distal balloon was inflated and the small intestine pulled against the stomach. The proximal balloon was inflated in the stomach compressing the small intestine against the stomach wall. The balloon catheter was cut with a purpose built cutter in the stomach. Anastomosis patency was assessed at 5–10 days.
Results: Bench tests showed that the double balloons could maintain inflation for long periods and that the force exerted on tissue was well above systemic blood pressure. Tests in pigs showed that insertion was technically feasible, and also quicker than sutured transgastric anastomoses. Endoscopy in survival studies showed well-formed gastrojejunostomies at 4–7 days. Balloon dilatation was used to allow the passage of a double channel gastroscope into efferent and afferent limbs.
Conclusions: Double balloon anastomosis is an effective and rapid method for forming anastomosis at flexible endoscopy.

GASTRODUODENAL DISEASES

P180

LAPAROSCOPIC GASTRIC RESECTION OF GASTROINTESTINAL STROMAL TUMOURS (GIST)–AN AUDIT OF OUTCOME

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Aim: Assess outcome of Laparoscopic resection for GIST of the stomach.

Methods: Retrospective case note review of all the patients undergoing Laparoscopic resection of stomach GIST between 2001–2005 in a single consultants firm.

Results: Fourteen (6M, 8F) patients underwent Laparoscopic gastric resection for GIST. Age group 51–93 years (median 72 years).
Eleven patients had sleeve gastrectomy, one had distal gastrectomy and two were converted to open. The presenting symptoms were Haemetmesis in 4, Melena in 6, combined Haemetemesis and Melena in 2. Two presented with anaemia and one was incidental. The diagnosis and staging was done with endoscopy and CT scan in all the patients. Four of our patients had lesser curve GIST, 3 each in body and fundus. One in antrum, 1 each in pylorus and greater curve and one was an intussuscepting antral tumour. Median operation time was 75 min.-Median hospital stay was 5 days. There were no deaths in the series. Histology showed completeness of resection in all. The size of the GIST varied between 4.0–5.5 cms.Ten were in low risk group and 4 in intermediate risk group depending on the size and mitotic figures. The median follow up was 26 months. There have been no recurrences so far using regular clinical assessment, endoscopy and CT scan for surveillance.

Conclusion: Laparoscopic gastric resection for GIST appears to be safe and effective treatment in these patients.

P181

COMPARISON OF POSTOPERATIVE HEPATIC FUNCTION AFTER LAPAROSCOPIC VERSUS OPEN DISTAL GASTRECTOMY FOR EARLY GASTRIC CARCINOMA

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Aim: There is concern about the potential adverse effects of increased intraabdominal pressure during pneumoperitoneum on hepatic function. We analyzed changes in hepatic function after laparoscopic (LADG) and open distal gastrectomy (ODG) for gastric cancer.
Methods: From July 2004 to May 2005, 61 patients (30 LADG and 31 ODG) who underwent surgery for early gastric cancer at our Hospital were reviewed. Liver function tests Total bilirubin, Alkaline phosthatase (ALP), Aspartate transferase (AST). Alanine transferase (ALT) levels were compared between two groups preoperatively and at 2 hours and 72 hours postoperatively.
Results: The age, sex, body mass index, preoperative hepatic function were not different between two groups. The operative times were significantky longer in LADG group than in ODG group (298 vs 184 minutes, $p < 0.05$). There was no postoperative hepatic failure or mortality in either group. ALP levels decreased and total bilirubin levels remained unchanged from preoperative baselines in both groups without significant difference between the two groups. After LADG, AST and ALT transiently increased by 3.7 and 3.5 folds immediate after surgery and returned to near baseline levels by 72 hours. After ODG, AST and ALT increased 1.9 and 1.5 folds and returned to near baseline levels by 72 hours. On 3rd postoperative day, there was no significant difference in AST, ALT levels between two groups ($p > 0.05$).
Conclusion: After LADG, hepatic transaminase elevated immedietly but returned normal range in 72 hours. Prolonged peumoperitoneum is considered safe in patients undergoing LADG.

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LAPAROSCOPIC ESOPHAGOJEJUNOSTOMY AND ESOPHAGOGASTROSTOMY USING NEWLY DEVELOPED PURSE-STRING SUTURE INSTRUMENT

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We report laparoscopic esophagojejunosomy and laparoscopic esophagogastrostomy using circular stapler and newly developed instrument 'Endo-PSI'. Between April 2005 and February 2006, 18 patients received these procedures during laparoscopy-assisted total gastrecomy (LATG) and laparoscopy-assisted proximal gastrectomy (LAPG). In the cases of LATG, reconstruction was performed by either Roux-en Y method (n = 2) or Roux-en Y with jejunal Pouch method (n = 12). In the cases of LAPG, reconstruction was done by gastric tube method (n = 4). After radical lymphadenectomy and mobilization of the stomach (and duodenal transaction: LATG) were performed laparoscopically, the Endo-PSI was attached to the abdominal esophagus using hand assisted laparoscopic surgery (HALS). For HALS technique, 6-cm vertical median incision at the epigastrium was made. Insertion of the straight needle with 2–0 polypropylene to the device and cutting of the esophagus and insertion of the anvil head to the esophagus were performed laparoscopically. Jejuno-jejuno anastomosis and jejunal pouch during LATG and gastric tube during LAPG were made extracorporealy. The combination of the circular stapler for esophagojejunostomy or esophagogastrostomy was performed laparoscopically. There were no complications attributable to this procedure and there were no cases that required conversion to conventional open procedure or required extension of median incision. This newly developed 'Endo-PSI' was useful for laparoscopic purse-string suture.

P183

ACUTE PHLEGMONOUS GASTRITIS

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Phlegmonous gastritis is an acute inflammation of the stomach wall caused by bacterial infection. It is an uncommon condition, and a low index of suspicion usually results in delayed diagnosis, and a poor outcome. We describe two cases treated successfully in our unit.

A 37 year old male was admitted as an emergency with a two-day history of upper abdominal pain and vomiting. He had a tender, distended abdomen, with a raised temperature. After resuscitation overnight, he underwent a laparotomy. He had purulent peritoneal fluid, and a thickened stomach. On incision to form a gastrostomy, the stomach wall oozed pus. Frozen section of a full thickness biopsy showed acute suppurative gastritis. The stomach was closed round the gastrostomy, and the abdomen closed after lavaged. Endoscopy the following day showed widespread gastritis. Post-operatively he was treated with antibiotics. He made a gradual recovery, the gastrostomy was removed, and he was discharged 29 days post operatively.

A 68 year old male was admitted with as an emergency with a three-week history of vomiting and weight loss. He was jaundiced with unremarkable abdominal findings. Endoscopy the next day showed a pyloric stenosis with florid oesophagitis and gastritis. CT scan revealed a thickened, stenosing first part of duodenum, and mild biliary dilatation. Biopsies showed acute phlegmonous gastritis so he was treated with antibiotics. His biliary tree was decompressed by percutaneous insertion of biliary stents and duodenal stenting to bypass the lesion. His nasogastric aspirates did not settle however, and he had a laparotomy. He was found to have a duodenal adenocarcinoma with widespread peritoneal seedling. A palliative gastrojejunostomy was carried out, he made an uneventful recovery, and was discharged on his 10th post-operative day.

Once diagnosed, phlegmonous gastritis can be treated successfully by broad-spectrum antibiotics. In our first patient, the condition ran a fulminant course, with symptoms and signs leading to early intervention. He made a good recovery with antibiotics, and supportive treatment. Our second patient had a more indolent course, and gastritis was secondary to obstruction. He also responded well to antibiotics and bypass of the obstructing lesion.

P184

LAPAROSCOPIC SUBTOTAL GASTRECTOMY FOR GASTRIC MALIGNANCY

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Introduction: The use of laparoscopy to treat gastric malignancy is still controversial, and has not yet gained wide acceptance.

We present our experience with laparoscopic gastrectomy for gastric malignant tumors, which were amenable to distal subtotal gastrectomy.

Methods: Laparoscopic distal subtotal gastrectomy was the selected procedure according to the surgeons and the patients preference. D1 subtotal gastrectomy with Billroth-2 reconstruction was performed in all cases. Data regarding demographics, operative procedures, post-operative course and follow-up information was prospectively collected in a computerized database. Survival data was obtained from the national census.

Results: Seventeen patients were operated over a period of four years, 16 for gastric adenocarcinoma and one for gastric lymphoma. There were 8 males and 9 females, at a mean age of 68 years (33–91). The mean procedure duration was 332 minutes (189–452). Tumor-free margins were obtained in all cases, and the mean number of lymph nodes in the specimen was 13 (5–61). Median post operative hospital stay was 13 days (7–108). Post operative complications were leak from the duodenal stump (2) intra-abdominal abscess (2), anstomotic leak (1) and wound infection (1). Re-operation was required in three patients. No peri-operative mortality was observed.

Pathological examination showed nodal involvement in 8 patients. During the follow-up period (1–51 months, mean = 26) 3 patients expired from recurrent and metastatic disease, all of them had nodal involvement. Calculated 3 year survival is 79.8%.

Conclusion: Although a challenging and lengthy procedure, laparoscopic subtotal gastrectomy yields aceptable surgical and oncological results.

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LAPAROSCOPY-ASSISTED DISTAL GASTRECTOMY WITH LYMPH NODES DISSECTION FOR EARLY GASTRIC CANCER: OUR SIMPLE AND PRACTICAL PROCEDURE

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Laparoscopy-assisted distal gastrectomy LADG is getting popular these days. But the procedure of LADG is complicated and needs advanced techniques for laparoscopic surgery. We have developed a simple and practical procedure for LADG.

Operative Procudure:

1. A 5 cm incision was made in the upper midline and omentectomy is initiated through this small incision using Kent mini-retractor.
2. A 12 mm trochar was inserted below the navel for a laparoscope and a 5 mm trochar was inserted in the upper right abdomen, and a 12 mm trochar was iaserted in the upper left abdomen. An abdominal wall sealing device (the Lap Disk) was used for a 5 cm incision and a 12 mm trochar was inserted through Lap Disk.
3. Under laparoscopic view, additional dissection for omentum and lymph nodes along the right gastroepiploic vessels and left gastroepiploic vessels were made, and the stomach was lifted from the pancreas. The left gastric vein and artery was divided after double-clipping. The dissection of the lymph nodes along the left gastric artery was made. The lesser omentum was cut with preserving the hepatic branch of vagus nerve.
4. Through a 5 cm incision, the stomach was cut using linear stapler at the oral excision line. By pulling up the distal stomach and pulling abdominal wall by Kent mini-retractor to right direction, the base of right gastroepiploic vessels were easily identified and exposed, then the suprapyloric and inflapyloric lymph nodes were dissected. The duodenum was cut using Purstring and the distal stomach was resected. After distal gastrectomy, the lymph nodes along the common hepatic artery were dissected with nice view through a 5 cm incision. The anterior wall of residual stomach was partially cut and opened. Through this small anterior wall window, the gastroduodenostomy was made by an anastomotic devise (ILS 29 mm).

Results: We have performed this LADG procedure in total 26 cases by August 2005. The operation time was 167 min and the blood loss was 64 g on average. The operation time was shortened by learning curve and 128 min in recent 10 cases on average. The diet was restarted at 4POD and the median hospital stay was 12 days. In dissecting back side of the stomach or lymph nodes along the left gastric artery a laparoscope could provide a very nice view, this was considered as an advantage of laparoscopy-assisted surgery.

Conclusion: We have developed a simple and practical procedure of LADG that needs only two surgeons and shorter time

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HAND-ASSISTED LAPAROSCOPIC GASTRECTOMY FOR ADVANCED GASTRIC CANCER

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Introduction: We introduced the laparoscopic gastrectomy in 1996 and hand-assisted laparoscopic gastrectomy (HALG) in 1998 to obtain the same surgical effect as conventional open surgery with minimal access. Initially, we performed these procedures only for early gastric cancer since the early clinical experience allowed us to dissect level 1 lymph nodes (D1). After the dissection level 2 lymphadenectomy (D2) was established, we expand its indication for advanced gastric cancer.

Objective: We performed in total of 180 laparoscopic and laparoscope-assisted gastrectomies by September 2005. There were 29 advanced gastric cancers who underwent HALG, such as 20 of distal gastrectomy (HALDG) and 9 total gastrectomy (HALTG).

Results: Among 29 HALG cases, we performed D1 for 13 patients and D2 for 16. Average operating time and blood loss were 279 minutes and 332g. Average number of harvested lymph node was 36. There were no open conversions to complete the procedure. Postoperative complications were 2 anastomotic leakage, 1 pancreatic fistula and 1 anastomotic stenosis after Roux-en-Y reconstruction. No port site metastases were encountered. All patients are alive and well except 3 patients who died due to stage III and IV far advanced cancer.

Conclusions: To keep laparoscopic surgeries advantages without losing reliability and safety, hand-assisted surgery could be a good option for gastric cancer. Hand-assisted surgery allowed us to have a real tactile sensation and bring a great benefit with an increasing of comfort level for surgeons as well as open conventional surgery.
Further evaluation is required; however, our clinical results showed HALG would be a standard procedure for advanced gastric cancer, too.

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THE USEFULNESS OF LAPAROSCOPY-ASSISTED DISTAL GASTRECTOMY FOR EARLY GASTRIC CANCER

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Aim: To clarify the usefulness of laparoscopy-assisted distal gastrectomy (LADG) for early gastric cancer, surgical outcome were evaluated.

Patients and Methods: A total of 62 patients with early gastric cancer (T1, N0) were enrolled in this study. Of them, 47 patients underwent LADG and remaining 15 underwent open distal gastrectomy (ODG). Moreover, the surgical outcome between the first 29 patients (the former group) and the next 18 patients (the latter group) were compared.

Laparoscopic procedure: Laparosopic manipulation was performed by a 5.0 cm of small laparotomy was added after laparoscopic lymph node dissection for anastomosis. Throughout the procedure, LigaSureTM Atlas was frequently used for seal of connective tissue and vessels.

Results: There was no difference in operation time (LADG vs ODG, 300 vs 270 min). However, significant difference was observed in bleeding volume between the two groups (200 vs 370 ml). There was no difference in the number of dissected lymph nodes (24 vs 24), peal white blood cell count, peak CRP value, the frequency of NSAIDS usage. The time to flatus was significantly shorter in LADG group (2.5 day) whereas no difference in hospital stay. Operation time and bleeding volume significantly decreased in the latter group.

Conclusions: Sufficient experience (more than 20 cases) in LADG can offer stable and steady operative procedure. Moreover, it is necessary to introduce a useful device such as LigaSureTM Atlas in this procedure.

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LAPAROSCOPIC REPAIR OF PERFORATED GASTRODUODENAL ULCER

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Introduction: The laparoscopic approach for the treatment of perforated gastroduodenal ulcers is currently the preferred procedure compared with the conventional open access. Especially simple suturing of the defect or the omentum majus-patch are gaining great acceptance.
We performed a retrospective evaluation and reviewed the literature to analyse morbidity and mortality of the laparoscopic approach.
Results: Between January 2000 and September 2005 39 patients were operated for perforated gastroduodenal ulcers in our clinics. The mean age was 57,7 years (19–90). Apart from 16 primary conventional open operations (3 distal stomach resections, 13 pyloroplastics) we performed the laparoscopic approach with simple suturing and abdominal lavage in 20 cases. In one case we applied an omentum majus-patch. The conversion rate was 2/21. Mean operation time for the laparoscopic procedure was 92 minutes (53–149). There were no complications intraoperatively. Postoperative complications we found in five patients with one reoperation because of an intraabdominal abscess.
We found postoperative complications in five patients including one reoperation because of an intraabdominal abscess.

Conclusion: For the treatment of perforated gastroduodenal ulcer the laparoscopic approach with simple suturing and abdominal lavage is safe and effective. There are reduced postoperative pain, better wound healing and less abdominal wall complications. Compared with the conventional operation the incidence for cicatrix hernias is 2% vs 10–15%.

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LAPAROSCOPIC CORRECTION OF AXIAL HIATAL HERNIAS:EXPERIMENTAL STUDY

NO SHOW

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LAPAROSCOPIC CORRECTION OF AXIAL HIATAL HERNIAS: CLINICAL STUDY

NO SHOW

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LAPAROSCOPIC TREATMENT OF ULCER DISEASE

NO SHOW

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THE CHOICE OF SURGICAL TREATMENT OF GASTROOESOPHAG-EAL REFLUX DISEACE ET SLIDING HIATAL HERNIAS

NO SHOW

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THE CLINICAL UTILITY OF STAGING LAPAROSCOPY FOR LOCALLY ADVANCED GASTRIC CANCER

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Aims: Accurate preoperative staging is critical in choosing optimal treatment options for locally advanced gastric cancer. We evaluated the clinical usefulness of staging laparoscopy for locally advanced, potentially curable gastric cancers.
Methods: Sixteen patients with clinically T3 or T4 gastric cancer expected to undergo curative resection based on conventional preoperative diagnostic modalities including CT scan underwent staging laparoscopy. Staging laparoscopy was performed under general anesthesia as an independent procedure or immediately before surgery. Three trocars were inserted and the surface of liver, diaphragm, omentum, and parietal/visceral peritoneum were carefully examined. In the presence of peritoneal seeding, biopsy specimens were obtained, in the absence of peritoneal seeding then cytology was performed.
Results: For 16 patients, there were 12 men and 4 women, with a mean age of 55 years (33–80). The Borrmann Type 2, 3 and 4 tumors were 1, 11 and 3 respectively. In 6 patients, tumor marker, CEA or CA19–9, were elevated. The mean operation time was 45.9 minutes (25–70), and complication was occurred in one case. In regard to the tumor depth, 4 of 16 (25%) cases showed discrepancy in staging. Three of four cases were overstaged by conventional methods. After staging laparoscopy, 7 of 16 patients (43%) were found to have unsuspected peritoneal dissemination and 9 patients were diagnosed as candidates for curative resection and proceeded to laparotomy. Of these 9 patients, 7 patients underwent curative resection and remaining 2 patients underwent non-curative resection because of peritoneal metastasis that was not detected by laparoscopy.
Conclusion: Staging laparoscopy is useful for detecting unsuspected peritoneal metastasis and it can avoid unnecessary laparotomy for locally advanced gastric cancer.

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MINIMALLY INVASIVE SURGICAL TREATMENT OF GASTROINTESTINAL STROMAL TUMOR OF THE STOMACH

NO SHOW

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LONG-TERM QUALITY OF LIFE AFTER LAPAROSCOPIC VS OPEN GASTRECTOMY FOR GASTRIC CANCER

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Aims: The aim of this study was to evaluate the long-term quality of patients who undergone laparoscopy-assisted distal gastrectomy (LAG) versus open distal gastrectomy (ODG) for early gastric cancer.

Methods: The study included 53 patients with LAG and 37 with ODG for cure of early gastric cancer. All patients underwent Billroth I reconstruction and were alive without recurrence. Quality of life was estimated by the 22-item questionnaire that addressed food tolerance, physical and medical conditions, and performance status, with a scoring system of 1 (high), 2 (fair), and 3 (low).

Results: The mean follow-up periods did not differ significantly between LAG and ODG (99.3 vs. 97.0 months). Although all 22 items and the total score of the LAG group were comparable to those of the ODG group, the incidence of postoperative intestinal obstruction was significantly lower than that in the ODG group (1% vs. 13%, $P < 0.05$). Patients aged 70 years or more in the LAG group showed significantly better results with regard to general fatigue than those of patients aged 70 or more in the ODG patients. Other items did not differ according to age between the LAG and ODG groups.

Conclusion: Long-term quality after LAG is equivalent to that after ODG, and LDG is associated with a reduced incidence of postoperative intestinal obstruction.

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QUALITY OF LIFE AFTER LAPAROSCOPIC ASSISTED DISTAL GASTRECTOMY FOR EARLY GASTRIC CANCER: COMPARED WITH CONVENTIONAL DISTAL GASTRECTOMY

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Recently, laparoscopic assisted distal gastrectomy (LADG) has been applied to gastric cancer. LADG has been thought to be less invasive than conventional open distal gastrectomy (CDG). It has not yet been determined whether LADG gives a patient better QOL (Quality of life) than CDG. This study was conducted to clarify the QOL after LADG compared with CDG for patients with early gastric cancer.
Patients & Methods: We studied 49 patients, who underwent distal gastrectomy for early gastric cancer (Stage IA, IB: UICC TNM Classification), classified into 2 groups: Group A (n = 16); LADG (Stage IA: 14, IB: 2), Group B (n = 33); CDG (Stage IA: 24, IB: 9). Group A: mean age 61.7, male/female 11/5, Group B: mean age 62.7, male/female 28/5. We compared LADG with CDG as to QOL in more than 1 year after surgery. QOL was evaluated by interviews as to food intake, body weight change, dumping syndrome and esophageal reflux. Length of main skin incision wound was measured. The data were expressed as meanSD.
Results: 1) Food intake (%) compared with preoperative condition in Group A (82.515.7%) was not significantly different from that in Group B (73.916.2%). 2) % body weight change compared with preoperative condition in Group A (92.64.3%) was not significantly different from that in Group B (90.86.4%). 3) % ideal body weight in Group A (91.94.9%) was not significantly different from that in Group B (92.011.6%). 4) Incidence of dumping syndrome in Group A (6/16, 38%) was not significantly different from that in Group B (15/33, 45%). 5) Incidence of esophageal reflux in Group A (2/16, 18%) was not significantly different from that in Group B (11/33, 33%).6) Length of skin incision wound in Group A (3.71.1cm) was significantly shorter than that in Group B (18.92.6cm).
Conclusion: QOL in patients who underwent LADG was not significantly different from that in conventional gastrectomy patients in long term follow. However, LADG has offered cosmetic advantage to patients.

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POSTOPERATIVE GASTRIC FUNCTION OF LAPARASCOPIC INTRAGASTRIC SURGERY: SPECIAL REFERENCE TO GASTRIC EMPTYING

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Laparoscopic intragastric surgery (LIGS) has been applied to early gastric cancer. LIGS might be thought to be good as to minimally invasive surgery and postoperative gastric function. It has not yet been determined whether LIGS has better gastric function than conventional distal gastrectomy. This study was conducted to clarify the postoperative gastric function of LIGS compared with conventional distal gastrectomy for early gastric cancer.
Patients & Methods: We studied 6 healthy volunteers and 12 patients, who underwent surgery for early gastric cancer, classified into 3 groups: Group A (n = 6); healthy volunteers, Group B (n = 7); LIGS, Group C (n = 5); Conventional distal gastrectomy. We performed the followed examinations in more than 1 year after surgery. 1) isotope gastric emptying study for functional evaluation of the gastric remnants (120 min gamma camera measurement in a standing position after eating 99mTc-tin colloid /semi-solid rice /egg), 2) clinical evaluation with interviews as to food intake, body weight compared with preoperative condition, dumping syndrome and reflux esophagitis. The data were expressed as meanSD.
Results: 1) Gastric emptying study a) half emptying time; Group A: 53.311.8 min, Group B: 60.421.3 min, Group C: 28.018.4 min b) retention rate at 60min; Group A: 39.213.7%, Group B: 48.713.1%, Group C: 21.416.7%. There was no significant difference in gastric emptying between Group A and B. Gastric emptying was accelerated in Group C. 2) Clinical findings a) Food intake; Group B: 97.14.5%, Group C: 86.016.7% b) Body weight change; Group B: 98.72.1%, Group C: 92.66.2%. Group B was better in food intake and body weight change than Group C. Dumping syndrome was found in only one of Group C. Reflux esophagitis was not found.
Conclusion: Patients undergoing LIGS have good results of gastric emptying and clinical study. LIGS might be thought to be a good surgery in terms of postoperative gastric function.

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DELTA-SHAPED ANASTOMOSIS: INTRACORPOREAL GASTRODUODENOSTOMY IN TOTALLY LAPAROSCOPIC DISTAL GASTRECTOMY

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Aims: We developed a new method of intracorporeal Billroth I anastomosis 5 years ago and have already reported our initial trials. In this paper, we explain the technique and results of this procedure.

Methods: Functional end-to-end techniques are applied to this anastomosis between the posterior wall of the stomach and that of the duodenal bulb. While stomach gets dissected from a greater to lesser curvature than usual, the duodenal bulb is transected from the posterior to the anterior wall to avoid a risk of causing ischemia at the posterior wall. A small incision is created on the greater curvature side of the remnant stomach and on the posterior side of the duodenum. The 45 mm endo-linear stapler is then inserted. Both of the posterior walls of the stomach and the duodenum are put together, and then the stapler is closed and fired. A V-shaped anastomosis is made on the posterior wall. The common stab incision is then closed by two applications of the linear stapler.

Results: We performed this procedure in 77 cases. The mean time was 13 minutes (with a range of 6 to 28 minutes). Only one patient developed minor complication, anastomotic leakage. With a mean follow-up of 26 months (1–58 months), no one suffered from symptoms indicative of anastomotic stenosis, bile reflux and dumping.

Conclusions: We named this procedure 'Delta-shaped Anastomosis' from the distinctive contour of the anastomosis. Delta-shaped Anastomosis enables us to accomplish intracorporeal Billroth I anastomosis simply, easily and safely.

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LAPAROSCOPY-ASSISTED TOTAL GASTRECTOMY FOR GASTRIC CANCER: TECHNIQUE AND RESULTS

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Aims: We have performed laparoscopy-assisted total gastrectomy (LATG) for gastric cancer in 22 patients since July 2003.Here we report our surgical technique and the results obtained.
Indication: The operation is indicated for early stage gastric cancer in the upper or middle of the stomach.
Surgical technique: Make a small abdominal incision, approximately 5 cm in length, and place a LapDisc into the incision. Insert a camera port into the supra-umbilical region, and two operating ports each into the left and right regions. Separate the greater omentum using a LigaSureTM V (Tyco Healthcare), and dissect the No. 4d lymph node (LN). Separate the left gastroepiploic artery (No. 4sb LN) and the short gastric artery up to the left border of the esophagus, preserving the spleen. Separate the right gastroepiploic artery (No. 6 LN). Dissect the lesser omentum, separate the right gastric artery (No. 5 LN). Separate the duodenum using an Endo GIA. Dissect the No. 8a LN and No. 9 LN, separate the left gastric artery, and dissect the No. 7 LN. Expose the abdominal esophagus from both sides of the diaphragm crura. Separate the vagal nerve trunk and dissect the No. 1 LN and No. 2 LN. Perform total gastrectomy through the small incision. Perform esophago-jejunostomy under direct visualization using a PCEEA 25 mm in diameter. For reconstruction, perform Roux-en-Y anastomosis. At anastomosis, widen the small abdominal incision to 57 cm, if necessary.
Results: Mean operating time was 322 minutes, mean amount of bleeding was 143 g, and the number of dissected lymph nodes was 44.2. Oral food intake was possible after 4.2 days, and postoperative hospital stay was 14.1 days. Postoperative complications were anastomotic stricture in 2 cases and wound infection in 1 case, all of which improved under conservative management.
Conclusion: Although the operating time for LATG for gastric cancer was long, it was a safe technique and resulted in favorable postoperative QOL.

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LEARNING CURVE OF LAPAROSCOPIC DISTAL GASTRECTOMY

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Background: All operative methods need adequate experience for the satisfactory outcome. So far, it has been revealed that some (or much) experience is required to attain a certain extent of surgical result e.g. small amount of lost blood, stable operating time, and minimal motility rate about laparoscopic colectomy or Nissen fudoplication. Laparoscopic distal gastrectomy (LDG) with lymphadenectomy is popular method and has increased year by year in Japan, nevertheless it is so complex and sophisticated operation that the operator requires no less skill and experience than those procedures. We should consider the patients risk who undergo the operation by the surgeon during learning curve must be minimized.
Aim: To assess the learning curve for laparoscopic distal gastrectomy.
Methods: The converting rate to open surgery, operating time, estimated blood loss (EBL), and the incidence of complication of 180 consecutive patients who underwent LDG in Nagoya University Hospital between 1997 and 2005 were analyzed. The initial 70 cases were performed mainly by the author (M.F.) Since 2001, 5 surgeons did 40 cases instructed by experienced surgeon (M.F.). The data of the operations performed by 5 training operators was also reviewed.
Result: 2 cases were converted to open surgery in initial 10 cases, thereafter conversion was rare. No remarkable change was seen in the operating time. EBL was over 500g in 4 cases (26.7%) in initial 15cases, only 5 cases (0.8%), on the contrary, in latter 165 cases. The incidence of post-operative complication was 26.7% in primary 30 cases. After 60 cases experience, the complication rate has been around 10% which is the satisfactory level comparing that in the open gastrectomy. As to the operations by 5 training surgeons, the apparent learning curve was not seen. The result of them was good from the first case in every surgeon.
Conclusion: The experience of around 60 cases is necessary to achieve the satisfactory level in the initial phase, however less experience might be needed with proper instruction.

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HOW TO NOT FORGET THE DUODENUM AFTER ESO/GASTRO-JEJUNAL ANASTOMOSIS? AN ULTRASOUND SOLUTION

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Background: After total gastrectomies or Bilroth II resections-, the duodenum remains excluded from the digestive circuit. Neither radiology nor endoscopy are of any use. Based on his own experience and also on the scientific literature concerning the ultrasound diagnosis of duodenal pathology, the author makes a simple proposal, proving the value of transcutaneus ultrasonography (TCUS) in the identification of the restant duodenum.
Material and Methods: First 2400 pacients are included in screening ultrasound examinations. There are checked the normal values of the wall thickness, the structure, the mucosal folds, the contain, the relationship with neighbour organs. On a 51 pacients lot with excluded duodenum after surgery for gastric cancer or non tumoral pathology, was applied an ultrasound protocol of investigation using Color Doppler and Power Doppler devices with 2,6 MHz, 3,5 MHz and 5 MHz, 6 MHz, 7 MHz frequence probes.
Results: As a first point of interest, we obtain concludent details about duodenal stump with a normal healing process of about 6–8 weeks, but also about pathological evolutive signs: leaks, local abscess and pneumoperithoneum. On the same time we obtained relevant data concerning the relation with Common Biliary Duct, Wirsung Duct, Pancreas. An enlarged duodenal wall with hipoecogenity of submucosal layers was correlated in two cases with histopathological aspect of chronic duodenitis. A diameter less than 50 mm, accompanied by alimentary fragments can be considered normal findings in long term evolution of excluded duodenum. A larger duodenum up to 90 mm with an higher intraluminal echogenity conduce to the suspicion of aferent loop syndrome.
Disscutions: The screening showed a 2.6 mm average thickness of duodenum wall. For any preoperative ultrasound examination of the duodenum, to identify the pilor is mandatory. In postsurgical patients the landmarks for duodenal location are: the Portal Vein, the Common Duct, the Gall Blader and the Head of Pancreas. In these patients ultrasonography earns importance because of the particular missing of efficiency of the endoscopy and XRay.
Conclusions: TCUS (performed by surgeons) could be of a real benefit after eso or gastro-jejunal anastomosis, remainig the only one real-time imaging method suitable to following-up of the duodenum.

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LAPAROSCOPY-ASSISTED PROXIMAL GASTRECTOMY WITH GASTRIC TUBE RECONSTRUCTION FOR EARLY CANCER

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We developed proximal gastrectomy with gastric tube reconstruction for early proximal gastric cancer and we reported better QOL of patients underwent this operation. We have tried to perform this operation laparoscopically. In this paper, we report the indication for, techniques of and surgical results of laparoscopy-assisted proximal gastrectomy (LAPG).
Indication: LAPG is applied for early proximal cancer which has risks of lymph node metastasis (n1) or which is not indicated for endoscopic modalities.
Techniques: Under laparoscopic procedures, the left gastric vessels, the posterior vessels, and short gastric vessels were dissected. After the upper two-thirds of the stomach were mobilized, the esophagus was transected by a laparoscopic autosuture stapler (End-GIA). Then, a 5-cm laparotomy was made above the bulbus of the duodenum. Through this mini-laparotomy, the stomach was pulled out of the abdominal cavity. The stomach was transected between two points of the distal three-fourths of lesser cuvature and one-half of the greater curvature using an autosuture stapler. After re-pneumoperitoneum was created, side-to-side esophago-gastric tube reconstruction was carried out by using an autosuture stapler under laparoscopic techniques. A pyloroplasty was not performed.
Outcome: We have performed successfully 6 LAPGs with gastric tube reconstruction for early proximal gastric cancer. The mean operation time and blood loss was 303 min and 197 ml, respectively. There was no complication but one anastomotic stanosis, which were successfully treated conservatively.
Conclusion: The LAPG with gastric tube reconstruction was simple, easy, and safe. LAPG is a useful procedure for the treatment of early proximal gastric cancer.

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LAPAROSCOPY- ASSISTED TOTAL GASTRECTOMY FOR GASTRIC CANCER

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Purpose: Laparoscopic distal gastrectomy have come to be applied to the treatment of early gastric cancer as a minimally invasive surgery. However, laparoscopy- assisted total gastrectomy (LATG) are not so common, and they are also considered as the challenging procedures. It is the most major reasons that esophagojejunostomy and esophagogastrostomy under the laparoscopy have technical difficulties. So, we will report about our technique of LATG, especially about esophagojejunostomy by using semi automatic suturing device (Endostitch).
Method: LATG with lymph node dissection was performed on 24 patients in our hospital. They were also divided into two groups by the extent of lymph node dissection based on the preoperative clinical stage. One was laparoscopic D1 + beta lymph node dissection for 21 patients with T1N0, the other was hand- assisted laparoscopic D2 lymph node dissection for 3 patients with T1N1 or T2N0. This is about the way of laparoscopic anvil- headfixation on esophagojejunostomy. Firstly, the tip of the suture of Endostitch was brought outside the body using the Endoclose instrument. After about ten encircling purse-string sutures were performed by Endostitch, an anvil-head was placed laparoscopically with supporting the esophageal wall at three points. When the intracorporeal ligation using Endostitch was performed, it was possible to get ligation with a sufficient degree of tension by pulling the suture placed through the abdominal wall extracorporeally.
Result: The mean operating time and blood loss on the cases of laparoscopic D1 + beta lymph node dissection were 264 minutes and 156.5 ml. On the other hand, those were 364 minutes and 583.3 ml respectively on the cases of hand- assisted laparoscopic D2 lymph node dissection. There was no major postoperative complication and no recurrent cases in both procedures. It was indicated that our technique of esophagojejunostomy was suitable, and LATG was a feasible procedure for gastric cancer.

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LAPAROSCOPIC RESECTION OF SUSPECTED GASTRIC STROMAL TUMORS

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Background: Gastrointestinal stromal tumors (GIST) account for 4% of all the gastric tumors. Preoperative diagnosis is complex, with biopsy samples rarely obtained during fibergastroscopy. Surgical radical resection is the gold standard treatment, allowing pathological study with both diagnosis and prognosis features. Laparoscopic resection has become an accepted approach to select GIST, with acceptable early results published in literature.
Aim: Study postoperative morbidity and follow-up of patients submitted to laparoscopic surgery for GIST.
Material and Methods: Retrospective analysis of all patients undergoing a laparoscopic resection for clinically suspected GIST in two institutions. Statistical analysis regarding surgical technique, clinicopathologic features and postoperative outcome.
Results: Laparoscopic gastric resection was attempted in 20 patients (12 women and 8 men) with a mean age of 70.5 years (range 38–84). Tumor localization was 8 in upper, 6 in medium and 6 in distal gastric third. Surgical techniques were transgastric submucosal excision (n = 1), wedge resection (n = 11), partial gastrectomy with Y-en-Roux reconstruction (n = 4) and total gastrectomy with Y-en-Roux reconstruction (n = 3). Conversion to ensure proper resection was needed because of tumor size in 2 cases (10%). Postoperative morbidity was delayed gastric emptying in two patients and one case of intestinal obstruction. Length of postoperative stay median was 6 days (range 4–32). Pathologic study confirmed GIST in 17 cases, 16 of them staining c-kit positive. The others were leiomyoma (n = 1), plasmocytoma (n = 1) and parasitic tumor (anasakis, n = 1). Tumors median size was 6 cm (range 2.5–12.5). Malignant risk of GIST assessed according mitotic index and size was low (n = 8), intermediate (n = 5) or high (n = 4). After a follow-up median of 28 months (range 1–88) we have one recurrence (plasmocytoma).
Conclusion: The laparoscopic approach to gastric tumors seems to be a safe and associated with acceptable short- and intermediate-term results in the surgical treatment of GIST.

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RECONSTRUCTION AFTER LAPAROSCOPY-ASSISTED DISTAL GASTRECTOMY

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Billroth type-I (B-I) reconstruction is a standard procedure after conventional distal gastrectomy in Japan. Therefore, the most institutions also undergo B-I reconstruction after laparoscopy-assisted distal gastrectomy (LADG). In B-I reconstruction through the small incision in LADG, obesity and the depth of the abdominal cavity make the anastomosis difficult.
The 7th survey of the JSES, disclosed 7.8% of the postoperative complication rate of LADG, and the 58% of the complications consisted of the anastomotic leakage and stenosis.
The Kitano group reported that anastomotic leakage was complicated similarly both with mechanical anastomosis and with hand-sutured anastomosis, and both with circular stapled anastomosis and with triangle stapled anastomosis. Anastomotic stenosis occurred more frequently in using 25 mm circular stapler. It was complicated even in using 29 mm circular stapler and in triangle-stapled anastomosis, which is intended to make wide anastomosis.
Some trials, described above, failed to decrease the anastomotic complications. We have started Roux-en-Y (R-Y) reconstruction in LADG from February 2004, and experienced 77 cases until now. No patients complicated anastomotic leakage and stenosis, and R -Y stasis syndrome has not been observed. The average postoperative hospital stay was 7.1 days. R-Y reconstruction may become a standard procedure in LADG.

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A NEW TECHNIQUE OF ESOPHAGOJEJUNOSTOMY FOLLOWING LAPAROSCOPY-ASSISTED TOTAL GASTRECTOMY

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Recently laparoscopy-assisted gastrectomy has been rapidly widespread. Present concern is that this surgery would be a proper approach for lymphadenectomy for T2 gastric cancer, and the reconstruction after total gastrectomy or proximal dastrectomy could be laparoscopically performed.
Today, esophagojejunostomy following laparoscopic gastrectomy is usually undergone through a small incision in many institutions, however, the length of incision would be 7–8 cm, and the benefit of laparoscopic surgery isnt utilized.
Then, we have developed a new procedure. Prior to gastrectomy, the surface of the gastric wall is cut open, and a gastric suction tube taken through the mouth is pulled down into the abdominal cavity. Then, an anvil of the circular stapler is connected with the top of the tube, and the tube is pulled up into the esophageal. At this time, a thin 10 cm-tube is tied with the edge of the center rod by string to prevent the anvil from being drawn deeply into the esophageal.
Now the incision on the stomach is put toward the esophageal where gastrectomy is performed. With the tube at the edge of the center rod inside the stomach through the upper end of the incision, the esophageal is resected, by pressing the end linear stapler against the tube. Now the esophageal stump is formed, using the double stapling technique. This stump is laparoscopically rejoined to the body of the circular stapler in the jejunum for Roux-Y reconstruction. Since the anastomosis can be made in the abdominal cavity, incision isnt taken more than 4–5 cm, which is required just to take out the stomach. Similarly. Thus, the benefit of laparoscopic-assisted surgery is utilized.
With this pull-up procedure, we performed 5 cases of esophagojejunostomy following laparoscopy-assisted total gastrectomy, and 8 cases of gastroesophagostomy following laparoscopic proximal gastrectomy from July 2005 to the present. No remarkable complication such as anastomotic leak developed. Slight stenosis was observed in one case on postoperative month 2, which was recovered after balloon dilation was performed one time. It is considered that this technique is a safe, simple and effective way to utilize the advantage of laparoscopic surgery.

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LAPAROSCOPIC SURGERY FOR EARLY GASTRIC CANCER IN OUR INSTITUTION: ANALYSIS OF THE INITIAL 50 PROCEDURES

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Background: Recently, the laparoscopic operation to an early gastric cancer has established. This study was designed to review our initial experience with laparoscopic gastric surgical techniques to evaluate indications and surgical results.

Study design: We undertook a retrospective analysis of 50 patients (27 men and 23 women, mean age 62.5 years) who underwent laparoscopic gastric surgical procedures between 2004 and 2006. Procedures performed were distal gastrectomy (n = 45), wedge resection (n = 2), and total gastrectomy (n = 3). Patients were divided into two groups according to the date of the procedure, from the earliest to the most recent.

Results: There were 50 patients with early gastric cancer. In 1case conversion was made to an open surgical procedure. Operation times required for distal gastrectomy, wedge resection, and total gastrectomy were 290, 120, 310 min, and blood loss was 100, 5, 120 g, respectively. Complications included transient anastomotic stenosis (n = 1), leakage (n = 1), and bleeding (n = 1) after distal gastrectomy, and anastomotic leakage (n = 1) after total gastrectomy. There were no complications after wedge resection. Comparing the first and second halves of the series, operation time is shorter in the recent group and the number of dissected lymph nodes at this procedure increased from 20 to 30.

Conclusions: Laparoscopic gastric surgical procedures are safe and feasible for early gastric cancers and submucosal tumors. Technical advances in lymph node dissection have made distal gastrectomy a leading and increasingly popular laparoscopic procedure for early gastric cancer.

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LAPAROSCOPIC MANAGEMENT OF ACUTELY PRESENTING GASTROINTESTINAL STROMAL TUMOURS (GIST)

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Background: The gastrointestinal stromal tumours (GIST) are rare accounting for less than 1% of all gastrointestinal tumours. Nevertheless, some may present acutely with life threatening haemorrhage or intestinal obstruction.
Aim: is to review the various modes of presentation of GIST specially haemorrhage and obstruction, and to assess the role of minimally invasive surgery in the management of acute cases and correlation of such cases with malignant potential.
Methods: Data was collected from patients notes and prospective database. Their presentation, management, histological features and follow-up period were analysed.
Results: 9 cases of GIST were studied over a period of 4 years (2001–2005). The median age was 67.5 years (range: 32–78). Four (45%) presented with gastrointestinal haemorrhage, three (33%) with intestinal obstruction and two (22%) with tender epigastric mass. Six had gastroscopy, and six had CT scan of the abdomen and pelvis. Six (67%) patients underwent partial gastrectomy and gastrojejunostomy (4 laparoscopic and 2 open procedures); three (33%) had resection and anastomosis of the bowel. 86% had emergency and 14% had unplanned surgery. Laparoscopic approach was adopted in 60% cases of which 66% was successful and 34% cases were converted to open. All the patients who had laparoscopic treatment had lesser pain, quicker recovery and short hospital stay as compared to those who had open surgery. Immunohistochemistry revealed positive C-kit and CD34 for all the tumours. Four were benign and five were malignant tumours. Two patients received imatinib mesylate (specific inhibitor of KIT receptor tyrosine kinase). Median follow-up is 24 months with one recurrence.
Conclusion: Our experience showed that GISTs can present acutely and may need immediate surgical intervention. Laparoscopic treatment is safe and practical in experienced hands. Tumour size and haemorrhage at presentation can predict malignant potential.

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COMBINED TREATMENT OF ADVANCED GASTROINTESTINAL STROMAL TUMORS (GIST)

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Gastrointestinal stromal tumors (GIST) are uncommon mesenchymal neoplasms with malignant potential and positive reaction to CD 117 (C-KIT) antigen or PDGFRA. They arise from the interstitial Cajal cells.
Between 2001 2005, 15 patients with advanced GIST were subjected to combined treatment. They received imatinib (Glivec) in a dose of 400 mg/24h increased to 600 mg/24h, if necessary. A group consisted of 5 women (33.3%) and 10 men (66.7%), at the mean age of 55 years. Mitotic activity in the analyzed group was 6–78/50 HPF.
Primary localization of GIST was: stomach 7 (46.7%) including 2 patients with multifocal lesions, small intestine 4 (26.1%), colon 2 (13.3%), and rectum 2 (13.3%). In 3 cases synchronous GIST was detected, i.e. gastric stromal tumor and sigmoid stromal tumor (acc. to Aster Coller B2) in 1 case, sigmoid stromal tumor and sigmoid carcinoid tumor in 1 case, and Carneys triad in 39-year-old male (GIST, pheochromocytoma, lung chondroma). All patients were treated with surgery combined with adjuvant chemotherapy with imatinib.
Complete response to treatemnt was obtained in 5 (33.3%) patients, partial response in 4 (26.7%), stabilized disease in 3 (20.1%) and progress of disease in 1 (6.7%).
Combined surgical treatment with imatinib chemotherapy substantially improves treatment results in the patients with advanced GIST.

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EFFECT OF PROSTAGLANDIN E2, DUAL ENDOTHELIN AND ADRENERGIC RECEPTOR ANTAGONISMS IN HEPATIC OXYGENATION DURING ACUTE INCREASED INTRA-ABDOMINAL PRESSURE. EXPERIMENTAL STUDY

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Introduction: Acute increase of intra-abdominal pressure (IAP) impairs liver blood flow with increased sinusoidal vascular vasoconstriction leading to hepatic tissue hypoxemia and hepatic dysfunction.
Aim: To evaluate the effect of the prostaglandin E2 and the dual endothelin-1 (tezosentan) and a-adrenergic (phentolamin) receptor antagonist on liver blood flow during pneumoperitoneum.
Material and methods: We studied 27 anesthetized pigs randomly assigned to four treatment groups: 1) Prostaglandine E2 at 8 ng/Kg/min (PG, n = 7)); 2) Tezosentan 10 mg/Kg (TG, n = 7); 3) Phentolamine at 2g/Kg/min (PhG, n = 7) hand 4) Saline (CG, n = 6). IAP increased from 0 to 10, 15, 20 and 25mmHg and each step was maintained during 20 minutes. Cardiac output (CO) was maintained unchanged infusing colloids. Systemic hemodynamic parameters, total hepatic blood flow (THBF), hepatic microcirculation (HMC) and hepatic oxygen tissue (HpO_2) were recorded at different levels of IAP and after deflation.
Results: No differences were found in systemic hemodynamic variables with respect baseline and between groups. In all groups, as the IAP increased, THBF decreased being only significantly in CG at 25 mmHg ($p < 0.05$). Throughout all the study, HpO_2 was significant lower respect baseline in CG (−6818%, $p < 0.05$; −8824%, $p < 0.01$ at 10 and 25 mmHg, respectively). HMC progressively decreased in all groups however, in PG these decrease was significantly lower compared whit CG (5.37 vs 4920, $p < 0.05$ at 10 mmHg) and (−1112 vs 7114, $p < 0.05$ at 25 mmHg). In any group, we didnt find significant correlation between CO and HMC or HpO_2, only in PG group there was good correlation between CO and HMC ($r = 0.642$). In all groups, the variables reached the baseline values after deflation.
Conclusions: These results suggest an impairment in HMC and HpO_2 as the IAP increased and, the prostaglandin E2 and dual endothelin and adrenergic receptor antagonist could improve HpO_2.

P211

THE PROCEDURE OF INTRACORPOREAL ANASTOMOSIS AFTER LAPAROSCOPIC GASTRECTOMY FOR GASTRIC CANCER

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Recently a minimally invasive operation for gastric malignancies has been noted. Here we have performed intracorporeal anastomosis after laparoscopic gastrectomy for gastric cancer on 373 cases of gastric cancer between March 1998 and March 2006; 284 distal gastrectomy cases, 33 proximal gastrectomy cases and 56 total gastrectomy cases.
The totally laparoscopic gastrodudenostomy by the triangulating stapling technique using endoscopic linear stapling devices is as follows. The posterior walls of the duodenum and the remnant stomach are fixed and elevated ventrally by three points of stay sutures. Then, an inverted suture in the posterior wall of gastroduodenostomy a little less than one second in circumference is made by one firing of a linear stapler. After three points of stay sutures, the first everted suture in the anterior wall is performed at the side of the lesser curvature. The second everted suture at the side of the greater curvature is carried out in the same manner. Thus, the gastroduodenostomy has been completed.
In the totally laparoscopic esophagojejunostomy by the overlap side-to-side technique using an endoscopic linear stapler is as follows. After an isoperistaltic side-to-side anastomosis between esophageal stump and elevated jejunum is performed using a linear stapler, the common orifice is closed intracorporeally in the direction that connects each edge of the suture lines of posterior and anterior wall by hand-sewn method.
Anastomotic leakages are shown in three of 284 distal gastrectomy cases, two of 33 proximal gastrectomy cases and one of 56 total gastrectomy cases.
In conclusion, intracorporeal anastomosis using endoscopic linear stapling devices is a safe procedure with a good visual field regardless of the patients figure.

P212

LAPAROSCOPIC GASTRIC GIST RESECTION: THE MAYO CLINIC EXPERIENCE

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Introduction: Gastrointestinal stromal tumors (GIST) are rare mesenchymal tumors with varied malignant potential. GISTs are often amenable to laparoscopic resection. We report the Mayo Clinic experience with laparoscopic resections of gastric GIST.
Methods: We retrospectively reviewed charts of patients undergoing laparoscopic resection of gastric GIST from April 2000 to April 2006. Demographic data, diagnostic workup, operative technique, tumor characteristics and follow-up were noted. Data were analyzed using the students t-test.
Results: Thirty-two patients underwent attempted laparoscopic resection of gastric GISTs, 31 being completed laparoscopically. Average age was 69 years (range 35–86 years). Female to male ratio was 1:1. Twenty five patients (78%) were asymptomatic and the tumors were found incidentally. Twenty-four patients (75%) underwent preoperative endoscopic ultrasound, 13 (54%) of which had a fine needle aspiration verifying the diagnosis. Mean operative time was 125 minutes (range 30 to 253). A combined endoscopic/laparoscopic approach was used in 11 cases. Mean tumor size was 4.1 cm (range 0.5 to 10.5). Tumor distribution was: gastric cardia/gastroesophageal junction 5 (16%), greater curve 10 (31%) lesser curve 5 (16%), anterior wall 4 (12%), posterior wall 5 (16%), distal stomach 4 (12%). One patient (3%) was converted to open operation. The median length of stay was 3 days. Mean follow-up was 395 days (range 2 to 1825). There were no local recurrences. Three patients experienced complications (9%): one wound infection and two upper gastrointestinal bleeds. There were no mortalities.
Conclusions: Although technically demanding, the laparoscopic approach to gastric GIST is a safe and effective technique resulting in a short hospital stay and low morbidity.

P213

THE TECHNIQUE OF INTRACORPOREAL ESOPHAGOJEJUNOSTOMY AFTER LAPAROSCOPIC GASTRECTOMY

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Background: Laparoscopic distal gastrectomy (LDG) for gastric carcinoma has gained widespread popularity as minimally invasive surgery in Japan. However laparoscopic total gastrectomy has not been accepted easily because of the difficulty of reconstructive technique. Circular stapling device has been commonly used for esophagojejunostomy after open total gastrectomy. This technique becomes extremely complex procedure and increases a risk of twisting the Roux loop under the limited view either through a laparoscope or through the minilaparotomy. Takaori et al. reported that secure laparoscopic functional end to end gastrojejunostomy after LDG (Am J Surg 189:178–183:2005). We modified and applied the technique of Takaori, aiming at simple and secure intracorporeal esophagojejunostomy.

Method: We performed intracorporeal esophagojejunostomy after laparoscopic total gastrectomy (LTG) in 5 patients, and after laparoscopy-assisted proximal gastrectomy (LAPG) in 3 patients with gastric cancer. There were three male and five female patients. The procedure of esophagojejunostomy included a functional end to end anastomosis of the esophagus and jejunum, consisting of side-to-side approximation of the end of esophagus to the jejunal loop before division of the jejunum with a laparoscopic linear stapling device. The inlet of the stapling device were closed with simultaneous division of the jejunum with another stapler.

Result: Mean operative time of LTG was 378 min (335 to 470 min). Mean operative time of LAPG was 344 min (275 to 382 min). The operative time has decreased as surgeons gain more experience. Mean estimated intraoperative blood loss was 231 ml (20 to 520 ml). All patients walked on POD1. The patients tolerated liquid diets in 2 to 5 days after operation. No patients suffered from leakage or stenosis of the anastomosis.

The patient in whom LAPG was performed had suffered from Roux-Y stasis postoperatively but recovered well in two weeks.

Conclusion: The present procedure of Intracorporeal esophagojejunostomy after LTG or LAPG can be performed safely and simply with satisfactory outcome as minimally invasive surgery.

P214

ORDER-MADE THERAPY FOR ADVANCED GASTRIC CANCER USING LAPAROSCOPY

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Aims: We performed Staging Laparoscopy for Gastric cancer since 1998 and we reported that laroscopic examination was very usefull for identifying peritoneal metastases. So we are doing staging laparoscopy for advanced gastric cancer and doing peritoneal lavage for cytology and Collagen Gel Droplet Embeded Culture Drug Sensitivity Test (CD-DST). Subsequently order-made therapy is performed. Such as operation or preoperative chemotherapy or adjuvant chemotherapy. We report our experiences.

Methods: Staging laparoscopy for advanced gastric cancer was performed under general anesthesia just before operation. Diagnosis of peritoneal metastases was done by laparoscopic findings and frozen section and cytology from peritoneal lavage. And the sametime CD-DST for peritoneal lavage (including cancer cells) was performed.After staging laparoscopy, if no peritoneal metastasis was found subsequent operation and adjuvant chemotherapy was performed and if peritoneal metastasis was found, preoperative chemotherapy was done under CD-DST results. But bleeding from tumor or pylorus stenosis is present, surgical resection was done first.

Results: 1) From february to august 1998, thirteen cases of staging laparoscopy was performed and accuracy rate of diagnosing peritoneal metastasis was 100%. 2) CD-DST from all peritoneal lavage from advanced gastric cacer obtained fourteen of eighteen cases (77.8%). 3) Untill march 2006, ten cases of order-made therapy for advanced gastric cancer was done. Seven of ten cases were perfomed curative operation and subsequently adjuvant chemotherapy was done. Three of ten cases were found peritoneal metastases. Two of them were done only staging laparoscopy and subsequent chemotherapy. One of them which shown pylorus stenosis was performed palliated surgical resention. CD-DST from peritoneal lavage obtained ten of ten (100%).

Conclusion: We reprt a new strategy for advanced gastric cancer. Recurrence rate or long term survival needs longer follow up.

P215

LAPAROSCOPIC SURGERY FOR BENIGN GASTRODUODENAL TUMORS

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Benign tumors in the gastroduodenum are rare and preoperative diagnosis is complicated. Endoscopic ultrasound is helpful. After complete gastroenterological evaluation surgical excision or resection is the first choice of therapy. The purpose of this study is to review our experience with laparoscopic management of gastroduodenal benign tumors.
In the last four years we performed 15 laparoscopic wedge resection and 2 laparoscopic distal gastrectomy for various benign laesions in the gastroduodenum. In some cases the localisation was helped by laparoscopic ultrasound. The wedge resection was performed using endo GIA or harmonic scalpel with intracorporeal suturing and knottying. We performed lymphadenectomy and reconstruction by Roux-Y on the resected cases. All cases had tumor-free margins. Histopathologic diagnosis were GIST in 12, leiomyoma in 3 and lipoma in 2 cases. Operating time ranged from 30 to 200 min. There was no conversion or postoperative complication. Hospital stay was 7 days. There was no recurrence in the follow-up period.
The laparoscopic procedure is feasible, safe and useful for the managemenet of gastroduodenal benign tumors. The GIST needs further evaluation.

P216

LAPAROSCOPIC WEDGE RESECTION OF SMALL GIST MIMICING GASTRIC EROSION CAUSING UPPER GI BLEEDING

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Introduction: Gastrointestinal stromal tumors (GIST) comprise a rare group of neoplasms of unpredictable malignant. Laparoscopic techniques are the last frontier in surgical treatement of GISTs whiche provide a minimaly invasive approache to stomach and enable organ preservation.

Case Report: We reported a case of 60y-o woman who had a gastrointestinal tumor (GIST) of the stomach. Preoperative endoscopy revealed hyperemic antral mucosa and one bigger erosion on the border of corpus and antrum. On repeated endoscopy, it was more clearly that erosion was on small polyp. Multiple forceps biopsies were taken form the polyp in 2 consecutive endoscopies, but malignancy wasnt found. Endoscopic ultrasound revealed small lesion size 11x9 mm in muscularis propria and no lymph nodes in the region. EUS guided FNA was performed and material was obtained for cytological analysis. Cytological finding was GIST. We resected the tumor by laparoscopic surgery, because any distant metastasis by multi slice computed tomography (MSCT) did not detect it. Postoperativ histologic examination confirmed GIST. The surgical procedure was without complication and the patient was discharged 5 days after operation.

Conclusion: Laparoscopic wedge resection is feasible treatment option for GIST of the stomach if the leasion is $<$ 5 cm in diameter.

P217

PERFORATED DUODENAL PEPTIC ULCER: LAPAROTOMIC VS LAPAROSCOPIC APPROACH

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Background/Objective: Has surgical approach, laparoscopic versus open, any impact on postoperative recovery and morbidity?

Methods: From a consecutive series of 42 patients operated for perforated peptic ulcer disease in a two year period, from January 2004 to December 2005, we analysed cohort of 23 patients, age under 71 years with perforated duodenal ulcer. These 23 patients were divided in two different groups. Group 1 with 7 patients operated by laparoscopic approach and group 2 with 16 operated by laparotomic approach. The 2 groups were similar with respect to demographic and clinical characteristics.

Results: Average operating time was longer in the laparoscopic group 61 minutes (range 40–105) versus 52 minutes (range 25–85) in group 2. There were no postoperative complications in the laparoscopic group. In group 2 we observed 4 cases of morbidity (25%). Average postoperative hospital stay was shorter in the laparoscopic group, 4 days versus 9 days. There were no conversions.

Conclusion: This series reinforces the advantages of the laparoscopic approach in management of perforated duodenal peptic ulcer in patients under 71 years old in what regards morbidity and postoperative recovery.

P218

LAPAROSCOPIC GASTRECTOMY FOR GASTRIC CARCINOMA: PRELIMINARY EXPERIENCE WITH 70 CASES

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Background: Laparoscopic surgery has been used in the treatment of gastric cancer with low mortality and morbidity and improvement in patient's quality of life. Laparoscopy for the treatment of gastric cancer has evolved in the last decade. Use of the laparoscopic approach in the management of gastric cancer is still in the developmental phase.

Aim: To investigate the feasibility and safety of laparoscopy-assisted radical gastrectomy for gastric cancer.

Methods: Between Sept. 2003 and February 2006 we performed 70 cases of laparoscopic gastrectomy for gastric carcinoma. All the patients were staged pre-operatively with endoscopy and CT scan. At endoscopy a biopsy for histopathology from the tumor site was taken in all the cases. The patients were 39 males and 31 females with a mean age of 72 ($\pm$ 11) years (min 36, max 84).

Results: Tumour stage was IA in 18 patients, IB in 11, II in 9, IIIA in 7, IIIB in 10, and IV in 15. In 20 cases the tumour was an early gastric cancer. The mean number of dissected lymph nodes was 26 $\pm$ 10. Conversion rate was 12%. Morbidity rate was 35%. The median length of hospital stay was 10 days. Operative mortality was 2%. The mean time of follow-up was 23 months. Two-year survival was 78%.

Conclusions: Laparoscopic radical total or subtotal gastrectomy with extended lymphadenectomy for gastric cancer is a feasible and safe. The long term oncological results are similar to those obtained via laparotomy. More prospective studies are needed that evaluate the results of this approach, both its short-term benefits and the long range oncological result.

P219

A SIMPLE LAPAROSCOPIC GASTROSTOMY USING A SELF-MADE HOOK-PIN

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Aims: Laparoscopic gastrostomy offers the best option for long-term enteral access when percutaneous endoscopic gastrostomy is not possible. A simple technique with a self-made device is presented.

Methods: A technique of transabdominal stay suture on the anterior gastric wall for gastropexy using our self-made hook-pin was applied when placing the gastrostomy tube. The method is easy to perform and the mean operative time is 34 9 minutes.

Results: The technique has been used on 12 cases with excellent results and no complications.

Conclusion: Current technique of laparoscopic gastrostomy is simple, quick, economical and effective as a method of establishing enteral feeding.

P220

LAPAROSCOPIC GASTRECTOMY FOR GASTRIC CANCER - AN EXPERIENCE OF OVER 500 CASES

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As less-invasive operations have been noted in recent years, laparoscopic gastrectomy for gastric cancer has become popular because of advances in surgical techniques. We have performed laparoscopic gastrectomy with regional lymph node dissection on 553 cases of gastric malignancies between March 1998 and March 2006. Here we present the technique and results of laparoscopic gastrectomy for gastric cancer.
Of all 553 cases, distal gastrectomy was performed on 439 cases, proximal gastrectomy on 39 cases, and total gastrectomy on 75 cases, respectively. For all cases, D1 or D2 lymph node dissection was carried out according to the general rule of Japanese Gastric Cancer Association.
The average duration of operation and the amount of blood loss were 248 minutes (distal: 242, proximal: 246, total: 286) and 193 mL (distal: 165, proximal: 225, total: 337). The postoperative days of flatus, oral feeding and hospital stay were 2.6 (distal; 2.5, proximal: 3.0, total; 2.9), 3.5 (distal: 3.3, proximal; 4.3, total: 4.6) and 12.4 days (distal: 11.8, proximal; 13.9, total: 15.3), respectively. The average of tumor diameter was 32.4 mm (distal: 31.2, proximal: 27.5, total: 41.2) and the number of harvested lymph nodes per patient was 29.2 (distal: 29.1, proximal: 22.3, total: 33.8), respectively. Recurrence was recognized only in six (two T1 and four over T2 cases) of all patients so far.
In conclusion, laparoscopic gastrectomy for gastric cancer is considered less-invasive and as curative as compared to the conventional open gastrectomy.

P221

LAPAROSCOPIC DISTAL GASTRECTOMY FOR ADVANCED AND EARLY GASTRIC CANCER; 5 YEAR EXPERIENCE IN ONE REGIONAL CENTER (125 CASE)

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Recently, laparoscopic assisted distal gastrectomy has been used in the treatment of early gastric cancer with minimal invasive concept. The purpose of this study was to evaluate whether it is appropriate to perform the laparoscopic surgery in advanced gastric cancer. A retrospective review of 125 patients after laparoscopic assisted distal gastrectomy was done.
Cancer stage was IA in 75 patients, IB in 17, II in 16, IIIA in 10, IIIB in 3, IV in 4.
42 D1+ alpha and 83 D2+ alpha lymph node dissections were performed. The mean operative time was 407.2 min. The mean number of dissected lymph nodes was 33.7. In all patients the procedures without any conversion. Operative mortality and morbidity were 0% and 10.3%, respectively. In this retrospective study in one regional center of laparoscopic assisted distal gastrectomy in gastric cancer. We think it is appropriate for advanced gastric cancer.

P222

THE EFFICIENCY OF ROCKALL AND BLACTHFORD SCORING SYSTEM, IN UPPER GASTROINTESTINAL SYSTEM BLEEDINGS

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Preface: The triaj system is necessary at; classifying the risk on upper gastrointestinal system bleeding, cure, decreasing the costs of care and giving the right medical decision.
Material Method: Between January 2001 August 2005, in Bakirkoy Dr. Sadi Konuk Education and Research Hospital surgical clinic, 588 patients examined with diagnosis of non variseal upper gastrointestinal system bleeding are evaluated for Rockall and Blatchford risk scoring algorithm with ratio to rebleeding in one month and mortality estimation.
Findings: The average age of patients was 54.2 with deviation 17–110. In 30% of the facts, some medicines (NSAID, coumadin.) were said to be used. The examined highest ratio of secondary disease was, diabetes mellitus, hypertension, cardiac failure, hepatit and serebrovascular ilness. The initial ailment in was melena, hematemesis and hematochesia, orderly. The Nazogastrik aspiration ratios were 51.7% with clean bile, 38.1% with bleeding, and 10.1% hematemesis. On rectal tuse, 91% melena, and 1.6% hematokezya were examined. In laboratory evaluations Hb: 9.3 (3.03–15.4), Hct: 27.6 (9.0–47.4) and lokosit 11400, urine 76,0 (8–633) were determined. In endoscopic evaluations Forrest 1a 8%, Forrest 1b 6.3%, 2a 2.4%, 2b 11.7% 53.4% are considered as Forrest 3. Mortality causes and their percentages by 3.49% (36) with provable rebleeding, and %2.52 (26 patient) by side illnesses. The Rockall score were 2,45 (1,99) and Blatchford score 7,15 (4,49) in the facts. The distribution of Rockall scores based on risk levels are: 56,5% low risk, 26,7% medium risk, 16,8% and high risk. The mortality rates based on risk levels; In low risk level 1 (2,8%) patient were examined to result mortality, In medium risk level no patients were examined with mortality and in high risk level 35 patients (97,2%) were examined to came up with mortality.
Summary: The examinations show that the Rockall and Blatchford scoring systems have reasonable relation with re bleeding and mortality. As a result, in ailments with upper GIS bleeding, these scoring algorithms can be used with confidence to estimate triaj and rebleeding.

P223

OUR APPROACH TO GASTROINTESTINAL BLEEDINGS

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Preface: acute upper gastrointestinal system bleedings are 3.rd largest acute clinical ailment in emergency service. The clinical patients vary from very low bleeding to life threatening forms. The distinguishing facts of hospitalization, standard treatment, rebleeding and mortality are still on debate. This paper aims to share our experiences on upper GIS bleedings.
Material-Methodology: Between January 2001 and August 2005, in Bakirkoy Dr. Sadi Konuk Training and Research Hospital emergency surgical clinic, 1321 patients examined who have diagnosis of upper gastrointestinal system bleeding. They are evaluated for, age, gender, background of illness, existing comorbid disease, vital sign, biochemical results, treatment, blood transfusion, endoscopic signs and response to treatments.
Findings: The average age of patients was 54.7 (17–110), 934 man and 387 women. In 30% of the patients, some medicines (NSAID, aspirin, and coumadin) were said to be used. The examined highest ratio of comorbid disease was, diabetes mellitus, hypertension, cardiac failure, hepatitis and serebrovascular illness. The patients formerly had, 18.7% of gastrointestinal system bleeding history, 8% of peptic ulcer operation and 1.7% of portal hypertension.. The initial ailment was melena, hematemesis and hematochesia orderly. The Nazogastric aspiration ratios were 51.7% with clean bile, 38.1% with bleeding, and 10.1% hematemesis. On rectal examination, 91% melena, and 1.6% hematochesia were examined. In laboratory evaluations Hb: 9.3 (3.03–15.4), Hct: 27.6 (9.0–47.4) and lokosit 11400, urine 76.0 (8–633) were determined. For medical treatment, between 2001 and 2004 H2 receptor antagonist and between 2004 and 2005 proton pump inhibitors were used. Total of 687 endoscopic treatments to 588 patients were realized in average of 34.3 (3–48) hours. 4400 cc crystalloid infusion and 1.65 (1–12) unit blood transfusions were made in average. 32 patients with unsuccessful medical treatments were operated. The patients stayed in hospital 2.01 days. (1–20) among all patients the mortality was 2.95% (39 patient), among operated patients the mortality was 18.7% (6)
Results: In acute upper gastrointestinal bleeding, early endoscopic approach was enough for management of most of the patients. This approach also decreases the requirement for operation which may result of morbidity and mortality.

P224

GASTRIC CANCER STAGING LAPAROSCOPY

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Gastric cancer staging laparoscopy is a common practice in several European hospitals.

Aim: Our aim was to detect the number of avoided unnecessary laparotomies, the liminations of the procedure and its morbimortality.

Methods-Results: In the period between November 1997 and September 2002 we have studied 115 patients with gastric neoplasia. 104 were adenocarcinoma. Previous evaluation was CT-Scan in 90 and endoscopic ultrassonography in 14. All patients selected for staging laparoscopy presented tumours with serosal and/or regional lymph node involvement, and no metastatic disease. Mean time of the procedure was 26,2 min (CT/-19.1). Unsuspected liver metastasis and/or peritoneal diseuse was evident in 29 patients. There were 15 cases urressectable disease. Four (4) patients were submitted to laparoscopic gastrenteranastomosis for advanced disease. We had no morbimortality related to the procedure.

Conclusion: Gastric cancer staging laparoscopy is a safe and quick technique. It allows selection of patients for other therapeutic options like neoadjuvant chemotherapy, as it avoids a large number of unnecessary laparotomies.

P225

THE PREVALENCE OF HELICOBACTER PYLORI INFECTION IN GREEK PATIENTS WITH GASTRIC INTESTINAL METAPLASIA

NO SHOW

P226

OUR ENDOSCOPIC SIGNS IN UPPER GASTROINTESTINAL SYSTEM BLEEDINGS

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Preface: In endoscopic examinations, upper gastrointestinal system bleedings should be realized in 12–24 hours. Lesion can characterized by endoscopies and treatment required lesions can be managed via endoscopies. In this paper, lesions characterized via endoscopies are examined.

Material Method: We prospectively studied the patients who were admitted to our emergency ward with symptoms of upper gastrointestinal system bleeding, then the study was retrospectively evaluated. Patients were included in the study; who emergency upper endoscopies had performed within 24 hours of admission from January 2001 to February 2006. Data were included: endoscopic findings, localization of the lesions, image of the lesions according to Forrest classification, endoscopic treatment and surgical treatment.

Results: From 1321 patient, we performed upper endoscopies to 588 patient. We performed 687 upper endoscopies to these patients. Localization of the lesions were: 311 were in the duodenum, 191 were in the stomach, 42 were in the esophagus, 12 were on the anastomosis line, 6 were in the pylorus. In 26 patients there werent any endoscopic finding of upper gastrointestinal bleeding. There were 300 (%51) duodenal ulcers, 103 (%17,5) gastric ulcers, 41 (%7) gastritis, duodenitis, erosions, 25 (%4,3) esophageal varices, 23 (%3,9) gastric malignant neoplasm, 15 (%2,6) Dieulafoys lesion, 12 (%2) anastomosis ulcer, 11 (%2) Mallory-Weiss tear, pyloric ulcer, esophageal carcinoma, nasopharyngeal ulceration and bezoars. According to Forrest classification ulcer lesions were divided into categories. Forty seven (%8) patients had spurting active bleeding, 37 (%6,3) patients had oozing active bleeding, 14 (%2,4) patients had nonbleeding visible vessel, 69 (%11,7) had adherent clot, 6 (%1,3) patients had flat spot and 314 (%53,4) patients had clean ulcer base. To these lesions, 97 (%16,5) adrenaline injection treatment, 9 further intervention with adrenaline again and 18 (%3,1) banding treatment was performed. Who re-bleed or continued bleeding after endoscopic treatment 31 patients were operated.

Conclusion: Usually benign diseases play role in upper gastrointestinal system bleeding etiology and generally there is no need to therapeutic endoscopic treatment. Early upper endoscopies can reveal, the lesions characteristics and active bleeding. Because of this; early endoscopies is related with triage of patients, treatment modalities and medical costs.

P227

RANDOMIZED SINGLE BLIND STUDY IN LADG VS.OPEN DG AS TO THE POST OPERATIVE QOL

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LADG has been generally considered to be superior to open distal gastrectomy about post operative QOL. On the contrary there may be small difference about post operative pain between them because of pain control technique included epidural anesthesia. There was small number of evidence about this point. In this paper we report the results of our randomized single blind study in LADG vs. open DG.

Method: 40 patients of gastric cancer (Stage IA and IB) were registered in this randomized study. To investigate the difference of post operative recovery, post operative QOL was objectively evaluated by Active Tracer that was 24 hour action (the rate of acceleration) recorder. Questionnaire and VAS scale related to post operative pain was also investigated. For strict evaluation, patients in this study were not noticed method of operation in either way until post operative 7 days.

Result: As to the post operative recovery, LADG was significantly superior to open surgery for 4 days. However,there was no difference after then.

Conclusion: LADG offer a good early postoperative recovery.

GYNAECOLOGY

P228

USAGE OF THE LAPAROSCOPIC SURGERY FOR FITZ-HUGH-CURTIS SYNDROME

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Purpose: Fitz-Hugh-Curtis syndrome shows the varied symptoms, such as sharp right hypo-chondralgia, fever, lower abdominal pain, etc, with the circumference liver flame accompanying female Chlamydia or Gonococcal infection, we performed laparoscopic surgery for the purpose of diagnosis and treatment.

Patients: Five patients who were diagnosed as pelvic peritonitis and presented the strong abdominal symptom at our hospital.

Methods: Conducting diagnosis on the pelvic peritonitis by history taking, gynecological examination and Abdominal CT, laparoscopy was performed under general anesthesia to narrow the differential diagnosis of peritonitis and acute abdomen. The three ports are inserted in the navel lower part and a right-and-left side abdomen, 10, 5, 5mm indiameter respectively. Peritoneal lavage from the pelvis to the bottom of a both-sides diaphragm after observation and pus extraction were performed under laparoscopy. We gave Tetracycline or Levofloxacin for these patients.

Results: One of five patients made an incision in the abdomen as acute abdomen and another one got better in preservation. Peritoneal lavage in under laparoscopy was carried out for three cases. Four had Chlamydia infection and one had Gonococcal infection. With the peritoneal lavage, pain got better in the early stage, and they passed favorably. There were no complications by laparoscopic surgery.

Conclusion: Laparoscopic surgery was useful for diagnosis and treatment for these cases to conduct diagnosis on pelvic peritonitis and acute abdomen.

P229

POSSIBILITIES OF THE LAPAROSCOPIC ACCESS IN TREATMENT OF PATIENTS WITH THE INFILTRATIVE FORM OF ENDOMETRIOSIS

NO SHOW

P230

COMPLICATIONS OF LAPAROSCOPIC HYSTERECTOMY

NO SHOW

P231

LAPAROSCOPIC APPENDECTOMY IN PREGNANCY

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Aims: Acute appendicitis is the most common cause of an acute abdomen in pregnancy. However, due to the potential fetal risk associated with the CO_2-Pneumoperitoneum and various operative technical reasons there is still controversy about laparoscopic appendectomy about the role of laparoscopic appendectomy in pregnant women.

Patients and methods: Between January 2000 and November 2005, 283 women between 17 and 45 years with suspected appendicitis underwent laparoscopic appendectomy at our institution. Fifteen of these patients (5.3%) were pregnant at the time of surgery (mean age, 28 years; range, 18–40 years; mean gestational age, 21.9 weeks; range, 14–34 weeks). Perioperative obstetric monitoring included fetal ultrasound, including Doppler sonography and cardiotocography. Clinical data were collected prospectively. Complete follow-up data were available in 14 patients.

Results: All 15 patients underwent successful laparoscopic appendectomy. Mean operation time was 53 minutes (range, 30–100 minutes). The histologic appendicitis/appendectomy ratio was 73%. One patient had a postoperative pyelonephritis, another a cystitis. Average lengths of hospital stay was 5.5 days (range, 3–10 days). All forteen pregnancies with complete follow-up resulted in delivery of healthy infants. The mean gestational age at delivery was 39.6 weeks (range, 35–42 weeks). Two patients (14,3%) had a preterm delivery at 35 weeks with uncomplicated outcome. One patient underwent caesarean section at 41 weeks after chorioamnionitis.

Conclusions: Laparoscopic appendectomy is a safe and effective method to treat acute appendicitis in pregnant women regardless of the trimester. For the best outcome the operation should be performed in a center where surgeons, perinatologist, obstetricians and anesthesiologists work together as a part of an interdisciplinary team.

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LAPAPOSCOPY VERSUS LAPAROTOMY IN TREATMENT OF OVARIAN DERMOID CYSTS

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Aim: This study was undertaken to assess the efficacy of a laparoscopic and open approaches in the management of benign ovarian teratomas with regard to operative outcome, complications, and postoperative follow-up.

Method: From January 1999 to December 2005 we conducted a surgical study on benign ovarian teratomas. The patients were randomized into two groups according to method of surgical approach. 15 of them were treated via laparotomy, 14 via laparoscopy. We compared mean blood loss, time of procedure, post-surgical pain, hospital stay, cosmetic results.

Results: Estimated blood loss was significantly less for laparoscopy (63.0035.23 ml versus 130.1233.25 ml, $P < 0.05$). Mean hospitalization time was 2.140.27 days for laparoscopy and 6.120.26 days for laparotomy ($P < 0.05$). Postoperative pain was significantly less in laparoscopy patients. The laparoscopic technique had fewer post-surgical complications

Conclusion: This observation may support that laparoscopy should be considered the method of choice for the removal of ovarian dermoid cysts. It offers the advantages of reduced blood loss, fewer postoperative adhesions, reduced pain, shorter hospital stay, better cosmetic result, lower costs for the national health system.

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LAPAROSCOPIC MANAGEMENT FOR OVARIAN ENDOMETRIOMAS - A RETROSPECTIVE STUDY OF RECURRENCE RATE ACCORDING TO SURGICAL MODALITIES

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Aims: To determine the optimal laparoscopic procedure for the treatment of ovarian endometriomas from the standpoint of a lower rate of recurrence.
Methods: We evaluated 173 patients with endometriomas who underwent laparoscopic conservative surgery from July 1997 to December 2004, in the last 6 months were excluded from the study. Surgical approaches to 224 ovaries in 173 cases consisted of cystectomy (73 ovaries), fenestration and coagulation (117 ovaries), and oophorectomy (34 ovaries). The two former approaches were classified into 4 categories; A group: cystectomy with ovarian suture (54 ovaries), A' group: cystectomy without ovarian suture (15 ovaries), B group: coagulation with ovarian suture (35 ovaries), B' group: coagulation without ovarian suture (83 ovaries) to calculate recurrence rates according to surgical modalities. The existence of recurrence was evaluated with imaging modalities including ultrasound tomography and MRI. Statistical evaluation was conducted by chi-square test.
Results: The mean duration of follow-up was 605.8 days (range 180–2,247 days). Women who had recurrences were significantly more likely to have bilateral cysts, 4.1% (5/122), than those with single cysts, 13.7% (7/51, $p = 0.02$). The recurrence rates/cyst were as follows; A + A' group = 4.1% (3/73), and B + B' group = 7.7% (9/117). The difference in the recurrence rate among the two method of surgery was not statistically significant ($p = 0.25$). The recurrence rates according to the four surgical modalities were 5.2% in group A, 0% in group A', 8.6% in group B, and 7.3% in group B'. There was no significant difference between A-A' group and B-B' group.
Conclusion: The duration of recurrence after laparoscopic surgery was shorter in the fenestration and coagulation group than in the cystectomy group. Furthermore, the recurrence rate of the former group was higher than that of latter group. However, this difference was statistically insignificant.

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LAPAROSCOPIC SURGICAL PROCEDURES ON THE BOWEL AFFECTED BY ENDOMETRIOSIS

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The authors describe their experiences with laparoscopic management of deep pelvic endometriosis with bowel involvement.
A retrospective analysis of patients with deep pelvic endometriosis, presented to the Department of Obstetrics and Gynecology between January 2001 and Dezember 2005, was made. The series consisted of 101 patients (median age 34 years), 21 of them had bowel involvement. Preoperative symptoms included dysmenorrhea, dyspareunia, rectal bleeding, and infertility.
The bowel disease was managed laparoscopically by excision of the anterior rectal wall (n = 4), anterior rectal resection (n = 15), sigmoid colon resection (n = 2), cecal resection (n = 1), ileocolic resection (n = 1), and small bowel resection (n = 2). The laparoscopic procedure was converted to formal laparotomy in one case, where placing of the linear stapler proved impossible due to increased thickness of the bowel wall. Postoperative complications included intraabdominal bleeding and rectovaginal fistula. In the latter case, laparotomy and additional resection of the bowel was performed.
In our opinion, the laparoscopic treatment of pelvic endometriosis with bowel involvement is safe, when performed by surgeon or gynecologist with sufficient experience in partial and segmental bowel resection, and the ability to convert to laparotomy when necessary.

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A NEW APPROACH FOR LAPAROSCOPIC HYSTERECTOMY: TECHNIQUE AND OUTCOME

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Aims: To compare the outcome of laparoscopically two-step hysterectomy (LTSH) that was performed by supracervical amputation followed by trachelectomy and conventional laparoscopically assisted vaginal hysterectomy (LAVH).

Methods: A total of 222 cases (118 LAVH, 104 LTSH for adenomyosis and myoma) were studied between January 2000 and February 2006 at the Department of Obstetrics and Gynecology, Fujita Health University. Clinical evaluation was carried out regarding the operating time, the blood loss and the uterine weight. In all steps for hysterectomy, the surgical procedures were performed with laparoscopy. Statistical analysis was conducted by Mann-Whitney test.

Results: In LAVH group the operating time was 134.13.9 minutes, blood loss was 224.614.7 ml, and uterine weight was 332.216.8g. On the other hand, in LTSH group the operating time was 207.14.9 minutes, blood loss was 105.413.6 ml, and uterine weight was 450.025.3g. The operative time for LTSH was longer than that of LAVH. However, the blood loss was lower ($p < 0.001$), and then the resected uterine weight was higher ($p < 0.001$) for LTSH.

Conclusions: Laparoscopically two-step hysterectomy is an excellent procedure because of a decrease of blood loss and an increase of resected uterine weight. LTSH may be an alternative technique for conventional hysterectomy with laparoscopy as a standard procedure.

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REPRODUCTIVE OUTCOME AFTER LAPAROSCOPIC MYOMECTOMY

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Objective: To evaluate reproductive outcome after laparoscopic myomectomy (LM) for the patient with myoma and infertility.

Aims: Retrospective study, between 1997 and March 2005, a total of 145 patients were treated with laparoscopic myomectomy at our University hospital. Forty-five patients with infertility were followed-up in more than 12 months after LM and were evaluated reproductive outcome.

Result: The mean age of the patients was 32.8 ± 0.6 years, mean duration of infertility was 38 ± 5.6 months, and mean diameter of the largest myoma was 45.9 ± 3.3 mm. A total of 24 patients (53.3%) became pregnancy after LM. The pregnancy rate was 88.9% for patients with no associated other infertility factors and 46.9% for patients with associated infertility factors. 73.7% conceived on average 12months after operation. Nineteen pregnant patients were evaluated pregnancy outcome. Seven patients (36.8%) had a cesarean section, eight (42.1%) had spontaneous vaginal delivery, four (21.1%) had abortion. No uterine rupture during pregnancy and vaginal delivery was observed.

Conclusions: Laparoscopic myomectomy is seems to be effective and safety procedure for the patients with myoma and no other infertility factors.

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HYSTEROSCOPY ENDOMETRIAL RESECTION IN PATIENTS WITH HEAVY MENORRHAGIA AND EXTRAGENITAL PATHOLOGY

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Background: Heavy menorrhagia affects the lives of many women. The assessment of menstrual flow is highly subjective and gauging the severity of the condition by objective assessment of menstrual blood loss is impractical. In treating menorrhagia the primary aim should be to improve quality of life. Women are willing to undergo quite invasive treatment in order to achieve this. Although drug therapy as the initial treatment is not always successful especially in women who have severe extragenital pathology and dont wish to preserve their reproductive function. Adverse effects and problems with compliance of number of drugs also undermine the success of medical treatment and explain the necessity of invasive treatment.
The aim of study was to evaluate the hysteroscopy resection of endometrium as efficacy treatment in patients with severe menorrhagia and extragenital pathology.
Method: Between December 2002 and December 2005, 118 patients of reproductive age suffered from heavy menorrhagia with concomitant severe extragenital pathology and didnt wish to preserve their reproductive function, have underwent hysteroscopy with endometrial resection followed by morphologic investigation, which revealed different endometrial pathology. All women suffered from different extragenital pathology: there most common were arterial hypertension in 56 (47.45%), gastritis - in 32 (27.2%), enterocolitis - in 16 (13.6%), goiter in 36 (30.5%), obesity in 47 (39.8%) patients. Pathomorphological examinations of endometrium sampling were performed in each case.
Results: Due to investigation we observed significant reduction of mean menstrual blood loss achieved with endometrial resection. Amenorrhoea rates were 61% at 3 months, 76% at 6 months and 84% at 1 year. 34% were hypomenorrhagia at 3 months, 18% at 6 months and 8% at 1 year. 6% of patients had subsequently undergone hysterectomy within 1 year of endometrial resection. 90% of women were satisfied at 1 year.
Conclusions: The hysteroscopy resection of endometrium we consider as a first-line procedure of efficacy treatment for heavy menstrual bleeding in patients with extragenital pathology, especially for women who dont wish to preserve their fertility. Also, hysteroscopy makes possible the evaluation of character and severety of endometrial pathology.

P577

LAPAROSCOPIC ASSISTED RESECTION OF SMALL INTESTINE IN PREGNANCY

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Aim: Aim of this paper is to show and emphasize benefit of lapararoscopic exploration of acute abdomen in pregnancy.

Method: It is case report in women 23 years old in 28 weeks of pregnancy whom we performed laparoscopic assisted operation and resection 20 cm small bowel. After laparoscopic exploration we found incarceration of small intestine after two years ago open operation of cysts of ovary. We have analyzed benefits in this specific approach in pregnancy.

Results: The period of operating time is the same as in open procedure, postoperative function disorders is shorter than in open surgery, oral consumption started second postoperative day. Consumption of analgesic is less, postoperative stay is 4 days. The small incision by 3–4cm is better for delivery, and this incision hasnt repercussion for childbirth.

Conclusion: We conclude that benefits of laparoscopic exploration are very important in pregnancy, because we have done procedures for two, and every of clinical aspect is better and maintain this specific condition.

INTESTINAL, COLORECTAL AND ANAL DISORDERS

P238

LAPAROSCOPIC COLECTOMY FOR COLONIC POLYPS

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Objective: Benign colonic polyps not manageable by colonoscopy, or those with superficial carcinoma, require surgical treatment. Traditionally, formal colectomy with clearance of the lymphatic basin is performed. The aim of this study is to review our experience with the laparoscopic approach for colonic polyps and assess the necessity for radical excision.

Methods: A retrospective chart review of patients who underwent laparoscopic colectomy for colonic polyps was performed. Initial colonoscopic biopsies were compared to the pathology report of the resected specimen.

Results: 49 patients (32 males, 27 females, mean age - 66) underwent laparoscopic colectomy for colonic polyps. Indication for surgery was presumably benign polyp in 38 patients. Superficial carcinoma in polyp was colonoscopically diagnosed in 11 patients. In 7 patients (out of 38) presumably benign lesion harbored cancer diagnosed in the colectomy specimen. None of the 18 patients who eventually had cancer however had any positive lymph nodes.

Conclusions: Although fifth of the presumably benign polyps harbored cancer, none had positive lymph nodes. These preliminary results may question the need for radical lymph node clearance in these patients.

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LESS INVASIVE SURGERY ON THE PATIENTS WITH SEVERE CONSTIPATION

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Introduction: Until now, operation for severe constipation have seldom been performed, because severe constipation was most common in the elderly or the institutionalized patients, and in patients with a variety neurologic disorders. Recently, we have been able to perform less invasive surgery on the patients with severe constipation. In all cases we achieved good results by our own unique method. This method, including the indication to operate, will be discussed.
Methods and Procedures: At first, these diseases are divided to two major categories, the Mega-colon involving only the sigmoid colon (sigmoid colon volvulus) and the extended Mega-colon involving all proximal colon. On the patients with sigmoid colon volvulus (Type 1), we have performed sigmoidectomy through a 4 cm incision (with a laparoscope as a bach-up). On the patients with the extended Mega-colon involving all proximal colon (Type 2), we have performed subtotal colectomy using gasless HALS with our unique lifting bar that consists of a bent, stainless steel rod 5mm in diameter. We have performed these methods on 17 patients consisting of 14 Type I patients and 3 Type 2 patients, after enough bowel preparation.
Results: There are neither major complications nor conversions to conventional open surgery. All of the patients had more than one bowel movement a day with a low dose of laxatives.
Conclusions: On the patients with Type 1, the sigmoid colon was not attached to retroperitoneal tissue; therefore the elongationed sigmoid colon could be easily removed from the abdominal cavity and operated on extracoroporeally. On the patient with Type 2, by performing the operation not only under laparoscopy, but also via the small incision, the operation time can be shortened and the operation procedure is simplified. This combined technique is an advantage of gasless surgery.

P240

LAPAROSCOPY FOR CROHNS: THE IMPACT OF PRIOR LAPAROTOMY ON SUCCESS

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Background: The aim of this study was to assess the results of prior laparotomy on the success of laparoscopic surgery for Crohns disease (CD).

Materials and Methods: An IRB approved retro-spective review of prospectively entered cases from the colorectal database was performed. Patients with CD who underwent laparoscopic management from January 1996 to December 2004 were reviewed.

Results: 109 patients with CD who underwent laparoscopic management were identified. The mean age was 40 (16–84) years and there were 48 (44%) males and 61 (56%) fe-males. Procedures performed included ileocolic resection in 69 patients, stoma creation in 11, subtotal colectomy in 7, adhesiolysis in 6, small bowel resection in 3, total colectomy in 3, left hemicolectomy in 2, Hartmanns reversal in 2, diagnostic laparoscopy in 1, and others in 5. 87 (79.8%) had their procedures performed laparoscopically and 22 (20.2%) patients were con-verted to laparotomy. Conversion was undertaken for adhesions in 10 (9.1%) patients, 6 (5.5%) for unclear anatomy, 5 (4.5%) for severe inflammation, 2 (1.8%) for organ injury, and 2 (1.8%) due to large specimen size. 56 (51.4%) patients had a prior laparotomy and 53 (48.6%) did not. The conversion rate for these 2 groups was 19.6% and 20.7%, respectively. Similarly, there was no significant difference between the laparoscopy and converted groups relative to surgical procedure. Operative time for the converted group was significantly higher compared to the laparo-scopic group (211 vs. 158 minutes; $p < 0.0012$). Diet was tolerated in significantly less time in the laparoscopy group (3.8 vs. 5 days, $p < 0.0245$) and the length of stay was shorter at 6.2 and 6.9 days, respectively.

Conclusions: Previous surgery was not a risk factor for conversion, although patients whose procedures were converted had a slower recovery.

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LAPAROSCOPIC RESECTION OF COLONIC CROHN'S DISEASE: IS IT WORTH THE EFFORT?

NO SHOW

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LAPAROSCOPIC COLON RESECTION FOR CANCER. A SINGLE COLORECTAL SURGEON INITIAL EXPERIENCE.

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Objective: The purpose of this study was to review the very initial experience of a colorectal surgeon with laparoscopic colon resection (LCR) for cancer.

Methods: This is a retrospective study of consecutive LCR for cancer done by a single colorectal surgeon at one academic health sciences center over a decade. Charts and billing data were reviewed. Data extracted included demographics, American Society of Anesthesiology (ASA) classification, Body Mass Index (BMI), types of procedures, conversions, complications, operative room data, AJCC staging, resection margins, 30-day mortality, hospital stay and survival.

Results: Over a twelve-year period (1993–2005), 165 cases (53% female) were done. There were 63 right colon resections, 84 left colon resections, 17 abdominoperineal resections (APR) and 1 total colectomy. Median age was 70. ASA classification was as follows: Class 1: 19%; Class 2: 64%; Class 3: 15%. Mean BMI was 26 (17–42). Conversion and complication rates were 11.5% and 31.5% respectively. Median operative time was 195 minutes (90–360) while median blood loss was 100 cc. AJCC staging was as follows: Stage 0: 0.6%; Stage I: 37.6%; Stage II: 30.3%; Stage IV: 10.3%. All resection margins were clear with a median distal length of 9 cm, excluding APRs and the total colectomy. Thirty-day mortality was 2.4%. Median hospital stay was 5 days (2–86). Median follow-up was 2.6 years (0–11.5). There were 10 cancer-related deaths in Stage I, II and III patients. There was one trocar-site recurrence.

Conclusion: Outcomes of LCR for cancer performed by a colorectal surgeon without any prior laparoscopic training are similar to results reported by centers dedicated to laparoscopic surgery.

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THE ROLE OF LAPAROSCOPIC-ASSISTED, HAND-ASSISTED/HYBRID, AND OPEN METHODS FOR DIVERTICULITIS

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Intro: Although minimally invasive colectomy for diverticulitis has become the gold standard it is not feasible in all patients and, in some series a high conversion rate has been noted. Some experts embrace either a hand-assisted or a laparoscopic method for elective cases. The colorectal service at our institution uses laparoscopic-assisted (Lap), hand-assisted/hybrid (H/H) methods, and open (OS) methods on a selective basis. The purpose of this retrospective review was to determine: how often each of these 3 methods was used, the characteristics of each sub population, the operation performed, and the short term results. Is there a pattern and rationale discernible as to the selection of the surgical method?
Methods: The hospital and office data bases/charts of patients who underwent diverticular resection from January 2000 to August 2005 were reviewed. The presence of simple and complex disease, the operation performed, complications, and short term outcome were assessed. The hand-assisted and hybrid (laparoscopic mobilization, devascularization followed by inferior laparotomy to complete the case) methods were grouped together.
Results: During this period195 patients underwent colectomy: Lap, 109, H/H, 36 (20 Hand, 16 Hybrid), and OS, 50. There were 11 emergencies (5% of total); 9 (81%) were done via OS methods (Lap 1, H/H 1). The percentage of patients in each group whose final diagnosis included either a fistula (bladder, vagina, or skin) or associated abscess was: Lap, 26%; H/H, 75%; and OS, 72%. The vast majority had an anastomosis constructed (Lap 99%, H/H 94%, OS 88%) and proximal diversion was established in: Lap, 7%; H/H, 23%; OS, 27%. The Lap group had significantly shorter or lower: incision size (Lap 5.9 cm, H/H 10.9 cm, OS 21.3 cm), estimated blood loss (Lap 354 cc, H/H 605 cc, OS 722 cc) and postoperative stay (5.6 days vs 8.3 days vs 12 days). The length of resected colon was similar for the 3 groups. There was no significant difference in the rate of leaks (Lap 1%, H/H 0%, OS 6%) or wound infection (Lap 9%, H/H 20%, OS 20%).
Conclusion: The choice of surgical methods was largely based on severity of disease. H/H or OS approach patients were more likely to have complex disease, be diverted proximally, have a greater blood loss, and a longer LOS. Most emergencies were done with OS methods. The choice of methods did not affect length of bowel resected or the leak rate. A rational approach to diverticular disease includes all three methods.

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LAPAROSOCPIC SURGERY FOR COMPLICATED AND UNCOMPLCATED DIVERTICULAR DISEASE: IMPACT ON CONVERSION RATES AND PATIENT OUTCOMES

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Introduction: The aim of this analysis was to determine the impact of complicated and uncomplicated diverticulitis on conversion rates and complications in patients (pts.) undergoing laparoscopic surgery (LS) for diverticular disease (DD).
Patients and Methods: Between 1993 and 2004, 125 pts. underwent LS (91 laparoscopic-assisted (LA) and 34 hand-assisted (HA) for DD (79 uncomplicated and 46 complicated). Cases not completed laparoscopically were considered converted. Complicated diverticulitis was defined as DD associated with an abscess, fistula, bleeding or stricture. Patient age, gender, BMI (body mass index), ASA (American Society of Anesthesiologists) score, presence of medical comorbidities, previous abdominal surgery, type of LS (LA vs. HA) and diverticular disease (complicated vs. uncomplicated) were analyzed using univariate and multivariable logistic regression.
Results: Mean age was 59 years with 67 (54%) men and a mean follow-up of 24 months. The conversion rate was 20% (25 pts). Factors associated with conversion in a univariate analysis included previous abdominal surgery (30% vs 9%, $P = 0.004$), complicated diverticulitis (30% vs 14%, $P = 0.026$) and LA (24% vs 9%, $P = 0.056$). These 3 variables were jointly significant in a multivariable model (Odds Ratio of 4.5, 3.4 and 4.7 respectively). Early complications < 30 days from surgery) occurred in 29% of pts. Twenty-four long-term complications (> 30 days from surgery) occurred in 23 pts. and the 1 and 3-year cumulative probabilities of these complications were 16% and 32% respectively. Early and long-term complications were not significantly higher among pts. requiring conversion (36% vs. 27%, $P = 0.40$ and 41% vs. 30%, $P = 0.45$) or among pts. with complicated diverticulitis (39% vs. 24%, $P = 0.11$ and 37% vs. 29%, $P = 0.67$).
Conclusions: LS for complicated diverticulitis is associated with a higher conversion rate. Patient outcomes are not adversely impacted by LS for complicated diverticulitis or LS requiring conversion to an open procedure.

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LAPAROSCOPIC SURGERY FOR ULCERATIVE COLITIS THAT LEAVES NO INCISIONAL WOUND

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Surgery for ulcerative colitis (UC) is highly invasive due to the poor general condition of most UC patients and the large section of the colon excised. Studies have been performed to develop a surgical method with minimal invasiveness. We have applied these techniques to UC surgery to establish minimally invasive standard surgery that does not leave an incisional wound.

Surgical procedures: A 5-mm flexible laparoscope is used. A small incision of about 3 cm is made at the marking for the stoma site. Under laraparascopic guidance, five 5-mm trocars and two 12-mm trocars are inserted. For intestinal mobilization, the omental sac is first opened, and the splenic flexure with marked inflammation where dissection is difficult is mobilized. To minimize the time required for surgery, the right and left sides of the colon are mobilized by rolling the mesentery from the caudal to the cephalic direction. A 5-mm vessel sealing system is used to handle vessels. For rectal dissection, a proper dissection layer is maintained to the levator muscle of the anus without damaging the autonomic nerve. The colon is removed from the body through a small incision. A J-shaped ileoanal pouch is formed, and an anvil head is inserted to establish a pneumoperitoneum once again and then to perform ileoanal anastomosis. Surgery is completed by performing an ileostomy at the small incisional wound.

Results and Discussion: Laparoscopic surgery was performed on 46 patients with UC. With previous methods, the intestine was mobilized under laparoscopic guidance from the cecum to the sigmoid colon. All UC patients are surgically treated laparoscopically today. The median time of surgery for the entire patient population was 362 minutes, and oral intake was initiated after an average of 13.2 days. After the introduction of the present method, the median time of surgery for the entire patient population was 302 minutes, and oral intake was initiated after an average of 5.3 days. While this low-invasive method that eliminates even small incisional wounds has been performed on only five patients, it has been associated with less pain from the wound, earlier postoperative recovery, earlier postoperative oral intake, and easier management of the artificial anus in these patients.

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LAPAROSCOPIC TOTAL COLECTOMY WIHT ILEORECTAL ANASTOMOSIS

CANCELLED

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LAPAROSCOPIC SURGERY FOR DIVERTICULAR DISEASE

CANCELLED

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COMPARATIVE STUDY BETWEEN LAPAROSCOPIC AND OPEN ELECTIVE SURGERY FOR COLORECTAL CANCER

CANCELLED

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LAPAROSCOPIC ASSISTED REMOVAL OF 20 CM LONG VIBRATOR FROM LARGE BOWEL

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A 32 years old male patient presented to the emergency department in Lagan Valley Hospital, Belfast with a 20 cm long vibrator in his rectum for 12 hours. Plain X- ray showed the long vibrator in the pelvis and lower abdomen.

Multiple attempts of colonoscopic removal of the foreign body failed. A Laparoscopy was performed under general anaesthesia. The upper end of the foreign body was seen in the lower sigmoid colon and easily felt with the bowel graspers. With the help of two 5 mm bowel graspers the long vibrator in the colon was milked down. The lower end was then felt easily in the lower rectum and removed through the anus. The post-operative period was uneventful and he was discharged home 12 hours later.

Conclusion: In experienced hand, Laparoscopic assisted removal of foreign bodies from the large bowel is as safe as open Surgery and has the added benefit of quicker recovery and early discharge from the hospital.

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LAPAROSCOPIC SIGMOID COLECTOMY: ANALYSIS OF 107 CONSECUTIVE CASES

NO SHOW

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EVALUATIONS OF LAPAROSCOPIC ASSISTED COLECTOMY FOR TRANSVERSE COLON CANCER

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Laparoscopic assisted colectomy (LAC) for transverse colon cancer requires sophisticated surgical techniques. Thus, few randomized control trials have adopted LAC. At present, we have performed LAC for all patients with transverse colon cancer after we attained proficiency in this technique. Operation was initiated by detachment of the right colic mesentery from medial to lateral. After then, we opened the omental sac from cranial to caudal, and thinned the transverse colonic mesentery. After identifying the superior mesenteric vein, we continued to dissect along the superior mesenteric vein from caudal to cranial. This approach and the navigation with 3D-CT scanning allowed us to safely ablate the transverse colon around the root of the middle colic artery. The extracorporeally functional anastomosis was done after small incision was given. To date, we have performed LAC in 640 patients with colon cancer, including 66 patients with transverse colon cancer. In this study, the safety of LAC implemented in the 66 patients was retrospectively assessed. Intraoperative bleeding from the splenic vein as an accident was seen in one patient who also underwent laparoscopic assisted distal gastrectomy. Conversion to open colectomy was experienced in two (3.0%) of the 66 patients: one mentioned above and the other who was enrolled in the early period of this study and required an open surgical treatment. Postoperative complications included wound infection in three patients (4.5%), leakage in one patient (1.5%), pneumonia in one patient (1.5%), and delayed ingestion due to gastric stasis in two patients (3.0%). Intestinal obstruction as a late postoperative complication did not occur in any patients. After curative operation, recurrence to death was observed in two patients with recurrence in the liver and one patient with the port site recurrence who underwent conversion to open colectomy. One patient who had recurrence in the lung was alive. These results were similar to those of open colectomy.
In conclusions, after technical standardization, LAC for transverse colon cancer has been safely carried out and its short-term and long-term outcomes are likely to be similar to those of open colectomy.

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LAPAROSCOPIC AORTOILIOPELVIC LYMPHODISSECTION IN RECTAL CANCER

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Aim: evaluation of the efficiency of laparoscopic aortoiliopelvic lymphadenectomy (AIPL) in rectal cancer.

Materials and Methods: within the period 1999–2003 AIPL has been performed in 85 patients at the age of 25–76, mostly with T3-T4 cancer stage. The anterior rectal resection has been performed in 60 (70.6%) patients; 'bringing down' operation in 3 (3.5%) patients, Hartman's operation - in 2 (2.4%) patients, abdominoperineal rectum removal - in 10 (23.5%) patients.

Results: We have not had fatal cases; 2 (2.4%) postoperative complications have been registered. The average number of removed lymphatic nodes is 29 (20–44). In total 10 (12.5%) relapses of disease have been marked. 4 (5%) patients have died within 24–48 months after the operation. A 5-year survival has been marked in 75% of patients.

Conclusion: Thus, lymphodissection, performed laparoscopically, is accompanied by minimum number of complications and satisfactory patients' survival.

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THE TECHNIQUE OF TRANSANAL ENDOSCOPIC MICROSURGERY, USING A RECTAL EXPANDER

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Aim: To elaborate an accessible and reliable method of transanal removal of rectal tumour, using a rectal expander.

Materials and Methods: Instead of the traditional surgical proctoscope a special plastic device-expander, elaborated by us, has been used. Within the interval 2001–2005 56 patients have been operated, using the technique of transanal endoscopic microsurgery (TEM). 15 (26.8%) patients have had the rectal cancer, 38 (67.8%) patients have had the villiferous cancer and 3 (5.3%) patients - leiomyoma.

Results: We have not had complications and fatal cases. The average operation duration has been 35 12.4 minutes; the average postoperative hospital-stay is 2.5 days. 12 (25.5%) relapses have been marked.

Conclusions: This device gives a possibility to reduce the risk of complications and to provide an adequate visualization of operation zone, and to reduce patients' staying in the hospital.

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LAPAROSCOPIC SURGERY OF THE RIGHT COLONIC DIVERTICULITIS

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Introduction: Recently, improvements in laparoscopic surgery have made differentiation of acute appendicitis from diverticulitis possible currently providing a range of technical approaches including: laparoscopic diverticulectomy, laparoscopic ileocecectomy and laparoscopic right hemicolectomy.
Methods: Among 104 patients who were treated for right colonc diverticulitis from January 1997 to May 2005, we enrolled 62 patients who were treated operatively. The clinical parameters evaluated were: treatment modality, operative procedure, length of hospital stay, operation time, complication, outcome, and follow-up duration.
Results: Among 62 patients who were treated operatively, 32 received diverticulectomy, 8 received laparoscopic diverticulectomy, and 3 received right hemicolectomy and laparoscopic right hemicolectomy, respectively. the other 16 patients who were not treated for the diverticulitis, 12 received laparoscopic appendectomy and 4 received appendectomy. There were 2 complications and no deaths. One patient receiving diverticulectomy had an anastomosis leakage, which was treated by conservative management. The other patient who had a right hemicolectomy developed a wound infection. In this study, laparoscopic diverticulectomy and right hemicolectomy was performed in 8 patients and 3 patients had no complication. The mean operation time was 135 and 211 minutes, and took 18 and 68 minutes more than laparotomy. The length of hospital stay was significantly different between the treatment methods ($p < 0.001$). One patient (25%) in appendectomy, 4 patients (33.3%) in laparoscopic appendectomy, and 2 patients (6.3%) in diverticulectomy had recurrent diverticulitis during the follow-up period ($p = 0.103$).
Conclusion: Laparoscopic appendectomy contributes to a decrease in intra-abdominal inflammation through an intra-abdominal irrigation and drainage procedure in addition it reduces the surgical risk and hospital stay. However, appendectomy, alone, might be associated with an increase in the recurrence rate and need for reoperation, because this approach does not provide complete management of right colonic diverticulitis. When Right colonic diverticulitis is found, at the time of laparoscopic appendectomy, laparoscopic diverticulectomy or right hemicolectomy can be considered as definitive treatment.

P255

RELIEVE OF SMALL BOWEL OBSTRUCTION BY ENDOSCOPIC INTUBATION

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A method to relieve small bowel obstruction by retrograde intubation from the anus/ostomy is described. Three patients developed post op small bowel obstruction, who failed conservative treatment were subjected to endoscopic intervention. All three were relieved of their obstruction. 2 of these patients had early small bowel obstruction after colonic resection for cancer. These two had no recurrence 6 months post intervention. One patient has small bowel obstruction due to recurrent peritoneal malignant deposits from large bowel cancer. This patient's obstruction was relieved on two further episodes using the same method. This is a relatively easy way to overcome a fairly common complication after abdominal surgery which would otherwise require open surgery.

P256

LAPAROSCOPIC-ASSISTED COLECTOMY FOR TREATMENT OF RECTAL CANCER

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Purpose: Laparoscopic assisted colectomy (LAC) in patients with rectal cancer suggests that it offers a faster recovery, decreased pain, and a quicker return to normal activity. The roll of LAC for rectal cancer is controversial by reason that this approach requires with technical skills of Laparoscoic total mesorectal excision and with development of neoplastic dissemination. The aim of this study was to asses whether LAC is effective for treatment of rectal cancer.
Methods: From July, 1995 to October, 2005, One hundred three patients with rectal cancer underwent curative LAC. We examined clinicopathological characteristics in these 103 cases and analysed rates of post operative complications, tumor reccurence and disease free survival.
Results: Mean ages were 66.0 years for LAC. Fifty nine LAC patients were males. Tumors location were following; 48 in rectosigmoid (Rs), 43 in rectum above the peritoneal reflection (Ra), 8 in rectum below the peritoneal reflection (Rb), and 4 in proctos, Out of these 103 cases, 79 patients were for advanced rectal cancer and 24 were for early rectal cancer. Adequate methods, including total mesorectal excision, were selected for all 103 cases and most of patients with advanced 79 rectal cancers were conducted with satisfying lymph nodes dissection equally to patients with open procedure. The overall morbidity rate was 13% however anastostomotic leak rate was only 4% and overall 30-day mortality rate was 0%. Tumor recurrence was detected in nine cases. Four were liver metastasis, Four were local recurrence, and one was lung metastasis. No port-site recurrence was seen in our study. Disease free survival at 5 years were 100% in stage 0 ($n = 5$), 94.4% in stage I ($n = 32$), 85.6% in stage II ($n = 36$), 77% in stage IIIa ($n = 25$), 66.7% in stage IIIb ($n = 3$), according to classification of Japanese Society for Cancer of the Colon and Rectum.
Conclusions: LAC is effective procedure for treatment of rectal cancer in terms of morbidity, tumor recurrence, and disease free survival.

P257

COLONIC POLYPS: HOW ACCURATE IS FORCEPS BIOPSY?

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Introduction: Biological behaviour of an adenomatous polyp depends on its histological subtype. Endoscopic forceps biopsies do not always determine the true nature of a polyp. The aim of this study is to correlate the accuracy of endoscopic biopsy samples with the final histology following endoscopic polypectomy.
Methods: Patients undergoing flexible sigmoidoscopy at a Rectal Bleeding Clinic between 1999 and 2005 who had forceps biopsy of a polyp and subsequent complete endoscopic polypectomy were retrospectively identified from the clinic database. Polyp size, number, site and distance from the anal verge were recorded and the forceps biopsy histology was compared with the subsequent endoscopic polypectomy histology.
Results: 100 consecutive patients were studied. Polyp size ranged from 3 to 45 mm. All except six cases were solitary polyps. Fractional forceps biopsy was successful in correctly identifying the histological nature of the polyps in 86 cases, but in the remaining 13 the grade of tumour was revised following polypectomy as follows:

F.Biopsy	Endo polypectomy	N
LGD	HGD/CIS	5
LGD	Invasive CA	1*
BMP/BHP	TA/LGD	2
HGD	Invasive CA	4
HGD	LGD	2

(*10mm diameter polyp, LGD-low grade dysplasia, HGD-High grade dysplasia, CIS-Carcinoma in situ,TA -Tubular adenoma, BMP-Benign metaplastic polyp, BHP- Benign hyperplastic polyp, N-Number)
Conclusion: Fractional forceps biopsies of polyps, although providing useful preliminary information, have an accuracy rate of 86% and their results should be interpreted with caution when planning the management of even relatively small polyps. While it is that there is the occasional situation where only forceps biopsy histology may be available, polypectomy is the only method that provides adequate material for precise diagnosis and should be performed whenever possible.

P258

RECTAL CANCER LAPAROSCOPIC SURGERY: GLOBAL RESULTS

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Introduction: Laparoscopic treatment of colorectal cancer has been a controversial issue due to a series of factors such as inadequate resection, elevated incidence of recurrences, metastases at port sites, disease dissemination and the role of pneumoperitoneum in this type of intervention.
Objective: To conduct a global analysis of the medical literature on colorectal cancer published over the last 5 years, showing the unity of the criteria expounded in the different reports and confirming that laparoscopic treatment of this type of cancer is a safe and reproducible technique.
Material and Methods:
1. Inclusion Criteria: a. Date of publication: January 200–January 2005. b. Journals: Medline and Cochrane. c. Key words: rectal cancer, laparoscopic rectal resection, TME. d. Limits: without limits, randomized clinical trial, clinical trial, review paper.
2. Exclusion Criteria: a. Publications no exactly mentioning laparoscopic technique results. b. Annual JRC. Impact Factor.
The variables taken into account include: number of patients, Dukes stadium, technique employed, conversion rate, number of implantations in port sites, mortality, follow-up time, local recurrence, metastases, survival without signs of disease after 5 yrs, accumulated survival and follow-up time.
Discussion: Laparoscopic surgery has proved to be a reproducible and safe technique for the treatment of rectal cancer. It can be used following the same oncological criteria as open surgery. It obtains the same rate of survival after 5 yrs, local recurrences and sphincter preservation. Some studies have hinted at a greater survival rate in the case of laparoscopic surgery, but statistical significance ($p < 0.05$) has not been proved so far. Nevertheless, laparoscopic surgery has lower levels of morbility, requires reduced in-hospital stay. It offers surgical advantages due to the magnified image of the pelvic anatomy it provides. There are still few reports published on this subject and do not include significant prospective or randomized studies that may confirm all this data. Most studies are published in journals of worldwide interest with a high impact factor.
Conclusions: Laparoscopy is a safe technique that equals or even surpasses open surgery in several respects and that is increasingly used by teams of experts.

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LAPAROSCOPIC LAVAGE AND DRAINAGE OF COMPLICATED DIVERTICULITIS LONG TERM RESULTS

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Background: The accepted standard of treatment for non-elective management of perforated diverticulitis has been an open laparotomy with staged resection of the colon advocated to avoid resection and primary anastomosis in the setting of a contaminated field. For a select group of patients that warrant operation for diffuse peritoneal signs but those who are not found to have gross fecal contamination, it has been proposed that they undergo peritoneal lavage, inspection of their colon, and intraoperative drain placement of the peritoneal cavity. When the patient recovers from their acute disease they may then undergo definitive colonic resection with primary anastomosis, thus avoiding a colostomy. We report our experience using this laparoscopic peritoneal lavage technique with delayed definitive resection.
Method: Patient records were retrospectively reviewed who underwent intraoperative peritoneal lavage and drainage placement for complicated diverticulitis at the Texas Endosurgery Institute from August 1993 to August 2005. The technique include insufflation of the abdominal cavity, thoroughly examination and adhesiolysis when needed, localization of the inflamed or perforated place, drainage of the purulent material and irrigation of the cavity with copious amounts of sterile normal saline and after this a combination of betadine, heparin and saline solution, suction of all the remain solution and placement of two 10mm flat Jackson Pratts drains in the pelvis.
Results: We enroll a total of 29 patients, 9 female and 20 male, the mean age was 60 years (28–99 y), None of our patients was converted to open surgery, EBL 30.3cc (10–55 cc), Mean operative time 62 min (40–150 min), Mean beginning of PO was 2 days (1–3 d). Eight complications were reported: 6 patients with paralytic ileus and 2 atelectasis. No mortality was reported. The mean follow up was 96 months (1–168 months). To date 16 patients were operated for definitive sigmoidectomy with no complications during the laparoscopic resection.
Conclusions: Intraoperative peritoneal lavage for purulent diverticulitis, has proven to be a safe alternative to the current standard of treatment for the management of perforated diverticulitis. We found that a single stage laparoscopic approach decreases length of hospital stay, immediately improves patient symptomatology, and avoiding colostomy placement decreases the cost for overall treatment of the disease and maintains the quality of life of the patients.

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MULTIMODAL APPROACH FOR SAFE ANASTOMOSIS DURING LAPAROSCOPIC LOW ANTERIOR RESECTION FOR RECTAL CANCER

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Background: It is very important but difficult to occlude, irrigate and divide the distal rectum with a safe tumor margin during laparoscopic low anterior resection (Lap LAR) for rectal cancer. The aim of this study was to evaluate the safety and the efficacy of our newly established multimodal approach for anastomosis during Lap LAR.
Methods and Procedures: Between November 1996 and June 2005, 48 patients with rectal cancer underwent laparoscopic low anterior resection in our hospital. We chose one of four techniques for each anastomotic procedure. In every case, the anastomosis was performed with double stapling technique (DST). When the tumor located at the upper rectum, the distal rectum was occluded with intracorporeal ligation or a detachable clamp and divided with endolinear stapler. When there wasn't space or view enough for those procedures, the operation was done with minilaparotomy (7–10 cm). When the tumor located at the lower rectum and detected laparoscopicaly, the distal rectum was occluded with a stapler before the anastomosis with DST (Triple stapling technique, TST). When the tumor located at the lower rectum and TST could not be performed or the tumor could not be detected, the proximal rectum was divided with a stapler and prolapsed through the anus, then the distal rectum was irrigated and divided with a safe margin under direct vision (Prolapsing technique). Diverting ileostomy (DI) was added to patients with more than 3 risk factors of leak.
Results: Anastomosis during Lap LAR was performed with Minilaparotomy, ligation/detachable clump, TST and prolapsing technique in 11, 4/4, 12 and 1 patients, respectively. DST without irrigation was performed in 16 patients with early rectal cancer. DI was performed in 3 patients, which was closed 3 months after the initial surgery. Mean operative time was 197 min. The start of liquid food was 2.5 postoperative day (POD). There was no mortality. Leak occurred in two patients (4.2%) who had more than 3 risk factors of leak. But the leak did not occur in the recent 16 consecutive patients after the completely establishment of our multimodal approach. During a median follow up period of 48 months, there have been no anastomotic recurrence and no cancer related death. 45 patients are no evidence of recurrence so far.
Conclusions: Our multimodal approach is very safe and effective for performing anastomosis during Lap LAR for rectal cancer and can standardize its procedure.

P261

STROMAL TUMOUR OF THE ILEUM. ROLE OF ENDOSCOPIC CAPSULE

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Introduction: Gastrointestinal bleeding is commonly diagnosed by conventional upper and lower endoscopy. In 5% of cases, the cause of bleeding is not found and is mainly due to intestinal lesions which are difficult to diagnose. Endoscopic capsule is a new method of exploring the small intestine. We present a case of bleeding ileal stromal tumour, type GIST, diagnosed by endoscopic capsule.

Material: A 51-year-old woman presented with 24-hour rectorrhagia and initial haematocrit of 26% falling to 23% and requiring transfusion. Upper digestive endoscopy and colonoscopy were normal, with 20 cm of ileoscopy showing blood in ileal lumen. Mesenteric arteriography and abdominal CT were normal. Intestinal examination with endoscopic capsule was indicated.

Results: The endoscopic capsule detected an ulcerated submucosal tumour in the ileum, with no active bleeding at that time. Laparotomy was performed and a 2–3 cm tumour was found in the ileum, located 50–60 cm from the ileocaecal valve. Intestinal resection with anastomosis was performed. Postoperative period was uneventful. Pathologic study revealed an ileal GIST tumour with low grade malignancy. Immunohistochemistry was positive for CD117 (C-KIT) and negative for CD34.

Discussion: Intestinal tumours are rare and represent less than 5% of all digestive tumours. Approximately 20% of intestinal tumours are stromal tumours (GIST) characterised by positivity to C-KIT test (CD117). Between 10 and 30% of GIST are malignant and the only absolute criterion is the presence of metastasis. Surgical resection is the treatment of choice. STI-571 or imatinib is an agent that blocks KIT protein and offers good results for advanced cases permitting posterior surgery in some patients. Gastrointestinal bleeding of unknown origin occurs in 5% of cases and is mainly due to intestinal lesions. The small intestine is difficult to examine by endoscopy and radiology; these techniques offer a diagnostic rate of 38%. The endoscopic capsule is a new method yielding a diagnostic rate of 68%. In our case, the diagnosis was only obtained by the use of endoscopic capsule. This method is an endoscopic complement that should be used after negative conventional endoscopy for the study of gastrointestinal bleeding of unknown origin.

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GRASPING THE ANATOMY OF SIGMOID COLON AND RECTUM IN LAPAROSCOPIC COLORECTAL SURGERY

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In recent years, cases of laparoscopic surgery for colorectal carcinoma have increased. The good view can be got laparoscopically during the surgery and the operator can easily grasp the tissue and dissect the layer. However once the bleeding occurs, it becomes sometimes difficult to get the correct anatomy and hemostasis. Therefore, it is necessary for the operator to know the laparoscopic anatomy and to grasp the tissue gently. One of the most important things too accomplish D3 lymphadenectomy for rectal carcinoma, the subperitoneal fascia should be made at the early time from the beginning of the operation. The layer obtained has to be preserved until the gonadal vessels and the ureter can be made sure. After the preservation of autonomic nerves, the lymphadenectomy at the root of the inferior mesenteric artery can be achieved safely. By preserving the proper layer of the dissection, the rectum can be dissected and the total mesorectal excision is completed. The author strongly recommend these procedure to complete the laparoscopic surgery safely.

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LAPAROSCOPIC COLORECTAL SURGERY: GOLD STANDARD IN AN ERA OF OCTOGENARIANS?

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Introduction: The aim of this study was to compare patients 75 years of age or older to younger patients undergoing laparoscopic colorectal surgery.
Methods: Data of all patients who underwent laparoscopic surgery between January 1996 and December 2004 were reviewed. Patients were divided into 2 groups: < 75 (Group 1) and > 75 (Group II) years of age, and compared; comparisons were also made for prior surgery vs no prior surgery and converted vs non-converted, within each group.
Results: 609 patients had a laparoscopic procedure and included 498 patients in Group I [mean age, 52 (15–74) years] and 111 in Group II [mean age 80.65 (75–89) years]. Time to regular diet, regular bowel movements, and length of hospital stay were all significantly increased in Group II. Overall conversion was not statistically significantly different between Group I 91 (18%) vs Group II 22 (19%); similarly, there were no differences between patients who had prior surgery vs those who did not, within each group. Intraoperative complications were 25 (5%) vs 7 (6%); $p = NS$, overall postoperative complications were 75 (15%) vs 7 (6%); $p = 0.002$, major postoperative complications were 25 (5%) vs 10 (9%); $p = NS$, resumption of diet (days) was 4.15 2.56 vs 4.8 3.04; $p = 0.02$, return of bowel movements (days) was 4.04 1.97 vs 4.56 2.16; $p = 0.013$, hospital stay (days) was 6.21 4.47 vs 7.37 4.52; $p = 0.014$ and operative time (min) was 171.33 71.80 vs 156.45 65.07; $p = 0.044$, for Groups I and II, respectively. Laparoscopic non-converted patients in Group II had a longer hospital stay [5.94 3.8 days vs 7.26 4.8 days, respectively; $p = 0.017$], whereas patients in Group I had a longer operative time [161.41 62 min vs 145.44 67.75 min; $p = 0.0002$]. When comparing non converted to converted patients within each group, both had significantly high major complications (Group I: 16 vs 9, respectively; Group II: 10 vs 0, respectively; $p < 0.001$). The length of surgery for non converted patients who had major postoperative complications were not statistically different between the two groups [Group I $151 + 62$ min vs Group II $172 + 72$ min, respectively; $p = NS$].
Conclusion: Laparoscopic surgery is feasible for elderly patients. Overall, intraoperative and major postoperative complications and conversion rate in older patients are comparable to younger patients. Major complications are significantly higher in the non converted laparoscopic group, however this does not correlate with length of surgery.

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SHORT-TERM OUTCOME OF EXTENDED LAPAROSCOPIC ASSISTED COLECTOMY

NO SHOW

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A NEW ENDOSCOPIC PERINEAL APPROACH FOR PELVIC SURGERY: A FEASIBILITY STUDY

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Background: The pelvic space is a region which is difficult to reach with the known surgical techniques. To avoid and reduce potentially severe risks, like severe bleeding and rectal perforation, a new surgical approach to the presacral space was developed, which permits exploration through the perineum with minimal invasive techniques. We considered the following potential indications: anorectal, uro-gynecologic, nerve and bone tumors, lymph nodes dissection/sentinel node procedures, gangliectomy of the superior hypogastric chain, rectal prolapse, sympathectomy, vascular abnormalities and deferent duct ligation
Methods: The new approach was used to 8 patients with a rectal prolapse.
2M. 8F, age 79y (73–87) and in one patient with a growing presacral mass (M, 74y) in which standard diagnostic evaluation disclosed no conclusive diagnosis.
Surgical technique: After positioning the patients in the jack-knife position, entry to the presacral space and retropneumoperitoneum was made. 3 trocars were inserted and a wide dissected cavity was observed, with the rectum and mesorectum retracted ventrally. The rectal prolapses were corrected with a meshgraft placed posterior of the rectum and tacked to the sacrum. A biopsy using this new technique was performed to obtain a conclusive diagnosis.
Results: The new approach was safe. All the rectal prolapses were corrected without major complications. The perineal endoscopic incision biopsy showed a lipoma.
Conclusion: The new perineal endoscopic approach is a safe and feasible approach for reaching the presacral space, for as well correcting a rectal prolapse as acquiring a histological diagnosis of an unknown tumor. We considered more potential indications.

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LAPAROSCOPIC DIAGNOSTICS OF THE BOWEL ACUTE ISCHEMIA USING THE FLUORESCEIN DYE AND THE ULTRA-VIOLET LIGHT

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Aim: An experimental study aims to verify possibilities of the diagnostic fluorescein dye assisted laparoscopy in ultraviolet-light in animal's model.
Methods: There were six animals included into the experiment (pig, female, average weight 54, 8 kg). Under sciascopic control was performed embolisation of peripheral branch of superior mesenteric artery (SMA) using micro particles of polyvinyl alcohol. The optical filters were attached to standard laparoscopic set and the fluorescein dye was administered intravenously. The laparoscopic inspection of all length of bowel and applying clips on the border of ischemia visualized by fluorescein was performed. The ischemic segments of intestine were resected and investigated microscopically.
Results: In each case segmental ischemia of small bowel was successfully performed by endoluminal embolization of peripheral branch of SMA. The combination of laparoscopy and UV light and fluorescein dye was in all cases able to recognized early mesenterial ischemia and reliably differentiate ischemic segments of bowel from the viable remnant.
Conclusion: Present results show that the method is able to reliably differentiate ischemic parts of bowel from the viable segments. The method is able to prove the bowel's ischemia in the time when the result of diagnostic laparoscopy can not be clear and before the microscopic necrotic changes of intestinal wall are noticeable. First experience show that the method can be used in clinical praxis without special demands for a new technical equipment
The study is founded by Ministry of Health Services of The Czech Republic, grant No. 8460-03 (2005–2007).

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LAPAROSCOPIC TOTAL MESORECTAL EXCISION FOR RECTAL TUMOR

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Background: Total mesorectal excision (TME) is now considered a standard surgical approach to avoid local recurrence of rectal cancer, but a laparoscopic procedure for TME has not been established. Laparoscopic surgery does present some problems for large or invasive tumors in the pelvic cavity, but it enables more accurate visualization of the anatomical structure in the pelvic cavity for selected patients with tumors in the middle or lower rectum. For example, it seems to be somewhat superior to open rectal surgery for small tumors.

Patients and Methods: Patients with a mid- or low-rectal tumor underwent laparoscopic autonomic nerve preserving TME by a single surgical team.

Results: From January 1996 to March 2006, we performed autonomic nerve preserving TME for 10 (4 males, 6 females) of 31 cases of laparoscopic rectal surgery (rectal cancer 8: T1 1, T2 4, T3 3; malignant lymphoma: 1; carcinoid: 1). Median age was 65.6 years (range 52 to 79). Four cases underwent abdominoperineal resection (APR) and 6 cases had low anterior resection (LAR). Mean tumor distance from the anal verge, mean tumor size, mean operating time, and mean blood loss for each operation were 1.0 cm, 6.0 $\pm$ 2.0 cm, 363 $\pm$ 55 min, and 215 $\pm$ 154 ml, respectively, for APR and 6.9 $\pm$ 4.5 cm, 2.8 $\pm$ 1.5 cm, 293 $\pm$ 63 min, and 77.5 $\pm$ 71 ml, respectively, for LAR. In 3 LAR cases, a covering ileostomy was constructed. There was no microscopic circumferential margin or microscopic distal margin involvement nor was there a major complication. There was no port-site recurrence. Only one case had recurrence, a perineal skin metastases.

Conclusion: Laparoscopic autonomic nerve preserving TME is a safe and accurate surgical procedure for selected middle or lower rectal tumors.

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TREATMENT OF RECTAL TUMOURS WITH TRANSANAL ENDOSCOPIC MICROSURGERY: EXPERIENCE WITH THE FIRST 70 CASES

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Aims: Transanal endoscopic microsurgery (TEM) is a minimally invasive surgical approach to removal of rectal tumours. It combines the advantages of local resection, has low complication rate and causes the least inconvenience to patients. The aim of this study is to assess the first two and a half years experience gained in Lithuania while treating rectal tumours with transanal endoscopic microsurgery in the Centre of Abdominal Surgery of Vilnius University Hospital 'Santariskiu Klinikos'.
Methods: The patients who had rectal adenomas and T1 low-risk carcinomas were selected for operations. Tumour stage before surgery was determined by transanal endosonoscopy and rectoscopy with multiple macrobiopsies.
Results: 70 patients were operated. The median age was 64,911,8 years. Most tumours were located in the upper third of the rectum (44/62,9%) and in the posterior wall (25/35,7%). The average tumour size was 3,31,6 cm (ranged from 1 cm to 7 cm). The median operation time was 1 hour 23 min 51 min. During all operations the loss of blood was minimal (0–30ml). Overall 32 (45,7%) carcinomas, 36 (51,4%) adenomas, 1 (1,4%) carcinoid tumor and 1 (1,4%) rectal stricture were removed. Preoperative diagnoses did not correspond to the final clinical diagnoses in 18 (25,7%) cases. Eleven tumours were large tubulo-villous adenomas, after the postoperative examination of which intramucosal carcinomas were found. 3 tubulo-villous adenomas were found Ca T1, 3 Ca T1 were found Ca T2 and 1 Ca Tis were found Ca T1. 64 (91,4%) complete resections (R0), 5 (7,1%) doubtfully complete resections (RX) and 1 (1,4%) incomplete resection (R1) were performed. Two (2,9%) intra-operative complications and one (1,4%) post-operative complication was observed. The average duration of hospitalization was 4,52,1 days. After the removal of CaT2 (6 patients) four patients underwent adjuvant radiotherapy. 38 (54,3%) patients were controlled during 3–22 months after operation. Two (2,9%) recurrence of a tubulovillous adenomas was diagnosed. No other complications were reported.
Conclusions: TEM is a radical and safe technique for the removal of large rectal adenomas and selected low-risk rectal cancers. The advantages of TEM are the following: low rate of complications and recurrences, a short period of hospitalization, a fast recovery.

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LAPAROSCOPIC ADHESIOLYSIS - DIAGNOSIS OF STENOSIS WITH MULTI SLICE COMPUTED TOMOGRAPHIC (MSCT) SCANNING

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Aims: Laparoscopic surgery has also been useful in the treatment of adhesive ileus because of its minimal invasiveness, less pain, and less likelihood of more adhesions. However it is necessary to evaluate the indication and limitations of laparoscopic adhesiolysis, because it is still difficult for imaging of stenosis.

Material and Methods: Elective laparoscopic treatment following conservative management was attempted in 32 patients over the last eight years. MSCT was performed three cases by Aquilion 16 Multi of TOSHIBA.

Results: Laparoscopic treatment was successful in 81% of patient including one laparoscopy-assisted procedure. Conversion to laparotomy was performed in six patients, five due to severe adhesions and one due to intestinal perforation by using Babcock forceps. We performed a small intestine imaging by water-soluble contrast medium and image by MSCT scanning before an operation. We then evaluated the imaging view and compared with the findings in the abdominal cavity.

Conclusions: We predict the grade of adhesion in the abdominal cavity in order to reduce the conversion case to a laparotomy technique and perform laparoscopic with precision and safety.

P270

FACTORS AFFECTING THE DIFFICULTIES IN PERFORMING CURATIVE RESECTION FOR LOCALLY ADVANCED SIGMOID COLON CANCER VIA MINILAPAROTOMY IN NON-OVERWEIGHT PATIENTS

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Background and Purpose: The usefulness of our minilaparotomy approach (MA) for curative resection of colon cancer has been reported. However, the technical difficulties in performing MA have not been clarified yet. This retrospective study examined factors affecting the difficulties in performing curative resection with standard lymph node dissection for locally advanced sigmoid colon cancer via minilaparotomy.
Patients and Methods: The subjects were consecutive 25 patients (age: 47–84, Male/Female = 18/7) who underwent curative resection for locally advanced sigmoid colon cancer with standard lymph node dissection via minilaparotomy (midline incision, 6–7 cm). Indication criteria were tumor size of 7 cm or less, body mass index $< = 25\ kg/m^2$ or less. Standard lymph node dissection included removal of lymph nodes around the inferior mesenteric artery (IMA), in addition to removal of intermediate and peri (epi) colic lymph nodes. Factors affecting the duration of surgery and blood loss were evaluated. The evaluated factors were body mass index (BMI), location of tumor, total area of intraperitoneal fat at the umbilical level (TAIPF), the distance between the umbilicus and the origin of the IMA (DSUA), distance between the skin level and aorta (DSSA), distance between the umbilicus and the lateral margin of the colon (white line) and width of abdominal wall (AW).
Results: There was a positive relationship between the blood loss and duration of surgery ($p < 0.01$, $r = 0.72$). BMI significantly correlated with blood loss ($p < 0.01$, $r = 0.52$) and duration of surgery ($p = 0.03$, $r = 0.44$), while the other factors did not.
Conclusion: BMI affects the difficulties in performing standard curative resection of sigmoid colon cancer via minilaparotomy even in non-overweight patients.

P271

IS TRANSANAL ENDOSCOPIC MICROSURGERY A VALID TREATMENT FOR T2 RECTAL TUMORS?

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Background: Local excision for T1 rectal cancer with TEM is an accepted standard of care. The role of local excision for the treatment of T2 rectal cancer, however, is far more controversial. The aim of the present study was to evaluate our results after local excision of T2 rectal cancer using the TEM technique.
Methods: Local excision by TEM was performed in patients with T1 rectal cancer as a curative management, in addition some patients with T2 cancer who were medically unfit, or unwilling to undergo radical surgery with colostomy, or who had a preoperative staging of T1 tumor by the TRUS, were also operated on by the same modality.
Results: Overall, 59 TEM operations for rectal carcinoma were carried out between June 1995 and May 2005 Thirty-eight patients had T1 tumors that were successfully removed with free margins. Twenty-one patients with T2 rectal cancer were operated by TEM; in 16 (76%) of them the tumor was completely removed with clear margins. In 5 patients (23%) with T2 cancer radical surgery was performed following the TEM procedure for positive surgical margins, in 3 of them no cancer was found. Sixteen patients (76%) had no radical surgery immediately after the TEM, 4 of them disappeared and did not attend regular follow up, but two of them came back after about one year with local recurrence and they were operated. Twelve patients; 8 refused additional interventions, and 4 were unfit for major surgery underwent adjuvant radiotherapy (external and endocavitary), two of them developed radiation proctitis with rectal bleeding and they were operated. The 10 other patients had regular follow up (median 3 years) and no local or distant metastasis were found.
Conclusion: Although this study is not a prospective in nature, and the number of patients with T2 cancer is relatively small, the results may support the feasibility of TEM in some T2 rectal tumor. Although the application of TEM combined with radiotherapy appears to be effective in some patients, it should not be considered a standard of care for T2 rectal cancer until new techniques for evaluation of the lymph nodes status will be developed.

P272

EVALUATION OF A NEW TECHNIQUE FOR LAPAROSCOPIC SIMOID RESECTION FOR DIVERTICULITIS

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Aim: It was to assess the results of laparoscopic sigmoid resection for diverticular disease performed with or without stapling devices at Helios Hospital Muellheim.

Methods: Data from all patients who underwent resection of the sigmoid colon for diverticular disease from 21-6-2001 to 7-10-2005 were collected in a computerised data base system by the Department of Minimally Invasive Surgery at the Helios Clinic in Muellheim. The data from the 171 patients who were included in the study were assessed retrospectively and controlled. The parameters considered in this clinical series were age, gender, operation time, use of drain, conversion to open surgery, time of first bowel evacuation, complications, mortality, reinterventions, and length of postoperative hospital stay. Helios Hospital acquisition costs were assessed for disposable staplers and for sutures in hand-sewn anastomosis.

Results: MT proved beneficial because of shorter operating time and no use of disposable instruments. Postoperative hospital stay was longer in MT. There was no difference regarding length of the specimen, complications, reoperations, and return to normal bowel function.

Conclusions: Laparoscopic sigmoid resection using extra corporeal hand-sewn anastomosis is a safe and effective approach for the treatment of patients with diverticular disease.

P273

THE LEARNING CURVE OF LAPAROSCOPIC COLON SURGERY. THE FIRST 30 CASES

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Introduction: In March 2005, the coloproctological surgery group of our service initiated laparoscopic treatment of (neoplastic and benign) colorectal pathologies. We had previously attended a reference centre with considerable experience in this type of surgery to complete our training.

Patients and methods: Between March 2005 and March 2006, 30 patients (19 men and 11 women) diagnosed with colorectal pathologies underwent surgery. Their mean age was 67.6 years (43–84). A total of 28 presented colorectal neoplasia and 2 presented diverticulosis. All the patients underwent laparoscopic resection of the colon or rectum with a mean operating time of 139 minutes (100–190). There were two conversions to open surgery for advanced neoplasia and for technical difficulties. There were no serious intraoperative complications. Intake was initiated 2.6 days after the intervention (2–6). Four patients presented a postoperative paralytic ileum, there was one colostomy necrosis that required local reintervention and an unstable angor in a patient who had previously been diagnosed with ischemic cardiopathy. One of the patients died on the third day after surgery for unexplained reasons. The mean length of the hospital stay was 6 days (4–20). In those patients diagnosed with colorectal neoplasia, the mean number of isolated ganglia was 16 (4–50).

Conclusions: We believe that this type of surgery must be carried out by surgeons who are experienced in coloproctological surgery but who, at the same time have been appropriately trained in laparoscopic surgery. A priori, the results seem highly promising and, once the learning curve has been completed, we believe that laparoscopic resection of the colon and rectum may become the Gold Standard for treating this type of pathology.

P274

LAPAROSCOPIC RECTUM RESECTION

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Aim: The aim of our study was to evaluate the short-term and long-term results of laparoscopic rectum resection in the treatment of rectal cancer.

Material and Method: Between November 1993 and December 2004 all patients who underwent elective laparoscopic rectum resection or elective laparoscopic abdominoperineal resection for rectal cancer were enrolled prospectively in this study.

Results: A total of 126 patients with rectal cancer were resected during the study period.
65 patients (52%) underwent laparoscopic rectum resection, 61 patients (48%) underwent laparoscopic abdominoperineal resection. Over the years a growing number have had sphincter-sparing resections (85% last year). The average operative time was 160 min (75–360 min) for rectum resection and 180 min (100–300 min) for abdominoperineal resection. The average number of resected lymph nodes was 10 (1–40) and 14 last year. Anastomotic leaks were observed in 1.5% of patients. We had to reoperate six times (5%). The morbidity was 36% and mortality was 7%. The average hospital stay was 16 days. Disease free survival was 68% after 5 years.

Conclusion: Laparoscopic rectal resection is feasibile and safe with promising short-term and long-term results.

P275

LAPAROSCOPIC COLORECTAL SURGERY FOR NEOPLASM - SHORT-TERM OUTCOME AND LEARNING

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Background: Although large multicenter randomized controlled trials of laparoscopic colorectal surgery have been published recently, it is still important to review and estimate results for series of patients treated by a single surgeon in a single center.

Aim: To assess the short-term outcome of our laparoscopic colorectal series prospectively and to determine learning curves.

Patients and methods: Four hundred and four patients with colorectal neoplasm underwent laparoscopic surgery beginning in 1998. Type of operation, operative time, and blood loss were assessed for each level of lymph node dissection, and rates of and reasons for conversion were investigated. To examine short-term outcome, postoperative course including day of passing flatus, day of discharge, and postoperative complications were investigated. In addition, learning curves including some of factors mentioned above were drawn for right hemi-colectomy, sigmoidectomy, and low anterior resection.

Results: Open conversion was required in 13 of 404 patients who underwent laparoscopic colorectal surgery. There were 4 episodes of intraoperative uncontrollable bleeding, 3 failures of rectal division not including adhesion or excessive tumor invasion. The operative time for D3 cases was significantly longer than that for D2 cases in ileo-cecal resection, right hemi-colectomy, and sigmoidectomy. There was no significant difference in blood loss among types of operation. Among learning curves for right hemi-colectomy, sigmoidectomy, and low anterior resection, division could be made at 40 cases chronologically for right hemi-celectomy and sigmoidectomy. Blood loss in the most recent 40 cases of right hemi-colectomy was significantly less than that in the 40 earlier cases. The incidence of intraoperative complications in the first 40 cases of sigmoidectomy was tended to be higher than that in the intermediate 40 cases and most recent 40 cases. There was no significant leaning curve for low anterior resection concerning operative time, blood loss, or complications.

Conclusion: The short-term outcome of laparoscopic colorectal surgery was favorable regardless of level of lymph node dissection for each type of operation. Our findings suggest that surgeons must perform at least 40 cases of right hemi-colectomy and sigmoidectomy to perform safe and successful procedures.

P276

LAPAROSCOPIC LEFT COLECTOMY: ADVERSE IMPACT OF OBESITY

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Although it has recently been suggested that the laparoscopic approach may eliminate the difference between obese and non-obese subjects in terms of postoperative outcome after major colon surgery, as already reported in the case of other procedures, nevertheless, the opinion that obesity is associated with increased surgical risk when laparoscopic technique is used is widely diffused.
From April 2001 through February 2006, a total of 189 patients underwent laparoscopic left hemicolectomy at a single university center in Parma, Italy. The surgeons were experts both in laparoscopic techniques and in open colorectal surgery. Laparoscopic-assisted left hemicolectomy was a 5-trocar technique with medial-to-lateral laparoscopic dissection, with a Knight-Griffen mechanical anastomosis between the distal transverse colon and the upper third of the rectum. For each patient, BMI and several other parameters (including patient-specific, disease-specific, and procedure-specific factors) were prospectively recorded and analyzed to evaluate whether they could have had an impact on the risk of conversion to open surgery or on the postoperative outcome. $[chi]^2$, Fisher tests, and Student t test were performed when appropriate. Mean follow up was 28 months (range 1–60).
Ninety-one patients were operated on for symptomatic diverticular disease or benign diseases (48.1%) and 98 for colonic carcinoma (51.9%). There were 29 patients (15.3%) with body mass index (BMI) = 30 kg/m^2 and 160 patients (84.7%) with BMI < 30 kg/m^2. The laparoscopic approach was converted to an open procedure in 20 cases (10.6%). Among the recorded parameters, on multiple logistic regression analysis (performed with the SPSS System for Windows release 12.0), only BMI was found to be predictive of conversion to open surgery (odds ratio, 2.9; 95% confidence interval, 0.979.19). The conversion rate was significantly higher for patients with BMI > 30: 27.6.% versus 5.6% ($p < 0.02$). Postoperative complication rate and length of hospitalization resulted similar in the 2 groups. No death was observed.
Our results showed that obesity has an adverse impact on the technical difficulty during laparoscopic left colectomy. Our results, however, lead us to agree with the opinion that obesity does not have an adverse impact on postoperative outcomes of laparoscopic left colectomy.

P277

LAPAROSCOPIC INTRACORPOREAL ILEOCOLIC RESECTION FOR REFRACTORY CROHNS DISEASE: IS IT SAFE?

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Purpose: Friable, thickened and foreshortened mesentery of Crohns disease (CD) makes open ileocolic resection the standard of care, rather than laparoscopic-assisted ileocolic resection which entails division of the mesentery though a minilaparotomy. The aim of this study was to assess the safety of laparoscopic intracorporeal ileocolic resection (LICR) for CD.
Methods: Prospective data on 80 selected patients undergoing LICR for CD from 1/92 to 6/02 were reviewed. Inclusion criteria were refractory CD confined to terminal ileum and cecum with/without simple internal fistulae or chronic obstruction. Exclusion criteria were large, fixed abdominal mass, recurrent disease, or free perforation. LICR via four ports included intracorporeal division of the bowel and its mesentery and intracorporeal side-to-side stapled anastomosis. The specimen was delivered in a bag via an enlarged supra-umbilical port site. Patients followed a standard perioperative care plan. Recurrent disease was defined as histologically proven CD requiring reoperation. Procedures were performed by supervised trainees. Values were reported as a median (range).
Results: OR time was 155 (130–210) min. Estimated blood loss was 250 (50–600) ml. Conversion rate was 1.2% due to presence of three fistulae. One intraoperative urinary bladder perforation was repaired laparoscopically. LOS was 4 (3–21) days. There were 2 minor wound complications and 3 re-operations: leak at ileocolic anastomosis (POD4), negative laparotomy for acute abdomen (POD14), and right hemicolectomy for ischemic right colon (POD21). 94% of patients were available for follow-up at 3 (3–13) years. 9.3% SBO rate at 3 years required no further surgery. 26.6% of patients developed recurrent disease at 3 years.
Conclusion: LICR is safe in selected patients with refractory CD.

P278

IMPACT OF VISCERAL OBESITY ON LAPAROSCOPIC SURGERY FOR COLORECTAL CANCER

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Aims: Our retrospective study indicated the accumulation of visceral adipose tissue complicated the performance of laparoscopic rectal surgery, and influenced the surgical outcome (Ishii Y. Br J Surg 2005). This prospective study was conducted to clarify the association between the outcome of laparoscopic surgery for colorectal cancer and visceral obesity based on waist circumference (WC) as a simple index.
Methods: WC and body mass index (BMI) were preoperatively measured in 98 consecutive patients with colorectal cancer undergoing laparoscopic surgery in our institute from June 2004 to February 2006. The data including patient characteristics, operative data and surgical outcomes were prospectively collected. Visceral obesity in Japanese was defined as both BMI > / = 25 kg/m^2 and WC > / = 85 cm in male, or WC < / = 90 cm in female.
Results: Those patients were divided into viscerally obese group (n = 21) and viscerally non-obese group (n = 77). There were no significant differences for the operating time and the blood loss between the 2 groups. Although there was no significant difference for the rate of overall complications between the 2 groups, the rate of postoperative systemic complications including pulmonary complication was significantly higher in the viscerally obese group than that in the viscerally non-obese group (19.0% (4 / 21) vs. 3.9% (3 / 77), P = 0.036). Pulmonary complication was also significantly more frequent in the viscerally obese group than in the viscerally non-obese group (14.3% (3 / 21) vs. 1.3% (1 / 77), P = 0.030). Univariate analysis for the pulmonary complication identified two risk factors: regular smoking and visceral obesity. In the multivariate analysis, visceral obesity (odds ratio (OR) 23.8 (95 per cent confidence interval (c.i.) 1.8 to 322.6); P = 0.017) and smoking (OR 21.2 (95 per cent c.i. 1.6 to 287.9); P = 0.022) were the independent risk factors for the development of postoperative pulmonary complication. However, there were no significant differences for the postoperative surgical complications between the 2 groups.
Conclusion: Waist circumference as a simple index for the visceral obesity is a potentially useful index for the assessment of surgical risk in obese patients.

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IMPACT OF IMMUNOSUPPRESSANT ON THE SURGICAL OUTCOME OF LAPAROSCOPIC RESTORATIVE PROCTOCOLECTOMY FOR ULCERATIVE COLITIS

NO SHOW

P280

THE VALUE OF CT, MRI AND TRUS IN THE ASSESSMENT OF T1 AND T2 RECTAL CARCINOMA QUALIFIED FOR TRANSANAL ENDOSCOPIC MICROSURGERY (TEM)

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Aim: to assess the value of preoperative diagnostic modalities (MRI,CT, TRUS) in the staging of rectal carcinoma in patients qualified to transanal endoscopic microsurgery (TEM).

Material and methods: The prospective analysis of the group of 56 patients (30 W, 26 M, mean age 57.2) with histologically confirmed rectal carcinoma was performed. In those patints the helical computed tomography (CT), magnetic resonance imaging (MRI) and transrectal ultrasonography (TRUS) were performed. The sensitivity, specificity and overall diagnostic accuracy of CT, MRI and TRUS were assessed. The histological examination of the specimen was used to evaluate the accuracy.

Results: in the analyzed group the sensitivity of TRUS an MRI in assessing T1 carcinomas was 89.6% and specificity 96.1%, while in T2 stage 92.5% and 89.6%, respectively. CT showed the sensitivity and specificity in T1 stage of 86.2% and 100%, and 88.8% and 86.2%. The overall accuracy of MRI and TRUS was 91.1% and CT 87.5%

Conclusions: Results showed that ERUS as accurate as MRI and exceeds CTs parameters, which makes it an accurate method of preoperative assessment of T1 and T2 carcinomas and its diagnostic accuracy is sufficient to qualify patients for anal saving operations.

P281

LAPAROSCOPIC PROPHYLACTIC COLECTOMY FOR FAMILIAL ADENOMATOUS POLYPOSIS PATIENTS

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Introduction: Familial adenomatous polyposis (FAP) is an autosomal dominant disease caused by a germline mutation in the APC gene located at chromosome 5q21. Patients with FAP develop hundreds to thousands of adenomatous polyps, and they are at a nearly 100% risk of colorectal cancer. Surgical management includes prophylactic proctocolectomy with ileo-pouch anal anastomosis (IPAA) or total colectomy with ileorectal anastomosis (IRA).
IPAA has been accepted as the standard operation for FAP patients. However, the operation requires extremely complex procedures, and has a high incidence of postoperative complications, compared with IRA. Moreover, this radical operation affects the stool habit of the patients and compromises their quality of life. To monitor the possible development of rectal carcinoma after IRA, it is important to continue periodic follow-up of the remaining rectum.

Aims and methods: Between 1998 and 2005, laparoscopic prophylactic surgery was performed in 13 patients, 11 male, average age 33 years (range 20 65 years). We reviewed some clinical factors in the perioperative period.

Results: We have performed 11 IRA and 2 IPAA. Among them, invasive carcinomas developed in the remnant rectal mucosa of 2 IRA cases, one patient had laparoscopic low anterior resection, another had laparoscopic IPAA. We present the technique of laparoscopic prophylactic surgery for FAP.

Conclusion: Laparoscopic prophylactic surgery for FAP is a technical alternative of conventional open surgery. By this technique, it is possible to provide a better quality of life in postoperative period and better cosmetic result.

P282

OUTCOME AND TECHNIQUES OF LAPAROSCOPIC SURGERY FOR CROHN'S DISEASE

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Crohn's disease are younger patients and reoperation rate is higer. Therefore we have been undergoing for Crohn's disease with Laparoscopic surgery having a cosmetic, unadhesionnable characteristic. We report our technique for the problems Crohn's disease cases using Laparoscopic surgery of in Fujita Health University.
Material and methods: Laparoscopic surgery have been performed for stenose and rebleeding and simple fistula lesion on the small bowel and ileocecal lesion. The procedure was performed on intraabdominal observation, confirmation of lesions, mobilization.
170 operations were performed for 132 Crohn's disease patients in Fujita Health University during 1986–2005. Laparoscopic surgery was performed for 36 patients 42 operations (polysurgery is performed to five patients and 2 operation was conversed open surgery) stenose 30 operations (duodenal stenose-1 operation), beeding-3 operations, fistula -5 operations, abscess- 4 operations. However, 2 operations were conversed from laparoscopic to open surgery. The reasons were the bad viewer of small bowel obstraction and the disorientation for the block of mesenterium and bowels, on the early stage.
The following methods were performed so that this operation is performed safely. Preoperatively it is impossible techniques to decompress the bowel contents using ileus tube for the severe stenosis cases and detail ureteral catheter to confirm an ureteral position surely on the operation and simulated the intraabdominal situation using 3D CT.
Result: The ureters injury and intestinal injury was none. Median blood loss 194g (30∼668g)
Conclusion: I believe it is useful for this surgery to perform these technique preoperately.

P283

CLINICAL OUTCOMES OF LAPAROSCOPIC SURGERY AND TRANSANAL ENDOSCOPIC MICROSURGERY FOR RECTAL CANCER

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We report our strategy and clinical results of two modalities of endoscopic surgery for rectal cancer disease.

Patients & Methods: Between Jul.2003 and Mar.2006, 47 patients (M/W = 32/15, mean age 66.3y) with rectal cancer underwent endoscopic surgery following our strategy. According to preoperative diagnosis determined by CT, MRI and endoluminal ultrasonography, for T (is), T1 low-risk, transanal endoscopi surgery (TEM) is indicated in any size of tumor, and for T1 high-risk, T2, laparoscopic surgery (LS) is indicated. T3 tumor in the lower rectum is contraindication of laparoscopic surgery due to difficulties of tumor manipulation. Clinical data of these patients were assessed retrospectively.

Results: 39 of LS, including 37 anterior resection (LAR) and 2 abdomino-perineal resection (APR), and 8 TEM were conducted. No conversion to open surgery was recorded in either procedure. In TEM, no significant perioperative complication was observed. Mean operation time was 103.4 min. In all specimens, negative margin were revealed histopathologically, but in 1 case was diagnosed as T1 high-risk finally. In LAR, 3 anastomotic leakage (8.1%) and 1 wound hematoma were recognized as major complications. Mean operation time was 147.6 min. Mean hospitalization was 14 days. Mean follow-up period was 14months, and no patient died of rectal cancer.

Conclusions: Although further evaluation is mandatory, in appropriate patient selection and in experienced hand, these minimal invasive procedures for rectal cancer are safe and feasible.

P284

THE PROLAPSING METHOD FOR THE RESECTION OF RECTUM WITH LOWER RECTAL EARLY CANCERS IN LAPAROSCOPIC ASSISTED LOW ANTERIOR RESECTION

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Patients and Methods: We have performed 5 cases of the prolapsing method for the patients with lower rectal cancer. Five trocars are usually used in laparoscopic assisted low anterior resection. The abdominal cavity is inflated with CO_2 gas, and observed about metastases and adhesions. After the mobilization of sigmoid colon and the dissection of lymph nodes along the inferior mesenteric artery, the mesorectum is removed circumferentially completely to the levator muscles, and the hypogastric nerves are preserved behind under the parietal peritoneum. After the sigmoid colon is resected by ENDOGIATM, the distal cut end of the sigmoid colon is pulled through the anus to the perineum. The tumor is visualized directly and the rectum is resected 1cm away from the tumor by ENDOGIATM. Anastomosis is usually performed by double stapling technique.

Results: No anastomotic leakage and other postoperative complications are observed, and the rectum is resected at the proper distal margin.

Conclusion: Prolapsing method is safely feasible in patients with lower rectal early cancers.

P285

LOCAL EXCISION OF LARGE RECTAL VILLOUS ADENOMAS BY TRANSANAL ENDOSCOPIC MICROSURGERY: LONG TERM RESULTS

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Introduction: Transanal endoscopic microsurgery (TEM) for rectal villous adenomas is a widely used surgical technique. Its results are highly variable in the published series. We report our retrospective review of consecutive patients operated on during a ten year period in our Department.
Patients and Methods: 150 patients diagnosed of villous adenomas underwent local excision by (TEM). Data recorded were: preoperative staging, perioperatory complications, hospital stay, morbidity, mortality, recurrence and overall survival. Follow up was planned every three months for the first two years and six moths then after.
Results: From January 1996 to December 2005 we have operated on 200 patients diagnosed by endoscopic biopsy of rectal tumours with a mean follow-up of 4 years (range 1–9 years). Preoperative diagnosis was 150 adenoma, 50 adenocarcinoma. Full thickness excision was performed to 98 out of 150 adenoma (65%), and mucosectomy in 35% (52/150). Mean hospital stay was 4,3 days (range 2–40). Complications: 13/150 patients (8,6%) rectal bleeding that required reoperation in 3 of them in the first 48 hours; 3 patients (2%) suffered rectal perforation that required reoperation / reconversion to open surgery in 2 of them. In 14% of our patients (21/150) the postoperative result of histology was adenocarcinoma (pT1) with a preoperative misdiagnosis of villous adenoma. Recurrence rate during follow up was 16% (20/119) for adenoma, all were operated on by a new TEM.
Discussion: Local excision has less morbidity and mortality than open surgery for villous adenomas of rectum. As it can be deduced from our study, a 14% of low-stage of this tumours can occur, so it is recommended, if possible, to perform a full-thickness excision of the rectum wall and to perform mucosectomy only in well selected patients.

P286

LONG-TERM RESULTS OF LAPAROSCOPIC COLORECTAL RESECTIONS FOR CANCER

NO SHOW

P287

OUR EXPERIENCE OF LAPAROSCOPIC APPENDICECTOMY IN A PERIPHERAL HOSPITAL IN IRELAND

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Introduction: Laparoscopic Appendicectomy was first described by a German Gynaecologist about 4 years before the first reported case of Laparoscopic Cholecystectomy by a Surgeon. Unfortunately unlike Laparoscopic Cholecystectomy, Laparoscopic Appendicectomy is still not considered the Gold Standard in most hospitals. We report our experience of first 288 cases of Laparoscopic Appendicectomy and believe the procedure can safely be performed even in a smaller hospital in Ireland.

Material & Methods: Between January 2000 and December 2004, 288 patients (119 male, 169 female) had Laparoscopic Surgery as emergency for acute appendicitis. All patients were analysed retrospectively. The Authors are analysing the operating time, conversion rate, local & systemic complications and the hospital stay of the patients.

Results: 14 patients (4.85%) were converted to open procedure due to various reasons and 16 patients had Gynaecological pathology which were all treated Laparoscopically. With experience the conversion rate decreased from 9% in the first 100 cases to 2.27% in the last 88 cases. Median operating time was 47 min (range 32 - 107 min) and the median hospital stay was 1.9 days (range 1 - 9) days. Only 3 patients (1.04%) had local complications. 23 patients had systemic complications, mostly nausia and vomiting. 3 patients developed small pelvic abscesses, which were all treated conservatively with antibiotics.

Conclusion: The Authors believe Laparoscopic Appendicectomy can be performed safely in the smaller hospitals in Ireland with acceptable complication and low conversion rate. Early discharge from hospital can pay back the alleged increased cost of Laparoscopic Surgery.

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EXPERIENCE OF HEMORRHOIDAL ARTERY LIGATION (H.A.L.) IN PATIENTS WITH HEMORRHOIDS COMPLICATED WITH BLEEDING

NO SHOW

P289

LOCAL RECTAL SURGERY FOR ADENOMAS. SUTURING: AN UNNECESSARY STEP?

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Introduction: Many papers recommend that the defect after full-thickness wall excision of rectal tumours located in the extraperitoneal part of the rectum should be sutured. The aim of this study was to compare the results between suturing or not.

Patients and Methods: We analyze our results after a study we reported in 2001 with the advantages of not suturing.100 patients were operated on from January 2001 to December 2004 of adenomas. Suturing was performed only when it was easy to do and adenoma was located 10 cm above anal verge.

Results: Range follow up: 18 months-60 months. 30 patients were sutured and 70 were not. Mean operating time was 95 minutes when suture was performed and 65 minutes when not ($p < 0.05$). Hospital stay was: 4.3 days for sutured group and 4.6 days for not sutured group ($p > 0.05$). Rectal bleeding rate for suture group was 7% (2/30) and 9% for not suture group (6/70) with $p > 0,05$. No statistical significance was found in late outcomes too.

Conclusions: Not suturing the excision-defect decreases the operating time but do not modify the early or late outcomes rate. So we recommend not suturing when adenomas are located below 10 cm from anal verge or when the defect is too wide.

P290

MINIMAL ACCESS RESECTION OF INFLAMMATORY BOWEL DISEASE IS ASSOCIATED WITH SHORTER POSTOPERATIVE RECOVERY

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Aims: Bowel resection for Inflammatory Bowel Disease (IBD) is associated with prolonged hospitalisation and significant access-related trauma. The authors hypothesise that a minimal access approach confers earlier post-operative gastrointestinal recovery and reduced hospitalisation compared to conventional open resection.

Methods: A case-control study was undertaken on laparoscopic (LR) versus open colon resections (OR) for IBD. The LR group was collated prospectively and compared to a pathologically matched control set. Outcomes measured included post-operative length of stay, time to normal bowel function amd post-operative morbidity. Statistical analysis was performed using SPSS.

Results: Twenty-eight patients were investigated (14 LR, 14 OR). The two groups were well matched for type of operation, type of disease and age (LR 36.2 years, range 22–76; OR 39 years, range 16–58; non-significant) There were no conversions in the LR group. Morbidity and readmissions did not differ significantly between the two groups. Those undergoing laparoscopic resection had quicker return to diet (median 2 v 4 days; $p = 0.0001$), time to first bowel motion (2 v 4 days; $p = 0.019$) and shorter post-operative length of stay (5.5 v 12.5 days; $p = 0.0067$).

Conclusions: Those undergoing minimal access bowel resections for IBD can expect quicker return of gastrointestinal function and shorter hospitalisation.

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EARLY RESULTS OF LAPAROSCOPIC ILEOCECAL RESECTION FOR CROHNS DISEASE

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Aims: The aim of this study was to know the feasibility of laparoscopic ileocecal resection in patients with Crohn's disease.

Methods: Between May 2000 and February 2006, 25 consecutive patients with ileocolonic Crohn's disease were attemted with laparoscopic ileocecal resection in a prospective protocol. Data collected included: age, gender, American Society of Anesthesiologist grade (ASA), body mass index, smoking, length of time from diagnosis to operation, preoperative medical treatment, indications for surgery, surgical treatment and postoperative complications.

Results: 25 patients underwent laparoscopic ileocecal resection (14 males), median age 33 years. 22 patients ASA II, one ASA I, and one ASA III. Smoking in 18 patients. The median length of time from diagnosis to operation was 72 months. Nine patients had extraintestinal disease. The indications for resection were: stenosis in 15 patients, stenosis and fistula in 9 patients and active abscess in one patient. The laparoscopical surgical treatment was: ileocecal resection in 20 patients, ileocecal and sigmoid resection in 3 patients, ileocecal resection and abdominal wall abscess drainage in one patient and ileocecal and sigmoid resection, ileostomy and mucosal fistula in one patient. There was no death. Convertion rate was 8%. The mean operative time was 105 minutes. The median time to return to a solid diet was 4 days and the median hospital stay was 5 days. Postoperative complications in 7 patients. None of patients required surgical reintervention in next 30 days and only one required rehospitalization for a pelvic abscess. In all cases, the histopathology study confirmed Crohn's disease.

Conclusion: Laparoscopic ileocecal resection in Crohn's disease is safe and effective in most cases.

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FEASIBILITY, TECHNIQUE AND OUTCOME OF LAPAROSCOPIC LEFT HEMICOLECTOMY WITH COMPLETELY INTRACORPOREAL ANASTOMOSIS USING A LINEAR STAPLER TECHNIQUE

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Background: Although laparoscopic colectomy with completely intracorporeal anastomosis (LCCIA) has become increasingly popular for sigmoid and rectal conditions with the use of circular stapler, it is rarely performed for more proximal lesions. This study aims to assess the feasibility, technique and outcome of laparoscopic left hemicolectomy with completely intracorporeal anastomosis (LLHCIA).
Methods: A 4-port (12 mm × 2; 5 mm × 2) technique with complete mobilization of the splenic flexure, intracorporeal division of the colon and its mesentery and intracorporeal stapled anastomosis with the linear stapler is utilized. The specimen is extracted into an endoscopic bag through one of the port sites.
Results: Of 120 patients undergoing laparoscopic colectomy in our department by 2 surgeons between March 2004 and 2006, 54 (45%) had LCCIA with the linear stapler technique. Eleven out of 54 (20.4%) patients underwent LLHCIA for lesions of the proximal left colon or splenic flexure. There were 4 males and 7 females with a mean age of 65.4 (50–80) years. Mean body mass index (BMI) was 25 (17.7–32.7) Kg/m^2. Mean operative time and blood loss were 203 (120–304) minutes and 77 (50–100) ml respectively. The mean length of extraction site incision and the sum of all port incisions were 3.7 (2.55) and 7.3 (5.6–8.6) cm. Mean length of stay was 5.2 (4–7) days. There were no deaths or major complications. Two (18.2%) patients developed superficial wound infection at the extraction site. Pathologic examination revealed adenocarcinoma in 8 (72.7%), primary colon lymphoma in 1 (9.1%) and benign polyp in two (18.2%) patients. The mean specimen length was 18.7 (11–41) with a mean of 11 lymph nodes (5–24) harvested per specimen. All patients had a minimum of 4 cm resection margin. During a mean follow-up of 8.5 (3–18) months one (9.1%) patient with a stage IV colon cancer died from metastatic disease and one patient (9.1%) developed port site hernia that required repair. There were no re-admissions or re-explorations.
Conclusions: LLHCIA is safe and feasible and it should be considered as an alternative to laparoscopic-assisted left hemicolectomy. LLHCIA may be particularly attractive for obese patients as it minimizes incision length.

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LAPAROSCOPIC SIGMOID RESECTION FOR DIVERTICULITIS IN HINCHEY STAGES I-IV

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Aim: Laparoscopic colon resections and especially laparoscopic resection of sigmoid is gaining more and more acceptance. This study shows if and how far laparoscopic sigmoid resection is suitable for Hinchey stages I-IV.

Methods: Between 01.01.2003 and 31.07.2005 we performed 303 laparoscopic colorectal operations with a conversion rate of 1% (n = 3). In 133 cases indication for surgery was tumor (n = 107 malignant; n = 26 benign), 142 patients were operated for diverticulitis. The remaining 28 patients were operated for variable indications. Out of 139 laparoscopic sigmoid resections 117 were performed for diverticulitis, in 6 cases as Hartmanns procedure. Conversionrate was 0,7% (n = 1). Median age was 63y (32–88y) (69 female, 48 male). 70 cases were found to be diverticulitis without perforation, in 40 cases we found perforation Hinchey I-II and 7 patients showed free perforation (Hinchey III-IV).

Results:

Chron. Relapsing	Diverticulitits n = 70	Hinchey I + II n = 40	Hinchey III + IV n = 7
Op time (min)	127 (75–300)	140 (74–245)	140 (80–240)
Postoperative stay (days)	11 (7–30)	14 (9–17)	16 (14–19)
Cardial compl	3	0	1
Pulm. compl.	1	0	1
Woundinfect.	4	2	0
Anastom. leak.	0	0	0
Letality	0	0	0

Conclusion: The results are showing, that sigmadiverticulitis in Hinchey stages I-IV is no contraindication for a surgeon experienced in laparoscopy. Operation time and complication rate are comparable to diverticulitis without perforation. Especially patients suffering form diverticulitis Hinchey III and IV will profit form laparoscopic procedure due to lower rate of woundinfection and smaller operative trauma.

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LAPAROSCOPIC TME FOR RECTAL CANCER

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Aim: Aim of this study is to show that laparoscopic total mesorectal excision is equal to open surgery.

Methods: Between 01.01.2003 and 31.07.2005 we performed 303 laparoscopic colorectal operations in our department. In 70 patients we performed a laparoscopic rectumresection and in 4 further cases an APR. In 50 cases (20 female, 30 male, median age 67y) we found rectal cancer. All specimens were examined histopathologically, a photo was taken and we performed a angiography of the A. rectalis superior to control and document the success of the TME.

Results: In all cases R0 resection was performed. Operation time was 160min (range 65–370 min), bloodloss 150ml. No patient received blood transfusion. Postoperatively 3 patients were bleeding and in 2 cases patients developed anastomotic leakage. In median 17 lymphnodes (range 12–25) were excised. On inspection the mesorectum was complete in all cases. In angiography we saw one leakage of radiopaque fluid. 7 patients developed woundinfections.

Conclusion: Laparoscopic total mesorectal excision is equal to open surgery. Preservation of the hypogastric plexus is even more precise than in open procedure.

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A PROPOSAL TO THE CONSENSUS DISCUSSION: UTILITY LAPAROTOMY, RATHER THAN CONVERSION TO WIN THE RELIABILITY OF LAPAROSCOPIC ADHESIOLYSIS FOR SMALL BOWEL OBSTRUCTION

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Aims: At the last consensus conference about laparoscopic surgery for non-traumatic abdominal emergencies, laparoscopic adhesiolysis (LA) for small bowel obstruction (SBO) was concluded feasible in selected patients and safe in experienced hands, and not so highly recommended as for acute appendicitis, cholecystitis, or perforated gastroduodenal ulcer. Conversion was stated as no failure attaching importance to safety, but is itself an independent risk factor for recurrence of adhesive SBO. Nevertheless our utility laparotomy (UL) sized 4cm, which is made not only on the occasion of dense adhesion or anatomical disorientation but also some difficulty or change of pace during the surgery, enables it to perform adhesiolysis or restoration of surgical injury suitably by turns laparoscopically or intra-and-extracorporeally through the mini-laparotomy. The extent of intestine treated extracorporeally is to be restricted to the least against postoperative neoadhesions. We assessed the clinical efficiency of the UL.
Methods: Retrospective review of the medical data of 17 cases of adhesive SBO, undergoing LA between October 2003 and December 2005, was carried out. LAs were performed after effective luminal decompression through the long intestinal tube and detection of the obstruction.
Results: Seven operations were completed laparoscopically and the remaining 8 were accompanied with UL. Two cases were converted to laparotomy due to inability to visualize a point of obstruction and dense adhesion. Surgical injury to the bowel occurred in a case of UL group. These 3 cases were excluded from this analysis.
Two groups were comparable in age, gender and type of previous abdominal surgery. There was no significant difference in the median operative time (69.3 minutes vs. 117.1 minutes, p = 0.311), the incidence of postoperative prolonged ileus (no flatus and stool in postoperative 6 days) (14.3% vs. 0%, p = 0.299) and the length of postoperative hospital stay (12.6 days vs. 14.6 days, p = 0.322) between the groups, completed laparoscopically and accompanied with UL. There has been no recurrence of ileus in both groups after observed for 3 months to 2 years.
Conclusions: UL is to be applied before the conversion to establish the safety of LA. It doesnt impair postoperative process at all.

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DIAGNOSIS AND TREATMENT IN CASE OF SMALL INTESTINE PATHOLOGY: LAPAROSCOPY DOES IT ALL?

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Exploratory laparoscopy is currently considered to be a most useful diagnostic tool, in some cases replacing traditional diagnostic methods. For example, standard approach for the diagnosis of Meckel's diverticulum involves radioisotope scanning. However, there are reports arguing that in cases where Meckel's diverticulum is implicated as a cause of the disease, diagnostic laparoscopy should be perfomed immediately. It's advantage is, that if necessary, resection of diverticulum can be performed at once. Here we present a case where a 19-yr old male was admitted for a diagnostic work-up for repeated bloody stools. Because of his age and symptoms, bleeding from Meckel's diverticulum was suspected. In spite of that the patient was submitted to extenisve investigations. First, gastroscopy and colonoscopy were performed and were both negative. A radioisotope scanning using pertechnetate showed collection of radioisotope in the distal part of small intestine, with later scans showing radioisotope migration in the colon. Such finding was not sufficient to confirm the diagnosis, although it was strongly suspicios of bleeding from Meckel's diverticulum. Subsequent contrast-enhanced CT of pelvis and abdomen showed a part of small intestine with inflammatory changes and no extravasation of contrast. High resolution ultrasound examination was also inconclusive. The patient was then transferred to surgical department and exploratory laparoscopy was performed. Intraoperatively, we found a thickened part of ileum that adhered to it's mesenterium. At the first sight, it looked like it was a case of Crohn's disease. After laparoscopic mobilizationa the affected part of ileum was exteriorized using minilaparotomy incision at the site of a port incision and resected. Patohistological examination revealed a Meckel's diverticulum, completely covered with adhesions, with chronic inflammatory changes in surrounding tissue. The patient recovered with no postoperative complications. This case shows that diagnostic laparoscopy can simultaneously diagnose and treat cases of unclear small intestine pathology, such as conditions caused by Meckel's diverticulum, regardless of other diagnostic techniques. Such approach may eliminate the need for costly diagnostic procedures and thus shorten patient's hospital stay.

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LONG-TERM RESULTS IN 400 PATIENTS WITH TNM STAGE III COLORECTAL CANCER: LAPAROSCOPIC VS OPEN APPROACH

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Aim: the aim of this study was to define the long-term outcomes with a minimum follow-up of 24 months between laparoscopic and open approach for the treatment of TNM stage III carcinoma of the colon and rectum.
Methods: this prospective non randomized multicentric study is based on a series of 400 consecutive patients (pts) operated between 1992 and 2003 on by 4 surgical centers following the same type of surgical technique, for laparoscopic and open approach, to perform right and left hemicolectomy, low anterior resections and abdominoperineal resections, respectively. All the main oncological concepts of the traditional surgery were followed. Colonic segmental resections, transverse colon, spleen flexure and recurrent carcinomas, emergency operations. as well as conversion to open surgery (laparoscopic group) and perioperative mortality, were excluded. Pts with rectal cancer classified as T1N0 and high risk patients for major surgery with rectal cancer classified as T2–T3N0 who underwent Transanal Endoscopic Microsurgery (TEM), that were enrolled in another protocol, were also excluded. All patients with rectal cancer (excluding T1 cases) were treated with preoperative radio-chemotherapy.
Results: out of 290 pts affected from colon cancer, 126 underwent laparoscopic surgery (LS), whereas 164 were treated by open surgery (OS). Mean follow-up was 50.2 months during which time we observed 1 case of wound recurrence after LS (0.8%). The local recurrences and the metastases rates were 4.3% vs 9.7% ($p = 0.176$) and 12.0% vs 24.0% ($p = 0.05$) between LS and OS, respectively. At 84 months of follow-up cumulative survival probability in LS was 0.812 as compared to 0.623 after OS ($p = 0.194$). Of 110 pts with rectal cancer, 51 underwent LS, whereas 59 were treated by OS. Mean follow-up was 52.6 months. The local recurrences and the metastases rates were 10% vs 16.1% ($p = 0.601$) and 20.0% vs 23.2% ($p = 0.927$) between LS and OS, respectively. At 84 months of follow-up cumulative survival probability in LS was 0.720 as compared to 0.553 after OS ($p = 0.493$).
Conclusions: in this large scale non randomized study a significantly low metastasis rate was observed in colon LS.

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LAPAROSCOPIC COLORECTAL SURGERY

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Authors presents collection of patients from period 16 months (I/2005 III/2006) with 50 patients who underwent laparoscopic procedure for colorectal disease. Before this period laparoscopical colon procedures were non frequent, number of procedures increase after Lisabon 2003 EAES consensus.
Procedures in our departement were :
1. Stomies (No = 13), a. external sigma or transversum, b. internal ileotransversoanastomosis
2. Resections (No = 28), a. right hemicolectomy No = 8, b. rectosigma resection No = 12, c. Miles amputation No = 8
3. Others procedures (No = 9) as partial resection of caecum, resection of appendices epiploicus, adhaesiolysis etc.
These resections for malignancy are initial for prospective study with other centres in Slovak and Czech republic. Authors consider age, operative average time, radicality of procedure and postoperative course of patients.
Collection of patients with resection is too small for serious conclusions now, but authors evaluate better postoperative course than with conventional procedures, althrough operative time is significantly higher.
Authors recommend laparoscopic approach to all stomias and paliative procedures.

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LAPAROSCOPIC ABDOMINOANAL PULL-THROUGH OPERATION : LOW-BUDGET TECHNOLOGY

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Aim: One of the obstacles to the wider use of laparoscopic lower anterior resection of the rectum is the necessity to employ expensive linear and circular staplers to form anastomoses, together with the technical difficulties involved in working deep in the pelvis. The techniques demonstrated here enable us to avoid the problems mentioned above.

Method: From 1995 to 2005 we performed 75 successful laparoscopic abdominoanal pull-through operations. In 69 cases the operation was for rectal cancer, and in 6 cases for benign tumours. The technique of the operation was as follows: 4–5 troacars access, dissection of the inferior mesenteric artery near the aorta, and dissection of the inferior mesentery vein near the lower margin of the pancreas, mobilization of the sigmoid, descending and if necessary splenic flexure of the colon, and mobilization of the rectum down to the pelvic floor. After that a 5–7 cm posterior perineum incision was performed. The mobilized colon was pulled down to the wound and transected at an adequate distance from the lower margin of the tumour. The rectum and the sigmoid were brought through the perineal wound and the affected part was resected. The sigmoid stump was pulled through the anus and left with 5–6 cm protruding. The pelvic cavity was drained from the perineal side, the wound was sewn, and the formation of a colo-anal anastomosis was deferred.

Conclusion: This surgical technique allows us to avoid the additional cost of expensive staplers. Furthermore, there is no need for preventive colostomy when performing lower colo-anal and colo-rectal anastomoses.

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LAPAROSCOPIC TOTAL MESORECTAL EXCISION FOLLOWING LONG COURSE NEOADJUVANT CHEMORADIOTHERAPY

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Background: Laparoscopic total mesorectal excision (LTME) of locally advanced rectal cancer is demanding and questions remain about oncological safety. Long course neoadjuvant chemoradiotherapy (LCRT) downstages the tumour and reduces local recurrence rates. The technical challenge of operating in the irradiated pelvis is significant. This study assesses the feasibility and short term oncological safety of LTME following LCRT.
Methods: Between 2004 and 2006, 14 patients underwent elective LTME. MRI accurately defined the pre-operative extent of local tumour, with regard to mesorectal involvement and evaluation of peri-rectal lymph nodes, and in response to pre operative LCRT. All patients received 3/4 field radiotherapy, 45–50.4Gy in 25–28 fractions/5weeks. 5-Fluorouracil (5FU) has been the mainstay of LCRT protocols but we offered patients the choice of UFT (an orally administered dihydropyrimidine dehydrogenaseinhibitory fluoropyrimidine). Clinical assessment was at 4 weeks after LCRT and thereafter fortnightly with sequential 4 weekly MRI, to individualise the timing of surgery at maximal downstaging. LTME was performed using standard port placements and a 5mm, 30 degree laparoscope. Dissection was carried out in all cases using the Harmonic scalpel.
Results: 14 patients underwent LTME for rectal adenocarcinoma following LCRT. There were 12 men and 2 women (median age of 73 years) with median follow up of 12 months. The median time to surgery following LCRT was 10 weeks. Median operating time was 240 minutes and 2 patients underwent conversion to open surgery (14%) for reasons unrelated to the effects of LCRT. 7 of the 14 (50%) patients underwent laparoscopic abdominoperineal resection (APR) based on tumour being less than 5cm from the anal verge (compared to a lap APR rate of 19% for over 100 LTME performed in our unit). There were no deaths and postoperative morbidity was 40%. Circumferential resection margins were clear in all patients with complete response seen in 2 cases (14%). One patient developed local recurrence (7%).
Conclusions: Laparoscopic rectal dissection after LCRT is feasible and can be undertaken safely, with respect to oncological principles. Serial MRI helps determine the optimum timing of surgery.

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HAND-ASSISTED VS PURE LAPAROSCOPIC RESTORATIVE PROCTOCOLECTOMY FOR ULCERATIVE COLITIS

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Introduction: Hand-assisted laparoscopic restorative proctocolectomy (HALS-RP) is reported to maintain the advantages of a minimally invasive approach with some potential benefits. However, the role of HALS-RP has not been defined. The aim of this study was to evaluate the effectiveness of HALS-RP compared with a pure laparoscopic restorative proctocolectomy (LAP-RP) in patients with ulcerative colitis.

Methods: A retrospective study was conducted using a prospectively maintained database to compare a consecutive series of 10 patients who underwent HALS-RP from June 2004 to November 2005 with 40 patients who underwent LAP-RP from October 1994 to June 2004 in our institution. Patient characteristics, perioperative parameters, and the surgical outcomes were assessed. Mann Whitney U and chi-squared tests were used for statistical analysis.

Results: Both groups were well matched with no differences in age, gender, body mass index, periods from the diagnosis, American Society of Anesthesiologists score, performance status, preoperative blood chemistry, or steroid and cyclosporine usage. The median operative time was significantly shorter for HALS-RP (357 (range, 250–590) minutes) than for LAP-RP (505 (range, 360–785) minutes; $p < 0.001$). The median length of incision was significantly longer for HALS-RP (8 (range, 7.5–8) cm) than for LAP-RP (5.5 (range, 5–8) cm). The estimated blood loss, and the length of hospital stay were similar between HALS-RP and LAP-RP (65 (range, 10–350)g vs 78 (range 10–1220)g and 14 (8–34) days vs 16 (5–58) days, respectively). Postoperative complications occurred in 3 patients in HALS-RP (30%; 3 anastomotic leakage) and in 12 patients in LAP-RP (30%; 3 wound infection, 2 abscess, 1 bowel obstruction, 1 prolonged ileus, 6 anastomotic leakage).

Conclusions: HALS-RP significantly reduced the operative time compared to the conventional LAP-RP, while retaining the acceptable morbidity rates and recovery benefits associated with minimally invasive surgery. HALS-RP is likely to replace a conventional laparoscopic approach for this technically challenging procedure.

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HAND-ASSISTED LAPAROSCOPIC SURGERY WITH PRECEDING MINI-LAPAROTOMY FOR COLON CANCER

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Background: The optimal approach for a minimally invasive procedure in patients requiring colon resection has not been determined. For advanced colon cancer, we have been performing hand-assisted laparoscopic surgery (HALS) with preceding mini-laparotomy or laparoscopic-assisted colectomy (LAC). We present our experience with HALS and comparison of HALS with LAC.
Method: Between 2002 and 2006, 106 patients with colon cancer underwent colon resection by HALS (48 patients) or LAC (58 patients). We examined the short-term outcomes for patients who underwent HALS and LAC. Operating time, blood loss and short-term outcomes including morbidity, postoperative hospital stay, time of first flatus, analgesic use, leukocyte count and serum C-reactive protein were analyzed.
Operative method: Our procedure for HALS is as follows. First a mini-laparotomy is made on the abdominal area above the main lymph nodes. After applying a wound retractor (Alexis), lymphadenectomy is performed and the intestinal tract is mobilized as far as possible. Next, a hand-assisted procedure is used for the remaining bowel mobilization. Resection and anastomosis of the colon are performed extracorporeally.
Results: Mean operating time in the HALS group was significantly shorter than that in the LAC group (237 vs. 274 min.; $p < 0.01$), but blood loss and frequency of parenteral analgesic use were significantly lower in the LAC group (64 vs. 90 gr.; $p < 0.01$, 0.53 vs. 1.00 times; $p < 0.03$). Morbidity and other outcomes were good in both groups.
Conclusion: Although parenteral analgesic use is more frequent, HALS is less time consuming and excellent procedure in terms of postoperative outcomes compared with LAC.

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DOES FAST TRACK MANAGEMENT LEAD TO FURTHER IMPROVEMENT IN LAPAROSCOPIC SURGERY?

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Introduction: Fast Track management is a multimodal concept first described by H. Khelet et al. to advance postoperative anastasis and is postulated to reduce general complications. Laparoscopic surgery is known to be feasible in colorectal surgery and shortens perioperative hospital stay and postoperative convalescence. The combination of these regimes could consequently lead to further improvement in colorectal surgery.

Patients and results: 147 patients undergoing laparoscopic colon surgery from 02/2004 to 02/2006 were treated according to Fast Track regime in our departement: 47% female, 53% male; aged 65,5 years medial (36–88). Following diagnoses were included: 60 patients were diagnosed sigma diverticulitis, 15 polyps, 67 colorectal carcinomas, 1 Crohn's disease, 1 bleeding diverticulosis, 3 were admitted for bowel reconstruction. Postoperative stay was 6 days (2–48) median, patients received oral feeding on the first postoperative day median. Major complications: anastomotic leakage $n = 7$ (4,7%), letality $n = 3$ (2%). Following Minor complications were observed: urinary tract infection $n = 2$, pneumonia $n = 3$, prolonged paralysis $n = 1$; the general complication rate was as low as 4%, compared to 30% in patients treated conventionally.

Conclusion: Fast Track Surgery management diminishes postoperative hospital stay and general complication rate. It was proved to be feasible in laparoscopic colorectal surgery and poses a promising concept for the future.

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RESULTS OF PATIENTS WITH T3-N0 DISTAL RECTAL CANCER TREATED BY PREOPERATIVE RADIOTHERAPY AND TRANSANAL ENDOSCOPIC MICROSURGERY

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Aim: Transanal Endoscopic Microsurgery (TEM) has obtaining in last years an increasing acceptance as local treatment for selected rectal cancer. The aim of this study was to evaluate if TEM combined with preoperative high dose radiotherapy is a possible alternative to radical resection in patients (pts) with small size T3-N0 distal rectal cancer. All cases were high risk pts for major surgery (ASA 3–4) or pts who refused abdominalperineal resection

Method: Sixty one pts with rectal cancer T3-N0 were enrolled. All pts underwent preoperative radiotherapy with successively local excision by TEM. Mean age was 68 years (range 45–74years). The definitive histology was as follows: 9 pT0 (14.7%), 7 pT1 (11.5%), 21 pT2 (34.4%) and 24 pT3 (39.3%).

Results: Minor complications were observed in 4 patients (6.6%) whereas major complications only in 1 patients (1.6%). At mean follow up of 68 months (range 3 156 months) 3 (4.9%) pts developed local recurrence and 2 (3.3%) pts distant metastasis. The rectal cancer specific survival rate at the end of follow-up was 76%.

Conclusions: The treatment of small T3-N0 rectal cancer, in selected pts, with preoperative high dose radiotherapy and TEM seems to be a valid alternative to conventional rectal resection with absence of mortality, low perioperative morbidity and the excellent quality of life. In this study the tumour response after radiotherapy was a prognostic factor of success of local excision.

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LAPAROSCOPIC COLORECTAL RESECTION FOR ENDOMETRIOSIS

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Background: the rectosigmoid colon is affected by deep pelvic endometriosis in 3–37% of cases. When the gastrointestinal tract is involved, the clinical presentation can vary from an incidental finding to a bowel obstruction. It was once believed that intestinal endometriosis was best managed by hormonal regimens or surgical castration, the advent of laparoscopic surgery has dramatically changed this approach.

Patients and Methods: from July/03 to February/06, 3 patients diagnosed of endometriosis with colorectal involvement required operative intervention, in one patient for diagnosis and in two patients with intention to treat. Surgical treatment consisted on: sigmoid resection in one case, low anterior resection with partial cistectomy in other case and diagnostic laparoscopy with samples obtention.

Results: the main operative time was 126 min (60–240). No conversion to open surgery was required and no postoperative complications were observed with a mean hospital stay of 46 days (2–7).

Conclusions: laparoscopy is a primary diagnostic and therapeutic tool providing the opportunity to explore the abdominal cavity and obtain biopsies with the same results as traditional open surgery but minimizes the surgical trauma. If the surgeon is highly skilled in laparoscopy, laparoscopic resection of deep pelvic endometriosis with rectosigmoid involvement is feasible and effective.

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COMPARISON OF OPEN AND LAPAROSCOPIC ULTRA-LOW ANTERIOR RESECTION OF RECTUM

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Purpose: We started ultra-low anterior resection (ultra-LAR) of the rectum by the DST technique without a pouch in 1993, and we have recently been performing ultra-LAR.
In this study, we compared the survival rates of patients and recurrence rates in patients who had undergone laparoscopic and open ultra-LAR by intrapelvic DST with total mesorectal excision (TME) for primary tumors of the lower third of the rectum.

Method: From November 1993 to March 2005, 37 patients (35 patients with rectal cancer, 1 patient with rectal carcinoid, and 1 patient with GIST) underwent open ultra-LAR and 7 patients (6 patient with rectal cancer and 1 patient with CAP polyposis) underwent laparoscopic ultra-LAR in our department. We analyzed overall survival rates, non-recurrence survival rate and perioperative complications in these patients. The Kaplan-Meier method was used for statistical analysis of data.

Result: In the open group, 5-year overall survival rates were 75% with Dukes A cancer (n = 9), for patients with Dukes B cancer was 83.3% (n = 11), and 77.9%, for patients with Dukes C cancer (n = 11). There was local recurrence in one patient with Dukes A cancer in the laparoscopic ultra-LAR group. There were 2 anastomotic insufficiencies in the open group but none in the laparoscopic group. Temporary colostomy was made in 2 patients in the open group and in one patient in the laparoscopy group. Defecation rate was higher in the open group than in the laparoscopic group six month after the operation.

Conclusion: The results of laparoscopic ultra-LAR were comparable to those of open surgery in terms of survival. Although study was performed retrospectively, the results indicate laparoscopic surgery is useful for ultra-LAR.

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LAPAROSCOPIC SURGERY FOR MID OR LOW RECTAL CANCER

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Aim: We have gradually expanded the indication for laparoscopic surgery of mid or low rectal cancer with technical difficulties. We present our experiences with laparoscopic surgery for mid or low rectal cancer.

Method: Between 1998 and 2005, 45 patients underwent laparoscopic surgery for mid or low rectal cancer (28 males and 17 females, median age: years). We constructed probability curves by the Kaplan-Meier method.

Results: Tumors were located in the mid rectum in 25 cases and in the low rectum in 20 cases. The procedures performed included 36 low anterior resections, 5 anterior resections and 4 abdominal perineal resections. Average blood loss was 262 ml. Anastomotic leakage occurred in 2 (5%) of the patients. According to the TNM classification, there were 25 cases in Stage I, 4 cases in Stage II and 13 cases in Stage III. The overall 5-years survival rates were 90% for patients in Stage I, 100% for patients in Stage II and 66.7% for patents in Stage III. The mean follow-up period was 25 months.

Conclusion: Our results showed that laparoscopic surgery for mid or low rectal cancer is feasible and safe in terms of perioperative complications and survival.

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OUR PRODUCER OF THE LAPAROSCOPIC SURGERY FOR RECTAL CANCER

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Background: The laparoscopic approach for rectal cancer provides the advantage of a magnified view and development of laparoscopic device. However, in Japan, the laparoscopic device for double stapling is thought to be still developing. So we use surgical devices for open surgery in performing the laparoscopic procedure.

Operating Method: After operation under the pneumoperitoneum, we put the 5cm transverse incision on a lower abdomen. We constrict the oral side intestine of the tumor with a tape. By pulling the tape through the cranial side port we can keep the clear view. Furthermore we can insert a linear cutting stapler for open surgery (Access55) into the pelvic through the dorsal space of mobilized rectum.

Results: From May 1995 to June 2005, 75 patients with rectal cancer underwent laparoscopic surgery at our department. The rate of anastomosis leakage was 1.33% (1/75). (Access55: 0/54, Endo GIA: 1/8, Endo Cutter: 0/2, Purstring: 0/8, hand-sewing: 0/3)

Conclusion: In laparoscopic surgery for rectal resections, it is possible enough to use a surgical device for open method, and that procedure got a good result in terms of the anastomosis leakage.

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LAPAROSCOPIC ASSISTED COLECTOMY IN PATIENTS WITH LIVER CIRRHOSIS

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Introduction: Nonhepatic abdominal surgery, and especially colorectal surgery, is associated with high rates of morbidity and mortality among cirrhotic patients. Thanks to improvements in the perioperative management and the optimization of the preoperative patient conditions, the operative risks can be decreased. The risk patients are who may benefit the most from advantages of minimal access surgery so laparoscopic-assisted colectomy could become effective and safe for patients with compensated liver cirrhosis.
Aim: The aim of this study was to determine the safety and efficacy of performing laparoscopic-assisted colectomies in cirrhotic patients.
Methods: Between September 1993 and February 2006, a total of 1509 patients underwent laparoscopic-assisted colectomy at our hospital. We studied all patients with liver cirrhosis who underwent this operation.
Results: Thirty seven patients with cirrhosis were included in the study. Thirty one were Child's A and six were Child's B. The mean operative time was 150 min (ranges 75–280), mean estimated blood loss was 245 ml (ranges 100–250). The conversion rate to open surgery was 21.6% (eight patients). Median length of hospital stay was 5 days. The morbidity rate was 40% (fiveteen patients). There was an anastomotic leak. There was a patient with operative-related death (haemoperitoneum).
Conclusions: Our results suggest that laparoscopic-assisted colorectal surgery can be performed in compensated cirrhotic patients with an acceptable morbidity and probably with a lower mortality rate than has been reported for open surgery. Adequate patient selection with the use of the Child-Pugh classification is crucial, along with an extensive evaluation and optimisation of the patients condition preoperatively. Expertise in advanced minimal-access surgery is essential to obtain such good results.

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SHORT TERM OUTCOMES OF LAPAROSCOPICALLY ASSISTED LOW ANTERIOR RESECTION

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Backgrounds: Laparoscopically assisted low anterior resection (Lap-LAR) for mid and low rectal cancer has technical difficulties, especially in procedures performed below the peritoneal reflection. In order to overcome difficulties many efforts have been made, for example, prolapsing procedure to adequately secure distal margin. However, there has been no consensus on Lap-LAR. To evaluate feasibility of Lap-LAR, we compared short-term outcomes of Lap-LAR to those of laparoscopically assisted sigmoidectomy or anterior resection (Lap-S/AR).
Methods: Short-term outcomes of Lap-LAR and Lap-S/AR performed in our department from October 2001 to December 2005 were retrospectively reviewed. Operating time, blood loss, intraoperative and postoperative complications and postoperative hospital stay were compared.
Results: 23 Lap-LAR and 52 Lap-S/AR were performed. Background data including age, sex, BMI and TNM stage showed no significant difference between two groups. Lap-LAR group had significant longer operating time ($p = 0.0008$). Median operating time was 245min (195527min) for Lap-LAR group, and that of Lap-S/AR group was 215min (150570min). There were no significant differences in blood loss ($p = 0.09$), both intraoperative ($p = 0.42$) and postoperative ($p = 0.66$) complications. Two cases in Lap-S/AR were converted. Postoperative hospital stay was significantly longer in Lap-LAR group ($p = 0.006$). Median hospital stay was 19days (956days) for Lap-LAR group, and that of Lap-S/AR group was 13days (851days). Short-term outcomes of Lap-LAR were similar compared with those of open LAR.
Summary: Short-term outcomes of Lap-LAR except operating time and hospital stay did not indicate significant difference compared to those of Lap-S/AR. Location of the lesion is a possible factor that brought longer operating time and hospital stay. Lap-LAR is feasible for mid and low rectal cancer.

P311

THE INFLUENCE OF LEARNING CURVE IN RECTAL CANCER BY LAPAROSCOPIC APPROACH: OUR EXPERIENCE IN MORE THAN THREE HUNDRED CASES

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Introduction: There are many differences in surgical techniques between laparoscopic colorrectal surgery and other laparoscopic procedures. The surgery of rectal cancer by laparoscopic approach is a procedure that requires high technical skills and should be performed by trained surgeons in colorectal laparoscopic surgery.
Aim: The aim of the study is to analyse the influence of the learning curve in short term results of patients with adenocarcinoma of the rectum opperated by laparoscopic techniques in our unit with the objective to realise the effect of training in the learning curve.
Methods: From March 1998 to February 2006, we included all patients with adenocarcinoma of the rectum operated in our unit by laparoscopic approach. Intestinal obstruction was an exclusion criteria. In this paper we compare results between the first fifty and the last fifty patients to analyse the learning curves influence.
Results: Three hundred and seventy three patients (241 male and 132 female) were operated. We saw similar distribution in age, gender, ASA, site of cancer, previous abdominal surgery, intention to treat and the performance of protective loop ileostomy. We appreciated higher frecuency of left transversal incision in the first group rather than in the second one where Pfannenstiel incision is the most frecuent. The conversion rate was 28% on the first 50 patient group and 4% on the last 50 group. The number of intraoperative complications was 3 in the first group (one colon injury, one IMA bleeding and one urether injury) and we did no find any complications in the second group. Time to start the oral intake was 6783 for the first group and 39,3312,70 in the second one. We saw differences in the mean operative time which was 169,15 for the first group and 148,19 in the second group. The length of stay was 8,245,61 in the first group and 8,65 7,57 for the second. Excepting the length of stay, these parametres decreased over the time.
Conclusion: The feasibility of laparoscopic colorrectal surgery has been well stablished. When we overcome learning curve, conversion rate, intraoperative complications and time to start oral intake decrease.

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CONSERVATIVE TREATMENT OF ANASTOMOTIC LEAKAGE IN RECTAL CANCER

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Introduction: Low anterior resection with total mesorectal escision is the elective technique to treat low and medium rectal cancer. Anastomotic leakage is the most important complication. Leakage rates goes between 3 to 21% with a postoperative mortality between 6 to 22%. Anterior resection of the rectum by laparoscopic approach is a feasible and sure technique with all the advantages of the laparoscopic approach and a rate of anastomotic leakage similar to open surgery. The conservative treatment could be a good approach in patients with anastomotic leakage after laparoscopic rectal resection.
Aims: To analyse the treatment of anastomotic leakage in patients who were operated on for medium and inferior rectal cancer by laparoscopic approach.
Methods: Prospective study of all the patients who were operated on for rectal cancer by laparoscopic approach between March 1998 and February 2006.
Results: A total of 373 patients were operated in this time with a mean age of 66.5 years. The tumour was located in medium and low rectum in 67.3% of cases. A total of 180 patients (48%) received neoadjuvant treatment with chemo-radiotherapy. Sphincter preservation surgery was done in 74% of patients. We perform protective ileostomy in 45.6% of patients with low anterior resection with total mesorectal excision. Twenty seven patients (9.8% of all sphincter preservation procedures) presented anastomotic leakage. A protective ileostomy was performed in nine of them. Fifteen patients received neoadjuvant treatment. Transanal drainage of presacral abscesses were done in five patients and twenty two were reoperated on. Stoma was done in twelve patients, ten of them by laparoscopic approach and two by open surgery. Abdominal washing was done in eleven patients and percutaneous drainage TC guided was done in one. In one patient the anastomosis coloanal was reconstructed by laparoscopic approach. Hartmanns procedure was done in four patients, two of them by laparoscopic approach. Stoma was closed in 84% of cases.
Conclusions: Anastomotic leakage rate was 9.8%, like in open surgery published series. The leakage treatment approach was minimally invasive surgery and re-operation was done by laparoscopic approach. Anastomosis was saved in 89.5% of cases. Ileostomy was closed in 84% of cases.

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LAPAROSCOPIC ASSISTED COLECTOMIES IN KIDNEY TRANSPLANT RECIPIENTS

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Introduction: In general, there has been a tendency to exclude high-risk patient group from such minimal access surgical techniques although, paradoxically, they may benefit the most from them. Recipients of kidney transplants not only have numerous associated comorbidities to the primary etiology of their renal failure, but also have all the associated problems of chronic immunosupression. The surgical management of colorectal cancer represents high risk to the patient due to major surgery and the interruption of immunosupression. It is important to evaluate if minimal access surgical procedures offer benefits to these patients when compared to conventional surgery.
Aim: To present the results of laparoscopic assisted colectomies in patients who have received a kidney transplant, and evaluate the difficulty and potential benefits or hazards inherent in this approach.
Methods: From September 1993 to February 2006, 1509 patients underwent laparoscopic assisted colectomies in our service. We studied all patients with kidney transplant and these procedures. Results: Four kidney transplantation recipients were included. Three patients were male and one female. The mean age was 63.2 ± 8.8 years. The average time elapsed since transplantation was 15 years (range, 3–31 years). Two patients have suffered problems with rejection, one of them two months after colorectal surgery. Three patients had colon cancer and one of them had a villous adenoma. Three of the allografts were contralateral to the side of the colon resection and one of them was on the same side. The mean operative time was 113 ± 15 minutes. There were no postoperative complications. Two patients are in haemodyalisis programm and required stop immunosuppression. The average length of hospital stay was 6.7 ± 1.7 days. Only one patient has a progression disease as liver metastase.
Conclusion: The benefits of minimal access surgery seem to be shared by kidney transplant recipients. A key feature may be to avoid stopping immunosuppression perioperatively, therefore lowering the potential risk of rejection. Also, lessening the number of wound-related problems appears important for these patients. Laparoscopic assisted colectomy in experienced hands must be considered a safe alternative for elective colon resections in highly selected patients with kidney transplants.

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EXPERIENCE IN CROHN DISEASE LAPAROSCOPIC COLONIC SURGERY

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Introduction: CD surgical treatment is not as definitive treatment as in Ulcerative Colitis is, and young patients are used to be affected for this chronic disease. Because of these two reasons we think minimally invasive surgery is the best option for them, avoiding compications associated to conventional surgery like postoperative pain and wound cosmethic problems.
Aim: To retrospectively analize the results achieved during the first part of CD patients operated with the second part of them.
Methods: A retrospective study of CD patients operated by laparoscopic approach since January 2001 to December 2005. An overall of 63 patients were operated during this period of time, being 31 of them colonic interventions. They were divided in two different groups depending on the median. A group: the first 15 patients. B group:the last sixteen. A comparation between both series has been performed in terms of epidemiologic, diagnosis,treatment and postoperative results concepts.
Results: Results in terms of age were similar in both groups (A: 36 ± 11; B: 34 ± 9,7 years), as in gender, time of disease evolution (A: 5,27; B: 8,8 years) and types of surgical intervention (ileocecal resections A: 11, and thirteen ileocecal divisions in B group. Other colonic resections: 4 resections in A group and 3 in B group).
Mean operative time in A and B group were: 137.6 min.and 102.8 respectively (21% of operative time decrease). Conversion rate in the first group was 21% (3 patients) and 6.3% (1 patient) in the second one. Mean hospital stay has been different in both series, being 9 days and 7 days respectively. Postoperative reoperations were: 1 reintervention in A group (6.7%) and neither in B group.
Conclusions: Minimally invasive technique offers many advantages to patients with Bowell Imflammatory Disease. However an experience in advanced laparoscopic surgery is very important to improve the results achieved.

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ENTEROCUTANEOUS FISTULA–IMPACT OF NEWER THERAPIES

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Aims: We studied the etiology, treatment and outcome of enterocutaneous fistulas in 106 patients to evaluate the impact of newer therapies-octreotide, wound vacuum-assisted closure (VAC), fibrin glue-on clinical outcomes. The literature indicates a mortality rate of 5%–20% for enterocutaneous fistula and a healing rate of 75%–85% after definitive surgery.
Methods: We reviewed all cases of fistula from 1997–2005 at two teaching hospitals. Patients with IBD and anorectal fistulas were excluded.
Results: For 106 patients, the origin was the small bowel in 67, colon in 26, stomach in 8, duodenum in 5. Etiology was previous operation in 81, trauma in 15, hernia mesh erosion in 6, diverticulitis in 2 and radiation in 2. Thirty-one patients had a high output fistula (greater than 200 mL/day), 75 had a low output fistula. In 24 patients, octreotide was monitored: in eight patients, fistula output declined and healing was helped; in 16 patients, it was no benefit. Fibrin glue was used in 8 patients and benefited one. The suction VAC was used in 13 patients; 12 patients still required operation, whereas one patient did heal the fistula. The main VAC benefit was improved wound care in all patients. Operative repair was performed in 77 patients and was successful in 69 (89%), failing in 6 patients with persistent cancer or infection. Non-operative treatment was used in 29 patients with healing in 60%.
Seven died (7%) of fistula complications. The cause of death was persistence of cancer in 4 and sepsis in 3.
Conclusion: Enterocutaneous fistula is a serious surgical problem. The wound VAC and fibrin glue had anecdotal successes (n = 2) and one-third of patients responded to octreotide. We believe that octreotide should be tried in most patients and that the wound VAC has a role in selected patients. While 7% overall mortality is less than in previous studies, the number managed non-operatively (27%) remains the same. In addition to early control of sepsis, nutritional support, and wound care, a well-timed operation was the most effective treatment.

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LAPAROSCOPIC TREATMENT FOR RECTAL CANCER: MID- AND LONGTERM RESULTS IN NEARLY 400 CASES

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From 1996 till march 2006 we collected nearly 400 patients who were treated laparoscopically for rectal cancer: Lap APRA, Lap TME,... For those patients whe have midterm and already longterm results with a very low percentage of conversion to open surgery. Taking into account the oncologic principles we assume that laparoscopy for rectal cancer is equal or even better than open surgery. This single center study shows that laparoscopy for rectal cancer is feasible, reproducible and shows excellent results on mid and long term. Patient satisfaction, cosmesis early recovery, and short in hospital stay are in favour for less invasive techniques. Laparoscopic treatment for rectal cancer has to be offered to every patient at present!

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LAPAROSCOPIC ASSISTED COLORECTAL SURGERY. ANALYSIS OF THE FIRST 112 CASES.

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From June 1994 till 31st of March 2006, one hundred twelve laparoscopic-assisted colorectal procedures were performed at the University Medical Centre in Ljubljana: 21 right hemicolectomies, 1left hemicolectomy, 21 ileocoecal resections, 26 sigmoidectomies, 31 rectosigmoidectomies, 3 partial coecal resections, 1 loop sigmostomy and 8 conversion to open surgery. Among patients, there were 47 men (42%) and 65 women (58%), with a mean age of 65,8 and 66,9 years respectively. Seventy - six operations for benign indications (benign colonic polyps (36), endometriosis (21), diverticular disease (13), Crohns disease (5), carcinoid (1) and 36 for cancer (palliative and curative) were performed. The mean operative time was 95 min. The conversion rate was 7,1%. Factors associated with conversion were adhesions, bleeding and inability to assess anatomy. Mean postoperative hospital stay after laparoscopic surgery was 8.2 days. Postoperative infections occurred in 9 patients. Anastomotic leak occurred in 5 patients (4.5%), and duodenal injury in 1 patient. Postoperative mortality was 3,4%. We observed locoregional tumour recurrence in women 9 month after radical anterior resection of the rectum (pT3N0M0).
Laparoscopic surgery for rectosigmoid endometriosis is feasible an safe. Resections are usually elective and should be performed in good-risk patients. Laparoscopic-assisted resection has become preferred approach for polyps not amenable to colonoscopic polypectomy, and better outcomes for diverticular disease of the sigmoid colon. The role of laparoscopic resection in the management of colorectal cancer is still unclear and long-term follow-up will be necessary to determine the effectiveness of these procedures.

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COMPARISON OF FOUR ENERGY-BASED VASCULAR SEALING AND CUTTING INSTRUMENTS: A PORCINE MODEL

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Aim: To compare the efficacy and safety of four commercially available energy-based vascular sealing and cutting instruments.
Methods: Blood vessels of various types (both arteries and veins, peripheral and visceral) and diameters were harvested from 4 anesthetized pigs using 4 instruments: Harmonic ACE Scalpel (Ethicon Endosurgery, Inc), Ligasure V (Valleylab) (5mm) and Atlas (Valleylab) (10mm), and EnSeal (SurgRx) vessel fusion system. The diameters of the vessels, the speed of the cutting and sealing process, and the bursting pressure of the sealed end of the harvested vessels were compared.
Results: The mean diameter of the harvested vessels with EnSeal was 4.11.5mm, with Ligasure V - 3.81.6mm, with Harmonic ACE - 3.31.0mm and with Ligasure Atlas - 4.80.6mm. The only statistically significant difference was comparing Ligasure Atlas to Harmonic ACE ($p = 0.0006$); the mean speed of the sealing and cutting process with EnSeal was 4.10.9 seconds, with Ligasure V - 5.22.1 seconds, with Harmonic ACE - 3.31.0 seconds and with Ligasure Atlas - 7.92.2 seconds. The process was significantly shorter with EnSeal compared to Ligasure Atlas ($p < 0.0001$), with Harmonic ACE compared to EnSeal ($p = 0.03$), to Ligasure V ($p = 0.003$) and to Ligasure Atlas ($p < 0.0001$), and with Ligasure V compared to Ligasure Atlas ($p = 0.004$). There was no significant difference in the sealing and cutting speed between Ligasure V and EnSeal; the mean bursting pressure of the vessels harvested with EnSeal was 677.8184.4 mmHg, with Ligasure V - 379.5135.1 mmHg, with Harmonic ACE - 434.7320.7 mmHg and with Ligasure Atlas - 489.2269.9 mmHg. These pressures were significantly higher when comparing EnSeal to Ligasure V ($p < 0.0001$), Harmonic ACE ($p = 0.0015$) and Ligasure Atlas ($p = 0.0094$); there was no significant difference in the bursting pressures when comparing Ligasure V, Harmonic ACE and Ligasure Atlas to one other.
Conclusions: Our findings indicate that Harmonic ACE is the fastest sealing instrument and Ligasure Atlas the slowest. The bursting pressures with EnSeal are significantly higher than the pressures with all the other instruments, and the consistency of the seal is higher as demonstrated by the smaller standard deviation.

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LAPAROSCOPIC-ASSISTED COLECTOMY WITH MANUAL COLONIC ANASTOMOSIS FOR TREATMENT OF COLORECTAL CANCER

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Aims: Although laparoscopic colectomy affords patients numerous potential advantages to the traditional open approach, the increase of operating room cost by instrumentation and disposable mechanical staples is still high. The study attempts to evaluate whether manual colonic anastomosis in various types of laparoscopic colectomy is feasible to obtain more cost efficiency.

Methods: From January 2003 to December 2005, 48 patients with various colorectal diseases underwent different types of laparoscopic colectomy were included. There were 27 men and 21women. Ages ranged from 28 to 86 years, averaging 61.7 years. 35 patients were treated for carcinoma of the colon or rectum, and 12 had operations for colon diverticulitis. There were 15 low anterior resections, 12 anterior resections, 6 sigmoidectomies, 3 left hemicolectomies, 11 right hemicolectomies, and 1 subtotal colectomy. No disposable staples were used during surgery and all colonic anastomoses were accomplished by hand-sewing technique under a minilaparotomy.

Results: No mortality was encountered in the study. Complications included 1anastomotic leakages, 2 wound infections, 1 wound hematoma. Another group ($n = 52$) of total laparoscopic colectomy with stapling anastomosis was compared. There was no significant difference in the mortality, postoperative mobidity, wound length and operative time except the operating room fee.

Conclusion: Our study suggests that hand-sewing colonic anastomosis can be applied in the majority of laparoscopic colectomies without technical difficulties. This procedure demonstrates lower cost, and equal advantages of less pain and shorten hospital stay as compared with mechanical stapling technique.

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LAPAROSCOPIC SURGERY FOR TREATMENT OF RECTAL CANCER: A SINGLE HOSPITAL 8-YEARS EXPERIENCE

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Laparoscopic approach to the rectum increases the technical difficulties, but preliminary studies seem to show similar advantages than for colonic tumors.

Aim: to review the perioperative-, short-term-, long-term outcomes of laparoscopic resection of rectal tumors.

Methods: We reviewed the outcome of a series of 157 patients operated between Jan98 and Dec05 and prospectively recorded in the database of advanced procedures at a Universitary Hospital for laparoscopic treatment of tumors located below 15 cm of the anal margin. We analyzed short-term outcomes, conversion, type of procedure, op.time, rate of morbi- and mortality, hospital stay and pathological features. Follow-up was done by review of the database. Survival curves were generated by the Kaplan-Meier method.

Results: We included 105 m and 52 f, median age 70 years (range, 37–89). Histological diagnoses were 1 squamous cancer, 5 villous adenoma, 1 schwanoma and 150 adenocarcinoma. Operative total laparoscopic procedures were; 78 (49%) anterior resection, 16 (10%) low anterior resection with protective ileostomy and 58 (37%) abdominalperineal resection. The Conversion-rate was 17%. Short-term laparoscopic outcomes; Median Op.Time was 179 min (range, 90–360). Morbidity-rate was 38%; 20% severe complications, 18% mild complications. The leakage-rate was of 7,6% and reoperation rate of 7%. The 30-day mortality-rate was 1,3%. The median hospital stay was 10 days (range, 4–294). Postoperative histological staging showed: 15.2% Stage I, 34% Stage II, 44% Stage III and 6.5% Stage IV. Ten (6.3%) patients were treated with palliative intent, and the rest was considered curative. Mean follow-up time of 23,8 months (range, 1–72) without port-site recurrences. The local recurrence rate was 5%. Overall survivall of all curatively resected patients was 89% at 5 years, with mean survival time of 48,2 months (95%CI, 42,8–53,6).

Conclusion: Preliminary results show rectal tumor lesions may be approached by laparoscopic surgery with satisfactory clinical, oncological- and long-term outcome.

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TRANSANAL ENDOSCOPIC MICROSURGERY USING TRANSPARENT RECTAL TUBE WITH A SIDE WINDOW FOR RECTAL TUMORS

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Backgrounds: Transanal endoscopic microsurgery (TEM) is a minimally invasive technique to remove certain tumors from the rectum. The original method pioneered by Buess requires the gas insufflation to maintain dilation of the rectum, while using transparent rectal tube with a side window makes it easy to keep working space and to improve operability without gas insufflation. To evaluate feasibility of TEM for rectal tumor, we compared clinical outcomes of TEM with / without gas insufflation.

Methods: Clinicopathological data and outcomes of TEM including tumor location, size and histological features, operating time, blood loss, intra and post-operative complications, performed in our department from 1998 to 2006 were retrospectively reviewed.

Results: Eight cases with gas method and 11 cases without gas method were performed successfully. Clinicopathological data including age, sex, tumor location (AV4∼17cm), size (18∼98mm), tumor histopatology (four benign adenomas, nine Tis, three T1, one T2 cancer, and 2 carcinoid tumors), showed no significant difference between two groups. Median operating time in our method (120 min: 65325 min) was shorter than that in original method (165 min: 110260 min). There has been no patient who recurred.

Conclusions: There is no significant difference between original method with gas insufflation and our method except operating time. However, our method using transparent rectal tube with a side window may be superior to the original method in exposing the tumor, and enabled shortening of operating. Our short-term clinical outcome suggests that TEM using transparent rectal tube with a side window is feasible for rectal tumors.

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LAPAROSCPIC COLORECTAL RESECTION: ANAYSIS OF 104 CASES

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As Laparoscopic colon resection (LCR) gains wider acceptance amongst surgeons, questions are raised about the efficacy and safety of these procedures. We undertook a critical review of a single surgeons experience of 104 LCRs carried out at The Ottawa Hospital between 2002 to 2005. The average age was 68 years; 47% were females; 71.7% of patients had an ASA score of 1 or 2 and 28.3% had an ASA score of 3 or 4. The LCRs included 29 right hemicolectomies, 33 sigmoid resection, 26 anterior resections, 7 left hemicolectomies and 8 abdominal-peritoneal resections. Seventy-six percent of cases were for malignant pathology (stage I–12%, stage II–14%, stage III–39%, and stage IV–7%). The mean operative time was 173 minutes (range: 82–429). Right hemicolectomies took significantly less time than the other procedures (mean 135 minutes $P < 0.03$). No difference was noted in operative time between malignant and benign pathologies. The conversion rate was 7%. The 30-day operative mortality was 0.96%. Complications included: Anastomotic leak in one patient, wound infection in 3, cardio-pulmonary in 5, and bleeding in one. There were no re-operations. For malignant lesions the average number of Lymph nodes retrieved was 14. The overall average length of stay was 5.8 days. In multiple logistic regression analysis only Female gender and ASA score were the only independent variables associated with the occurrence of complications ($P < 0.011$). In conclusion LCR is safe, and is associated with a low complication rate and a short hospital stay.

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EXPERIENCE WITH TRANSANAL ENDOSCOPIC MICROSURGERY IN EARLY RECTAL CANCER - HOW TO HANDLE CURATIVE INTENT

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Aim: To show results of TEM surgery in pT1 rectal cancer after TEM in low-risk tumors and TEM and salvage anterior resection in high-risk tumors.

Methods: Follow-up interval 1995–2004. TEM done in general anesthesia, preoperative endoanal ultrasound, biopsying and complete oncologic staging. In cases higher than pT1 G2 anterior resection (AR) followed 6 weeks after TEM with total mesorectal excision.

Results: 97 pT1 tumors were operated by TEM, 10/97 were high-risk tumors by final histological report. No intraop. conversion to AR. M:F ratio 0.87, mean age 68 years, mean operation time 86 min (50–129), hospitalisation 6.5 days.Early complications. bleeding 7%, leakage 3%, disturbed miction 2%.Late complications: transient incontinence 10%, local relaps 4% after TEM. 10/10 cases with high-risk tumors had a positive nodal status after final AR with total mesorectal excision followed by adjuvant radiochemotherapy. Mean follow-up was 52 months, showing no relaps after salvage surgery, only 4% local relaps after TEM followed by salvage surgery.

Conclusion: TEM is a safe procedure in low-risk tumors with considerably low morbidity. The nodal positve status in all high-risk tumors underline the necessity to AR in these cases and confirm the danger of early lymphatic spreading in this entity.

P324

SUCCESSFUL TREATMENT OF CAP POLYPOSIS WITH LAPAROSCOPIC ASSISTED COLECTOMY

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Aims: Cap polyposis is a disorder characterized by bloody diarrhea with rectosigmoid polyps covered by a cap of fibropurulent exudate. Although the pathogenesis is unknown, the characteristic histological appearance is similar to that of mucosal prolapse syndrome.

Patient and methods: A 66 year Japanese man presented with a 3 year history of persistent, mucoid, occasionary blood stained diarrhea. Colonoscopy revealed multiple reddish sessile polypoid legions covered with thick mucus in the segment from descending colon to lower rectum. Histopathological examination of polypectomy specimens showed hyperplastic-looking grands with a mixed inflammatory granulation tissue, leading to a diagnosis of cap polyposis.

Results: The patients disease was unresponsible to treatment with mesalamine and antibiotics.

And laparoscopic assisted super low anterior resection was performed. In the operation, because the adhesion by inflammation was terrible, temporary ileostomy was required. 4 months later from the initial operation, closure of ileostomy was performed. Well-being with no symptoms of blood stained diarrhea maintained at 20 month after surgery, without further treatment.

Conclusions: To the best of our knowledge, optimal treatment of cap polyposis has not been established. Drug therapies are usually unsuccessful, and treatment often requires polypectomy or resection of the rectosigmoid. Laparoscopic surgery is said to be cosmetic and less invasive method for the disease that require operation than open surgery. And we suggest laparoscopic assisted colectomy is considered as a good method for treatment of cap polyposis.

P325

LAPAROSCOPIC SURGERY IN CROHNS DISEASE: INDICATIONS AND RESULTS

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Aims: Feasibility, technique and results of laparoscopic surgery in complex and non-complex cases of Crohns disease were compared.

Methods: Fifty patients (25 female) with Crohns disease were operated on laparoscopically-assisted. The median age was 34.5 years (19–75). In 8 cases, ileostomy or bowel exploration was performed. In 16 uncomplicated cases, ileocecal resection, hemicolectomy or small bowel resection was carried out electively, eventually combined with strictureplasties or appendectomy. In 26 patients, there was recurrent disease (11) and/or complications had occurred as ileus, sealed perforations, abscess formations (11) and fistulas (9) to other organs.

Results: In the 16 uncomplicated cases, median operative time was 195 min (120–250). The median length of hospital stay was 8 days (6–27). There was one postoperative anastomotic leak demanding reoperation in a patient who had been treated by high-dosage immunosuppressives. In the 26 complicated cases, the small bowel was explored completely after adhesiolysis. In 20 cases, small and large bowel was resected, in 5 of these with extended segments of ileum or colon. In 3 cases, two separate segments of ileum and colon were resected. In 3 cases of recurrent Crohns disease, only small bowel was resected, in 2 of them with up to 6 additional strictureplasties. There were no intraoperative complications and no reoperations. The median length of hospital stay was 7 days (6–13).

Conclusions: In Crohns disease, not only uncomplicated ileocecal resections may be performed safely by laparoscopic technique but also complicated cases with previous surgery, fistulas, abscesses and sealed perforations.

P326

LAPAROSCOPIC SURGERY FOR ENDOMETRIOSIS WITH INTESTINAL INVOLVEMENT

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Aims: Traditionally, intestinal involvement of endometriosis has required conventional surgery. Purpose of this study is to describe the laparoscopic management of endometriosis involving small and large bowel or the rectum.

Methods: From November 2000 to November 2005, 34 patients with endometriosis involving the intestinal tract were operated-on laparoscopically. In cases with rectovaginal lesions, transvaginal excision was carried out first, then the rectum was mobilized laparoscopically and the endometrioma was removed by excision or segmental resection of the rectum.

Results: The median age was 32 years (23 - 54), 19 patients had had previous abdominal operations. The appendix was affected in three cases, small bowel in two, sigmoid colon in four and the rectum in 25 patients. Accordingly, three appendectomies, one small bowel and ileocecal resection, each, eight rectal excisions, four resections of sigmoid and rectum and seventeen low anterior rectal resections were performed. One case required conversion due to the overall severity of pelvic disease. There was one anastomotic leak on day 6 after rectal resection treated by ileostomy formation. In one patient appendectomy had to be performed for acute appendicitis on postop. day 8. One case, each, of postop. pain on defecation and urinary infection was treated conservatively.

Conclusions: Intestinal involvement of endometriosis of the pelvis affects, in most cases, the rectal wall or the rectovaginal area. It commonly requires rectal resection. In our experience, laparoscopic treatment of endometriosis involving the intestinal tract, even in advanced stages, is feasible, safe and effective in almost all patients.

P327

EXCISION OF RECTAL CARCINOMA BY TRANSANAL ENDOSCOPIC MICROSURGERY (TEM)

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Background: Transanal Endoscopic Microsurgery (TEM) is a modality of minimally invasive surgery which allows local full tickness excision of rectal carcinoma. This technique was developed by G. Buess (Germany) and it is in clinical use since 1983.

Methods: From 6/1995 to 5/2004, 136 patients (140 operations) were operated by TEM, 89 of them for benign tumors and 51 for rectal carcinoma. The definitive histology was as follows: 8 patients carcinoma insitu (16%), 22 with T1 stage rectal cancer (43%), 18 with T2 (35%) and 3 with T3 (6%), TEM was therapeutic in 38 patients (75%) and radical surgery was performed after TEM in 8 patients with T2 carcinoma (16%). All patients with T2 stage underwent full dose radiotherapy post operatively.

Results: 5 patients (10%) developed minor complications. Major complications were seen in 3 patients (6%) (1 with intraperitoneal perforation, and 2 patients developed complication of radiation therapy). No perioperative mortality was seen. At a mean follow-up of 48 months (range 5 to 84 months) we observed 1 case of local recurrence (2%), in a patient with T2 carcinoma. The disease free survival for T1 carcinoma was 100%.

Conclusions: TEM is safe, efective and feasible in the treatment of T1 carcinomas. For T2 carcinoma TEM should be performed in the cases that are unable to tolerate extensive surgery.

P328

LAPAROSCOPIC MODIFIED WELLS' RECTOPEXY USING COMPOSIX MESH FOR RECTAL PROLAPSE

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We performed a laparoscopic procedure of modified Wells rectopexy against 7 patients with complete rectal prolapse and obtained good results. For prevention of rectal deviation and hypanakinesia, composix mesh was used to fix the mobilized rectum on the presacral fascia. Mean operative time and bleeding were 172 min and 32 ml, respectively. In all patients, oral intake and walk were possible on the first postoperative day. The median period of postoperative hospitalization and follow-up was 9 days and 18.5 months, respectively. There were no patients with recurrence. Laparoscopic modified Wells rectopexy using composix mesh can be performed effectively with minimum invasion and without mesh-related complications for patients with complete rectal prolapse.

P329

SMALL BOWEL OBSTRUCTION AFTER OPEN AND LAPAROSCOPIC COLORECTAL SURGERY

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Introduction: The objective of this review was to determine whether the incidence of postoperative adhesive small bowel obstruction (SBO) is decreased in the first year after laparoscopic, as compared to open, colorectal surgery.

Methods: This was a retrospective cohort study of 205 adult patients undergoing elective open or laparoscopic bowel resections as a first abdominal surgery in one hospital between January 2000 and June 2003. All patients had a minimum of one year follow up. The definition of SBO was standardized. Statistical analysis was performed with chi-square or Fisher's exact test with a 0.05 level of significance.

Results: Of 205 cases, 116 were open (O) and 89 were laparoscopic (L). These included: 105 segmental colectomies (SC) (53 L, 50 O), 50 low anterior resections (LAR) (22 L, 38 O), 5 proctocolectomies (PC) (1 L, 4 O), 7 abdominoperineal resections (APR) (5 L, 2 O), and 38 total colectomies (TC) (8 L, 30 O). Of these, 138 were for cancer (69 L and 69 O), 55 for inflammatory bowel disease (IBD) (13 L and 42 O), and 9 for diverticulitis (6 L, 3 O). The overall rate of SBO in the first year following surgery was 6.3%. There were 3 cases of SBO in the laparoscopic group and 10 in the open group giving a trend toward fewer cases of SBO with laparoscopy (3.4% vs. 8.6%, $p = 0.126$). Considering only patients having rectal resections including LAR, APR, and PC, the incidence of SBO was significantly lower in the laparoscopic group (0% vs. 18%, $p = 0.034$). In contrast, the occurrence of SBO was not different between groups (L vs. O) for patients having extensive resections (22% vs. 15%, $p = 0.587$) or surgery for cancer (0% vs. 4.3%, $p = 0.244$) or IBD (15% vs. 20%, $p = 0.913$). Reoperation was required in two patients, both having had original open surgery.

Conclusion: This data demonstrates a trend toward lower incidence of SBO in patients having laparoscopic as compared to open colorectal resections. This reduction arises from patients having rectal resections where the incidence of SBO is significantly lower in the laparoscopic group. More study on the potential advantages of laparoscopy in pelvic and rectal surgery is warranted.

P330

ORAL-CS: A PROSPECTIVE RANDOMIZED TRIAL TO DETERMINE IF NSAIDS REDUCE HOSPITAL STAY AFTER LAPAROSCOPIC COLON SURGERY

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Introduction: The objective of this study was to determine if NSAIDS reduce ileus following laparoscopic colorectal surgery thus shortening hospital stay.
Methods: This was a single centre, prospective, randomized, double blind, placebo controlled, clinical trial of patients undergoing laparoscopic colorectal resection. Patients who met the inclusion criteria received either intravenous ketorolac (group A) or placebo (group B) for 48 hours after surgery in addition to PCA morphine. Patients were assessed daily by a blinded assistant for level of pain control. Diet advancement and discharge were according to strictly defined criteria. Statistical analysis was performed with a 0.05 level of significance.
Results: From October 2002 to March 2005, 190 patients underwent laparoscopic colorectal surgery, of which 84 were eligible for this study and 70 consented. According to protocol, another 20 patients were excluded prior to and 6 after randomization leaving 22 patients in each group. Two patients who suffered anastomotic leaks in the early postoperative period were excluded from further analysis. Median length of stay for the entire study was 4.0 days with significant correlation between mg of morphine consumed and time to first flatus ($r = 0.422$, $p = 0.005$), full diet ($r = 0.522$, $p < 0.001$), and discharge ($r = 0.437$, $p = 0.004$). There were no differences between groups in age, body mass index or operating time. Patients in group A consumed less morphine (33 ± 31mg vs. 63 ± 41mg, $p = 0.011$), and had less time to first flatus (median 2.0d vs. 3.0d, $p < 0.001$) and full diet (median 2.0d vs. 3.0d, $p = 0.031$). The reduction in length of stay was not significant (mean 3.6d vs. 4.5d, median 4.0d vs. 4.0d, $p = 0.142$). Pain control was superior in group A. Three patients required readmission giving five anastomotic leaks (4 in group A vs. 1 in group B, $p = 0.15$) of which two were re-operated.
Conclusion: Intravenous ketorolac was efficacious in improving pain control and reducing postoperative ileus when anastomotic leaks were excluded. This simple intervention shows promise in reducing hospital stay although the outcome was not statistically significant. The high number of leaks is inconsistent with this group's experience and is of concern.

P572

A NEW LAPAROSCOPIC RECTOPEXY TECHNIQUE

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Purpose: The laparoscopic approach promises to become the gold standard for the transabdominal management of full-thickness rectal prolapsus. The aim of this study was to review our experience and to highlight the functional results achieved with this new technique.

Method: Data were prospectively collected and analyzed on 22 patients who underwent laparoscopic rectopexy without resection for full-thickness rectal prolapsus between 2001 and 2004. One patient had undergone to open surgery from laparascopy. Mean age was 49 (range, 20–74) years. The preoperative and postoperative course of each patient was followed up, with attention paid to first bowel movement, hospital stay, duration of surgery, fecal incontinence, constipation, recurrent prolapsus, morbidity, and mortality. Follow-up was made by clinic appointments and, if necessary, by telephone review.

Technique: Pneumoperitoneum was induced via subumbilical wound using a veress needle. After abdominal insufflation of carbon dioxide to 12 mmHg, a 10 mm, 30 angle laparoscopic camera was then inserted.Three additional ports were placed; two of them had 10 mm thickness which were placed in right and left iliac fossa whereas a 5 mm port was placed in suprapubic area. A 5x2cm rectangular shaped polypropylene mesh was inserted into the abdominal cavity via 10 mm port at the right side. The mesh was sutured to rectum's right side wall using an intracorporal suture made of cobalt steel wire in 4/0 diameter with toucher help.

Results: 22 patients were available for follow-up. The median follow-up was 22 months. Eighty percent of the patients reported alleviation of their symptoms after the operation. Sixty-nine percent of the constipated patients experienced an improvement in bowel frequency. Two (2.5%) patients had full-thickness rectal prolapsus recurrence. Mucosal prolapsus recurred in 1 (1.8%) patients. Mean duration of surgery was 75 (range, 50–150) minutes. Postoperatively, the median time for first bowel movement was one day. Median hospital stay was four (range, 2–6) days. Postoperative morbidity included a port site hernia (1 case), and a superficial wound infection (1 case)

Conclusion: Laparoscopic suture rectopexy without resection is both safe and effective in this frequently frail population and offers a minimally invasive approach that may have potential advantages for selected groups of patients with full-thickness rectal prolapsus.

P578

TOTALLY LAPAROSCOPIC LOW ANTERIOR RESECTION, TRANS-PERINEAL COLONIC J-POUCH, AND POUCH-ANAL ANASTOMOSIS FOR LOWER THIRD RECTAL TUMORS

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Introduction: This novel technique consists of a totally laparoscopic total mesorectal excision of the rectum with a transperineal extraction of the specimen, transperineal construction of a stapled colonic J-pouch, and a hand-sewn pouch-anal anastomosis.

Methods: Six consecutive non-obese patients with lower third, non-fixed rectal tumors underwent a proctectomy with this new technique. In all patients a laparoscopic loop ileostomy was constructed.

Results: Six patients (5 females) of an average age of 63.3 years (range 50–76) were included in this series. Five patients had rectal cancer and one patient had a large (12cm) rectal polyp. The average body mass index (BMI) was 21.7km/m^2 (range 18.7–27.6). In one patient a straight, handsewn coloanal anastomosis was performed, whereas a stapled colonic J-pouch was fashioned in the other five patients. The average operating time was 240 minutes (range 180–260); there was no intraoperative or postoperative mortality or significant morbidity. The mean length of stay was 6.5 (range 4–12) days. There were two minor postoperative complications: one urinary retention and one patient had high ileostomy output, both successfully treated.

Conclusions: This new technique is a feasible and safe procedure that follows the trend of natural orifice laparoscopic surgery. Although the functional and oncological outcomes still remain to be determined, the feasibility and safety in non-obese patients has been established.

P579

LAPAROSCOPY FOR ACUTE ADHESIVE SMALL BOWEL OBSTRUCTION: IS LAPAROSCOPIC ASSISTED SURGERY BETTER THAN CONVERTED?

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Introduction: The aim of this study was to assess laparoscopic management of acute adhesive small bowel obstruction (SBO) and compare benefit from different laparoscopic techniques.
Methods: Retrospective review was performed to identify patients who had laparoscopy for acute SBO due to adhesions. Demographic and clinical characteristics, surgical details, and postoperative course data were reviewed.
Results: Over 6 years, 27 patients had laparoscopy for acute adhesive SBO (12 male, 15 female; mean age 55.6 years). Procedure was laparoscopically completed in 14 patients (51.9%), and in 9 (33.3%) conversion was required. 4 patients (14.8%) required a small target incision for segmental resection. No anastomotic leaks, missed injuries, or intraabdominal abscesses were recorded; there was no operative mortality. There were no significant differences between converted and laparoscopic assisted groups regarding length of stay ($p = 0.88$), operative time ($p = 0.64$), and bowel function ($p = 0.79$). There were differences when comparing converted surgery to laparoscopy alone group in length of hospital stay ($p = 0.0002$) and bowel function ($p = 0.0007$).
Conclusion: Laparoscopy alone for acute adhesive SBO is feasible and this technique offers the advantages of a shorter hospital stay, faster return to full activity, and decreased morbidity. Laparoscopic assisted surgery is associated with an increased risk of postoperative complications, and this surgery does not differ from converted to open surgery in patient outcome.

	Laparoscopy	Lap Asssisted	Converted
N	14	4	9
Oper time (m)	73	97.5	85
Hosp stay (d)	3	8	9
BM (d)	3	4	5
Complic (%)	7	25	33

LIVER AND BILIARY TRACT SURGERY

P331

THE IMPROVEMENT IN THE POSTSURGICAL ANALGESIA IN PATIENTS OPERATED FOR LAPAROSCOPIC CHOLOCYSTECTOMY BY THE INTRAVENOUS USE OF PARECOXIB SODIUM

NO SHOW

P332

LONG-TERM RESULTS OF LAPAROSCOPIC UNROOFING OF SYMPTOMATIC NONPARASITIC HEPATIC CYSTS

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The long-term results of laparoscopic unroofing for symptomatic nonparasitic hepatic cysts have not been well-demonstrated. During the last 12 years, nine patients with symptomatic nonparasitic hepatic cysts underwent laparoscopic unroofing. Their symptoms were right upper quadrant pain in six patients, and epigastric pain in three. In addition, acute cholecystitis and adenomyomatosis of the gallbladder were diagnosed in one patient each. Perioperative results including operation time, estimated blood loss, complications, hospital stay and mortality rate were evaluated. There was one conversion to open laparotomy. Cysts were located in segments 4 & 5 in three patients, segment 8 in two, segment 7, segment 6 & 7, segment 3 in one and multiple segments in another, and the mean size of the cysts was 12 cm in diameter (range: 7–18 cm). In five cases cholecystectomy was performed simultaneously. Mean operation time, estimated blood loss and postoperative hospital stay were 153 min (range: 72–270), 125 ml (range: minimal-800 ml), and 10.5 days (range: 7–16 days), respectively. There were no mortality or major morbidity. During a mean follow-up period of 70 months (range: 3–141 months), one patient had a recurrent lesion requiring a re-operation. Laparoscopic unroofing is a feasible and safe procedure for the patients with symptomatic nonparasitic hepatic cysts. Strict patient selection, accurate location of the cyst within the liver and a sufficiently wide unroofing technique are needed to obtain a successful outcome.

P333

SINGLE HOLE CHOLECYSTECTOMY - HOW I DO IT AFTER 2700 CASES

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Objectives: To achieve a minimally invasive surgery safer than laparoscopic cholecystectomy (LC). 'Laparoscopic assisted intraoperative ultrasound guided single hole cholecystectomy' has evolved with lesser chances of bile duct injury (BDI), it also does not have problems of indirect vision, hand eye coordination, pneumoperitoneum, trocar injuries and other complications unique to LC.
Methods: Microlap cholecystectomy is performed through a small rectus splitting incision (3 - 3.5 cms) in right hypochondrium. This is called 'Single hole'. Intraoperative ultrasound is done using 6.5 MHz end firing sector probe to avoid BDI. Bile duct system is recognized by standard features on ultrasound. Cystic duct is hooked with suture and traction is given while intraoperative ultrasound is used to see that bile duct is secure and not kinked. 0, 30 & 45 endoscopes or sinuscopes are used to assist in surgery if and when needed.
Results: 2700 single hole cholecystectomies have been done from November 1991 to December 2004. Of these 2160 were from May 1996 to December 2004 using intraoperative ultrasound routinely & endoscopes when needed in later phase of study. Hemostasis is convenient due to direct 3D view enabling quick suction, precise pressure and cautery. After May 1996 only 10 (0.4%) were converted to laparotomy due to bleeding or adhesions. Other 2150 (99.6%) patients were discharged 6 to 24 hours after surgery, 4% had mild wound infection. 0% suffered BDI or other injury compared to 0.5% to 2.7% incidence of BDI quoted in LC (0.2% to 0.5% at tertiary centres). LC has an equal number of other injuries also.
Conclusion: Single hole cholecystectomy done this way is called 'Laparoscopic assisted-intraoperative ultrasound guided-single hole cholecystectomy (LAIOUSC)'. It is a safe, minimally invasive surgery with advantages of being gas-less as well as having direct 3D view or laparoscopic view if needed. This technique has yet not been reported from elsewhere in the world.

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LAPAROSCOPIC APPROACH OF HEPATIC ECHINOCOCCOSIS. REPORT OF AN INITIAL SERIES

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Background: Hepatic hydatid disease (HHD) is still endemic in our country. In spite of various new medical (benzimi-dazol carbamates) or percutaneous treatments, surgery remains the mainstay therapy and laparoscopic approach can be applied in selected cases.
Patients and methods: Seventy four patients with HHD underwent surgical treatment in our clinic between 1986–2005. There were 38 male and 36 female with a mean age of 41 (range 8–72) years.
Results: Sixty-nine cases were operated on using open methods: total (n = 16) or partial (n = 41) cystectomies with external (n = 39) or internal (n = 2) drainage, combined methods (n = 6) and segmental or atypical resection (n = 6).For all the series we have no deaths but twelve patients developed chronic biliary fistulas with prolonged hospital stay and another two recurrences. In the last three years we performed laparoscopic app- roach in five patients (one male and four female) aged from 28 to 45 years. The average size of the cysts was 10 (8–15) cm and they are located in the II-IIIrd (n = 2), Vth (n = 1), VIth (a double lesion) and VIIth (n = 1) segments respectively. After creation of pneumoperitoneum the cyst was percutaneously punctioned and its fluid content neutralized and aspirated. Then a minimal en cross perycystotomy was done and a careful whole extraction of the germinative membrane (necessitaiting a minilaparatomy in one case) was achieved. After the final inspection for residual vesicles bile leakage or hemorrhage, the cavity of the cyst was deroofed and drained. In this laparoscopically traited group all the patients but one which developed a retention collection resolved by ultrasound guided drainage had a good and short postoperative course (hospital stay range 6 days) and are free of symptoms during their follow-up.
Conclusion: The laparoscopic treatment of HHD in some uncomplicated univesicular lesions with convenable volume and location may be in skilled hands a valuable alternative of the open surgery.

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LAPAROSCOPIC LEFT HEMIHEPATECTOMY

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Background: The development of laparoscopic tools along with the accumulation of surgical experiences has brought about trials of laparoscopic surgical operation of the liver. However, compared to simple procedures, such as liver biopsy and small incision procedures for benign tumors, major hepatic resection is not easy to perform with laparoscopy. The authors are reporting successful cases of total laparoscopic left hepatic resection for hepatolithiasis and cholangiocarcinoma.
Materials and Methods: Between January to August of 2005, 6 cases of laparoscopic left hepatic resection were performed. 5 cases were performed for hepatolithiasis, of which 2 had already received open cholecystectomy due to prior cholecystitis, and the remaining for cholangiocarcinoma. Male to female ratio was 3:3 and mean patient age was 56.6 (37–73 years). Of 5 patients of hepatolithiasis, common bile duct exploration was performed in 3 cases. The laparoscopic procedure was performed using the 4-hole-method (12mm-12mm -11mm-5mm). A telescope was inserted through the port below the umbilicus (12mm) and ports were inserted in the order of 12mm, 11mm, and 5mm. The tissue of the five hepatolithiasis patients were retrieved through the incision below the umbilicus and for the purpose of preserving, the tissue of the cholangiocarcinoma patient's tissue was retrieved by making an additional 6cm incision that included the 12 and 11mm ports below the xyphoid process.
Results: The mean operation time was 8 hours (5–11 hours) and the mean blood loss was 460ml (250–800ml). Oral nutrition was started three days after the operation and the mean hospital stay was 11 days (8–16 days). Blood transfusion was made on only one patient with the amount of 2 units. Complications included two wound infections of the umbilicus and acute renal failure in the final case where the patient was referred to the department of internal medicine for further treatment.
Conclusion: Laparascopic left hemihepatectomy can be considered as a feasible and adequate surgical method in selected patients, however further study and experiences for bleeding control should be warranted.

P336

HEMOSUCCUS PANCREATICUS AFTER ULTRASOUND GUIDED LIVER BIOPSY PRESENTING AS RECURRENT ACUTE PANCREATITIS

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Case Report: The patient is a 53 year old female who underwent an uneventful laparoscopic cholecystectomy and intraoperative cholangiogram for symptomatic cholelithiasis. The patient underwent a work up at a later date which included a renal biopsy and a liver biopsy, which was performed percutaneously into the left lobe of the liver. The biopsy results demonstrated a renal cell carcinoma from the right kidney and cirrhosis of the liver. She then underwent radical nephrectomy uneventfully. The patient got admitted a month later after the nephrectomy because of in crescendo episodes of epigastric pain, constant, severe and accompanied by nausea and vomiting. The work up at that time demonstrated pancreatitis by liver enzymes and amylase and lipase. Having had a normal intraoperative cholangiogram 2 months prior, the biliary tree was worked up with a magnetic resonance cholangiopancreatography, which demonstrated no retained common bile duct stone. During the course of her diseases, the patient was noted to be anemic and demonstrated features of gastrointestinal bleed. An endoscopy demonstrated blood coming out of the biliary ampula. The patient was then sent for angiography. Supraselective angiography of the hepatic artery demonstrated a pseudoaneurysm of one of the branches of the left hepatic artery. This was coiled successfully. The patient eventually went home 4 days later

Conclusions: the constellation of symptoms of biliary pancreatitis, gastrointestinal bleeding in conjunction with the prior knowledge of the normal biliary tree and the core biopsy of the liver directed us to look for the one possible cause of all the symptoms. It is rare to have hemosuccus pancreaticus after liver biopsy but it has been reported before.

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LAPAROSCOPIC CHOLECYSTECTOMY IN ACUTE CHOLECYSTITIS

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Introduction: Acute cholecystitis is classified as a special category due to specific symptoms of inflammatory process in organism, need for adequate and timely surgical intervention.
Methods and Procedures: From January 2000 till December 2004, 1536 laparoscopic cholecystectomies (LC) were performed in our Department. All patients had uniform preoperative diagnostics (ultrasound, laboratory and contrast imaging) and in some cases with evident or suspected stones in bile ducts endoscopic evaluation and cleaning were performed (ERCP/EST). Patients with acute calculous cholecystitis were divided in two groups according to severity and progress of symptoms: 1. operated within the first 48 hrs and 2. operated 4 - 6 weeks after the first attack. Analyzing data for patients operated in elective operative program, the third group was formed - operated with unexpected acute cholecystitis.
Results: 116 (7.55% of all LC) was with finding of calculous acute cholecystitis. Conversion rate was 16.37% (19 cases). There was no cases of iatrogenic injuries nor lethal outcome. In I group there were 39 cases (33.62%) with conversion rate of 23.07% (9 cases). Mean duration of stay in hospital was 4.5 days. In II group there were 52 cases (44.82%) with conversation rate of 11.53% (6 cases). In 2 cases (3.84%) cholecysto-duodenal communications were found and treated surgically. Mean total stay in hospital (two hospitalizations) was 8.5 days. In III group there were 25 cases (21.55%) with conversation rate of 16.00% (4 cases) and average stay in hospital of 2.5 days.
Conclusion: According to findings of our study, applied diagnostic protocol and laparoscopic procedure can be considered as the golden standard in treatment of acute calculous cholecystitis in all three groups of the patients.

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COMMON BILE DUCT STONE LAPAROSCOPIC APPROACH FIRST EXPIRIENCE

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Introduction: Laparoscopic exploration of common bile duct with stone extraction as advanced procedure in biliary tract surgery perform on surgical department - City hospital Valjevo since September 2004. Aim of this paper is to show our first experiences in solving this complex surgical problem.

Method: Since 1998 until 2006 on surgical department City hospital Valjevo were done 416 laparoscopic cholecystectomy. Since September 2004 until December 2006 we operated 17 patients with common bile duct stone (7 men and 10 woman). Two patients were diagnosed intraoperatively (intraoperative cholangyography), without preoperative high bilirubin level. One patient was operated because of acute pancreatitis caused by common bile duct stone and 14 patients were preoperativly diagnosed with common bile duct stone (ultra sound and ERCP). In 3 cases trough ERCP were performed sphincterectomy and stone extraction from Vater papilla.

Results: In all patients we performed intraopaerative chlangiography with cateter and prowed common bile duct stone. Because of presence of massive stones we performed in all cases choledochotomy, and than instilation of 0,9% NaCl warme solution under pressure. Exploration is finshed with Fogarty catether and than we put T-drain in common bile duct. Holedochoraphie is performed with Vicryl 4–0 single stiches. Fifth postoperative day we performed control cholangiography in all patients. In 16 cases (94%) we find clear situation without restcalculosis. In one case (14%) we find restcalculosis and we extracted it with ERCP.T-drain was removed 6–9 postoperative day. There were not conversion and reoperations.

Conclusion: Laparoscopic exploration of common bile duct in common bile duct stone without impaction in Vater papilla is safe and useful procedure which with T-drainage and choledochoraphy exist as a advanced laparoscopic procedure for operative team with previous expirience in laparoscopic cholecystectomy and laparoscopic procedures on bile ducts.

P339

RESULTS OF LAPAROSCOPIC ASSISTED HEPATECTOMY FOR METASTATIC LIVER TUMORS

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Introduction: Although an increasing number of reports and publications concerned laparoscopic liver surgery, this procedure remains uncommon and its feasibility, safety and effectiveness are not yet established.

Methods: To investigate significance of laparoscopic hepatrctomy for metastatic liver tumors in the short term outcomes, 8 patients with metastatic liver tumors (LH group) among 60 patients who underwent laparoscopic hepatectomy were compared with 10 patients who underwent conventional open hepatectomy (OH group) during the same period. The medical records were retrospectively reviewed. In LH group, the primary diseases were colorectal cancer (7 patients) and cancer of the parotid gland (1 patent).

Results: For five patients in LH group, we used the hand-assisted laparoscopic surgery. No differences in operative time, preoperative mortality and incidence of postoperative complications were found between the two groups. Postoperative hospital stay in LH group was shorter than in OH group. With prognosis, no difference was found in survival rate between the two groups. No port site recurrence was found after laparoscopic hepatectomy.

Conclusions: Laparoscopic approach for metastatic liver tumors is feasible, although its safety in strictly selected patients is dependent on surgeon experience and technology availability.

P340

LAPAROSCOPIC CHOLECYSTECTOMY WITHOUT CLIPS

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We report that 9 cystic arteries were successfully operated with standard bipolar coagulation for the treatment of cholecystolithiasis since 2005.

Operation methods: A original suction-lifter designed for laparoscopic surgery was used to lift the abdominal wall. The cystic duct was dissected after double ligation with 2-0 and 3-0 Vicryl. The cystic artery was dissected with standard bipolar coagulation.

Discussion: Because this method does not leave the foreign bodies such as clips in the abdominal cavity, it is very easy to perform the rest of surgical procedure,and no adverse effects were observed in postoperative examinations, such as computed tomography (CT) and magnetic resonance imaging (MRI). Our experience suggests that this method may be less invasive and contribute to reducing the cost of the procedure as well.

Conclusion: Laparoscopic Cholecystectomy without clips may become the standard procedure.

P341

TREATMENT STRATEGIES FOR CHOLEDOCHOLITHIASIS WITH CHOLELITHIASIS

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Treatment for choledocholithiasis has been performed by laparotomy such as cholecystectomy, incision of bile duct, stone removal and T-tube drainage. With the introduction of endoscopic treatments for choledocholithiasis (endoscopic sphincterotomy: EST and endoscopic papillary balloon dilation: EPBD), therapeutic approach of choledocholithiasis is gradually shifting from laparotomy to endoscopic treatment. However, for complications and problems involving cholelithiasis, many facilities still reside to the conventional surgical treatment in Japan.
Emergency procedures for choledocholithiasis with symptoms of obstructive cholangitis are performed. However, with advances in diagnostic imaging of abdominal ultrasound, CT, MRI, etc., asymptomatic choledocholithiasis are often depicted. Treatment for choledocholithiasis is thought to be subject for standby procedure.
On the other hand, with the introduction and fast spread of laparoscopic surgery, laparoscopic cholecystectomy has become standard procedure for cholelithiasis.
And now, for asymptomatic choledocholithiasis with cholelithiasis, we have tried to perform laparoscopic cholecystectomy under general anesthesia: followed by endoscopic retrograde cholangio-pancreography:ERCP and removal of choledocholithiasis transpapillarily without EST or EPBD. There are the following advantages and disadvantages for this procedure.
Advantages: 1) Laparoscopic cholecystectomy and endoscopic treatment can be accomplished under single anesthesia at once. 2) With the use of muscle relaxants, removal of choledocholithiasis can be accomplished without EST or EPBD. Therefore the function of the sphincter of Oddi can be preserved. 3) Perforation due to endoscopic procedure may be dealt with immediately. 4) Hospitalization period may be equivalent as laparoscopic cholecystectomy.
Disadvantages: 1) ERCP may be difficult during supine position. 2) Radiographic imaging may be poor with the use of C-arm, therefore the CBD stones may be difficult to identify. 3) Complication from ERCP may occur after this procedure.

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INTRAOPERATIVE EST USING RENDEZVOUS METHOD FOR TREATMENT OF CHOLECYSTOCHOLEDOCHOLITHIASIS

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Background: EST (Endoscopic sphincterotomy) is widly accepted for treatment of CBD (commonn bile duct) stone before the laparoscopic cholecystectomy sequential treatment, if lithiasis of the CBD is found in patients with GB (galbladder) stone. If EST is not able to perform because of failured selective CBD canulation, choledocholithotomy is choosen for treatment at the present time. When the guide wire can be inserted into duodenum through the cystic duct during laparoscopic cholecystectomy, however, it is possible to perform intraoperative EST using Rendezvous method. Therefore, we tried to perform intraoperative EST for treatment of CBD stone in patients who were failed to selective CBD canulation.
Methods: Three patients with cholecystocholedocholithiasis who could not perform preoperative EST because of failed selective CBD canulation were indicated in this procedure. They were three men, whose ages at the operation was 65 to 78 years old (mean 72). The technique of this procedure is follow. They were taken laparoscopic cholecystectomy by using four trocars. After clipping distal side of the cystic duct, intraoperative cholangiography was performed by introducing a catheter into the cystic duct. The guide wire was inserted into Duodenum through this catheter. Then a sideview endoscope was positioned in the duodenum to insert the catheter into CBD along the guide wire. After the selective canulation by using Rendezvous method, EST was performed and ERBD tube was positioned into the CBD.
Results: All 3 patients were successfully performed intraoperative EST during laparoscopic cholecystectomy. Opeative time was 140 to 182 min (mean 161). Intraoperative EST was taken 35 to 60 min (mean 45). ERBD tubes were removed at 56 to 62 postoperative days after retrograde endoscopic cholangiography. There were no complications related to this procedure in all 3 cases.
Conclusion: Intraoperative EST is the recommended strategy for treatment of CBD stone, when the patients with cholecystocholedocholithiasis cannot be performed preoperative EST because of failed selective CBD canulation. However, an excellent endoscopist is absolutely needed to perform this procedure.

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COMPARISON BETWEEN DIRECT TROCAR AND VERESS NEEDLE INSERTION IN LAPAROSCOPIC CHOLECYSTECTOMY

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Although Veress needle is widely used for insufflation of peritoneum, direct trocar insertion is going to be more popular. A lot of complications have been reported because of the use of Veress needle. We designed a prospective nonrandomized study for the comparison of Veress needle and direct trocar insertion techniques.
Pneumoperitoneum was created using Veress needle in 135 cases and using direct insertion technique in 148 patients during 3 years period. Although no major complication was seen in direct trocar group, three major complications were seen in Veress needle group, but there was no statistically significant difference between both groups. More frequent minor complications were seen in Veress needle group, but it was statistically insignificant. Surgical skill and experience of the surgeon with the entry technique whose using it is an important factor for the selection of abdominal insufflation technique.

P344

700 CONSECUTIVE TOTAL INTRACORPOREAL LIGATION OF CYSTIC DUCT AND ARTERY IN LAPAROSCOPIC CHOLECYSTECTOMY WITHOUT ANY LEAK - HOW I DO IT

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Aim: Clips are known to slip, dislodge, ulcerate, migrate, internalized and give rise to necrosis of the cystic duct with resultant bile leak. Ligation of cystic duct has been practiced since long time with several modifications of Intracorporeal and extracorporeal techniques. We have used a simple technique of total Intracorporeal knotting which is easy to learn and teach.

Method: Port placements are same as for routine laparoscopic cholecystectomy. We make standard c loop and reverse C loop using 3 O vicryl for tying. In our technique the surgeon has the control over tightening the knots using necessary tension without the risk of cutting through the tissue. This technique is easy to master and the time taken for the ligation is only few minutes more than clipping.

Result: This is a retrospective analysis of 970 cases of laparoscopic cholecystectomy done at this district general hospital. 220 patients had the clipping of cystic duct and 550 had ligation. There were 7 cases of bile leak in clipping group and none in the intracorporeal ligation of cystic duct.

Conclusion: This technique of Total intracorporeal cystic duct & artery ligation in laparoscopic cholecystectomy is simple, secure & economical which is easy to practice.

P345

SURGICAL TECHNIQUES OF LAPAROSCOPIC CHOLECYSTECTOMY FOR PATIENTS WHO HAVE UNDERGONE HEMODIALYSIS AND PERIOPERATIVE MANAGEMENT

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Aims: In laparoscopic cholecystectomy (LC) for the treatment of patients who have undergone hemodialysis, who often have complications, such as ease of hemorrhage and blood abnormalities, extreme caution and accurate techniques are required for not only surgery but also perioperative management. We have performed LC in patients with gallbladder diseases who underwent hemodialysis, and obtained good results. Here, we report the perioperative management and surgical techniques in our hospital.
Subjects and Methods: Of 52 patients who underwent LC between September 2002 and December 2005, the subjects were 7 patients who underwent hemodialysis. The patients consisted of 4 males and 3 females aged 46–66 years with a mean age of 59.7 years. The disease was cholelithiasis (chronic cholecystitis) in all patients. Our LC techniques are: (1) use of absorbable clips, (2) holding of the gallbladder using a loop retractor, and (3) use of a hook-type ultrasound coagulation incision apparatus. As the perioperative management, patients are admitted to our hospital 1 week before surgery, and their systemic condition is controlled. Nafamostat mesylate is used for anti-coagulation in perioperative hemodialysis.
Results: Laparotomy was not required in any patient who had undergone hemodialysis, and no complications were observed. The amount of bleeding was small. Although there was a difference in the admission period between the hemodialysis and non-hemodialysis groups, no difference in the surgery time was observed between the 2 groups.
Conclusions: We could safely perform LC in patients with chronic renal failure who had undergone hemodialysis by careful surgical manipulation and perioperative management.

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BILOMA AFTER LAPAROSCOPIC CHOLECYSTECTOMY

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Background: The aim of this study was to evaluate diagnosis and treatment of biliomas caused because of bile tract injuries in spite of increasing surgical experience and rutinly useage of laparoscopic cholesistectomy.

Material and Method: Laparoscopic Cholesistectomies which have been performed between January 2000 to January 2004 in our clinic were included to the study.Cases were evaluated according to the way and the location of the injury, methods used in diagnosis and treatment and mortality and morbidity.

Results: Size and the location of the injury were diagnosed by computered thomography and ultrasonography. ERCP, sphinterotomy and percutanouos drainage were performed to all patients. In 3 cases bile leakage has ceased in 7 days after drainage. Hepaticojejunostomy was performed to a case who have developed Bismuth type III stenosis. We had no mortality.

Conclusion: ERCP is the gold standart for the diagnosis of biliomas and first of all biliomas have to be drainaged percutaneously. Surgical treatment has to be considered for the severe bile tract injuries which could not treated with sphincterotomy and biliary stent insertion.

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MINI-LAPAROSCOPIC CHOLECYSTECTOMY IN THE ELDERLY

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Introduction: At The Methodist Hospital, mini-laparoscopic cholecystectomy (mini-LC) has been performed on all age groups since 1996. Documented benefits of mini-LC include improved immediate postoperative pain control and cosmesis. To date, there is minimal data on the use and outcomes of mini-LC in the elderly, defined as age greater than 65 years. The purpose of this investigation is to compare outcomes of mini-LC in patients less than 65 (group one) and greater than or equal to 65 years (group two).
Methods: As previously reported, a prospective database of mini-LC cases has been maintained since 1996. The database contains demographic, clinical, and treatment parameters. The database was queried to study the two age groups. Patient and disease characteristis that were compared include: age, BMI, operative time, and postoperative length of stay (poLOS).
Results: A total of 740 mini-LC cases were performed from 1996 to 2005. 550 cases were less than 65 years and 190 cases were greater than 65 years. Group one characteristics include: mean age 46 years, BMI 28.9, OR time 1:07 hours, and poLOS 0.75 days. Group two characteristics include: mean age 73.5 years, BMI 27.9, OR time 1:15 hours, and poLOS 1.54 days. In both groups, there were no conversions to open cholecystectomy and there were no mortalities. Group one complications include: retained CBD stone (2), trocar site hematoma, myocardial infarction, bleeding from liver bed (2), and umbilical wound hematoma (2). Group two complications include: duct of lushka leak, retained stone (2), infected abdominal wall hematoma, cardiac arrhythmia (2), pulmonary embolus, and mesenteric injury.
Conclusion: This study confirms that mini-LC can be performed safely in the elderly population with results comparable to younger patients. The elderly group had a slightly higher postoperative length of stay.

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MANAGEMENT OF COMMON BILE DUCT STONES IN UNIVERSITY HOSPITAL REBRO 1998–2004

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Objectives: To assess the method of treatment of common bile duct (CBD) stones and their clearans rates in a multidisciplinary gastrointestinal unit.
Methods: All in hospital patients (P) undergoing exploration of CBD between Jan. 1998 and December 2004 had their clinical notes reviewed.
Results: 195 P. Journal reviewed. Medial age was 48,5 year (10–87), 58% female, 38% emergency operations (op.). 100 P. Underwent one stage laparoscopic cholecystectomy including laparoscopic exploration of CBD (LCBDE), 48 cases converted to open CBD exploration, 47 P. Underwent primary open cholecystectomi och CBD explorations (POCBDE).
Totally retained stones in this study was 8%.LCBDE 6 P (6%), Converted and POCBDE 10P (10.5%).
Median hospital stay for emergency op. was 4 days and in selective op. were 7 days. Median op. time in LCBDE was 174 min. and in converted and POCBDE was 216 min.
Median op. time in emergency op. was 195 min and in selective cases was 190 min.
18 P underwent Laparoscopic Transcystic CBD exploration. Median hospital stay for this group was 1.6 days and those who underwent LCBDE (Excluded transcystic approach) were 7 days. Median op. time for the transcystik approach was 137 min (90–137 min.) and for LCBDE excluded transcystic approach was 191 min (90–320 min.)
Complications: Not written because of limitation of text.
Conclusion: No mortality Shorter Hospital stay after Laparoscopic CBD stone treatment as compared to open. Shorter Hospital stay after Transcystic LCBDE as Compared to LCBDE. Retained stones rate in Laparoscopic op. were less as compared to open op. Laparoscopic surgery is evolving as a main stream treatment of CBD stones. Multimodality a prerequisite.

P349

IS SINGLE STAGE LAPAROSCOPIC EXPLORATION SAFER THAN CONVENTIONAL ERCP LAPCHOLE FOR CBD STONES

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Objectives: To assess the safety and efficacy, of a one stage laparoscopic Cholecystectomy/CBD exploration, and to compare the same with a 2 stage procedure (ERCP then laparoscopic Cholecystectomy).

Methods: Audits were performed examining 34 single stage procedures, 100 consecutive laparoscopic cholectystectomies and 62 consecutive ERCPs. All complications and follow-up data to discharge were analysed.

Results: Single stage: 25 female: male 9. The Median age was 60.9 years (30 86). There were 3 (8.8%) major bile leaks following T-tube removal 1 requiring laparotomy, 1 laparoscopic washout and one pigtail drain insertion. Six patients had residual abnormalities on their T-Tube cholangiogram, 4 requiring ERCP and two of which involved extraction of single retained stone. Laparoscopic Cholecystectomy: 2% major complication rate. ERCP: 8.1% major complication. Total 10.1%. There were no mortalities within this study.

Conclusions: Both techniques are associated with significant but comparable morbidity. All one-stage morbidity was related to the sequelae of T-tube removal, not the operation. Tran cystic exploration and/or primary closure of the CBD/+ biliary stent may improve the results to support the expanded application of one stage exploration.

P350

COMPLICATIONS OF ERCP AND ENDOSCOPIC SPHINCTEROTOMY ACCORDING TO THE TIMING OF ERCP BEFORE OR AFTER LAPAROSCOPIC CHOLECYSTECTOMY

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ERCP with endoscopic sphincterotomy (ES) in combination with laparoscopic cholecystectomy (LC) is a well established practice for the treatment of cholelithiasis and choledocholithiasis. ERCP ES is associated with well known complications.
The aim of the study was the comparison of complications between patients who underwent ERCP ES within 30 days before or after LC (group A) and patients who had undergone open cholecystectomy or LC at least 30 days before ERCP or had LC at least 30 days after ERCP (group B). Data were collected from a prospectively maintained database including 702 ERCPs in 573 patients, during a four year period. In 258 patients, ERCP was performed for suspected common bile duct stones. In group A there were 61 male and 92 female patients with a median age of 67 years (21–92), whereas in group B 42 male and 63 female patients with a median age of 73 years (37–93) ($p = 0.0002$). Bile duct cannulation was successful in 151 (98%) patients in group A and in 99 (94%) in group B ($p = 0.045$). Common bile duct stones were found in 64 (42%) patients in group A and in 59 (59%) in group B ($p = 0.008$). The size of the stones was larger than 15 mm in 4 patients in group A and in 17 patients in group B ($p = 0.001$). ES was performed in 145 patients in group A and in 93 patients in group B ($p = 0.067$). Complete clearance of the stones was achieved in 61 (95%) in group A and in 45 (76%) in group B ($p = 0.002$). Complications occurred in 2 (1.3%) patients (acute pancreatitis 1, bleeding 1) in group A and in 9 (8.5%) patients (acute pancreatitis 4, bleeding 3, cholangitis 1, perforation 2) in group B ($p = 0.005$). There were two deaths in group B. In conclusion, the patients who underwent ERCP ES a month before or after LC were younger, cannulation was easier, stones were found less frequently, were smaller and easier to be removed and the overall complication rate was lower.

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LAPAROSCOPIC CHOLECYSTECTOMY IN PATIENTS WITH PREVIOUS UPPER ABDOMINAL SURGERY

NO SHOW

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MULTIPLE MILLIMETRIC HEPATIC LESIONS FOUND DURING LAPAROSCOPIC SURGERY: WHICH DIFFERENCE BETWEEN METASTATIC LESIONS AND VON MEYENBURG BENIGN DISEASE

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The authors report two cases of von Meyenburg complexes disease found during laparoscopic surgical procedures. The first patient (41 years old) had multiple gallbladder stones responsible with recurrent hepatic colics. The second patient (45 years old) had gastroesophageal reflux with recurrent peptic esophagitis. In both cases, multiple millimetric and superficial hepatic lesions were found during the exploration of the abdominal cavity.
Then, an hepatic biopsy was done because the macroscopic aspect of lesions should suspect secondary metastatic lesions. Histological result made the diagnosis of von Meyenburg complexes disease (biliary microhamartomas). It seems to be important to know this anomaly of the ductal plate development and to do a liver biopsy during laparoscopy to affirm the diagnosis and cancel the diagnosis of multiple hepatic metastasis. In fact, this congenital pathology could be associated with increased risk of cholangiocarcinoma of the liver. The modality of radiological monitoring still remains to be defined.

P353

THE ROLE OF OPERATIVE FLEXIBLE CHOLEDOCHOSCOPY IN THE MANAGEMENT OF CHOLEDOCHOLITHIASIS

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Aim: The aim of our study is to evaluate the use of operative flexible choledochoscopy in the diagnosis and treatment of choledocholithiasis.

Material and Method: We examined retrospectively 46 patients with choledocholithiasis, who underwent operative flexible choledochoscopy in the last four years. The operation was laparoscopic in 22 patients and open laparotomy in 24. The choledochoscopy was performed through a choledochotomy in all the cases. Choledochoscopic views were assessed at low irrigation pressure (the irrigant delivered at hydrostatic pressure of 1 m of water). The stones were extracted by irrigation, Fogarty or by Dormia basket, through the choledochoscope. The operation was completed with the insertion of a T tube in 39 patients, with choledochoduodenostomy in 5 patients and with transduodenal sphincteroplasty in 2 patients. We examined the clearance rate and the complication of the method.

Results: Intrahepatic stones were detected in 3 patients, and impacted stones in 3 patients Retained stones were detected in no patients (clearance of the common bile duct 100%). There were no complications attributed to the procedure.

Conclusion: Flexible choledochoscopy is very effective in detecting and extracting bile duct stones. It is safe with no complication in our series.

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OWN EXPIRIENCE OF LAPARASCOPIC CHOLECYSTECTOMY IN GENERAL HOSPITAL RE MEDIKA

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Introduction: Numerous advantages contribute to the fact that this procedure is attractive for both, the surgeons and the patient's.LC has its own advantages, but also limits and complications, some of them particularly specific for the procedure.
The aim of this paper is to present and analyze exactly these aspects of the operation.
Material and method: We analyzed 252 nonrandomized patients who underwent elective LC, from February 2002 through February 2006. Indication for surgery was symptomatic cholcystolythiasis. Intravenous cholangiography was preoperatively performed in198 patients. The complications are divided in four groups.
I group-mild systemic complications causing certain undesirable additional patients discomfort that demanding appropriate alteration in the routine therapy, but usually do not delay the planned discharge of the patient from the hospital and do not threaten the life of the patient.
II group-severe systemic complications demanding significant therapy that prolong the hospitalization period, severely threating the health condition, sometimes even threatening life of the patient: cerebrovascular insults, cardiac insults, pulmonaly insults, renal failures, thrombembolism.
III group-local complications related to the operative technique: lesion of the billiary ducts, billiary collection and/or leakage, bleeding with an abundance requiring blood transfusion or re-operation, lesion of a cavity organ, residual calculosis in the billiary ducts.
IV group-complications related to the surgical wounds.
Results: From February 2002 through February 2006, LC was performed in 252 patients, 206 female and 46 male. Frequency ratio of LC versus CC at our department is presented in Table 1. Conversions were done in 9 patients, out of which in 2 patients due to complications. Reasons for conversion are presented in Table 2.
Conclusion: The results obtained from the analysis of LC, in all parameters are comparable with the results published in the other countries. The question concerning the undesirable frequency of the billiary ducts lesions remains constant and open. Permanent advocating to this challenging danger, as well as solid attitude to the conversions, we present a potential to facilitate this problem.

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EXPERIENCE IN LAPAROSCOPIC EXPLORATION WITH PRIMARY CLOSURE OF THE COMMON BILE DUCT

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Aim: Comparison of outcome and feasibility of primary closure (PC) in laparoscopic exploration of the common bile duct (LECBD) as compared with use of the T-tube (TT) drain or transcystic (TC) exploration.

Patients and Methods: Combined prospective and retrospective analysis of all patients undergoing LECBD over a period of 56 months. 71 patient were included in the study, first 21 patients were analysed retrospectively and the following 50 prospectively. Primary outcome was type and rate of complications and secondary outcomes duration of operation and hospital stay.

Results: Of 71 CBD explorations 9 (13%) were TC, 12 (17%) choledochotomies with T-tube drainage and 50 (70%) primary closures. Patients demographics including gender and ASA grade, as well as presentation leading to surgery were similar in all groups. Patients in TC group were slightly younger median 62 years as compared with 71.5 in TT and 70.5 in PC group. 55% of patients were operated during the same emergency admission. Median operating time was 120, 142 and 95 min in TC, TT and PC groups respectively. Median postoperative stay in primary closure group was 4.16 days as compared with 4.4 and 6.3 in TC approach and closure with T-tube drain. Laparoscopic clearance of the CBD was achieved in 63 (89%) of patients. 3 patients required elective postoperative endoscopic cholangiography (ERC) and 5 were converted to open. There were no unexpected retained stones in the primary closure group. There was one death (mortality 1.4%). Total number of complications 11 (15.5%) patients. Of these only 6 (8.5%) were significant including 3 bile leaks, 2 cases of supraventricular tachycardia and 1 incisional hernia following conversion.

Conclusion: Our results are comparable with those reported in the literature. We demonstrated that LECBD is both feasible and safe. Transcystic exploration of the CBD although associated with the lowest complication rate, resulted in the highest incidence of retained stones. Closure over the TT had the longest operating time and duration of hospital stay. LECBD with primary closure results in shorter operating time and reduction in hospital stay with acceptable complication rate. This approach ensures one stage definitive management of CBD stones.

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COST AND EFFICACY ANALYSIS COMPARISON OF TWO DIFFERENT STRATEGIES OF MANAGEMENT OF CHOLECHOLEDOCOLITHIASIS

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Introduction: Ideal management for choledocholithiasis (CBDs) in the laparoscopic era is not well established
Aims & Methods: We present the result of a prospective and randomized study of laparoscopic cholecystectomy (LC) with preoperative ERCP (pre ERCP) 'G1' vs intraoperative ERCP (intERCP) 'G2' for Cholelithiasis with clinical suspicion of choledocholithiasis. We obtained hospital management cost per patient. All the Intraoperative ERCP was performed using a modification of 'the rendez vous technique' whenever it was necessary. We consider treatment failure whenever the patient had to be changed to the other study arm because of urgent need of ERCP or for failure to perform int or pre ERCP.
Results: 92 pts were included (43 and 49 pts in G1 and G2 respectively). Both groups were homogeneous. We did not find any difference in the treatment efficacy of each therapeutic approach (96% of success in G1 and 86% in G2 group). However, if we exclude as failed approaches the two patients in the waiting list of G2 with acute cholangitis needing urgent PreERCP, the success rate would be 90.5%. We had no mortality. Concerning severity, G1 ERCP's complications were 11% mild, 7,5% moderate and, 1,9%severe vs. 4,3% moderate in G2 ($p < 0.014$). There were no differences in surgery morbidity between groups. Until now the cost of preoperative ERCP strategy plus LC (G1) was '2708, 3903' without statistical signification in relation with the G2 '2414776'. The cost of a LC without intraoperative ERCP (G2) was '2239757' and '2776707' if the intraoperative ERCP was needed. This difference can be explained by the raise on the surgical time spent in the operating theatre room.
Conclusion: Both types of approaches had the same rate of success for CBDs management. G1 morbidity was higher than in G2 due to preoperative ERCP's complications. The cost of the preoperative ERCP + LC strategy is higher than the G2, but until now the difference does not reach statistical signification. So we believe IntERCP is a very efficient approach to cholecholedocolithiasis.

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LAPAROSCOPIC CHOLECYSTECTOMY AFTER PREVIOUS GASTRIC SURGERY

NO SHOW

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COMMON BILE DUCT INJURY IN LAPAROSCOPIC CHOLECYSTECTOMY

NO SHOW

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DIFFICULT LAPAROSCOPIC CHOLECYSTECTOMY

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Introduction: Laparoscopic cholecystectomy (LC) has become the gold standard for gall stone disease. We present one of the largest series of LC from the high prevalence area of gall stone disease.

Patients and methods: Data of all the patients who were operated between may 1992 and March 2006 was collected and difficult cases were identified out of them based on the intraoperative pathology. These cases were analyzed in relation to the conversion to the open surgery and complication rate.

Results: LC was performed in 6380 patients at our centre. Based on the criteria selected on the intraoperative pathology, 1446 (22.66%) cases were identified as difficult cases. Laparoscopy had to be abandoned and procedure was converted to conventional surgery in 27 patients with a conversion rate of 1.86% of the difficult cases and 0.42% of the total LCs done. All the conversions were in the difficult group. The most common intraoperative complication was bile duct injury ($n = 12$) which lead to four conversions.

Conclusion: From our experience we emphasize that the experience of the surgeon and the meticulous surgical technique are the most important factors to achieve a low complication rate.

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FIVE YEARS EXPERIENCE OF STENDED CHOLEDOCHORRAPHY AFTER LAPAROSCOPIC CHOLEDOCHOTOMY

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Background: Gallstones disease remains one of the most common medical problems leading to surgical intervention. There is still a dilemma in the management of that 3–10% of patients undergoing cholecystectomy and will have CBD stones. During the last few years, the development of new technology and equipment with possibilities of minimal invasive procedures and diagnosis, as well as the ongoing surgical skills has allowed surgeons to solve the problem of choledocholithiasis in one minimal invasive procedure, decreasing effectively morbidity with a high success rate.

Aim: To evaluate the experience and to analyse clinical results of routine but otherwise still in controversy, Laparoscopic Common Bile Duct Exploration (LCBDE) and Antegrade Biliary Stenting (ABS) with choledochorraphy in a period of 5 years.

Patients and Methods: From June 2001 to January 2006, 100 patients underwent to LCBDE, 57 of them, affected by choledocolithiasis, underwent to ABS following choledochotomy. In all of them a choledocochorraphy was performed. The data were collected prospectively and retrospectively analysed.

Results: Of the 57 patients, 36 were female and 21 were male with median age of 52.7 (26–83). Mainly affected by obstructive jaundice with consequent CBD median diammeter of 12.1 (8–30)mm. Median operative time was 91.5 (45–200) min. Stone clearance of 3.3 (0–30) stones was achieved. There were no open conversions although a hand assisted LCBDE was necessary in one case. There was no mortality. In 11 patients (19.2%) amylase level raised (> 100 UI/l) 24 hours post operation was detected, but only 2 (3.5%) of them developed clinically pancreatitis. Three of the patients required postoperative ERCP due to a impacted stone and failure in the stent attempt One patient underwent to an emergency laparotomy due to intrabdominal bleeding. The median post-operative stay were 3.6 days.

Conclusions: Laparoscopic choledochotomy, followed by placement of a biliary endoprothesis with choledochorraphy is safe and effective as a routine surgical procedure in choledocholitiasis, according with our almost 6 years experience.

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PATIENTS WITH PREVIOUS ABDOMINAL OPEN SURGERY AND LAPAROSCOPIC CHOLECYSTECTOMY

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Laparoscopic cholecystectomy is undoubtedly today the method of choice in treating gallbladder surgical disorders. However patients with history of previous open abdominal surgery require special consideration. We examined the safety and feasibility of laparoscopic cholecystectomy as well as the peri-operative surgical parameters in these patients.
Method: Between 2003 and 2005 we performed 278 laparoscopic cholecystectomies in patients with history of previous abdominal surgery for various problems. These were compared with 717 laparoscopic cholesystectomies carried out at the same period in patients with no history of abdominal surgery. In the first group 98 patients presented with an upper abdominal scar, 124 patients with a lower abdominal scar and 56 with scars in both upper and lower abdomen. We examined our conversion rate of laparoscopic to open surgery, as well as the perioperative complications, the average operating time and the length of hospitalisation.
Results: The rate of conversion of laparoscopic cholecystectomy to open surgery was overall the same in both patient groups. However in the first patients group, the majority of the cases that needed to be converted to open surgery presented with scars in both the upper and the lower abdomen. There was no statistically significant difference regarding the perioperative complication rate and the length of hospital stay. The only significant difference was on the mean operating time, which was longer on the patients with previous abdominal scars.
Conclusion: Laparoscopic cholecystectomy is a safe procedure in patients with abdominal scars when performed by an experienced laparoscopic surgeon. However the surgeon needs to be aware that the operating time will be longer and there is a higher potential for conversion to open surgery, in patients that present with scars in both the upper and lower abdomen.

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SYMPTOMATIC LIVER CYSTS - IS LAPAROSCOPY THE METHOD OF CHOICE?

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Aims: In order to compare the current role of both laparoscopic and open surgical techniques in the management of non parasitic liver cysts, we report our experience in treatment of these benign liver lesions and evaluated the immediate and long term outcome.

Methods: Data were collected retrospectively for the time period between March 1999 and December 2005. 41 patients (38 women, 3 men) with a mean age of 61,5 years (range 41–86 years) underwent surgical treatment of symptomatic non parasitic liver cysts (n = 38) and polycystic liver disease (n = 3). The surgical approach, method of treatment, postoperative results and standard patient data were analysed. Clinical long-time outcome was evaluated by telephone interview of 38 out of 41 patients.

Results: Laparoscopic fenestration of liver cysts was carried out in 26 patients and in 8 of these cases an omentum plomb was placed. There were 2 conversions to open approach because of adhesions and bile leakage. So, open approaches were performed in 15 cases: 12 cyst fenestrations, 2 hemihepatectomies plus fensetration, 1 segment resection plus fenestration. An omentum plomb was placed in 10 of these cases. There were three intraoperative complications: colon transversum injury (laparoscopy), bile duct injury and gas emboly, followed by infarction in the pool of A. cerebri media (open approach). There were no deaths. The postoperative courses were uneventful. The mean postoperative hospital stay following laparoscopy operation was 4,8 days and following an open procedure 12,1 days. The mean follow-up time was 44,6 months (range 5–88). In 5 patients recurrences were diagnosed, 2 were symptomatic. No difference in recurrence rate could be seen comparing laparoscopic and open approach.

Conclusions: Laparoscopic fenestration of single or multiple liver cysts is a safe and effective procedure. At least in our experience symptomatic recurrence of cysts is not more often than in open surgery. Postoperative hospital stay is shortened compared to conventional approach. For most of the non parasitic liver cysts laparoscopic fenestration is the method of choice.

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COMMON BILIARY DUCT LITHIASIS: ROLE AND VALUE OF THE PREDICTIVE FACTORS IN PREPARATION TO THE LAPAROSCOPIC CHOLECYSTECTOMY. RETROSPECTIVE STUDY

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Purpose: The aim of the study was to evaluate the clinical-instrumental predictive factors of common biliary duct stones (CBDS). These give the indication to perform the ERCP with endoscopic sphyncterotomy (ERCP/ES) before the laparoscopic cholecystectomy (LC).
Methods: In the period 1997–2005, were performed 102 ERCP/ES; 76 patients were examined in the period 1999–2005; moreover, were excluded the patients with acute biliary pancreatitis (48) because, in our opinion, in these cases, the ERCP/ES has a therapeutic role, regardless of the suspicion of CBDS. We present a retrospective study of 28 ERCP/ES before the LC with the suspicion of CBDS. The clinical, instrumental and bio-humoral data were analyzed by univariate and multivariate statistical study.
Results: The univariate analysis identified alkaline phosphatase ($p < 0.0001$), gamma-gt ($p < 0.0001$), direct bilirubin ($p < 0.0001$) and CBD dilatation on abdominal ultrasonography (USG) ($p < 0.0001$) as predictors of CBDS. A multivariate analysis subsequently identified alkaline phosphatase ($p < 0.0001$), gamma-gt ($p < 0.0001$) and direct bilirubin ($p < 0.0001$) as independent predictive factors of CBDS; on the contrary, dilatation of the CBD ($p = 0.0759$) did not have statistical significativity.
Conclusions: The dilatation of the CBD, alone, does not have statistical significativity. The concordance of cholestasis factors with the dilatation of the CBD has a statistical significativity for the diagnosis of CBDS and it represents the indication to execute ERCP/ES before LC; instead, the ERCP/ES, as an invasive procedure, cannot be performed before the LC, if it is present only the dilatation of the CBD and it is absent an increase of cholestasis factors.

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BILE AND GALLSTONE SPILLAGE DURING LAPAROSOPIC CHOLECYSTECTOMY OR COMMON BILE DUCT EXPLORATION SO WHAT?!

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Aim: Spillage of bile and gallstones from a gall bladder torn at operation is frequently perceived as untidy and embarrassing. More importantly, complications secondary to stones left in the peritoneal cavity are well documented in the surgical literature. In this study we analyse the influence of intra-operative gall bladder perforation on surgical outcome in a large single centre series.
Methods: Prospective data were analysed for a total of 1564 patients who underwent laparoscopic cholecystectomy and routine intra-operative cholangiography over a twelve-year period. Seventeen patients (1.1%) had acalculous gall bladder dysfunction, 13 had mucocoele (0.8%) and 86 patients (6.1%) had acute cholecystitis (out of which 18 had empyema). Acute pancreatitis was the surgical indication in 96 cases (6.1%). Jaundice was present in 197 patients (13%). A total of 282 patients (18%) had choledocholithiasis and the majority of these were treated laparoscopically. The rest had chronic calculous cholecystitis. All patients were followed up at intervals of 2 and then 14 months after surgery.
Results: Intra-operative bile and/or stone spillage was documented in 133 cases (8.5%). Care was taken to retrieve all visible stones and to wash out the peritoneal cavity before closure. In patients with significant spillage, a suction drain was placed in the subhepatic space. Jaundice and the presence of duodenal adhesions were the only variables positively associated with spillage ($p = 0.04$ and $p > 0.01$, respectively). Surprisingly, acute cholecystitis and choledocholithiasis itself did not bear a significant association. In our series spillage was never cause for open conversion. The mean drain duration was 1.6 days, the same as that in patients with no spillage. The mean hospital stay was paradoxically shorter in patients with spillage with a mean of 3.5 days, compared with 4.8 in patients with no spillage ($p < 0.01$). These values include figures for patients with additional cystic duct drains or T-tubes after bile duct exploration. No complications which could be attributed to spillage were identified.
Conclusion: Intra-operative bile and gall stone spillage does not appear to significantly alter the outcome after laparoscopic cholecystectomy or common bile duct exploration.

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THE UT SOUTHWESTERN EXPERIENCE WITH LAPAROSCOPIC COMMON BILE DUCT EXPLORATION

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Background: One stage management of Common Bile Duct stones with Laparoscopic Common Bile Duct Exploration (LCBDE) is preferred over Endoscopic Retrograde Cholangio-Pancreatography (ERCP), before or after laparoscopic cholecystectomy. LCBDE is technically demanding and the experience of most individual surgeons is limited. This had prevented LCBDE to be widely accepted at our large academic institution. Since July 2005, our Minimal Access Surgery program has adopted a 24-hr LCBDE on-call service lead by its fellow in order to facilitate the quantity and success rate of LCBDEs performed.
Methods: A retrospective review was performed of all the attempted laparoscopic LCBDEs performed at the hospitals affiliated with UT Southwestern Medical Center from July 2004 through March 2006. The quantity of procedures performed and success rates were analyzed before and after July 2005. Laparoscopic common bile duct explorations were considered successful if abnormalities identified on initial intraoperative cholangiogram resolved after common bile duct exploration and the patients clinical course improved post-operatively; patients that required post-operative ERCP for whatever reason were not included in the 'success' group.
Results: A total of 35 laparoscopic common bile duct explorations were performed at our institution between July 2004 and March 2006. 14 procedures were performed before July 2005, 8 of which were considered successful (57%). There were 21 procedures performed from July 2005 to March 2006, representing an increase of greater than 50%. Of these 21 laparoscopic common bile duct explorations performed, 16 were successful (75%). The subset of procedures after July 2005 in which the MAS fellow assisted demonstrated a success rate of 79% (11 successes out of 14 procedures attempted).
Conclusions: Having surgeons with experience in LCBDE such as MAS fellows available to assist in these procedures when needed, may improve the quantity and success rates of the procedures performed. This may become the model for MAS fellowships in the future and could perhaps show dramatic benefits in fellow and resident education as well as patient care.

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ROLE OF MAGNETIC RESONANCE CHOLEDOCHOGRAPHY TO PREVENT BILE DUCT INJURY IN LAPAROSCOPIC CHOLECYSTECTOMY.

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Aims: Laparoscopic cholecystectomy is now a golden standard for gallstones in the gallbladder. We evaluate the usefulness of magnetic resonance choledochopancreatography (MRCP) and endoscopic retrograde choledochopancreatography (ERCP) to prevent injuries of the bile duct in the patients before laparoscopic choelcystectomy.

Methods: MRCP examination is routinely performed before surgery, instead of drip infusion cholangiograpy and in some cases ERCP examination was performed. And we evaluate the relationship between the origin of the cystic duct and the right hepatic duct, especially the right posterior branch of the hepatic duct.

Results: We experienced about twelve hundred of laparoscopic cholecystectomy and in these cases we have four cases of bile duct injuries for last ten years. One of these injury cases had obstruction of the right posterior branch of the hepatic duct by applied clips. MRCP of this patient before surgery had clearly demonstrated the origin of the right posterior hepatic branch at the same point of the origin of the cystic duct from the common bile duct. MRCP in some cases demonstrated the common origin of the right posterior branch and the cystic duct again and we performed laparoscopic cholecystectomy safely.

Conclusion: MRCP is a non-invasive examination and more useful method to evaluate the relationship between bile duct and cystic duct compared with ERCP. We experienced one case of bile duct injury because of the same origin of the right posterior branch of the hepatic duct and the cystic duct. We strongly recommend employing MRCP and realizing the origin of the cystic duct and the other bile duct before surgery.

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LAPAROSCOPIC APPROACH IN SIMULTANEOUS ABDOMINAL OPERATIONS

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Aims: Until now, laparoscopic approach has been used for almost all abdominal organs. In some cases, laparoscopic approach is the method of choice in the treatment of complex and/or simultaneous conditions that belong to the different organ systems. This paper presents the group of 5 patients in which simultaneous laparoscopic surgery was performed on the different organs at the same act.
Methods: Out of total of 1536 patients prepared for elective laparoscopic surgery of the gallbladder, using standard methods (abdominal ultrasound) and specific methods (CT scan and endovaginal ultrasound) in 5 female patients gynecological conditions were diagnosed beside gallbladder calculosis. In 1 patient it was a case of the subserous myoma uteri and in 4 patients ovary cyst. Within preoperative evaluation a plan was made for the treatment of the mentioned conditions using simultaneous surgery with laparoscopic approach.
Results: In all patients that underwent simultaneous laparoscopic surgery of the gallbladder and uterus or ovaries, the surgical procedure was done in the general anesthesia, with the patient in anti-Trendelenburg position and performing the standard procedure of creating pneumoperitoneum and positioning ports for the optical and work instruments. After cholecystectomy was performed the patient was placed in Trendelenburg position and the video equipment and the surgical team took position that was adequate for laparoscopic approach to pelvic region and gynecological part of the procedure was performed. In all cases planed laparoscopic procedures were done completely with no abdominal drainage. With the preoperative administration of the antibiotics and postoperative monitoring biochemical parameters, all patients in this group left the hospital on the second day after the surgery, with no complications.
Conclusion: Simultaneous laparoscopic surgery procedures in the same act are a new golden standard in the treatment of the combined abdominal conditions and they open a new chapter in a quick recovery of the patients.

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PERIDURAL ANESTHESIA AND LAPAROLIFTING FOR LAPAROSCOPIC CHOLECYSTECTOMY

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Peridural Anesthesia and Laparolifting is alternative method for laparoscopic cholecystectomy (LCE) as compared with general anesthesia and pneumoperitoneum, especially for patients with severe concomitant cardiovascular disease.

Materials and methods: We compared two groups of elderly patients with severe concomitant pathology that underwent LCE in our Institute during last 3 years. I group consisted of 18 patients that were operated under general anesthesia and pneumoperitoneum, II group consisted of 11 patients, in which peridural anesthesia and laparolifting were used for LCE. Mean age of patients was 724,8 and 74,24.2 years in I and II groups respectively. Concomitant pathology (coronary atherosclerosis with history of myocardial infarction, arterial hypertension with history strokes, obesity, bronchial asthma) and anesthesiologic risk did not differed significantly between groups. 13 patients of I group and 8 patients of II group were operated for acute cholecystitis.

Results: Duration of operation was 34,28,4 and 45,410,4 in I and II group respectively. Abdominal complications were similar in both groups and included 1 bile leaks in I group and one case of biloma in II group. Cardiovascular and pulmonary complications occurred in I group: myocardial infarction developed in 1 patient, stroke in 1 patient, postoperative pneumonia 2 patients. Only 1 patient of II group developed pneumonia. 1 patient of I group who developed stroke died. No mortality was present in II group.

Conclusions: Peridural anesthesia and laparolifting is preferable method of LCE for patients more than 65 years old with severe concomitant cardiovascular diseases.

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SICKNESS AND VOMITING IN PATIENTS UNDERGOING LAPAROSCOPIC CHOLECYSTECTOMY (LC)

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The aim of this study is to evaluate postoperative nausea and vomiting in patients who undergoing LC.

Method: 230 LC were performed in our institution by three Surgeons during the last two years. the parametes under consideration were: age, duration of operation, total volume of CO_2 given to the patient and middle pressure of pneumoperitoneum.

Results: Sickness or vomiting was observed in 29 patients (13%). In the majority of all patients symptoms were disappear with administration of antiemetic tablets in the first 24 hours. If the total volume of CO_2 given to the patient is more than 35 liters and duration of the procedure more than 100 min. it is possible that patient complain for nausea and vomiting postoperatively.

In conclusion we believe that nausea and vomiting in the postoperative period is related with elderly, increase of intraabdominal pressure of CO_2 > 15 mm Hg and time of operation > 100 min.

In any case, both symptoms are disappear the first postoperative day with administration of tha appropriate medication.

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HEPATIC RESECTIONS BY MEANS OF ELECTROTHERMAL BIPOLAR VESSEL DEVICE (EBVS) LIGASURE V: EARLY EXPERIENCE

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Background: manifold techniques and devices are available to perform liver resection, as clamp crushing, Cavitron Ultrasonic Surgical Aspirator (CUSA), Hydrojet and dissecting sealer, or, more recently, Electrothermal Bipolar Vessel Sealing (EBVS). This study aimed to evaluate the impact of EBVS Ligasure V.

Methods: from March 2004 to December 2005, 30 consecutive pts underwent liver resection. There were 21 male and 9 female with mean age 59,6 years (41–80) who were affected from: liver colonic cancer metastases (24), hepatocarcinoma (3) angioma (2) and intrahepatic lithisasis (1). Hepatic resection type was as follows: right hepatectomy (2), left hepatectomy (4), tri-segmentectomy (9), bi-segmentectomy (12), segmentectomy (3). Fifteen procedures were performed using EBVS V ligasure (group A), and fifteen by ultrasonic shears (7) clamp (3) and other (5) (group B). The same rate of liver extension resection was represented among two groups as well as the ASA risk class and previous abdominal surgery rate.

Results: there was no mortality in either group. The mean operative time (OpT) was 136,9 min (90–210) in group A and 168 min (130–360) in group B (p 0,06). Pringle maneuver was done in five cases of group A, for a mean time 11,4 min (6–12) and in four cases in the B, mean time 16 (9–26). The mean blood loss, total bile salts and haemoglobin concentrations of the drainage fluid on day 2 after surgery, mean po hospital stay were 210 vs 430 ml, 0,6 vs 1,1 mmol/L, 1,0 vs 2,1 mmol/L ($p < 0,05$) and 5,6 vs 9 days between group A and B, respectively. In the group B, after a right hepatectomy for colon cancer metachronous metastases, a patient complained transient hepatic failure. No pts were transfused in the group A, while in two cases of B at least two blood unit were administered.

Conclusions: EBVS Ligasure V demonstrated in liver resection safe and effective. Patients experiencing this device presented slight advantages in operative time and, statistically significant, benefits in terms of blood loss, total bile salts and haemoglobin concentrations of the drainage fluid, and postoperative hospital stay.

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POSTOPERATIVE ABDOMINAL ADHESIONS OF LAPAROSCOPIC VS OPEN LEFT PARTIAL HEPATECTOMY IN THE PORCINE MODEL

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Background: Open hepatectomy is considered to be the gold standard liver operation when indicated. Currently, there is an effort to operate liver laparoscopically. The aim of this study is to compare the postoperative adhesions, after laparoscopic and open left partial hepatectomy, in the porcine model.
Methods: Twenty-four pigs, weighing 20–25kgr, were randomly allocated to two groups: the open (n = 12) and the laparoscopic (n = 12) and underwent left partial hepatectomy under general anesthesia. The open hepatectomies were performed using a knife and/or radiofrequency (RF) knife, while the laparoscopic ones were performed with a RF knife and/or a stapler, using a three port technique.
Hemodynamic changes, serum liver enzymes and blood counts were assessed pre- intra and postoperatively. All animals were euthanized after one week and examined for abdominal adhesions, bile leaks, liver or intraabdominal abscesses. The Hulkas et al scale was the tool to estimate postoperative abdominal adhesions
Results: One animal in the laparoscopic group died on the first postoperative day due to medication overdose, while another animal of the same group developed wound infection. There were no other major postoperative complications, such as bile leaks, or liver and intra-abdominal abscesses, in any of the groups. According to the Hulkas et al scale there was a statistically significant difference in the estimated scores of the intraabdominal adhesions between the two groups (Fischers exact test, $P < 0,001$).
Conclusions: In the porcine model, laparoscopic left partial hepatectomy is technically feasible and can be performed safely with either staplers or RF knife with less abdominal adhesions than in the open operation and without major postoperative complications.

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CAUSES AND MANAGEMENT OF EMERGENCY READMISSIONS AFTER LAPAROSCOPIC CHOLECYSTECTOMY

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Aims: Readmission and reoperation following (LC) are important outcome parameters.
Methods: We reviewed patients who underwent LC common bile duct exploration (CBDE) and required readmission. Reasons for readmission and management were observed. Difficulty grade, operative time, mode of initial admission and time between discharge and readmission were also examined as possible risk factors for readmission.
Results: Between Feb.1992 to Feb.2006, 1732 patients underwent LC under the care of one surgeon. 315 patients had transcystic exploration (TCE) or formal CBDE. A total of 32 patients required readmission (1.84%). According to our difficulty grading system, the LC was grade I in (34.4%), grade II in (44%), grade III in (12.3%), grade IV in (3.1%) grade V in (6.25%). 4 patients had Mirrizi syndrome (12.5%) and one patient was > 100 kgs in weight. The average operative time was 119 minutes. 19 patients underwent emergency LC (59.4%) and 13 were elective (40.6%).
6 patients underwent TCE (18.7%) and 19 patients required CBDE (59.4%), one of these requiring open exploration. The average time between discharge and readmission was 15.5 days. Reasons for readmission were: Non-specific abdominal pain 9 patients (28.1%), cholangitis 5 patients (15.6%), persistent jaundice pain 4 patients (12.5%), intra-abdominal collection 4 patients (12.5%), pancreatitis 3 patients (9.3%), transient pain after removal of transcystic drain 3 patients (9.3%), blocked transcystic tube 2 patients (6.2%), one patient had biliary leakage from a subvesical duct (3.1%) and one wound infection (3.1%). The majority of these patients were treated conservatively, one patient required laparoscopic re-exploration and suturing of a leaking subvesical duct and one patient required CT guided drainage of a collection.
Conclusion: Readmission rate post LC in our unit is significantly low despite dealing with all commers, including (60%) emergency biliary cases. In the majority of readmitted patients CBDE was carried out during the initial admission and biliary drainage was a common factor. Most of these patients were treated conservatively (93.75%). Based on our results we strongly recommend the one session management of gallstone disease and early operative intervention for emergency admissions.

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JOINT APPLICATION OF EXTRACORPORAL SHOCK WAVE LYTHOTRIPSY AS A TREATMENT OF THE COMMON BILE DUCTS STONES

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Aim: The aim of this study was to determine the role of joint application of extracorporal shock wave lythotripsy in treatment of choledocholithiasis in elderly people and in patients with great risk of traditional surgical treatment.

Materials and Methods: During the period between 2002 and 2005 we performed endoscopic retrograde cholangiopancreatography (ERCP), endoscopic sphincterotomy (EST), extracorporal shock wave lithotripsy (ESWL), extracting stones with Dormia basket in 14 patients over 70 years old with the common bile ducts stones. There were 6 men (70–86 years) and 8 women (70–92 years) an average 73.7 years. 11 patients were with great risk of traditional surgical treatment. We evaluate the mortality, the morbidity the operative time in this group.

Results: There was no perioperative death. Conversions to open laparotomy occur in 1 patient (7%) Postoperative complication occur in 2 patients (14%) There were 1 patient with gemorrhage, 1 with acute pancreatitis.

Conclusion: In conclusion the authors recommend ERCP, EST, extracorporal shock wave lithotripsy as a standart in treatment of choledocholithiasis in elderly people and in patients with great risk of traditional surgical treatment. Received positive results testify the perspectives of method applied in clinical practice.

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LAPAROSCOPIC CHOLECYSTECTOMY FOR ACUTE CHOLECYSTITIS - TIMING DOES NOT AFFECT THE OPERATIVE COURSE

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Aim: In patients with acute cholecystitis, laparoscopic cholecystectomy during the index admission is considered current best practice. In this study we report our experience in this regard and explore the effect of timing of surgery on outcome.
Method: A total of 86 patients with a clinical and radiological diagnosis of acute cholecystitis were analysed. The median duration from admission to surgery was 3 days (range 1 - 13). The median age was 56 years (interquartile range = 21) and the male: female ratio was 1: 2.5. Operative cholangiography was performed routinely. The patients were divided into three groups based on the timing of surgery. Group A ($n = 44$) were operated upon within 3 days of admission, Group B ($n = 33$) 3 to 6 days after admission, whereas Group C ($n = 9$) had their cholecystectomy done more than 6 days after presentation.
Results: Gall bladder empyema was diagnosed in 18 cases. Mirizzi Type Ia syndrome was identified in one patient. Choledocholithiasis was discovered in a total of 15 patients - 9 in Group A and 3 each in Groups B and C. All of these patients were managed successfully with laparoscopic common bile duct exploration (1 had a choledochotomy and the rest were trans-cystic procedures). The grade of difficulty (I to IV) assigned by the operating surgeon was homogenous throughout the groups. The mean operating time was 108 minutes (median 100) with no significant inter-group difference. Intraoperative gall bladder perforation and stone spillage was documented in 8 cases in total and was not significantly higher in any of the groups ($p = 0.14$). Conversion to open surgery was necessary in 4 cases (overall 4.7%). The reason was dense adhesion formation involving the gall bladder, duodenum and hepatic flexure. The median post-operative hospital stay was 2 days (range 1 to 7) and this was similar in all 3 groups ($p = 0.69$).
Conclusion: In patients with acute cholecystitis, timing of surgery during index admission does not appear to influence the course of laparoscopic cholecystectomy.

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THE ROLE AND PLACE OF THE INTRAOPERATIVE ENDOSCOPIC SPHINCTEROTOMY IN THE BILE DUCTS SURGERY

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In the era of laparoscopic sphincterotomy as a standard in the treatment of cholelithiasis, intraoperative endoscopic sphincterotomy is one of the methods used to treat concomitant choledocholithiasis besides intraoperative exploration of bile ducts or two-step treatment, i.e. laparoscopic cholecystectomy and pre- or postoperative endoscopic sphincterotomy with removal of stones.
The introduction of intraoperative bile ducts endoscopy marked a new era in the treatment of biliary diseases, where the first and the only indication is the choledocholithiasis detected during laparoscopic procedure.
But is that really the only indication to intraoperative endoscopic sphincterotomy? The authors present our experience with intraoperative endoscopic sphincterotomy and their own range of extended indications to endoscopic procedures. The study was conducted in 43 patients, where indication to the intraoperative endoscopic sphincterotomy was: choleocholithiasis detected intraoperatively in 30 cases (20 during laparoscopic cholecystectomy and 10 during open cholecystectomy), after palliative cholecystectomy for gallbladder carcinoma with biliary stenting to preventive obstructive jaundice in 9 cases, in 2 patients with internal biliary fistula after cholecystectomy endoscopic sphincterotomy with biliary stenting was performed, 2 patients with iatrogenic injury of bile ducts (stitching) was subjected do intraoperatively ERCP, sphincterotomy and biliary stenting and 2 patients with multiorgan trauma was subjected intraoperatively to ERCP and after localisation of the injury using contrast and methylene blue dying sphincterotomy with biliary stenting was peformed.
No complications of the performed intraoperative endoscopic procedures were observed
Conclusions: Intraoperative endoscopic sphincterotomy is a safe and effective procedure. It can be performed during laparoscopy and open surgery. Intraoperative endoscopic sphincterotomy enables one-step definitive treatment. It eliminates complications associated with the opening of bile ducts lumen. It is also effective in the diagnosis and treatment of difficult to localize iatrogenic bile ducts injuries. This method is recommended only in the well-equipped centres, fitted to perform intraoperative endoscopic interventions.

P379

SINGLE VS MULTIPLE GALL STONES - CLINICAL AND TECHNICAL IMPLICATIONS

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Aim: To evaluate differences in presentation and operative findings during laparoscopic cholecystectomy (LC) in patients with single gallstone compared with multiple gallstones.
Method: Data from 1532 patients undergoing LC by one surgeon over 14 years was collected prospectively and analysed. Patients were divided into two groups:195 patients had a solitary stone and 1337 patients had multiple gallstones on US scan. The groups were compared; looking at sex, age, elective or emergency operation, biliary symptoms and operative findings.
Results: The male to female ratio in both groups was similar (1:4) as was the mean age of patients (51 years). More patients with multiple gallstones were admitted and had surgery performed as an emergency than patients with a single stone (36% compared with 23%, $p < 0.01$). More patients with multiple gallstones presented with jaundice (13% compared with 3%, $p < 0.01$). In addition, patients with multiple gallstones presented six times more frequently with acute pancreatitis than patients with a solitary stone (6.2% compared with 1.0%), $p = 0.001$. At laparoscopy, there was no significant difference in the difficulty grading of LC between the two groups ($p = 0.63$). Common bile duct (CBD) dilatation was seen on intraoperative cholangiography in 15.9% patients with multiple stones compared to 5.6% patients with a solitary stone ($p = 0.01$). CBD stones were retrieved in significantly fewer patients with a solitary stone than with multiple stones (6.6% patients compared with 20%, $p < 0.001$).
Conclusions: Multiple stones are seven times more common than solitary gallstones. There are significant differences in clinical presentation and subsequent laparoscopic management. Patients with multiple stones are more likely to be admitted as an emergency and require emergency surgery. They are more likely to present with jaundice and to develop pancreatitis. This is expected as they tend to pass stones into the common bile duct and are more likely to require bile duct exploration. Patients with multiple gallstones will therefore have more complications both before and following surgery than patients with a single gallstone. There were no significant differences between the difficulty grading at the time of cholecystectomy.

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EMERGENCY LAPAROSCOPIC CHOLECYSTECTOMY IN THE ELDERLY PATIENTS

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Aim: Biliary emergencies in the elderly present diagnostic as well as therapeutic challenges. Cardio-respiratory, renal or septic complications predominate postoperative complications. Contrary to the widely held misconception, we aim to demonstrate that the laparoscopic approach can contribute significantly to reducing these complications.
Methods: From our prospective database of 1580 cholecystectomies, patients older than 70 years were analysed for their surgical presentation, cholangiography and operative findings as well as postoperative outcome.
Results: 183 patients (123 female, 60 male) were older than 70 years, with an average age of 76 (range 71 to 90 years). Nearly 50%, 32 of 60 the male and 58 of 123 the female patients were admitted as emergency cases. Jaundice was the main presentation in 53 patients, whereas 11 had pancreatitis; and 5 patients had both. Most of the patients were in ASA score 2 or 3. Other than acute inflammation, there were 12 mucoceles, 6 empyemas and 13 heavily scarred gallbladders. According to our difficulty grading system 69% were reported as difficulty grade III or IV. Conversion to open surgery occurred in 6 patients (3.2%, double the conversion rate for the whole series). Bile duct exploration was necessary in 51 patients (27%) who were found to have bile duct stones on routine cholangiography. There was no significant difference between the incidence of bile duct stones in this group and in the whole series. The length of surgery averaged 135 minutes, range 40 to 325 minutes. The postoperative hospital stay averaged 6 days (range 1 to 20). Minor to moderate complications occurred in 5 patients. There was only one death due to anaesthetic complications and none related to surgical factors.
Interpretation: Biliary emergencies in the elderly may be safely managed through the laparoscopic approach as long as they are fit for anaesthesia. Postoperative recovery from our series was encouraging for the low cardio-respiratory complications. Prompt diagnostic work-up and efficient utilisation of emergency theatre contribute towards this working principle.

P381

HEPATOCELLULAR CARCINOMA SIZED 15 CM TREATED BY LAPAROCOPIC-ASSISTED HEPATECTOMY

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The indications for laparoscopic hepatectomy were limited; generally, tumors smaller than 5 cm serve as proper indications. Here, we initially report on a patient with huge hepatocellular carcinoma sized 15cm in the left lateral segment who was treated by laparoscopic-assisted technique.
Surgical technique: Three trocars were inserted under pneumoperitoneum. The attached ligament was divided and mobilization of the liver could be performed with laparoscopic coagulating system. In accomplishing this maneuver, upper median skin incision of 7cm was made. The left lateral segment was exposed to be lifted up the tape around the liver. Dissecting sealer (DS30) was used for transection of the liver parenchyma. The relatively large branched vessels and ducts were ligated and transected by direct view from upper median 7cm incision. Segment 2 and 3 Glissons sheaths and left hepatic vein were divided using an endolinear stapler. A Hand Port system laparotomy device was installed under pneumoperitoneum, the resected liver maneuvered into a suitable sized plastic bag by endoscopic view. Extraction of the undivided specimen was performed, thus enabling histologic review. Operation time was 170 min, and operative blood loss was 100g. The tumor was a $15 \times 12 \times 9$ cm in size.
Oral intake and ambulation was on the first day; 7 days after the surgery patient was discharged with an uneventful postoperative course.
Due to the specific characteristics of HCCs such as their high recurrence rate, the most important goals in HCC treatment are curability and minimal invasiveness. Laparoscopic hepatectomy in this case is beneficial for the patients quality of life as a minimally invasive operation.

P382

THE IMPACT OF PREVIOUS UPPER ABDOMINAL SURGERY ON THE OUTCOME OF LAPAROSCOPIC CHOLECYSTECTOMY

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Aims: The aim this study is to evaluate the impact of previous upper abdominal surgery on the safe and effective performance of laparoscopic cholecystectomy (LC).

Methods: LC was attempted on 2120 consecutive patients. In group A, 15 patients had a previous upper abdominal surgery (3 liver resections for hydatid disease, 3 Billroth II gastrectomies, 2 total gastrectomies and 3 closure of duodenal perforation). Morbidity, conversion rate to open cholecystectomy, operative time and postoperative length of stay (LOS) were compared with those of 2105 patients (group B), without any previous abdominal surgery.

Results: LC was converted in 1 patient (6,7%) in group A and 21 patients (0,99%) in group B. No major complications were recorded in this study series. The mean LOS was 1,3 days for both groups of patients.
The mean operative time was 126 min for group A and 76 min for group B.

Conclusions: LC can be safely performed in patients who have previously undertaken upper abdominal surgical procedures, without prolonging postoperative LOS or increasing morbidity. However, an increase of the mean operative time and the conversion rate was observed in this group of patients.

P383

OUTPATIENT LAPAROSCOPIC CHOLECYSTECTOMY: SAFETY AND EFFECTIVENESS

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Aims: To present our experience on outpatient laparoscopic cholecystectomy.

Methods: Postoperative hospital stay, pain, complications, conversion rates, readmissions and patients satisfaction were studied. Analgesia on demand included a tablet or suppository with paracetamol plus codeine. Selection criteria for ambulatory laparoscopic cholecystectomy are presented: ASA I & II, 18–70 years of age, BMI < 30, patients residence in Athens, cooperative patient and/or relatives.

Results: Outpatient laparoscopic cholecystectomy was carried out in 28 patients in a 15 months period. Mean postoperative stay was 8 hours, requirements for analgesics were minimal, no conversions were needed and patients satisfaction was good. Two patients (7%) had a complicated postoperative course. In the first case, a young woman bleeded excessively from the right hypochondrial trocar site with a concomitant decrease of the hematocrit. A re-laparoscopy revealed the bleeding site and hemostasis was carried out. In the second case, a young man was admitted postoperatively in our clinic due to persistent pain in the umbilical trocar site.

Conclusions: Outpatient laparoscopic cholecystectomy is a safe and effective procedure, with minimal complications and requirements for postoperative analgesia.

P384

USE OF PLASMATIC SCALPEL IN THE CHOLECYSTECTOMY THROUGH MINI-LAPAROTOMIC ACCESS: OUR EXPERIENCE

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The problem of optimal invasive treatment of patients with cholelithiasis is controversial as yet. Today the interests of surgeons turn to mini-invasive and less-traumatic methods. For example, cholecystectomy trough mini-laparotomic access is widely used in Russia. But different methods of intraoperative physical hemo- and cholestasis (laser coagulation, electrocoagulation) possess a lot of disadvantages and not be considered as optimal choice. High potency of plasmatic scalpel in terms of rapid and safe coagulation of liver parenchyma allowed as to introduce new equipment in surgical practice
The goal of our investigation was minimization of intra- and postoperative complication in patient underwent cholecystectomy through mini-laparotomy.
Methods: There were treated of 1142 patients with chronic cholecystitis. It should be noted, that 68% of patient were elder, than 65. Standard preoperative clinical investigation included: laboratory tests, endoscopic investigations, ultrasound examination. All patients had been operated under endotracheal narcosis. We used set of special surgical instruments 'Liga-7', electrocoagulator, and plasmatic scalpel SUPR-M. All patients were randomized in two groups. In group 1, a gallbladder had been removed with electrocoagulator. In group 2, removing of gallbladders carried out with plasmatic scalpel.
Results: The mean duration of operation in group 1 was 53 min, in group 2 45 min. There were 10% and 3.2% intraoperative, and 3.5% and 1.7% postoperative complications, accordingly. There were no differences in duration of postoperative intrahospital stay and long-term outcome.
Conclusion: Cholecystectomy trough mini-laparotomic access with plasmatic scalpel allowed us to optimize methods of less-traumatic invasive treatment of cholecystitis.

P385

DISSECTIONS OF CALOT'S TRIANGLE IN STONE IMPACTIONS IN NECK - PERICYSTIC DUCTAL FIBROSIS - A SERIES OF 52 CASES

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Laparoscopic Cholecystectomy is the gold standard for gall bladder pathology - be it calculus or acalculous or polyp or malignancy. A series of cholecystectomis reviewed since 1991 - out of total no. of 2476 cases done - stone impactions at cystic duct was present in 52 cases causing mucococle in 45 cases and 7 cases had pyococle.
Dissections proceeded with utmost caution hugging close to GB neck using blunt dissections & harmonic scalpel. Once the window was established, unabsorble knotting done intracorporcally to circumferentially reduce diameter of cystic duct and cholecystectomy proceeded without difficulty and sans complications. Report presented to create awareness and to exercise caution in cases where there is stone impaction. Presentation supported with multimedia movie presentations.

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EFFECTS OF GALL BLADDER PERFORATIONS DURING LAPAROSCOPIC CHOLECYSTECTOMY ON RESPIRATORY MECHANICS AND DEPTH OF PAIN

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Aim: In this study effects of gall bladder perforations during laparoscopic cholecystectomy on respiratory mechanics and depth of pain in the postopearative period was evaluated.
Material and methods: Between April 2004-and February 2005 we have succesfully performed 179 laparoscopic cholecystectomy 100 of the patients are included in this prospective study. In this study patients were divided into two groups as one with gall bladder perforation and the other without perforation. The parameters were age, gender, diagnosis, comorbidities, mean hospital stay regarding perforations, respiratory function tests, arterial blood gase analysis, pain scores. Two groups were compared with Spearmans correlation test regarding age, gender, diagnosis, comorbidities, mean hospital stay, postoperative visual pain score and history of operation. Preoperative and postoperative arterial blood gase analysis of the groups were compared with Pillai test and Bonferroni test.
Results: Gall bladder perforation occurred in 33% of the cases (67). In this group male to female ratio was 12/55. In the remaing nonperforated group male to female ratio was 5/28. Biological and hematological parameters had no effect on gall bladder perforations ($p > 0,05$). Age and perforation was significantly correlated according to Spearmans correlation test $p < 0,05$ ($r = 0,211$). Regarding postoperative respiratory function tests and arterial blood gases there was a significant decrease in both groups but perforation had no effect on them. No sitatistically significant difference occurred regarding mean hospital stay and postoperative visuel pain scores ($p > 0,05$).
Conclusion: Gall bladder perforation during laparoscopic cholecystectomy had no effect on postoperative depth of pain and arterial blood gases.

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TEN YEARS OF MINIMALLY INVASIVE TREATMENT OF LIVER HIDATIDOSIS

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In the last decades the treatment of liver hydatidosis has changed. Open surgery remains the option for complicated liver hydatid cysts. For simple hydatid cysts, uncomplicated there are very good therapeutic alternatives: medical treatment alone, echo-guided puncture, laparoscopic treatment. The authors review a series of 214 cases of hepatic hydatidosis submitted to surgery over the period from 1996 to 2005, comparing the results of conservative and surgical procedures. 138 patients (64.4%) were treated with PAIR (puncture, aspiration, injection, reaspiration) technique. 27 patients (12.6%) were treated laparoscopically and in 49 cases (23%) we performed conventional surgery for complicated liver hydatid cysts. The patients were successfully treated and the mean follow-up time was 41.7 ± 12.5 months involving ultrasound, computed tomography and serology tests showed no local recurrence or spread of the disease. The patients treated by PAIR were cured in 95.6% and those treated laparoscopically were cured in 90.5%. In 6 cases from the first lot was necessary to perform another puncture up to 2 years later, because the cavity didnt disappear. In 4 patients we performed a classical operation for two hepatic abscess and 2 biliary fistulas. 2 patients from the laparoscopic lot developed one subhepatic abscess and one biliary fistula that required open surgery. In conclusion the procedure for the treatment of hepatic hydatidosis should be tailored to the needs of each patient, depending on the size, location and complications of the cyst and high surgical risk should be avoided in view of the benign nature of the disease.

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SELECTIVE ERCP IN THE MANAGEMENT OF PATIENTS WITH ACUTE COLECYSTITIS

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The place of ERCP in the treatment of common bile duct stones is debated. This study includes 1770 patients with lithiasic colecystitis admitted between 2002–2004. 445 (25.1%) were acute colecystitis and 110 (6.2%) from this group were associated with jaundice. They were divided in two groups according to predictive factors for common bile duct stones. In first group (57patients) with a small risk of bile duct lithiasis we perform laparoscopic colecystectomy. In 28 patients we performed laparoscopic colangiography; two cases indicated common bile duct stones treated with endoscopic sphincterotomy (48 hours after cholecystectomy). From the other 29 patients, three of them developed jaundice in the first year and treated with endoscopic sphincterotomy. Second group includes patients with high risk for common bile duct lithiasis (53 patients). ERCP were performed in 33 patients. 27 patients had common bile duct stones and 6 patients had passage jaundice. Laparoscopic colecystectomy were performed in 24–48 hours after ERCP. The other 20 patients were treated by open approach. There was no mortality.
In conclusion laparoscopic colecistectomy with preoperative endoscopic sphincterotomy seems to be the elective procedure in acute colecystitis associated with common bile duct lithiasis.

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AN ECONOMIC APPROACH OF THE SURGICAL PATIENT WITH GALLSTONES & THE BET FOR ONE DAY CARE LAPAROSCOPIC SURGERY

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Aim: The total costs needed for the surgical patient consist an important factor nowadays that should be included in the programming of any Surgical Department. In this paper we present an economic approach of the patient with gallstones.

Methods: From 2000–2005, patients with cholelithiasis are admitted in our Hospital twice. The first admission has the role of completing all the diagnostic examinations needed for a safe operation. The patient will be operated in a following admission with a median duration of 2 days. The one-day care model was tested in a few young patients.

Results: The total costs that were paid with the 'double admission' policy, were definitely lower, in a median number of 2–3 admission days' expenses. Also, the patients' psychology is better when they do not stay inside hospital for long. The one-day care model was performed in very few patients, 46 in total, mainly due to patients' opposite opinion for short-term hospital care.

Conclusions: Having organized a good team and having included the patient inside this team, the total cost of laparoscopic surgery can become much lower, and even result in the cost of a one-day care admission in selected cases.

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THE SOCIAL COST OF HEALTH IN LAPAROSCOPIC SURGERY IN GREECE

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Aim of this study is to outline the social cost of health after laparoscopic surgery in our Hospital. We have started the study with the hypothesis that absence from work is not really shorter after laparoscopic surgery, in Greek Hospitals.

Materials and Methods: In total, 194 laparoscopic cholecystectomies have been executed in the Surgical Department of Komotini. We have collected the data referring to the time needed for full recovery in cases of open and laparoscopic surgery. The same number of open cholecystectomies held in the past years was the comparison group.

Results: In laparoscopic cholecystectomies the median period of staying in Hospital was 3 days. The median period needed for the return to work was 7, 5–20, 2 days. In cases with open technique patients stayed inside hospital 6 days and went back to home from 15 to 30 days. There were differences depending on the profession of every patient. Self occupied persons went back to work earlier (7–15 days), and the longer period for recovery was needed for people working in public services (25–30 days).

Conclusions: We have not managed yet to persuade patients to return earlier to work, although the general impression in international bibliography is that laparoscopic surgery brings money back via the shorter period of inability for work.

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RATIONALE FOR THE TREATMENT OF CHOLELITHIASIS AND CHOLEDOCHOLITIASIS

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Background: The laparoscopic approach to treatment of cholelithiasis requires codification for treatment of concomitant common bile duct stones, occurring in 10–15% of cases. The aim of this work is to present our method, consisting of laparoscopic techniques combined and integrated with endoscopic methods in a single diagnostic and therapeutic act.

Materials and Methods: From January 1997 to March 2006 we adopted a protocol for concomitant bile duct stones indicating treatment during the course of videolaparocolecocystectomy (VLC) with endo-laparoscopic techniques. Standard preoperative protocol: liver function tests and abdominal ultrasonographic examination. Operative strategy: routine intraoperative cholangiography; bile duct stones are managed by transcystic, endoscopic, laparoscopic or endo-laparoscopic approach according to the size, site, number of calculi, flogosis and ducts diameter. During this period we treated 1015 cholelithiasis and discovered 95 cases of concomitant bile duct stones. Laparoscopic approach in 34 pts (18 trans-cystic, 11 coledocotomy, 5 coledocoduodeno anastomosis); intra-operative endoscopic 'rendez-vous technique' sphincterotomy and clearance in 28 pts; laparoscopic/endoscopic 'rendez-vous technique' and combined management in 33 pts (17 transcystic/endoscopic, 16 choledocotomic/endoscopic). When requested, papillotomy and selectively, a nasobiliary tube are the only drainage used.

Conclusions: Intraoperative endoscopic/laparoscopic management synthesize human and technological resources to reduce risks, over treatments and costs; in our experience the only one complication, was a fatal one, related to a post ERCP pancreatitis.

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INDICATION OF LAPAROSCOPIC CHOLECYSTECTOMY FOR MIRIZZI SYNDROME BY PREOPERATIVE SPIRAL COMPUTED TOMOGRAPHY SCAN AFTER INTRAVENOUS INFUSION CHOLANGIOGRAPHY

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Aim: The role of laparoscopic surgery in the treatment of Mirizzi syndrome (MS) is not well defined and remains controversial. We evaluated the preoperative diagnosis and efficacy of laparoscopic procedures in the treatment of MS.

Methods: Cholecystectomy was attempted on 2,012 consecutive patients and twenty-four (1.2%) were finally diagnosed with MS. Patients without preoperative endoscopic retrograde cholangiography (ERC) underwent preoperative spiral computed tomography (SCT) after intravenous infusion cholangiography (IVC-SCT).

Results: Fourteen patients had McSherry's type I MS (MS I) and 10 had type II MS (MS II). Open surgery was performed on patients with MS II or a preoperative suspicion of gallbladder cancer. Laparoscopic cholecystectomy (LC) was performed successfully on 10 of the 14 patients with MS I and the remaining four patients with MS I were converted to open surgery. At preoperative ERC (3) or IVC-SCT (11) on patients with MS I, 3 of 4 (75%) patients who were converted to open surgery had a nonvisualized cystic duct, whereas and 9 of 10 (90%) patients with LC had a visualized cystic duct.

Conclusions: MS I with a visualized cystic duct may be considered to be an indication for laparoscopic surgery. IVC-SCT may be a useful tool for correct preoperative diagnosis and assessment of the feasibility of LC in patients with MS I.

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MINI-CHOLECYSTECTOMY VERSUS CONVENTIONAL AND LAPAROSCOPIC CHOLECYSTECTOMY

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Objectives: The purpose of this study is to analyze the advantages of Minicholecystectomy (m.c)
Via 5 cm. transverse subcostal incision in comparison to conventional cholecystectomy (c.c) i.e 10–15 cm.kocher incision & laparoscopic cholecystecyomy
(L.c).

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MAJOR BILE DUCT INJURIES AFTER LAPAROSCOPIC CHOLECYSTECTOMY

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Aims: Bile duct injury is a severe and potentially life-threatening complication of laparoscopic cholecystectomy. The aim of this study was to analyse the results of surgical repair of complex bile duct injuries in a tertiary centre.

Methods: Data were collected prospectively from 61 patients with bile duct injuries, all referred for surgical treatment to our center from other hospitals between April 1998 and December 2005. Bile duct injuries were classified according to Strasberg and Bismuth.

Results: Prior to referral, 53 patients (87.5%) underwent attempts at surgical reconstruction at the primary hospital. In 77.5% of the patients, complex type E1 or type E2 BDI were found. Concomitant with bile duct injury, 11 patients had vascular injuries. Roux-en-Y hepaticojejunostomy was carried out in 82,5% of patients. In three patients, Roux-en-Y hepatcojejunostomy and vascular reconstruction were necessary. 12,5% of all patients required right hepatectomy. Three patients, all with bile duct injuries and vascular damage, died postoperatively. Follow up of patients is 100%. At the median follow-up of 24 months, 82.5% of the patients are in excellent general condition. 17,5% have signs of chronic cholangitis.

Conclusions: Major bile duct injuries remain a significant cause of morbidity and even death after laparoscopic cholecystectomy. Because they present a considerable surgical challenge, early referral to an experienced hepatobiliary center is recommended.

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LAPAROSCOPIC CHOLECYSTECTOMY FOR ACUTE CHOLECYSTITIS IN THE ELDERLY

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Aim: During the last decade laparoscopic cholecystectomy (LC) has become established as the procedure of choice for symptomatic cholelithiasis. However, advanced age is associated with an increase in postoperative complications. The purpose of this study was to evaluate the outcome of LC in patients with acute cholecystitis aged 65 years or older.
Materials and methods: From January 2000 to December 2005, a total of 167 consecutive patients underwent attempted LC for histologically proved acute cholecystitis. Of these, 77 patients older than 65 years were compared with 90 younger patients. Data comparison included gender, co-morbidity, American Society of Anesthesiology (ASA) score, duration of symptoms before admission, length of preoperative admission, surgery time, conversion rate, histopathological results, morbidity, mortality and length of postoperative stay.
Results: There was no difference in gender in elderly patients. However, acute cholecystitis was more common in younger women then men. In the elderly 16.8% patients were at high surgical risk (ASA III and IV). There was no difference in mean duration of symptoms before admission and length of hospital stay previous to surgery (3.8 days in elderly vs 3.6 in younger patients, and 2.7 vs. 2.2 days, respectively). Acute cholecystitis identified during elective surgery was similar in both groups (10.4% vs 7.8%). The conversion rate to open cholecystectomy was 15.6% in older and 10% for younger patients. The most common reason for conversion was difficult identification of anatomical structures and dissection of inflamed triangle of Callot. Operative time was not prolonged in the elderly (59 vs 55 min.). The mean postoperative hospital stay was similar. Gangrenous cholecystitis was found on pathological examination of 15.6% of elderly and younger patients. Complications rate was significantly higher in older patients (20.7 vs 13.3%). Wound infection was most common complication (43.7%) in elderly patients that underwent conversion to open surgery. There was no difference in mortality between the groups (1.3 vs 2.2%).
Conclusion: Laparoscopic cholecystectomy in elderly patients suffered from acute cholecystitis is safe and effective in experienced hands. It associated with acceptable morbidity and mortality. Early LC may be recommended for elderly patients with acute cholecystitis.

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NEEDLESCOPIC CHOLECYSTECTOMY

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Background: Laparoscopic treatment of symptomatic gallbladder should be nowadays considered as standard method. However development of new laparoscopic instruments makes it possible to perform Laparoscopic cholecystectomie in a still less invasive method. The Aim of this study is to evaluate the efficiency of the minilaparoscopic cholecystectomy by means of procedural safety, cosmetic result, hospital stay, and the intensity of postoperative pain.

Material and Methods: 38 patients have been cholecystectomized by using 2mm mini-instruments. While 33 patients have been elective, 5 patients have had an acute cholecystitis. The patients data have been collected prospectively. The operation was performed by using three 2mm ports and one 10mm trocar at the umbilicus from where at the end of the operation the specimen was retrieved.

Results: There were no intraoperative complications, operation time was in average 15 minutes in elective and 40 minutes in acute cases longer than the cholecystectomies performed by 5mm and 10mm instruments and post operative pain was much less and there were no wound infections.

Conclusion: Laparoscopic by using 2mm needeloscopic instruments is a safe method to perform elective and acute cholecystectomies with an excellent cosmetic result, less postoperative pain, and a great patients satisfaction however the operating time is significantly longer in acute cases and the use of needloscopic instruments requires more experience in laparoscopic technique.

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LAPAROSCOPIC CHOLECYSTECTOMY IN CIRRHOTIC PATIENTS

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Background: Attributable to unacceptable increases in morbidity and associated mortality, cirrhosis is often considered to be a contraindication for laparoscopic cholecystectomy (LC). The aim of this study was to evaluate the safety and efficasy of LC for patients with cirrhosis.

Methods: From April 1992 to February 2006, 1,100 consecutive patients underwent LC. Of these patients, 29 (2.6%) had Child-Pugh A and B cirrhosis. Analysis of variance was used to compare operative time, blood loss, complication rate, conversion rate, diet resumption, and postoperative hospital stay between the group with cirrhosis and the group without cirrhosis.

Results: Sixteen patients had Child-Pugh A cirrhosis, 13 patients had Child-Pugh B cirrhosis. Choledocholithiasis was found in three cirrhotic patients and removed by endoscopic sphincterotomy. No significant difference between the two groups (cirrhosis vs without cirrhosis) in mean operative time (71.5 vs 78 min), blood loss (27.9 vs 24.1 ml), conversion rate (3.4 vs 1.4%), median diet resumption (1 vs 1 day), and postoperative hospital stay (4 vs 4 days). None of the patients required blood transfusion. No postoperative morbidity or mortality occurred in cirrhotic patients.

Conclusions: LC is a safe and effective alternative for the treatment of symptomatic cholelithiasis in patients with Child-Pugh A and B cirrhosis.

P569

LAPAROSCOPIC MANAGEMENT OF CHOLEDOCHOLITHIASIS

NO SHOW

P573

LAPAROSCOPIC CHOLECYSTECTOMY, OUR EXPERIENCE

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Objective: The many advantages and extreme versatility made laparoscopic cholecystectomy (L.C.) the gold standard for symptomatic cholelithiasis. The aim of this research is a retrospective analysis of personal experience with laparoscopic cholecystectomy in our hospital compared with the literature on the subject.

Methods: In the period between 1993 and 2005, 720 laparoscopic cholecystectomy were performed. Patients were 235 males and 414 females (ratio M:F 1:2), with an average age of 41 years (range 20–71). The indications were: 412 symptomatic cholelithiasis, 58 hydrops, 36 empyemas, 201 chronic cholecystitis, and 13 adenomyomatosis.

Results: No postoperative death have been observed and the conversion rate was of 15 cases (2.3%). The main complications were 3 cases of injury of the biliary tract and 2 cases of postoperative bleeding (1 from cystic artery and 1 from the umbilical wound). Minor complications observed were 10 cases (1.2%) of infections of the umbilical wound and 3 cases of umbilical hernia (0.3%). Mean duration of surgery was 65 minutes (range 30–180) with a mean hospital stay of 2.1 days (range 1–7).

Conclusions: In consideration of low conversion rate, low early and late morbidity, absence of bile duct injury, advantages for the patient and the opportunity of evolution of this surgery, laparoscopic cholecystectomy can be considered the standard treatment for biliary cholelithiasis.

P574

LEARNING CURVE AND OPERATIVE TIME IN LAPAROSCOPIC AND OPEN CHOLECYSTECTOMY IN TREATMENT OF ACUTE CHOLECYSTITIS: REVIEW OF 396 CASES

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We performed retrospective review of 396 patients with acute cholecystitis. 268 of them underwent open cholecystectomy (OC) and 128 underwent laparoscopic cholecystectomy (LC). LC is now widely accepted as the modality of choice for the treatment of acute cholecystitis. In the presence of acute inflammation, the surgeons experience with LC has been identified as a risk factor for conversion. There are some patients in whom laparoscopic cholecystectomy cannot be successfully performed, and for whom conversion to open surgery is required. We compared operative time of all surgeons in our Surgical Department and their learning curve. We analysed operative skills of surgeons in five years and compare advance in operative techniques and reduction of complication rate. We concluded that laparoscopic cholecystectomy for acute cholecystitis was accomplished with an acceptable morbidity and provided an earlier release from the hospital and return to normal activities with significant advantages as compared to the traditional open approach.

P575

NEW ASPECTS IN LAPAROSCOPIC CHOLECYSTECTOMY

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Background: Laparoscopy is the gold standard access for cholecystectomy. The aim of this study is to increase the safety of it by using four new aspects.

Methods: In this prospective study on 200 cases, four important points were used as a new technique to increase the safety of the operation; including 1) Choosing the place of trocars based on the ergonomic rule which specifies a 120 angle from outside between two surgeon's hands trocars and the telescope trocar, 2) Starting dissection from Hartman Pouch at first and after encircling Hartman Pouch, continuing to the cystic duct and artery to decrease the unavoidable risk of iatrogenic trauma to these structures (Extensive dissection), 3) Ligating the cystic duct and artery by intracorporeal suturing to decrease the risk of bile leakage, ductal trauma, cystic artery bleeding or inversion of clips into the duct and 4) Removing gallbladder through umbilical trocar site; to limit the number of trocars to three 5mm and one 10 mm and also to improve the cosmetic result.

Results: The entire cases were chosen without any selection. Data of 200 cases was analyzed. In 20 cases this technique was not practical in one or more of above aspects. Using ergonomic rules to select the sites of trocars made the operation easy and more convenient for the surgeon. One case of major bile duct trauma was reported in this study comparing to up to 4% of the classic form, confirms the importance of extensive dissection in Hartman Pouch. Ligation by suturing had not any leak or bleeding postoperatively comparing to up to 2.5% in the classic method. The cosmetic result was superior because of the deletion of sub xiphoid trocar and changing one 10 mm trocar to a 5 mm.

Conclusions: Using the above points is effective to decrease the risk of ductal trauma or bile leak. More surgeons convenience and cosmetic results were evident. It needs more surgeons expertise during the operation.

P576

ROUTINE LAPAROSCOPIC COLECYSTECTOMY VS. 'WAIT AND SEE' POLICY IN OCTOGENARIANS AFTER ENDOSCOPIC SPHINCTEROTOMY FOR CHOLEDOCHOLITHIASIS. AN APPRAISAL OF LONG-TERM OUTCOME

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Aims: The role of routine laparoscopic cholecystectomy (LC) after endoscopic sphincterotomy (ES) is challenged, particularly in very elderly patients, who are considered high-risk subjects for surgery. The aim of the study is to analyze and compare the long term results of routine elective LC and those achieved by a conservative management of remnant gallstones in octogenarians.
Methods: From January 1991 through December 2000, 36 octogenarians (80-years-old or over) underwent a sequential treatment (ES followed by routine LC) for common bile duct stones. In a retrospective case-control study, the results of surgery (duration of the procedure, conversion to laparotomy, postoperative stay, intra- and postoperative complications, mortality, recurrence of biliary-related events, need of further endoscopic procedures or surgery) in the selected population of very old patients (Case Group) were compared to those achieved in 36 octogenarians, paired by age, sex and ASA score, who underwent ES, but did not receive routine LC (Control Group). Results of elective LC (Case Group) and delayed/emergency LC (Control Group) were also compared. Mean follow up was 131 (range 60–180) months.
Results: Forty-seven percent of octogenarians not undergoing routine LC developed recurrent symptoms or complications (vs. 9% in Case Group $p < 0.05$), 31% needed further endoscopic procedures (vs. 3% in Case Group $p < 0.05$) and 31% finally underwent delayed/emergency surgery. One patient in control group died of CHF after emergency cholecystectomy for acute cholecystitis.
Duration of LC and postoperative stay were longer when performed as delayed/emergency procedure (118 minutes vs. 77, and 5 days vs. 2.6, respectively); 'wait and see' patients had more complications (55% vs. 17%), mostly of low grade. Conversion rate was just about not significantly different between the two groups (14% in Case Group vs. 36%).
Conclusions: Although a 'wait and see' policy allowed to avoid two thirds of LCs in octogenarians, every second patient developed biliary-related events, often needing further endoscopic procedures and/or delayed surgery, with poorer results. The sequential treatment (ES followed by elective LC) is a safe procedure in octogenarians, may prevent biliary-related events and should be considered as being a standard, definitive treatment for cholecysto-choledocholithiasis even after the age of 80.

P580

LAPAROSCOPIC CHOLECYSTECTOMY IN PATIENTS WITH CHOLECYSTITIS, COMPLICATED BY CHOLANGIOLITHIASIS

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Aim of work: to define the algorithm of investigation and treating tactics in CL cases in terms of the possibility of performing LCE.
Materials and Methods: the treatment of 2507 patients with cholelithiasis is analyzed. In 133 (5,3%) patients a CL was diagnosed. All the patients were undergone laboratory tests, USI, CT, retrograde pancreatocholangiography (RPCG), intraoperational cholangiography. For the sanation of the extrahepatic bile ducts the following was performed: endoscopic papillosphincterotomy (EPST), extraction of the concrements with Dormia basket, mechanical and distance litothripsy, laparoscopic sanation of the bile ducts.
Results: Among the instrumental methods of investigation the most informative were RPCG, USI, CT. By means of that methods CL was revealed in 133 patients, in 10 from them there was a stenosis of Papilla Fateri. The sizes of the stones were from 3 mm to 20 mm. Before performing the LCE there was an attempt of sanation of the ducts in 86 patients with the concrements less than 15 mm, in 5 patients with an impaction of the concrement in Papilla Fateri and in 10 patients with CL accompanied by papillostenosis. They were undergone RPCG and EPST. The later procedure was successful in 94 (93%) patients. EPST was enough for the sanation of the bile ducts with the concrement diameter less than 7 mm and their impaction in Papilla Vateri. For larger concrements mechanic and distance litothripsy was implemented. In 4 patients a laparoscopic sanation of the ducts was done.
Conclusion: EPST allowed to perform a sanation of the bile ducts in all the cases of the stenosis of Papilla Fateri, in all the patients with the impaction of the concrement in Papilla Fateri and in 79 (91,2%) patients with the sizes of the concrements less than 15 mm. Among 31 patients with the concrement diameter more than 15 mm the laparoscopic sanation was successful in 4 patients. We performed the laparoscopic sanation of the bile ducts when the diameter of the common bile duct was not less than 10 mm. The above mentioned methods allowed to perform a LCE in 98 (73,7%) patients with CL.

MEDIASTINOSCOPY

P398

PET-CT VIRTUAL MEDIASTINOSCOPY

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A mediastinal lymph node diagnosis is important for treatment plan determination of lung cancer. The diagnosis rate of mediastinal lymph node by PET was sensitivity 54%, specificity 81%, accuracy 78% in our hospital. We did biopsy with video mediastinoscope for PET positive mediastinal lymph node. Identification of locus of lymph gland was difficult only in conventional PET. Specification of focal locus was enabled by PET - CT, in addition, description with 3 dimensions was enabled, too.

Purpose: We rebuilt three 3D images of PET - CT in a field same as mediastinoscope and made Virtual mediastinoscope and we used this image for assistance for mediastinoscopic lymphnode biopsy.

Methods: We used PET - CT (DiscoveryLS made in GE company), and PET administered FDG300MBq and rebuilt it in 4.25mmslice. CT made a three-dimensional image with 1.25mm.

Case: 76 years old man. Two years ago, he underwent endscopical mucosal resection for early thoracic esophageal cancer. 10 years ago, left upper lobectomy of lung was performed because of primary lung adeno carcinoma. He was noted mediastinal lymph node swelling by follow up CT scan, Pretracheal lymph node, tracheobronchial adenopathy was noted 1.5cm in size. It is accumulated by pretracheal lymph node by PET-CT. So mediastinoscopy was performed. Pretracheal lymph node swelling was diagnosed as squamous cell carcinoma. We present a pictuer of Virtual mediastinoscope image by PET-CT.

Conclusion: We make a Virtual mediastinoscope image by image reconstitution. We used the image of Virtual mediastinoscope for assistance of mediastinoscope. We understood anatomical position relation of mediastinal lymph node with vertual mediastinoscope well. We knew a position of lymph gland to be aimed for and could prevent false negative. That was useful for assistance of mediastinoscopy.

P399

VIRTUAL MEDIASTTINOSCOPY FOR SAFER AND MORE ACCURATE MEDIASTINAL EXPLORATION

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Background: Because of the limitation of noninvasive imaging techniques such as computed tomography (CT) scans and positron emission tomography (PET) with the use of 2- (F-18)fluoro-2-deoxy-D-glucose (FDG), the mediastinal biopsy by the cervical mediastinoscopy remains the gold standard for the staging of patients with lung cancer or the pathological information of those with other mediastinal lesions. Surgeons at mediastinoscopy, however, often have difficulty in discriminating the lymph nodes or tumourous lesions from surrounding fat. In addition, great vessels such as the azygos vein or pulmonary arteries have to be rightly recognised to avoid injury, which could be a serious complication once occurred. This work demonstrates the usefulness of virtual mediastinoscopy obtained based on multidetector-row CT and PET-CT images in order to allow identification of the location of lesions and the great vessels during a mediastinoscopy.

Methods and results: A cervical mediastinoscopy was planned for a 61-year-old man with multiple enlarged tracheobronchial nodes, because a possible primary lesion in the right apical segment was too small for pathological diagnosis. Virtual mediastinoscopy was created based on PET-CT data using software (GE Yokogawa Medical Systems, Tokyo) for preoperative evaluation of the 3-dementinal relationships of the hot lesions and surrounding structures. Moreover, the branches of the aortic arch, the azygos vein and the pulmonary arteries were clearly visualised in the virtual mediastinoscopic images reconstructed from CT scans with contrast injection. The video mediastinoscopy was then performed under general anaesthesia in a usual manner. Virtual images can be freely moved forward or backward on the display by dragging with a mouse as the mediastinoscope moved. The pre- and paratracheal nodes and subcarinal nodes were easily and safely reached with virtual navigation. All of lesions sampled during mediastinoscopy were defined metastatic adenocarcinoma.

Conclusions: We report here the virtual reality system of mediastinal exploration for preoperative planning and navigation during mediastinoscopy, which can allow the safer and more accurate mediastinal exploration.

MORBID OBESITY

P400

COMPLICATIONS AFTER BARIATRIC SURGERY PERFORMED ON 497 PATIENTS AT THREE DIFFERENT INSTITUTIONS. LESSONS LEARNED.

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Aims: Obesity is becoming a virulent disease in the USA. To evaluate complications after surgery, we made a cross section analysis.

Methods: Three treatment centers which performed laparoscopic gastric bypass (LGBP) were evaluated: Texas Tech University (TTU), Bay State Medical Center (BSMS) and New Jersey Shore (NJS). All of the patients underwent laparoscopic gastric bypass (LGBP). This was performed retrogastric/retrocolic in BTU, ante gastric antecolic with EEA staple in NJ and ante gastric and antecolic with GI staple in BMC. All of the patients had followup of three or more years. The patients were evaluated retrospectively for a set of complications such as infection, staple line dehiscence, exploration for hemorrhage, bleeding not requiring surgery, stenosis, stricture, anastomosis leak, marginal ulceration, internal hernia, ventral hernia trocar and conversion.

Results: The results are reported in the table. There was a significant incidence of stricture and marginal ulceration in NJS where the anastomosis was done with EEA. Staple line dehiscence appeared to be more common in one center (NJS). Conversion appeared to be less common according to the experience of the surgeons.

Conclusion: Our study shows that even among surgeons who perform gastric bypass differently, complications are minimal, they are related to the learning curve and they can add slight variation according to the technique adopted.

Complication	TTU Total	TTU %	NJ Total	NJ %	BMC Total	BMC %	Total Pts	Total %
Death	210	0	143	1.3986	202	0	555	0.36036
Postoperative infection	210	0	143	0.6993	202	0.49505	555	0.36036
Staple line dehiscence	210	1.42857	143	0	202	0	555	0.54054
Exploration for hemorrhage	210	0.95238	143	0.6993	202	0.49505	555	0.72072
Bleeding, not requiring surgery	210	0.47619	143	6.29371	202	1.48515	555	2.34234
Stenosis/stricture	210	0	143	11.1888	202	0	555	2.88288
Anastomotic leak	210	0.95268	143	1.3986	202	0.49505	555	0.9009
Marginal ulceration/stricture	210	0	143	9.09091	202	0.49505	555	2.52252
Internal hernia	210	0.95238	143	1.3986	202	0	555	0.72072
Jejuno-jejunostomy stricture	210	0.47619	143	0	202	0	555	0.78018
Ventral/trocar hernia	210	0	143	3.4965	202	0	555	0.9009
Conversions	210		143	6.29371	202	0	345	2.6087

P401

RETROCOLIC, RETROGASTRIC LAPAROSCOPIC GASTRIC BYPASS (RRLGB) DOES NOT RESULT IN INCREASED LATE MORBIDITY

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Objective: RRLGB is faulted for increased incidence of internal hernia and antecolic/antegastric positioning of the Roux limb was advocated as an alternative. Without closure of potential hernia spaces it did not change the outcome and a Roux limb necrosis was described.

Methods: LGB was attempted in 886 cases and completed laparoscopically in 873 (98.5%). Average BMI was 50.7 (35–100.3). Mesocolic window was developed from within the omental bursa. Roux limb was brought upward after completion of jejunojejunostomy (JJA) with cut mesenteric edge facing left. Potential hernia defects were routinely closed with two running 2.0 Surgidac Endostitches from infracolic aspect approximating base of small bowel mesenteric division, beginning of the jejunum and base of mesocolon. The second running stitch was used to secure Roux limb within the mesocolic window and obliterate the left paraduodenal peritoneal recess.

Results: Conversions to open bypass were required due to stiffness of abdominal wall, adhesions and colon malrotation. In 2 patients with incomplete colon rotation an antecolic Roux limb position was chosen. Average follow-up in these 871 patients was 30 months. Overall rate of small bowel obstructions was 1.15%. There were no cases of intestinal obstruction due to internal hernia. In 80% of cases postoperative obstruction was a result of adhesions or fixed kink at JJA. One patient developed a tight stricture of the Roux limb at the level of mesocolon and another one due to torsion of the Roux limb within the mesocolic window both requiring reoperataion. Total morbidity attributable to RRLGB combined with inability to develop mesocolic window was 0.46%. Anastomotic leaks developed on 0.44% of patients.

Conclusion: With adequate closure of mesenteric defects RRLGB does not result in increased frequency of internal hernia. No incidents of Roux limb necrosis and low leak rate indicate that retrocolic/retrogastric route probably is a preferred one.

P402

ARE AFRICAN-AMERICANS AS SUCCESSFUL AS CAUCASIANS AFTER LAPAROSCOPIC GASTRIC BYPASS?

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Introduction: Laparoscopic gastric bypass (LGB) has been demonstrated to provide weight loss comparable to open gastric bypass. It has been suggested that African-Americans (AA) are not as successful as Caucasians (CA) after bariatric surgery. Our hypothesis was that AA are just as successful in CA after LGB.

Methods: A retrospective chart review was performed on all African-American (AA) and Caucasian (CA) patients who underwent LGB for a 6 month period. Success after LGB [defined as (1) 25% loss of preoperative weight, (2) 50% excess body weight loss (EBWL), or (3) weight loss to within 50% ideal body weight] was compared by ethnicity.

Results: 102 patients were included in this study. 97 patients (30 AA patients and 67 CA patients) had at least one year follow-up data available. Preoperative data did not differ between both groups. There was a statistically significant difference in percentage of EBWL between AA and CA (66% versus 74%; $p < 0.05$). However, there was no ethnic difference in the percentage of patients with successful weight loss (as defined by any of the above three criteria). Furthermore, there was no statistical difference between the percentages of AA and CA patients who had improved or resolved diabetes and hypertension.

Conclusions: LGB offers good weight loss in all patients. While there may be more percentage of EBWL in CA patients, no ethnic difference in successful weight loss exists. More importantly, comorbidities improve or resolve in the equally between AA and CA patients. LGB should be considered successful in AA patients.

P403

THE EFFECT OF PREOPERATIVE KNOWLEDGE ON WEIGHT LOSS AFTER LAPAROSCOPIC GASTRIC BYPASS

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Introduction: Gastric bypass surgery has been demonstrated to be effective treatment for morbid obesity. Unfortunately, not all patients have the same weight loss after surgery. It may be that the more informed patients will have more weight loss than those less informed patients. No study has investigated the relationship between initial preoperative knowledge and weight loss after laparoscopic gastric bypass surgery.

Methods: All patients who underwent laparoscopic gastric bypass for a 6 month period were included in this study. Our preoperative education process includes a 21 question true/false test given at the appointment immediately before surgery. Patients repeat the test until all questions are answered correctly. We compared percentage of excess body weight loss (EBWL) between patients who correctly answered all the questions the first time (pass patients) and patients who did not correctly answer all the questions the first time (fail patients).

Results: There were 104 patients involved in this study; although complete data were only available on 98 patients. The average preoperative body mass index was 48 kg/m^2. 48% of patients answered all the questions correctly for the first time. Follow-up ranged from 1 to 2 years on all 98 patients. Pass patients had an average of 73% EBWL, while fail patients had an average of 76% EBWL ($p = NS$).

Conclusions: Preoperative knowledge, assessed by a test, did not predict success after laparoscopic gastric bypass surgery. Patients who do not, at first, have full knowledge of bariatric surgery should not be discriminated against undergoing surgery if they are eventually properly educated.

P404

NONCLOSURE OF DEFECTS DURING LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

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Introduction: Internal hernias have been described after laparoscopic Roux-en-Y gastric bypass (LRYGB). The worry of internal hernias has prompted recommendations of routine closure of defects during LRYGB by some surgeons. Our belief is that not all techniques require closure of defects. We hypothesize that non-closure of defects would not cause a significant clinically evident internal hernia rate.

Methods: All patients who were operated on between December 2002 and June 2005 were included in this study. The technique that was utilized included an antecolic, antegastric gastrojejunostomy, division of the omentum, a long jejunojejunostomy performed with three staple lines, a short (less than 4 cm) division of the small bowel mesentery, and placement of the jejunojejunostomy above the colon in the left upper quadrant. Clinical records were reviewed for reoperations.

Results: There were a total of 300 patients. Only one patient was reoperated on for suspected internal hernia. Adhesions causing anastomotic kinking were found. The anastomosis was revised. No internal hernia was noted in this patient. In the first 100 patients, 97% had complete 1 to 2.5 year follow-up. None had reoperation due to internal hernia.

Conclusions: Internals hernias are not common after this particular method of LRYGB. Before adopting routine closure, surgeons should consider their technique, follow-up, and incidence of internal hernias. Routine closure of these defects is not always necessary.

P405

LAPAROSCOPIC GASTRIC BYPASS VERSUS LAPAROSCOPIC GASTRIC BYPASS AFTER GASTRIC BANDING: RESULTS OF A RETROSPECTIVE STUDY

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Background: Laparoscopic gastric bypass (LGBP) is a commonly performed bariatric procedure. A significant number of patients benefit from this treatment after failed laparoscopic adjustable gastric banding (LAGB). All 119 patients treated by LGBP between August 30 2001 and November 30 2004 were retrospectively studied, with a median follow-up of 9 months (1–24).
Methods: 77 patients had a primary LGBP (group A) and 42 a LGBP after a LAGB (group B). The two groups were similar: 7 men and 70 women (group A), 4 men and 38 women (group B); average age was 37,9 (15–65) for group A and 40,6 (21–60) for group B; average body mass index (BMI) was 42,4 (30–55) for group A and 41,3 (30,8–64) for group B. For group B, the mean BMI before the LAGB was 45,5 (31–70) and the median time before the LGBP was 76 months (9–192). Indication for LGBP in group B was inefficacy of LAGB in 33 patients (78,6%), dilation of gastric pouch in 4 patients (9,5%) and erosion in 5 patients (11,9%).
Results: A mechanical gastrojejunostomy was performed in 45 cases for group A and in 35 for group B, a handsewn anastomosis in 32 cases for group A and in 7 for group B. Median operative time was 120 minutes (70–370) for group A and 180 minutes (90–480) for group B ($p < 0,05$). There was one conversion to open surgery (group A). Major early postoperative complications were registered in 10 cases (12,9%) of group A and in 11 cases (26,2%) of group B ($p < 0.05$). Some patients had more than one early postoperative complication. An early revision was necessary for 7 patients (9%) of group A and for 9 patients (21,4%) of group B ($p < 0,05$). Median hospital stay was 6 days (2–32) for group A and 7 days (3–49) for group B ($p < 0,05$). Major late postoperative complication (stenosis) appeared in 1 case (1,3%) of group A and in 3 cases (7,1%) of group B ($p < 0,05$). The decrease of BMI and % of Excess Weight Loss (EWL) was registered at 1,3,6,9,12 months and was more pronounced in group A than in group B ($p < 0,05$). For group B the postoperative leak rate was more important when the anastomosis was performed between the stomach and jejunum rather than the esophagus and jejunum ($p < 0,05$), but the EWL resulted similar.
Conclusions: LGBP realized after LAGB requires longer operative time, longer hospital stay, more specific complications and less EWL. In case of redo after LAGB, the construction of esojejunostomy causes a similar weight loss but fewer postoperative leaks than with gastrojejunostomy.

P406

PREVALENCE OF GASTROESOPHAGEAL REFLUX DISEASE (GERD) AND MANOMETRIC OESOPHAGEAL FINDINGS IN PATIENTS WITH MORBID OBESITY SELECTED FOR BARIATRIC SURGERY. A PROSPECTIVE STUDY IN 100 PATIENTS

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Obesity is considered as a predisposing factor of GERD, but the characteristics of GERD and manometric oesophageal findings in patients with morbid obesity remains poorly studied. In patients selected for bariatric surgery, symptomatic GERD or/and abnormal manometric findings could influence the surgical technique (gastric banding or gastric by-pass).
Aims: To determine prospectively in patients with morbid obesity the prevalence of GERD, abnormal manometric findings and to study the relationship between BMI, GERD and manometric findings.
Every obese patients (BMI > 40 kg/m^2 or > 35 in association with comorbidity) selected for bariatric surgery were prospectively included with an evaluation of GERD symptoms, upper GI endoscopy, 24 hours pH-metry and esophageal manometry.
Results: (mean ± SD) 100 patients (83 F, mean age: 38,4 ± 10,9 yrs) have been included. BMI was 44,9 ± 5,9 kg/m^2 (range 35.4–63.7). Heartburn, regurgitations and epigastric pain were present in 61,44 and 29 patients respectively. 23 had chronic pharyngitis and 20 were asthmatic. Endoscopy evidenced a hiatal hernia in 37 patients, a cardial failure in 14 and oesophagitis (grade 1 to 3) in 6. The pH-metry (De Meester score) was pathologic in 46 patients (mean % of time with pH < 4 : 7.7 ± 2.9) ; longer reflux : 27.2 ± 14.9 min). 69 patients had a failure of lower esophageal sphincter (LOS) with a tone < 15 mmHg and 7 had esophageal dyskinesia. There was no hyper pression of LOS. No significant relationship could be evidenced between BMI and De Meester score, LOS tone and esophageal dyskinesia. But BMI was significantly related to the number of reflux > 5 min ($P = 0.008$) and LOS tone was significantly related to the number of reflux ($P = 0.027$).
GERD and LOS failure are highly prevalent in patients with morbid obesity, but BMI is not the only explanatory factor. In mordidly obese patients with reflux, the main mechanism could be anormal esophageal clearance. Testing for GERD and oesophageal manometric could be helpful before bariatric surgery in order to select the type of surgery (gastric banding or gastric by-pass). However, because of frequent esophageal symptoms after gastric banding, a preoperative manometry should be useful as a reference before surgery. Analysis of postoperative long-term results are in progress.

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SMALL BOWEL OBSTRUCTION FOLLOWING LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

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Introduction: One of the potential complications of laparoscopic Roux-en-Y gastric bypass (LRYGBP) is the development of small bowel obstruction (SBO). We reviewed our experience with SBO following LRYGBP.
Methods: This is a retrospective review of a prospectively collected database. A retrocolic, retrogastric technique for Roux limb passage was used.
Results: From 7–99 until 9–05 we performed 900 LRYGBP in our institution. Seventy-four (8.2%) patients developed 83 episodes of SBO. The causes of obstruction were: internal hernia (48%), adhesions (19%), cicatrix at the transverse mesocolon (12%), and obstruction at the jejuno-jejunostomy (jej-jej) (20%). There were no cases of SBO due to port site hernias. The median time of presentation after LRYGBP was 5 days (range 2–398) for jej-jej obstruction, 34 days (range 24–86) for cicatrix, 179 days (range 6–1233) for adhesions, and 239 days (range 14–1469) for internal hernias. Seventy-two (87%) cases of SBO were completed laparoscopically; there were 5 conversions, and 6 cases were performed with open technique. Two patients presented with intestinal perforation secondary to SBO and one patient was found to have gangrenous bowel. Three patients required small bowel resection. Median length of hospital stay was 2 days (range 0–54). Complications included: SMV thrombosis (n = 1) successfully treated with anticoagulation, tracheostomy due to ARDS (n = 2), incisional hernia (n = 5), abdominal-pelvic abscess (n = 5), deep venous thrombosis (n = 1), recurrent SBO from adhesions (n = 2). There were no deaths. The anatomic location of internal hernias was: mesenteric defect of jej-jej (57.5%), transverse mesocolon (30%), and Petersens space (12.5%). Our technique has evolved from initially closing the mesenteric defects with interrupted absorbable sutures, to using non-absorbable sutures, and then adopting a running closure with non-absorbable sutures. Our technique of jej-jej construction has also evolved to reduce the incidence of SBO at this site.
Conclusion: SBO following LRYGBP is not uncommon. Most cases can be successfully treated laparoscopically. Meticulous operative technique is important in preventing this complication

P408

GASTRECTOMY OF THE BYPASSED STOMACH IN LAPAROSCOPIC ROUX-IN-Y GASTRIC BYPASS; INDICATION AND RESULTS

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Introduction: Laparoscopic Roux-in-Y Gastric Bypass (LRYGBP) has proven to be a safe and effective technique for the treatment of morbid obesity. Gastric cancer has evolved as an important cause of death due to malignant tumors, worldwide. The post surgical evolution of the bypassed stomach has this way become a controversial issue.
Objective: To evaluate the indication and surgical results of patients who have undergone resection of the bypassed stomach during a LRYGBP in our institution.
Methods and Procedures: Clinical and post-surgical data of patients who underwent LRYGBP since August 2001 to September 2005 was reviewed. Indication of gastrectomy of the bypassed stomach was analyzed. Operative time, weight loss, oral intake, hospital stay and post operative complications were compared among patients with LRYGB and those with LRYGBP and gastrectomy of the bypassed stomach.
Results: Since August 2001, 779 patients have undergone LRYGBP. 6 patients have undergone LRYGBP and gastrectomy of the bypassed stomach. Indication for gastrectomy in 4 patients was intestinal metaplasia and in two cases family history for gastric cancer. The mean BMI after 12 months in patients with LRYGBP and gastrectomy was 31,9 Kg/m^2. The mean operative time in this group was 145 minutes, compared to 117 minutes in patients with standard LRYGBP. Hospital stay in patients with LRYGBP and gastrectomy was 6 days (range 3–8), and 4 days in standard LRYGBP, beginning oral intake the 2nd day post surgery in both groups. Post operative complications were observed in two patients, abcess of the duodenal stump and stenosis of the gastrojejunostomy respectively.
Conclusion: Inability to follow through endoscopy the evolution of the bypassed stomach has turned its gastrectomy a controversial indication. Among patients with high risk for gastric cancer, gastrectomy of the bypassed stomach during LRYGBP proves to be a safe and feasible alternative. A longer operative time and hospital stay was observed in this group.

P409

THE USE OF CLOSED SUCTION DRAINS IN DIAGNOSIS AND MANAGEMENT OF STAPLE LINE LEAKS IN BARIATRIC SURGERY

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Background: Gastrointestinal leakage is a serious complication of bariatric surgery. Early postoperative upper gastrointestinal (UGI) series has been used to determine the presence of leaks, but they have been unreliable in detecting them in our patient population. Closed suction drains (CSD) placed intraoperatively may provide more accurate information in the detection of postbariatric surgery staple line leak.

Methods: Retrospective chart review of 216 consecutive bariatric patients was performed from May 1, 2003 to June 30, 2004. There were 67 men and 149 women. The average preoperative body mass index (BMI) was 50.3. Each patient had an UGI study on postoperative day 1. Routine clinical monitoring was performed during hospitalization, as was the nature of CSD. Correlation between onset of clinical signs/symptoms and the character of CSD was studied.

Results: Four of 216 patients (1.9%) were determined to have leaked based on the presence of purulent CSD, elevated white cell count, and tachycardia. Two of the four patients had fever. None of these patients had leakage demonstrated on UGI. All patients were treated nonoperatively with bowel rest, total parenteral nutrition (TPN) and intravenous antibiotics with resolution of their symptoms.

Conclusion: Early detection of gastrointestinal leakage is crucial in the successful management of bariatric surgical patients. Routine negative postoperative UGI does not exclude the presence of gastrointestinal leakage. Purulent CSD, leukocytosis, tachycardia, and fever were the main determinants of leakage. UGI should be reserved for patients with these signs of leakage.

P410

PREGNANCY AFTER BARIATRIC SURGERY: WHEN IS IT SAFE?

NO SHOW

P411

QUALITY OF LIFE IMPROVEMENT AFTER LAPAROSCOPIC GASTRIC BYPASS

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Introduction: Laparoscopic gastric bypass is considered the gold standard for treatment of morbid obesity in USA.

Patients and method: n = 70. The results have been analyzed in terms of weight loss (classification of Reinhold), morbidity improvement, as well as quality of life improvement (B.A.R.O.S).

Results: Mean age was 34 yo (Range: 22–56 yo). 83% female, 17% male. Comorbidities: HTA 17%, Diabetes 5,7%, hipercholesterolemia 41% and hipertriglyceridemia 16%, respiratory disease 17%, cardiovascular disease 7%. Mean preoperative BMI was 43 kg/m^2 (range:38–49kg/m^2), at 6 months was 38 Kg/m^2, at 1 year was 33 kg/m^2, at 2 years 31 kg/m^2 and at 3 years was 29 kg/m^2. Percentage of excess weight loss at 6th month after surgery was 40%, 69% at 1st year, 72% at 2nd year, and 75% at 3rd year. BAROS index results were: 24,3% excellent results; 41,9% very good results; 31,08% good results; 2,7% bad results. Effect on morbidity: glycemia, cholesterolemia and triglyceridemia became normal in 100% of patients at 6th month and they kept stable during the whole follow up. Blood preasure returned to normal in 75% of the hypertensive patients and lasted in time.

Conclusions: Laparoscopic gastric bypass for morbid obesity, shows effectiveness in weight loss, comorbidly improvement and quality of life. Proteins, vitamins and oligoelements deficits appear far in time, so it's necessary a control of these patients and supplement those deficiencies for the rest of their lives.

P412

LAPAROSCOPIC BARIATRIC SURGERY: WHAT ELSE ARE WE UNCOVERING? LIVER PATHOLOGY AND PREOPERATIVE INDICATORS OF ADVANCED LIVER DISEASE IN MORBIDLY OBESE PATIENTS UNDERGOING BARIATRIC SURGERY

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Background: Nonalcoholic fatty liver disease (NAFLD) is the most common cause of chronic liver disease in the U.S., and obesity is the most common cause of NAFLD. The purpose of this study was to examine the incidence of NAFLD among morbidly obese patients undergoing bariatric surgery and to determine if advanced liver disease can be predicted by demographics, co-morbidities, and/or pre-operative biochemical profiles.

Methods: 135 non-consecutive patients (109 female, average age 46) with mean BMI 50 (SD 7.6) who underwent liver biopsies during bariatric surgery were studied. Patient data including age, BMI, co-morbidities, and preoperative liver function tests were analyzed against liver biopsy pathology. Patients with known preoperative liver disease were excluded form the group analyzed.

Results: 87% of patients had abnormal liver biopsy results; with 60% demonstrating steatosis and 27% advanced liver disease (7% steatohepatitis, 16% fibrosis, and 4% cirrhosis). Patients were grouped according to liver biopsy pathology. Group A included patients with normal results or steatosis and Group B included those patients with steatohepatitis, fibrosis, or cirrhosis. Of 37 patients in Group B, 27% had abnormal pre-operative liver function tests compared to 10% of patients in Group A ($p < 0.02$). Patients in Group B were more likely to have hyperlipidemia ($p < 0.02$) and a significantly higher BMI ($p < 0.04$). Diabetes, male gender, and age did not predict advanced liver disease.

Conclusion: Abnormal liver pathology is common in the morbidly obese population. In our group, more than one-quarter of morbidly obese patients undergoing bariatric surgery have advanced liver disease. Patients with abnormal preoperative liver function tests, hyperlipidemia, and increased BMI should heighten the surgeons' awareness of possibly advanced liver disease.

P413

THE PROCEDURE OF MESH WRAPPING THE GASTRIC POUCH IN CADAVER STUDY

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Background: Of the most commonly offered surgical procedures, Roux-en-Y gastric bypass (RYGB) appears to offer the best long-term results. However 5–15% of patients will not achieve successful weight loss after RYGB. Factors such as a dilated gastric pouch or dilated gastrojejunal anastomosis can contribute to failed weight loss. Objective: To describe the surgical technique of wrapping the gastric pouch with a PTFE mesh to prevent gastric pouch dilatation.
Methods: Three frozen cadavers underwent this procedure. They had a mean age of 86 years and a mean body weight of 110 kg corresponding to a mean BMI of 32.8 kg/m^2. We created a 20–30 ml gastric pouch and subsequently, the gastrojejunostomy was performed with a circular stapler. After the gastrojejunal anastomosis, the gastric pouch is wrapped with the mesh. The mesh size is 8 cm x12 cm. The mesh is cut as shown in figure 1. An avascular window of the small bowel mesentery proximal to the anastomosis is created using the harmonic scalpel without damaging the vascularization. The mesh is positioned through the window around the gastric pouch with the rough side against the pouch. Then, the linear stapler is used to fix the mesh. Finally, the mesentery window is closed with 3-0 silk sutures (figure 2).
Results: The median operative time was 75 minutes. All the procedures were successfully completed without event. The gastric pouch, gastrojejunal anastomosis and the stump of the jejunum are all totally wrapped within the mesh. After fixing the mesh, it can not migrate because it is locked with the surrounding anatomical structures. No tissue and organs were damaged during the procedure.
Conclusion: This procedure of wrapping the gastric pouch was not difficult. The gastric pouch, gastrojejunal anastomosis and the stump of the jejunum are all totally wrapped within the mesh. It may be effective in the prevention of dilatation of the gastric pouch.

P414

MORBIDITY AND UNDESIRED EFFECTS AFTER PROXIMAL LAPAROSCOPIC GASTRIC BYPASS

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Introduction: Proximal laparoscopic gastric bypass (LGB) for weight loss surgery is a difficult technique but has proven effective at producing significant and sustained weight loss, along with improvements in comorbid conditions and quality of life because it is less invasive than open surgery so it shortens recovery time. Our goal is to analize the long-term morbidity after this technique.
Patients and Methods: 70 morbid obese patients underwent proximal LGB in our Department from April 2001 to December 2005: biliopancreatic limb lenght 50–70 cm; alimentary limb lenght 100–150 cm. Mean follow-up time was 2 years (6 months-4 years).
Results: Mean age was 34 years (range:22–56 yo). 83% female and 17% male. Weight loss at 2 years after surgery was satisfactory (BMI: 31 kg/m^2, excess weight loss percentage: 72%). Mortality is 0.
We have recorded 26% of vomits (most disappeared at 6 months after operation, but 3 patients 4,28% required endoscopic dilatations because of gastroyeyunal anastomosis estenosis).
Every patient ate soft diet during first month. At first year all patients ate free diet. No cases of changes in bowel habits have been reported. 1,42% (1/70) of marginal ulcer that satisfactory responded to proton pump inhibitors. 1,42% of intestinal obstruction (Peterson hernia) that required surgical revision.
Vitamin and mineral deficits: 30% ferropenic anemia that required iron oral implementation; 10% B12 vitamin deficit; 3 patients developed D vitamina and calcium deficit, so attention to nutritional status was mandatory during follow up in order to apport vitamin and mineral supplementation when needed. No cases of hipoproteinemy nor malnutrition have been reported.
Conclusions: LGB is a difficult technique to perform, with a longer and steeper learning curve, that requires a wide experience both in bariatric surgery and laparoscopy. Once this learning-period is broken, many patients can be benefit from this technique that gets an adequate weight loss, keeping a good quality of life.

P415

LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS IN PATIENTS WITH CONGENITAL MALROTATION

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Congenital malrotation of the intestines occurs in one out of every 500 births in the United States, accounting for 5% of all intestinal obstructions. It is a type of mechanical obstruction that occurs due to abnormal development of intestines during fetal life. Not all patients are symptomatic: some remain asymptomatic throughout their lives, and are only diagnosed incidentally.
We report two cases of morbidly obese patients, with BMIs of 44 and 54 respectively, who had intestinal malrotation and underwent laparoscopic Roux-en-Y gastric bypass. One patient was diagnosed incidentally on the operating table, whereas the other was diagnosed earlier in her life as a result of her symptoms. The procedure was completed laparoscopically for both patients, with minimal modifications from the original technique, and both fared well post-operatively. Hence, laparoscopic Roux-en-Y gastric bypass for morbid obesity can be carried out in patients with congenital malrotation, and management of their malrotation can also be conducted laparoscopically at the time of their surgery.

P416

OUTCOMES IN LAPAROSCOPIC REVISIONAL BARIATRIC SURGERY

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Introduction: The rate of revision for any type of bariatric surgery is reportedly between 10 to 25%. Reoperative bariatric surgery is technically challenging and; therefore, more often performed as an open procedure. The purpose of this study is to review outcomes in laparoscopic revisional bariatric surgery.

Methods: A retrospective review of laparoscopic revisional cases performed during June 2002 to August 2005 was performed. Data extracted include: primary operation, patient demographics (age, gender, BMI), intraoperative complications, operative time, postoperative length of stay (poLOS), and postoperative complications.

Results: A total of 85 laparoscopic bariatric cases were performed. 31 (36.5%) of the cases were revisional. Primary operations included: vertical-banded gastroplasty (VBG) (17), Nissen fundoplication (5), Molina band (7), Roux-En-Y-gastric bypass (RYGB) (1), and horizontal gastroplasty (1). The primary bariatric procedures were converted to a RYGB except for one case where the Molina band was simply removed and a second case where a gastro-gastric fistula was divided following a RYGB. In the group of patients that had a VBG converted to RYGB, mean age was 45, BMI 41.3, OR time 461 minutes, and poLOS 2.3 days. In the group of patients that had a Nissen converted to RYGB, mean age was 41, BMI 37.3, OR time 382, and poLOS 2.2 days. In the group of patients that had a Molina band converted to RYGB, mean age was 47, BMI 46.7, OR time 380 minutes, and poLOS was 3.33 days. Overall, there were no conversions to open, no major intra-operative complications, and no mortalities. In the group of patients that had a Molina band converted to RYGB, there was one gastric remnant leak and one postoperative small bowel obstruction due to incarcerated ventral incisional hernia. Both cases required emergency reoperation.

Conclusion: Despite technical difficulty and longer operative times, laparoscopoic revisional bariatric surgery is feasible. PoLOS times are considerably shorter than open procedures, with less wound complications.

P417

SIGNIFICANT RESULTS OF LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING FOR THE TREATMENT OF MORBID OBESITY

NO SHOW

P418

COMPLICATION AFTER LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING: TEN YEARS EXPERIENCES

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Aim: Laparoscopic gastric banding is an effective, long-term method for controlling morbid obesity (MO), and it is currently the most common reversible surgical procedure used for the treatment of morbidly obese patients. In the Czech Republic, the prevalence of obesity is 25.7% in females and 22.4% in males. We report our long-term results following laparoscopic adjustable gastric banding with analysis our complication.

Methods: The 1st Surgical Department of the General Faculty Hospital, Charles University, Prague, performed 117 laparoscopic adjustable gastric bandings in morbidly obese patients from 1995 to 2005 (33 males, 84 females, average age 36.9 years, age range between 23 and 58). Mean BMI was 44.1 kg/m^2 (range between 34.7 and 58.5). Average follow-up length was 4.2 years (range between 0.5 and 9).

Results: From the beginning we used the pars flaccida technique with tunnelling. Mean weight-loss during 24 months following SAGB placement was −39.4 kg (range between 18 and 68), mean BMI decrease was 15.7 kg/m^2 (range between 4.3 and 27.5) and mean EWL decrease was −61% (range between 24 and 96). SAGB-related serious late complications occurred in 4 (3,4%) patients. Gastric pouch dilatation or slippage occurred in 1 (0,8%) case, band migration occurred in 3 (2,6%) patients. Port lapse in 3 (2,6% (disconnection, infection, dislocation)) cases. In one case (0,8%) occurred the fytobesoar treated by gastroscopy. Failure to loose weight after AGB was in 9% in no cooperative MO patients.

Conclusion: Laparoscopic gastric banding is a very safe and effective method for long-term weight-loss control in selected and cooperative morbidly obese patients, particularly patients with a BMI around 35–45 kg/m^2.

P419

LAPAROSCOPIC ROUX-EN-Y GASTRIC BY-PASS WITH TRANSIT MODULATION. RESULTS AT 5 YEARS

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We have developed a laparoscopic technique, which allows to perform a functional Roux-en-y gastric by-pass with the preservetion of the stomac and the possibility to adjust its closing.

Methods: This tecniques is done with six trocars. The gastrocolic ligament is opened and the stomac is sectioned, starting from the greater curvature, along an ideal line going to the lesser curvature 7cm from the cardia. The fundus is sectioned following the direction towards the His angle and removed. The jejunum is identified and sectioned 30 cm from the treitz. The jejunum-ileum anastomosis is made 150 cm from the pauch. Anastomosis is applied on the distal jejenum loop through the mesocolon to the gastric pauch, by means of an Endo-Gia stappler. The gastric banding is placed 7 cm from the cardia, it is left completely open for the first mounth. The banding is subsequently closed in such a way as to avoid gastrograffin in the antrum.

Results: From June 2001 to March 2006 72 patients underwent to this type operation with a follow-up range from 3 to 54 mounts.Mean operating time was 225 minutes (192–363). Convertion rate was 8%. We have not had other intraoperative complication. Only 4 patients needs a blood trasfusion in the post op. Ospitalization averaged 4.2 days. The patient famele n. 14 had a band erosion into the jejenum. The average pre-operative BMI was 54.6. The average weigth loss was 58 Kg at 54 mouths, 58.7 at 24 mounths, 39.3 at 12 mounths. At 24 mouths observation 42 patients, after a complete realese of the band, underwent to a gastroscopy with multiple byopsis of the stomach and the jejenum. 18 patients underwent to a PH manometry of 24 hours and abnormalities were revealed; in the same patients the groeling level did not change before and afther 24 mounts since operation.

Conclusion: the laparoscipic Roux-en-y gastri by-pass with transit modulation is feasible and advantageus as the results suggest. The possibility to investigate the stomac and the biliary tract should to advise surgeons to take in consideration thi tecnique.

P420

PSYCHIATRIC AND QUALITY OF LIFE EVOLUTION AFTER LAPAROSCOPIC GASTRIC BYPASS

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Background: Morbid obesity impaires quality of life and associates a high prevalence of psychopathological and eating disorders. These psychiatric illnesses are either the cause or the consecuence of morbid obesity. Gastric bypass is an excellent procedure in terms of body weight reduction but its influence on the psychopathological and eating disorders that many morbid obese patients suffer is not well known.

Aim: To assess the psychiatric and quality of life evolution after laparoscopic gastric bypass.

Methods: 46 consecutive applicants for laparoscopic gastric by-pass were examined preoperatively by structured psychiatric interview and the following psychometric tests:

Raven Advanced Progressive Matrices, Eating Disorder Inventory, Bulimic Investigatory Test Edinburg, Hamilton Anxiety Rating Scale and Short Form-36 (SF-36) health survey. 26 (58%) patients were found to suffer at least one psychopathological disorder and only 13 of this psychiatric patients were considered able to undergo a gastric bypass. The above mentioned psychometric tests and Short Form-36 (SF-36) health survey were repeated 6 months after surgery in this 13 patients.

Results: Mean excess of weight loss 6 months after surgery was 59%

Preoperatively, prevalence of psychiatric transtorns was as follows: major depressive disorder 15%, anxiety disorder 8%, atypical eating disorder 46%, adaptative transtorn 15%. The 13 patients with bulimia nervosa or psychotic disorder were not operated. After gastric bypass prevalence of atypical eating disorder and adaptative transtorn was half reduced with no changes in the rest of psychopathological disorders. The use of antidepressants was reduced and body satisfaction improved.

Quality of life improved as SF-36 Questionnaire shows: physical functioning 54 vs 91 ($p = 0{,}001$), role-physical 53 vs 75 ($p = 0{,}017$), bodily pain 46 vs 65, general health 52 vs 88 ($p = 0{,}001$), vitality 48 vs 69 ($p = 0{,}008$), social functioning 71 vs 84 ($p = 0{,}027$), role-emotional 70 vs 69 and mental health 62 vs 69.

Conclusions: Surgery induced weight loss improves obese patients quality of life and their psychopathological and alimentary transtorns.

P421

SLEEVE GASTRECTOMY IN TWO-STEP LAPAROSCOPIC DUODENAL SWITCH FOR SUPER-SUPER OBESITY

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Introduction: Surgery for super-super obese patients (BMI > 60 Kg/m^2) is characterised by a high incidence of mortality and morbidity and a failure to achieve optimum excess weight loss. Recent reports have shown that the surgical procedures can be carried out in two phases. The first phase involves sleeve gastrctomy by laparoscopic surgery. This is made as the first step of the duodenal switch.
After 8–10 months, the patient will have achieved sufficient weight loss for the second phase. This involves completing the duodenal switch via jejunoduodenal anastomosis and jejunoileal anastomosis (100 cm from the ileocecal valve).

Patients and methods: Over a 18-month period, 11 super-super obese patients (BMI 59–79 Kg/m^2) were operated on. 10 patients women and one man. Average age 52, average BMI 66 Kg/m^2 and average weight 185 Kg. On all patients, sleeve gastrectomy by laparoscopy was performed in a first step. Average surgery time 130 minutes.
Results: There were no postsurgical complications. Average stay in hospital 4 days.
After 6 months, average weight loss was 52%. Six patients was not operated on in a second stage because she had achieved 60% excess weight loss. No early or late postsurgical complication has been observed.

Conclusions: Our results in two-step bariatric surgery in patients with extreme morbid obesity are encouraging. This technique should be taken into account for super-super obese patients for whom surgery is a high-risk procedure. Also, there have been a significant reduction of metabolic and cardiovascular comorbidities (such as diabetes or hypertension).

P422

DUODENAL SWITCH BY LAPAROSCOPY IN TWO STEPS OR AT ONCE FOR PATIENTS WITH FAILED LAP-BAND SURGERY

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Introduction: The most common techniques in bariatric surgery are the fitting of adjustable bands, the Roux-en-Y gastric bypass by laparoscopy, Scopinaro's biliopancreatic diversion and duodenal switch.
The failure to achieve excess weight loss with a certain surgical technique must be corrected by a second surgical intervention. Adjustable band usually has the greatest number of failures and a second operation is required. Duodenal switch does not directly affect the area of the stomach in which the adjustable ring had been located.

Patients and methods: Average age 52, average BMI 49 Kg/m^2 and average surgery time 180 minutes. 13 patients (female) with failed lap band surgery were operated on. In 7 patients the complete procedure was made at once. This involves a sleeve gastrectomy, jejunoduodenal anastomosis and a jejunoileal anastomosis (100 cm of common channel). In 6 patients we performed sleeve gastrectomy as the first step of the compete procedure. In all operations, the adjustable ring was removed and a duodenal switch by laparoscopy was performed.

Results: One patient suffered a leak from the duodenojejunal anastomosis (did not require further surgery). The other patients had no postsurgical complications. Average stay 5.3 days
Twelve months after, the patients' average excess weight loss is 60%.

Conclusions: A good technical option for reintervention in patients with adjustable band is duodenal switch since there are fewer technical problems and the patients' excess weight loss and quality of life are good. Sleeve gastrectomy, as the first step of duodenal switch after lap band, offers a very good results.

P423

LAPAROSCOPIC NON-ADJUSTABLE GASTRIC BANDING VS LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING IN PATIENTS WITH SIMILAR DEGREE OF OBESITY

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Aim: Though laparoscopic non-adjustable/LnonAGB/ and laparoscopic adjustable gastric banding/LAGB/ are common bariatric procedures, few studies comparing these methods have been reported.The aim of this study was to compare the outcome of the two procedures in patients with similar body mass index/BMI/.

Methods: Fifty patients with BMI between 40–55 and minimum of 2 years of clinical follow-up post L nonAGB were evaluated and compared with fifty patients post LAGB with similar BMI.

Results: The two groups were well matched for size,sex /F:M = 39:11 in LnonAGB,37:13 in LAGB/. Mean age was 38,2 years/range 20–58/ in LnonAGB and 36,5 years /range 19–56/ in LAGB, mean weight was 121,2 kg/79,6–182/, mean follow-up period 49,2 months in L nonAGB vs 48,4 months in LAGB.The preoperative mean BMI was similar in both groups/ 43,5 kg/m^2 in LnonAGB vs 44,5 kg/m^2 in LAGB. There was no conversion and no mortality.
There were no significant diferences in hospital stay. The postoperative morbidity was 4% after LAGB /two catheter or port-related problems/ and 12% after LnonAGB/ one band erosion, two pouch dilatations/ slippage/.The mean excess weight loss /EWL/ four years after LnonAGB was 51%, after LAGB 56%.The return to work were after 2,8 weeks/LnonAGB/, 2,6 weeks/LAGB/.

Conclusion: Laparoscopic adjustable gastric banding is more effective at inducing weight loss compared to laparoscopic non-adjustable gastric banding. Differences in excess weight loss, less postoperative morbidity seems to be an argument for LAGB, which is considered as the procedure of choice for morbid obesity.

P424

LAPAROSCOPIC SLEEVE GASTRECTOMY. TECHNICAL DETAILS AND EXPERIENCE

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Introduction: The sleeve gastrectomy was developed initially like a first step in the accomplishment of 'duodenal switch'. Some groups do it as the first time in patients' super- super-obese, and after 12 months they make the second time like biliopancreatic by-pass. We propose this technique triple morbid obesity (IMC > 60 kg/m^2) and in the retirement of the adjustable band. This technique has been made by laparoscopic way.
Technique: The patient's position is in antitrendelemburg of 30 and the surgeon placed between the legs. 5 trocars are placed, in strategic anatomical points. We recommend the optic of 30 and the use of an optical trocar for the entrance to the abdominal cavity.
The coagulation by a sealer (Ligasure) facilitate the dissection and haemostasis. Surgical stages: 1- Dissection of the gastric greater curvature towards the Hiss' angle, by separating the gastrocolic ligament. 2- Follow the dissection even 2–3 cm of pyloric. 3- Gastric section to 3 cm of the pyloric with GIA 4,8 (green), and tutoritzed with Faucher's probe of 38 FR. 4- Follow the gastric section with GIA 3,5 (blue), verifying the correct position Faucher's probe by making a tube in the stomach even the Hiss' angle. 5- The haemostasis is reviewed, by points or application of clips. 6- Filtration absence verification, by instillation of metilen blue by the GNS. 7- Aspirative drainage, Jackson Pratt type. 8- To close trocars' orifices.
Results: N total = 28, (in 13 of them the adjustable band was also removed). BMI average 61 kg/m^2. There were no incidents during postoperative course in 25 patients. In 2 patients a leak, in the staples line was observed, but they weren't reoperated, and they had closed after 7 days. 1 patient had a second intervention due to a high occlusion by a gastric volvulus. There was no incidences and mortality. Hospital stay average: 3,5 days.
The media weight lost during the first year has been higher to 65%, with an excellent quality of life.
Conclusions: The laparoscopic 'sleeve gastrectomy' is a low morbility technique and it achieves a good lost of weight. It can be presented like 'only one' intervention, or like a first time of a duodenal switch.

P425

THE FIRST ONE HUNDRED BARIATRIC OPERATIONS IN SW ENGLAND: ANALYSIS OF THE RESULTS AND LEARNING CURVE

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Aims: To study the initial results of a new bariatric surgery programme.

Methods: Prospective data collection including body mass index (BMI) and comorbidity on all patients in the programme which started in 2004. Laparoscopic Roux-en-Y gastric bypass (LRYGB), sleeve gastrectomy (LSG) and adjustable gastric band (LAGB) operations were performed according to patient choice unless BMI > 50kg/m^2 with significant comorbidity, for which LRYGB or LSG was recommended.

Results: 100 patients had surgery; 49 LRYGB (median age 43, BMI 48kg/m^2, range 36.9–60.4 kg/m^2), 1 LSG (age 45, BMI 54kg/m^2) and 50 LAGB (median age 44, BMI 45.5kg/m^2 range 35–60.4kg/m^2). The M:F ratio was 1:4. There was no mortality or perioperative deep vein thrombosis/pulmonary embolism. Conversion rate to open surgery was 4 (8%) for LRYGB (adhesions 2, stapler failure 2) and 1 (2%) for LAGB (large liver). Five (10.2%) LRYGB patients required reoperation for haemorrhage, anastomotic leak, small bowel obstruction, distal small bowel fistula, intestinal hernia (1 each). Two LAGB patients developed port site infections (1 band removed at 6 months). Average operating time for LRYGB reduced from 240 for the first 10 operations to 130 for the last 10 ($p < 0.01$). Median excess weight loss (EWL) at 12 months for LRYGB was 69% ($n = 12$) and for LAGB 42% ($n = 16$). Average BMI at 12 months was 32.4kg/m^2 for LRYGB and 36.4kg/m^2 for LAGB.

Conclusions: Despite the learning curve, complication rates were acceptable. EWL was greater with LRYGB during the study period. Bariatric surgery is now accepted by our local health community as an effective therapy for obesity.

P426

LAPAROSCOPY IN OBESE PATIENTS

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Aims: In the present population, obesity poses a serious medical, psychological, social, and economical problem. In some developed countries the obesity prevalence reaches up to 30%, and as many as 50% of the rest of the population suffer from overweight. The work presents the analysis of benefits of miniinvasive approaches for the obese patients.
Methods: Retrospective analysis of patients with BMI over 30, operated on between 2000 and 2005 at the 2nd Surgical Department, University Hospital in Olomouc. The analysis focused on the following interventions: cholecystectomy, appendectomy, fundoplication, hernioplasty, intestinal resection. In each of the above given indications, the approaches were subdivided into open surgery and laparoscopic intervention. Among the parameters monitored were the following: age, sex, comorbidity, peroperational mortality, frequency of complications, postoperational lethality, length of hospitalization, and incapacity to work. By means of statistical analysis, the individual groups were compared (within the individual approaches adopted).
Results: Laparoscopic approach was primarily employed in cholecystectomy and fundoplication. In case of other diagnoses, laparoscopy was indicated with regard to the clinical findings, to the patients as well as surgeons will. When compared, the length of hospitalization in obese patients operated on for cholecystolithiasis was in case of laparoscopic intervention 4.7 days, while in case of open surgery 6.9 days. The occurrence of early complications in laparoscopic patients was 5 (i.e. 2.7%), while in patients who underwent open surgery it was 18 (i.e. 12.9%). Other complications (peroperational haemorrhagia, etc.): laparoscopy 1.1%, open surgery 1.4%. Our retrospective study proved interesting results in other interventions mentioned as well reflux of the oesophagus, tumors and inflammations of colon, urgent abdomen (appendectomy, etc.).
Conclusion: The analysis has proved that general benefits of miniinvasive surgery are met in obese patients, too. The greatest advantage in case of obese patients solved laparoscopically seems to be the significantly lower number of early and other complications, reduced length of hospitalization and the overall treatment. Therefore, this leads to the conclusion that obesity and morbid obesity are not contraindications to laparoscopic intervention. Quite the contrary laparoscopic approach is of a great benefit for these risk patients.

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TWO YEARS EXPERIENCE WITH LAPAROSCOPIC ADJUSTABLE GASTRIC BANDS

NO SHOW

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LAPAROSCOPIC ROUX-EN-Y GASTRIC BY-PASS VS LAPAROSCOPIC SLEEVE GASTRECTOMY IN MORBIDLY OBESE SUBJECTS

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Aim: To compare the efficacy over the first 12-months of follow-up of Roux-en-Y Gastric Bypass (LRYGBP) versus sleeve gastrectomy (LSG) in morbidly obese subjects.

Methods: Prospective study on the changes in body weight and major co morbidities in 32 morbidly obese subjects (BMI 51.8 9.4 kg/m^2) undergoing LRYGB or LSG.

Results: Despite subjects undergoing LSG being more obese at baseline ($p < 0.01$), mean percent excess weight loss (%EWL) was comparable between the two groups at 6 and 12 months follow-up (%EWL6m LRYGB 49 4 vs. LSG 50 3, $p = 0.88$; EWL12m LRYGB 60 5 vs. LSG 63 4, $p = 0.62$). The proportion of subjects with diabetes, hypertension, and dyslipidemia was neither different at baseline nor at 6 or 12 months follow-up. Over time, LRYGB was associated with a significant improvement of fasting plasma glucose ($p < 0.01$), total cholesterol ($p < 0.01$), and systolic blood pressure ($p < 0.05$). In contrast, LSG was associated only with a significant improvement of total cholesterol ($p < 0.05$). Nevertheless, the mean changes over time in the evaluated metabolic parameters were not significantly different when the two groups were compared.

Conclusions: Our data show that at 12-months follow up: (1) LRYGB and LSG and similarly effective to induce weight loss, and (2) metabolic changes are similar with these two types of bariatric surgery.

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LAPAROSCOPIC GASTRIC BY-PASS. EXPERIENCE WITH 450 CASES.

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Introduction: Bariatric surgery is the only effective treatment for morbid obesity. Laparoscopic Roux-en-Y Gastric Bypass (LRYGB), is considered by most authors the gold standard procedure.
Aim: The aim of our study was to prospectively assess the outcome of the series of LRYGBP performed at our Institution between September 1999 and January 2006.

Methods: 450 subjects (mean age 40.4 years, mean BMI 47.7 kg/m^2) were included. 70% of patients had at least one obesity associated co morbidity and 23% presented with > 3. 34% had had prior abdominal surgery, with 22 cases with previous bariatric surgery. Surgical and weight loss outcomes are reported

Results: There were no conversions. The hand-assisted technique was employed in six patients. The mean operative time was 128 minutes, being significantly longer in subjects who had undergone prior restrictive bariatric surgery..Intraoperative complications occurred in 12 patients. The mean time to oral intake was 20.8 hours, and the mean hospital stay was 3.4 days. Morbidity was observed in 63 patients (14%): 39 patients presented major complications and minor complications were noted in 24 patients. Overall mortality rate was 0.2% (1 case) with a re-intervention percentage of 4.8%. Late complications were developed by 23 patients with the stenosis of gastrojejunum anastomosis the most frequent of them. Mean excess weight loss at 3, 6 and 12 months of follow up was 35.8%, 53.3% and 69.6%, respectively

Conclusion: Our results suggest that LRYGBP is a safe, feasible and effective technique with an acceptable morbidity and mortality rates in our unit.

P430

REDO SURGERY IN ADJUSTABLE GASTRIC BAND

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In the first 4 years of the Videosurgery Unity of our Hospital we have made 708 operations for morbid obesity.
We are a reference center for this pathology and we receive patients of other hospitals.
During this time we have made 71 operations of 'Redo Surgery'. We present our experience and some conclusions:
- Adjustable gastric banding is a procedure growing at Portugal (more than 5.000 made)
- 'Redo Surgery' is a complex procedure with a complication rate greater than the usual operation
- At our Unity we had no maortality but a 20% morbidity in Redo surgery.

P431

SINGLE SURGEONS SERIAL EXPERIENCES OF LAPAROSCOPIC BARIATRIC SURGERY IN JAPAN

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Background: Bariatric Surgery was very rare in Japan. But recently obesity become a social problem. We performed the first Laparoscopic Roux en Y Gastric Bypass (LRYGB) in Japan in Feb. 2002. In this study we present single surgeons experiences.
Methods: From Feb.2002 to Mar.2006, a single surgeon has performed 92 cases of laparoscopic bariatric surgery in Japan. In all cases, 86 cases were LRYGB, 4 cases were Lap Sleeve Gastrectomy (LSG) and 2 cases were Lap gastric banding (LAGB). 81 cases were performed in Horie Hospital in the same protocols. We will present the result of the case with the same protocols. There were 61 women and 20 men with median age 37.0. Median preoperative BMI was 45.3.
Results: In 81 cases. 75 cases were LRYGB, 4 cases were LSG, and 2 cases were LAGB.
LRYGB: Gastrojejunostomy methods were 1 circular stapler, 9 liner stapler, 65 Hand sewn Double-layer. Operating time is from 72min. to 720min. (First case), Average Ope time of recent twenty cases was 92min. Leakage occurred in 1 circular stapler case, and 3 Hand-sewn case. Stenosis occurred in 1 linear stapler case and 7 hand-sewn case. No mortality within 30 days after surgery was observed but one patient died because of respiratory failure at 9 months after surgery. Follow up ranges from 1 to 48 months. 80% of Excess body weight loss was achieved at one year after surgery, 69% at two year after surgery. All of the co-morbidity was improved after surgery. In four cases of LSG, one was as the first operation of second stage operation, 2 cases were with high risk co-morbidity and one case was as alternative procedure of LAGB. Even short term result is not determined.
LAGB: 2 cases were performed. After 5month follow up, 28.3% of EWL were observed. No surgical mortality and complication were observed.
Conclusion: Even in Japan, needs for bariatric surgery is increasing. We should provide some procedures for patients satisfaction and safety. LRYGB is the most effective also in Japan. Sleeve gastrectomy will be the one of the option for restrictive procedures in Japan.

P432

LAPAROSCOPIC ROUX EN Y GASTRIC BYPASS WITH REMNANT GASTRECTOMY FOR HIGH RISK CASE OF GASTRIC CANCER: A CASE REPORT

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Obesity is becoming the big problem even in Eastern Asia. Gastric bypass is the gold standard of bariatric surgery in Western country. Regarding the effect for morbid obesity, gastric bypass is superior to restrictive only procedures. But in Japan, high incidence of gastric cancer is observed and we have to concern about gastric cancer in the remnant stomach after gastric bypass, especially for high risk cases of gastric cancer.
We have performed 92 cases of lap bariatric surgery in Japan including 86 Lap gastric bypass. We report the technique and the result of Laparoscopic Roux en Y Gastric Bypass (LRYGB) with remnant gastrectomy for the case with multiple familial history of gastric cancer.
Case: 27 years old male, 177 cm 133kg BMI44.5, was suffering from Hypertension, GERD, arthritis, SAS and shortness of breath. He had the family history of gastric cancer of his mother, an aunt and a first cousin. His aunt and a first cousin died by gastric cancer. He was thought to be in high risk of gastric cancer.
We performed LRYGB with remnant gastrectomy. Six trocars were inserted. Ligasure was used to cut and coagulate perigastric vessels of greater and lesser curvatures. Greater curvature was dissected from duodenum to His angle. Lesser curvature was dissected from duodenum to the point of 5cm from esophageal junction. Duodenum was cut with liner stapler and gastric pouch was made by usual method. Remnant gastrectomy was done and the specimen was placed on the liver. Jejunojejunostomy was made with linear stapler and hand sewn closure. Gastrojejunostomy was hand sewn double layer method with antecolic, antegastric approach. Leak test was done by endoscope, the specimen was removed from left upper trocar site. At that time, incision had to be made big as 3.5cm. JP drain was inserted. Operative time was 180 min. No complication had occurred after surgery. Patient can reduce 20kg at 6 weeks after surgery.
Conclusion: LRYGB with remnant gastrectomy was safe and feasible operation for patients with high risk of gastric cancer.

P433

THE LAPAROSCOPIC VERTICAL BANDED GASTROPLASTY: HOW I DO IT

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Since 1992 more than 2000 patients underwent a bariatric surgical intervention in our department. Four types of bariatric procedures are actually performed, the decision on which type is made in consideration of the BMI, the eating and drinking habits and the personal preferences of each individual patient. As a pure restrictive procedure we prefer a laparoscopic Vertical Banded Gastroplasty (LVBG) (n = 700 patients) above a laparoscopic Adjustable Silicone Gastric Banding because of an expected lesser complication and reoperation rate and a better weight loss on the long term. However, the LVBG is more difficult and demands careful attention to technical details. Those are shown in the video. If the patient had a symptomatic reflux oesofagitis before the operation, a laparoscopic Nissen fundoplication was added to the LVBG.

P434

ONE ANASTOMOSIS GASTRIC BYPASS BY LAPAROSCOPY: RESULTS AFTER THE FIRST 209 PATIENTS

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Background: The One Anastomosis Gastric Bypass by laparoscopy (OAGB) is an european procedure for treating morbid obesity. It consists of making a 25 ml gastric pouch between the esophago-gastric junction and the crows foot level, parallel to the short curvature which is anastomosed latero-lateraly to a jejunal loop 2 m distal from the ligament of Treitz. We compared the results of the 209 first patients with those of the next 209 (210–418).

Methods: Both groups are comaparable in age, BMI and preoparative excess body weight as well as associated surgical procedures and redo of previous restrictive bariatric procedure.

Results: In the first 209 patients, we converted two patients (0.9%) to open surgery due to uncontrollable bleeding. In three cases (1.4%) the patients needed re-operation in the immediate postoperative period. Five patients (2.3%) needed a prolonged hospital stay due to acute pancreatitis in one and four others had an anastomotic leakage, all resolving with conservative treatment. Two patients died (0.9%), one due to fulminant pulmonary thromboembolism and one had a nosocomial pneumonia.
In next 209 (210–418) there were only one case of perforation in the esophago-gastric junction (0.4%) and one case of intestinal obstruction distal to gastro-jejunal anastomosis 24h after operation (0.4%).

Conclusion: These results demonstrated that OAGB is a procedure that induced a important weight loss with minimal complications.

P435

TECHNICAL CONSIDERATION FOR TRANSESOPHAGEAL LOADING OF THE CIRCULAR STAPLER IN LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

NO SHOW

P570

WHEN INEXPERIENCED SURGEONS PERFORM BARIATRIC SURGERY

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Introduction: As a Centre for Bariatric Surgery, we are dealing with our own postoperative complications in addition to those referred from other hospitals. This has led us to carefully consider reasons for technical failure. We want to show two interesting examples which are not mentioned in the literature:
1-Stomach Outlet Obstruction: After gastric banding this patient complained of recurrent vomiting, even on a fluid diet. The contrast swallow showed a good position of the band and good passage of the contrast through it. A gastrographin follow through showed complete obstruction to flow of the contrast beyond the fundus/body of the stomach. Herniation of the stomach through the band was diagnosed. Intraoperatively, the stomach was found to be folded because the greater curvature was sutured to the stomach above the band in order to make the tunnel around the band. The lesser omentum was adherent to the liver and the band, so the greater curvature was upside down making the stomach fold on itself anteriorly. Adhesiolysis was performed and free passage was confirmed by the intraoperative gastroscopy.
2-Where is the band?: Two years after gastric banding abroad, without any loss of weight and no feeling of restriction, a barium follow through and CT scan revealed that the band was outside the GI tract. Intraoperatively, the band was surrounding the fat between the liver and the stomach and was not related to the stomach at all. The band was removed and a new band was put in the correct position

Conclusion: In spite of technical ease, laparoscopic gastric banding should be performed only by surgeons who have gained enough experience in this field under supervision.

OESOPHAGEAL AND OESOPHAGOGASTRIC JUNCTION DISORDERS

P436

ADDITION OF AN ANTIREFLUX PROCEDURE IN LAPAROSCOPIC REPAIR OF LARGE HIATAL HERNIA; A PILOT STUDY TO DECIDE UPON THE NEED FOR A RANDOMIZED CONTROLLED TRIAL

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Background & Aim: There is an ongoing discussion about the indication and status of an antireflux procedure for patients with large type II-IV HH repair. Patients who have demonstrated concomitant gastroesophageal reflux disease (GERD) generally benefit from an antireflux procedure, whereas a dilemma exists for patients who have dyspeptic symptoms only. The purpose of this pilot study was to decide upon whether a randomized trial regarding this subject is necessary.
Methods: Patients with a demonstrated symptomatic type II-IV HH were included in this pilot study. All patients underwent symptomatic and objective assessment for coexisting GERD by standardised questionnaires, upper endoscopy, esophageal manometry and 24-hr pH monitoring before and after surgery. A robot-assisted laparoscopic HH repair was undertaken in all patients and the addition of a Nissen fundoplication was only performed in those patients with documented GERD.
Results: Twenty patients with a large hiatal hernia enrolled the study protocol. GERD was demonstrated in eight patients (40%) after preoperative subjective and objective assessment. One procedure was converted to open surgery (5%) due to difficult exposure. Esophageal perforation, needing reoperation, occurred in another patient. After surgery, reflux symptoms were present in one patient after HH repair without and in two with fundoplication. Troublesome dysphagia was encountered in one patient after HH repair without fundoplication. Overall, dysphagia was not reduced significantly after both strategies and satisfaction with postoperative results was achieved in about 85% of patients. Total median esophageal acid exposure (% of time with $pH < 4$) decreased after HH repair with Nissen fundoplication ($p = 0.01$) and was not affected in those without fundoplication. Asymptomatic GERD was seen in one patient after large HH repair without fundoplication (8%).
Conclusion: Laparoscopic large HH repair with selective addition of Nissen fundoplication in case of documented GERD seems a reasonable approach in terms of safety and effectiveness. This pilot study has shown that, to really answer the question about routine or tailored antireflux procedures after HH repair in patients with and without GERD, a very large and unrealistic randomized controlled trial should be performed.

P437

LAPAROSCOPIC TREATMENT OF ACHALASIA BY THAL ESOPHAGOGASTROPLASTY WITH DOR ANTIREFLUX VALVE - ANALYSIS OF 4 CASES

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Introduction: Surgical therapy is the most effective treatment to relieve dysphagia associated with achalasia. Among the different surgical techniques, Thal esophagogastroplasty is one that can be performed, especially in advanced stage disease. Objective: To present 4 cases of achalasia that underwent surgical treatment, all laparoscopically, by Thal esophagogastroplasty with Dor antireflux valve (Thal-Dor). Patients: Four patients (3 female; mean age, 36 years old) underwent laparoscopic Thal-Dor surgery. All patients had progressive dysphagia, besides significant weight loss. They underwent upper gastrointestinal endoscopy and had an esophagogram that detected the presence of megaesophagus (ME). Three patients had ME stage III, besides positive serology for Chagas disease (CD), and underwent an elective procedure. The fourth patient had stage I ME and negative CD serology. For this patient, a pneumatic balloon dilation was the treatment of choice. However, the dilation caused a laceration in the juxtacardiac esophagus and, a few hours later, the patient had to undergo an emergency Thal-Dor procedure.
Method: After sectioning the short gastric vessels, esophagogastric junction was sectioned including 6 cm of the esophagus and 4cm of the stomach. In the laceration case, the lesion was enlarged downwards to the appropriate size. The esophagogastroplasty was performed using a continuous transverse suture in a single layer. After methilene blue instillation, no leakage was found. Next, a Dor anterior antireflux valve was made, covering the entire gastroesophageal suture line. Postoperative follow-up with endoscopy and esophagogram were performed in all patients.
Results: No conversion to open surgery and no mortality were observed. Follow-up was from 36 to 47 months. An esophagogram, taken on the first postoperative day in all patients, showed normal esophagogastric function and no leakage. The patients were then fed. Three weeks after surgery, endoscopy showed no esophagitis or stenosis and on the rear view, the endoscope was well adjusted to the cardia. Control of symptoms: 3 patients are still asymptomatic and in one patient symptoms of reflux appeared 12 months after the procedure, which are controlled with daily 20 mg of omeprazole. Conclusion: The feasibility and reproducibility of the results of laparoscopic Thal esophagogastroplasty with Dor antireflux valve are demonstrated.

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USING PHOTODYNAMIC THERAPY TO CURE ESOPHAGEAL CANCER AND BARRETT'S DYSPLASIA

CANCELLED

P439

FAST-TRACK ADVANCED LAPAROSCOPIC SURGERY IN AN AMBULATORY SURGERY CENTER. A FOUR-HOUR STAY

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Objectives: This is a review of advanced laparoscopic procedures performed on an outpatient basis in the ambulatory campus an Academic Health Sciences Center.
Methods: Charts and the follow-up call log by nursing were reviewed.
Results: Over three years, 55 patients, (71% male; median age 41 years, range 18–72) underwent 50 Nissen fundoplication (NF) and 5 adrenalectomies (ADR). Selection criteria included absence of significant comorbidities and patients' presence in town for 48 hours post-op. Comorbidities were present in 18 patients (32%) and 13% had previous upper abdominal surgery. Discharge criteria were based on hemodynamic stability, ability to ambulate and absence of nausea, pain or bleeding.
Median operative time was 85 min (NF, 80 min; ADR, 140 min). There were two intraoperative complication (partial splenic infarction, bleeding). There was no mortality or conversion to open surgery.
The median postoperative stay was 4.5 hr (range 2.4–7.5). Two patients (3.6%) were transferred to an in-patient site for admission (see intraoperative complications above). Five patients (9%) visited the Emergency Department of the in-patient sites in the month following their surgery. Four needed admission (dysphagia, slipped Nissen, dehydration, pain). Readmission rate at one month was thus 11%. One patient (1.8%) needed remedial surgery for a slipped Nissen.
Data on the day-one nursing postoperative telephone follow-up was available for 50 patients (91%); 34 were successfully contacted. Twenty-four (70.5%) had no complaint. Symptoms reported were: pain (7), dysphagia (1), dysuria (1), sore throat (1), hiccup (1) and nausea (1).
Conclusion: Successful fast-track outpatient surgery for some advanced laparoscopic procedures is achievable. Precise selection and discharge criteria combined with appropriate follow-up should decrease readmission rate and patient discomfort.

P440

DOES CHOLECYSTECTOMY INCREASE BILE REFLUX?

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Background/Aims: A large epidemiologic study has shown that cholecystectomy is associated with a moderately increased risk of esophageal adenocarcinoma. The toxic effect of refluxed bile was proposed as an explanation. The aim of the study was to compare esophageal and gastric bilirubin exposure in large cohorts of patients with and without cholecystectomy.

Methods: There were 579 patients (365 male, 47.9 ± 12.7 years) including 49 following cholecystectomy (18 male, 55.7 ± 9.7 years). Gastroesophageal reflux disease (GERD) was defined by the presence of esophagitis or increased esophageal acid exposure on pH-metry (score > 14.72, n = 433) and classified in subgroups as non erosive reflux disease (n = 110), erosive esophagitis (n = 233), or Barretts esophagus (n = 90). All patients underwent symptom assessment with a standardized questionaire, endoscopy, manometry, pH-metry, and bilirubin monitoring in the esophagus and stomach. Bilirubin exposure time was measured in percent above absorbance 0.25 in the esophagus and stomach.

Results: Total esophageal (3.8 ± 6.8 vs. 5.5 ± 3.8, n.s.) and gastric bilirubin (22.2 ± 21.1 vs. 26.3 ± 23.3, n.s.) exposure was similar in both groups. Supine gastric bile reflux was significantly increased after cholecystectomy (36.8 ± 30.2 vs. 29.2 ± 29.1, $p < 0.05$). When focused on the 433 patients with documented GERD, almost identical bilirubin exposure times were observed in the esophagus and stomach.

Conclusion: Esophageal and gastric bile reflux is a common finding in patients with reflux disease. Cholecystectomy slightly augments supine bile reflux in the stomach. This difference is too small to be detectable as increased esophageal bilirubin exposure.

P441

DISTAL ESOPHAGEAL PERFORATION REPAIR DURING THE LAPAROSCOPIC ESOPHAGOMYOTOMY: OUTCOME EVALUATION

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Aims: to describe the technique employed and the experience obtained with the primary laparoscopic repair of distal esophageal perforations that were produced during the laparoscopic esophagomyotomy, as well as to evaluate the outcome.

Patient and methods: We described and analyzed six cases of patients with primary achalasia, in whose distal esophagic mucosal perforations were caused during the laparoscopic esophagomyotomy. The postoperative follow-up was made together with clinical evaluation, upper gastrointestinal endoscopy, esophageal manometry and ambulatory 24-hour esophageal pH-monitoring.

Results: Four patients reported dysphagia relief and five were highly satisfied with the final surgical outcome.

Conclusions: The primary repair of distal esophageal perforations during the laparoscopic esophagomyotomy is a valid therapeutic option and it does not alter the surgical purpose. Nevertheless, if the perforation is not recognized early on, the prognosis could change.

P442

THE RESULTS OF LAPAROSCOPIC FLOPPY NISSEN FUNDOPLICATIONS : A STUDY OF ONE CENTER

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Aim: Laparoscopic Floppy Nissen fundoplication has been accepted as a gold standard method for the treatment of gastrooesophageal reflux (GER) disease. In this study, we aimed to present the results of Laparoscopic Floppy Nissen fundoplication operations which were applied to 540 patients with GER.
Methods: Between the dates of August 1993 and December 2005, 540 patients with the diagnosis of GER underwent Laparoscopic Floppy Nissen Fundoplication. Mean age of the patients was 36.4 (20–75). 274 of them were female (50.7%) and 266 were male (49.3%). During the preoperative period, endoscopy, oesophagus biopsy, pH meter and passage graphy were performed to patients. The main complaints of the patients were heartburn and epigastric pain.The rate of preoperative PPI use of the patients was 99.7%. The rate of preoperative diagnosis of hiatal hernia was found 59.9%. Long term use of medical treatment, failure of medical treatment, oesophagitis and Barret oesophagus were the indications fort he surgical therapy.
Results: The mean operative period was 152 minutes. No conversion to open technique was needed. The mean hospital stay period was 1.7 days (1–8). 0.5% of patients (3) had local splenic infarction, 0.1% of patients (1) had pneumothorax, 1.2% (7) had recurrent reflux disease. The mortality rate was 0.1% (1). Oral regimen was initiated after the control chest X-ray on the postoperative 1st day. Dysphagia was observed in the postoperative 1st month in 11.1% (60 patients), between the 1st and 3rd months in 2.7% (15 patients), between the 3rd month and 1st year in 0.5% (3 patients), after the 1st year in 0.1% (1 patient). 58.3% of the patients responded the QOL scor test as perfect, 32.2% of them responded as very good. No patients respondede this scor test as very bad.
Conclusion: In the treatment of GER, Laparoscopic Floppy Nissen fundoplication is an effective method. The increasing experince related to this method has positive effects on the operative period, hospital stay, morbidity and mortality rates. Lap. Nissen fundoplication should be the choice of surgical treatment in patients with GER.

P443

LOCAL SPLENIC INFARCTION DURING LAPAROSCOPIC NISSEN FUNDOPLICATION

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Aim: Dissection of the short gastric vessels and the mobilization of the fundus is one of the phases of Laparoscopic Nissen Fundoplication.In this phase due to anatomic relations the spleen is under risk. In this study we aimed to present local splenic infarctions in our series.
Methods: Local splenic infarction was seen in 3 (0.5%) of 540 patients who underwent laparoscopic Nissen fundoplication between August 1993 and December 2005. Of these patients 2 were male and 1 was female. Mean age was 39.3 (24–26). During the dissection of short gastric vessels, in the first 2 patients endoclip and in the other patient ligasure was used.
Results: In all of the patients the infarction appeared after the dissection of 1st short gastric vessel and was localized to a limited area in the upper pole of the spleen. The infarction was noticed during the operation. Additional procedure was not done for the infarction. In postoperative period physical examinations, laboratory tests and ultrasound assessments pathology was not determined.The patients were discharged without any additional intervention.
Conclusions: Splenic infarction during laparoscopic Nissen fundoplication occurs due to injury of the peripheral branch of splenic artery. During the dissection of gastric vessels uncontrolled bleeding, fatty gastrosplenic space, adhesions and inflammation increase the risk of splenic vessel injury. High body mass index also complicates the dissection of short gastric vessels.It is demonstrated that the use of ligation during dissection of short gastric vessels is not directly related to the risk of splenic vessel injury. The infarction area is noticed during operation and of treatment choice is determined according to the size of infarction area. Left upper quadrant pain in the postoperative period should raise the suspicion of splenic infarction in the differential diagnosis and radiological investigations should be done. Partial or total splenectomy is not frequently indicated for these patients.
Local splenic infarction although rare is a complication seen during laparoscopic Nissen fundoplication. Factors disturbing the dissection of short gastric vessels and anatomic variations increase this risk. The progress of complication is determined by the size of infarction area. The therapy is conservative.

P444

EXPERIENCE OF LAPAROSCOPIC SURGICAL TREATMENT IN PATIENTS WITH GASTROESOPHAGEAL REFLUX DISEASE

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Gastroesophageal reflux disease (GERD) is an increased esophageal exposure to gastric juice caused by a mechanical failure of the antireflux mechanism. About 60–70% of patients with documented reflux have a mechanical failure of the distal esophageal sphincter.
The aim of this work was to evaluate the outcome following laparoscopic antireflux surgery in GERD patients.
Materials and methods: We studied the GERD cases treated laparoscopically in Endoscopic Department of Lviv Emergency Hospital during 2005 year. We gathered a group of 15 patients, 11 males and 4 females with an average age of 49,1 years. The patients had either a simple GERD, small and medium hiatal hernias (12 cases) and giant hiatal hernias (3 cases).
The patients were studied by means of a symptom questionnaire, endoscopy, 24-hour esophageal pH monitoring, and a barium esophagogram. The presence of esophagitis was recorded and graded by the Savary Miller score and the Muse classification. All patients had medical therapy with proton pump inhibitors preoperatively. A laparoscopic Nissen fundoplication was performed in all patients.
Results: We used surgical techniques: 1.full mobilization of the lower esophagus and gastroesophageal junction, 2. reapproximation of the diaphgramatic crura, 3. mobilization of the gastric fundus by dividing the short gastric vessels, leading to the use of a different part of the stomach to construct the fundoplication, 4. construction of a short and floppy wrap (< 2 cm). The mean operative time was 210 minutes.
Among all patients after Nissen fundoplication early (chest infection, pulmonary embolism, abdominal infection, mediastinitis) and late complications (dysphagia, wrap disruption, intrathoraric migration of the wrap, slipped Nissen, heartburn) was not revealed. The mean stay in the hospital was 5 days. All patients were examined by us through one and three months.
Conclusion: A laparoscopic surgical approach is a satisfactory method for correcting gastroesophageal reflux disease. Anti-reflux surgery is a safe, effective and alternative to long term medical treatment of GERD. We consider for necessary to get of experience similar operations and to expand the indication for laparoscopic treatment.

P445

BARRETTS ESOPHAGUS CAN REGRESS AFTER EFFECTIVE ANTI REFLUX SURGERY ANALYSIS OF 64 PATIENTS

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Aims: To prospectively evaluate clinical, endoscopic and histopathological results after Laparoscopic Nissen Fundoplication (LapNissen) in patients suffering from Barretts esophagus (BE).

Method: From January 2000 to February 2006, 239 patients suffering from GERD underwent LapNissen performed by the same surgeon. Among these 64 (26.78%) presented BE. There were no conversions and all patients were discharged within 24 hours. Follow-up using endoscopic biopsy was performed in all 64 patients.

Results: Average follow-up was 27.8 months. Symptomatic control was good in 61 patients. Three patients remained symptomatic and are using proton pump inhibitor, thus BE remains unaltered in these patients. Regression of BE occurred in 32 patients, among these 20 showed no further signs of BE in endoscopic or histopathological examinations. And in one patient who remained asymptomatic after surgery, the degree of dyspalsia increased, which led to his undergoing endoscopic mucosectomy of the BE area. No patient presented adenocarcinoma. No-one died or suffered any significant secondary complication after the surgery.

Conclusions: LapNissen is safe and effective in the symptomatical control of a significant number of patients with BE. Regression occurred at a randomly high percentage level in patients operated on despite the control of GERD attained by most patients.

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REDO LAPAROSCOPIC NISSEN. LONG TERM EXPERIENCE IN A UNIVERSITY CLINIC IN COLOMBIA

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Aims: To asses the outcome of laparoscopic antirreflux surgery (LAS), the redo rate and the results of redo surgery at the Ces clinic during the last 5 years.
Methods: The type of study was descriptive-restrospective and prospective. We included all patients with GERD that underwent LAS by the authors from January 2000 to December 2005 in our institution with a total of 572 patients. The technique we have used is a short (2–3 cm), 360 floppy fundoplication with selective division the short gastric vessel over 58 F boogie and closure of diafragmatic crura is done retroesophageal.
Results: 572 patients had LAS during the period of study. 370 (64.7%) were female and 202 (35.3%) were male. At follow-up 557 (97.3%) where asymptomatic and 15 (2.6%) had symptoms compatible with GERD. In all patients with symptoms suggestive of recurrent GERD, endoscopy and 24 hours pH monitoring where done. We have a 10% (57) of lost to follow up.

The indications for reoperation:	Patients	
Slipped fundoplication	2	13.3%
Dehiscence of fundoplication	7	46.6%
Tight fundoplication	2	13.3%
Loose fundoplication	3	20%
Perforation visceral	1	6.6%
Fundoplication undone (after 2 operation)	2	13.3%
Time of new symptoms after fundoplication:		
Less than 2 months	5	33.3%
2–6 months	1	6.6%
6–24 months	3	20%
more than 24 months	6	40%

Conclusions: Over a follow up of 2 years (6 months to 5 years), the percentage of patients who underwent a second surgical procedure in our series of LAS was 2.6%. This percentage is relatively low compared with those that literature has shown. (Mortality of 0% and 10% of lost follow up). For every single patient who had possible relapse, measurements of PH and Endoscopies were performed according to guidelines reported in the literature. The principal cause of twice surgical procedure was dehiscence with an average of time between both procedures of 2 years.

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LAPAROSCOPIC ANTIREFLUX SURGERY IN TREATMENT OF ESOPHAGEAL AND EXTRA-ESOPHAGEAL CARDIAL SIGNS OF GASTRO-ESOPHAGEAL REFLUX DISEASE

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The purpose: to estimate the latest results of laparoscopic antireflux surgery in treatment of esophageal and extra-esophageal cardial signs of gastro-esophageal reflux disease.
The methods: 24 238 adult patients underwent fibergastroscopy from 1999 to 2004. 12 434 (51.3%) of them had insufficiency of switching function of cardia. 1666 (13.4%) of them had esophagitis of the third degree. 384 (2.8%) had esophagitis of the forth degree. 2660 (21.4%) had axial hernia of diaphragm esophageal aperture. 83 patients with gastro-esophageal reflux disease underwent laparoscopic esophagofundoplication. 76 of them underwent Nissen-Rossettis esophagofundoplication, 5 Dores, 2 Topes. The average age of the patients was 45 (19 64), the man-woman proportion was 49 : 34. 26 patients operated by Nissens technique had gastro-esophageal disease combined with Barretts syndrome. 3 patients were operated because of extra-systoly of gastro-esophageal origin proved with daily pH-metria combined with Holter monitoring. In 14 cases simultanial operations (laparoscopic cholecystectomy) were performed. Before the operation all the patients had their upper gastrointestinal tract endoscoped and X-ray scoped. For 3–4 months the patients had got conservative treatment. Monometry and pH-metry of esophagus for provement of insufficiency of switching function of cardia and gastro-esophageal reflux was performed only to the patients who had clinical gastro-esophageal reflux disease but didnt have endoscopic and X-ray signs of insufficiency of switching function of cardia. The degree of esophagitis was defined according to Los Angeles classification. Anamnesis of gastro-esophageal reflux disease of the operated patients had lasted for 5–10 years. The patients had got conservative treatment for 2–3 months but it wasnt effective. The results: after the operation 50% of the patients had a light degree of dysphagia for 5–10 days. 5 patients had it for 3 months, 2 patients - for 6 months, 1 - for 12 months. All the patients lost heartburn next day. 6 patients had its short recurrence during a year. 1 patient had odinophagia for 6 months. In 60–80% of cases there was a feeling of quick satiety for 6–12 months. 40% of the patients lost 5–7 kg for 3–6 months. 1 patient lost 10 kg in 6 months, another lost 15 kg. The patients operated with extra-systoly didn't have any rhythm infringement of heart beat. After the operation all the patients underwent esophagogasroduodenoscopy. After it signs of esophagitis disappeared. In 70% of cases the patients having gastro-esophageal reflux disease with Barrett's esophagus had reverse evolution of long segments of metaplasia epithelium. Long segments found before the operation didn't change after it. None of the operated patients got oxygen depressing therapy. The conclusions: laparoscopic Nissen's esophagofundoplication has positive influence on clinical, morpho-endoscopic dynamics of esophageal and extra-esophageal cardial signs of gastro-esophageal reflux disease.

P448

UNUSUAL UPPER GE CONDITIONS ASSOCIATED TO ACHALASIA: LAPAROSCOPIC APPROACH

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Background: Despite its low incidence, achalasia has become, thanks to the advantages of laparoscopic approach, a more frequent surgical disease. Because of this, the surgeon has got face up to unusual upper gastro-esophageal (GE) conditions associated to achalasia, such as epiphrenic diverticulum, hiatal hernia, gastric volvulus, even pseudoachalasia.
Aim: Evaluate the presence of infrequent GE junction diseases associated to achalasia and to asses their incidence, as well as to set up their simultaneous management by laparoscopic approach.
Patients and Methods: From January 1999 to March 2006, 77 patients were candidates to achalasia surgical repair. Data of this group was recorded prospectively in a database of advanced laparoscopic surgery of Hospital San Pau and Surgical Service of Hospital d Igualada, Barcelona. The patients underwent a laparoscopic Heller myotomy procedure associated by gastric fundoplicature.
Results: In seven of 77 patients, we found eight (10.4%) additional GE diseases: pseudoachalasia (3.9%), paraesophageal hiatal hernia (3.9%), esophageal diverticulum (1.3%), and gastric volvulus (1.3%). Three patients were diagnosed of pseudoachalasia, one of them had the preoperative diagnostic and the others an adenocarcinoma arising the GE junction was made during the course of the surgery (both convertion to laparotomy). In three cases a paraesophageal hiatal hernia was found and treated by laparoscopic Heller myotomy, sac excision, hiatal closure, and a posterior fundoplicature. One of these patients also presented a small esophageal diverticulum. One patient presented an organoaxial gastric volvulus associated to achalasia, and a laparoscopic Heller myotomy, posterior fundoplicature and anterior gastropexy was made. The median follow-up was 39 months.
Conclusions: When the diagnosis of diseases associated to achalasia is previous done, this association is not ever an impediment to successful laparoscopic treatment in most of patients. The surgical treatment of both diseases is safe and effective by laparoscopic means.

P449

QUALITY OF LIFE AND SURGICAL OUTCOME LONG-TERM AFTER LAPAROSCOPIC FUNDOPLICATION

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Background: GERD symptoms relapse after laparoscopic fundoplication is considered a surgery failure and makes it necessary to reintroduce antisecretory medications. The high percentage of patients that continue needing antisecretory drugs after fundoplication published in recent studies had made us question the long term effectivity of antirreflux laparoscopic surgery.
Aim: To evaluate long-term surgical outcome and quality of life after laparoscopic fundoplication.
Patients and methods: cross- sectional study and prospective observational follow up of 73 patients that underwent total or partial fundoplication between January 1994 and December 2001. Prospective follow up included 24 hour pHmetry and esophageal manometry during the first postoperative year and clinical exam each year after. In November 2004 a telephonic structured interview was made by an independent person. Patients were asked about GERD symptoms relapse, fundoplication side effects, grade of satisfaction with surgery and the use of antisecretory medications.
Outcome: mean follow up was 6,7 years (range 4–11), 53 (77%) patients answered the questionnaire. There was no surgery related mortality. One patient was reoperated because of GERD relapse. 94% of patients had no GERD symptoms. Only 3 (6%) patients complained of occasional heartburn and no patient had regurgitation. 3 (6%) patients had occasional disphagia, 12 (23%) were unable to belch, 27 (51%) referred early saciety, 35 (66%) flatulence and 5 (9%) had suffered transient diarrea. 10 (18%) patients were on antisecretory medications, half of them because of the concomitant treatment with AINEs. 49 (92%) of patients were very satisfied with surgery and 51 (96%) would undergo fundoplication again. Every patient said to feel better than before the operation. GERD-HRQoL showed excellent results (0–5) in 52 (98%) of 53 patients.
Conclusion: laparoscopic fundoplication is an effective long-term treatment for GERD (no more than 10% of patients need antisecretory medication) and despite the high rate of fundoplication side effects patients are very satisfied with surgery outcome.

P450

LAPAROSCOPIC REFUNDOPLICATION WITH HIATAL MESH PROSTHESIS FOR RECURRENT HIATAL HERNIA : THE LONG-TERM RESULTS

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Aims: Failure of the hiatal closure has proven to be the most frequent complication leading to revisional surgery after primary failed open or laparoscopic antireflux surgery. To prevent a hiatal hernia recurrence some authors recommend the use of prosthetic meshes for reinforcement of the hiatal crura. Aim of this prospective study was to evaluate the effectiveness of a circular hiatal onlay mesh prosthesis during laparoscopic refundoplication after primary intrathoracic wrap migration for a long-term period.
Methods: A total of 33 patients underwent laparoscopic refundoplication for recurrent reflux and/or dysphagia after primary failed antireflux surgery. The underlying morphological complication for symptom recurrence was a hiatal hernia recurrence with intrathoracic migration of the fundoplication. During revisional surgery, after breakdown of the former fundoplication, the esophageal hiatus was thoroughly revised and a circular polypropylene mesh was used to buttress the primarily simple sutured hiatal crura. Additionally, in all patients a refundoplication was performed. Recurrences, complications, functional data, esophagogastroduodenoscopy and cinematographic x-ray results were evaluated for a minimum follow-up period of 60 months.
Results: All reoperations were successfully completed laparoscopically. Twenty-one patients underwent laparoscopic 360 'floppy' Nissen refundoplication, 12 patients underwent laparoscopic 270 Toupet refundoplication. Hiatal closure was performed using a circular polypropylene sheet with a 3–4 cm keyhole for the esophageal body. Out of 24 patients who underwent redo-surgery before May 2000, no patient developed a recurrent hiatal hernia for a complete follow-up period of 12 months postoperatively. All 33 patients were re-evaluated and underwent complete diagnostic workup for a follow-up period of 60 months postoperatively. During long-term follow-up, in 2 patients (6%) anew recurrent hiatal hernia with intrathoracic wrap migration was found. In both patients, slippage occurred anteriorly to the esophagus. Both patients were scheduled to refundoplication again. In all other patients no recurrence occurred for the complete follow-up period.
Conclusions: Laparoscopic refundoplication for primary failed hiatal closure with the use of a circular mesh prosthesis is a safe and effective procedure to prevent hiatal hernia recurrence for short and mid term follow-up. However, for a long-term follow-up, even with prosthetic mesh, some patients fail again and have to undergo repeated surgery.

P451

THE MYTH OF SHORTENED ESOPHAGUS - LAPAROSCOPIC COLLIS GASTROPLASTY

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Background: The shortened esophagus has long been recognized as the most potential complicating factor for antireflux surgery. This entity is present only in 2 to 4 percent of all antireflux procedures. Of this group, two-thirds can be appropriately managed with extensive mediastinal mobilization of the esophagus to achieve the required esophageal lenght. The remaining 33 percents require an aggressive surgical approach

Methods: Between 1993 and 2005 404 laparoscopic anti-reflux procedures were performed in our department. In 62 cases the direct crural reconstuction could not be done due to large hiatal hernia. The onlay-mesh implantation were performed in 60 cases and only in two cases were needed tension-free hiatal reconstruction. In 12 cases shortened esophagus were found during the operation, and only 2 cases have forced us into doing laparoscopic Collis stapled-wedge gastroplasty.

Results: Mean operative time was 164 minutes. There were no any inraoperative or postoperative complication. At 6 weeks, there was normal esophageal lenght and LES pressure, without any serious symptom.

Conclusion: A complete understanding of the short esophagus and procedures for surgical correction are critical to avoid the complications and to achieve the best patient outcome. So the laparoscopic stapled-wedge Collis gastroplasy is a safe and reasonable alternative in the small subset of patients with severe reflux disease causing a shortened esophagus.

P452

INTRAOPERATIVE FLEXIBLE ESOPHAGOSCOPY FOR ASSESSMENT OF LENGTH OF LAPAROSCOPIC MYOTOMY IN ACHALASIA

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Introduction: There is an ongoing controversial discussion in the operative treatment of achalasia, what length of myotomy and what circumference of antireflux procedure is optimal for the long-term functional result. The purpose of this study is the evaluation of intraoperative flexible endoscopy in helping to determine the length of myotomy and the intraluminal effect a fundoplasty in a prospective serie of patients with achalasia treated by laparoscopic cardiomyotomy and Thal-fundoplasty.
Material and methods: 65 patients (35 males, 30 females, median age: 45 (13–74) years) with an objectivated diagnosis of achalasia (roentgenographic documentation, endoscopy, esophageal manometry, 24 h esophageal pH-monitoring) underwent laparoscopic cardiomyotomy and Thal-fundoplasty. Intraoperatively myotomy was performed starting 1cm below the laparoscopically visible gastroesophageal junction at the fat-pad and moving the dissection cranially towards the lower mediastinum. The extent of myotomy was controlled by endoscopy inside the esophageal lumen. Myotomy was considered sufficient if the endoscopist could see gastric lumen through the opened channel at the GE-junction. Another sign was transillumination of the laparoscopic light through the mucosa above the narrowing of the distal esophagus. A Thal-like fundoplasty was added to cover the muscular defect.
Short and long-term follow-up (1 year) was performed with Quality of life questionnaires, endoscopy and functional studies.
Results: Preoperative dysphagia: 100%, retrosternal burning: 80%. Duration of operation: 95 minutes (60–180). Perioperative morbidity: 8% (peritonitis following oesophageal perforation 1, pneumothorax 2, pneumonia 1). Mortality: 0%; Pre-/vs post-operative results: lower oesophageal sphincter pressure: 24/6, sphincter relaxation: 10/80,Quality of Life GIQLI: 98/114; Persisting dysphagia: 0; recurrent dysphagia after 1 year: 2/56; postop reflux after 1 year 7%. In 4 patients we observed an improvement of oesophageal persistalsis postoperatively.
Conclusions: Endoscopic control of the length of myotomy in laparoscopic myotomy and Thal-fundoplasty can be helpful to reach a good functional result. This concept can be applied as a safe technique to treat achalasia and prevent in more than 90% of the patients long-term functional problems.

P453

PARAESOPHAGEAL HERNIA AN UNDERESTIMATED DISEASE

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Introduction: Paraesophageal hernia is a rare condition, generally associated with different pathophysiological and clinical presentations compared to gastroesophageal reflux disease. We report our experiences with this surgical disease.

Material und Methods: From 1/2000 4/2006, 78 patients (24 m, 54 f, 44–88 Jahre) with symptomatic paraesophageal hernias were treated by laparoscopic hernia sac resection, hiatoplasty and partial posterior fundoplication including gastropexy.

Results: Merely in 10 patients, admission diagnosis was correct. 34/78 patients were endoscopically classified as 'large axial' hernias. 22 patients had parallel reflux symptoms, 13 patients required transfusions due to chronic or acute anemia. 20 patients had ambulant CT- or MRI-scans, only 8 patients had barium swallows. Procedure time was 85 12 [43–77] minutes. 3 patients had incarcerated hernias. 2 patients had intraoperative esophageal perforations, leading to laparotomy. 7 patients developed pneumonia postoperatively. 35/78 patients experienced transient dysphagia postoperatively.

Discussion: Paraesophageal hernias are generally falsely diagnosed by general practitioners and often underestimated by gastroenterologists and surgeons. Endoscopic diagnosis of paraesophageal hernia is principally difficult if not impossible, therefore rdiological conventional examniation should be mandatory in symptomatic patients. CT- or MRI-scans are unnecessary. Standard therapy is laparoscopic gastric reposition with hiatoplasty, gastropexy and prophylactic fundoplication. Postoperative morbidity is significantly higher compared to laparoscopic anti-reflux surgery.

P454

POSSIBILITY TO DECREASE THE RECURRENCY AT LAPAROSCOPIC HIATAL RECONSTRUCTION

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Aims: It is known from literature that after laparoscopic surgery of hiatal hernias there is a high percentage of recurrency from 10 up to 50 percent, especially at reconstruction of large hernias. Based on our experiences, our aim is to point out that correct indication and operating technique for the primary operation should be prophylactic against recurrence.
Methods: Between 1993 and 2005, 404 laparoscopic antireflux procedures were performed at our department. In 75 cases the direct crural reconstuction with sutures could not be done - due to large hiatal hernia. The onlay-mesh implantation were performed in 73 cases, and in 2 cases were needed tension-free hiatal reconstruction with mesh. We have analised the steps of our operations from view of recurrency.
Results: In the earlier period -without mesh implantation- there were five recurrent hernias due to crural reconstruction with absorbable sutures, intracorporaly knotted crural sutures and extremely large hiatal hernia. At patients with onlay-mesh implantation was one recurrent hernia. All patients were laparoscopically reoperated, and reconstructions were successful. The patients are doing well without any radiographic or endoscopic evidence of recurrence. The control manometry shows normalized lower esophageal sphincter (LES) pressures. Besides the adequate hiatal reconstruction, the correct calibration of the lower esophageal sphincter (LES) and holding it safely in the abdominal cavity should decrease the chance of recurrence and postoperative dysphagia.
Conclusion: The mesh implantation onlay or direct mesh - with correct indication and technique decreases the rate of recurrence. The proper calibration of wrap and fixation should also decrease the chance of recurrence. Laparoscopic reoperation is a safety procedure with good results in hand of experienced surgeon in the minimal invasive surgery.

P455

THE EFFECT OF LAPARASCOPIC NISSEN FUNDOPLICATION ACID REFLUXX TO HISTOPATOLOGICAL TREATMENT

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Preface: In the illness of Gastroesophageal reflux (GERD), Floopy Nissen Fundoplication operation satisfies the patients with a high ratio. The experiments targeted if operational treatment has any amelioration on acid reflux and histopatological illnesses as semptoms.

Material Method: Between January 2004 and August 2005 the patients that had laparoscopic floopy Nissen Fundoplication operation, and the diagnosis of GERD examined with the following; 24 hour period pH monitorization semptom scores in 3.th week and 6.th month pre after operation and the histopatological changes in endoscopic material.

Facts: The average age of patients was 43.4, 14 man and 26 women. The time period between the start of ailments and the operation were 6 years. The 24 hour pH monitorization of DeMeester score before the operation were 63,6 (= 14.72), with Total time of reflux 19,6 (= 4,2), Total number of reflux 84 (= 50), the number of reflux more than 5 is 7,3 (= 4,0), the longest reflux period 63,9 (= 9,2) and semtom score was 8.
The 24 hour pH monitorization results in 3.th week and 6.th month were the following with Demester score 29,6– 26.7, total reflux time 10.3-9.7, reflux count 34,5–36, number of reflux with more than 5 minutes 2,9–2.9 And the longes reflux period 29,8 42 min. The Semptom score postop in 6.th month were 3. There were no improvements seen at barret osephagus a patients distal ozefagus biopsies, however the histopatological observed esophagitis degree were examined to have evident amelioration.

Result: The floopy Nissen fundoplication is an effective way in obstruction of acid reflux and amelioration of esophagitisozefajitin as much as the treatment of ailments.

P456

LAPAROSCOPIC HIATOPLASTY WITH MESH-REINFORCEMENT AND GASTROPEXIE WITHOUT RESECTION OF THE HERNIAL SAC IN PARAESOPHAGEAL HERNIA III AND IV

NO SHOW

P457

DYSPHAGIA AFTER LAPAROSCOPIC ANTIREFLUX SURGERY. THE IMPACT OF DIVISION OF SHORT GASTRIC VESSELS

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Background: Laparoscopic Nissen fundoplication and the Rossetti modification represent two different surgical approaches to resolve gastroesophageal reflux disease (GERD). Concerns have arisen that the Rossetti modification results in increased of postoperative dysphagia. In a prospective randomized trial, Watson found similar short-term results without reduction in the incidence or severity of dysphagia after division of the short gastric vessels during laparoscopic Nissen fundoplication in patients with normal esophageal motility after a follow-up at 6 months and objetive investigation at 3 to 4 months after surgery. We performed a comparative study in order to define the impact of division of short gastric vessels in patients with mild and severe esophageal motility disorders.

Methods: In this prospectived trial we compared the results of two groups (40 and 40) of patients with mild and severe esophageal motility disorders who were randomized submitted to the Rossetti or Nissen fundoplication procedures. Disphagia, other side effects and clinical outcome were evaluated at 1, 3 and 6 months after the operation.

Results: The two groups were quite similar regarding demographic data such as age, gender, preoperative clinical symptoms, and duration of GERD. There were not differences related to the incidence of dysphagia at1 month (N and R 48%), 3 months (N 13%, R 11%) and 6 months (N 5%, R 8%), the persistent dysphagia happened in patients with worse motility in both techniques.

Visicks evaluation was similar, showing good and excelent results in more than 90% of patients. We had one conversion because of bleeding during the transection of short vessels and one reoperation secondary to a severe and persistent dysphagia after a Nissen fundoplication.There were not mortality.

Conclusion: Both techniques results safety for the control of the disease with lower morbidity and a shorter length of hospital stays. There were not significant differences related to dysphagia compared the techniques early or middle terms. Persistent dysphagia appeared in patients with severe esophageal motility disorders independently of the division of short vessel or not, so we consider in those patients evaluate partial fundoplication techniques.

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LAPAROSCOPIC MANAGMENT OF LARGE HIATAL HERNIAS WITH POLYPROPYLENE MESH

NO SHOW

OESOPHAGEAL MALIGNANCIES

P458

MINIMALLY INVASIVE ESOPHAGECTOMY FOR CARCINOMA ESOPHAGUSAN INDIAN EXPERIENCE

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Objective: The experience of minimally invasive esophagectomy (MIE) for malignant esophageal lesion is limited in world literature. The aim of this study was to evaluate the outcome of minimally invasive esophagectomy procedures viz., thoracolaparoscopic esophagectomy, laparoscopic transhiatal esophagectomy and laparoscopic esophagogastrectomy for the treatment of esophageal cancer.
Method: From 1995 to 2004, we performed MIE in 130 patients of esophageal cancer. Indications for surgery was squamous cell carcinoma (n = 110) and adenocarcinoma (n = 20). Squamous cell carcinoma was found in middle third (n = 72) and lower third (n = 38) of esophagus while adenocarcinoma was found at lower end of esophagus and cardia only. Only one patient (0.77%) received neoadjuvant therapy. Thoracolaparoscopic esophagectomy was performed for middle third lesions. Laparoscopic transhiatal esophagectomy was performed for lower third SCC (n = 38) while all patients harboring adenocarcinoma at cardia underwent laparoscopic esophagogastrectomy (n = 20) with intrathocacic anastomosis.
Result: Of 130 patients, 102 (78.46%) were males and 28 (21.54%) females. Median age was 61.3 years (range, 30–79). Approach to esophagectomy combined with 2 field lymphadenectomy was thoracolaparoscopic (n = 72, 55.38%), laparoscopic transhiatal (n = 38, 29.24%) and laparoscopic esophagogastrectomy (n = 20, 15.30%). Minimally invasive esophagectomy was successfully completed in all patients. Mean number of lymphnodes harvested were 16 (range, 11–34). Median operative time was 210 ± 80 minutes and mean blood loss 150 ± 90 mL. Median intensive care unit stay was 2 days (range, 1–35), time to start oral intake was 4 days (range, 2–45) and hospital stay was 8 days (range, 6–55). 30 days postoperative mortality was 0.77% (n = 1). Major morbidity occurred in 16.75% with anastomotic leak rate of 4.62% (n = 6). In a mean followup of 16 months there were no neck or port-site reccurence.
Conclusion: MIE is feasible, safe and oncologically acceptable procedure for malignant esophageal lesions with lower mortality rate (0.77%) and shorter hospital stay (8 days). It has potential to revolutionise the management of esophageal cancer.

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THE USEFULNESS OF THORACOSCOPIC SURGERY FOR ESOPHAGEAL CANCER

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Aim: To clarify the usefulness of thoracoscopic surgery for esophageal cancer, surgical results were evaluated.
Patients and Methods: A total of 76 patients with esophageal cancer between April 2000 and March 2005 were included in this study. Of them, 36 patients underwent thoracoscopic surgery and 40 patients underwent conventional open surgery. Surgical results were compared between the two groups.
Operative procedure: Initially, subtotal gastric tube was made by hand assisted laparoscopic surgery (HALS) and lymph nodes in the lower mediastinum was dissected through the diaphragm. Secondly, lymph nodes in the upper and middle mediastinum were dissected video-assisted thoracoscopic surgery (VATS) through the 5 cm of mini thoracotomy and three ports. In these procedures, LigaSureTM Atlas was frequently used and resulted in clip-less and suture-less surgery.

Results: Operation time was longer (190 vs 225 min) and blood loss was lower (655 vs 450ml) in the thoracoscopic group, but no difference in observed in the number of dissected lymph nodes (26.3 vs 25.7). There was no difference in anastomotic leakage (10.0 vs 8.3), pneumonia (5.0 vs 0), recurrent nerve palsy (10.0 vs 11.1), intubation time (5.95 vs 5.45), duration of systemic inflammatory response syndrome (SIRS) (6.55 vs 4.60), peal CRP value (19.0 vs 16.8), peak bilirubin value (1.69 vs 1.10), ICU stay (7.5 vs 6.2), hospital stay (35.0 vs 30.4) between the two groups. There was no mortality. There was no difference in survival by each stage.

Advantages of thoracoscopic surgery: This manipulation can offer contiguous and expansive view through a small surgical wound. Large monitor can improve the safety and educational effect for plural younger surgeons.

Conclusions: Thoracoscopic surgery for esophageal cancer provides surgical outcomes as same as open esophagectomy according to the learning curve. A useful device like LigaSureTM Atlas is necessary to perform surgery more safely and steadily.

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VIDEO ASSISTED ESOPHAGECTOMY FOR THORACIC ESOPHAGEAL CANCER

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Introduction: Laparoscopic surgery offers a new approach to surgical management of esophageal cancer. We apply two different operation procedures. Hand assisted thoracoscopic surgery (HATS) as the standard procedure for thoracic esophageal cancer. Mediastinoscope-assisted transhiatal esophagectomy (MATHE) is applied for the superficial esophageal cancer and for high medical risk patients. By applying these two operative procedures, the overall percentage of the video assisted operation has hit over 90%.
Methods and procedures: HATS: Assistant surgeon inserts his left hand into the right thoracic cavity through a small incision in the upper abdomen to help surgeons VATS procedure. The abdominal incision is then used for hand assisted laparoscopic surgery (HALS).
MATHE: Mediastinoscope equipped with a dissector is inserted from the cervical incision. The blood vessels and connective tissues around the thoracic esophagus are dissected by LCS. Transhiatal approach is performed with HALS procedure under the vision of flexible endoscope.
Results: We experienced 68 cases of HATS and 18 cases of MATHE. The HATS group was compared to the radical open thoracotomy group. The amount of blood loss (325 vs 430mL) and the number of dissected mediastinal lymph nods (23 vs 20) were not notable, whereas the time of thoracic approach was significantly longer (225 vs 159min). The average of 5-year survival rate of HATS group marked 68%, which is equal to the rate of the open thoracotomy group. The operative result of MATHE shows the following records; operation time; 475min, blood loss; 590mL. 5-year survival rate of high risk group; 55%.
Conclusion: Video assisted esophagectomy for thoracic esophageal cancer is feasible procedure in order for the less invasive surgery.

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THORACOSCOPIC ESOPHAGECTOMY FOR ESOPHAGEAL CANCER PATIENTS; REVIEW AND COMPARISON TO OPEN SURGERY IN LONG-TERM FOLLOW-UP AT A SINGLE INSTITUTE

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Objective: The aim of this study was to determine whether the thoracoscopic procedure improves respiratory functions and reduces non-esophageal cancer death.

Method: 191 esophageal patients who underwent esophagectomy by open or thoracoscopic procedure were followed-up and their prognoses were compared by presence of surgical procedure, pathological stage of tumor and preoperative adjuvant therapies by multivariate analyses. Postoperative pleuritis and respiratory functions were examined in available patients.

Results: Preoperative radiation had a high hazard ratio and the thoracoscopic procedure had a low hazard ratio, in terms of non-esophageal cancer death. Postoperative vital capacity was maintained best in patients treated with thoracoscopic esophagetcomy without preoperative radiation, and declined the most in those treated with open esophagectomy with preoperative radiation. Open esophagectomy increased the risk for pleuritis and pathological severe or moderate pulmonary pleuritis was increased in patients with preoperative radiation.

Conclusions: The thoracoscopic procedure is recommended in irradiated esophageal cancer patients.

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PROSPECTIVE STUDY OF MINIMALLY INVASIVE RESECTIONS FOR GASTRIC AND OESOPHAGEAL CANCER: DEVELOPMENT OF A NOVEL STUDY DESIGN

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Aims: Interest in minimally invasive gastric and oesophageal cancer surgery (MIGOCS) has increased greatly in the last five years. Laparoscopic gastrectomy with radical node dissection is now performed frequently in Japan, and large series of minimally invasive resections for oesophageal cancer have been reported, with excellent results, but development of the necessary techniques remains slow in Europe. The development of good quality evidence for new surgical techniques is hampered by the difficulty of transition from initial case series to randomised controlled trial (RCT). Our aim is to develop a co-operative national group to allow consensus building, learning curve monitoring and quality control tool development with the aim of proceeding to a multi-centre RCT.
Methods: Surgeons in the UK and Ireland with an interest in MIGOCS were identified by personal communication, at meetings and by e-mail and invited to take part. A consensus conference defined a 9 section, 64 item dataset to record patient details, operative technique and times, clinical outcome and pathological outcome. A limited period for retrospective registration of cases was permitted, and a Research fellow appointed to verify data entered. Regular meetings and e-mail discussion fora were devised to permit development of (a) agreement on quality control measures (b) development of CUSUM-based monitoring system for outcomes (c) agreement on the criteria for completion of the learning curve prior to RCT data entry (d) discussion on the appropriate initial questions for an RCT.
Results: 36 surgeons at 25 centres have registered for the co-operative group. Retrospective cases have been logged, and live entry of prospective cases has begun. Distrubution of operation types, overall morbidity, mortality and mean hospital stay, nodal yield and % R0 resections will be presented. Consensus discussion has improved agreement on the questions to be addressed in a future RCT.
Conclusions: A co-operative prospective approach to developing MIGOCS is feasible at national level and has potential advantages in terms of allowing the development of a solid evidence base for the evaluation of this surgery.

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TECHNIQUE OF LAPAROSCOPIC ESOPHAGEAL RESECTION

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Aims: Esophageal resection has a morbidity of up to 50% and a mortality of 10%. In majority there are pulmonary complications. Minimalinvasive surgery leads rather seldom to such complications. Aim of this study is to find out if the advantages of minimal invasive surgery also count for laparoscopic esophageal resection.

Methods: Between 01.01.2003 and 01.08.2005 we performed 24 laparoscopic esophageal resections in 2 females and 22 males.

Results: 9 patients were operated laparoscopic transhiatal with collar anastomosis, in 10 cases combined laparoscopically and thoracoscopically and 5 received laparoscopy and thoracotomy. Intraoperative we observed one rupture of the suture of the gastric tube and in 2 cases no collapse of the lung could be achieved.
For the transhiatal technique we had an operation time of 165min (150–180min), for the abdomino-thoracal procedure 300min (240–360) respectively. Bloodloss was found to be 300ml. Abdominal 8 (5–12) lymphnodes were dissected, thoracal 4 (2–8) (transhiatal) and 16 (12–24) (thoracoscopic) respectively. Major complications were 2 leakages of cervical anastomosis and one leakage of the gastric tube. 30 days letality was 0%. After operation patients were 1,5 days on ICU and left the hospital on 10th day.

Conclusion: Our first experiences show, that the laparoscopic esophageal resection has a significant lower rate of morbidity.

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QUALITY OF LIFE AFTER LAPAROSCOPIC APPROACH IN SURGERY FOR CANCER OF THE OESOPHAGUS AND STOMACH

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Objectives: When considering surgical treatment for upper gastro-intestinal malignancies consideration must be made regarding the patients expected post operative quality of life. The aim of this study was to evaluate the quality of life of patients who had undergone potentially curative laparoscopically-assisted Ivor-Lewis oesophagectomy and laparoscopically-assisted total and subtotal gastrectomy for treatment of oesophageal and gastric cancer.

Methods: We assessed 30 consecutive patients who were selected for, and underwent oesophagectomy or total/subtotal gastrectomy between January 2003 and April 2005. They completed the European Organization for Research and Treatment of Cancers (EORTC) quality of life questionnaire (QLQ-C30) and dysphagia scales (QLQ-OES24 and QLQ-STO22). All patients were disease-free at the time of assessment, with a mean age of 70 years (54–91), and a median follow up was 20 months (3–32 months).

Results: Of 30 patients, 27 completed the questionnaire (90% response rate). General quality of life was comparable with reference values for the same age group. All of the patients led an active life. Most patients considered the side effects of the operation as mild. Out of 16 patients who have undergone oesophageal resections 8 (50%) didnt have dysphagia 'at all' and 6 (37,5%) were troubled just 'a little'. Only 1 (6%) required repeated dilatations.

Conclusions: Quality of life scores in patients who underwent laparoscopic assisted resections compared favourably when compared with historical data. This may well be an important consideration when planning the surgical approach to upper gastro-intestinal malignancies in the future.

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ROLE OF MINIMALLY INVASIVE SURGERY IN THE MANAGEMENT OF PATIENTS PRESENTING WITH GASTRO-OESOPHAGEAL NEOPLASMS

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Introduction: With the advent of minimally invasive surgery for oesophageal and gastric neoplasms, the management of these patients has required modification. We present our experience in this field at a District General Hospital.
Methods: This is a prospective audit of 150 consecutive patients presenting with oesophageal and gastric neoplasms during a 2-year period from 1st January 2003. 98 patients were diagnosed with oesophageal and 47 with gastric neoplasms. The mean ages were 71 (52–97) years and 73 (49–97) years respectively, with a sex ratio (male:female) of 1.9:1 and 1.2:1. Patients were staged using computed tomography, endoscopic ultrasound and laparoscopy if indicated. Particular emphasis was placed on the nutritional status and feeding jejunostomy tubes were often placed at the time of laparoscopy. Patients deemed appropriate for resectional surgery were assessed and optimised prior to surgery in a dedicated pre-assessment clinic.
Results: After staging and assessment, overall 32% patients (18/98 oesophageal and 26/47 gastric neoplasms) underwent surgical intervention, of which 76% (35) were minimally invasive procedures. Palliative surgical interventions were undertaken for 28% (13) of the patients (Oesophageal 23% (3) and Gastric 77% (10)). The reasons for non-surgical management included advanced disease (69%), co-morbidity (20%), patient wishes (5%), and progression of disease despite chemotherapy (9%). The median survival after non-surgical management of oesophageal neoplasms was 6.3 months (2 weeks to 28 months), while after surgical management it was 17.6 months (7.8 to 35 months). The corresponding figures for gastric neoplasms were 5.2 months (3 weeks to 21 months) and 23 months (13.8 to 49 months). None of the patients who underwent potentially curative procedures (minimally invasive or open) for oesophageal or gastric neoplasms died within 30 day period following surgery.
Conclusions: Early experience of managing these patients using minimally invasive techniques has shown promising results. Regionalisation of cancer care has a potential for excluding many of these patients from specialist care including latest innovations in surgical techniques and newer oncological therapies, both in curative and palliative settings.

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LAPAROSCOPICALLY-ASSISTED, STAGED OESOPHAGECTOMY IN A JEHOVAHS WITNESS

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Aims: we present the first known published case of an oesophagogastrectomy in a Jehovahs Witness. This was performed as a laparoscopically assisted, two-staged procedure, which was used primarily to minimise blood loss and to allow build up of haemoglobin and iron stores prior to the definitive resection.

Methods: a 52 year-old female was diagnosed with distal oesophageal adenocarcinoma, staged as T3N1M0. She underwent neo-adjuvant chemotherapy following which she was re-staged and the tumour was deemed resectable. Stage one: consisted of laparoscopic mobilisation of the proximal greater curve of the stomach with division of short gastric vessels. Laparoscopically-aided percutaneous technique was used to place a feeding jejunostomy tube. Stage two: consisted of definitive laparoscopically-assisted oesophagogastrectomy, which was carried out four weeks after stage one. Gastric mobilisation was completed laparoscopically, followed by a right-sided thoracotomy, resection of tumour and a stapled intra-thoracic anastomosis. Blood loss was approximately 600mls.

Results: the patient was extubated the morning after surgery and made an uneventful recovery. She was discharged home on the fifteenth post-operative day. Haemoglobin on discharge was 11.2g/dl with no clinical requirement for blood products to be given in the post-operative period.

Conclusions: oesophageal surgery can be performed safely in high-risk patients using a multidisciplinary, minimally invasive, staged approach.

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ENDOSCOPIC THERAPY FOR SYMPTOMATIC BENIGN ANASTOMOTIC STENOSIS AFTER TWO STAGE OESOPHAGECTOMY COMPARASION BETWEEN TWO ANASTOMOTIC TECHNIQUES

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Aim: Oesophago-gastric anastomosis with gastric transposition is a common method of reconstruction following 2 stage oesophagectomy (TSO) for oesophageal cancer but the choice of anastomotic technique is often debatable. We have performed a prospective non randomised study comparing the two methods of anastomosis in vogue, namely hand sewn single layer technique vs. mechanical stapling with circular EEA device.

Methods: All the patients undergoing oesophago-gastric anastomoses over the last 3 years following curative resection for oesophageal cancer are followed up prospectively; both the hand sewn group and stapler group are compared in terms of symptomatic anastomotic stricture requiring dilatation/stenting and anastomotic leak.

Results: A total of 77 patients underwent oesophago-gastric anastomoses during this period (Hand sewn anastomosis in 37; Circular EEA anastomosis in 40). In each group the number of anastomotic strictures requiring dilatations are 3:5 ($p > 0.05$); stenting procedures are 1:2 ($p > 0.05$) and there are no anastomotic leakages in any group.

Conclusion: There are no significant differences in the anastomotic stricture rate and anastomotic leakage between the hand-sewn group and the stapler group following TSO. Meticulous technique contributes to the success of anastomosis more than choice of technique.

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NEO-OESOPHAGEAL OUTLET OBSTRUCTION DUE TO EXTRINSIC RECURRENCE FOLLOWING TWO STAGE OESOPHAGECTOMY A STUDY OF PALLIATION OF DYSPHAGIA USING SELF-EXPANDING METALLIC STENTS

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Aim: The prognosis of recurrent oesophageal cancer following two stage oesophagectomy (TSO) with curative intent remains poor and various available treatment modalities aim at palliation of symptoms, most significant being the dysphagia due to intrinsic or extrinsic recurrence. Role of self-expanding metallic stents (SEMS) in the palliation of dysphagia caused by intrinsic mucosal recurrence is well established while the use the SEMS in relieving the dysphagia caused by extrinsic compression from loco-regional nodal recurrence at hiatus is still not widely adopted. We in this prospective study aim to evaluate the role of SEMS in palliating dysphagia secondary to the neo-oesophageal (pulled up stomach) outlet obstruction due to extrinsic compression.
Methods: All patients with clinically suspected recurrent disease following TSO with curative intent underwent endoscopy, water contrast swallow and contrast enhanced CT scan using a standard protocol. All patients were discussed in the Upper GI Multi Disciplinary Meeting and appropriate treatment decision was made in each case.
Patients with total dysphagia secondary to extrinsic compression at hiatus were selected for endoscopic palliation and included in this study. These patients underwent therapeutic endoscopy and insertion of a self-expanding Ultraflex metallic stents straddling across the obstructed outlet of the neo-oesophagus under x-ray control and sedation. Check water contrast swallow was carried out to confirm the position and patency of the SEMS.
Results: A total of four patients satisfied the criteria and were included in the study. The stenting procedure was successful in all of them with no procedure related complications. The dysphagia improved very significantly in all, allowing soft diet in the short survival period after stenting (median survival - 28 days; range 5–58 days).
Conclusion: We recommend endoscopic stenting as one of the options to consider in patients with recurrent oesophageal malignancy at the hiatus. This technique improves the quality of life for the rest of their short survival by palliating dysphagia successfully.

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SHORT AND LONG TERM RESULTS OF HAND ASSISTED THORACOSCOPIC ESOPHAGECTOMY FOR THORACIC ESOPHAGEAL CANCER

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Since 1996, we performed thoracoscopic esophagectomy for thoracic esophageal cancer as a minimally invasive surgery. In 1998, hand-assisted thoracoscopic surgery (HATS) was introduced to secure surgical field. In this method, an assistant inserts his left hand into thoracic cavity through a small incision in the upper quadrant. Our aim was to investigate both short and long term result of this procedure.
Between 1996 and 2005, we performed thoracoscopic esophagectomy on 72 patients. Mean operation time was 690 min and conversion to thoracotomy took place in 7 cases.
The reason of conversion to thoracotomy was due to too much invasion of cancer in 5 cases, due to perforation of trachea in 1 case and due to bleeding from aorta in 1 case. The incidences of pulmonary complications and recurrent laryngeal nerve palsy were 13.9% and 22.2%, respectively. The hospital death was found in 3 patients: 1 case of pulmonary embolism, 1 case of mediastinitis, and 1 case of sepsis. The average number of resected mediastinal lymph nodes was 20.9 and there was no significance in the number of resected nodes between thoracoscopic surgery and thoracotomy. Average time of follow-up was 44 months and the difference in 5-years survival was insignificant between thoracoscopic group and thoracotomy group. In conclusion, the surgical field is well secured in hand-assisted thoracoscopic esophagectomy, and this procedure is a feasible in short and long term results for thoracic esophageal cancer.

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THE PRONE THORACOSCOPIC APPROACH IS AS SAFE AS THE OPEN PROCEDURE FOR TWO PHASE OESOPHAGECTOMY IN AN EARLY AUDIT

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Aim: prospective Audit of the prone laparoscopic thoracic approach as compared to the open approach in terms of morbidity and length of HDU stay.
Method: 10 patients who under went total two phase laparoscopic oesophagectomy were prospectively compared to outcomes from 10 patients who under went an open procedure Particular attention was paid to intra-operative and post operative morbidity. These include blood loss, damage to adjacent organs, anastomotic leaks, chest infections, postoperative HDU stay.
Results: 10 patients (age 61–78, median 70), 7 patients were T3N1, 2 were T2 N1 and 1 T2NO who underwent total two phase laparoscopic oesophagectomy were compared with 10 patients (age 58–77, median 69), 8 patients were T3N1, 1 patient was T2N1 and 1 patient was T2N0 who underwent two phase open oesophagectomy in a prospective audit. All were type 1 or 2 tumours. There were no anastomotic leaks or damage to adjacent organs in this small series. For laparoscopic versus open, the mean and standard deviation total blood loss was (490mls $\pm$ 145mls) as compared to (565 $\pm$ 340) mls of blood respectively ($P > 0.05$). Chest infections were diagnosed on positive sputum samples with or without systemic evidence. None required prolonged hospital stay due to their chest infections. There were 4 patients in the laparoscopic group as compared to 5 patients in the open group who developed chest infections. HDU stay was 3 days in the laparoscopic group as compared to 7 days in the open group. $P > 0.05$.
Conclusion: Based on this small sample the results suggest that the laparoscopic prone approach is as safe as the open approach with evidence of trends to being advantageous in terms of morbidity and length of stay in HDU. Bigger series are needed to confirm these trends.

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A COMPARISON OF COMPLETENESS OF MEDIASTINAL LYMPHADENECTOMY, AND SURVIVAL AFTER VIDEO-ASSIST AND OPEN ESOPHAGEAL RESECTION FOR SQUAMOUS-CELL ESOPHAGEAL CARCINOMA

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Background: It is established that a number of resected lymphnodes influences on results of esophageal resection for cancer, and 5 and more metastatic lymphnodes found, worsen the survival.
Aims: To compare the completeness of lymphadenectomy in esophageal resection made by video-assist and open technique.
Materials and Methods: Lymphadenectomy in two groups of patients after esophageal resection was compared 14 were treated by laparotomy and video-assist thoracoscopy (VAT), 51 by open surgery through laparotomy and thoracotomy (TH).
Results: During surgery in all these patients generally 1404 lymph-nodes were resected; 47,1% were metastatic. Of a total median number of 24 lymphnodes resected in both groups median number of resected mediastinal lymphnodes in VAT group was 14, in TH group12 (NS).
On analysis of influence of a number of resected lymphnodes on patient survival in group of pTNM III o carcinoma only; 20 patients with 0 10 lymphnodes resected were compared with 15 patients with 11 and more resected lymphnodes, no matter of the type of resection and microscopic changes. Median survival time in patients with 0–10 lymphnodes resected was 20 months, with 11 and more 23 months (NS).
I the same group, in 16 patients with 0–5 metastatic lymphnodes, compared with 19 with 6 and more metastatic lymphnodes found, results were statistically significant. The likehood of survival of patients with 0–5 metastatic lymphnodes found was 100% for 1 year, 75% for 2 years, 40% for 3 years, 30% for four years and more. The likehood of survival of patients with 6 or more metastatic lymphnodes found was 85% for 6 months, 50% for 1 year, 30% for 2 years. There were no patients with survival of 3 years or more.
Conclusions: in patients with advanced esophageal cancer the range of lymphadenectomy has no influence on survival, nor the operative technique. The only measure is the cancer spread measured by number of metastatic lymphnodes.

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ENDOSCOPIC ULTRASOUND: ITS IMPACT ON STAGING AND RECURRENCE OF OESOPHAGEAL CANCER

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Introduction: Endoscopic Ultrasound (EUS) has evolved as additional staging modality for accurate assessment of loco-regional extent of oesophageal cancer. We determined the role of EUS in accurate staging, recurrence and survival outcome.
Methods: Our cohort includes 252 patients who underwent curative resection of oesophageal cancer from 1995 to 2005. 138 patients had staging laparoscopy and CT scan for staging of tumour. Further 114 patients were offered additional staging tool (EUS) for assessment of local invasion (T-stage) and regional spread (N-stage).
Results: The accuracy of EUS is shown in following table
Accuracy of EUS

Correct Staging	Over Staging	Under Staging	Total
T1	70%	0%	30%
T2	36%	18%	46%
T3	73%	18.5%	8.5%

Similarly accuracy of EUS was found to be 55% for N0 and 63% for N1 stage ($p < .001$).
Over all recurrence was as follows;
Over All Recurrence

	EUS Group 25.4%	Non EUS Group 35%
T1	0	0
T2	6	10
T3	23	38

Median survival time for EUS group was 34 months (95% CI; 20/49) and in Non- EUS group was 21 months (95% CI; 12/31) value.
Conclusion: EUS plays vital role in staging and decision making about the modality of treatment in oesophageal cancer.

PAEDIATRIC SURGERY

P473

ENDOSCOPIC MANAGEMENT OF VP SHUNT COMPLICATIONS - UNI- AND MULTIPORTAL APPROACHES

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Objective: The authors review their experience of TV-controlled uni- and multiportal endoscopic technique in diagnosis and treatment of complications of V-P shunt surgery in 25 children suffering from hydrocephaly.
Method: There were 12 female and 13 male, their age distributed between 0.5–15 years (mean 6.3). There were 12 patients with aqueductal stenosis, 3 patients with cyst of third ventricle, 2 patients with Arnold-Chiary - II malformation, 2 patients with Dandy-Walker variant and one each of the following: lateral ventricular tumor, tumor of third ventricle (craniopharyngioma), cyst of velum interpositum, encephalocele with alobar holoprosencephaly. We used a monoportal approach with ventriculostomy in 17 cases and multiportal brain and/or peritoneal endoscopic interventions in all other cases.
Findings: All patients were operated on successfully. There was no postoperative mortality or morbidity in this series. The follow-up period ranged from 3 to 114 months. In 22 patients the symptoms presented prior the procedure were relieved. In cases of fenestration the cysts size was decreased with improvement of symptoms. In case of ventricular tumor complete resection was performed. In case of III ventricle tumor partial resection with CSF pathway circulation restore was performed. It is necessary to note, that exception of patients with new shunt replacement and peritoneal catheter replacement, 17 out of 20 patients (85%) became shunt independent. In 11 cases (55%) achieved complete shunt removing. In the patient with postmeningitis hydrocephalus who did not improve from preoperative conditions, a second procedure of VP shunt was performed 1 month after third ventriculostomy. In other 2 cases of Arnold-Chiary-II malformation and hydrocephalus with unknown etiology ventriculostomy was unsuccessful and also shunt and external drainage required during 1 month after endoscopic operation.
Interpretation: In the author's experience endoscopic surgery via a uni- and multiportal approaches is effective and safe technique in diagnosis and surgical treatment of hydrocephaly and complications of VP-shunt.

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LAPAROSCOPIC-ASSISTED ONE-STAGE TRANSANAL ENDORECTAL RESECTION AND COLONIC PULL-THROUGH FOR HIRSCHSPRUNGS DISEASE; CASE REPORT

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Laparoscopic-assisted one-stage pull-through operation is a good procedure for Hirschsprungs disease (HD).We report our experience using laparoscopy with a transanal coloanal anastomosis for HD.
A 5-month-old infant with biopsy-confirmed HD underwent laparoscopic-assisted one-stage transanal endorectal resection and colonic pull-through. The procedure was done through one 5-mm camera port and two 5-mm and 3-mm working ports. The sigmoid colon and proximal rectum were mobilized laparoscopically. After a transanal endorectal mucosal dissection, a coloanal anastomosis was done. We split the posterior wall of the aganglionic muscular cuff before a coloanal anastomosis in order to prevent postoperative stenosis of the pulled-through colon. Cryptorchidopexy was also done. There were no postoperative complications.

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PYLOROTRAUMAMYOPLASTY: AN EXCELLENT TREATMENT FOR HYPERTROPIC PILORIC

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Introduction: Hypertrophic pyloric stenosis (HPE) is a common surgical pathology in children. The incidence is 1.8 per 1000 live births for Hispanic. Pyloromyotomy (PM) as described by Ramstedt has been the treatment of choice. Traditionally the operation is performed through a transverse upper abdominal incision. In 1986 Tan-Bianchi described a semicircumbilical (SU) incision for better cosmetic results. In 1991 Alain reported PM by laparoscopy but especial equipment is required. In 1987 Castaon described pyloro-rotraumamyoplasty (PT) as a new technique through traditional open surgery or laparoscopy. We report a retrospective study with TP with SU incision as an alternative procedure at hospitals, where laparoscopic surgery is not always possible.
Methods: Included all patients who underwent PT through SU incision from 2001 to 2005. Variable were age, sex, weight, operation time, complications. In PT through SU incision is not necessary to exteriorize the pylorus. PT is performed introducing a Babcock clamp and apply to the hypertrophic muscle.
Results: We performed 25 PT. Mean age was 34.9 (17 to 65 days), 72% were boys and 28% were girls. The mean weight was 3.4 Kg (1.8 kg to 4.9 Kg), Palpation of pyloric olive were in 92% of cases and were confirmed by ultrasonography only in 20% and by upper gastrointestinal series in 12% of patients. Operating times were 20.6 minutes 6.3 (12 to 35 minutes). Oral fluids were started at 6.6 hours (4–24 hours). In 23 patients post surgical hospitalization times were 25.3 hours (range 16–48 hours). In 3 patients the hospitalization time was longer but no related with PT procedure. There was postoperative vomiting only in 8%. Post surgical umbilical hernia was presented in 1 patient. There was 1 death no related with PT.
Conclusions: PT has been applied in few centers. There is not reported major complication as duodenal injury or mucosal perforation as in PM. In spite many studies have demonstrated that PM through SU incision is safe with excellent cosmetic results, there are reports of higher complications rate. For that reason PT and SU incision is an excellent option because special equipment is not requiring so it is cheaper than laparoscopy.

PANCREAS

P476

NONINVASIVE COMPLEX DIAGNOSTIC AND THERAPEUTIC PROCEDURES IN PATIENTS WITH ACUTE PANCREATITIS

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The rate of acute pancreatitis (AP) in patients has an increasing tendency. AP treatment constitutes one of the most disputing problems. We use approach of minimal interventions in patients with AP: thus we use the method of roentgenendovascular surgery (REVS) for the earliest diagnosis and treatment of AP together with the traditional methods.
AP diagnosis is made on the basis of contrasting decrease or deficiency in one or two abdominal trunk arteries that reveals inflammation or destruction in one of the pancreatic gland (PG) parts. The PG parenchyma collapse was proved afterward by the data of the ultrasound investigation.
It was shown that there was contrasting failure in the PG head together with the PG body and tail contrasting existence in 11 of 14 patients during the course of the REVS diagnosis which confirmed PG head oedema and inflammation and oedematic form of AP as well. The rest 3 patients didnt show contrasting of the whole PG parenchyma that was in favour of destructive AP formation. These manipulations during the course of the REVS diagnosis allowed us to localize precisely the pathological process in the PG head. 26 patients with AP received adequate traditional conservative therapy. We administered dalargin intraarterially in 8 patients with AP additionally to the traditional treatment.
Pain syndrome and endotoxicosis intensity decreased significantly by the 10th day of the adequate traditional therapy in 22 of 26 patients. The efficacy of this therapy was minimal in 4 patients that had undergone the surgical intervention. Pain syndrome together with the other symptomatic signs of AP in patients after dalargin intravascular injections decreased earlier when compared with the patients given traditional treatment by the 6th–7th day.
Thus, our data are in favour of precise localization of the PG inflammation in case of the REVS diagnosis made in patients with AP that permit to create the proper initial diagnosis and to start adequate treatment as early as possible. The second thing that we want to emphasize is the advantage of the dalargin intravascular administration in patients with AP.

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ACUTE PANCREATITIS TREATMENT EFFICACY INCREASING THROUGH SANDOSTATIN INTRA-ARTERIAL ADMINISTRATION

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One can see the increased rate of acute pancreatitis (AP), there is no evident tendency concerning this index stabilization or decrease. One possible approach to decrease the number of complications and lethality cases in patients with AP is the roentgenendovascular surgery (REVS). This work is aimed at reporting the efficacy of the REVS method in patients with AP treatment.
We cured 32 patients with AP. The REVS method of treatment was based on the direct administration of sandostatin (0,1 mg) through intra-arterially placed catheter. It was possible to reach the exact focus of pancreatic gland inflammation by the end of the catheter to control the roentgenological imaging of the organ. All patients with AP were divided into two main groups: the patients of the first one (n = 25) received traditional treatment. The patients of the second group (n = 7) additionally received sandostatin intra-arterially.
All clinical and laboratory symptoms of AP reduced and disappeared more quickly in patients of the 2nd group who additionally received sandostatin. Quick recovering of these patients was proved by the ultrasound examination. Patients of the 2nd group stayed at the surgical department significantly less time, a month after recovery they hd no complaints and the pancreatic gland examination showed no more foci of destruction.
Data of our clinical observation showed that intra-arterial sandostatin had significant efficacy in patients with AP. It should be emphasized that additionally to diagnostic managements there was improvement in this variety of patients (Demidov V.M. et al., 2004, 2005). The REVS method allowed to have the possibility of administrating of curative compounds directly into the inflamed part of the pancreatic gland. The latter seem to be vital in the complex methods of the AP noninvasive treatment for the following reasons: a) we can win the time of the therapeutic activity especially if compared with the traditional i.v. mode of treatment; b) essential in this case is the possibility to administer the smaller doses of the pharmacological compounds because curative agents are injected directly into the foci of 'tragedy' without their losses through the long vascular way in case of i.v. administration.

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A COMPARISON OF ANTERIOR AND POSTERIOR APPROACHES FOR THE SURGICAL TREATMENT OF PANCREATIC PSEUDOCYST USING LAPAROSCOPIC CYSTOGASTROSTOMY

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Aims: Preferable to open surgical drainage, laparoscopic treatment of pancreatic pseudocyst allows for definitive drainage with faster recovery. This paper compares the approaches, analyzing their potential benefits and pitfalls.

Methods: Seven female and one man underwent laparoscopic cystgastrostomy to treat pancreatic pseudocysts. The anterior approach was performed by opening the stomach anteriorly, localizing the pseudocyst ultrasonographically, draining the cyst with a needle, and, via the same opening, using a stapler to form a cystgastrostomy. The posterior approach was performed by directly visualizing the posterior gastric wall and the pseudocyst, opening and draining the cyst with a needle, and using a stapler and running sutures for closure.

Results: All patients had gallstone pancreatitis. Cystgastrostomy via the anterior approach was used in four and via the posterior approach in four. Dense adhesions required one attempted posterior cystgastrostomy be converted to an anterior approach. The anterior group averaged 38 years (range 18–58) of age and 6 days (range 4–8) hospital stay; the posterior group, 42 years (rang 40–44) and 3 days (range 2–4).

Conclusion: Although both approaches had good results with no complications and short hospital stays, the posterior approach is a safer dissection, with a more precise cyst visualization that permits more tissue to be sent for histopathologic examination. Furthermore, the posterior approach's larger anastomosis would seem to yield fewer occlusions, commonly seen with the anterior approach. The anterior approach is easier to learn, but it requires the opening of the anterior stomach and the use of ultrasound.

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THE EXPERIENCE OF LAPAROSCOPIC ENUCLEATION FOR PANCREATIC INSULINOMA

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Introduction: Insulinoma is the most common functional endocrine tumor of the pancreas. In most cases the lesions are benign, solitary, and located within the pancreatic parenchyma. Because of these characteristics, the majority of these lesions can be treated with simple enucleation. Advances in laparoscopic techniques have recently enabled the safe resection of pancreatic islet cell tumors and may provide patients with the benefits of minimally invasive surgery.

Objective: We reviewed our experience of laparoscopic enucleation of insulinoma to establish the feasibility of this approach and the characteristics of the operating procedure.

Methods and Procedures: Six patients with a mean age of 53 years were deemed for laparoscopic enucleation.

Results: Operative mortality was nil. Two cases required conversion to open surgery for technical difficulty. Postoperative course was uneventful in three cases. One patient experienced postoperative complication: reoperation for bleeding from a removal site of the catheter into portal vein. The average operation time was 360 minutes. Length of stay ranged from 19 to 39 days.

Conclusion: These preliminary results confirm that in selected cases laparoscopic enucleation of insulinoma is feasible and safe.

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LAPAROSCOPIC PYLORUS PRESERVING PANCREATICODUDENAL RESECTION FOR PERIAMPULLARY MALIGNANCIES - AN OUTCOME OF 35 PATIENTS

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In this fast growing laparoscopic era more and more complex and challenging surgeries have been performed by laparoscopic method. The aim of this article is to emphasis the technical feasibility and safety of laparoscopic pylorus preserving pancreaticodudenal (LPPD) resections. Patient is positioned in the semilithotomy reverse Trendelenburg position. The initial assessment, staging and resectability of the lesion are performed with laparoscopic ultrasound and Doppler. After kocherisation, right gastroepiploic vein and artery are clipped, divided and the first part of duodenum is divided using endo GIA stapler, 1–2 cm distal to the pyloric. The CBD is divided 2 cm above the pancreatic border. Jejunum distal to the duodenojejunal flexure is divided using endo linear cutter. Neck of pancreas is divided using harmonic scalpel. All the lymphofatty tissue including the lymph nodes are dissected out skeletonising the vessels around the celiac plexus and IVC and are placed into an endobag which is removed through the extended umbilical port site. The camera port is extended and the specimen is removed. The edges of the duodenum is trimmed freshly and end to side anastomosis is performed, 30–40 cm distal to the divided end of the jejunum. After replacing the bowel inside the peritoneal cavity the wound is closed and camera trocar is reintroduced. Gastrointestinal continuity may be performed intracorporeally or by hand sewn technique. End of the CBD is trimmed and end to side choledochojejunostomy is performed with single layer interrupted 4–0 vicryl sutures. The pancreaticojejunal anastamosis is fashioned in an end to end fashion with polypropylene in single layer. We now prefer pancreatico gastric anastomosis in most of our patients. The total number of cases that we have performed is 35 (19 were male and 16 female). The age varied from 28 to 63 years. Mean age is 48.7 years. The indications were ampullary growth (23), carcinoma head of pancreas (7) lower CBD growth (3) and duodenal carcinoma (2). Mean duration of surgery was 6.4 hours (400 mts). The average blood loss was 395 ml. The mean postoperative high dependency unit (HDU) stay was 3.2 days and the average hospital stay was 10.2 days. All the patients had excellent recovery except for one who had prolonged gastric stasis. Then were 2 pancreatic leaks and one biliary leak in one. LPPD is technically feasible in a centre where advanced laparoscopic procedures are routinely performed.

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TIMING OF CHOLECYSTECTOMY IN ACUTE BILIARY PANCREATITIS

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Aims: To study the implication of cholecystectomy (CE) for treatment of patients with acute biliary pancreatitis (ABP), method, indication and timing of CE performance with reference to the severity of disease.

Materials: 207 patients with ABP were admitted for the last five years (86 male and 121 female; mean age - 52 years). Blood tests, ultrasonography, CT, MRI, ERCP confirmed the biliary genesis of disease and staged as having edematous (158 patients) or necrotizing (49 patients) ABP. 41 patients had acute cholecystitis of different forms. 153 patients had signs of biliary obstruction.

Results: In 23 patients opened CE was performed mainly because of endoscopicaly unsolved problems in bile ducts and/or necessity of necrosectomy. In 132 patients laparoscopic cholecystectomy was found to be possible: 104 patients (79%) with mild and 28 patients (21%) with severe acute pancreatitis. Presence of biliary obstruction signs called for preoperative ERCP with endoscopic sphincterotomy (93 patients) or intraoperative choledochoscopy (14 patients) with common bile duct clearance. In patients with chronic cholecystitis median duration of time between onset of disease and operation was 5 days (range, 1–11 days) in edematous and 16 days (range, 9–27 days) in necrotizing ABP. Presence acute inflammation of gall bladder was an indication to urgent operation with the aim of necessity to prevent bacteria spreading and septic complications. Total morbidity was 8,7%, with 1,0% mortality.

Conclusions: In patients with mild course of ABP cholecystectomy can be performed safely within 5 days from the onset of disease. In severe disease 2–3 weeks should waiting because of an increased septic complications risk. Appearance of acute cholecystitis is an indication to surgery independently from severity of pancreatitis. Laparoscopic cholecystectomy with preoperative or intraoperative endoscopic common bile duct clearance is favourable.

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LAPAROSCOPIC DISTAL ESPLENOPANCREATECTOMY FOR PSEUDOPAPILLAR TUMOR (FRANTZ TUMOR)

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Pseudopapillary tumor of the pancreas or Frantzs tumor is a low frequent entity among neoplasias that affect the pancreas. Described as a low grade of malignancy tumor can, ocasionally invade surraunding organs and even produce metastasis. There are an increasing number of publications about the laparoscopic approach of the pancreas, specially for benign diseases that settle at the distal third of the gland. We present the case of a laparoscopic distal pancreatectomy associated with splenectomy in a 26 years old woman with no previous antecedents and without any related symptoms, with a solid-cystic tumor at the tail of the pancreas. Pathologic analisys of the resected area confirmed the diagnosis of pseudopapillary tumor of the pancreas. Postoperative evolution was fine and the patient remains without any symptoms after 8 months of follow up.
The interest of this case resides mainly in the limited experience about the laparoscopic treatment of this tumor, for this is the first publicated report of the laparoscopic resection of a Frantzs tumor in our country. Benign tumors of the pancreas usually affect young patients, and are a good indication for the laparoscopic approach, for, according to this report and to previous publications, present a morbidity rate at least similar to open surgery but with the advantages of the minimally invasive approach.

P483

ROLE OF LAPAROSCOPIC INTRAOPERATIVE ULTRASOUND IN THE LAPAROSCOPIC MANAGEMENT OF PANCREATIC INSULINOMAS

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Aim: A single centre experience of laparoscopic management of 18 pancreatic insulinomas between December 2000 and March 2006 is presented.

Methods: There were three males and 15 females. All tumours were localised preoperatively with CT/MRI, endoscopic ultrasound, and angiography with calcium stimulation and venous sampling. Four tumours were localised in the head, nine in the body, and five in the tail. Laparoscopic intraoperative ultrasound (LIOUS) was routinely used in the last 11 cases.

Results: All operations, except one in the head with severe adhesions after severe acute pancreatitis, were completed laparoscopically. None of the tumours in the head were visible on inspection, but four in the body were visible, and four in the tail were visible.

All four tumours in the head/uncinate process were successfully enucleated. Amongst the tumours in the body and tail, six underwent a spleen preserving distal pancreatectomy, and eight were enucleated.
There was a pancreatic leak in a patient enucleated in the era pre-LIOUS. This case would probably have been a better candidate for distal pancreatectomy due to the proximity to the pancreatic duct. The leak settled after 60 days of conservative treatment as an outpatient.
Two patients had minor leaks after spleen preserving distal pancreatectomy. Both lasted for less than 10 days and were managed as outpatients.

Conclusion: The laparoscopic management of pancreatic insulinomas which have been meticulously localized preoperatively is feasible. LIOUS is mandatory considering that the majority of tumours are not visible, and the decision to enucleate or resect is based on an acceptable distance from the pancreatic duct.

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EXPERIMENTAL ENDOSCOPIC MODEL OF ACUTE PANCREATITIS IN RATS

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Introduction: Experimental models of acute pancreatitis include pharmacological use and another scorpion poisoning. However are some models that reproduce obstructive acute pancreatitis.

Aim: Evaluate endoscopic surgery efficacy on experimental management of acute pancreatitis.

Methods: Experimental comparative and prospective study was made. Sprague-Dawley rats were use with average weight of 350 g. divided in five groups. In one control group was perform only laparoscopic approach and another four groups were perform common pancreatic duct closure, common pancreatic duct closure with troncular vagotomy, same procedure plus intra peritoneal irrigation and the last group troncular vagotomy with intra peritoneal irrigation. Blood amylase was determinate in every rats 2 and 4 hours after surgical procedure. All rats were sacrificed 4 hours after surgery sending pancreas to histopathological exam.

Results: Average blood amylase on control group was 332.34 U. Higher average values was 356.81 U. Histopathological pancreas evaluation of vagotomyzed group had lower values according histopathological cellular damage scale with 1.7 points, on common pancreatic duct closure was 3.5 points and higher values were obtain on group that perform early intra peritoneal irrigation with 5.5 points.

Conclusions: This study demonstrates that induction and management on endoscopic models of acute pancreatitis in Sprague-Dawley rats is feasible. Vagotomy improves evolution of experimental acute pancreatitis in Sprague-Dawley rats on early stages according histopathological changes neither early intra peritoneal irrigation.

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LAPAROSCOPIC PANCREATICODUODENECTOMY: CRITICAL APPRAISAL OF A SERIES OF 18 PATIENTS.

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Aims: Radical laparoscopic pancreaticoduodenectomy is an experimental procedure that can be carried out after an adequate training in selected cases.

Methods: In our department, since August 2002, 18 patients (7 males, 11 females, mean age 64,1 years 12,8) underwent a standardized Traverso-Longmire or Whipple procedure developed on the basis of our large experience in advanced laparoscopic surgery, combining a pancreaticojejunal anastomosis, a biliojejunal anastomosis and a gastrojejunal anastomosis on the same bowel loop. Inclusion critera were tumor localized in the pancreatic head smaller than 2 cm in absence of infiltration of the portal axis.

Results: Conversion occurred in 12 cases (66.6%), in the early demolitive phase in 4 patients, after pancreatic section in 5 cases, because of vascular infiltration at the retroportal lamina in 3 cases. Causes of conversion were bleeding in 3 cases, portal infiltration in 3 cases, bile duct anomalies in 2 cases. In 1 case it was due to infiltration of the stomach, tumor extension to the pancreatic body, pancreatitis, impossibility to perform the pancreaticojejunal anastomosis because of small sized Wirsung duct.
In 11 patients the tumor was a pancreatic adenocarcinoma, in 3 patients an ampulloma, in 1 case an adenocarcinoma of the common bile duct, in 1 patient a mesenchimal neoplasm, in 1 patient a neuroendocrine tumor.

In 6 women patients (mean age 62,5 years 14) the laparoscopic procedure was carried out successfully in a mean operative time of 495 minutes 59,24 minutes. In 4 cases a Traverso-Longmire procedure was performed, in 2 cases a Whipple procedure. Post-operative course of the 6 patients was complicated by pancreatic fistula in 2 cases and pleuric effusion in 3 cases. Average length of hospital stay was 18 days 19.2.

Conclusions: Regardless of a restrictive selection and in spite of a wide experience in minimally invasive surgery of the esophagus, stomach, spleen, colon and rectum, radical laparoscopic duodenopancreatectomy is a very challenging procedure whose indications and advantages are still under trial.

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LAPAROSCOPIC DISTAL PANCREATECTOMY. FIRST TEN CASES WITHOUT FISTULA

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Aims: The European multicenter study recently published found a 17% of clinical pancreatic fistula. The aim of this study is to evaluate our fistula rate in laparoscopic distal pancreatectomy when we reach our first ten cases.
Methods: Since December 2003 to February 2006 we have performed ten laparoscopic distal pancreatectomies. After exposure and inspection of the pancreas with laparoscopic ultrasound if the vessels are free, a spleen-preserving distal pancreatectomy with conservation of the splenic vessels is performed (SPDP). In case that the splenic vessels are affected by the tumor in the proximity of the splenic hilum, a splenopancreatectomy is performed (DP + S). If the vessels are affected far enough from the spleen it is kept vascularized with the short vessels (Warshaws technique). The pancreas is transected with endostapler and fibrin glue over the stump used in all cases. We left no drain in case of SPDP or Warshaws technique, leaving it only in DP + S. We used somatostatine routinely in every case.
Results:

	AGE	SEX	ETIOLOGY	OPERATION TIME (min)	BLOOD LOSS (CC)	STAY
1	31	F	Neuroendocrine - SPDP	240	< 50	3
2	58	F	Neuroendocrine - DP + S	372	150	4
3	72	F	Insulinoma - SPDP	183	< 50	3
4	48	F	Insulinoma - SPDP	337	100	3
5	28	F	Solid-pseudopapilary - DP + S + G	401	250	7
6	42	F	Insulinoma - SPDP	240	100	4
7	45	F	F Insulinoma - SPDP	105	< 50	5
8	59	F	Serous cystic - SPDP	208	< 50	6
9	63	F	Metastases - Warshaw	413	350	6
10	26	F	Mucinous cystic - SPDP	331	< 50	6

There were no need of transfusion in this group of patients. There were no fistula or leaks. In all cases an ultrasoud was performed at 1 or 3 months after surgery, finding two collections (cases 4 and 6) measuring 3x3 and 3x1 cm respectively. The attitude was observance and they disappeared spontaneously.
Conclusion: Our experience suggest that abscense of drains and routinely use of somastostatine in laparoscopic distal pancreatectomy leads to low rates of fistula. Small residual collections can appear, but they disappear with no need of further manoeuvres.

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LAPAROSCOPIC DISTAL PANCREATECTOMY: A PRELIMINARY EXPERIENCE OF 15 PATIENTS

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Background/Aims: Although minimally invasive surgery has been largerly accepted in various fields, the worldwide experience with laparoscopic pancreatic resection remains limited. Laparoscopic pancreatic surgery is technically demanding and is not an established treatment for pancreatic tumors. We describe our experience with laparoscopic distal pancreatectomy to assess the feasibility, safety and outcome of this procedure.

Methodology: Fifteen patients, comprising 11 women and 4 men with a average age of 60 years, underwent laparoscopic pancreatic surgery between October 2000 and February 2006. The preoperative indications for surgery were as follows: Cystic tumors (n = 8), chronic pancreatitis (n = 3), neuroendocrine tumors (n = 2), insulinoma (n = 1) and pancreatic metastasis from renal carcinoma (n = 1).

Results: Laparoscopic procedure was completed in 14 patients, including 13 distal pancreatectomies (with 9 spleen preservation), and 1 enucleation. One conversion was due to uncontrollable bleeding. Mean operative time was 142 min. The average bleeding was 260cc. Postoperative pancreatic-related complications included pancreatic fistula (n = 3) and peripancreatic collection (n = 4). The Mean hospital stay was 9,8 days. The mean follow-up is 27,2 months.

Conclusion: Resection of the pancreas for distal pancreatic tumors is feasible and safe. The management of the pancreatic stump remains a challenge to reduce pancreatic-related complications, expecting the whole benefits of the minimal invasive surgery.

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LAPAROSCOPIC CYSTOGASTROSTOMY FOR THE TREATMENT OF BENIGN PANCREATIC CYST

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Aims: To report a patient with a rare benign pancreatic cyst who was treated successfully with laparoscopic cystogastrostomy.

Methods: Female patient of 18 years old, presented with symptoms of high intestinal obstruction and abdominal pain. A CT scan, endoscopy and CPRE was performed. She was taken to surgery and a laparoscopic stapled cystogastrostomy was performed for a giant pancreatic cyst (15x15cm) in the head of the pancreas.

Results: The patient was successfully treated by laparoscopic surgery without complications.

Conclusion: Laparoscopic surgery may be performed for the treatment of pancreatic cyst when decompression is indicated.

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LAPAROSCOPIC DISTAL PANCREATECTOMY

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Introduction: A laparoscopic approach to pancreatic disease is increasingly performed although its ultimate benefit is yet to be confirmed. Laparoscopic distal pancreatectomy with or without splenectomy is gradually gaining acceptance as an alternative to open resection in selected patients. The aim of this study is to report our initial institution experience with laparoscopic distal pancreatectomy in 11 patients.
Methods: A retrospective review of database was carried out. From July.2004–January.2006, We performed 11 distal pancreatectomies by the laparoscopic approach. These 11 patients were included in the study with varyingly pre-operative diagnosis such as neuroendocrine tumors (4 patients), cystic lesions (5 patients), IPMT (1 patient), pancreatic cancer suspected tumor (1 patient). The median age was 59 years (33–70) with a female to male ratio of 5:6. In addition to 3 port, a hand port was placed in the midline to aid in dissection and the pancreas was divided without a stapler.
Results: Of the 11 patients, two were converted to an open procedure due to an uncertain adhesion and inadequate exposure.
The median operating time was 226 minutes (150–280) with a tumor size of 5cm (2–8).
The median time to resuming regular diet and converting to oral pain medications was 2.5 days and 4 days respectively. The length of stay was 10 days (5–15). These were no mortalities. Of the 9 patients that successfully underwent the procedure laparoscopically, and these were no morbidities. With a median follow up of 9.1 months (2–20), 5 patients with a diagnosis of malignancy have no evidence of recurrent disease.
Conclusions: A minimally invasive approach to pancreatic disease is safe and technically feasible with acceptable morbidity. Further large series studies with longer follow up are necessary to determine the role of laparoscopic surgery in the treatment algorithm of management of pancreatic disease.

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VARIOUS TYPES OF LAPAROSCOPIC PANCREATIC SURGERY IN A SINGLE INSTITUTION

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Aim: Although an increasing number of reports on laparoscopic surgery for pancreatic disease have recently been documented, it has not achieved worldwide acceptance yet. The purpose of this study is to evaluate the current role of laparoscopy in pancreatic surgery by reviewing our experiences in a single institution.

Method: We retrospectively analyzed the clinical outcomes of 23 patients who had undergone laparoscopic pancreas surgery between May 2003 and February 2006.

Results: Enucleation (E) was performed in 2 cases, distal pancreatectomy (DP) in 14 (11 spleen preserving), pylorus preserving pancreatoduodenectomy (PPPD) in 5, cysto-gastrostomy for pseudocyst in 1, and necrosectomy for necrotizing pancreatitis in 1. There was no postoperative mortality. Postoperative complications developed in 8 cases (34.8%), all of which was improved by conservative management. Pancreatic leakage occurred in 4 cases (17.4%), of which 2 cases were after PPPD (associated with bleeding), one after DP and one after necrosectomy. Transfusion was needed in 2 cases (9.5%). The mean operation time was 300.4 minutes (95 minutes in E, 248 minutes in DP, 522 minutes in PPPD, 210 minutes in cysto-gastrostomy, and 190 minutes in necrosectomy). The mean postoperative hospital stay was 16.9 days (10.0 days in E, 11.0 days in DP, 23.3 days in PPPD, 53 days in cysto-gastrostomy, and 52 days in necrosectomy).

Conclusion: This study indicates that laparoscopic pancreatic surgery can be performed in various condition s of pancreatic disease.

PHYSIOLOGY, PATHOPHYSIOLOGY, IMMUNOLOGY

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DECREASED IMMUNE RESPONSE AFTER OPEN CHOLECYSTECTOMY VS LAPAROSCOPIC CHOLECYSTECTOMY IN ACUTE CHOLECYSTITIS

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Objective: Early laparoscopic cholecystectomy in acute cholecystitis has subsequently been shown to improve outcome. This may partly be related to less immunosuppression and preservation immunity to infection in laparoscopic surgery. The aim of this study is to evaluate the influence of surgical trauma on the local and systemic inflammation and immune response in acute cholecystitis.
Methods: 33 patients with acute calculous cholecystitis were assigned to laparoscopic cholecystectomy (LC, n = 18) and open cholecystectomy (OC, n = 15). Blood samples were obtained preoperatively and postoperative day 1 (24 hours after operation) and day 3. Systemic concentration of C-reactive protein (CRP), white blood cell count and their subpopulations and tumor necrosis factor-alpha (TNF- alpha) ex vivo secretion of peripheral blood mononuclear cells (PBMCs) were measured in both groups.
Results: The operation time (90.2 vs 73.2 minutes, p = 0.054) and postoperative hospital stays (5.76 vs 9.21, p = 0.001) were significantly shorter in LC group than in OC group. Two patients showed postoperative morbidity in the OC group, but not in the LC group. The TNF- alpha ex vivo secretion of PBMCs and PBMC counts on postoperative day 1 of the OC group was significantly lower than that of the LC group (p = 0.002). The CRP level decline on postoperative day 3 was more marked in the LC group than in the OC group (p < 0.001). Postoperative monocyte counts were more profoundly decreased in the OC group than in the LC group (p = 0.001).
Conclusion: The Laparoscopic approach appears to induce less surgical trauma and inmmunosuppression in patients with acute cholecystitis, indicated by monocyte deactivation, and reflected by the lack of monocyte TNF- alpha production and decreased monocyte counts. LC could be a beneficial option in the management of acute cholecystitis with immunologic advantage.

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POSTOPERATIVE CHANGES IN LIVER FUNCTION TESTS: RANDOMIZED COMPARISON BETWEEN OPEN CHOLECYSTECTOMY, LOW- AND HIGH-PRESSURE LAPAROSCOPIC CHOLECYSTECTOMY

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Background: Pneumporeitoneum at 14 mmHg causes dangerous hemodynamic disturbances in some patients, leading to splanchnic ischemia. Laparoscopic cholecystectomy (LC) using low-pressure pneumoperitoneum (7 mmHg) minimizes adverse hemodynamic efects on hepatic portal blood flow and hepatic function. This study evaluated the changes in liver function tests after high-pressure LC (HPLC; 14 mmHg), low-pressure LC (LPLC; 7 mmHg), and open cholecystectomy (OC).
Methods: For this study, 70 patients were randomly assigned to undergo either HPLC (n = 25), LPLC (n = 25) or OC (n = 20). Liver function tests including total bilirubin, gamma-glutamyltransferase (GGT), alkaline phosphatase (ALP), aspartate aminotransferase (AST), and alanine aminotransferase (ALT) were obtained preoperatively, then 24 and 48 h postoperatively. All patients had normal values on the preoperative liver function tests. The anesthesiologic protocol was uniform.
Results: The findings showed that ALT after 24 h (OC: 1191 408.29; LPLC: 1473.72 654.85; HPLC: 2233.74 1247.33; p = 0.0096) and 48 h (OC: 1005.97 383.53; LPLC: 1322.99 601.51; HPLC 2007.80 747.55; p = 0.0008) and AST after 24 h (OC: 1081.03 557.28; LPLC: 1189.96 404.79; HPLC: 1679.40 766.13; p = 0.0069) were increased in the patients who underwent HPLC compared with LPLC or OC patients. The AST levels after 48 h were statistically unchanged from baseline in all groups. The study confirmed that a significantly higher number of patients had double values of ALT (OC: 2/20; LPLC: 2/25; HPLC 11/25; p = 0.0029) and AST (OC: 2/20; LPLC: 0/25; HPLC 8/25; p = 0.0069) postoperatively after HPLC than after LPLC or OC. Total bilirubin, ALP, and GGT levels remained unchanged from baseline in all groups, without a significant diference between the groups.
Conclusions: Because LPLC minimizes adverse hemodynamic efects on hepatic function, a low-pressure pneumoperitoneum should be considered for patients with compromised liver function, particularly those undergoing prolonged laparoscopic surgery.

PLASTIC AND RECONSTRUCTIVE SURGERY

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LAPAROSCOPIC VS OPEN COLOVAGINOPLASTY USING CAECUM IN MALE TO FEMALE TRANS-SEXUALS: THE CHARING CROSS EXPERIENCE

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Aims: In this unit, which performs in excess of 100 male to female gender reassignment operations each year, colovaginoplasty is predominantly used as a salvage technique with favourable outcomes, when the outcome of skin inlay techniques have not yielded satisfactory functional results. Bowel is not used for primary vaginoplasty due to the associated morbidity, however colovaginoplasty is a satisfactory option in selected patients. With improvements in instrumentation and technique, laparoscopic vaginoplasty has become a feasible option with all the potential benefits associated with minimal access surgery. The proximity of sigmoid or recto-sigmoid has led those segments to be used widely in other units for colovaginoplasty. In this unit we prefer to use caecum for several reasons which are outlined. We present a series of 10 cases of colovaginoplasty using caecum and compare the open approach with laparoscopic assisted and wholly laparoscopic techniques.
Methods: 10 patients underwent colovaginoplasty with a mean age of 36.6 (26–45). They were followed up for a minimum period of one year.
Results: Of the 6 patients undergoing open surgery (mean age 39.7), 1 experienced a pelvic haematoma which resolved with conservative treatment, 1 had a subcutaneous haematoma evacuated and there was 1 anastamotic leak which required oversewing and defunctioning ileostomy with later successful reversal. 3 cases were laparoscopic assisted (mean age 31.3) and 1 was performed completely laparoscopically (age 34). On review of the laparoscopic assisted cases there was one complication encountered of a post operative ileus and this responded well to conservative management. The wholly laparoscopic case had a period of post operative ileus at 5 days which resolved spontaneously. None of these cases required conversion to laparotomy. All patients were satisfied with the operation at follow up and are sexually active with no complaints of excessive mucus discharge.
Conclusions: We conclude from our experience that whenever secondary colpopoiesis is necessary in male to female transsexuals, a wholly laparoscopic approach using caecum may provide at the least a satisfactory equivalent vagina with more rapid recovery, and significant reduction in abdominal scarring; an important consideration in these patients.

RADIOLOGY / IMAGING

P494

THE FEASIBILITY OF MULTI-SLICE CT ANGIOGRAPHY AS A PREOPERATIVE EXAMINATION FOR LAPAROSCOPIC CHOLECYSTECTOMY

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Background: The portal vessel including the hepatic artery and cystic artery injury is one of the most significant complications of laparoscopic cholecystectomy (LC) but bile duct injury. Clear imaging of the cystic artery and the hepatic artery before operation is essential to prevent this complication, particularly when performing LC. In this study, we investigated the preoperative feasibility of Multi-slice CT angiography (CTA) for LC.

Methods: Laparoscopic cholesystectomies were performed in 32 patients, and the preoperative evaluation for all patients included DIC-CT and CTA. We classified the running of the cystic artery into 3 types (A, A cystic artery enters the right hepatic artery; B, two cystic arteries enter the right hepatic artery, respectively; C, others).

Results: In all 32 patients, we demonstrated the running of the cystic artery. 22 patients (68.8%) and 6 patients (18.6%) were classified in type A and type B respectively. Anomalies of the running of the cystic artery (type C) were detected in 4 patients (12.5%). There were no major adverse reactions in all patients.

Conclusion: CTA non-invasively provides clear three-dimensional imaging of the hepatic artery and the cystic artery. CTA may be of benefit for both patients scheduled to undergo LC and their surgeons.

P495

USEFULNESS OF SIMULATION FOR LAPAROSCOPIC GASTRIC SURGERY WITH THREE-DIMENSIONAL VIRTUAL LAPAROSCOPIC IMAGES USING THE NEW VOLUME RENDERING METHOD

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Background: It is difficult to perform the laparoscopic gastrectomy with lymphadenectomy for gastric cancer, because the field of laparoscopic view is very limited, and the branch patterns of perigastric vessels are varied. Therefore, we generated the three-dimensional virtual laparoscopic images (3D-VLI) from pre-operative CT images using the new volume rendering method (new 3D-VLI) and used them for the pre-operative simulation and intra-operative navigation of laparoscopic gastrectomy.
Aim: To assess the usefulness of simulation for laparoscopic gastrectomy with new 3D-VLI.
Methods: New 3D-VLI were generated as follows. Contrast-enhanced images on multislice CT were obtained at arterial and venous phases before surgery. Non-rigid volume registration of two phases CT images was performed, and the artery, vein, liver, pancreas, stomach, spleen, and cholecystis regions were extracted from venous or arterial phase images. Then we generated 3D-VLI where each extracted regions was marked by different colors. First, we compared them with 3D-CT angiography (3D-CTA) generated by commercial workstation. Second, the operative time of ten cases, which consisted of five cases with new 3D-VLI and five control cases without 3D images, were reviewed retrospectively.
Result: Fifteen cases of patients with gastric cancer were evaluated using the 3D-images before surgery. The left gastric artery (LGA) and vein (LGV), and right and left gastroepiploic artery were also well depicted in both new 3D-VLI and 3D-CTA. The right gastroepiploic vein and right gastric artery (RGA) were depicted in 10 (67%) and 4 (26.7%) cases with 3D-CTA, in 15 (100%) and 12 (80%) cases with new 3D-VLI, respectively. In one case, the positional relation between LGA and LGV in 3D-CTA was incorrect, in new 3D-VLI correct in surgery. The median total operative time was not significantly different between the new 3D-VLI group and the control group. But the median time of lymphadenectomy around RGA (#5, 12) and common hepatic artery (#7, 8, 9) were significantly reduced in the new 3D-VLI group.
Conclusion: New 3D-VLI are able to depict more clearly and accurately the perigastric structures than 3D-CTA. And the laparoscopic lymphadenectomy proceeds more smoothly, because the surgeon has accurate anatomical information. New 3D-VLI would be useful for the pre-operative simulation and intra-operative navigation of laparoscopic gastrectomy.

ROBOTICS, TELESURGERY AND VIRTUAL REALITY

P496

INFLUENCE OF BINOCULAR STEREOPSIS ON PERFORMANCE AND FATIGUE IN ENDOSCOPIC SURGICAL TASKS

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Aims: For medical stereoscopic imaging, the usefulness of the presentation of depth information and the issues of picture quality and fatigue have been discussed. The aim of this study is to investigate the influence of binocular stereopsis on surgical task performance and surgeons fatigue by subjective and psychophysiological scores.

Methods: We used a stereoscopic laparoscope (SK-1057-3D-A, Shinko Optical) that allows switchover among two-dimensional (2D) display and three-dimensional (3D) display, and a surgical training box. 14 subjects were asked to perform three kinds of tasks - a pegboard, incision, and suturing- under the 2D and 3D conditions conducted for one hour in total. Before and after the procedures we evaluated the degrees of fatigue by a questionnaire (Subjective Symptom Test of Fatigue) and by the critical flicker fusion frequency (CFF) test.

Results: Subjects showed higher performance when using the 3D display than the 2D display in all three tasks and, simultaneously, improvement in execution time as a result of order effect. Improvement of task accuracy using 3D display was found in the pegboard task. Large individual variations in execution time were also found. In the CFF test, eyestrain due to the tasks was not observed under either 2D or 3D display conditions. Although subjective fatigues of muscles and eyes were significant, no difference was found depending on the display conditions.

Conclusion: The current stereoscopic endoscopes can improve performance of surgical manipulations, without causing extra eye fatigue.

P497

ROBOTIC ASSISTANCE FOR THE TREATMENT OF EPIPHRENIC DIVERTICULUM: INITIAL EXPERIENCE

CANCELLED

P498

ROBOTIC BRONCHOPLASTY IN HUMAN CADAVER

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Introduction: In robotic surgery, the ideal position of the system, as well as the optimal working angles and the proper positioning of the thoraco ports position is very important. No robot-assisted bronchoplasty has been reported. Our study describes use of the da VinciTM surgical system (Intuitive Surgical, Inc.) for robotic sleeve upper lobectomy in a human fresh cadaver.

Methods: A male cadaver was placed in the left lateral decubitus position. After thoracoscopic upper lobectomy was performed through the working port and the two ports, the robotic system was then set up behind the cadaver. The working port allowed introduction of the optical scope and the robotic surgical arms were inserted into the thoraco ports. The right bronchus was dissected and wedge was cut out with the robotic scissors. After standard lymph node dissection, end-to-end bronchial anastomosis was performed with robotic instruments. Once the anastomosis was complete, air leakage was checked with saline solution placed in the pleural cavity.

Results: Thoracoscopic robot-assisted bronchoplasty was performed successfully.

Conclusion: In evaluating various positions of the system we demonstrated that our technique is sufficient approaches to robotic bronchoplasty. This procedure offers specific advantages over conventional bronchoplasty with accuracy and safe

P499

NEED FOR ADAPTATION OF OPERATING SUITE DESIGN FOR ROBOTIC TECHNOLOGY

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Background: With the introduction of robotic surgical technology, there is a need for adaptation of the operating suite, in addition to the surgical team members, to accommodate this new technology. Despite the great advancement in surgical technology over the last few years, most operating rooms are not optimally designed to accommodate robotic equipment. This paper emphasizes the importance of designing an operating suite able to maximize efficiency with the new robotic technology.

Methods: An extensive search of the medical literature was conducted using computer-based resources from the PubMed (National Library of Medicine, USA), the Cochrane Library, and the World Wide Web, regarding robotic operating suite design. Our experience along with that from other groups, accommodating the DaVinci Robotic system into Operating Rooms is described.

Results: Our detailed search yielded no published articles specifically regarding the design of an operating suite to meet the needs of the robotic operating systems. Expert opinions from Robotic Surgeons and the Industry are described.

Conclusions: To our knowledge, there are no published articles regarding the design of an operating suite specifically able to accommodate the robotic operating systems. This should be further investigated by the surgical community, with the aid of architects, engineers, and computer programmers among others, in order to maximize efficiency and value of this novel technology.

P500

TELEMATIC ASSISTED LAPAROSCOPIC AND THORACOSCOPIC PROCEDURES USING THE 3-ARM DA VINCI SYSTEM - A 4 YEARS' EXPERIENCE

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Introduction: Laparoscopy and thoracoscopy have opened a new era in the modern surgery. But the inherent limitations of these traditional techniques may cause certain difficulties during the performance requiring a unique set if skills, even after the surgeon has accumulated years of experience. Pitfalls are unstable video camera platform, limited motion of straight instruments, two-dimensional imaging and poor ergonomics for the surgeon. In the late years introduction of computer-guided robots, although in an early stage of development, offers potential solutions to the above mentioned problems.
Methods: In the last 48 months the 3-arm telerobotic system was evaluated in different thoracic and abdominal procedures. Prospective data will be presented including operation procedures, numbers (m/f), operation times, conversion rate, hospital stay, short term follow up, dis-/advantages, and costs were analyzed. Only operation numbers till March 2006 were shown in this abstract.
Results: Anterior hemifundoplication (Dor) n = 107, thymectomy n = 72, cholecystectomy n = 17, upside-down stomach n = 14, thoracoscopic sympathectomy n = 11, right hemicolectomy n = 1, sigmoid and anterior rectal resection 5, lobectomy n = 5, Hellers myotomy n = 1, gastric banding n = 3, esophagectomy n = 4, mediastinal parathyreoidectomy n = 3, sub-/total gastrectomy n = 2, and gastrojejunostomy n = 2.
Conclusion: In difficult surgical procedures with limited space and complicated explorations of the operation field the telerobotic system seems to be superior to the traditional laparoscopic and thoracoscopic procedure. Long set up times can be diminished to a minimum in a short learning curve after about 10 procedures. The articulated tools and the 3-D optical stereoscopic view make the procedure more similar to open procedures using all advantages of traditional laparoscopy or thoracoscopy. Although the enormous costs could be a major problem in the further expansion, the telerobotic surgery is in its infancy and its employment has not been well defined so far. Nevertheless, we believe that the evolution of the currently expensive systems and the instrumental improvement might permit the performance of a wide range of different operations in the future.

P501

THE EFFECT OF NETWORK JITTER ON TELESURGERY PERFORMANCE

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Objective: The purpose of this study was to determine if network jitter (variation in network delay) impairs subject performance on basic telesurgical tasks.

Methods: Eight novice subjects were trained to proficiency using the Zeus telesurgical system on two standard dry-lab exercises that emulate surgical maneuvers. NetDisturb software was employed to simulate real-world network (common internet) conditions with the addition of jitter using an exponential distribution. Subjects completed 32 trials each of two drill exercises (cone transfer and needle passing) with a network delay of 300ms and either no jitter or random jitter (average of one fifth round trip latency), randomized in blocks of four trials. Subject performance was evaluated objectively by task completion time and errors for each attempt. Subjects also completed a questionnaire designed to evaluate their subjective assessment of thirteen qualities of the system. Statistical analysis consisted of student t-test or rank sum test where appropriate, with a 0.05 level of significance.

Results: No significant difference was observed in average task completion times for the cone transfer exercise (208 ± 59s vs. 204 ± 117s, $p = 0.762$) or needle pass drill (283 ± 96s vs. 295 ± 87s, $p = 0.466$) comparing trials with no jitter to jitter. Similarly, no significant difference was observed in average number of task errors for the cone transfer exercise (median 4.0 vs. 5.0, $p = 0.402$) or needle pass drill (median 5.0 vs. 5.0, $p = 0.914$). Subjects did not consider the addition of jitter to cause an increase in difficulty of task completion in any of thirteen system factors ranging from Image Quality to Reliability.

Conclusions: Based on an exponential distribution of network jitter, variation in real-world network delays had no statistically significant effect on task completion time, error rate, or subjective assessment of task difficulty for trained novices performing standard dry-lab exercises with the Zeus telesurgery system. These findings suggest that typical variation in real-world internet delay is not a concern for performing long distance telerobotic surgery possibly reducing the importance of higher cost dedicated telecommunication lines.

SPLEEN

P502

EXPERIENCE WITH LAPAROSCOPIC MANAGEMENT OF SOLITARY SYMPTOMATIC SPLENIC CYSTS

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Aggressive laparoscopic procedures can be used to treat pathological lesions of solid organs. We attempted laparoscopic management of solitary symptomatic splenic cyst in four patients - two males and two females - ranging in age from 19 to 63 years (mean 35 years). The cysts involved the whole of spleen in one case, the upper pole in one and the lower pole in two. We carried out laparoscopic splenectomy in one case and laparoscopic unroofing of the cyst wall in three. In two procedures we successfully used needlescopic instruments. The duration of surgery and the volume of intraoperative bleeding were 300 min and 200 ml for the splenectomy, and 170 min (range: 120–240) and minimum for the unroofing, respectively. There were no intra- or postoperative complications related to the laparoscopic procedures. The postoperative hospital stay was 9 days for the splenectomy patient and 5.6 days (range: 5–7) for the unroofing patients, respectively. One of the latter had a recurrence of cyst six years after unroofing, which was successfully treated by splenectomy. Laparoscopic management of splenic cysts is technically feasible and safe and has the advantages of reducing postoperative pain, shortening convalescence and improving cosmetic result. However, careful follow-up and adequate treatment for recurrence of cyst is necessary for splenic cyst to achieve good long-term outcomes.

P503

LAPAROSCOPIC SPLENECTOMY FOR IMMUNE THROMBOCYTOPENIC PURPURA

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Conventional splenectomy (CS) for immune thrombocytopenic purpura (ITP) is successful in the majority of the patients who are resistant to conventional medical therapy. Due to the advancing technology, laparoscopic splenectomy (LS) emerged as the preferred surgical option for this group of patients. In this retrospective study we document our experience of laparoscopic splenectomy in ITP patients.
Between October 2002 to December 2005, 19 patients (13 female, 6 male) with an average age of 52.615.5 had splenectomy for ITP. During this time period, laparoscopic resection was attempted for 10 patients; one patient (10%) was converted due to uncontrolled bleeding. This patient was excluded from further analysis, which left 9 patients in each group.
There was no difference between CS and LS groups regarding age, sex, coexisting systemic diseases, and splenomegaly. Splenomegaly (long axis > 12 cm) was present in 7 patients (38.9%). Furthermore, there was no difference between groups regarding preoperative blood transfusion, detection of accessory spleens, morbidity, and mortality (1 patient died in the CS group). Duration of the operation was longer in the LS group (147.239.4 vs. 90.619.4 min; $p = 0.001$). However length of postoperative stay was shorter in the LS group (3.11.4 vs. 6.02.4; $p = 0.016$). Early success (thrombocyte count > $150.000/mm^3$ at the 3rd postoperative day) and late success (thrombocyte count > $150.000/mm^3$ at the 3rd postoperative month) was similar between groups. During the follow-up period (14.615.8 months) one patient in the CS group developed incisional hernia ($p = 0.471$).
We conclude that LS could be performed as safely as CS. Although duration of operation is longer, LS results in less postoperative hospital stay and incisional hernia formation. Laparoscopic splenectomy should be the first choice for surgical treatment of ITP in experienced centers.

P504

ELECTIVE LAPAROSCOPIC SPLENECTOMY AND THROMBOSIS OF THE SPLENO-PORTAL AXIS

NO SHOW

P505

MINIMAL INVASIVE TECHNIQUE IN THE SURGERY OF THE SPLEEN

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Aim: The minimal invasive surgical technique has rapidly become the method of choice in the surgery of the spleen. The aim of this study was to determine the safety and efficacy of laparoscopic surgery in the treatment of different splenic disorders.

Patients and Methods: Over 6 years we performed 24 splenectomies for idiopathic thrombocytopenic purpur (n = 21), lymphoma (n = 1), hereditary sphaerocytosis (n = 1), metastatic melanoma (n = 1) and laparoscopic unroofings for symptomatic non-parasitic splenic cyst (n = 6). The mean age was 43 years (16–72), all patients had preoperative radiographic imaging, the mean splenic cranio-caudal length was 15 cm (10–28). The laparoscopic procedures were performed in a supine position, four or three operating ports were used. In case of splenectomy the hilar vessels of the spleen were secured with clips or Endo-GIA vascular cartridge (s). For laparoscopic unroofings the harmonic scalpel were used. All but one patient with metastatic melanoma the specimen was mechanically fracture-morcellated via exteriorized extraction bag.

Results: There were two conversions (8,3%) to an open procedure in the splenectomized group. The average surgical time of splenectomies and laparoscopic unroofings was 130 min (90–180) and 50 min (40–90), respectively. The mean splenic weight was 310 g (200–2100). There were no major intra or postoperative complications. The mean length of hospital stay was 3,5 days (2–5). There were no splenic bed or wound site recurrences in malignant cases at a mean follow-up of 20 months (12–28).

Conclusions: Our results suggest that the laparoscopic technique should be proposed for the management of both benign and malignant disorders of the spleen. Laparoscopic spelenectomy can be safely performed even for massively enlarged spleens.

P506

LAPAROSCOPIC MANAGEMENT OF ISOLATED HYDATID CYST OF THE SPLEEN: A CASE REPORT

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We report a case of successful laparoscopic management of isolated hydatid cyst of the spleen. In MEDLINE search we have found 5 reports on laparoscopic management of hydatid cysts of the spleen (in 2 cases splenectomies were performed and 7 cases - spleen preserving surgeries). 24-years old female patient was admitted to the clinic complaining of dull pain in left hypochondrium for 3 months. CT scan and US revealed a cystic lesion in the hilus of the spleen measuring 8 cm in diameter. ELISA test for echinococcosis confirmed the diagnosis of I type isolated hydatid cyst of the spleen. The patient was scheduled for elective laparoscopic removal of the cyst. Abdomen was accessed through the supraumbilical port. Inspection revealed large hydatid cysts in the hilus of the spleen situated deep in the parenchyma. Three additional working trocars were placed in epigastrium, left subcostal area and left mesogastrium. The cyst was punctured and hypertonic saline was injected as scolicidal agent. After 5 min exposure cyst content was aspirated and ectocyst opened with prior bipolar coagulation of the overlying parenchyma to prevent bleeding. Endocyst was evacuated without fragmentation and removed in retrieval bag. Residual cavity in the spleen was inspected, irrigated with scolicidal agent, packed with omental patch and drained. Postoperative course was uneventful despite minor segmental necrosis of the anterior edge of the spleen due to extensive coagulation of overlying parenchyma. Patient was discharged on 3rd postop day after drain removal and received a course of albendazole chemotherapy (10mg/kg/28 days) for recurrence prevention. The patient was followed-up for 18 months with no signs of recurrence. Repeated abdominal US revealed shrinking of residual cavity in the spleen. There have been many reports on successful management of hydatid cysts of the liver and this technique is becoming accepted for selected cases. Our experience with laparoscopic management of hydatid cysts indicates that this technique can be used safely in medium size cysts (less than 10 cm in diameter) without daughter vesicles (I type cysts) located superficially in accessible areas. Options for laparoscopic closure of residual cavity include omentoplasty, capitonage unroofing and drainage (less favored). Laparoscopic removal of hydatid cysts from the spleen can be more challenging due to excess bleeding from the parenchyma and difficulties in closure of residual cavity.

P507

SPLEEN TRAUMAS LAPAROSCOPIC OPERATIONS

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Aims: The aim of the research is to reveal laparoscopic operations opportunities in case of blunt abdominal trauma including spleen injury.

Methods: Since 1998 there were 22 diagnostic laparoscopy performed for injured with spleen traumas and intra-abdominal hemorrhage diagnosed. While laparoscopy procedure 5 patients revealed suppressed hemorrhage including 2 surface ruptures of a spleen capsule and 3 sub-capsule hematomas. There were 11 hemostasiss achieved while laparoscopy performance herein 2 cases of fibrinous glue Tissukol application, 5 cases of electrocoagulation and 4 argon plasmatic coagulations. There were 6 conversions performed including traditional splenectomy. Hereto laparoscopy revealed 4 cases of numerous fractures of a capsule and parenchymatous diagnosed and 2 cases of major sub-capsule hemorrhage spreading onto the spleen portal.

Results: Thus there were 16 (out of 22 injured) laparoscopic operations performed which insured laparotomy avoidance and organ salvage interventions.

Conclusion (s): Indications for laparoscopy application were capsules fractures without parenchymatous tissues injury; linear surface parenchymatous tissue fractures hereto the spleen portal was not injured; stable hemodynamics. Indications for laparotomy were branching fractures, spreading onto the spleen portal; crushing, spleen separation from the vascular pedicle, unstable hemostasis.

P508

LAPAROSCOPIC SURGERY FOR SPLEEN PATHOLOGY

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Aims: Laparoscopic surgery is a new management option for patients with spleen pathology required surgical treatment. The aim of this study is to evaluate the surgical aspects and results of laparoscopic procedures in those patients.

Methods: Data were obtained from prospectively collected database of all patients who underwent elective laparoscopic spleen operations in our center between May 1999 and March 2006.

Results: The study population consisted of 62 patients (41 females and 21 males, mean age 46,8 years [17–79]) who underwent laparoscopic splenectomy (LS; n-58) and laparoscopic unroofing of the splenic cyst (n-4). Indications for LS were idiopathic thrombocytopenic purpura (n-34; 58,6%), hemolytic anemia (n-12; 20,7%), leukemia/lymphoma (n-9; 15,5%), splenic tumor (n-2; 3,4%), splenic abscess (n-1; 1,8%). Laparoscopic fenestration was performed in 4 patients with posttraumatic (n-2) and mesothelial (n-2) cyst. The mean operative time was 120,5 minutes (80–310). Spleen length was 8 - 20 cm. Conversion was necessary in 11 (17,7%) patients due to hemorrhage in 9 and perisplenic adhaesions in 2 cases. Statistical analysis of factors predisposing to conversion identified three causes: obesity (body mass index > 30; $p = 0{,}037$); platelet count $< 20{,}000$/ml ($p = 0{,}03$) and hematologic malignancy ($p = 0{,}005$). Postoperative complications occurred in 9 (14,5%) patients. The patients with malignant disease were significantly older, required longer operative times, had more conversions to laparotomy than patients with benign disease. The most common postoperative complications were postoperative hemorrhage ($n = 4$) and abdominal wall infection ($n = 3$). Two patients (3,2%) died due to septic complications.

Conclusions: The limits of laparoscopic surgery are related to the operator's experience, the size of the spleen, the nature of the underlying disorders and patient characteristics, mainly obesity. Nowadays spleen-preserving techniques should be attempted in cases of splenic nonparasitic cyst. Laparoscopic surgery provides an good alternative to conventional surgical procedures on selected patients with splenic diseases.

P509

LAPAROSCOPIC SPLENECTOMY FOR IDIOPATHIC THROMBOCYTOPENIC PURPURA : EXPERIENCE OF DISTRICT GENERAL HOSPITAL

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Aims: Laparoscopic splenectomy has been demonstrated as feasible and safe for the treatment of various haematological disorders.

Methods: The study includes 64 patients suffering of chronic ITP treated by laparoscopic splenectomy.

Result: During the present study (range 1 to 96 months) accumulated non recurrence rate was 73.4% in 8 years after surgery, what is similar to the results for open splenectomy in literature. A positive response to oral steroids in the preoperative period seems to be the best predictor for success. There were no recurrences caused by accessory splenic tissue, inadequate spleen resection or splenosis.

Conclusion: Our experience with laparoscopic splenectomy for the treatment of ITP shows the procedure is safe and efficacious resulting in brief hospital stay, short recovery time and similar results when compared to an open procedure.

P510

LAPAROSCOPIC SPLENECTOMY IS EFFECTIVE FOR THE TREATMENT OF THROMBOCYTOPENIA IN PATIENTS WITH CHRONIC HEPATITIS C

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Aims: Thrombocytopenia is a common side effect of antiviral therapy in patients with chronic hepatitis C, often leading to discontinuation of a potentially curative therapy. The study attempts to determine the safety and efficacy of laparoscopic splenectomy in correcting thrombocytopenia, thus allowing completion of interferon (IFN) therapy.

Methods: 15 patients (9 men, 6 women) undergoing laparoscopic splenectomy for thrombocytopenia in patients with hepatitis C cirrhosis and portal hypertension. Their mean age was 48 years (range 36 to 58 years). All patients were Childs class A. Mean operative time was 210 minutes (range 150 to 280 minutes), and blood loss averaged 220 ml (range 100 to 600 ml). All patients received intraoperative platelet administration. Splenic weight averaged 1136 g (range 875 to 1650 g).

Results: There have been no major complications over an average follow-up of 11 months (range 2 to 18 months). Platelet counts improved from a preoperative mean of 52,000/ul (24,000 to 78,000/ul) to 439,000//ul (200,000 to 710,000/ul) postoperatively and have remained above 100,000/ul during subsequent IFN therapy.

Conclusion: Laparoscopic splenectomy is safe and can be performed with little blood loss, and minimal perioperative morbidity. Laparoscopic splenectomy appears to effectively reverse thrombocytopenia and may allow these patients to safely complete IFN therapy.

TECHNOLOGY

P511

LARGE SCREEN LAPAROSCOPIC SURGERY

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Traditional laparoscopic surgery is performed by viewing the image on a 20 or 14 monitor. Significant advances in the digital image processing and home theatre have taken place. We use a 3 CCD digital camera with progressive scan and connect it to a high resolution and 2000 Lumens projector. The image is focused on a 6 feet by 6 feet glass bead screen (gain +3) kept 8–10 feet away. The laparoscopic surgery is performed by viewing the large screen in the OR. It gives us true magnification and a brilliant, sharp image. As the light is reflected form the screen and not emitted as in a Monitor-TV it is more pleasing and causes less fatigue of the eyes. One can watch a movie for 2–3 hours in a cinema but rarely does the same on a TV screen continuously. The large screen laparoscopic surgery is an excellent teaching tool. The true magnification helps the surgeon to dissect and divide tissue with more confidence. The operating time is and hemostasis is better. We have used the system for last one year for laparoscopic procedures like Cholecystectomy, Appendicectomy, Total extraperitoneal hernia repair, Abdomino perineal resection, Incisional hernia repair, Hiatus hernia repair and various urological surgeries like nephrectomies and pyeloplsties.
Large screen laparoscopy will change the way we look at the images and will provide us more opportunities to perform those difficult surgeries considered difficult and experimental today.

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A CAMERA HOLDER FOR MIVAT/P PROCEDURES

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Minimally invasive video-assisted thyroidectomy or paratiroidectomy (MIVAT/P) are performed with 5 mm cameras handled by a camera assistant. The authors designed a new camera handler for video-assisted neck surgical procedures. The camera handler consists in a telescopic device designed for mechanical handling of the camera, directly oriented by the operator even in case of solo-surgery. The camera is placed inside an 'o' shaped support, and moved by the operator for the necessary positioning in the surgical field to be explored and worked on. Because of this simple device, the camera holder is useful in achieving a firm field, and prevent blood stain in this narrow working space. The tool employed as a camera handler might be useful either for MIVAT/P as well as in other simple laparoscopic procedures (i.e. cholecystectomy) for a steady handling of the camera, even in solo-surgery.

P513

DEVELOPMENT OF A NEW DIGITALIZED OPERATING ROOM USING HD-PDP MONITORS AND THE SDI SYSTEM FOR ENDOSCOPIC SURGERY

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Imaging quality during endoscopic surgery affects a lot to performance efficiency. We have been focusing on the performance aspects of the endoscopic camera and telescope, however not really considered about performance of the monitors, so far. Besides, medical equipments and other images are rapidly switching to digital. We recently developed new full-digitalized operating rooms installing High-vision PDP as a main monitor for endoscopic surgery and endoscopic images are transmitted with Serial Digital Interface (SDI). SDI is the standard for the interface used by broadcasting stations and for exchanging digital images and sound signals. It can transmit uncompressed digital signals with a single coaxial cable more than 100 meters long without picking up noises. As for monitors, we cannot hope for higher resolution and larger screens at present with CRT monitors. Also, large LCD monitors have a problem with color irregularity depending on the viewing angle. Besides their inferior color reproduction, poor responsiveness with high-speed images make them unsuitable as main monitors for endoscopic surgery. On the other hand, PDP has higher responsiveness with high-speed images, excellent color reproduction, unrestricted viewing angle and no flicker. We have two endoscopic operating rooms and two Panasonic 42-inches HD-PDP monitors supporting SDI system suspended from the ceiling with rotating arms are placed face-to-face in each room so that every surgeon can monitor the image with a comfortable position. Endoscopic surgical system is the Karl-Storz OR-1 which contains a digital 3-CCD camera system called Image-1. These systems also support several image sources such as PACS images, pathologic images, ultrasonography images, flexible endoscope images and so on. We can monitor these images simultaneously side by side with an endoscopic view on single screen and image sources are selected with a touch panel. These images are also recorded to a HDD recorder as a digital file. This brand new OR system with HD-PDP and SDI is very useful and help us to perform precise operation. I hope in future SDI PDP system will be the standard for the medical imaging system.

P514

DETERMINING OF SAFETY OF SOLDERING OF VESSELS IN TISSUE MASS OF VARIOUS TYPES WHILE USING THE TECHNIQUE OF DOSED LIGATING ELECTROTHERMAL INFLUENCE OF LIGASURE

NO SHOW

P515

HAND-ASSISTED LAPAROSCOPIC OPERATION ABDOMINAL AND RETROPERITONEAL ORGANS

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Aims: to advise our primary hand-assisted laparoscopic operations experience on abdominal and retroperitoneal organs.
Methods: There were 6 patients Lap-disc-operated with various abdominal and retroperitoneal organs deceases. There were 2 patients operated on retroperitoneal tumours indication, 4 patients on adrenal tumours and nephroncus indications. Hand-assisted laparoscopic operation based on Lap-disc were indicated with 5–10 cm tumours. In all the cases above operations were laparoscopic-initiated through 3–4 trocars of 10 mm diamension. In case of technical difficulties caused with tumour size and its extraction the lap-disc was used. The lap-disc was fixed in the abdominal laterals through 7 cm long transsections. Surgical specimen were extracted through the lap-disc.
Results: There was no much difference between an open operation length and laparoscopic operation length (in average 120 min vs 110 min). However laparoscopic operations reveal significantly less loss of blood (in average 50 ml vs 250 ml) and earlier patients activation.
Conclusion (s): Hand-assisted laparoscopic operations advantage is its cooperation of methods. Thus this very method units the best features of laparoscopic operations such as minor traumaticity, good visualization and manual options for surgeons hands as the top advantage. Hand-assisted laparoscopic operations are indicated in case of major surgical interventions. As a result a large surgical specimen is to be extracted thereof the cut is to be as long as for the assistants hand Hand-assisted laparoscopic method application provides infinite opportunities, leveling probable scope of laparoscopic and open operations for all abdominal organs (including gastrectomy, hepatectomy, pancreatectomy, enterectomy, large bowel resection, partial nephrectomy, adrenalectomy, retroperitoneal tumours, urogenital organs) in compliance with oncological operations principles.

P516

THE TIME COMPARING OF THE EXECUTING SLIPKNOT DURING OF THE USE A NEW LAPAROSCOPIC SUTURING DEVICE AND CONVENTIONAL TECHNIQUE

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Aim: Conventional laparoscopic technique for intracorporeally knot tying make well-tied knots a difficult and time-consuming task. Full intracorporeally knot tying technique Roeder loop is impossible to perform well. We designed laparoscopic suturing device (LSD) for extracorporeal pre-formed and intracorporeal finish - formed slipknot. In our study, we were comparing the time differential between laparoscopic suturing and knot tying Roeder loop when we use laparoscopic suturing device and conventional extracorporeal technique (CET) respectively.
Methods: 14 patients with uncomplicated Gastroesophageal Reflux Disease (GERD) were included in this prospective randomized clinical trial. They were randomly divided in to 'LSD' group (Group A) (n = 7) and 'CET' group (Group B) (n = 7). In both groups for fundoplication Roeder loop was used and the identical number of slipknots (n = 21) were performed.
For LSD and CET nonabsorbable monofilament threads (2–00 Polypropylene) were used. The length of the thread for LSD and CET were 15cm and 90cm respectively. The time required to accomplish these ligatures was recorded. Surgical procedures were performed by a single surgeon. Students test was used for statistical evaluation of data.
Results: There were no significant differences between Group A and Group B in terms of gender, age, ASA grading. The suturing and knotting time in Group A (LSD) was 25.4 5.8 sec. (range 15–40) vs. Group B (CET) 47.2 6.4 sec. (range 38–60). The time differences was found to be statistically significant ($P < 0.0001$) (95% confidence interval, - 25.7 - 18.0).
Conclusion: Our present study results show that designed laparoscopic suturing device for intracorporeal ligation and knot tying allows executing difficult slipknot and reduces time of performance of a slipknot.

P517

PRACTICAL INTERNET RESOURCES FOR ENDOSCOPIC SURGEONS

NO SHOW

P518

ENDOSUITE IN ASIA- THE NEW CONCEPT OF OPERATION THEATRE

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Aim: The Endosuite concept included information technology, efficiencies, ergonomics, and data transfer. We have installed the first endosuite with telecommunication in Asia for the use of general surgery.

Methods: We assessed the different aspects of connectivity, convertibility and compatibility of the Endosuite and reported on our experience.

Results: For Connectivity, real-time connection is possible in between the surgeon and other operating theatres, different departments and offices and teaching institutions worldwide. Tele-communication is readily available. Images and videos can also be stored for documentation. For Convertibility, there is easy transition to accomodate General Surgery, Urology, Gynaecology, Orthopaedics,and various other specialties. For Compatibility, it is easily connected to Endoscopy, Fluoroscopy Microscopy and different Energy Sources.

Conclusion: Endosuite enhances telecommunication and documentation with its superb connectivity; enable multi-specialty use due to its convertibility; and allow for the use of different combination of instruments with its easy compatibility. It can improve on training and eduction with the connectivity and functionality. It can also increase the efficiency which translates into saving of resources.

P519

AN INTERNET BASED, ANONYMOUS LOGBOOK FOR THE WORLDWIDE COLLECTION OF LAPAROSCOPIC SURGICAL DATA PRESENT PROGRESS

CANCELLED

P520

USEFULNESS OF A MODIFIED LAPAROSCOPIC SYSTEM, LOCAL GAS DORM-FORMING SYSTEM, FOR INSERTION OF A PERITONEAL CATHETER AND FOR A LIMITED PERITONEAL OBSERVATION

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Background: It is essential to ensure the effective and safe positioning of a drain at the target site in the peritoneal cavity through a small abdominal wall incision when conducting local drainage for peritoneal abscess, traumatic peritoneal hematoma, and duodenal ulcer perforation and when performing the peritoneal insertion of a ventricular drain for hydrocephalus. However, ordinary laparoscopic surgery through a small incision involves 1) drawbacks associated with failure in obtaining a sufficient visual field, 2) a possibility of damaging organs underneath or in the periphery of the incision, and 3) a jeopardy of positioning the drain to an erroneous site, including abdominal wall.
Methods: We developed a new device which allows the completion of surgical treatment while securely observing the drain tip and the direction of its progression by forming a minimally required gas dorm through the reservation of local space for gas insufflation only at the required site in the peritoneal cavity. This device consists of 1) a flexible, stick-shaped insufflator 25 cm in length and 8 mm in diameter; 2) an image transmitter; and 3) a controller with a CCD and gas insufflation control switches. We termed this device 'local gas dorm-forming system (LGDFS)' in the sense that it forms a gas dorm at the target site in the peritoneal cavity.
Results: We used a pig to repeatedly evaluate the effectiveness of LGDFS by conducting minor peritoneal surgery during which we made a small, 1-cm long incision only. LGDFS was inserted securely into the peritoneal cavity while permitting the operator to observe respective layers of the abdominal walls. Immediately after insertion, furthermore, the tip CCD enabled the safe reach of LGDFS to the target site while permitting the operator to avoid the damage of organs in the periphery of the incision. Although a panoramic view of the peritoneal cavity was difficult to obtain, LGDFS allowed the full observation of the target site in the peritoneal cavity, e.g., Douglas pouch.
Conclusion: LGDFS suggested its potential of providing an environment for safe and less invasive surgical treatment at the target site in the peritoneal cavity.

P521

COMPARISON OF HEAT DISSEMINATION FROM LONGITUDINAL AND TORSIONAL MODE ULTRASONIC COAGULATING SHEARS USING INFRARED THERMAL IMAGING AND THERMOCOUPLES

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Aims: Ultrasonic coagulating shears generate heat at the interface between the vibrating blade and the target tissue. This study compared blade and tissue temperatures generated by ultrasonic coagulating shears that operated on longitudinal (Harmonic Scalpel, 55 kHz, Ethicon Endo-Surgery) and torsional (LOTUS, 36 kHz, SRA Developments Ltd.) vibration modes.
Methods: An infrared digital camera (FLIR Systems) was employed to capture thermographic images and video clips of both devices cutting into bovine muscle tissues and then allowed to cool. Three thermocouples (Pico Technology) were positioned in chicken muscle tissues near each blade to measure lateral thermal spread during cutting.
Results: The torsional mode shears generated more heat than the longitudinal mode shears (median 97, range 68–226 deg C vs. median 96, range 50–154 deg C) but the difference was not significant ($p = 0.079$). For both devices, the blade temperature was not influenced by number of cuts made in succession or power settings. In room air (21 deg C), both blades took about 25 seconds to cool to 50 deg C and a further 20 seconds to 33 deg C. Tissue temperature at the cut edges was higher with the longitudinal mode shears (median 78 deg C, range 55–128 deg C vs. median 69, range 48–111 deg C, $p = 0.023$). At distances of 2, 4 and 6 mm from the cut edges, the median temperature rise were 12, 6.0 and 2.6 deg C with the longitudinal mode, and 16, 7.8 and 4.7 deg C with the torsional mode shears, respectively ($p = 0.150$).
Conclusions: Despite differences in vibration mode, frequency and blade design for both devices, the heating and cooling characteristics of both blades were similar. However, tissue temperature was higher at the cut surface with the longitudinal mode shears because heat production was mainly by frictional force of the blade against the tissue. In contrast, the torsional mode device transfers energy by a more direct compressional force into the tissue. Both devices produced similar amount of lateral thermal spread in tissues during dissection.

P522

GAS-LESS LAPAROSCOPY - A PROSPECTIVE RANDOMIZED TRIAL

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Background: Curently most laparoscopic procedures are performed using carbon dioxide pneumoperitoneum. However there have been specific risks and adverse consequences associated with pneumoperitoneum. These risks increase especially in susceptible cardiopulmonary compromised patients. Mechanical abdominal wall lifting provides adequate operative field without CO_2 insuflation.

Aim: The aim of our study was to compare carbon dioxide pneumoperitoneum and gas-less laparoscopy.

Material and Method: 50 consecutive patients undergoing elective laparoscopic cholecystectomy were prospectively randomized to undergo either CO_2 pneumoperitoneum or gas-less procedure (with VarioLift device). The two groups were compared with respect to clinical characteristics (age, gender, BMI..), operative data (operating time, conversions, complications..) and postoperative recovery (pain control, hospital stay, complications.)

Results: The two groups were comparable in terms of age, gender, BMI, ASA and history of previous abdominal surgery. Conversions occurred more frequently in the group of gas-less patients (3 vs 1) and the operating time was longer as well (71min vs 62min), both statistically not significant. There was no difference in number of peroperative complications (2 vs 2), postoperative course (pain control, no complications) and postoperative hospital stay (2.4 vs 2.6 days).

Conclusions: The gasless method is feasibile and safe. It allows for providing of the benefits of laparoscopic operations to patients with cardiovascular diseases, where carbon dioxide pneumoperitoneum is in doubt or contraindicated.

P523

THE DIT.- AN ENDOSCOPIC FINGER

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This original device is a handling instrument for endoscopic surgery to facilitate the lax spaces dissection like the pre- or retroperitoneal to be used as a deflecting probe into the abdomen as well, easy to be used with precision by the surgeon.
During endoscopic operations, surgical instruments manipulation throuhg a sheath inserted in the abdominal wall reduces surgeons maneuverability as he cannot manipulate using all upper extremity articulations. Trying to improve the 3 degrees of freedom using endoscopic instruments, many companies have developed some articulated instruments deflecting its tip, principally when a robot is used. Nevertheless, the most precious instrument of a surgeon, his hand, has not been considered when designing instruments, As a hand replica to be inserted into the abdominal cavity using a trocar can be utopian, the use of a fingerlike instrument could be possible and useful for a lot of dissecting maneuvers.
This device is a probe with a double articulation at the tip actuated pressing a finger pusher at the handle. In fact, surgeons finger movement is reproduced by the tip of the instrument making its use very intuitive. In addition, it can be rotated 360 to facilitate the right position of the tip.
Complementary facilities can be incorporated: two holes at the most end of the tip, connected to a vacuum system, facilitates aspiration if needed, as well as a terminal for monopolar electrocoagulation for hemostasis.

P524

SURGEON DRIVEN DEVELOPMENT OF AN ERGONOMIC HANDLE FOR LAPAROSCOPIC INSTRUMENTS

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Introduction: Advancements in the development of laparoscopic instruments have only been made at the instrument tips, where a large variety of different graspers are available now. Although stress syndromes like 'surgeon's thumb', 'surgeon's wrist' and 'surgeon's elbow' are widely known amongst laparoscopic surgeons and have already been reported in literature, handle design with special regards to ergonomic aspects of the surgeon's hands has been neglected up until now.

Material: A special ergonomic universal handle for laparoscopic graspers was developed in cooperation with Olympus, Germany. It consists of a light weighted modular handle, which is easily adaptable to 3 different hand sizes with a rotatable thumb ring and differently sized silicone inlays for the thumb ring and the 4th finger ring.

Method: The ergonomic universal handle was evaluated by different experienced laparoscopic surgeons, using different types of graspers in a large variety of laparoscopic procedures. Additionally, ergonomic laboratory tests have been performed including stress evaluations by electromyography.

Results: The ergonomic universal handle was subjectively judged significantly better in terms of forearm and wrist stress by all surgeons. Laboratory tests showed significantly less stress factors with the ergonomic handle when compared to standard handles.

Discussion: The new ergonomic universal handle is safe and feasible and represents a valuable option for laparoscopic surgeons of all specialities with special regard to comfortable and stress-free laparoscopic surgery for the surgeons wrists and forearms.

P525

DEVELOPMENT OF NON-CONTACT SENSING METHOD OF PULMONARY NODULES DURING VIDEO-ASSISTED THORACIC SURGERY (VATS)

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Aim: VATS procedures are often applied to extirpate pulmonary nodules. The disadvantage of VATS is the lack of tactile capacity. Small pulmonary nodules cannot be detected during the VATS procedure, especially when they are located some depth from the lung surface. To restore the tactile capacity during VATS procedures, we developed a noble non-contact tactile sensor where an air jet is shot to the lung tissue so that we can extract the displacement pattern of the stiff point.
Methods-Results: We first developed an imager which consists of a laser distance sensor and an air nozzle that produces an air jet to determine the deformity of the object. A right upper lobe of the lung was removed surgically from a lung cancer patient. The lung tissue was examined for stiffness by measuring the displacement distance following an air jet shot. The peak displacement distance reached 5 mm at a normal lung tissue, whereas it reached 3 mm at the tumor, indicating that the tumor is much stiffer than a normal lung tissue. Because the displacement of the object is measured based on the relationship between the reflected light quantity and the distance, the color of the object and the inclination angle of the tissue will affect the result. To overcome this problem, we changed measurement system based on phase differential technique, where an air pulse jet was used instead of a single step force input. The developed sensor is composed of an air nozzle and two optical fiber based distance sensors. For an air pulse jet (40Hz), two distant sensors provide us a sinusoidal output with an individual phase. The senor was scanned on the silicon rubber with a plastic ball. The outputs from two optical fiber sensors change due to the existence of the ball. By Lissajous patterns, we can clearly observe the change of the phase from the change of its shape. The measurement was not affected by the color of the tissue.
Conclusion: Non-contact tactile sensor based on phase differentiation is feasible for a diagnosis of pulmonary nodules during VATS procedure.

P526

REPROCESSING - REALITY AND REGULATORY AFFAIRS

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Surgical procedures depend on the availability of instruments and accessories. Quantity and quality of the items depend on the quality of the cycle - from operating theatre to the (central) sterile service department (CSSD). The risk analysis of the Medical Device Directive of the European Community (EU) is the background for a clearer formulation of the requirements in regard of function and hygiene which is relevant for the surgeon and the patient (as well ISO 14971 about risk analysis and management). Today CEN ISO 17664 defines what has to be available as information about automated and manual processing in manuals of medical devices. Automated processing is described as the preferred method. Sterile processing is a stepwise process and needs parametric release to confirm quality. For complicate instruments single use medical devices may be an alternative.

P527

IMAGE-BASED MEDICAL PROCEDURES: AN INTERACTION ORIENTATED CLASSIFICATION

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Aims: Intra-operative imaging plays an important role in a still increasing number of medical procedures. Image-based medical procedures (IBP) entail additional challenges for medical specialists, especially the use of the interface facilitating the procedure (dedicated equipment, controls, image interpretation, information flow, etc.). Image-based procedures involve all types of interventional minimally invasive medical procedures in which the medical specialist intra-operatively perceives the operation area, and (the effect of) his actions within it, on a monitor.
The aim of this study is to obtain an overview of the overall IBP field and to distinguish the distinctive characteristics of the different types within it, in particular those related to the interaction of the medical specialist with the interface. This will be used to develop a classification (or taxonomy) and a base to determine the need for knowledge on the interaction with IBP interfaces.
Methods: Literature and an internet search have been used to acquire a general overview and determine the state-of-the-art IBP interfaces. In addition, field observations and communications with experts provided imperative additional information.
Results: The role of and level of guidance by the image during the procedure differs considerably. Three main categories are identified, with increasing image-dependency of the performance of the procedure. In the first category of procedures the image plays a directing role, the second includes procedures using imaging techniques to reveal the operating area by magnification and in the third category imaging is used for exploration purposes. These split up in multiple sub-categories, based on characteristics of the interaction. Further defining aspects are the level of invasiveness and dynamics of the imaging technique, which can either be dynamic or static by nature for example.
Conclusions: The classification is visualised in a tree-diagram, which provides a clear overview of (the relations between) the various types of image-based procedures and the interaction patterns with the interfaces currently in use for these. It offers sufficient base for further studies exploring the role and usage of the interfaces in detail, as well as from a general perspective.

THORACOSCOPIC SURGERY

P528

ENDOSCOPIC THORACIC SYMPATHECTOMY FOR HYPERHIDROSIS USING A SELECTIVE APPROACH

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Introduction: This study is aimed to determine the safety and efficacy of the procedure for palmar and axillary hyperhidrosis. Patients may be distressed by the occurrence of troublesome compensatory sweating over the trunk or back after ETS, even to the extent of preferring the original sweaty condition. The ideal technique for avoiding this undesirable outcome is still pending.
Methods and Procedures: During the period Jan 2003 to Apr 2004, 71 patients underwent T2–T3–T4 sympathectomy through two or three entry ports. Since Apr 2004, 113 patients had a selective sympathectomy using a 5 mm transaxillary single port: T2 (r2b, r3a) for facial sweating or blushing, T3–T4 (r3a, r5a) for palmar hyperhidrosis and T4–T5 (r4a, r6a) for axillary sweating. A thoracic drain was not used. The patients were discharged the same day, unless a complication develop. Other nine patients were not included due to incomplete clinical records or insufficient follow-up.
Results: Two failures, both in the selective group are reported. Recurrence rates were 1.4% and 9,7% for the first and second period, respectively. Compensatory hidrosis occurred in 73% of the first group, and 8.8% in the second one. A 4.8% overall morbidity rate includes neuralgia, gustatory sweating and hemothorax, requiring an overnight hospital stay. The mortality was zero.
Conclusions: Endoscopic thoracic sympathectomy is a safe and effective procedure for palmar and axilar hyperhidrosis. The more selective the procedure, the higher recurrence rate would be expected. Since the evolution of the technique resulted in a better clinical outcome regarding compensatory sweating, a selective approach is strongly encouraged for lessen this complication.

P529

THORACOSCOPIC SURGERY UNDER LOCAL ANESTHESIA IN THE MANAGEMENT OF EMPYEMA

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Introduction: Empyema encompasses from early exudative stage through fibropurulent stage and organizing stage with thick fibrous peel. Thoracoscopic procedures permit adequate aspiration, evacuation and thoracic drainage. We tried to manage acute and chronic empyema by thoracoscopic treatment under local anesthesia.
Method: From April, 2000, 89 patients with empyema underwent VATS under local anesthesia and postoperative irrigation. The average age was 72 years old (range 45 to 96). The operation was performed in lateral position, with the involved side upward. Twenty mm-port (8 mm flexible port was used since January, 2003) was typically located between 5th and 8th intercostal spaces. Pleural effusion was aspirated and 11mm semirigid thoracoscope (until December, 2002) was introduced through the port. We used 7mm thoracoscope with working channel since January, 2003. Fibrin net and pus were evacuated. After lavage, two or three chest tubes were locateded and fixed.
Results: The mean operating time was 48 min (range 20–98). Postoperative fever up subsided within 48 hours in almost all cases. Chest drainage tubes were usually removed on the seventh postoperative day. The pathological development can be divided into three stages. Stage 1 is exudative (n = 24), Stage 2 is fibrinopurulent (n = 63) and Stage 3 is organized (n = 2). The conversion rate to open thoracotomy is 1.1% (only one case in stage 2) due to the recurrence of empyema. This patient recovered after the thoracotomy with decortication and thoracic drainage. Two other patients were needed to thoracic drainage again due to the recurrence of empyema and recovered. The direct complication rate was 0%. Mortality rate was 0%. After all, every patient had an uneventful recovery on follow-up.
Conclusions: Thoracoscopic therapy under local anesthesia appeared to be safe, effective and minimally invasive method for management of empyema.

P530

THE STAPLE LINE COVERING WITH ABSORBABLE FELT TO PREVENT THE RECURRENCE OF PNEUMOTHRAX

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Aims: Polyglycolic acid (PGA) felt is an absorbable artificial material. To prevent the postoperative prolonged air leakage or the recurrence of pneumothorax, staple-line reinforcement is often needed for the patients of pneumothrax with emphysema. Suture-line covering method with PGA felt after the lung resection by video-assisted thoracic surgery (VATS) is considered to be one of the most useful methods. The purpose of this study is to evaluate the merit and demerit of this method for spontaneous pneumothorax.
Methods: PGA felt (NEOVEIL, GUNZE, Tokyo, Japan) covering procedures were as follows. After the lung resection with autosutures, we tied 2 to 3 sections of staple line using 1-0 silk and threaded the sheet of PGA through the access port. PGA felt was fixed by 1-0 silk ligatures and 100mg minocycline (MINO) solution was applied to the PGA sheet. Since April 2001, VATS with PGA felt wrapping were performed for 21 patients with pneumothrax (Group A). VATS without wrapping were 56 cases (Group B). We compared both groups to check the clinical course and complications.
Results: The average of postoperative drainage period was 1.5 days in group A (range 1 to 3), and 1.9 days in group B (range 1 to 6). The rate of prolonged air leaks (more than or equal to 5 days) was 0% in group A, and 3.6% (2 cases) in group B. Patients treated PGA felt had shorter periods of postoperative drainage.
Rate of recurrence is 0% in group A and 8.9% in group B.
There was no other postoperative complication and no mortality in both groups.
Conclusions: VATS with PGA felt is useful and safe method that may reduce the air leakage from the staple line, postoperative chest drainage periods and the recurrence rate of pneumothrax.

P531

DEVELOPMENT OF NEW ATTRACTIVE SIMULATOR FOR VIDEO-ASSISTED THORACIC SURGERY

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Aims: Video-assisted thoracic surgery (VATS) is now important procedures for intra-thoracic disease. In Japan over 20000 VATS are performed per year. More numbers thought to be undergo in the world. However, rarely present for educational program and training simulator of VATS comparing to laparoscopic surgery.
This article presents our new simulator for VATS which able to learn basically and advanced technique, with an emphasis on development and results.
Methods: We plan a complete VATS simulator which consist of a source of blood flow, vessels, bronchus, lung, and a human hemi-body. And the body made with silicone is designed to simulated a human thorax which available for the thoracoscope and for thoracoscopic instruments, clamps, scissors, vascular or lung staplers, loop wires, and other devices. When happened to damage a vessel, massive bleeding occurred. This was a good experience, however, in terms of demonstrating how hemostasis occurs. The model was evaluated to assess trainee performance. Inflow takes place through the artificial pulmonary artery and outflow is through the vein which covered with artificial lung (made of polyurethane). The procedures have been videotaped and evaluated the utility of the checklist assessment methods. Check-lists are as follows; times suturing lung, times pulmonary vessels (made of Polyvinyl Chloride) ligature and cutting, attempt at cutting the bronchus.
Results: Participants evaluated by the simulation performance on a five point scale [0, severe technical error (injury the vessels); 1, incomplete procedures (insufficiency vessels ligature or instruments out of the view); 2, insufficiency cut suture of the lung or time over; 3, disorientation of the scope view] Of the participants, 16 were never experienced thoracoscopic surgery (group I) and remaining 4 participant were experienced thoracoscopic surgery (group II; > 200 procedures). Score and dexterity of the thoracoscopic surgery with our simulator correlated the experience. Now, residents and students can practice these operative procedures whenever they need to.
Conclusion: Due to its perfect simulation, quality, simple handling, and economic benefits, this trainer serves to enhance the training of thoracic surgeons, simultaneously decreasing the number of animal experiments. It is recommended for all surgeons, students, and medical assistant trainees embarking on thoracoscopic work.

P532

VIDEO-ASSISTED THORACIC SURGERY FOR PRIMARY SPONTANEOUS HEMOPNEUMOTHORAX

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Background: Spontaneous hemopneumothorax, a life-threatening and rare disorder and complication of primary spontaneous pneumothorax, is regarded as a surgical emergency. We have prospectively investigated surgigcal indication for spontaneous hemopneumothorax the differences in safety and utility between pneumothorax and spontaneous hemopneumothorax by video-assisted thoracic surgery (VATS).

Methods: From Jan 1999 to May 2006, 102 patients with primary spontaneous pneumothorax were treated surgically in our hospital. Among these patients, 8 (7.8%) spontaneous hemopneumothorax occurred, all in the first episode of spontaneous hemopneumothorax. After tube thoracostomy, the amount of blood drainage ranged from 350 to 2000 ml. A patients were treated by minithoracotomy with VATS and 8 by VATS.

Results: During surgery, the sources of hemorrhage were almost from the torn aberrant vessels between the apical blebs and the parietal pleura. The duration of main surgical time in spontaneous hemopneumothorax (including removal of blood clot in pleural cavity, control of bleeding and blebectomy) was as same as in pneumothorax ($p = 0.1524$, Fisher). There were no differences between these two groups in postoperative chest tube drainage duration, average postoperative pain score or hospital stay. No relapses occurred in the succeeding 3 months to 4 years in spontaneous hemopneumothorax.

Conclusions: Spontaneous hemopneumothorax is usually treated as an emergent condition. VATS is an easy accessible and safe procedure that could be applied as an initial treatment method in the patient with spontaneous hemopneumothorax.

P533

DYE INJECTION WITH NEW CONTRAST MEDIA FOR SMALL PERIPHERAL PULMONARY LESIONS DURING VIDEO-ASSISTED THORACOSCOPIC SURGERY

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Objective: Small peripheral pulmonary lesions are not always found during thoracoscopic surgery. In particular, as for small ground glass opacity (GGO), the lesions often cannot be identified and palpated. The value of dye with new contrast media during video-assisted thoracoscopic surgery (VATS) was studied in 20 patients with peripheral pulmonary nodules and GGO

Subjects and methods: Between March 2003 and February 2006, 20 patients underwent VATS at our institution. Our study group included 10 women and 10 men who were 37~79 years old. They had primary lung cancer ($n = 6$), pulmonary metastasis ($n = 3$), and various benign tumors ($n = 11$). The tumors ranged from 2 to 15 mm in size with a mean of 8.84.0 mm. Preoperatively, we marked around the lesions with mixed contrast media, Diagnogreen, Lipiodol and Intralipid under computed tomography (CT) guidance. In this study we used Lipiodol for radiopacity and Intralipid as an emulsion to prevent diffusion and separation.

Results: Dye injection with new contrast media visualized peripheral small pulmonary lesions easily in 18 (90%) of the 20 patients. In the remaining 2 patients visualization failed because of diffuse and poor imaging around the lesion. Minor complications were recognized in 3 cases such as pleural hemorrhage in 2 and pneumothorax in one of 20 cases. Surgical treatment was not needed in all patients.

Conclusion: Dye marking with new contrast media during VATS helped to locate lesions and determine the extent of surgical resection more than dye injection only. In this study, dye marking with contrast media proved a safe and useful addition during VATS for detecting the localization of peripheral pulmonary nodules and GGO.

P534

LONG-TERM OUTCOME FOLLOWING COMPLETE VATS LOBECTOMY APPROACHE FOR PERIPHERAL SMALL LUNG CANCER

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Background: While complete video-assisted thoracoscopic surgery (VATS) lobectomy may often a less invasive alternative to conventional surgical techniques for lung cancer, its use remains controversial. Therefore, the goal of the present study was to evaluate long-term outcomes associated with various VATS lobectomy techniques and conventional surgery in patients with peripheral small lung cancer less than or equal to 2 cm in diameter.

Methods: Retrospective review was performed in 145 consecutive patients. Clinical stage 1A patients with tumor size less than or equal to 2 cm in diameter from three institutions underwent either a complete (c-VATS, $n = 56$), an assisted VATS (a-VATS, $n = 34$), or a conventional open (open, $n = 55$) approach for pulmonary lobectomy and lymph node dissection.

Results: Patients undergoing lobectomy and lymph node dissection with c-VATS experienced less blood loss, faster recovery, shorter hospitalization, and longer operating times when compared with patients undergoing the lobectomy with the a-VATS and open approach. At a mean follow-up of 38.8 months, Kaplan-Meier probabilities of survival at 5 years were: c-VATS, 96.7%; a-VATS, 95.2%; open, 97.2%. There was no significant difference in the rate of recurrence when comparing the three different procedures.

Conclusion: These data suggest that VATS lobectomy is an acceptable approach for management of patients with peripheral small lung cancer. Further, c-VATS was superior to a-VATS and open approaches in terms of recovery time after the surgery.

P535

WHAT IS THE MOST FAVORABLE TREATMENT APPROACH FOR DESCENDING NECROTIZING MEDIASTINITIS?

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Descending necrotizing mediastinitis (DNM) is a rare disease with a high rate of mortality unless early appropriate treatment is instituted. Because of this, management is critical. We propose an optimal approach based upon our experiences with two successfully recovered cases of DNM.
Case 1: A sixty-seven year old woman who had undergone hemodialysis for thirteen years presented to a clinic complaining of fever, sore throat, and right neck swelling. After admission for acute tonsillitis, she progressively deteriorated and underwent tracheotomy on her fourth hospital day. She was transferred to the Department of Otorhinolaryngology at our hospital because of DNM two days after the tracheotomy. CT scan revealed a large right neck abscess that extended into the lower mediastinum around the pericardium. The next day, we performed neck drainage and video-thoracoscopic mediastinal drainage for the abscess. The remainder of her hospital stay was relatively uneventful, and she was discharged forty-sixth days post-operatively.
Case 2: A fifty-year old woman with complicated diabetes mellitus for four years presented with complaints of fever, sore throat, and left neck swelling. She was medicated with a non-steroidal anti-inflammatory and antibiotics for presumed upper respiratory tract infection. Three days later, she was admitted on our hospital for DNM. CT scan revealed that the left neck abscess extended to the bilateral main bronchus along the trachea. The abscess immediately was drained under the mediastinoscopic guidance. She was discharged thirty-three days after the operation, after an uneventful post-operative course.
Video-thoracoscopic drainage is safe and useful in the treatment of DNM that extends to the lower mediastinum. If the DNM is limited to the carina, mediastinoscopic drainage is a good choice.

P536

VIDEO 'ASSITED' THORACIC SURGERY FOR LUNG CANCER - 4-CENTIMETER WOUND LENGTH AND 4-DAY POSTOPERATIVE HOSPITAL STAY

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Aim: Video assisted thoracic surgery (VATS) for lung cancer seems to be less invasive and more cosmetic than the operation under standard thoracotomy. But it is often said to be more difficult to operate because of inaccuracy of handling instruments through thoracoscopic vision. The aim of this study is to present the method and advantages of our video 'assisted' thoracic surgery.

Methods: Thirty-six cases of lung cancer were operated by VATS from April 2004 to March 2006. Twenty-five males and 11 females. Age: from 25 to 88 (mean 66) years old. Each patient was managed according to the clinical pathway. Lobectomies (including 5 bilobectomies) with systematic hilar and mediastinal lymphnode dissection were performed. The main wound was 4cm long on the 4th intercostal space of mid-axillar line with 2 small wounds for insertion of a thoracoscope and other instruments. A rib spreader was not used, but a plastic wound retractor for retraction of soft tissues was attached. The most characteristic point of our method is that the operator watched an operative field almost directly through the wound, and assistants watched it on a video monitor. We used usual instruments which were used for standard thoracotomy. Each patient was scheduled to be discharged on 4th postoperative day.

Results: Operation time: from 104 to 394 (mean 225) minutes. Bleeding: from 10 to 850 (mean 236) ml. Three cases with bronchoplasty and 4 cases with pulmonary angioplasty were all performed through the same wounds. No case had to enlarge the wound because of hemostasis or other reasons. Duration of postoperative drainage: from 2 to 12 (mean 3.3) days. Post operative hospital stay: from 3 to 13 (mean 4.9) days. Twenty-one cases (58%) were discharged on 3rd or 4th postoperative day. The main reason of delay of discharge was air leakage. There was no major complication, and no patient who had no lymphnode metastasis has recurrence until now.

Conclusion: Though the wound is small, we operate mainly directly, and the thoracoscope is used supplementarily. For doctors who are not used to VATS, our method would be easy to learn and would have good results.

P537

THORACOSCOPY FOR PNEUMOTHORAX - BY A GENERAL SURGEON

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Aim: To review all the thoracoscopies for pneumothorax, at a District Hospital between 1996 and 2005 to assess their place in this setting.

Methods: 42 procedures were performed, for recurrent or persistent pneumothorax, following the outlines in the literature, though not using linear staplers. Standard laparoscopic instruments were used, with a three port approach. Obvious bullae were ligated (using a reusable endoloop device) or sutured. Apical 1/3 pleural stripping was performed routinely. The data were collected prospectively for perioperative events and the long-term outcome assessed by postal questionnaires.

Results: 70% of the procedures had no perioperative complications. There were two deaths related to surgery (in high-risk patients) and 4 transfers to a tertiary centre. Two of the six early interventions were done locally (one thoracoscpic, one open). In the follow-up, between 1 and 8 years (response rate 97%), 92% reported no recurrences. Only three patients had continuing discomfort.

Conclusions: Successful outcome can be achieved by a competent laparoscopist in a District Hospital setting, using 'normal' reusable instruments and no expensive staplers.

P538

VIDEO ASSISTED THORACIC SURGERY (VATS) FOR CATAMENIAL PNEUMOTHORAX

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We retrospectively studied the treatment for 28 patients of catamenial pneumothorax from December 1992 to April 2005. The mean age was 39.9 years, ranging from 23 to 48 years. In all patients, pneumothorax was related to onset of menstruation and for 13 patients, it was the first episode of pneumothorax. Video Assisted Thoracic Surgery (VATS) was performed in all cases.
The site of air leakage was suggested from a ruptured pleura in 10 patients and from some defects in the tendon of the diaphragm in 18 patients. Partial resection (or suture) of the diaphragm or partial resection of the lung was performed. Conversion from VATS to thoracotomy was needed for two patients because of severe adhesion between the lung and the chest wall. Postoperative course was uneventful and they were discharged 4 to 21 days after operation.
Hormonal therapy was administered for several months post surgically in 9 cases.
Recurrence of pneumothorax was occurred in 7 cases (25%), and reoperation was performed in all cases. We conclude that the surgical treatment is desirable considering repeated pulmonary collapse, and persistent air leakage. VATS may be considered as feasible treatment for patients with catamenial pneumothorax.

P539

FUNCTIONAL EFFECTS OF VIDEOASSISTED EARLY DECORTICATION FOR BLUNT THORACIC TRAUMA

NO SHOW

TRAINING

P540

FOUR PORT APPROACH FOR LAPAROSCOPIC BANDING

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Aims: We reported our experience of laparoscopic banding (LGB) performed with four trocars.

Methods: Twenty female patients were evaluated after undergoing LGB with VG 10cc lap band. We used one 15mm and two 5mm trocars. The technique involved visualization of the right crura and a minimal dissection done with Harmonic scalpel of the peritoneal reflection on the cruras. A long grasper was passed from the right crura to the left crura and out in the left upper quadrant. The band was inserted through the 15mm trocar and passed around the stomach. Four stitches of 2/0 Surgidac were used to keep it in place. During this part of the procedure, through the left trocar, the assistant was both assisting and retracting the liver.

Results: Body weight loss on average of 30% at 6 months. No complications were reported with this technique. The patients were discharged within 12–16 hours.

Conclusion: We reported a technique with only 4 trocars. This technique is safe and should be considered to further decrease the number of port placement, which is another step in making this operation an outpatient operation. Pictures of the procedure will be presented in detail.

P541

THE COMPARISON OF DIFFERENT TRAINING SYSTEMS IN DEVELOPING OF LAPAROSCOPIC SURGICAL SKILLS

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Purpose: To evaluate the role of different systems in training laparoscopic surgical skills.

Materials and methods: Two training systems were used. One of them - LapSim. The other was specially designed for training of suturing of urethrovesical anastomosis after radical prostatectomy, because of its maximum technical difficulty among all laparoscopic procedures. It consists from the model of human pelvis, placed inside the closed box. The model of urethra was done inside this pelvis from the chicken skin, placed on the tube about 1 cm in diameter. The tissue of the urinary bladder was modeled from the chicken skin, also.

Results: The usage of this two types of laparoscopic simulators on the course of advanced training of laparoscopic surgeons, showed, that LapSim. Is the best for training of initial skills, like holding and moving the camera, improving of precise movements of the instruments. The self designed training system was better for improving of specific skills of suturing of precise anastomosis. Chicken skin was very good in simulating real urethra and bladder tissue

Conclusions: Joint application of simulator LapSim and a special simulator for laparoscopic urethrovesical anastomosis raise the efficiency of training laparoscopic surgeons.

P542

BIOSIMULATORS TRAINING AND ITS IMPACT ON THE SKILL IN LAPAROSCOPIC CHOLECYSTECTOMY

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Background: The reduction of errors in the operating room with the training of abilities in a biologic simulator has not been proved prospectively.
Objetive: To determinate the educational impact of the training in an inanimate biosimulator in terms of efectivity, time and complication in the laparoscopic cholecystectomy.
Desing: Comparative, experimental of one cohort, prospective and longitudinal.
Methods: Three first prosgraduate year residents and one pregrade intership physician were trained and assessed in elemental laparoscopic abilities by means of the use of a biosimulador (Fiber glass dummy in that animal organs are introduced, ex-vivo). The participants were their own control, they making a procedure to determinate surgical time, complications and efectivity. Later they observed a short video demonstrating the suitable development of laparoscopic cholecystectomy. This video defined the specific desviations from the ideal cholecystectomy, being this considered like error. Every procedure was videotaped, beginning with the carefully dissection of cystic structures and clipping them, continued with the dissection of the gallbladder from the liver with the standarized method at two hands. Each participant performed ten procedures.
Results: There were no differences in baseline assessment of elemental abilities. All participants completed all the proposed procedures. The surgical time was 61% faster at the end of the study ($p < 0.001$), as well as a rate of complication of 0.67% ($p < 0.009$).
Conclusion: The training of abilities in endoscopic surgery by means of an inanimate biosimulador is better than the traditional training since it diminishes the surgical time and the complications happened in the operating room; with it affecting the questions the ethics and the cost of a curve of learning in the operating room.
Key Words: Biosimulator, endoscopic surgery, cholecystectomy, abilities training, learning curve, surgical time, surgical complications.

P543

ENDOSCOPIC HARVESTING OF THE RECTUS ABDOMINIS MUSCLE-EXPERIMENTAL STUDY IN A SWINE MODEL

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Aim: The rectus abdominis muscle is one of the most frequent used free flaps in reconstructive surgery. Endoscopic harvesting of free flaps is increasingly used in reconstructive surgery due to minimal donor site morbidity. The present study aims in establishing the experimental model of the rectus abdominis muscle endoscopic harvesting technique in pigs.

Material and Method: The study was conducted on 10 pigs with an average weight of 25 kg. Laparoscopic surgery instruments were used along with the Emory retractor. After orotracheal intubation and anesthesia a 4–5 cm incision is made in the inguinal plica and prolonged until lateral margin of the caudal segment of the rectus abdominis muscle. The anterior and posterior side of the muscle is dissected using a forceps and a Hook. After the muscle is sectioned using the hook, the pedicle is isolated and clipped on the desired length. The work chamber is created using Emory retractors. 12 muscles were harvested, of which 4 were harvested in a classical manner and 8 by means of minimal invasive surgery.

Results: Operating time was between 125 and 190 minutes, with a mean time of 140 minutes. During the study the rate of conversion, bleeding, duration of the surgery, viability of the flap, length and aspect of the pedicle and moment of mobilization were followed. One pedicle was damaged during surgery with following seroma development. One experimental animal died 72 hours post-operatory due to generalized peritonitis. Morbidity was lesser in animals where endoscopic harvesting was performed.

Conclusions: Endoscopic harvesting of the rectus abdominis muscle leads to minimal donor site complications. At the same time, this technique represents an excellent training model for developing endoscopic flap harvesting skills.

P544

SUCCESSFUL LAPAROSCOPIC TRAINING FOR NURSES AND SURGEONS OUR TEN YEAR EXPERIENCE

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The last decade has witnessed a laparoscopic revolution and the demand for Centres of Excellence providing quality training in laparoscopic techniques and technologies has arisen.
Since August 1995 our centre has run over 500 Minimal Access Therapy Training courses and has seen more than 10,000 delegates from Nursing, Medical and Industrial backgrounds embrace laparoscopic surgery with enthusiasm, determination and humour.
Our recipe for success has been the careful selection and dedication of the training team, and the harmonious collaboration of our centre with industry.
Our delegate selection process has been streamlined to ensure that all candidates attend a course appropriate to their skill level and educational requirements, thereby ensuring cordial compatibility! Every course includes a hands on workshop held in our skills laboratory which is equipped with 6 state of the art Karl Storz laparoscopic camera stacks, and an armamentarium of innovative laparoscopic instrumentation provided by Ethicon Endo-surgery.
A 2 way audio visual link to the laparoscopic theatre suite and international video conferencing facilities enable us to transmit live surgical demonstrations both to and from distant sites to our delegates, with visiting lecturers encouraging lively debate.
Using a scale of 1–5 [1 = poor, 5 = excellent] Post course evaluations completed by the delegates have revealed a median overall score of 4.3 for the various aspects covered during training courses.
Small courses, appropriate faculty ratio, good relations with Industry and a relaxed team approach have all contributed to our 10 years of successful laparoscopic training.

P545

CORRELATION OF TRINING INTERVALS WITH SKILL PROGRESS FOR ENDOSCOPIC SURGERY

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Aim: This study aimed to determine the desireble training interval for maintainance of the laparoscopic proficiency by evaluating the chronologic alteration of the acquired psychomotor skills.

Methods: Fifteen novices with no laparoscopic experience participated. Participants were devided into three groups (A,B,C), and each group performed the same task (running suturing on the circle within 7 minutes) in the different intervals (1,2,3 weeks) from the initial orientation. We evaluated the number of tyings, the completion rates and the errors.

Results: A significant correlation was found between the group A and C in every items, especially in the completion rates and errors.

Conclusion: This study suggests that it si desireble to have coutinuous training within at least two weeks interval to avoid the chronologic alteration of the acquired psychomotor skills of endoscopic surgery.

P546

VIDEO - ASSISTED MICROSURGERY A NEW MODERN TEHNIQUE

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Aim: The recent explosion in digital technology made the performance of the complex surgical procedures with the guidance of video-imaging, a well established concept. The aim is to evaluate the endoscope as an alternative magnification system which may be preferred by the new generations of the microsurgeons, and in certain operative and financial situations.
Method: The possibility of the microsurgical performance with the visual assistance of the endoscope was investigated and compared with the conventional operating microscope as regard the technical and clinical aspects. The equipment consisted of a 10 mm Hopkins telescope, zero-degree, 3 chip videocamera with zoom and standard metal stand with movements possibility. The images were displayed in two-dimensions on monitor which was set up in front of the surgeon. The study group consisted of 2 resident without experience in microsurgery anastomoses. Each resident completed a series of 3 anastomoses with both procedures for accommodation using synthetic suture. After that each resident completed a series of 10 anastomoses involved in rat aorta vassels with both procedures. A lot of factors were used to evaluate this new microsurgical technique, including anastomosis, anastomosis quality and residents' evaluation of various aspects
Results: A total of 40 anastomosis were realized. 20 anastomosis with microscope and 20 with video microsurgery. 10 anastomosis involved chicken legs, before realized the anastomosis on microscope and video microsurgery. The time difference between the stereo microsurgery and video microsurgery groups was significant for both of these. We follow quality of anastomosis through suture spacing, vessel bite, overlap and evidence of twisting. Both residents observe a confort traning with microscope and the time for one anastomoses was shorter with microscope.
Although 80 percent of the participants felt that the video microsurgery would improve surgeon comfort and be applicable to human operations, 85 percent preferred stereo microsurgery to video microsurgery.
Conclusions: Advantages of microsurgery video asisted are smaller size with different applications, better surgeons status, inclusion of the operative team personnel. Disadvantages are short working distance and two-dimensional image. The learning curve would be faster with the persons who had a previous microsurgical experience.

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WHAT DO TRAINERS EXPECT FROM MINIMALLY INVASIVE SURGERY COURSES? EVOLUTION FROM 1993 TO 2005

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Introduction: Since 1993 we perform minimally invasive surgery (MIS) training courses with university endorsement (Universidad Complutense de Madrid) one academic year basis. These courses curriculum includes theoretical learning and practical training. The participants opinion about different issues related to MIS training has been collected through annual surveys.

Aim: To answer this question: how have participants requirements from MIS training courses changed along time?

Methods: Surveys answers from the six first course editions (from 93 to 99, group I) are compared to the last six ones (from 99 to 05, group II), for the following items:
1. Which is in your opinion the most important feature of this Course?
2. Who must assume responsibility of laparoscopic training in your opinion?
3. How long must laparoscopic training courses last?

Results: Question 1. The most important feature of this Course was the number of hours of animal training for 59,6% of group I and 73,6% of group II ($p < 0,05$). Question 2. The majority of participants of both groups considered hospitals as the institutions responsible for surgeons laparoscopic training (NS). Question 3. Laparoscopic training courses should last one year according to 59,8% of group I and to 56,8% of group II (NS).

Conclusions: The time dedicated to practical training is very appreciated by participants in training courses. On the other side, we have not found many changes in trainees requirements from laparoscopic training courses along the last twelve years.

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LAPAROSCOPIC APPENDECTOMY AS A TRAINING PROCEDURE FOR THE SURGICAL RESIDENT

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Introduction: laparoscopic appendectomy (LA) has been established as the procedure of choice for suspected acute appendicitis not only for the young female and the obese patients, but for all patient populations as well. Appendectomy is the most frequent operation done by residents on the first half of residency.

Aim: to establish a training program in basic laparoscopic surgery for the surgical resident based on gaining experience and independence in LA.

Methods: each of our residents was expected to operate the same amount of LA as open procedure on the first half of residency. on PGY3 the resident is expected to have gained independence in the procedure.

Results: between 6/2002 and 8/2005 each one of 6 residents have performed no less than 30 appendectomies p.y., at least half of which laparoscopically. a mean conversion rate of 7% was not related to technical issues. thare were no more post operative complications than in the traditional approach.

Conclusion: LA should be part of the training program in basic laparoscopic surgery for the junior surgical resident.

P549

LOW BUDGET EDUCATION FOR ENDOSCOPIC SURGERY

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Aims: Endoscopic surgery is expanded and improved via educational programs that are usually expensive and available only for a small number of surgeons. There should be a kind of education that would be free and available to every surgeon wherever he comes from. Aim of this study is to present a low cost educational program that is based on simulation models for endoscopic surgery.

Methods: We used simulation models that were made from simple materials and put them into a protocol of education for residents in General Surgery. We tested our models by educating 42 residents in General Surgery. We selected their answers outlining their impressions about this way of education and wrote down our personal experience, too. A questionnaire was used, consisted of 12 questions.

Results: We manufactured 4 different simulation models for education in cholecystectomy, hernia repair, appendicectomy and liver biopsy. We managed to attract the interest of the residents and make them want to take the simulation models at home. We gave the chance to one resident per week to test the educational models at home. In total 32 doctors were satisfied from these models, 6 found difficulties but finally accepted the usefulness of these models and 4 did not like this way of education or found it not useful to adopt it. The simulation models were a good introduction before the education on patients for the total of asked doctors. Home education was ideal for 28 doctors, useful but not adequate for 12 doctors and useless for 2 doctors.

Conclusions: Because simulation models are closer to educational procedure and carry no risks of complications, are recommended to be used for practice in every Hospital and in every surgeon's home.

P550

OBJECTIVE ASSESSMENT OF SURGICAL TRAINEES FOR THEIR SKILLS BY ERROR IDENTIFICATION USING OBSERVATIONAL CLINICAL HUMAN RELIABILITY ANALYSIS

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Background: to identify technical surgical errors committed by surgical trainees with different level of experience during laparoscopic training courses.
Methods and materials: 62 surgical trainees were recruited for this study from essential and advanced laparoscopic courses with 34 and 28 of participants respectively. Animal (non-live) specimens were used for simulated laparoscopic cholecystectomies which were video-taped. Recorded procedures were analysed for Calots triangle dissection and endoclipping. Observation clinical human reliability analysis (OCHRA) technique was used to identify committed errors. Observable errors were classified as procedural (omission/re-arranged steps) or executional (failure to correctly execute steps). Based on their impact, errors were also categorized as consequential or inconsequential. Error probability for consequential errors was calculated for each group. Chi- square was used for statistical analysis with 5% significance level.
Results: Total number of consequential errors enacted by essential course surgical trainees was 335 out of 8476 total number of movements while advanced trainees committed 93 consequential errors out of 4262 total number of movements. Consequential errors probability for essential trainees was 5% while 2% for advance trainees. Mean of consequential errors enacted was 10 per trainee for essential course compared to 3 consequential errors per trainee from advance course. More executional errors enacted by essential course participants compared to trainee attending advanced courses ($P < 0.001$).
Conclusion: OCHRA can determine the varying level of surgical experience of trainees based on their technical skills and errors committed.

P551

ACQUIRING COLONOSCOPY SKILLS ON GI MENTOR II THE LEARNING CURVE

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Aims: Teaching novice endoscopists the fundamentals of colonoscopy outside the clinical setting is important to minimise discomfort for patients. The aim of this study is to assess the proficiency curve for basic colonoscopy skills using the Simbionix GI Mentor II simulator by assessment of both core-skill and performance of virtual colonoscopies.
Methods: Seventeen medical trainees with no prior flexible endoscopy experience performed four training sessions (one per day) within five consecutive days. Prior to the first session, participants filled out a questionnaire and received a familiarisation tour on the simulator. Each participant performed the hand-eye coordination task (EndoBubble level 1) once per session and 11 colonoscopy cases in total (two in first session, three in subsequent sessions) with the assignment to visualise the cecum as quick as possible, while causing as little discomfort or pain for the virtual patient as possible. Case 3 of colonoscopy module I was repeatedly performed at the end of each session.
Results: Mean age 17 participants: 25.4 years. Session 1: mean time to reach cecum in case I–3 of 00h28min19sec (00:08:03 01:03:55) with a mean of 3.29% (0% 24%) time virtual patient was in pain, time to finish EndoBubble task 00:07:17 (00:02:54 00:20:25). Session 4: mean time to reach cecum in case I–3 of 00:07:45 (00:04:25 00:15:50) with a mean of 0% of time virtual patient was in pain, time to finish EndoBubble task 00:02:47 (00:01:39 00:05:17). Differences in scores between session 1 and 4 are statistically significant ($p < 0.001$). Scores of session four differ less than scores of session one from scores of experienced endoscopists (200–1000 colonoscopies previously performed, $N = 15$), the difference is still significant ($p < 0.001$) for both sessions, except for the percentage of time the virtual patient was in pain.
Conclusions: In this study, we have demonstrated that novice endoscopists significantly improve their basic virtual colonoscopy skills by training on the Simbionix GI Mentor II simulator. The amount of training provided in this study was not sufficient for most participants to reach the proficiency level of experienced endoscopists.

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ASSESSMENT OF TECHNICAL SURGICAL ERRORS BY TRAINEES COMMITTED DURING TRAINING COURSES BY OBSERVATIONAL CLINICAL HUMAN RELIABILITY ASSESSMENT

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Aim: The aim of this study was to identify technical surgical errors committed by surgical trainees with different level of experience during laparoscopic training courses by Observational Clinical Human Reliability Assessment (OCHRA).
Methods and materials: 62 surgical trainees were recruited for this study from essential and advanced laparoscopic courses with 34 and 28 of participants respectively. Animal (non-live) specimens were used for simulated laparoscopic cholecystectomies which were video-taped. These recorded procedures were analysed for the task of dissection of cystic duct and artery. An observation clinical human reliability analysis (OCHRA) technique was used to identify committed errors. According to the nature of errors, observable errors were classified as procedural and execution-based errors. Procedural errors involved the omission or re-arrangement of correctly undertaken steps within procedure. Execution errors involved the failure of the surgeon to correctly execute an individual step. Based on the impacts of errors, error was categorized as consequential or inconsequential error. Error probability for consequential errors was calculated for each group using a formula, total errors/ total number of instrument movements. Chi- square was used for statistical analyses, using SPSS 11.5. A p value of < 0.05 was considered to be significant.
Results: The total number of consequential errors enacted by surgical trainees attending essential course were 335 out of 8476 total number of movements while the advanced course participants committed 93 consequential errors out of 4262 total number of movements. The consequential errors probability for essential course was 4% while 2% for advance course. The mean of consequential errors enacted was 10 per trainee for essential course compared to 3 consequential errors per trainee from advance course. More executional errors enacted by essential course participants compared to trainee attending advanced courses ($P < 0.001$).
Conclusion: Surgical trainees can be assessed objectively for their operative skills by OCHRA. Use of OCHRA can also determine the varying level of surgical experience of surgical trainees.

UROLOGY

P553

EXPERIENCE WITH TRANSPERITONEAL LAPAROSCOPIC ADRENALECTOMY FOR PHEOCHROMOCTTOMA

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Laparoscopic adrenalectomy for benign adrenal tumors has become the preferred surgical treatment, however, for pheochromocytoma it is still limited due to hypertensive events. We report our experience with transperitoneal laparoscopic adrenalectomy for pheochromocytoma. During eight years, five transabdominal laparoscopic adrenalectomies which corresponded to 20% of all laparoscopic adrenalectomies were performed for symptomatic pheochromocytomas in three males and two females. Their ages ranged from 17 to 50 years with a mean of 35 years. The location of tumor was right side in two cases, left side in one, bilateral side in one and Zucherkandle in one, respectively. There were no conversions to open surgery. The operation time and estimated blood loss ranged from 120 to 450 min (mean: 283 min) and 3 to 1200 ml (mean: 368 ml). None of the patients required transfusion. Only bilateral case had four tumors (right side in two and left side in two). The mean diameter of the excised tumors was 51 mm (range: 8 to 90 mm). There were no postoperative complications. All patients showed normal blood pressure and catecholamine levels without treatment. The mean postoperative hospital stay was 12 days (range: 7–15 days). The mean duration of follow up was 73 months (range: 51–90 months). There was no recurrence during the follow-up period. The laparoscopic treatment of pheochromocytoma is safe and effective procedure with avoiding hypertensive events and the consideration of careful maneuver due to the vessel rich tumor.

P554

TRANSABDOMINAL LATERAL APPROACH OF LAPAROSCOPIC LEFT ADRENALECTOMY USING THREE PORTS

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There are several endoscopic approaches for the resection of adrenal tumors. However, the choice of approach is still controversial depending on the surgeon or institution. We introduced the transabdominal lateral approach of laparoscopic left adrenalectomy using three ports with the reduced operation time and cosmetic benefit. Under general anesthesia, patients took the right lateral position. The operation was performed by two man method. Three ports (12-10-5mm or 12-5-5-mm) were inserted into the peritoneal cavity at left upper quadrant. Initially the peritoneum of the lateral side of spleen was divided by laparoscopic coagulating shears (LCS). The upper pole of the left kidney was identified. The tail of the pancreas was spontaneously divided with spleen medially. Left adrenal grand was easily identified after this maneuver. If the left adrenal tumor was small, we confirmed the exact location of tumor by laparoscopic ultrasonography. Left adrenal grand including tumor was resected by LCS without metal clips. Partial adrenalectomy was also performed by LCS at the lower side of tumor with the preservation of aderenal vessels. The operation time of recent three cases ranged from 60–100 min (mean: 77 min) compared with 140–178 min (mean: 159 min) in the previous cases. There was a significant difference in the operation time. Our method for laparoscopic left adrenalectony achieved the reduced operation time and the minimally invasive surgery. The development of operative instruments is necessary, however, surgical skills and keeping the good operative field with minimal bleedings are more important factors to accomplish better outcomes.

P555

LAPAROSCOPIC TREATMENT OF A URACHAL CARCINOMA

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Introduction: The aim of this report was to evaluate the feasibility of laparoscopic resection of urachal carcinoma. Urachal carcinoma is an uncommon neoplasm. The incidence of urachal tumors is between 0.07% and 0.34% of all bladder tumors. Based on histology, urachal tumors have been classified as mucin-positive adenocarcinoma (69%), mucin-negative adenocarcinoma (15%), sarcoma (8%), squamous cell cancer (3%), transitional cell carcinoma (3%), and others (2%).

Methods: A 64-year-old man had undergone resection of the upper pole for renal carcinoma 9 years previously. In the course of a follow-up exam, a cystic tumor with a diameter of 9 cm was discovered above the urinary bladder, which gave a benign impression. Only after a year did the patient decide to undergo surgery. At that time, there had been no change in the tumor; the patient had no complaints and there was no palpable mass. Cystoscopy was negative and the laparoscopic procedure was successful. Three trocars and a Ligasure instrument were used; the tumor was retrieved in a bag of suitable size through the incision for the kidney operation.

Results: Histologically, the tumor was a mucin-positive adenocarcinoma compatible with an urachal carcinoma. After 4 months, a new CT evaluation didnt show any evidence of tumor and the patient was free of complaints.

Conclusion: There is no consensus in the literature on the type of surgery that is most suitable for urachal carcinoma. Laparoscopic surgery is not only safe; it may be viewed as the method of choice.

P556

LAPAROSCOPIC ACCESS IN SURGICAL TREATMENT OF BENIGN TUMOURS OF THE RETROPERITONEAL ORGANS

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Since October 1, 2003 22 laparoscopic right nephropexies for nephroptosis (2–3 degree) have been performed, using polyprolene implant 4–5 and 5–10 mm troacars have been used for the operation performing.
If a herniostappler is used, it is enough to mobilize the lower renal pole. The implant has been fixed to the lumbar muscle and then - to the anterior surface of the lower renal pole.
We have demonstrated that polypropylene implant is indifferent for the body; and wound process course, if it takes place, is practically the same, as an aceptic wound process.
We have obtained good and excellent results of surgical treatment.
Thus, the laparoscopic nephropexy is the optional operation in patients with nephroptosis; surgical treatment is required here. The staff of our hospital has an experience of performing 23 adrenalectomies, using a laparoscopic direct access. While examining patients in 6–36 months after the operation, they have found out their satisfactory condition.
Thus, the laparoscopic adrenalectomy can be performed when treating the wide range of endocrinologic diseases, requiring surgery. It is the most optimum way of removing multiple adrenal tumours, as there is a possibility to perform a simultaneous operation.
The basic method of treatment of retroperitoneal cysts is their surgical dissection. 14 patients have been operated on in our hospital, using a direct transabdominal laparoscopic access.
We have obtained good short-term and late fate results. The average hospital-stay is 6.2 days. The patients have been active since the first day. There were no complications there. We have not marked relapses during patients' examinations in 6–36 months.
Thus, the operations for retroperitoneal cysts can be performed, using laparoscopic accesses. 23 laparoscopic ureterolithotomies have been performed in our centre; the concrements have been found out in the upper and middle one-third of the ureter. We have obtained good follow-up results. Laparoscopic operations in benign tumours of retroperitoneal area are characterized by less traumas for patients, less number of complications, fast restoration of work abilities and good cosmetic effect; they combine high efficiency and they are minimum invasive, they are the most prospective in the practical surgery.

P557

LAPAROSCOPIC ACCESS IN SURGICAL TREATMENT OF MALIGNANT DISEASES OF UROGENITAL ORGANS

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We have performed radical laparoscopic nephrectomy in 33 patients in renal cellular cancer pT2-3aNO-2MO-M1 (left nephrectomy in 18 patients and right nephrectomy in 15 patients).
We use 5 accesses (four 10 mm accesses and one 5 mm access) for performing the laparoscopic radical nephrectomy.
The postoperative period has been without complications, insurance drainage has been removed in 3–4 days. Patients have been discharged from the hospital in 5–7 days. The duration of the temporary disability has been 21–30 days. During histological investigations they have verified the renal cellular cancer. In postoperative process staging metastases into regional lymphatic nodes have been found out in 34% of patients (without macroscopic changes).
We have not marked lymphadenectomy complications. At present we are carrying out investigation, related to lymphatic nodes mapping with the aim of more precise postoperative staging of disease and prognosing of follow-up metastases (if some groups of lymphatic nodes are affected).
Our hospital has had the experience of performing 2 laparoscopic radical prostatectomies (using nerve preserving technique). In both patients (working males, 54–56 years old, with the expecting life duration more than 10 years) the process stage has been classified as pT1cNOMO G14. We have used 5 accesses. Lymphatic nodes have been investigated, using the mentioned above technique. The number of the investigated nodes has been as follows: 4–6 on the right and 7–8 on the left. Metastases have not been found out; it has been in accordance with the process stage. We have obtained good results. The majority of the authors do not doubt in a necessity of aortoiliac lymphodissection in seminoma tumours of testis.
We have had the experience of treating 2 patients. Lymphodissection technique, performed after the radical orchifuniculectomy, does not differ from the lymphodissection in the renal cancer or colorectal cancer. There were no complications there. Patients get treatment and are under the close surveillance of oncologists.
Thus, the laparoscopic access can be used in the urogenital tumours with the obligatory minding of the oncological principles of operation performing. The regional lymphadenectomy is an integral part of the surgical relief.

P558

LAPAROSCOPIC RADICAL NEPHRECTOMY FOR RENAL CELL CARCINOMA: AN COMPARISON OF HAND-ASSISTED VERSUS PURE LAPAROSCOPIC RADICAL NEPHRECTOMY

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Objectives: In recent years, renal cell carcinoma has become one of the most common indications for laparoscopic surgery. We made a comparative study of hand-assisted laparoscopic radical nephrectomy (HALRN) and purely laparoscopic radical nephrectomy (LRN) for renal cell carcinoma (RCC).

Material and Methods: From May 2000 to December 2005, 58 patients underwent laparoscopic radical nephrectomy for RCC at Osaka University Medical Hospital. Of the 58 cases, 38 (65.5%) were treated with HALRN, and 20 (34.5%) with LRN. Each group of cases was reviewed with respect to complications, postoperative convalescence, the relationship between body mass index (BMI) and operative time, and disease-specific survival.

Results: The average operative time of HALRN and LRN was 286.5 min (range 155 to 460) and 294.1 min (range 160 to 660), respectively, and the average blood loss was 296.7 ml (range 20 to 2000) and 93.2 ml (range 10 to 770), respectively. The average BMI was 23.3 (range 16.9 to 37.3) and 24.2 (range 18.0 to 30.5). BMI and the average operative time showed equilateral correlation in both groups. In two cases (3.4%) conversion to open surgery was necessary due to bleeding. Both cases were operated on by HALRN. In two additional cases (3.4%) intraoperative complications could be managed laparoscopically.

Conclusions: There were many complications and open conversion cases in the HALRN group, perhaps because we performed only HALRN in the first 21 cases operated on. The blood loss and required dose of analgesics were significantly reduced in LRN. Therefore, we think that LRN was more useful than HALRN with respect to invasiveness.

P559

EVALUATION OF THE 1ST NIGERIAN NATIONAL ENDOSCOPIC UROLOGY COURSE

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Background: Endoscopy is now the mainstay of urological practice. However, there are very few endourologists in Nigeria, and the residency training programmes have no formal endourology training component. A hands-on national endourology course was therefore organized in collaboration with Karl Storz Endoscopes GMBH. This was held at the University College Hospital, Ibadan between 6th and 9th September 2004.
Objectives: To evaluate the 1st national endoscopic urology course in Nigeria and assess its impact on the endoscopy knowledge and skills of the participants.
Methods: Structured questionnaires were administered to all at the course. Data were extracted, collated and analysed.
Results: Twenty doctors and six nurses (total 26) attended the course. Seventy eight percent (18/23) had endoscopes in their hospitals with 33% having maintenance support. None of the participants had a personal endoscope. All the participants said the course had improved their knowledge of endourology. Eighty percent (20/25) had no/minimal prior endoscopy skills and all said their skills had been improved significantly by the course. Overall, the course content was considered satisfactory to 96% of the attendees, and a similar percentage would attend a similar course in future. Suggestions on improving future courses included the addition of live demonstrations of endourology procedures.
Conclusion: The Endoscopic urology course is a useful addition to urological training and has a significant impact on the uroendoscopy knowledge and skills of participants. Future organisers should consider introducing live surgery as a component.
Key words: Endoscopy, urology, hands-on course, endourology, surgical training.

P560

THE EFFECT OF CARBON DIOXIDE PNEUMORETROPERITONEUM ON BACTERIAL TRANSLOCATION IN AN EXPERIMENTAL RETROPERITONEOSCOPY MODEL

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Objective: Bacterial translocation has ben defined as the movement of enteric bacteria to distant organs that cause infection. Bacterial translocation can be observed in various types of stress including sepsis, trauma and immunesuppression. During retroperitoneoscopy metabolic and hemodynamic changes occur by CO_2 insufflation and consequently retroperitoneal and intraabdominal pressures increase. The aim of the present study is to evaluate the effect of artificial CO_2 pneumoretroperitoneum on bacterial translocation in an experimental retroperitoneoscopy model.

Materials and Method: Eighteen adult white male New Zealand rabbits weighing 2.5 to 3 kg were used. Animals were divided into 2 groups; group 1 (control group) consisted of 6 rabbits and remaining 12 served as pneumoretroperitoneum group. In group 1 the dissection of the left retroperitoneal space without CO_2 insufflation was performed with 50 mL balloon and kept under anesthesia for 3 hours. Afterwards all animals were sacrificied and tissue samples were taken from blood, retroperitoneal area, lungs, liver, mesentery, heart, kidneys, ureters, bladder, colon, small intestines and spleen. The collected samples were carried to the microbiology laboratory in a Carry-Blair medium. Bacterial growth was evaluated using standard bacteriological techniques.

Results: All animals survived the experimental procedures. None of the rabbits in the control group developed any bacterial translocation in the sampled tissues. In the pneumoretroperitoneum group one rabbit found to have 102 CFU E.coli in the kidney; but this was not considered as significant.

Conclusion: Carbondioxide pneumoretroperitoneum does not cause bacteremia and bacterial translocation in this experimental model. We think that retroperitoneoscopy does not bring any additional risk for septic complications.

P561

LAPAROSCOPIC ADRENALECTOMY FOR PHEOCHROMOCYTOMA: COMPARISON WITH CONVENTIONAL OPEN ADRENALECTOMY

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Purpose: To compare the effectiveness and efficacy of laparoscopic adrenalectomy (LA) with those of open adrenalectomy (OA)in patients with pheochromocytoma.

Patients nad Methods: Among 9 patients (7 male, 2 female) who underwent surgical removal of pheochromocytoma between October 1995 and December 2005, laparoscopic adrenalectomy (LA) and open adrenalectomy (OA) were performed in 6 and 3, respectively. The mean age was 52.3 years in the LA group and 45.3 years in the OA group, and the mean tumor size was 4.7 $\pm$ 1.1 cm and 7.2 $\pm$ 4.2 cm, respectively. Retrospective analysis of their clinical outcomes was performed.

Results: The mean operative time was 257 $\pm$ 92 minutes in the LA group and 310 $\pm$ 26 minutes in the OA group. The mean blood loss was 212 $\pm$ 231 mL and 580 $\pm$ 411 mL, respectively. In the LA group, there was one case which is converted to hand assisted laparoscopic surgery, however, there were no intraoperative complications, and the blood pressure was well managed intraoperatively without medication. The mean time to oral intake was 1.3 $\pm$ 0.5 days in the LA group and 4.0 $\pm$ 1.0 days in the OA group. The mean time to walk was 2.3 $\pm$ 0.5 days in the LA group and 3.3 $\pm$ 1.2 days in the OA group. In the OA group, there were no intraoperative complications, and the blood pressure was well managed intraoperatively without medication.

Conclusions: Laparoscopic adrenalectomy for pheochromocytoma is a safe and effective prodcedure providing the benefits of a minimally invasive approach.

P562

NOVEL TRAINING PHANTOM FOR SKILLS ACQUISITION IN LAPAROSCOPIC NEPHRECTOMY

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Aims: to develop a training phantom for rehearsal of techniques in laparoscopic nephrectomy.

Methods: the torso section (diaphragm to pelvis) of a 30Kg (weight or age) calf was prepared by removing the stomach and small intestine. The spleen, liver and approximately 30cm of colon was left in situ to provide anatomical landmarks for dissection. The whole specimen was placed inside a standard laparoscopic training box, tilted and secured with the left edge uppermost for the left nephrectomy. For a right nephrectomy, the angle of mounting the specimen was adapted to provide the right edge uppermost. After the initial development work, the phantom was used to train 44 urologists in the skills for laparoscopic nephrectomy. The trainees included specialist registrars and consultants, who completed an evaluation form that was then analysed for their feedback regarding the training phantom.

Results: The mean response for feedback on the training phantom was 4.7 on a scale of 1 (unrealistic/poor) to 5 (realistic/useful). Specific comments from individual trainees included: opportunity to perform nephrectomy was fantastic, excellent to get experience in nephrectomy and excellent practical opportunities.

Conclusions: This training phantom is an effective tool for urological surgeons to acquire skills in laparoscopic nephrectomy.

P563

LAPAROSCOPIC ADRENALECTOMY FOR PRIMARY HYPERALDOSTERONISM: OUTCOME OF CLINICAL EXPERIENCE WITH 60 CASES

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Aims: To assess the long-term outcome of patients with primary hyperaldosteronism who underwent laparoscopic adrenalectomy and to study about hormone dynamics and differences between of post and preoperative blood pressure.

Methods: From December 1992 to February 2005, 60 patients with primary hyperaldosteronism underwent laparoscopic adrenalectomy at our institution. Their clinical and biochemical parameters were reviewed retrospectively. In 45 of 60 patients, it was possible to follow up the hormone dynamics and blood pressure in order to compare the preoperative values with those 2 months or more after operation.

Results: The average operative time was 261.7 minutes (95 - 835), the average blood loss was 204.2 ml (10 - 3740). The average time until ambulation after operation was 1.7 days (1 - 7). Five of 60 (8.3%) patients had operative hemorrhage that required blood transfusion. Serum aldosterone in all 45 patients who were followed up was normalized post operation. At more than 2 months post operation, 12 of 45 (26.7%) patients needed antihypertensive drug treatment.

Conclusion: Laparoscopic adrenalectomy is a safe and effective way to treat primary hyperaldosteronism. Many of the patients in whom hypertension persisted post-operation were men or elderly.

VASCULAR SURGERY

P564

BALLOONLESS SUBFASCIAL ENDOSCOPIC LIGATION OF PERFORATOR VEINS FOR ADVANCED CHRONIC VENOUS INSUFFICIENCY

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Aims: The aims of this study are to report our experience with modified SEPS and balloonless subfacial ligation and assess the advantages of this modified technique for the surgical procedure, the patient's post-operation condition, early mobilisation and inclusion in a Major Ambulatory Service (MAS) programme.
Methods: A total of 140 patients (98 women and 42 men) with grade = IV chronic venous insufficiency were operated on between May 2002 and December 2004. The average age of these patients was 55.6 years. Of these patients, 47 had had a saphenectomy and 15 had an active cutaneous ulcer at the time of surgery. Penetration to the subfascial space was performed on the proximal calf using the Visiport video-assisted viewing device to ensure that the trocar entered correctly through the subcutaneous fatty tissue and superficial aponeurosis of the leg. The veins were dissected with the help of a blunt retractor and CO_2 insufflation (20 mmhg). Ligation was performed using the Ligasure tripolar sealing device through a second trocar.
Results: Post-operation went without incident in all cases. Clinical improvement was observed in the symptoms and cutaneous trophic lesions of all patients. In 95% of the patients who had active ulcers at the time of operation, these cleared up permanently. In no patient was subcutaneous emphysema observed.
Discussion: As the dilation balloon is not used, less pressure is applied to tissues because, with insufflation, mechanical compression is avoided. Using Visiport to penetrate the subaponeurotic space reduces the size of the incision and makes it tighter for CO_2 insufflation. All the above reduces the laboriousness, surgical time and costs involved in this type of surgery. Medical staff therefore need to be well trained in the field of endoscopic surgery.
Conclusions: Both short and long-term results with this procedure are good and post-surgical complications are few. Balloonless subfascial endoscopic ligation is therefore a very effective method for treating advanced chronic venous insufficiency. Also, as the operation can be performed within a MAS programme, hospital administration resources are optimised.