GENERAL SURGERY

GERD AND ESOPHAGUS

01

Medium and long term follow-up after laparoscopic treatment of GERD

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BACKGROUND: In the last 10 years, surgical treatment of Gastro-esophageal reflux disease (GERD) had a great improvement, related to the large development of laparoscopy. Moreover, the physiopathology of Low Esophageal Sphyncter (LES) and, consequently, the natural history of GERD have been better understood. Although antireflux surgery, since its introduction by Nissen in 1956, warranted good results in resolving almost 90% of cases, the diffusion of Proton Pump Inibitors (PPI) brought a great success to GERD medical treatment. Thank to their efficacy, it seemed that surgery should be limited only to few particular cases. Anyway, initial enthusiasm declined after the evidence that drugs regimen is not always efficient in controlling all GERD features, so surgery still remained a valid option. On this basis, laparoscopy is useful in improving the patient comfort, through a reduction of post-operative pain, hospital stay and inability to work, in that reducing considerably the limitations of surgery. Since its introduction, antireflux thechniques have been frequently modified (length of fundoplicatio, hiatus closure, short vessels section, etc.), but its basic principles are now generally accepted. On the contrary, indications to surgical treatment are still under discussion, the approach to GERD being conditioned by different social and economical factors.

AIM OF THE STUDY: To evaluate prospectically the results of antireflux surgery in a consecutive group of GERD surgical patients, strictly selected accordingly to the criteria listed below.

PATIENTS AND METHODS: Our study involved 250 patients with Gastro-esophageal reflux disease observed for the first time in our departement in the last 3 years (2001-2003). Clinical features of the disease were investigated through a specific questionnaire. All patients were studied with endoscopy, pHmetry and manometry. Contrast x-rays of the gastro-esophageal junction were reserved to those suitable for surgical treatment. All patients recruited were managed with medical treatment for a 6-months period and then re-studied to evaluate clinical results. According to our selection criteria (complicated GERD, unacceptance or low compliance to medical treatment, several relapses after drugs interruption, biliary reflux, large hiatal hernias, Barret's esophagus) 37 patients (14.8%) were selected for surgical treatment.

RESULTS: Considering the 37 surgical patients group, in 29 (78.3%) cases typical symptoms of GERD were present, while 10 (21.7%) patients complained with atypical disturbs (mainly respiratory). Functional pre-operative studies demonstrated in all surgical patients severe and prolonged gastro-esophageal reflux episodes, with LES impairment. Hiatal hernia was present in 31 (83%) cases, oesophagitis in 6 (16%) (despite of drug therapy) and Barrett's metaplasia in 6 (16%). We performed 34 Laparoscopic Nissen Fundoplicatio (91%) and 3 (9%) Laparoscopic Posterior Valves (Toupet). 5.4% operations (2 patients) were converted to open surgery, both cases to treat a giant hiatal hernia. No peroperative complications were registered during a mean hospital-stay of 3 days. A gas bloat syndrome appeared 10 days after surgery, necessitating in-hospital observation. This case has been managed with medical treatment and recovered two weeks after. All patients but one were very satisfied with surgery in a 12 months mean follow-up. Just one case (2.7%) complained with GERD relapse 4 months

after surgical treatment. Diagnostic work-up showed relapsing of a large hiatal hernia, requiring a new open surgical procedure.

CONCLUSIONS: In this short series, laparoscopic antireflux surgery demonstrates a 97% successful rate in treating GERD, with a complications rate near to zero, an acceptable conversion rate and a short hospital stay. This excellent results should be interpreted as the effect of an extremely rigid selection of surgical patients (less than 15% of all GERD cases observed). If selection criteria are strictly respected, we believe that surgical treatment offers the best results for GERD.

02

Laparoscopic Heller myotomy

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The treatment of oesophageal achalasia consists in lowering the gradient pressure between oesophagus and stomach by cutting, disrupting or poisoning the fibers at the cardia junction.

Enthusiasm for botulinum toxin was short-lived and today is mostly reserved for elderly patients with contraindications to pneumatic dilatation or surgery.

Pneumatic dilatation is an effective means of relieving lower oesophageal sphincter obstruction but less effective than oesophagomyotomy.

The minimally invasive approach to achalasia has proved to be feasible, safe and effective in relieving symptoms in more than 90%of patients. Therefore laparoscopic Heller myotomy with posterior partial fundoplication appears to be the favored surgical approach, providing the opportunity for an excellent myotomy and antireflux procedure with minimal morbidity and short recovery.

03

Laparoscopic treatment of esophageal Achalasia

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Introduction: Esophageal achalasia is a primary esophageal motility disorder of unknown etiology, characterized by absence of esophageal peristalsis and increased or normal resting pressure of the lower esophageal sphincter (LES), which fails to relax completely in response to swallowing.

Clinical Presentation: Dysphagia is the most common symptom, experienced by virtually all patients. Regurgitation is the second most common symptom, and is present in about 60% of patients. It occurs more often in the supine position, and exposes the patients to the risk of aspiration of undigested food. Chest pain occurs in about 40% of patients, and is usually experienced at the time of a meal. Heartburn is experienced by about 40% of patients. In untreated patients this symptom is usually due to stasis and fermentation of food or esophageal distension.

Diagnosis: In addition to careful symptomatic evaluation, the following tests should be routinely performed:

Barium swallow usually shows narrowing at the level of the gastroesophageal junction ("bird beak"), and various degrees of esophageal dilatation. Endoscopy is important to rule out the presence of a peptic stricture or cancer, and gastroduodenal pathology. Esophageal manometry is the key test for establishing the diagnosis.

The classic manometric findings are:

(a) absence of esophageal peristalsis,

(b) hypertensive or normotensive LES which fails to relax completely in response to swallowing

Prolonged pH monitoring may be helpful preoperatively in patients who have previously failed treatment with pneumatic dilatation, Botulinum toxin (Botox), or surgical myotomy, for whom a myotomy is planned. Demonstration of reflux clearly indicates the need for a fundoplication in addition to the myotomy.

In patients older than 60 years of age, with recent onset of dysphagia and excessive weight loss, secondary or pseudo-achalasia should be ruled out. Because a cancer of the gastroesophageal junction is the most common cause of pseudo-achalasia, an endoscopic ultrasound or a CT scan of the gastroesophageal junction can help to establish the diagnosis.

Treatment: Treatment is palliative, and it is directed toward elimination of the outflow resistance at the level of the gastroesophageal junction. The following treatment modalities are available to achieve this goal:

Pneumatic dilatation has a success rate between 70% and 80 Gastroesophageal reflux occurs after dilatation in 25% to 35% of patients. Up to 5% of patients may sustain a perforation at the time of a dilatation. These patients may require surgery to close the perforation and perform a myotomy. Intrasphincteric injection of botulinum toxin results in initial relief of symptoms in about 60% patients, but this is transitory and symptoms will return in the majority of patients within a year. Subsequent injections are less effective and the benefit is of briefer duration. In addition, this treatment may cause an inflammatory reaction at the level of the gastroesophageal junction, which obliterates the anatomic planes. Consequently, a myotomy is more difficult, a mucosal perforation occurs more frequently, and the relief of dysphagia is less predictable. Because of these shortcomingsbotulinum toxin should be reserved for elderly or high-risk patients who are poor candidates for dilatation or surgery. Traditionally, pneumatic dilatation has been the first line of treatment for esophageal achalasia, while surgery was reserved for patients who had persistent dysphagia after multiple dilatations or who had suffered a perforation during dilatation.

Laparoscopic Heller myotomy: Today, minimally invasive surgery has completely changed this treatment algorithm and a laparoscopic Heller myotomy and partial fundoplication is preferred by most gastroenterologists and surgeons as the primary treatment modality. Critical details of the operation include a generous myotomy of the lower esophagus, extending well onto the gastric wall. Because of the lack of esophageal peristalsis, a partial (Dor or Toupet), rather than a total fundoplication is frequently added to prevent reflux. Patients can usually eat the morning of the first postoperative day, and can be discharged home after one or two days.

The need for esophagectomy for achalasia is very uncommon, even in the presence of a dilated esophagus, and should be reserved for failures after myotomy. Persistent or recurrent dysphagia occurs in 5% to 10% of patients. A complete work-up is necessary to evaluate the cause of the dysphagia in these patients, and either pneumatic dilatation or a second operation can often correct the problem. Up to 15% patients may experience gastroesophageal reflux after myotomy, as measured by 24-hour pH monitoring. In patients undergoing elective myotomy the mortality rate is less than 1%.

Expected Outcomes: About 90% of patients have long-term relief of dysphagia after a myotomy, with a low incidence of symptomatic acid reflux. Patients should undergo 24-hour pH testing routinely after surgery, as reflux is often asymptomatic, and should be treated with proton pump inhibitors if abnormal acid reflux is present.

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04

Conversion of laparoscopic to open cholecystectomy

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Operative safety of laparascopic cholecystectomies has become the matter of discussion after gaining widespread acceptance.Even after many years of experience, still higher biliary complications rates arouse the question of being late for conversion to open surgery.

Answering the question of "when to convert?" precisely undoubtedly will decrease the complication rates.

Many risk factors found statistacly significant varies in different reports in the literature.The risk factors gained wide acceptance are as follows: increasing age,acute cholecyctitis,previous upper abdominal surgery, thickness of gallbladder wall, male gender, BMI>30-40.

The indications for conversion of laparoscopic cholecystectomy to open cholecystectomy are as follows: Difficulty in;

1- Establishing pneumoperitoneum by closed or open technique

2- Identifying the cyctic duct-gallbladder junction

3- Skeletonizing the cyctic duct and cyctic artery

4- Using energy sources safely

5- Performing cholangiography liberally to discover important anomalies,clarify difficult anatomy and detect CBD stones

2) If laparoscopic dissection leaves uncertainity about the patients anatomy, or if a concern for injury exists, the surgeon should convert to open cholecystectomy without hesitation

3) If the surgeon encounters anatomic anomalies,or if inflammation, adhesions,intra abdominal fat, or bleeding makes visualization of the gallbladder difficult convert to open prevents the complications.

05

Unexpected gallbladder cancer after laparoscopic cholecystectomy

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Primary cancer of the gallbladder is a highly fatal disease. It is the fifth most common gastrointestinal cancers. Primary gallbladder cancer present with advanced loco-regional spread and is difficult to remove completely in surgery. Israel has the highest incidence of worldwide, other countries are Mexico, Chilie, Bolivia, China, Native Americans population. This cancer most typically is diagnosed in the seventh decade (62-68).

Tumors are located in fundus and neck. Lymphatic and local spread leads to liver invasion, portal vein, hepatic artery, hepatoduodenal ligament, celiac axis. 50% of patients have regional lymph node positive during admission. 20% of patients have peritoneal spread.

Risk factors: Ulcerative colitis and Crohn disease, chronic gallstone disease, end-stage cholecystitis (porcelain gallbladder), estrogens, typhoid carriers, smoking, alcohol consumption, gallbladder polyps, obesity, in animal models exposure to methylcholantren, female sex (3 to 1), dimethylnitrosamine via oral ingestion. Symptoms are not spesific for this cancer: pain, weight loss, jaundice, ascites.

Early diagnosis is difficult because of the absence of spesific symptoms and frequent association with chronic cholecystitis and gallstone. These patients can be divided intraoperative=occasional or postoperative occult carci-

noma forms. Adenocarcinoma is the primary histologic finding in 80-85% of cases. It has subgroups including papillary, nodulary, tubulary forms.

In practical terms, gallbladder cancers are unexpectedly diagnosed in the operating room during cholecystectomy or mostly after histologic examination. Examination of the gallbladder and frozen section is recommended especially risky patients 1. If you discover carcinoma during operation after frozen section, this patient needs complete surgical resection. It means unblock resection of gallbladder, nearest liver segment and portal lymph node. We have to obtain clear surgical margins. But only approximately 25% of patients can undergo curative surgery. During laparoscpic cholecystectomy if you noticed any abnormality related to carcinoma you have to use a bag for removing the gallbladder. T1 patient laparoscopic surgery is enough, but T2-T3 we should perform repeat curative surgery 2.

If carcinoma is suspected during laparoscopy, gallbladder can be resected but complications during laparoscopic cholecystectomy significantly worsen the prognosis 3. The incidence of port site metastases was 14% in patient undergoing laparoscopic cholecystectomy. But the long term prognosis seems to be worsened by laparoscopy 3. Some writers said that port site recurrens did not indicate an incurable stage an excision of recurrent tumor also eliminate this disease. The incidence of recurrence in the abdominal wall was increased but the medium term prognosis was not worsened by laparoscopy 4.

There were no differencies in survival and recurrence rate between laparoscopy and open surgery. But there was statistically significant correlation between survival rate and tumor stage and occurence of bile leakage 5. It is essential to avoid cutting tumor and spilling gallbladder contents during operation. Only nodal status and morphologic type of tumor are important prognostic factor 6.

To add radiotherapy is that it may control microscopic residual deposits of carcinoma in the tumor bed and regional lymph node. All patients with tumors beyond the mucosa are candidates for radiotherapy. We can obtain longer survival rates after adjuvant radiotherapy 7. Survival at 5 years is correlated with stage of disease at presentation after non-curative surgery, stage 2,3,4 tumors survival rates are 25%, 12%, 1-2% respectively. But after radical surgery, these rates are higher like 69%, 65%, 21% 7.

As a conclusion pathologic review of all gallbladder specimens is mandatory, If laparoscopic or open surgery has been performed and cancer is discovered, additional surgery and adjuvant radiotherapy should be considered. Patient undergoing reoperation after laparoscopic surgery, all port sites should have excised.

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06

Early laparoscopic cholecystectomy for acute cholecystitis: 10 - years of experience

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Backround: Acute cholecystitis is one of the most frequent causes of hospitalization. The incidence of the acute cholecystitis is of abaut 20% of the patients With pathology ot the biliary tract.The illness is rare In Ihe adolescence but increases with the age. . Report female; -males 3:l until 50 aa and 1,5:1 after 30 year og age. f

Methods: This study reviewed 1079 consecutive patients who underwent laparoscopic Cholecystectomy in the Vibo Valentia General Hospital Ul.O.Surgery 2 between October 1992 and April 2003 There were 720 females and 359 males aged 14 to 91 years. Two hundred eight paticnts(19,3%) were diagnosed with acute cholecystitis. Earl) laparoscopic cholecystectomy was performed in two hundred three patients,and on Five patients with common bile duct stones was performed ERCP-ES and after forty eight Hours laparoscopic cholecystectomy.

Results: Mortality 0; the conversion rate from laparoscopic to open cholecystectomy Was four. Indications for conversion were bleeding I, inability to identify the anatomy to strong Adhesions 1 ,cholecystoduodenal fistula l,and Mirizzi syndrome I.Postoperative Complications for 208 patients included external bile leak in 2 cases(laparoscopy - recovery). Bleeding in 3 cases(laparoscopy recovery I .stopped hemorrhage within 24h 2),hidden cancer Of gallbledder (pTl laparoscopic cholecystectomy, pT2 NX M0 hepatic bisegmentectomy V - IV,periportal linfoadenectomy,escission of operating access).

Conclusions: Laparoscopic cholecystectomy represents the treatment of choice of acute cholecystitis. Conversion in "open" surgery depends mainly on the experience acquired from the surgeon. Important for the prevention of the intra-operatory complications

VENTRAL-INCISIONAL HERNIAS

07

Video laparoscopic incisional hernia repair

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INTRODUCTION: Incisional hernia (IH), which is a progressive disease, is frequently associated with respiratory and visceral problems and therefore, determines a fairly important impairment of the quality of life to the patients. It appears, usually, within the first three years, from the operation, with an incidence between 1% and 8% for the primary healed wounds, but the rate increases up to 10%, in cases of infected and purulent wounds.

MATERIALS AND METHODS: 235 patient have been operated for an IH repair from Jan 1995 to Dec 2002, in our Unit; M/F was 92/143 and average age 57 (22-88). Mean BMI was 31. 53 of the operations were started laparoscopically. The mesh used for laparoscopic repair was a double layer BARD Composix mesh 15x20 or 18x23 size.

RESULTS: 51 out of 53 operations were completed with a full laparoscopic access (conversion rate:3,9%). No mortality was reported and 8 complications occurred with a rate of 15,6% (2 seromas, 2 intestinal perforations, 1 mesh infection, 1 hematoma, 1 p.o. fever).

Postoperative hospital stay was 4.1 days in average.

Among the patients who had been operated at least two years previously, we reported 2 recurrences (3,9%), which were correlated to obesity and a very large defect.

CONCLUSIONS: IH can be repaired laparoscopically with very good results and great satisfaction for the patients. Recurrence rate is limited and complication rate is rather low when compared to the open technique. Nevertheless the risk of bowel perforation, which can be a life-threatening complication, must always be kept in mind, and thoroughly discussed with the patient.

08

Outcomes, risks and complications

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Incisional hernia is a frequent complication of abdominal surgery that may develop in any abdominal incision. In long-term follow-up studies, Its incidence has been reported to be 10%. The recurrence rate is high: ~20-50% of lesions occur after surgical repair, depending on the closure technique, the size of the hernia, the number of hernias repaired.

Since 1992, a number of surgeons have applied laparoscopic techniques to the repair of abdominal wall defects because of its many advantages, including the avoidance of large incisions, the absence of large dissections and external drainage, a lower incidence of infection, and a reduction in pain and hospital stay

There are six studies in the literature comparing laparoscopic and open repair, only one of which was a randomized clinical trial. In the five retrospective studies the rate of recurrence with laparoscopic mesh repair was the same as, or less than, that of open mesh repair.

In the randomized clinical trial, patients had either open or laparoscopic mesh repair. The recurrence rate in the open group was 7 per cent; there was no recurrence in the laparoscopic group over the same mean follow-up period of 27 months. Complications were fewer and the hospital stay was significantly shorter in the laparoscopic group, although the staff taking care of the patients were not blinded to the type of procedure. Operating time was also significantly shorter in the laparoscopic group.

Five of six studies reported higher complication rates and longer hospital stay in the open group. The conclusion from all six studies was that laparoscopic incisional hernia is at least as effective and as safe as open mesh repair.

From the clinical point of view, concerns associated with utilization of biomaterials in hernia surgery are infection, seroma formation, intestinal adhesion, bowel obstruction, erosion of the prostheses into an adjacent hollow viscus, and failure of the repair due to contraction of the prosthesis. So;

- The risk of infection can be avoided by utulization of type III and particularly type I prostheses.
- The risk of seroma formation can be virtually eliminated by subaponeurotic and retromuscular implantation of type I and type III prostheses and drainage of the surgical field whenever a large sheet of mesh is used.
- The possibility of mesh-related intestinal adhesion, bowel obstruction and fistula formation can be eliminated by avoiding direct contact between the mesh and the intestinal tract or utilization of adhesion-free composites.
- Finally, problems associated with contraction of the mesh patch and mesh plug can be circumvented by using a sufficiently large piece of mesh to provide adequate mesh/tissue interface beyond the boundary of the hernia defect, by maintaining adequate laxity of the mesh while it is being fixed to the abdominal wall tissue, and by avoiding utilization of mesh plugs for the repair of abdominal wall hernias.

09

Treatment of the hydatid disease of the liver

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Hydatid disease of the liver is still a heart problem in endemic areas of the world It is a parasitic disease, which ends up in cysts of various sizes in the liver Since an active cyst contains live material, it may grove am! may cause symptoms and (or com plications. Main indications for the treatment of the liver hydatid disease are symptoms, intrabiliary rupture, which may cause obstructive jaundice and/or cholangitis;, infection or allergic reactions, which may lead in rare cases to an anaphylactic shock

The accepted treatment of the liver hydatid cysts is surgsury. The aims of the surgery art evacuation of the cyst contents, prevention of (he spillage during this evacuation, sterilization of the cavity with accepted scolicidal agents and the management of the cavity to prevent any like fluid collection or abscess Formation

On the oilier hand this aims can be also Achieved in selected cases with laparoscopy Bui Some conditions like intra-parenchyroal location, multiplicity, difficult locations, advanced stage (calcified walls), biliary communication, large and complex cysts and recurrent disase may cause technical difficulties

In the last ten years a total of 281 patients with liver hydatid disease were treated in the HPB Unit of the Istanbul Medical Faculty of Istanbul University Of these patients 60 were treated with laparoscopy. In 8 of 60 patients conversion to open surgery was necessary due to difficult locations or intra-abdominal adhesions. Laparoscopic procedures performed are simple drainage in 30, unroofing in 16, omentoplasty in 3 and pericystectomy in 3 of the cases.

There were 2 intra-operative complications like diaphragmatic rupture and intra-abdominal contamination. Postoperative complications were biliary- fistuta in 6 patients, and cavity infection in 7 patients. Median postoperative hospital stay was 3.2 days (range: 2-16 days)

During the follow-up (1 month - 7,5 years) seroma fonmation in the residual cavity was observed in 13,5%, cavity infection in 5,8% and recurrence in 3,8% laparoscopically treated patients.

We can conclude that, in carefully selected patients laparoscopy can be an accepted alternative treatment method to Surgery in the treatment of the liver hydatid disease

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A new device for laparoscopic treatment of liver hydatid disease

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One of the most important steps of surgical treatment of liver hydatid disease is to avoid the dissemination of the cyst contents. It is relatively easy to take precautions; such as en effective exposure, placing gauze around the lesion and using a suction device. However it is not that useful to use a standard suction device during laparoscopic intervention of hydatid disease due to its negative effect on pneumoperitoneum. It also has the additional disadvantage in laparoscopy of the device's obstruction with solid contents of the cyst such as the germinative membrane or the scolex.

We have designed and developed an aspirator/grinder apparatus which effectively evacuates cyst contents easily, rapidly and securely with minimum risk of dissemination. With this third generation apparatus we are able to operate by use of laparoscopic method to remove hydatid liver cyst content more securely and rapidly without dissemination. In this video, we demonstrate a liver hydatid cyst evacuation surgery by usind this new laparoscopic aspirator/grinder apparatus with full details.

11

Possible laparoscopic treatment of hepatic hydatid cyst

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The hydatidosis, a parasitical illness caused by the Echinococcus Granulosus, still represents a significant sanitary problem for the countries of the Mediterranean basin; amongst Italian regions, Sardinia is the highest hit region due to the method of sheep-breeding still in use.

Nowadays, surgery still is the chosen treatment, since its objective is to totally remove the cyst, prevent relapses and protect the undamaged hepatic parenchyma with the minimum perioperative morbility possible.

Among all surgical options, the technique that mostly satisfies the proposed objectives, although, in some cases, it has a greater surgical traumatism and a greater hematic loss, is certainly the radical pericistectomy.

The main advantage of this method is that the exogenous vesiculations are included in the resection. Exogenous vesiculations are real and vital gemmations of the mother-cyst, often placed inside the width of the pericyst, and their persistence within inevitably causes relapses.

Therefore, the tendency, where possible, is to prefer the radical pericistectomy.

In the last few years, thanks to the acquisition of a progressive experience in video-laparoscopic surgery, and thanks to the availability of a more effective equipment, this method has become suitable also for the hepatic hydatidosis treatment.

It must be clear that the mini-invasive treatments must be comparable at least for the indications, for the technique and for the results to the traditional ones, and therefore the first choice laparoscopic operation must be the radical pericistectomy. In fact, it is not acceptable that, just for the sake of carrying out the mini-invasive operation, less effective surgical techniques than necessary are used, which result to be "old-fashioned" or in any way in contrast with the indications of traditional surgery.

Even in this case, the advantages of the mini-invasive technique stand out, and these are:

a reduction in the post-operation pain, the duration of the paralytic ileus is lessened, and a reduction of the complications linked to laparotomy; all these factors contribute to noticeably reduce the stay in hospital.

From our preliminary data, the laparoscopic treatment is surely applicable to relatively small-size cysts, possibly with a esophitic growth, and surely not in touch with large vascular, biliary structures; although, as in the last case reported in the film, using the PAIR as the first surgical step, we aim at extending the indication to larger size cysts as well.

12

Surgical anatomy and tips

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The testes descend from their site of origin high upon the posterior abdominal wall into the scrotum in the fetal life. During this process the testes carry along a part of the peritoneum (processus vaginalis) which becomes the tunica vaginalis.The left testis descends first. The right testis descends later than the left one and this explains the frequent incidence of right hernia.

Just before birth, the tunica vaginalis which is actually the lower expanded part of the processus vaginalis,becomes shut off from the upper part of the processus vaginalis and the peritoneal cavity. Sometimes the processus vaginalis is persistant;in this case we say that it stays patent which can be seen in approximately 20 % of adult. In young adults this open pathway enlarges and be the cause of congenital herniae.

The surgeons learn the anatomy of the anterior abdominal wall beginning from the anterior most layer;but it is very important to learn the layers of this wall beginning from the posterior (inner) wall for the laparascopic surgery.

The medial border of the hernial triangle is made by the lateral border of the rectus abdominis muscle, the inguinal ligament makes its base, the inguinal falx (conjoint tendon) makes its superolateral border; SIAS is the apex of this triangle. Pelvic differences in females and males may cause differences in this triangle. It is smaller in females,larger in males. This triangle is a weak area of the anterior abdominal wall. When intraabdominal pressure increases the anterior abdominal muscles slide over each other and the fibers of the deep ring contract so this weak triangular area strenthens.This is called the shutter mechanism.The inguinal hernia is seen more often in males, one of the reasons is that the inguinal triangle is large.

There are two techniques to perform laparoscopic surgery: TAPP and TEP.In TAPP,the peritoneum is cut open to enter the extraperitoneal region. After this step, the two techniques follow the same procedures. The anatomical structures should be revealed first. It is important in TAP technique to see and define the pearl grey Cooper ligament and the inferior epigastric vessels first of all.

The aponeurotic arch of the transversus muscle (extends between SİAS and pubis) is the image of the inguinal falx anteriorly. Although some authors accept the strong and thick iliopubic tract as the thickened form of the inguinal ligament, it is a differeny individual structure, lying between the SIAS and os pubis. Cooper ligament lies on the superior ramus of the pubic bone. At the lateral and inferior of the iliopubic tract, dissection should never be performed. Because there are two nerves (femoral branch of the n.genitofemaralis and n.cutenus femoris lateralis) lies in this area.

The most important advantage of these techniques is, to see the three potential hernia fields. These surgical techniques have some tips; such as to create a space, to prevent the seroma, to pull down the hernia sac.

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Laparoscopic treatment of inguinal hernia repair (TAPP)

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The present study reviews our experience and the benefits of laparoscopic treatment of inguinal Hernia repair.

AIM: Inguinal hernia repair is among the oldest most commonly performed operations in general surgery from old time.

In Syria we try to apply the way of Laparoscopic Transabdominal pre-peritoneal inguinal hernia repair (TAPP Approach.)

I present and display a video film of my statistics which is about 80 patients have been treated by the TAPP with polypropylene Patch 10*15 cm without drainage.

Methods: All patients were males, there have been 52 right inguinal hernias and 28 left.

We have 45 indirect, 31 direct, 2 pantaloon and 2 inguinal -scrotal hernia.

We had some accompanied cases like cholecystectomy 2 patients, varicocele 3 patients, and 4 bilateral inguinal hernias.

We had no conversion, no intra or postoperative complication, only one patient with recurrence.

- According to our experience we find that the (TAAP) is a safe surgery with an experienced surgeon and has low recurrence and a lot of advantages like tension free and early recovery without pain.

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Laparoscopic preperitoneal inguinal hernia repair (TEP)

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Lebanon

A study done about personal experience of 1074 inguinal hernia.the standard technique is to create a space between the anterior abdominal wall and the peritoneum in the sub ombilical area.

This space is done with a balloon dissector followed by dissection of the sac respecting the vase and the testicle vessel. Then fixation of the prostheses by tucker applier.

The results are excellents, the recurrence is minimal (2.3 %) conversion is rare. The disadvantage of this technique is the high cost.

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Laparoscopic versus open tension free techniques

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There are several prospective randomized studies comparing these techniques. Patients are generally evaluated according to cost, length of hospital stay, complications and recurrence rates. Length of hospital stay was similar in two groups but complication rate was lower in laparoscopy groups (8-10%) than open (18%). Recurrence rates were 0-2 % in laparoscopic repair and 0-1 % in open. The cost was higher in laparoscopic technique.

Some other studies investigated the operative time, postoperative pain and time of return to work. Laparoscopic repairs took longer, had less operative pain and analgesic consumption.

Laparoscopic techniques are particularly best fit for bilateral or recurrent hernias because the operation can be performed using the same holes for both sides. But, open procedures should be the operation of choice for patients with unilateral groin hernia.

BENIGN COLO - RECTAL DISEASE

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Laparoscopic assisted restorative proctocolectomy

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Restorative Proctocolectomy (Total Proctocolectomy with Ileal Pouch Anal Anastomosis) is the procedure of choice for ulcerative colitis and familial adenomatous polyposis. Colonic inertia, colonic Crohn's disease and synchronous colonic tumors are rare indications of Restorative Proctocolectomy (RP). Successful results in laparoscopic colon resections for benign and malign colorectal diseases have encouraged the surgeons for more complex procedures. Laparoscopic approach has been a feasible procedure for RP with the development of advanced laparoscopic techniques and experience. However, surgeons who are willing to perform laparoscopic RP should be experienced on both advanced laparoscopic skills and open RP techniques. Although laparoscopic RP requires longer operative time, and increased operating room expense, it has potential advantages such as reductions in postoperative pain, ileus, length of hospitalization, and quicker return to daily activities. Laparoscopic assisted RP provides better cosmetic results and it is important for patients who candidate the RP, because they are often young. Mechanical small bowel obstruction is one of the major complications following the RP. Adhesion formation and such complications like small bowel obstruction, infertility and chronic abdominal pain may rarely occur in minimally invasive procedures. Therefore, laparoscopic RP appeals a good alternative to an open RP. Moreover, instead of a long midline incision, suprapubic incision and trocar sites rarely lead to wound problems such as infection, dehiscence and postoperative hernia. Additionally, laparoscopic RP or laparoscopic subtotal colectomy can be even reliably done for acute colitis due to ulcerative colitis.

SOLID ORGAN

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Laparoscopic splenectomy

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After the first reports by Delaitre (1991), Carell (1992) and Thibault (1992) Laparoscopic Splenectomy was shown to be safe and feasible in a number of studies (Cadiere, 1994; Emmermann, 1995; Flowers, 1996; Stephens, 1997; Trias, 1998). The main indications are the same as for open splenectomies: Immune thrombocytopenic purpura (ITP), thrombotic thrombocytopenic purpura, haemolytic anaemias, secondary hypersplenism and splenomegaly, myeloproliferative disorders, staging of lymphomas, chronic lymphocytic leukemias etc. A study by Katkouda (Ann Surg. 1998) showed an 84% immediate platelet response of patients with ITP after laparoscopic splenectomy. There was a 92% haemoglobin response in patients with hereditary spherocytosis. Laparoscopy was equivalent to open splenectomy for feasibility and haematologic response. For laparoscopic splenectomy to become the "goldstandard" it must show in addition to the above a better quality of life and improved cost effectiveness. Vilanovich and Shurafa (Eur. J. Surg., 2001) in a study of 44 patients showed a decrease of bodily pain and shorter hospital stay for laparoscopy. Friedman et al (J. Ann. Coll. Surg., 1997) showed a cost saving of $ 4000 per case.

Technique: Five and three port techniques in a right lateral decubitus and reverse Trendelenburg position and a 30% scope are being used. In the "hanged spleen" technique the posterolateral peritoneal attachments or the spleen are divided last. Traction is applied from the stomach and short gastrics and from the colon and splenocolic ligament to explore the hilum. The surgeon proceeds from below upwards and from medial to lateral. The

splenic artery and vein are divided using a vascular endoscopic stapling device. Using an alternative approach, the posterolateral attachments of the spleen are divided first, starting from above. The spleen is completely freed before the vascular pedicle and the short gastric vessels are taken with a stapler. The spleen is removed in a specially designed bag followed by finger fracture.

Laparoscopic splenectomies for very large spleens (over 20cm) are controversial. Controversial remains the place of laparoscopic splenectomy for haematological malignancies – lymphomas (Baccarani, 1998; Velanovich, 2001). There is a similar incidence of residual splenic function following open and laparoscopic splenectomies (Gigot, 1998' Velanovich, 2001).

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Laparoscopy in the management of splenic injuries

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Lebanon

The use of laparoscopy in abdominal trauma remains controversial. As a diagnostic tool it has some advantages couples with significant limitations. However, there is a therapeutic role for laparoscopy in the management of isolated splenic injury. Four patients were treated successfully by laparoscopy without any complications. Three had laparoscopic splenectomy as the spleen could not be salvaged. One patient was treated with Argon Beam laser for control of bleeding and did very well. Our video presentation will highlight the critical steps in these procedures.

ENDOCRINE SURGERY

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Laparoscopic spleen preserving distal pancreatectomy

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The use of the laparoscopic approach in the treatment of cystadenomas, located in the tail or the body of the pancreas, is held to be particularly indicated. Magnification gives a highly defined image, making it easier to spare the splenic vessels and to perform a distal spleen-preserving pancreatectomy than is possible with laparotomy.

The patient is placed supine with his legs spread. The Operator positions himself between the patient's legs looking at a Video monitor placed at the head of the patient. Four trocars are used.

The pancreatic exploration is realized through an infragastric approach. In order to obtain total visualization of the anterior surface of the body and tail of the pancreas, the greater curvature is lifted upwards and a wide window is opened in the gastrocolic ligament. The dissection proceed, slowly, along the inferior border of the pancreas, in a lateral direction, towards the tail, which is thus mobilized and finally placed in a vertical position. This maneuver allows subsequent dissection of the posterior pancreatic surface as well as visualization and preservation of the splenic vessels. An endostapler (the 30 mm EndoGia*, blue cartridge) performs the pancreatic transection. It is possible to use one or more fires with the security of a good hemostasis and of a perfect Wirsung closure. The specimen is removed inside an endobag. A drain is positioned close to the pancreatic transection site.

On the basis of preliminary results regarding the first twenty nine patients treated in the context of this on-going study, the Authors stress the reliability of the technique, which they believe may come to be accepted as the new therapeutic standard for this disease.

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Laparoscopic adrenalectomy in malignant tumors

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Malignant adrenal tumors are rare neoplasia and include malignant tumors of the adrenal cortex, malignant pheochromocytomas and metastatic tumors.

Adrenal cortical carcinoma is a rare endocrine neoplasm with a worldwide incidence of approximately two per million population(1). There seems to be a higher prevalence of adrenocortical carcinoma in patients with incidentally discovered adrenal mass(2).

Among the radiologically detected adrenal masses, one in 1500 lesions may be an adrenal carcinoma (3). In series with tumors sized over 5 cm, carcinoma may be found in as many as 7% of patients (4). These tumors are functioning in a percentage of about 60%. This usually includes Cushing's syndrome or mixed hormonal picture. The disease has rapid onset and often abdominal symptoms.

Δhe incidence of pheochromocytoma is 1-2/100,000 adults per year (5). Of these approximately 10% are malignant. The classical presentation of a patient with pheochromocytoma is bouts of paroxysmal hypertension, although it occurs in only 50% of the patients. Other presentations include a normotensive patient with episodic hypertension or chronic hypertension without symptomatic episodes.

Solitary adrenal metastasis may metastasize from lung, renal, bowel, breast, gastric cancer, lymphoma and melanoma. Surgical excision is advantageous to the patient if complete removal of the tumor is feasible.

Malignant tumors can be approached by a midline incision, an extended subcostal incision, or thoracoabdominal approach for large tumors with organ infiltration. Posterior retroperitoneal approach is reserved for small benign tumors or bilateral disease.

Laparoscopic surgery could be an accepted method in the surgical management of cancer if it fulfills a number of parameters. It must be as safe and radical as conventional open surgery. Experience with bowel surgery, the field with the largest series in laparoscopic surgery for cancer, indicates that oncologic principles are not compromised by the laparoscopic technique per se. Advanced laparoscopic techniques are mandatory. Moreover it has been suggested that laparoscopic surgery attenuates the cytokine response, reduces the peritoneal trauma resulting in a decrease in tumor cell implantation (6). However laparoscopic surgery for cancer has not been taken up worldwide because of the long learning curve of a much more technically demanding technique as compared with the laparoscopic cholecystectomy. Furthermore there were concerns regarding local recurrences and port-site metastasis after potentially curative resections. It seems that such complications are related to poor surgical technique, improper handling of the tumor and lack of preventive measures of local recurrence and port-site metastasis. Several strategies have been proposed to prevent port-site metastasis as wound protectors, evacuation of the pneumoperitoneum through port, peritoneal wound closure etc. (6).

The role of laparoscopic surgery for malignant adrenal tumors is controversial, because there are few data in the literature for a rare disease. Three cases of diffuse peritoneal dissemination and death of patients who underwent laparoscopic adrenalectomy for adrenal cancer have been reported (7). On the contrary Heniford and colleagues in a review of 10 patients with metastatic adrenal tumors and 1 patient with adrenocortical carcinoma, reported no local or port site recurrence at a mean follow-up time of 8.3 months (8). In the largest series in the literature, 21 patients who underwent laparoscopic adrenalectomy for malignant tumors were reviewed (9). There were 3 locoregional recurrences (2 local and 1 lymph node metastasis) in the 6 patients with primary adrenal cancer and occurred 1 to 2.5 years after resection. There were no local recurrences in the 13 patients with metastatic adrenal tumors.

From May 1997 to September 2003, sixty-six patients underwent 70 adrenalectomies for adrenal tumors, in our Unit. Of these, 7 had malignant tumors (10.6%). There were three primary adrenocortical carcinomas, one

metastatic tumor from lung cancer, one patient with bilateral metachronous adrenal metastasis from colonic cancer, one recurrent malignant pheochromocytoma and one inoperable malignant pheochromocytoma.

One patient had a pheochromocytoma with malignant potential on histology and underwent laparoscopic adrenalectomy. Six years following the procedure there is no evidence of recurrence.

In a young patient with aggressive adrenocortical carcinoma the tumor was en-block excised with part of the inferior vena cava, which was infiltrated. Patients with primary adenocarcinoma of the cortex are alive 2 months, 26 and 28 months after operation.

We have approached with laparoscopy two patients with adrenocortical carcinoma but converted to open due to difficulty in mobilization of the tumor.

A prospective randomized study for the role of laparoscopic surgery in adrenal cancer is not feasible because of the rarity of primary and metastatic adrenal malignancies. Given that no accurate preoperative diagnosis can be obtained for primary adrenal malignancy, suspected malignant adrenal tumors can be approached laparoscopically to establish the diagnosis. Small tumors can be excised laparoscopically if complete curative resection can be achieved. Patients who have local invasion or require organ resection should be converted to an open approach.

Table I. Laparoscopic surgery for malignant adrenal tumors

Author	Journal	Tumor size (cm)	Pts	Abd. Dissemination
Heniford BT	Semin Surg Oncol 1999;16:293	1.8 – 12	12	(-) 0.5 – 19 months
Hobart MG.	J Endourol 2000;14(2):149	>5	3	(-) 9 months
Henry J.	World J Surg 2000;24:1342	3.5 – 4	4	(-) 12 months
Valeri A.	Surg Endosc 2001;15:90	2.5 – 6	6	(-) 3-18 months
Clark OH	Arch Surg 2002;137:948-51	2.5-12	6 primary 13 metastatic	3 local recurrences 65% dis.free survival in 3.3yrs
Henry JF	World J Surg 2002;26:1043	> 6	6	6 months liver metas.
Rassweiler J	J. Urol 2003;169:2072		11	1 local recurrence 1 port-site metastasis
Lombardi CP	Tumori 2003;89:255		9	(-)

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Laparoscopic excision of pancreatic insulinoma

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Insulinomas consitute an interesting endocrine tumors due to the diversity of their symptoms and potential difficulties in diagnosis and management. We present a case of 58 year old male with recurrent episodes of hallucinations, sweating and dizziness of 10 years duration. He also suffer from Morbid Obesity and Chronic Obstructive Pulmonary Disease. Insulin level was 54 and glucose was 44 with I/G ratio of 1.2. Endoscopic Ultrasound and CT Scan of the abdomen were not helpful. Resection of the pancreatic insulinoma was performed laparoscopically. Technical details are illustrated on a video presentation. Pathology confirmed a well defined Islet Cell Tumor. Post-operative course was complicated with pancreatic fluid collection that was drained under CT Control. Patient was finally discharged home and remain disease free for the past 7 months.

Laparoscopic resection of Pancreatic Insulinoma is feasible and has several advantages with minimal complications. Although the World's experience remain limited, other pioneers report variable success rates with this approach.

LAPAROSCOPY IN CANCER SURGERY

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Laparoscopic principles in oncologic surgery

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Controversy continues to surround laparoscopic resections for malignancy. Furthermore no data from ongoing randomized controlled trials are available at the moment. The oncologic surgical rules have been defined after more then one century of open surgery and the oncological results are consiquent to surgical techniques. Without forgetting the high probability of cancer cells implants, we know well that the respect of oncologic principles along with the adoption of all devices to cut down local recurrences can reduce the risk of cancer cells implants. The data from literature show that there is a great attention towards the laparoscopic procedures for malignancy. In most cases the Authors act with due care. However some published controlled studies show that the surgical approach (laparoscopic vs open) does not seem to be a determining factor to mobilize neoplastic cells and that the late results of laparoscopic resections for colonic cancer do not show parietal wall recurrences rates greater than in open surgery.

METHODS: from 1991 to 2002 we submitted to laparoscopic procedure (diagnostic and/or operative) 4.323 patients . Only 358 (8%) for malignancy. Of these 152 (41%) were submitted to diagnostic laparoscopy and 214 (59%) had operative resective laparoscopic procedures: 167 colo-rectal resections, 18 adnexal masses, 8 gastric neoplasms, 8 cholecystectomies (unexpected post-operative findings), 6 aortic-iliac lynphadenectomies, 4 radical nefrectomies, 3 other resections. 8 patients (3.7%) were lost to follow up evaluation. After a mean follow up of 46 months (range 10 -132 ms) we did not find any parietal wall recurrences in all patients

except 2 (0,9% and 25%) on cholecystectomy group. As reported from literature the gallbladder cancer shows a high risk in local recurrences.

CONCLUSIONS: Although most of port site recurrences are due to technical surgical problems and can be avoided by adapting the correct oncologic surgical principles as in open surgery, some features of the minimal invasive techniques facilitate tumour growth and should be kept in mind when performing mini - invasive surgery for malignancy

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Staging in pancreatic cancer the role of laparoscopy

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Most patients with pancreatic carcinoma have advanced disease at presentation and prognosis is poor, with 2-3% overall 5-year survival. This devastating disease is presently the fourth leading cause of cancer related death in industrialized world. Surgical resection of the tumor is still the only effective treatment option, although only about 20% of adenocarcinoma of the pancreatic head are resectable. Identifying the few patients who could benefit from curative resection is important, but diagnostic evaluation should not increase morbidity for those with advanced disease and short survival time.

Laparoscopy has become a popular and widespread Surgical technique. An important goal in the treatment of patients with pancreatic cancer is to avoid any unnecessary procedure. Supporters of laparoscopy recommend it as the gold standard in staging pancreatic cancer, especially when it is combined with laparoscopic ultrasound.An obvious advantage of diagnostic laparoscopy is the possibility for taking biopsies and peritoneal lavage for cytological examination. Nevertheless, how many patients benefit from this procedure remains a question.

Several studies were performed in different clinical centers to evaluate the reasonability of diagnostic laparoscopy . The results are controversial. Warshaw et al and Fernando-del Castillo from Massachusetts General Hospital reported incidences of 35 and 24% of CT occult metastases using laparoscopy. Occult metastases were more often found in patients with tumors of the pancreatic body and tail (44%). Furthermore, Jimenez et al. reported that in a series of 125 patients with pancreatic cancer who first underwent a CT scan and afterwards diagnostic laparoscopy with peritoneal cytology, in 39 patients (31%) laparoscopy revealed metastases which were not described before. In another study, metastases were found only by laparoscopy in 30% of 239 patients, preventing laparotomy in patients who were scheduled for tumor resection. Therefore, groups supporting a more frequent use of diagnostic laparoscopy in pancreatic cancer concluded that many patients will benefit as unnecessary laparotomies can be avoided and staging as well as therapy can be optimized. However, several problems are obvious in all this studies. First, there important differences in the selected patient populations and the second problem is the inconsistent use of high-quality helical CT scans. Therefore it is difficult to evaluate the usefulness and the accuracy of diagnostic laparoscopy.

Other clinical centers that are very well experienced in the area of pancreatic surgery have revealed less promising results than the groups promoting diagnostic laparoscopy. A study from Heidelberg included 181 patients with pancreatic cancer, of which only 14% could benefit from laparoscopy. Furthermore a cost-benefit analysis was performed to evaluate the usefulness of diagnostic laparoscopy. The ratio of patients undergoing diagnostic laparoscopy with an intraopeative change in the therapeutic plan was compared to patients in whom a diagnostic laparoscopy would have been followed by a laparotomy as a preoperatively planned. The ratio was 1:7 meaning that 7 unnecessary laparotomies would have been performed to prevent 1 laparotomy. Bottger et al reported reliable staging in 95% in a series of 307 patients with pancreatic cancer using CT scan ERCP and angiography and found only 5% of patients with occult metastases who would have benefited from diagnostic laparoscopy. Furthermore review articles from Pisters et al. and Furmell et al. conclude that a selective use of diagnostic laparoscopy is more appropriate, and routine laparoscopic staging should be avoided in patients with pancreatic cancer.

In conclusion only 4-14% of patients with pancreatic cancer benefit from diagnostic laparoscopy indicating why routine application before each potentially curative resection is not justified as long as a high quality CT scan is available. A selective use is more appropriate; e.g. in patients with larger primary tumors, tumors of the pancreatic body or tail, suspected liver or peritoneal lesions, patients with ascites, or clinical and laboratories findings suggesting an already advanced disease stage.

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COLO-RECTAL SURGERY

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Laparascopic left hemicolectomy

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The operation is carried out with 5 trocars; the first 10 mm trocar is placed paraumbilically, right of the umbilicus the second in the right iliac fossa just laterally to the epigastric vessels at 9cm, or about four fingers width, from the umbilicus, the third trocar is placed equidistant from T1 and T2 to form an equilateral triangle between the optics and the two operating trocars. The surgeon's right hand is in T2 and his left hand is in T3.

The other two trocars, both 5mm, are then inserted; one in the left flank far laterally and equidistant between the costal arch and the left anterior superior iliac spine and the other in the left para-xifoid region.

The operating surgeon is on the patient's right, the first assistant on the surgeon's left and the second assistant is on the patient's left, opposite the surgeon.

The patient is in supine position with arms alongside the body and legs apart in deep Trendelemburg position, rotated to the right. The instrumentalist is on the right of the patient at the level of the right lower limb.

The operation is completely standardised from the start to the finish. The surgeon always has both instrument hands free and the assistants have a very precise roles. The operation begins with the assistant holding up the Treitz muscle with his left hand and the surgeon lifting the inferior mesenteric vein.

He then proceeds behind the inferior mesenteric vein rather than behind the inferior mesenteric artery, since it is easier to find the plane for separating the fasciae behind the vein. The assistant's left hand then substitutes the surgeon's and passes from holding up the Treitz muscle to holding up the vein, so that the surgeon has both instrument hands free and can find the plane of separation posteriorly to Gerota's fascia, covered by a peritoneal membrane which is the residue of the primitive parietal peritoneum.

He then finds the posterior plane and the artery, which is clipped and sectioned. Doing it this way makes it easier to find the correct plane behind the artery. Once the artery has been sectioned it is lifted and pulled towards the surgeon so that a tent is formed between the inferior mesenteric artery and vein and the posterior plane.

Here the posterior plane can be seen, with the ureter and the gonadal vessels all covered by Gerota's fascia and the posterior primitive parietal peritoneum. As you can see, the plane is all completely visible and is dissected from right to left while the two assistants continue to hold up the inferior mesenteric artery and vein ensuring that the tent remains open. This approach allows the entire operation to be carried out with the colon in place and without risk for the retro-peritoneal structures which remain behind Gerota's fascia. The plane is progressively uncovered both at the bottom and at the top. We are already at the splenic flexure.

Gerota's fascia can be seen very clearly in the point of reflection behind the flexure. The dissection proceeds from right to left, taking it as far left as possible so that later, when the flexure is lowered completely, the colon can be lowered very easily. If this dissection is not carried out to the extreme left there is a risk that when the colon is pulled from left to right the retro-peritoneal structures, which should remain on the posterior plane, will be pulled along with it.

The entire posterior dissection for the separation between the embryological planes is exsanguine and proceeds upwards until the inferior margin of the pancreas is reached, which can now be seen above Gerota's fascia.

The entire inferior margin of the pancreas which, however, must remain posteriorly, is visible. Here we see Gerota's fascia which we leave to go to the pancreas. At this point the assistant on the patient's left flank lifts the transverse mesocolon and the assistant to the left of the surgeon lifts the vein. By holding up the transverse mesocolon in this way it is easier to pass to the front of the pancreas and section the root of the transverse mesocolon. Now we leave the plane of Gerota's fascia with the pancreas behind it and move up, above the inferior margin of the pancreas, in front of the anterior face of the pancreas and complete the sectioning of the transverse mesocolon; the epiploic cavity is open and the stomach can be seen. The inferior mesenteric vein is now sectioned; it was not sectioned before as this would have upset balance of the plane and the tent, which has allowed us to remain on the correct right plane, would not have been formed. The vein is kept lifted, as is the transverse mesocolon, by the assistant on the left side. The sectioning of the transverse mesocolon is finished, sectioning completely from right to left, the pancreas falls down and the epiploic cavity is completely open and the transverse colon has been completely detached from its posterior adhesions. Only in this way can the flexure be lowered fully for the later phases of the operation. The epiploic cavity, the colon and, at the back, the posterior face of the stomach can be seen. Here is the posterior face of the stomach, then the pancreas, the body and tail of the pancreas and Gerota's fascia posteriorly.

After this the operating field changes completely and we proceed towards the left parietal colic recess, with the surgeon's left hand holding the sigmoid pulled towards the right and the first assistant's left hand holding the descending colon, also pulled towards the right. The surgeon's right hand, using the ultrasound device, opens the point of adhesion of the left lateral face of the primitive mesentery in the direction of the primitive parietal peritoneum. In effect the primitive mesentery turns away from the median line and positions itself above the primitive parietal peritoneum, passing from the median sagittal line of the embryonic period to the successive period in which all the primitive intestine lies in what we call the left parietal colic recess.

These are the points of adhesion of the primitive mesentery above the primitive parietal peritoneum.

This dissection should always proceed on the plane of the embryological adhesion so that the primitive parietal peritoneum covers the left iliac artery and the left iliac vein. The ureter also remains below the primitive parietal peritoneum and we can enter into the posterior plane that was prepared earlier, moving from right to left without any risk for the ureter and the gonadal vessels which remain underneath, proceeding progressively from bottom to top in the direction of the splenic flexure. The ureter can be seen behind, you can see it now. Here is the ureter in the point where it crosses over the left iliac artery and most of it is still covered by the primitive parietal peritoneum. Then we move up, from bottom to top in the direction of the flexure keeping to the previously prepared plane. Vision is very good posteriorly, and therefore there are no risks for the retro-peritoneal structures (the gonadal vessels, the ureter, the kidneys) which all remain below Gerota's fascia and the primitive parietal peritoneum. We then move progressively upwards, all the time keeping the descending colon lifted and pulled to the right. The pancreas and the remaining adhesions of the splenic flexure can be seen posteriorly.

You can see behind the spleen and at this point the surgeon changes position and places himself between the legs of the patient. When the splenic flexure is difficult, it is better for the surgeon to take up this position between the legs of the patient and completely change the type of exposition. That is to say the grasper from the right iliac fossa, where the ultrasound device had been before, is used to hold the descending colon pulled caudally. The surgeon, now positioned between the legs of the patient, uses the grasper from the trocar on the right flank with his left hand and the ultrasound device from the left flank with his right hand.

The grasper from the epigastric trocar holds up the omentum. In this way, as you can see in the following sequence, it is possible to operate on any flexure, even the most difficult, proceeding from left to right holding both the transverse and descending colon caudally, separating the epiploic colon from left to right.

The direction is ideal because the grasper from the left flank actually proceeds from left to right, whereas one from the right iliac fossa would not be in a suitable direction for lowering difficult flexures. Easy flexures, however, can be operated from the right iliac fossa. Here we can see the spleen at the top, the completely lowered flexure, Gerota's fascia posteriorly, the pancreas, the anterior face of the pancreas and the inferior margin of the

pancreas. The flexure is now completely lowered. Next we move downwards in order to perform the dissection in the direction of the pelvic cavity while the grasper from the epigastric trocar pulls the inferior mesenteric artery cranially, it can be seen now, and the grasper from the left side pulls the sigmoid cranially.

By doing this the sigmoid-rectum passage, the mesosigmoid-mesorectum passage and the lateral face of the mesorectum are well exposed. Dissection of the plane on the lateral right face of the mesorectum at the passage between the sigmoid and the rectum and on all the fat of the right lateral side is carried out until the posterior face of the rectum in front of the promontory can be seen and the superior hemorrhoidal vein and artery can be identified on the posterior margin of the mesorectum. Once identified they are clipped and sectioned. With the superior hemorrhoidal vein and artery sectioned the mesorectum is effectively interrupted and we proceed with putting a clamp, with the left hand, between the tumour and what will be line of sectioning.

At this point the rectum is washed trans-anally with an iodine solution and after washing we insert the endoGIA from the trocar in the right iliac fossa and a transectioning of the rectum is carried out perpendicularly.

Next, the suturer is inserted trans-anally, the stapler is taken out and vessel ligation is performed at the origin and the proximal colon is prepared for the anastomosis. In the meantime the piece has been removed through a mini-laparotomy in the left iliac fossa. The proximal colon is brought down and then put back in with the head for the anastomosis to be performed. As you can see the colon is very long when the flexure is completely lowered and is not under tension when the anastomosis is performed and the stumps are very well vascularized.

BILIARY TRACT

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CBD injury after laporoscopic cholecystectomy in Smc - Bah

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Bahrain

Salmaniya medical complex is the main government hospital in the state of bahrain (arabian gulf). with more than 5000 major cases going for surgery every year, laparoscopic surgery was introduced in april 1992 with laparoscopic cholecystectomy. Since then until january 2003, about 1958 laparoscopic cholecystectomy have been done. This is a review of the most serious complications of this procedure which we call it "the surgeon's nightmare". out of 687 in first five years procedures, we had 6-cases of cbd injury, (0.87%). we categorize them in 5-grades - " i" ilia, 111b, iv. in second 5-years, out of 1271 case,

we had onl y one case of cbd injury. They underwent different management according to the grade of injury. our rate is more or less similar to the other centers. we conclude:

1. using of 30 camera in difficul t case-
2. per-operative cholangiogram to be done if any doubt about duct injury.
3. ercp -the best post -op investiga tion for suspicious duct injury
4. the rate of cbd injury is decreasing in bahrain.

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Bile duct injuries in laparoscopic cholecystectomy

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Algeria

The main problem during laparoscopy cholecystectomy is how to avoid bile duct injuries which are increasing. We report retrospective study < about the subject. 689 patients were enrolled between 1997 and 2002. Acuteand chronic cholestitis were performed routinely by laparoscopic way without anyone exclusion criteria; Cholangiogram wasn't done systematically during the procedure (less than 10%)

Conversion rate was 4 %. Three (03) bile duct injuries observed, Only one of them was discovered and treated on place: The two others returned to the hospital some days after cholecystectomy, one with jaundice, the second with an acute peritonitis. We have treated also two another cases coming from . duct but burns due to the use of monopolar coagulation was noted.Motality rate was 2 / 5. So, to decrease bile duct injury, it's necessary to. PerformCPO systematically. For avoiding it ?dissection of pedicle eyst must be done with canula of succion - irrigation system.Never monopolar coagulation has to be used before cystics elements have een well identified.

NEW TECHNOLOGY, TELEMEDICINE AND ROBOTIC SURGERY

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Current status of laparoscopic instruments and equipment

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INTRODUCTION: Laparoscopy was undoubtedly the main revolution of the last decade of twentieth century in surgery. It is impossible not to be fascinated by its extraordinary changes introduced in our profession in less than 10 years.

Beginning with the initial use of laparoscopic surgery in early 90's, development and improvement of instruments and equipment were so rapid . However the current evolution and modifications of the instruments and equipment is not that much active and effective as in the beginning, it continues in a decreasing frequency. Whereas the evolution of laparoscopic surgery during the past decade, in terms of variations in quality (complexity) of the procedures performed is much faster. The worldwide experience and training of surgeons with the use of adequate equipments play a significant role in the improvement of quality of the procedures. The laparoscopic approach is both dependent on the surgeons proficiency and quality of equipment.

DEVELOPMENTS OF INSTRUMENTS AND EQUIPMENTS: The latest major development and modifications of the instruments and equipments used in laparoscopy are as follows:

First trocar insertion

In laparoscopic surgery serious complications caused by the blind insertion of the first trocar still exist, even after the pneumoperitoneum is established by means of a Veress needle. Although some techniques to safely insert the first port have been developed and many surgeons advocate a minilaparatomy (open laparoscopy) to position the first port, this step still continues to be the source of complications and morbidities. As a result, trocars are still under modifications (pyramidal trocar, conical trocar, trocar with small cutting edge, trocar with optical view, trocar with dilating edge). The latest modifications of trocars with dilating edge seems to be the optimal solution for those problems without cutting tissue.

- It causes lesser bleeding in abdominal wall,
- It has the advantage of fixation of trocar to abdominal wall,
- It does not necessitate closure suture even if after 10 or 12 mm diameter.

Also disposable and reusable trocars have been produced and used to be safely positioned under visualization. On the other hand, open surgery is used as a first trocar insertion technique. But the dissection to insert the Hasson's trocar may be difficult and time consuming, especially in obese patients.

Ensuflation / gassless laparoscopy / hand assisted laparoscopy

- Although there exists metabolicly inert gasses like Helium, CO_2 is continued to be used widely and preferably.

- Gassless laparoscopy with using abdominal wall retractor is used strictly due to high rate of conversions to pneumoperitoneum.

- In special circumstances the hand assisted laparoscopic approach may be an additional useful technique, particularly as a valuable alternative to open surgical method in spite of its high traumatic effect regarding to pure laparoscopy.

Tissue division - dissection instruments and equipment / enforcement material

- Parallel to the increase of advance laparoscopic procedures, the instruments used in ablative and reconstructive surgery has developed such as pneumodissector, hydrodissection, various types of staplers such as 35 – 45 - 60 mm / 2.0 - 2.5 - 3.5 - 4.8 mm Endo-GIA cartridge, VCS stapler (reapproximate micro-clips). Also ultracision and ligasure as the source of energy for cutting and coagulation is accepted worldwide instead of electrical currency, without having the undesirable side effects. These energy sources and also bipolar electrocoter play an impulsive role for widely application of complex laparoscopic procedures.

- The mesh used for repair of defects is another developing, both the type of mesh (anatomic mesh, dual mesh, etc.) and mesh fixation material (endohernia, endotracher, endoanchor, tissue-cole) are still in progress for the best one.

Visual equipment with computer assistance / robots

- Vocally controlled manipulator of the laparoscopy (AESOP-Automated Endoscopic System for Optimal Positioning) makes it possible to implement some operations without the assistance of another surgeon ("solo-surgery" or "one man surgery"). Different types of fixating arms also decrease the need of assistance.

- The latest development in operating room is the installation of robots. However these robotic systems are strictly used due to their financial costs. But it is promising for the future both with "distance" (telesurgery) and "bed side" surgery, with the opportunity of three dimensional image without mirror effect and with the ergonomic superiority causing the surgeon to be less tired.

CONCLUSION: Surgical outcome and new designed instruments and equipment are in a very close relationship to achive the best results. For the development of laparoscopic surgery, we must keep our minds open to the future advances in science and technology and integrate them in our operative procedures. Also increasing the number and complexity of procedures motivate the designers for the new and modificated instruments.

28

Robotic surgery: one year experience

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Italy

Many procedures are today performed by minimally invasive technique (laparoscopy, thoracoscopy, etc.), improving patient quality of life and outcomes. Anyhow laparoscopic technique requires a long learning curve because of the instruments have limited number of degrees of freedom, two-dimensional vision of the operating field, discomfort, fatigue and tremor after a long period.

We started our laparoscopic experience in 1991 performing cholecystectomy and herniorraphy (TAPP technique). Up today we have performed over 6.000 laparoscopic operations (cholecystectomy, appendectomy, colon resection, gastric resection, splenectomy, fundoplication, Heller myotomy, etc.).

From September 2002 we have in our Department the "Da Vinci Surgical System", an advanced robotic device: three-dimensional imaging (3-D) with a stable camera platform, it overcomes the limitation of laparoscopic instruments by endo-wrist technology, the surgeon works in an ergonomic and comfortable operating position. By this device we have performed over 60 operations; cholecystectomy was the starting operation to test and to take confidence with the robotic machine; fundoplicatio and Heller myotomy, colectomy and splenectomy, were the following operations performed.

Robotic surgery is a laparoscopic surgery; the surgeon and trocars dispositions are different, the installation time was initially longer but the median operative time after a few cases was lower and the surgeon operate easier with a comfortable position and optimal view. We think that some technological developments will be able to improve such device. We illustrate our starting experience.

29

Telemedicine in education and trainining for laparoscopic surgery, EMISPHER project

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Education and training in laparoscopic surgery could not reach a standard and homogenious status as in genaral surgery, although 15 years passed from its beginning. Both young and senior surgeons had to take basic and advanced courses to learn laparoscopic surgery or they had to learn it by relation with expert surgeons in the beginning. Now laparoscopic surgery is a part of residency programs and training courses are mostly organized as advanced courses rather than basic ones.

Audio-visual educational materials (like video-tape, vcd, dvd), telemedicine applications and courses, conferences, congresses are the most important parts of today's education and training programs which varies from country to country. Teleconference and telesurgery are being used more and more in advanced courses and congresses. Basic ways of educational activities in telemedicine are teleteaching and telementoring. In surgical sciences, operations are shown and taught to the surgeons from distance places by using real time as well as interactive teletransmission. As a telementoring activities, the surgeon while performing an operation is supervised by a more experienced surgeon via visual and audio connection from a distance.

During the last four years, Istanbul University Continuing Medical Education and Research Center (ISTEM) has successfully using teleconferencing, teleassisting and telementoring applications at laparoscopic surgery congress and courses that have been continuously organized in Turkey for the past twelve years. Also, ISTEM is taken place in some international telemedicine activities like EMISPHER project (Euro-Mediterranean Internet-Satellite Platform for Health, Medical Education and Research) which mainly targeted Mediterranean Countries. The aim of this project is to provide a homogenious health and education platform around the Mediteranean Countries not only in laparoscopic surgery but also in other surgical and medical specialities. Such kind of activities with virtual universities and telemedicine are very effective for dissemination and increasing the level of knowledge.

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Laparoscopic gastrectomy with Billroth II reconstruction

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Lebanon

The use of laparoscopic approach in the surgical treatment of various gastric conditions has several advantages by avoiding an upper abdominal incision. Our experience at the American University of Beirut Medical Center with seven patients who underwent laparoscopic gastrectomy supports the use of this approach. We present a case of 25 year old female with repeated vomiting and abdominal pain of 6 years duration. Patient had balloon dilatation for pyloric stenosis four times with mild improvement. Laparoscopic gastric resection with Billroth II reconstruction was performed in 1998. Technical details of the procedure are illustrated in a video presentation. Patient did very well with a five year follow-up.

Another patient, 25-year-old male presented with pyloric stenosis and had pyloric perforation following balloon dilatation was treated laparoscopically with gastrectomy and Billroth II reconstruction in 2001. He also did very well with 2 years follow-up.

Laparoscopic Gastrectomy with Billroth II reconstruction is feasible and further experience is needed to define the technical approach.

31

Palliative laparoscopic gastroenterostomy for unresectable tumors

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Greece

Gastroenterostomy is an established palliative method for palliation in patients with unresectable gastric, periampullary and pancreatic cancers with gastric outlet obstruction (GOO). A number of patients with advanced disease but without clinical manifestations of GOO will require a bypass procedure during the progress of the disease.

Although, open gastroenterostomy is not a major operation itself, the advanced disease state and the general health status of the patient result in high morbidity (25%) and mortality (8-17%). Alternatively, nonsurgical techniques such as laser application and self expanding endoprosthesis have been proposed but they are also associated with certain risks.

In the era of laparoscopic approach, some surgeons have explored the feasibility of performing laparoscopic gastroenterostomy for palliation with good results. A review of the available data in the current literature and the technique of laparoscopic gastroenterostomy are presented.

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Laparoscopic surgery for gastric cancer: indications and limitations

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Gastric cancer is still one of the important health problems because it is the most common cancer in Far East

Asian countries and the leading cause of cancer death in the world. The past decade has seen many advances in knowledge about gastric cancer. Notably, tumour biology and lymphatic spread are now better understood, and treatment by surgical and medical oncologist has become more standardised. Patients in eastern countries are mainly those with early cancers, where western patients are usually treated when the cancer is at an advanced stage. This difference might have contributed to confusion in histopathological classification of the disease, and made comparison of treatment results from the two regions difficult. Laparoscopic staging can achieve a 92% rate of detection for advanced gastric cancer, compared with only 58% with CT and 63% with endoscopic ultrasonography. Laparpscopic staging done by a skilled surgeon immediately before treatment surgery seems to be the best diagnostic tool

to guide decisions about surgical resection or palliative measures. In Japan, surgeons favour endoscopic mucosal resection, which is thought to have high curative potential and to avoid the need for further radical surgery; however such an approach should only be done if very accurate local staging has been achieved. Endoscopic mucosal resection is often impossible for lesions located at the gastric cardia or lesser curvatura, but these difficulties might be overcome by combining endoscopic and laparoscopic mucosal resection. Diagnostic laparoscopy for staging is effective and widely practiced, but gastric resections are mostly limited to malign lesions, whereas more advanced lesions are laparoscopically resected in only a few centers around the world. In the future, potential advances in the laparoscopic surgical treatment and diagnosis of gastric cancer could be achieved with identification of the lymphatic drainage basin by combined endoscopic and laparoscopic sentinel node procedure in T1b and T2 tumours, leading to limited lymhadnectomy in most patients and also laparoscopic surgery could widely be used for the treatment of gastric cancer around the world.

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Laparoscopic total gastrectomy

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Italy

Background: The use of laparoscopic surgery in the treatment of gastric cancer ha not yet met with widespread acceptance. This approach appears to have some valuable advantages for management of gastric cancer patients. The principle of treatment of gastric cancer is to perform a complete resection of the lesion with safe and appropriate procedures based on disease stage. The extent of gastric resection depends on the site and extent of the primary cancer; at the present there is no consensus about the optimal extent of lymph-node dissection. The hypothesis that extended (D2) lymph-node dissection leads to improved survival has not been confirmed in randomized trials but results from specialized centres and ongoing multi-institutional randomized trials indicate that D2 dissection, with preservation of the spleen and pancreas, can be performed with the same safety as a D1 dissection.

Methods: Between 2001 and August 2003 we performed a total of 35 laparoscopic procedures on patients affected with gastric carcinoma. All patients were staged preoperatively with US and CT scan.

Results: We performed twelve total gastrectomy, nine gastroresection, six subtotal gastrectomy, four partial gastrectomy and four degastrectomy. Total and subtotal laparoscopic gastrectomy with preservation of the spleen and pancreas and extended (D2) lymph-node dissection are our standard procedure. The major complication rate was 10.2% and the hospital mortality 5%. We performed only pure laparoscopic approach: after total or subtotal gastrectomy a Roux-en-Y esophago- gastrojejunostomy is commonly performed laparoscopically.

Conclusion: A definitive answer concerning the appropriate level of lymph-node dissection and the role of laparoscopic gastrectomy in the treatment of more advanced gastric cancer remains to be defined but laparoscopy can be a valuable tool in the decision-making process for these patients.

34

Laporoscopic gastric banding, Lebanese experience

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Lebanon

Morbid obesity occurs in 2-5% of the population of Europe,Australia and the United States and is becoming more common.In Lebanon we have no exact data but it is estimated as 1-2%. Laparoscopic gastric band was launched as one method for weight reduction. A total of 98 patients underwent lap.banding between June 2000 &Feb.2003. Patients were selected with BMI greater than 35 and age between 18-57. They were very motivated and properly worked up before surgery. Two patients were lost to follow up after 3 months.We had 2 conversions to open. Complications were : 3 ports complications,2pouch dilatations,1abdominal collection and 1mal positioning of band and 2 gasroesophageal reflux. EWL was 62% after 2years In conclusion laparoscopic gastric banding is an acceptable way to treat morbid obesity but it needs close and long term follow up and good experience is the key for good outcome.

35

Laparascopic gastric by-pass for morbid obesity

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Saudi Arabia

Morbid obesity is concerned as on of the major health problems in Saudi Arabia and the gulf region,recent statistics from the country main health institute reported male obesity(BMI >35 kg\m2) to be 16% and in female >24%. The main cause for the high level of obesity in the country is returned mainly to the sedentary type of life as well as lack of exercise which is considered as well part of the life stile, other factors like the hot whether and in door traditional type of life is not to be forgotten. Surgical treatment of obesity in the form of Laparoscopic gastric bypass has been started in our hospital with an excellent acceptance as well as excellent results (returning to an acceptable BMI within the first one year of the procedure),we report the outcome of our centre for the first 130 cases in the last 3 years with no mortality and < 5% morbidity.

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Vertical banded gastroplasty

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Vertical banded gastroplasty (VBG) was perfected over the past twenty years at the University of Iowa by bariatric surgery pioneer E.E. Mason, MD and at one time was the most commonly performed procedure for weight loss in the world. VBG is performed under general anesthesia, through an incision in the upper abdomen measuring several inches, and requires usually four or five days in the hospital postoperatively. A circular "window" is made through the stomach a few inches below the esophagus . A surgical stapler is then used to create a small vertical pouch by putting a row of staples from the window toward the esophagus. The pouch is carefully measured at the time of surgery and will hold about one tablespoon of solid food. Next, a polypropylene band is placed through the window, around the outlet of the pouch and secured to itself with stitches. The band controls the size of the outlet and keeps it from stretching. The pouch fills quickly and empties slowly with solid food,

producing a feeling of fullness. Over eating results in pain or vomiting. This restricts food intake. The disadvantage of VBG is it usually results in less weight loss than other procedures. It does not restrict intake of high calorie liquids (sweets) and the pouch can stretch with overeating. As a result 20% of people do not lose weight and only half of people lose at least 50% of their excess weight with a VBG. In the studies performed so far, laparoscopic vertical banded gastroplasty (LVBG) proved in no way superior to open surgery. This procedure can usually be performed as a 23 hour procedure with return to full activity in 7-10 days.). With the widespread of this procedure and the introduction of laparoscopic approach several complications are described in literature: gastroesophageal reflux, esophagitis, gastritis, gastric bleeding and perforations, prolonged vomit, dislocation of gastric ring, cholelithiasis, gastric fistulas, gastric stomal stenosis, dehiscence of vertical stomach staple line. Vertical banded gastroplasty is currently the standard method for surgical treatment of morbid adiposity. Worldwide, about 20.000 interventions are performed every year. LVBG can be performed safely and results in shorter postoperative stay than open VBG. With adherence to surgical technique , weight-loss is maintained at an adequate level. Complications after LVBG do not exceed open VBG. . In conclusion, laparoscopic VBG is technically feasible and can be safely performed.

37

Bariatric surgery complications

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There are two groups of complications in bariatric surgical procedures;
1) Mechanic complications: depend on the operation technique, duration, experience of the surgeon and sufficiency of the equipment. With the introduction of eligible technique and improved surgical equipment these complication rates have been reduced.
2) Metabolic complications: result either from the comorbidities oh the morbid obese patients or from the metabolic deteriorations after the operation. Precise preoperative evaluation, selection of the appropriate patients and the appropriate procedures help to reduce these complication rates. Close follow-up of the patient and the preventing malnutrition are other contributing factors. Bariatric surgery is a procedure performed with low morbidity and mortality if done with proper preoperative evaluation, patient and technique selection, close follow-up by an experienced team.

EMERGENCY SURGERY

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Laparoscopic versus open appcndectomy early experience at salmaniya medical complex, Bahrain

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lnis study was conducted at the 960 -bed Salmaniya Medical Complex (SMC) -the largest public sponsored healthcare facility that provides secondary and tertiary care services to the people of Bahrain. The study was conducted during the first half of2001 , where data from 66 consecutive laparoscopic append~tomies (Lap Append) were compared with 64 consecutive open appendectomies (Open Append) conducted earlier at SMC. Data analysis indicated no statistically significant difference between the mean ages in the two groups, with 27.6 and 28.1 years for Lap Append and Open Append respectively. The aVbrage length ofstay at the hospital w~ 6.8 and 6.6 days for Lap Append and Open Appe!ld, respectively, with no statistically significant difference between

the two groups. There was statistically significant difference (a <0.05) in the . dumtion of symptoms was 5.3 days prior to surgery in Lap Append, compared to 1.7 days for Open Append. There was no statistically significant difterence in the dluation of the procedure between the two groups, with mean duration 74.2 minutes in Lap Append co'mpared to 63.9 minutes in Open Append. Pathology report was nonnal in 25.9% or IJap Append, compared to 8.8% in Open Append. There was statistically significant difference in the duration of the procedure in Lap Append wilh nom1al histopathological findings (61.9 minutes), compared to Lap Append with evidence ofpathological findings (79.4 minutes. The conversion mtio in the Lap Append in this series was 1.5%.

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Laparoscopic appendectomy

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Greece

After the introduction and wide acceptance of laparoscopic cholecystectomy, most of the conventional procedures have been proven to be technically feasible by laparoscopy, during the last decade; the laparoscopic approach, however, is not always worthwhile. In the case of appendectomy, the standard approach is considered to he a minor operation, with practically no mortality, low morbidity, minor postoperative pain, short hospital stay and fast recovery; in other words, any additional benefits of laparoscopic appendectomy would have been difficult to establish. There are many prospective randomized trials comparing the two procedures with conflicting results. More useful information can be derived from meta-analysis of these randomised trials; it appears that laparoscopic appendectomy takes longer and results in significantly less postoperative pain and significantly lower incidence of wound infection but only marginally earlier return to normal activities. There is no statistically significant difference in terms of hospital stay and intraabdominal infection rates, although the later was found slightly higher for the laparoscopic group, in few trials. As to the cost analysis, the available data are inadequate; the open approach is cheaper than the laparoscopic one but the overall cost seems to be slightly lower for the laparoscopic group considering the time out of work. Other potential benefits from the laparoscopic approach arc the diagnostic advantage especially in female patients, the possibility of less intraperitoneal adhesions and better cosmetic result. In conclusion, there is evidence from the literature in favour of laparoscopic appendectomy; provided that local expertise is available the laparoscopic approach should be considered in patients with suspected appendicitis.

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Emergency laparoscopic surgery (appendectomy, repair of perforated duodenal ulcer)

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Iran

Laparoscopy has both a diagnostic and therapeutic role in emergent situation. The use of diagnostic laparoscopy in patients with acute abdominal pain is not new and many studies have demonstrated an improvement in surgical decision making associated with its use particularly when the need for operation is uncertain. With the increased use of elective laparoscopy by general surgeon, there has been an associated increase in emergency laparoscopic surgery in therapeutic era . In addition to laparoscopic appendectomy, which has rapidly gained in popularity over the last few years, many other procedures such as repair of perforated duodenal ulcer are now being performed. In our clinical experience we have done about 125 cases of appendectomy and 10 cases of repair of perforated duodenal ulcer since 1994 and we have found both of these procedure safe, effective, technically feasible and reliable procedures.

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Laparoscopic myomectomy

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Laparoscopic myomectomy is the most debated issue amongst all the endoscopic gynecologic procedures. Laparoscopy has proven advantages when compared to laparotomy. All these advantages result from the relative small incisions used. After these operations analges'a requ'rement and hospital stay are less, and full recovery is fast. Especially complicated laparoscopic procedures have a longer duration compared to laparotomy and are expensive due to disposable equipment usage. The outcomes and quantitative data do not differ amongst the two procedures. There are no differences in terms of intraoperative or postoperative complications, adhesion formation, restoration of fertility and postoperative labor. Various methods of laparoscopic myomectomy have been defined. The extirpation of the myom from the uterus and abdomen by laparoscopy is classically known as laparoscopic myomectomy. In this method the muscle and serosa defects are repaired laparoscopically. The myom can be removed by marcelation, Douglas or minilaparotomy. Another common method is to repair the uterus by minilaparotomy after laparoscopic removal of the myom. This is called laparoscopy assisted myomectomy. Other procedures are laparoscopic ultraminilaparoscopic myomectomy, laparoscopically embolised myomectomy, laparoscopic myolysis and leiomyolysis. The indications for laparoscopic myomectomy are not different from those for laparotomy. As in laparotomy only symptomatic myom should be operated for restoration of fertility. Small and non-symptomatic myom should not be operated. Conditions for laparoscopic myomectomy generally depend on the properties of the myom. Conditions such as more than 3 myom, greater than 5 cm, deep intramural location and previous pelvic surgery complicate laparoscopic myomectomy. Laparoscopic myomectomy should not be performed if the equipment, the operation room are insufficient, or the surgeon is inexperienced. It is essential that the surgeon should be familiar with intraabdominal suture techniques. Preoperative examinations and preparations are similar with laparotomy. The use of preoperative analog is controversial. It is better to perform the operation in the follicular phase because it causes less adhesion formation. Big myom can be resected laparoscopically after embolisation, but the experience is not sufficient yet. Placing a manipulator in to the uterus during the operation is mandatory. The perts may be inserted higher than standart positions. Laparoscopic tribuson or electromagnetic marcelation are the two most important equipments helping laparoscopic myomectomy. Mechanic marcelation of a by myom may take too much time. There may be intraoperative and postoperative complications. Conversion rate to laparoyomy is between 2-30%. Technical diffuculty and hemorrage are major requirements. Conversion risk is higher in deep intramural located, greater than 5 cm myom. Postoperative complications are infection, abnormal scar tissue, adhesion formation and dehiscence of uterine muscle layer deving pregnancy or labor. These complications are similar to those of laparotomy. There are 6 cases in the literature reporting uterine muscle dehiscence. Mena adhesion rate is reported to bee 44% and adnexial adhesion rate as 26%. These rates are not different in randomised studies. Multiple lessions and deep intramural location raise cumulative recurence rates. Recurrence after laparoscopic myomectomy ranges between 12-44%. There are various studies on fertility after laparoscopic myomectomy. Pregnancy rates are about 50%. There is less data on myomectomy performed for infertility. It is hard to obtain a percentage because infertility is multifactorial. Advanced age, longer infertilit periods and presence of contributing factors all effect pregnancy rates. Although the operation time is longer, intraoperative and postoperative complication rates, analgesic requirement, hospital stay are less and recovery is faster in laparoscopic myomectomy. Fertility and adhesion formation do not seem to differ. Therefore in selected patients laparoscopic myomectomy should be the operation of choice.

42

Laparoscopic hysterectomy: safety and prevention of complications

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Hysterectomy is one of the most common gynecologic operations. Approximately 500.000 - 600.000 hysterectomies are currently performed annually in the USA. Indications for hysterectomy are leiomyoma uteri, endometriosis, uterine prolapse, endometrial hyperplasia, gynecologic malignancy and other gynecologic disorders.

Most commonly performed hysterectomies for benign conditions are: Total abdominal hysterectomy, vaginal hysterectomy and laparoscopic hysterectomy. More than 80 % of hysterectomies in the U.K. are still performed by the classical abdominal route. In USA it is estimated that 70-80 % of the approximately 500.000 - 600.000 hysterectomies are performed by laparotomy. Vaginal hysterectomy should be performed when appropriate; however, many gynecologists do not feel comfortable with performing vaginal hysterectomy. Laparoscopic hysterectomy is an alternative to abdominal hysterectomy and is not indicated when vaginal hysterectomy can be performed.

Major complications of laparoscopic hysterectomy are: GIS injury, urinary system injury, vascular injury, early or late hemorrhage. These complications are significantly reduced with surgical experience. GIS injury accounts for 20-46% of all complications that occur at laparoscopy and only 35% of cases are detected at the time of the operation. The ureters may be injured during hysterectomy. The ureteral tracts should be checked in all cases but we do not recommend routine dissection of the ureters during hysterectomy.

Between 1990 and May 2003, nine hundred and eighteen (918) women underwent laparoscopic assisted vaginal hysterectomy (LAVH) or laparoscopic hysterectomy (LH). Most common indications for hysterectomy were leiomyoma, abnormal uterine bleeding and endometriosis. Laparoscopic hysterectomy was performed with the combination of bipolar forceps for hemostasis and CO2 laser for tissue division, vaporization and excision.The following steps were performed laparoscopically: The infundibulopelvic ligaments, fallopian tubes, round and utero-ovarian ligaments were dissected. The broad and cardinal ligaments were dissected and the bladder pulled down. The uterine vessels were coagulated and dissected. Anterior and posterior vaginal fornices (colpotomies) were opened using CO2 laser. Lower cardinal and uterosacral ligaments were clamped, divided and ligated vaginally. The uterus was removed through the vagina. Peritonization and the vaginal incision were sutured vaginally. When LAVH was performed, the uterine vessels were also clamped and ligated vaginally. The remaining steps were the same for LAVH and LH.

The total operating time ranged between 35-180 minutes, with an average of 55 minutes for LAVH and 65 minutes for LH. The mean hospital stay was 44 hours. The overall major complication rate was 0.76% (7/918). No ureteral or bladder injury occurred. Two bowel injuries occurred; 1 patient was repaired laparoscopically and the other vaginally. Re-laparoscopy was performed in one patient due to hemorrhage from the uterine artery pedicle. In two patients hemorrhage occurred from the vaginal vault and sutures were placed to control bleeding. Pneumomediastinum occurred in two patients possibly secondary to peritoneo-pleural communication. No major vascular injury or incisional hernia occurred. Conversion to laparotomy was performed in 12 patients; these were due to gynecologic cancer (6 cases), dense adhesions or frozen pelvis (4 cases) and underestimation of the uterine volume (2 cases). No conversion was necessary to treat a major complication.

In conclusion laparoscopic approach to hysterectomy provides all the advantages of both laparoscopic and vaginal surgery. Bipolar coagulation and CO2 laser surgery and is a relatively fast and safe technique when performing LAVH and LH. Conversion to laparotomy and major complication rates in our study were detected to be relatively low.

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Laparoscopic management of ectopic pregnancy

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The most comprehensive data available on ectopic rates show a significant increase in the number of ectopic pregnancies during the past 20 years.

Additionally, ectopic pregnancy remains one of the most common causes of pregnancy related deaths. Following an ectopic pregnancy there is a 7- to 13- fold increase in the risk of a subsequent ectopic pregnancy. The classical surgical approach for an ectopic pregnancy is by open laparotomy. However, laparoscopic approach seems to be superior to laparotomy in terms of recovery from surgery and subsequent optimal outcome of future pregnancies although it is related with a higher risk of persisting trophoblastic tissue. Salpingotomy is the procedure of choice when the patient has an unruptured ectopic pregnancy with the other tube absent or damaged. Salpingectomy offers a similar intrauterine pregnancy rate with a lower risk of persisting trophoblastic tissue and subsequent

repeat ectopic. In the present study we present our data from the cases of ectopic pregnancies that were managed laparoscopically in our centre over the past

four years.

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Laparoscopic treatment of rectovaginal endometriosis

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Turkey

Peritoneal endometriosis, ovarian endometriosis and adenomyotic nodules are three different entities. Rectovaginal endometriosis or deep infiltrating, retroperitoneal endometriosis is considered as a special entity of endometriosis with respect to the histological characteristics.

The nodules resemble adenomyotic foci: contains glands, stroma, and muscle cells. The nodule may be highly sclerotic and inflammatory; therefore dissection from adjacent organs may be very difficult. Pain is correlated with the depth of infiltration. These lesions may cause bowel or ureteral obstruction. Unless very severe and extensive, deep endometriosis may not be recognized during examination and laparoscopy which may lead to non-recognition or underdiagnosis. In the 1990's, deep endometriosis has been increasingly diagnosed during laparoscopic surgery. However, underdiagnosis of deep endometriosis continues to be a problem. Preoperative work-up includes rectovaginal examination during menstrual period, pelvic and transrectal ultrasonography, pelvic MRI, double contrast enema, IVP, rectosigmoidoscopy, CA-125

Treatment of rectovaginal nodules: Medical treatment alone is insufficient with high recurrence rates. Hormonal treatment is efficient with respect to pain (progestins or GnRH-a), however, there is high recurrence of pain when administration ceases. Surgery is the primary treatment for rectovaginal nodules. Radical surgery is the preferred treatment; all nodules should be completely removed. Preoperative treatment with GnRH-agonists seems to facilitate operation and reduce recurrence rates.

With regard to the route of surgery, the patient's benefit must be the primary concern and the surgeon should prefer the surgical technique that he is most experienced in. The is no difference between LT vs. LS. If suspicion of gross distortion of the ureter is present, pre-operative ureteral catheterization is recommended. Complete excision has a recurrence rate of less than 1%, although some 20% of women experience persistent or recurrent pain. Laparoscopic removal of rectovaginal adenomyotic nodule includes:

1. Lateral edges of the nodule are dissected to free the nodule.
2. Free the nodule from the ureter, uterine artery and spinosacral ligament (if necessary)

3. Posterior aspect of the nodule is dissected from the rectum, until the rectum is completely liberated.

4. Liberation of the nodule from posterior vagina and cervix.

5. Extirpation of the nodule.

6. Reparation of the posterior vaginal wall and rectum if necessary.

Between 1990-May 2003, 57 cases of rectovaginal nodule were treated by laparoscopically. Among 1023 endometriosis cases, the incidence of rectovaginal nodule was 5.6% (among 1023 endometriosis patients). Laparoscopic removal of the nodule was performed in 13 cases; removal of the nodule with posterior vaginal fornix was performed in 40 cases, laparoscopic assisted rectosigmoidectomy was performed in 2 cases and laparoscopic assisted trans-anal nodule excision was performed in 2 cases. Rectal sutures were placed in 9 cases (15.7 %). No major complication occurred during laparoscopic rectovaginal nodule surgery. In one patient vesical atonia developed postoperatively.

Laparoscopic excision of rectovaginal nodules is one of the most difficult operations in laparoscopic surgery. Complete excision of the nodule should be performed. The surgeon must be experienced in advanced laparoscopic surgery, colorectal surgery, dissection and repair of the ureter if required. Therefore, this operation may require a team approach.

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Hysterescopic findings of tamoxifen treated breast cancer patients

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The risk of endometrial cancer in breast cancer patients is 1.3- 2 times higher than the general population due to common etiological factors(1). These common etiological factors are endocrine in origin, and estrogen is effective in the development of both diseases. Elevated estrogen levels stimulate epithelial growth and induce progesterone receptor expression in the endometrial tissue(1). Tamoxifen, a synthetic nonsteroidal antiestrogen structurally similar to diethylstilbestrol, has been widely used as adjuvant therapy in postmenopausal women with estrogen receptor-positive breast cancer since 1978 (1). The effect of tamoxifen on the endometrium varies with the ambient estradiol concentration in that it acts as an estrogen agonist in postmenopausal women in whom the estrogen level is lower(2). It is well-established that tamoxifen (TMX), which has been accepted to be carcinogenic in 1996, increases the risk of endometrial cancer(3). Bonadona stated that the risk of endometrium cancer risk increases 1.43 times each year and after fourth year the risk increases more. Endometrium cancer detected in patients with TMX usage in in advanced stage and has worst prognosis.

Despite the high risk of endometrial cancer that these patients are faced with, there is no accepted protocol for endometrial surveillance. ACOG recommends annual gynecologic examinations including a Papanicolau smear, and endometrial biopsy in case vaginal bleeding occurs, while in Europe yearly gynecologic examinations are recommended after 2 or 3 years of TMX treatment(1). Selection of asymptomatic patients who need an invasive procedure constitutes the main problem. During follow-up, transvaginal ultrasonography (TVUS) is the most frequently used imaging technique, and sonographic findings often determine the need for further invasive procedures. However, the drug may increase the number of unnecessary invasive procedures by causing confusing, bizarre sonografic images (3).

There is also controversy as to which procedure should be applied since TMX may cause different types of lesions in different parts of the same endometrial cavity due to both agonistic and antagonistic actions(4). Therefore, in TMX-treated patients some endometrial pathologies can be easily missed when blind methods such as D&C or pipelle are used. Hysteroscopy which makes visually directed biopsies possible is regarded as an ideal method, however, there are multiple trials demonstrating that even hysteroscopy can miss endometrial pathologies including cancer(5,6). At the present time, there is no consensus on the role of hysteroscopy in the follow-up of asymptomatic patients.

It is obvious that especially TMX-using asymptomatic breast cancer patients pose a serious problem for gynecologists. The aim of this session is to investigate the relationship between duration of TMX use and endometrial pathologies in TMX-treated patients, to discuss the role of TVUS and hysteroscopy in the follow-up of these patients, and to determine the timing of hysteroscopy in asymptomatic patients.

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Office hysteroscopic adhesiolysis

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Objective: To assess the safety and efficacy of office hysteroscopic adhesiolysis in patients with intrauterine synechiae, compared with operative method.

Design: Retrospective clinical trial

Settings: University Hospital

Methods: Operative office hysteroscopy were performed to twenty-six patients with Bettochi type office hysteroscope (3mm) in normal saline as distension fluid between January 2002 and February 2003 for adhesiolysis whose diagnosis were confirmed by hysterosalpingography. In all cases adhesiolysis were performed by hysteroscopic scissor at the same session. Three of all cases had amenorrhea complains after curettage (severe adhesions) and twenty-three had recurrent pregnacy loss or infertility resulting from intrauterine adhesions. Adhesiolysis procedure were performed to severe adhesion cases by the guidance of a transabdominal ultrasound.

Results: The adhesiolysis was successful in all the twenty-two (84%) of cases with 7 (30%) subsequent pregnancies to date and partially success were obtained in four (15%) cases. One woman with severe adhesion had to be re-operated for complete adhesiolysis.

Conclusion: When compared with operative hysteroscopy the advantages of office procedure for adhesiolysis are the, no necessity for anesthesia and the use of normal saline as distension fluid which decreases the pre and postoperative complications and stay of hospital. Office hysteroscopic adhesiolysis is more safer, easy to use and comfortable procedure for restoring the normal menstrual pattern and fertility comparison to operative method.

LAPAROSCOPIC UROLOGY

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Transperitoneal laparoscopic nephrectomy

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OBJECTIVE: To report our experience with transperitoneal laparoscopic nephrectomy.

MATERIALS AND METHODS: A total of 10 patients underwent transperitoneal laparoscopic nephrectomy at our institution. Simple nephrectomy was performed in 2 patients with non-functioning kidneys, and radical nephrectomy was performed in the remaining 8 patients due to the presence of a kidney tumour. The mean follow-up time was 6 months (range 1- 10).

RESULTS: All cases were performed successfully. One patient with a right kidney tumour was converted to open surgery. The specimen was extracted intact in all patients using an Endocatch bag. Histopathology did not revealed any positive surgical margin in the patients with kidney tumour (mean tumour size 6.5cm). Distant metastases involving the lung occurred in one patient during the follow up period.

CONCLUSION: Laparoscopic nephrectomy appears to be an effective minimally invasive treatment modality for patients with the need for a nephrectomy for cases with benign or malignant aetiology.

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Laparoscopic training in piglets

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Laparoscopic procedures have been used more frequently in urology recently and learning curve is much more longer than other usual surgical procedures. It is well known that gaining laparoscopic skills and experience on the patient is very difficult and sometimes may be dangerous. Every year a number of new training courses is being announced. Unfortunately these courses are very expensive and some of them have a long waiting list. Working on animals or cadavers is much more expensive. We have founded our own simple animal laboratory for laparoscopy training. In this video; equipment of our laboratory and laparoscopic simple nephrectomy on a piglet are presented.

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Laparoscopic treatment for ureteropelvic junction obstruction

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OBJECTIVES: To present our experience with laparoscopic treatment for ureteropelvic junction obstruction at our institution.

METHODS: Between September 2002 and June 2003, 7 patients (4 women and 3 men), with a mean age of 43.5 years (range 32 to 67), underwent transperitoneal laparoscopic treatment for ureteropelvic junction obstruction. Preoperatively, patients had a diuretic renal scan to confirm the presence of obstruction. Helical computed tomography was also performed preoperatively to assess for the presence or not of a crossing vessel. The renal scan was also repeated postoperatively to document the relief of obstruction.

RESULTS: Helical computed tomography detected the presence of crossing vessels in all patients, and thus Anderson-Hynes pyeloplasty was performed. The average operative time was 190 minutes (range 140 to 250). The blood loss was minimal, and no open conversions were required. No patient was hospitalised for more than 3 days postoperatively. Patency of the collecting system was achieved in all cases and maintained thereafter during the follow up period.

CONCLUSIONS: Laparoscopic pyeloplasty, even though technically demanding, is an efficient and safe procedure for the management of ureteropelvic junction obstruction.

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Double J ureteral stent after PCNL: reduced morbidity and shorter hospital stay

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Introduction: We have placed double J internal ureteral stents at the end of Percutaneous Nephrolithotomies (PCNL) with the intent of removing earlier the Nephrostomy tube (NT) and thus reducing post operative discomfort and hospital stay. We reviewed our experience to assess the efficacy and safety of this technique.

Materials and Methods: During a 2-year period, PCNL was performed in 112 patients for Staghorn stones (48), complex pelvic and caliceal stones (60) and stones in caliceal diverticulae (4). Nephrostomy tube was the only means of drainage in 43 patients. A double J ureteral stent was put in an antegrade fashion in 69 patients (66 with NT, 3 without NT). It was removed 2 weeks later under local anesthesia.

Results: Patients with double J stents had their NT removed after a mean interval of 18 hours (12-36), and their mean hospital stay was 2.2 days (2-6). One patient required reintervention for Double J stent Readjustment. The 3 patients with no NT had no complications. For the 43 patients without double J stents, the NT was removed after a mean interval of 5.2 days (3-17). 9/43 patients required reintervention for double J placement because of Urinoma (2) and persistent extravasation (7). The mean hospital stay for this group was 6.1 days (4-14).

Conclusion: Double J placement after PCNL reduces the morbidity of the procedure. It allows earlier removal of the nephrostomy tube and shortens significantly the hospital stay.

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Laparoscopic radical prostatectomy - LEBANESE, experience in 28 cases

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Lebanon

Between January 2002 and August 2003, 28 laparoscopic radical prostatectomies were performed by the same surgeon assisted by a first year resident. The mean age was 60 years (45-68). All patients had clinically confined tumors, 2 patients had previous TURP. Mean PSA level was 4.8 ng ml (2,5-8). Biopsy Gleason score was ≤ 7.

A trans-peritoneal combined with a retropubic approach was used. In most cases (78%) a pelvic lymphadenectomy in conjunction with frozen section (pN0) was part of the procedure. The prostate was removed via a 3 cm muscle splitting Mc Burney incision. Urethrovesical anastomosis was performed with interrupted sutures. Mean prostate volume 35 g (22.5 - 69).

Results: All 27 LRP cases were completed laparoscopically only one patient required open conversion (the second in the series). Median blood loss was 300cc (range 150 to 1400), and blood transfusions were given to two patients intraoperatively. The median operative time was 336 minutes (198-480). Mean catheterization time was of 7 (4-10) days. Mean hospital stay was 5(4-7) days. No intraoperative complications were seen. Early continence rate 8 days after removal of the Foley catheter was 60% (in young patients), 85% at 3 months and 90% at 6 months. Surgical margins were all negative at final pathology, sexual potency was unaltered in all patients.

Although it is a technically difficult surgical procedure that must be performed in special centers, LPR is feasible and reproducible in the hands of trained laparoscopic urologist. LRP provides a good alternative to open surgery with excellent oncological control and satisfactory functional results on post-operative continence and sexual life. The operating time is only slightly longer than open surgery, the video-assistance with 5-fold magnification enabled us to improve the dissecting techniques of open surgery (at the apex, at the neurovascular bundles, at the bladder neck, at the cranial pedicules). The endoscopic suturing technique with completion of the anastomosis under endoscopic vision improved the quality of the anastomosis.

Laparoscopic radical prostatectomy (LRP) is a minimal invasive alternative to standard open retropubic radical prostatectomy in case of localized prostate cancer.

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Technique of extraperitoneal laparoscopic radical prostatectomy

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The development of proficiency in laparoscopic techniques and instrumentation has paved the way for its application in complex urologic procedures, such as radical prostatectomy. Since the first description of laparoscopic radical prostatectomy in the early 1990s the technique has undergone significant technical modifications. Transperitoneal laparoscopic radical prostatectomy is now a standard procedure and can be used successfully and reproducibly, providing results comparable with those of "open" retropubic procedure. Despite many advantages, transperitoneal laparoscopy is associated with potential intraperitoneal complications. Limitations inherent to the transperitoneal route have led to the development of an extraperitoneal approach for radical prostatectomy. The extraperitoneal approach provides a safe and minimally invasive technique to various urological procedures, including radical prostatectomy. This technical improvement completely obviates intra-abdominal complications. Extraperitoneal laparoscopic radical prostatectomy combines the advantages of minimally invasive laparoscopy and the open retropubic approach. Herein, we review the surgical technique of extraperitoneal laparoscopic radical prostatectomy, and focus on the indications, contraindications and outcomes.

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Laparoscopic radical prostatectomy

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INTRODUCTION: Prostate cancer ia a common urological disease. Retropubic radical prostatectomy has been the most preferred treatment for localized

prostatic carcinoma. However, increased morbidity and long convalescence time are factors influencing the outcome of the procedure.

MATERIALS AND METHODS : We present our experience in treating prostate cancer laparoscopically. The operative steps as well as the challenging

laparoscopic approach are discussed extensively.

CONCLUSION: The role of laparoscopy in Urology is expanding and localized prostate cancer is a disease which can be treated successfully with the laparoscopic approach.

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Minilaparoscopic varicocelectomy

Raghid El Khoury

Treatment of varicocele is a common procedure in Lebanon

The concept of its treatment is to block the spermatic vein. It is done mostly by conventional open surgery.

In the last decade two new approaches were used. Percutaneous retrograde sclerotherapy and laparoscopy using the 10 and 5 mm trocars and the (ligaclip).

The difference between these 3 techniques is in the post-operative period and a cost of each procedure.

In this video film an adapted laparoscopy technique is presented, using a 2mm non-disposable instruments with a bipolar forceps instead of the liga clip.

The advantages of this technique are:

- Laparoscopy permits a better viewing of the small veins often adherent to the artery. These veins are hardly visible by the naked eye.

- With this procedure we can explore the abdomen, have more precise dissection without having to suture or clip the vein

- Operating time is shorter than the conventional open surgery

- This technique can be easily done as a same day surgery; the patient will not need any analgesic drugs and will quickly return to his daily activities.

- The cost and the outcome of the procedure are comparable to that of open surgery.

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Supracostal renal access in percutaneous nephrolithotomy: how to make it safe

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Introduction: Percutaneous approach to the upper pole of the kidney provides better access to most of the intrarenal collecting system, the UPJ and proximal ureter. Spracostal percutaneous renal access has been associated , however, with a higher complication rates restricting its use so far. We came up with some technical modifications for a safer supracostal puncture and evaluated the results prospectively.

Materials and Methods: 53 patients with complex renal stones had 56 supracostal punctures for PCNL. With the patient in prone position and the system opacified, the decision of a supracostal approach was made in order to have a direct untilted access to the tip of the desired calix. A more lateral puncture site was chosen by tilting the C-Arm 35-40 degrees from vertical, the Bull's eye phenomenon achieved with the access needle. Then the Anesthesiologist was asked to take the patient under manual respiration and maintain full expiration while the needle is introduced. Acute dilation was performed with the Nephromax Balloon and Amplatz sheath placed as usual. There were 24 staghorn stones, 22 complex ones; 4 in caliceal diverticulae and 3 Endopyelotomies. A double J stent was placed at the end of the procedure.

Results: 7 punctures were above 11th rib and 49 above the 12th. The mean OR time was 100 min. 2 patients only required transfusion (3.7%) of one unit of blood and the mean drop of Hemoglobin for all patients was 1.6%. There were no intra or post-operative pneumo or hemothorax and no chest tube was required. Only 8/53 patients required a mean of 12 mg of Morphine in the immediate post-operative period. The nephrostomy tube was removed 18 hours later and the mean hospital stay was 2.4 days (2-6). The stone free rate was 84%.

Conclusion: A direct percutaneous access to the tip of an upper pole or the middle pole calix of a high riding kidney can be achieved safely by a more lateral supracostal puncture realized under full expiration.

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Transurethral prostate surgery using bipolar gyrus device (plasmakinetic) in men with benign prostatic hyperplasia

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Turkey

Refinements in technology have brought urologists closer to the goal of minimally invasive procedures that are safe and approach the efficacy of TURP, which is still considered to gold standard in surgical management of BPH. Recently, transurethral resection and vaporization with bipolar energy (PlasmaKinetic) has been introduced as a technical modification of TURP, and in this study we analyzed our long-term results with this technique.

During a 3-year period, a total of 110 men with BPH, having failed medial therapy and/or presenting with acute urinary retention, underwent transurethral prostate surgery using bipolar energy (PlasmaKinetic) under saline irrigation. Men with suspected prostate cancer, confirmed by digital rectal examination and serum PSA levels, or neurogenic bladder (eg diabetics) were not enrolled to the study. Preoperatively, I-PSS symptom score, uroflowmetry, and ultrasonography were obtained in all cases. Postoperatively, patients were seen at 1st, 6th, and 12th months with the above studies obtained at follow-up.

The mean age of men enrolled to the study was 65.7+7.1 (range: 51-78) years, and their mean prostate volume was 51.1+26.3 (range: 30-120) gram. The mean operation time was 40.6+12.0 (range: 30-120) minutes. Patients were postoperatively catheterized for a mean period of 2.1+0.7 (range: 2-5) days. The mean I-PSS declined from 22.5+3.1 preoperatively to 7.2+1.3 at 6 months, and to 7.9+1.5 at 12 months. The mean maximal flow rate increased from 5.3+3.7 ml/sec preoperatively to 18.3+3.5 ml/sec at 6 months, and to 17.2+3.9 ml/sec at 12 months. Severe irritative urinary symptoms were the most commonly observed complaints following PlasmaKinetic surgery, and were encountered in 9 (8.1%) cases, who were managed medically in 7, and needed prolonged recatheterization in 2. Bleeding necessitating blood transfusion or severe serum electrolyte imbalance were not observed in any case. Recatheterization was necessary in a total of 7 cases (6.3%) in the early postoperative period. During a mean follow-up of 18.3+6.7 (range: 12-36) months, urethral stricture formation was observed in 5 (4.5%) cases, while 4 (3.6%) men needed reoperation due to persisting obstructing symptoms. Urinary incontinence was not observed in any case during follow-up.

Transurethral surgery with Gyrus device (PlasmaKinetic) seems to be promising endoscopic minimally invasive technique for prostatic tissue removal with shorter operation, catheterization and hospitalization times. Our results also support its efficacy and durability.

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Percutaneous nephrolithotomy in the surgical management of kidney stones

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Turkey

Percutaneous nephrolithotomy (PCNL) has dramatically diminished the need for open surgery in the management of upper urinary tract stones. In this report, we assessed our initial experience with PCNL.

Between October 2002 and August 2003, a total of 98 patients with renal stones, and 2 patients with stones in the upper ureter underwent PCNL. Surgical procedures were performed with patients in prone positions on urological table under C-armed flouroscopy (Siemens SireMobile). Percutaneous renal access was done with an 18 G access needle, and guide wires (Sensor guide wire) were placed appropriately. The tract was dilated to 30 Fr with a balloon dilatator (Nephromax) and 30 Fr sheet was placed. Percutaneous stone disintegration and removal was performed with a 26 Fr rigid nephroscope and pneumatic lithotriptor (Vibrolith, Elmed). A 14 Fr nephrostomy tube was placed at the end of the procedure.

Overall, the mean age of patients enrolled to the study was 41.1+13.5 years (range: 18-75 years). There were 46 women and 54 men. The body mass index was >25 in a total of 16 patients. The size of stones treated ranged between 2 to 20 cm2. An attempt for ESWL treatment had failed in 13 cases. A total of 17 cases had a previous history of open renal surgery. Overall, the preparation and positioning period ranged between 30 to 45 minutes, and the mean percutaneous procedure time was 53.4+32.5 (range: 25-250) minutes. An overall success rate of 89% was achieved in the whole group. Complete stone removal was achieved in 59%, and clinically insignificant residual fragments were observed in 30%. As an auxillary treatment, SWL was performed in 6 cases, and Re-PCNL in 10 patients. Severe complications (bleeding indicating termination of the procedure, hydrothorax, perinephritic abscess) were observed in 3 cases. None of the procedures were converted to open surgery.

PCNL with highly satisfactory success rates up to 90%, and considerable complication rates, is the treatment of choice in large upper urinary tract stones.

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Retroperitoneal and transperitoneal nephrectomy in benign kidney disease

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Turkey

Introduction: Laparoscopic procedures gain its places in some kind of surgery in last decade also in contemporary urology practise. The aim of the study is to evaluate the results of the laparoscopic procedures on benign indications.

Material and Methods: Between October 2000 and August 2003, 19 laparoscopic nephrectomy and 1 laparoscopic right üreterolitotomy which was performed by the same surgical team were evaluated in terms of efficacy, safety and possible complications of the technique.

Results: Mean age of the patients was 41(14-68 years) and female-male ratio was 12/8. Preoperative diagnosis were atrophic kidney with kidney stones in 7 patients, atrophic kidney in 9 patients, hydronephrosis in 3 patients, lower ureteral stone in 1 patient. Right nephrectomy was performed in 11 patients and left nephrectomy was performed in 8 patients, right ureterolitotomy was performed in 1 patient. Nephrectomy was performed retroperitonealy (12 patients) or transperitonealy (8 patients). Mean duration of operation time was 120 minutes (75 - 165 minutes). There was one conservation to open surgery due to adherence of penetran trauma. Drain was placed into right ureterolitotomy. Mean hospitalization time was 2 days (1 – 4 days). Six patients need to require analgesia and treated with dolantin . There was no peroperative or postoperative complication detected in any patient.

Conclusion: Success of the laparoscopic procedures related to teaching curve. By the time, decreasing duration of operation, decreasing complication rate, less analgesic consumption, shorter convalescence, laporoscopic procedures is efficiancy, safety, minimal invasive tecnique.

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Video-assisted thoracoscopy in mediastinal diseases

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AIMS: The present study was undertaken to specifically evaluate the role of video-assisted thoracoscopy (VAT) in management of diseases of mediastinum.

METHODS: I retrospectively reviewed clinical files of all patients undergoing VAT for mediastinal disease in a single thoracic surgery department in a 13-year period. Indications for VAT, type of operation, need of conversion to open surgery, mortality or major morbidity were recorded.

RESULTS: Two-hundred-eleven VAT were performed in patients with primary mediastinal diseases or mediastinal involvement by lung tumors. They represent 20.3% of all VAT (n=1040) performed in the same period. Indications VAT for mediastinal disease were: treatment of mediastinal diseases, n=108 (51.2 %); mediastinal staging of lung cancer, n=73 (34.6%); diagnosis of mediastinal masses, n=30 (14.2%). Therapeutic VAT included treatment of mediastinal cysts, n=27; neurogenic tumors , n=18; thymus surgery, n=16; pericardial windows, n=11; exeresis of malignant tumors, n=8; chylothorax, n=7; oesophageal leyomioma, n=7; miscellaneous, n=14. Conversion to open surgery was never necessary in case of staging of lung cancer and staging was always achieved. Histological diagnosis was always obtained in patients undergoing VAT for diagnostic purposes and conversion was performed in only one case. Among the 108 therapeutic VAT, 30 needed also of minimal (n=14) or formal (n=16) open approach. Conversion was never necessary for complications of VAT. Neither mortality nor major complication occurred.

CONCLUSIONS: VAT provided fully satisfactory results in the management of patients with mediastinal diseases. It is an excellent tool for invasive staging of lung cancer. Complete removal of mediastinal tumors is in most instances possible and, when conversion to an open approach is indicated, a limited thoracotomy under video-assistance is often satisfactory. In the field of invasive diagnosis of mediastinum, VAT has excellent characteristics of diagnostic accuracy.

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Video-assisted thoracoscopic thymectomy for myasthenia gravis: single institution experience

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Thymectomy in conjunction with medical treatment, is an established therapy in the management of generalized myasthenia gravis (MG). The optimal surgical management of thymectomy remains controversial. Video-assisted thoracoscopic thymectomy (VATT) was introduced in 1992 as a minimally invasive technique alternative to more radical approaches. Several surgical approaches to thymectomy exists. These approaches are: median sternotomy, transcervical, partial sternotomy (through upper or lower sternum), Transcervical and median sternoto-

my (T-incision), and VATT. The most commonly employed procedure is median sternotomy. The advantages of VATT techniqueis the cosmetically acceptable incisions that can all be kept within inconspicuous aeras of the anatomy and a safer and easier postoperative period.

Our department has successfully employed 25 VATT related to MG from July 2002 on. Two male and 23 female patients with an avarage age of 29 (13 - 51 years) were operated. The Osserman and Genkins classification revealed that 18 patients (72%)were in stage 2 a and 7 patients (28%) were in stage 2 b. The preoperative medication was consisted of pyridostigmine bromide and corticosteroids with an avarage of 217.14 +/- 101.2 mg and 15.2 +/- 20.4 mg respectively. Seven patients had a cervical incision in addition to thoracoscopic resection. The amount of chest tube drainage was 202.8 ml. The mean length of chest tube duration and postoperative hospital stay was 31.9 +/- 27 hours and 2.6 days +/- 1.2 days respectively. Complication was noticed in 1 patient (4%) with contrlatral pneumothorax.

The presentation consists of the present experience of the authors on preoperative management, intraoperative management, surgical considerations and techniques.

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VATS (Video-Assisted Thoracic Surgery) resection for lung cancer

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Turkey

VATS is a relatively new technology that is being used abundantly for diagnostic and therapeutic purposes in thoracic diseases. However its use in lung cancer surgery is still evolving and controversial. Initially, simple wedge resections were done to diagnose small peripheric nodules, but currently a VATS lobectomy has become almost a routine procedure for small peripheral lung cancers. Published studies demonstrate several advantages of VATS over a standard posterolateral thoracotomy.

First of all a minimally invasive approach causes less inflammatory reaction. Postoperative C-reactive protein and interlukin (IL)-6, IL-8 and IL-10 levels were less in VATS groups of patients versus patients who underwent thoracotomy.1,2 Leaver et al showed that the number of circulating T (CD4) cells was higher at postoperative day 2 following VATS.3 Natural killer cells were also higher when compared to the thoracotomy group of patients at postoperative day 7.3

Significant improvements have been reported in postoperative acute and chronic pain. Landreneau reported less pain in the first 3 weeks following surgery in the VATS group of patients when compared to the thoracotomy group.4 This improvement in pain decreases the length of hospital stay. The avoidance of rib spreading in VATS is critical in decreasing perioperative pain and thus an improved recovery with decreased length of hospital stay.5 The preservation of chest musculature also improves early and late shoulder dysfunction in patients undergoing a VATS procedure which results in a faster recovery and early return to work after the procedure.6 In many studies, changes in FEV1 and FVC have been minimal following a VATS approach compared to a standard posterolateral thoracotomy.7 All of these data suggest a better overall outcome using a VATS approach.

However, there are still issues that need to be clarified. Especially the long-term survival and local recurrence data is important. Kaseda7, McKenna8 and recently Walker9 showed that survival of lung cancer following a VATS resection was identical to an open approach. Lymph node dissection can be performed during a VATS approach and locoregional recurrence is low. Initial results of a phase III intergroup protocol in USA have shown that VATS is feasible in lung cancer surgery.

Training residents and junior surgeons for a VATS anatomic lung resection is another issue which can be overcome by animal laboratory and computer-based simulations. The best training approach would be evolving skills from wedge resection to a video-assisted lobectomy via a small thoracotomy and finally to a non-rib spreading lobectomy. Lack of three-dimensional vision and staplers without multiple degrees of freedom are also issues that need to be resolved.

In conclusion, use of VATS in lung cancer surgery revealed promising results in pain, pulmonary function and hospital stay. The survival and local recurrence data needs to be reinforced with randomized studies.

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