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Resúmenes de Trabajos Libres y Video del FP-168 a FP-221

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FP-168

SMALL DIAMETER LAPAROSCOPIC PORTOCAVAL SHUNT

Padilla L, Figueroa S, Aguilar O, Esperante S, Schalch P, Avila G, Chousleb A, Di Silvio M. Centro Médico Nacional "20 de Noviembre" ISSSTE, México.

Background: To describe a small diameter (8 mm) side to side laparoscopic portocaval shunt in dogs. **Methods**: Twelve mongrel dogs of both genders were used, average weight 15 to 30 kg. Under general anesthesia a pneumoperitoneum was accomplished. Through seven trocars, dissection, clamping and 8 mm venotomies of the cava and portal veins were performed. Vascular anastomosis was performed with 5-0 prolene. In order to guarantee the diameter of the shunt a silastic® ring of 2.5 cm in length was placed and securad with 2-0 prolene which results in a controlled diameter of 8 mm. **Results:** From 12 experimental subjects, only 7 got a permeable anastomosis with complete recuperation of the intestinal ischemia. The first five cases established the learning curve to define the adequate management of the vessels and its distances, intracorporeal performance of the prolene knotting in order to complete the anastomosis. We maintained the same surgical team in all cases. There were not survival follow-up or angiographic studies, all experiments were acute. **Conclusions:** This vascular laparoscopic technique, of 8 mm portocaval shunt, offers the benefits of the minimal invasive surgery. By the application of the 8 mm silastic ring is possible to control the long term diameter avoiding dilatation of the shunt.

FP-169

TELEMENTORING: AN IMPORTANT ENABLING TOOL FOR THE COMMUNITY SURGEON

Sebajang H, Dougall A, Hegge S, McKinley C, Anvari M.

Purpose: The aim of this study was to demonstrate that general surgeons in rural settings can use telementoring as a safe and effective tool in providing advanced laparoscopic surgical procedures to their patients. **Method:** We present a series of 14 patients who underwent advanced laparoscopic surgical procedures in a community hospital between December 2002 and June 2003. In each case, the primary surgeon was telementored by an expert surgeon from a tertiary care hospital 400 km away. Real time two way audio-video communication was transmitted over various bandwidths. The procedures included ventral hernia repair (1), Nissen fundoplication (3), splenectomy (1), bowel resection (8) and a reversal of a Hartmann's procedure (1). **Results:** The primary surgeon considered telementoring helpful in all cases (median score 4 out of 5). The mentor was also comfortable with the quality of laparoscopic surgery delivered (median score 4 out or 5). Communication bandwidth was found to be critical in the quality of the telementoring process. One procedure was converted to open. There were no intra-operative complications and two post-operative complications.

	Number of patients	Length of stay	Primary surgeon's satisfaction score
Lap. colectomy	8	4.5 days	4 out of 5
Lap. Nissen fundoplication	3	1 day	4 out of 5
Lap. splenectomy	1	2 days	4 out of 5
Lap. ventral hernia	1	6 days	4 out of 5
Lap. reversal Hartmann	1	7 days	3 out of 5

All values are medians where applicable

Conclusions: Telementoring allows the community surgeon to benefit from expert intraoperative advice during the performance of advanced laparoscopic procedures. Telementoring has been demonstrated to be safe and effective. It may also reduce health care costs by avoiding the need to refer patients to tertiary care centers for advanced laparoscopic procedures.

FP-170

ROUTINE USE OF TELEROBOTIC REMOTE SURGERY

Anvari M, McKinley C.

Introduction: On February 28, 2003, the world's first telerobotic surgical service was established between St. Joseph's Healthcare Hamilton, a teaching hospital affiliated with McMaster University, and North Bay General Hospital, a community hospital 500 km North of Hamilton. The service is designed to provide telerobotic surgery and assistance by expert surgeons to the local surgeons in North Bay to improve the range and quality of advanced laparoscopic surgeries offered there and avoid the need for patient transfer. **Description:** The telerobotic surgical service uses the Zeus-TS system (Computer Motion Inc., Santa Barbara CA) and an IP-VPN (Internet Protocol-Virtual Private Network) network with 15 Mbps of bandwidth and a point to point latency of 135 ms, allowing the Hamilton surgeon to operate the three Zeus arms remotely. **Results:** To date 21 telerobotic laparoscopic surgeries have taken place between North Bay and Hamilton, including 13 fundoplications, 3 sigmoid resections, 2 right hemicolectomies, 1 anterior rectal resection and 2 inguinal hernia repairs. The two surgeons are able to operate together using the same surgical footprint and interchange roles seamlessly when desired. There have been no intraoperative complications and no cases have had to be converted to open surgeries. The mean hospital stays were equivalent to mean laparoscopic LOS in the tertiary institution. **Conclusions:** Telerobotic remote surgery is now in routine use providing high quality laparoscopic surgical services to patients in a rural community and providing a superior degree of collaboration between surgeons in teaching hospitals and rural hospitals. Further refinement of robotic and telecommunication technology should ensure its wider application in near future.

FP-171

FIRST CLINICAL APPLICATION OF A NEW MASTER-SLAVE-SYSTEM LAPROTEK© FOR MINIMALLY-INVASIVE SURGERY-EXPERIENCES OF THE CLINICAL TRIAL WITH COMPUTER-ASSISTED LAPAROSCOPIC CHOLECYSTECTOMY

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Purpose: Computer-assisted technology has been added to the laparoscopic surgery during the past years. The aim of this study was to evaluate the worldwide first clinical application of a new Master-Slave-system (Laprotek©) performing elective computer-assisted laparoscopic cholecystectomy. **Methods:** After obtaining approval of the local ethics committee, n = 10 patients have been enrolled in a prospective trial to evaluate the first clinical application of a new computer-assist-system (CAS). Data collection included demographics, set-up times, total OR-and CAS-times, intra-and postop. Complications, and surgeons evaluation of the system and instruments. **Results:** A prospective cohort study was carried out, including n = 10 patients with symptomatic cholecystolithiasis, scheduled for elective laparoscopic cholecystectomy. Mean age of 9 female and 1 male patients was 39.7 years (range 27-64 ys). BMI ranges from 20.9-34, mean 28. Mean OR-time was 125 min, including major parts of system-set-up. Total OR-time decreased from 210 min to 79 min (-63.4%). CAS-time was reduced from 121 min to 37 min, (-69.6%) during the trial. N = 2 cases were converted from CAS-surgery to conventional laparoscopic procedures (LAP). Average postoperative hospital stay was 3.9 days. In n = 2 proce-

dures system-related complications lead to conversion to conventional LAP. **Conclusions:** The new Master-Slave-system Laprotek© for minimally-invasive abdominal surgery has been proven to be safe, user-friendly and effective performing laparoscopic cholecystectomy. Clinical use of the system has shown a steep learning-curve with remarkably decreasing set-up and OR-times. Future development of the hardware and software of this novel master-Slave-system including its special surgical instruments might enable the system to perform various surgical procedures in different disciplines.

FP-172

TRANSFERENCE OF SKILL BETWEEN ROBOTIC AND STANDARD LAPAROSCOPIC SKILL SETS

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Introduction: Adoption of minimally invasive procedures in rapidly expanding across surgical specialties. These procedures involve standard endoscopic (SE) and more recently, robotic (R) techniques. To date, there is no conclusive evidence demonstrating transference of skill (TOS) between these 2 minimally invasive modalities. A pilot study was undertaken to assess whether TOS takes place, and if so, to quality the magnitude of transference. Identification of TOS between SE and R modalities may have profound implications for surgical education. **Methods and procedures:** Seven medical students naive to minimally invasive surgery (MIS) were recruited to participate, and over a period of 3-12 weeks were trained to perform the following 5 MIS taks: rope pass, cup drog, triangle transfer, intracorporeal knot tying and intracorporeal running suturing. All subjects were scored performing the tasks on both the SE and R modalities initially. Then each subject was randomized to practice for 2 hours on either the R or SE modality. Each individual was scored hourly during the training, and after the 2 hours was complete, she has then scored performing comparable tasks on the alternate modality. Thereafter, each subject practiced for 2 hours on the alternate modality, again scored after each hour of training. Data were analyzed using Student's t-test. **Results:** There was evidence of TOS. Subjects who trained with the SE modality first were found to have improved by 7% ($p = 0.02$) when they were retested on the robotic tasks. Subjects who trained on the robot first were found to have improved by striking 31% ($p < 0.001$) when their initial SE scores were compared to their SE scores after only robotic training. The TOS from the R to SE modality was found to be significantly greater than the TOS from the SE to R modality ($p < 0.01$). **Conclusions:** Our results support the perception the individuals experienced with SE techniques acquire the R skill set more rapidly. Despite the small sample size, the data demonstrate a significantly greater improvement in SE performance with R training than viceversa. These results support the inclusion of robotics in surgical training as these devices not only enable individuals with a limited MIS background to perform MIS tasks but also accelerate their learning curves with respect to acquiring SE skill sets.

FP-173

ROBOTIC-ASSISTED LAPAROSCOPIC SURGERY. INITIAL EXPERIENCE AND APPLICATIONS

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In the last decade surgery has progressed rapidly since the introduction of the video-laparoscopic surgery (VLS). It has been demonstrated that its applicability is extended to the great majority of abdominal procedures, with the advantages of minimal postoperative pain, short hospital stay and rapid return to physical activity, and with better cosmetic results. However, although it has been widely accepted, the majority of surgeons feel that their dexterity has been challenged. This is in part because of the lost of the "vision control" that is literally in the hands of the first assistant, who unintentional moves erroneously and causes lost of the surgical field, lost of horizontality, soils the scope, delays the operation and distract the surgeon. For this reasons we decided to incorporate a robotic arm, which was developed as an endoscope positioner controlled by the surgeon voice: AESOP® (Computer Motion, USA) with the aim of evaluate its applicability, efficiency and safety in our patients. **Methods:** Since 2000 we began our training in robotic surgery with different devices including AESOP®, ZEUS® and Da VINCI®. From may 26, 2003 to ags 24, 2003 we included 80 patients for robotic-assisted VLS. All the procedures were consecutive patients submitted to: cholecystectomy 36, Nissen fundoplication 22, inguinal hernia repair 6, hemicolectomy 4, appendectomy 2, gastric band 2, ovary cyst 2, hepatic and pelvic abscess 2, common bile duct exploration 2, liver biopsy 1, hysterectomy 1. **Results:** We evaluated the advantages of incorporating AESOP® to the VLS and commonly agreed: 1) Total image control by the operating surgeon with better procedure performance with less errors. 2) Shortening of the operation time by 30-45 min average/procedure. 3) Complete security, with no convertions to open surgery related to malfunction of the robotic-arm. 4) Applicability to all the surgical procedures performed in an unselected and consecutive manner during the study period. 5) Less number of surgical assistants in the operating room. **Conclusions:** In this consecutive serie of patients submitted to VLS we have demonstrated that incorporating a robotic-arm as the AESOP® has important advantages: The surgeon gains control of the surgical image, with better procedure performance that is reflected in shortening of the operation time. Applicability embraces all our common practice surgical procedures. Performing laparoscopic surgery with the robotic device is a safe practice. We concluded that incorporating the robotic arm and the new technology is very important in this new and exciting surgical era.

FP-174

TCIPAKOMAT-RL626 ROBOT. DEVELOPMENT OF ROBOTIC TECHNOLOGY AND EDUCATIONAL PROGRAMS FOR COMPUTER ASSISTED ENDOSCOPIC SURGERY IN TIJUANA

Miller HS, Acho L, Barba E, Ponce MA.

Purpose: During the months of September and October of 2002 several reunions were sustained between the Medical Sector of the HGR # 20 of the IMSS and the Engineering Department of the CITEDI of the IPN with the purpose of reviewing the possibility of the development of robotic technology for surgical applications in Baja California, Mexico. On October 10th, 2002, a speech was presented to the authorities of the CITEDI and several areas were review like Robotic Surgery, Virtual Reality, Telepresence Surgery the Intelligent OR. After a series of reunions of November of the same year, on a general way the phases of the project a robotic surgery were established. The first phase of this project was finished an was denominated Technological and Digital Development of a Robotic Arm for Surgical Application. **Methods:** Working on a very tight schedule surgeons and engineers were able to redevelop the functions of a previously built robot at CITEDI called PENTAXIS, 6 degrees of freedom system with educational purposes. The next phase consisted in transferring previously built in design to modules and electronic cards to give life to a new robot and convert an automata system to a master slave system to hold the laparoscope and have manual and voice activation control. This 100% Baja Californian system was baptized Tcipakomat (in honor of the Kumiai Indians in Yumaro dialect), was a being who emerged from the bottom of the sea and gave origin to life on earth. This first phase of the project was finished on the end of September 2003 and was presented officially to the authorities of the IMSS and CITEDI on October 7th 2003. Tcipakomat hold the laparoscope in a pelvic trainer with the Endoscopic camera and was controlled with manual and voice activation commands. **Results:** After the Engineers finished the tech-

nical portion, after almost one year of work we began a phase were a single laparoscope with out the camera was introduce to the pelvic trainer and several test were performed with the manual control. When all tests were completed Tcipakomat demonstrated to be efficient, we added the camera to the system and further test where performed. Finally the voice commands where tested with a good performance. **Conclusions:** This is the first phase of this new system; several essays are to be completed in the up coming months to perfect it. It has demonstrated to performed okay at this first phase. The future is promising.

FP-175

FIRST EXPERIENCE IN ROBOTIC SURGERY CHILDREN IN MEXICO

Nieto J, Ondorica R, Silva E, Bracho E.

Background: Laparoscopic surgery using the robotic system Zeus®, was recently introduced into surgical practice for adult patients. To investigate the feasibility of this system in pediatric surgery, laparoscopic fundoplication (Nissen) pyloroplasty, and gastrostomy were performed. **Methods:** We have reported the first seven robotic pediatric operations in Mexico with the Zeus system (two-dimensional vision system). In six children this was for the correction of gastroesophageal reflux; five were neurologically, impaired patients, and the other one underwent the correction of an esophageal atresia as a newborn and later on developed a stricture at level of the anastomotic repair due to gastroesophageal reflux. Another child underwent laparoscopic correction of a diaphragmatic retrosternal hernia. **Results:** The mean operating time for fundoplication was 146 min (range: 105-180 min), the operating times for pyloroplasty were 30 min, and that for primary closure of the diaphragmatic hernia was 60 min. No complications were registered during either the robotic procedures or the postoperative courses. **Conclusions:** Compared to conventional laparoscopy, the high quality vision, advanced instrument movement, and improved ergonomic position of the surgeon appear to enhance surgical precision. We face the challenge of performing three procedures in three different internal sites while maintaining the same access ports.

FP-176

HOW ORGANIZE AND FAST EDUCATION COULD TO BE THE REASON OF QUICKLY DEVELOPMENT IN LAPAROSCOPIC SURGERY

Ivic G, Madzic D, Scepanovic MR

Purpose: Aim of this study to show the development in laparoscopic surgery (LS), in one regional hospital, and to accentuate the reason of very fast education and initiate many new procedure. **Method:** We observed period of 1999 to 2003. In this period we analyzed the factors which contributed quickness and development in laparoscopic surgery which give number of basic and advance procedures, number of education laparoscopic surgeons and few instructor of laparoscopic surgery. **Results:** In observed period every of surgeons attended the basic course in school of YUEH Yugoslav Association for Endoscopic Surgery. After that all of theirs obtained instruction in practice by the mentor -instructor of laparoscopic surgery. Today we have eight general and four gynecological surgeon with license for laparoscopic surgery, five instructor for laparoscopic abdominal and gynecological surgery and one surgeon who finished education for advanced laparoscopic procedures. In this way of education now we initiate 10 procedures in abdominal and 13 procedures in gynecological. Our institution performed together 2032 operation with acceptable percentage of conversion and complication. **Conclusion:** Mentored education and good organize national school and good institutional organize the reason for quickly and quality a number of surgeon in our institution.

FP-177

EVALUATION POSTOPERATIVE ADHESION FORMATION IN LAPAROSCOPIC SURGERY: A COMPARATIVE ANALYSIS WITH RESPECT TO SURGICAL INSTRUMENTS

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Purpose: In this study, we evaluate the postoperative adhesion formation comparing surgical instruments by conducting animal lab with juvenile female porcine models. **Materials and methods:** Seventeen juvenile female pigs were used in the experiment, each approximately 3 mounths old, weighing 34 to 44 kg, and were administered PMSG 2000 E before the surgery. All the animals were intubated under general anesthesia and bilateral laparoscopic uterine horn resection with CO_2 insufflations conducted. The laparoscopic procedures were carried out using endoscopic stapling device, endo loop suture ligature, monopolar electric forceps, bipolar vessel sealing system, and ultrasonically activated scalpel. Twelve days after the laparoscopic surgery, all 17 pigs underwent a laparotomy, to analyze the degree of adhesion formation of the 34 distal ends of the uterine horn stump comparing the above 5 surgical instruments. Each degree of adhesion was scored in points as follows; no adhesion at the end of the uterine horn stump = 0, filmy avascular adhesions = 1, connective tissue band between organs = 2, adhesions involving 1 of the following, urinary bladder, bowel, uterus = 3, more than 2 parechymatous organs with dense adhesions = 6. Kruskal-Wallis test was utilized as the method for statistical work. **Results:** The adhesion degree range for the cases in which the endoscopic stapling device was used, was from 0 to 1 point (average 0.12 points, n = 8). The adhesion degree range for the other devices were as follows; endo loop suture ligature: from 0 to 2 points (average 0.33 points, n = 6), monopolar electric forceps: from 2 to 6 points (average 3.12 points, n = 8), bipolar vessel sealing system; 0 point average (0.00, n = 6), ultrasonically activated scalpel: from 0 to 3 points (average 1.16 points, n = 6). We found a statistically significant difference between all the 5 instruments ($p < 0.001$). **Conclusions:** The postoperative adhesion formation was decreased in the order of monopolar electric forceps > ultrasonically activated scalpel > endo loop suture ligature > endoscopic stapling device > bipolar vessel sealing system. The importance of selection of surgical devices was suggested as a factor to avoid the formation of adhesions following laparoscopic surgery.

FP-178

SHOULD WE TREAT COLORECTAL CANCER WITH. LAPAROSCOPIC RESECTION?

Trevino JM, Franklin ME, Berghoff KR, Glass JL.

Introduction: Despite the tremendous popularity and recognized benefits of laparoscopic surgical techniques in the treatment of many intraabdominal disorders, there has been significant skepticism in their application for the treatment of colorectal cancer. However, the last few years have brought an enormous amount of enthusiasm toward laparoscopic surgery, especially for the treatment of colorectal cancer. Recently, there have been numerous reports from authors describing their experience with laparoscopic colectomy for colon cancer and have shown outcomes superior to open colectomy, while maintaining good oncologic principles. The aim of this work is to present data to demonstrate the feasibility and efficacy of laparoscopic colorectal surgery for the treatment of cancer. **Material and methods:** We compiled data from our greater than ten year experience of laparoscopic colon resection for cancer, and present information about why this approach to colon diseases is a better alternative than open colectomy, **Conclusions:** The laparoscopic approach is a safe and effective treatment for colorectal cancer that has

survival rates equivalent to open colectomy. This is all in the setting of shorter hospital stays, less pain, and quicker return to normal activity. We believe that laparoscopic colon surgery will eventually become the gold standard for the treatment of both benign and malignant colon disorder.

FP-179

PROTOCOL OF LAPAROSCOPIC COLORECTAL SURGERY RESULTS OF AN INITIAL EXPERIENCE IN CHILE

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Purpose: To report the initial experience of laparoscopic approach in colorectal surgery performed in a Chilean hospital. **Methods:** We introduced in September 1999 a prospective protocol of laparoscopic colorectal surgery that considered two stages of increasing technical requirements in patients selected according to type of surgery, and curative intent for oncologic cases (second stage) In the first phase we performed lower complexity surgeries such as ostomies, rectopexies. Hartmann's reversal, and segmental colectomies. During the second one, we included curative intent oncologic surgeries, total cholectomies for slow-transit constipation and hereditary colorectal cancer (HNPCC and FAP). **Results:** Up to July 2003 we have operated on 85 patients, fifty three percent were women. The mean age was 54 years old (range: 8-89), the mean body mass index was 25.2 kg/m^2 (r:19 2-35.4) and 53% had previous abdominal surgeries. All were elective procedures and 5 1% of patients were classified in group 1 of the American Society of Anesthesiology (ASA). Twenty two percent were ASA II and 7% ASA III. Thirty patients were operated on for diverticular disease (35%), twenty (24%) for colorectal cancers (sixteen of them were oncologically curative resections), ten (12%) were rectopexy, eight (9%) were Hartmann's reversal and 17 were surgeries for other diagnosis. In 63 patients (75%) we performed a bowel resection, (Thirty six sigmoidectomies, eleven hemycolectomies, eight total colectomies and six rectal resections). In 69 patients a mechanical intestinal anastomosis was performed. The mean operative time was 3.4 hours, the conversion rate to open surgery was 6%. The postoperative complication and mortality rates were 18% and 1.2% respectively. Seventy percent of patients did not require intermediate or intensive care. None patients experienced anastomotic leakage. The median hospital stay was of 5 days. The mean time for parenteral analgesia administration was 2.6 days. The mean time for passing flatus and for liquid oral feeding was of 2 and 2.7 days respectively. None of the twenty patients operated on for cancer experienced tumoral recurrences at port sites in a mean observation time of 28 months. **Conclusion:** Laparoscopic colorectal surgery is safe and feasible, and its introduction in a protocol of increasing technical difficulty can help in the learning curve. We did not experience recurrences in port sites of the patients operated for colorectal cancer.

FP-180

LAPAROSCOPIC-ASSISTED RESECTION FOR COLORECTAL CANCER AS A ROUTINE PROCEDURE

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The aim of this study is to report the results of 310 consecutive colorectal cancer (CRC) resections performed by the same surgical team between April 2001 and September 2003. We applied laparoscopic-assisted colorectal resection (LAC) with lymph node dissection (D2/D3) for advanced CRC as well as early CRC with DI lymph node dissection where endoscopic mucosal resection was not indicated. Invasion to the adjacent organs (T4), bulky tumor (>7 cm), extensive lymph node involvement, bowel obstruction, or advanced lower rectal cancer were excluded from the indication of LAC. LAC was performed in 183 (63.5%) patients out of 310 CRC patients, 118 (66.5%) out of 188 patients with colon cancer and 65 (59.0%) out of 122 patients with rectal cancer. Conversion to open surgery (OS) was 14 patients (6 for T4, 1 for intestinal adhesion, 1 for bulky tumor, etc). No significant difference between LAC and open surgery was found in operation time. One patient died of liver failure due to cirrhosis within 30 days after surgery. In patients treated with LAC morbidity was 21.1 % including 10 ileus, 6 leakage, 6 nerve injury, etc, meanwhile in patients treated with OS morbidity was 25.2% including 13 ileus, 5 leakage, 5 delirium, etc. In all other cases, the immediate postoperative course was uneventful with a hospital stay of 8 to 14 days and quick resumption of physical activity. Although OS was indicated to far-advanced CRC in this study, LAC for advanced CRC was comparable to OS in terms of operation time and morbidity. LAC for advanced colorectal cancer is a feasible and safe operation with an acceptable complication rate. Recurrence rate or long-term functional outcome needs longer follow-up.

V-181

VIDEOLAPAROSCOPIC RECTOSIGMOIDECTOMY FOR COLON CÁNCER

Valle SJA.

The advantages of the laparoscopic surgery has transformed the morbimortality in the persons with colon cancer, offering excellent results. We show the laparoscopic technique in a patient with sigmoides cancer, using 4 ports, we show the liberation and mobilization of the left colon, the wide lymphadenectomy of the pelvic floor that we can achieve thanks to the images magnification, you can appreciate the esqueletization and section of the distal colon with endo GIA, also the extraction of the piece through a small Phannestiel incision and then the internal mechanical anastomosis under vision, is proven the staunchness of the suture as the last step of the intervention.

FP-182

LAPAROSCOPIC APPENDECTOMY

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Objective: To analyze the results obtained with the laparoscopic appendectomy in a trial of 130 cases from 1997 to August 2003. Comparing the results with the papers of the literature to qualified the safety and security, to establish the advantages upon the open appendectomy. **Background data:** The laparoscopic appendectomy is a technique that the past ten years has proof his safety and efficacy to resolve the problems of vermiform appendix. **Methods:** Prospective trial of 130 patients with probability or diagnostic of acute appendicitis approach to laparoscopic appendectomy. With statistical analysis of the data. **Results:** 130 patients, 54 male, 76 female, average age 30.8, diagnosis of acute appendicitis before surgery of 70%, and with abdominal pain 30%. Of the data obtain only the total count of leukocytes have the statistical value in the diagnostic of acute appendicitis. The average of surgical time was of 70.7 minutes, and the lenght of hospital stay 74 hours. Diagnosis of acute appendicitis in 83%, normal appendix 10.3%, another pathology 6.7%. Conversion rate of 5.5% (7 patients). Abscess 3, peritonitis 1, hemorrhage 1, laceration 2. Morbidity of 3.7% wound infection. Mortality 0%. **Conclusions:** Tho surgical indications for the laparoscopic appendectomy are the same that for open surgery. The technique is safe and effective that can be carried out in any patient, still in cases of perforated or gangrenous appendicitis. The success is depend of the experience of the surgical team. The wound infection, recovery time, postoperative pain are less in the laparoscopic appendectomy.

FP-183

LAPAROSCOPIC APPENDECTOMY IN COMPLICATED APPENDICITIS

Staltari JC, Andreatta JC, Fenoglio D, Panettieri C, Chierichetti D, Mendoza E, Dematteis F. Clínica Colon. Mar del Plata, Argentina.

Background: Complicated appendicitis defined as peritonitis, diffuse or localized abscess, are associated with a higher postoperative complication rate. Its management by videolaparoscopic technique is still controversial. **Purpose:** To analyze videolaparoscopic management of complicated appendicitis. **Material and methods:** From January 1997 to January 2003, acute abdomen with RLQ tendencies accounted for 814 admissions, where 787 (96.68%) suffered appendix disease, 685 in the form of acute appendicitis, 78 diffuse peritonitis, 14 localized peritonitis and another 10 with abscesses. **Results:** 102 patients were operated for complicated appendicitis, performing on them laparoscopic appendectomies, peritoneal lavage and drainage; in one instance a cecostomy was also necessary. Male gender prevailed, mean age 37 year old. Conversion 4 patients (3.9%). Pathology reports predominating were flegmonous perforated and gangrenous appendicitis. **Complications:** 8 intraabdominal abscesses (7.84%), 1 bowel occlusion, 1 ileal fistula, 1 cecal fistula, 2 cellulitis, 4 postoperative ileus. Ten patients needed relaparoscopies for lavaging and draining in 8, enterolisis in 1 and enterorrhaphy in 1. No mortality reported. Mean stay was 5.52 days. **Conclusions:** Videolaparoscopy allows for a better diagnosis in acute abdomen. In peritonitis allowed for a correct lavage and suction of all abdominal cavity compartments with minimal trauma. Low rate of wound infection and of a lesser degree. Complications were manageable by new laparoscopy. It requires an experienced team and adequate instruments available.

FP-184

COMPLICATIONS IN LAPAROSCOPIC APPENDECTOMY

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The endoscopic surgery for acute appendicitis is a most frequent procedure used in many hospital. In spite of reporting its benefits, this procedure may has postoperative complications. The objective of this work is report the incidence of postoperative complications with this procedure and the characteristics of those in order to evaluate the differences between open surgery and endoscopic surgery. The files of 305 patient were checked, all of them operated with laparoscopic appendectomy from May 1995 to July 2003. The analyzed variables were: transoperative foundings, handle of appendicular stump, using of drainage begining of the oral feeding, hospital staying postoperative complications, reoperating. The obtained results were: complicated appendicitis (perforated with purulent liquid and or fecaloid free in cavity) in 37 cases (12%), the handle of appendicular stump was: Pouchet type in 192 cases (62%). Halstead in 85 cases (28%), ligature of appendicular stump and suture type Zuckerman 28 cases (9%); drainage Jackson Pratt and Penrose were uses in 65 cases (21%), begining of the oral feeding was in average at 18 hours the average of hospital staying was of 48 hours, the postoperative complications were; 4 cases of residual abscess (1.3%). Eight infections of surgical wound (2.6%). Five cases of *atelectasis* (1.6%), 3 cases of post incisional hernia (0.9%). Five reoperatings were done by residual abscess in 3 cases, *dehiscencia* of appendicular stump in 1 case, intestinal obstruction in 1 case: 2 of those were by laparoscopic surgery. The findings show the same characteristics of the complications reported in open surgery, but in spite of this, the benefits of the minimum invasion are still evident in relation to decrease surgery trauma aesthetic results, less time of postoperative incapacity.

FP-185

A PROSPECTIVE STUDY OF EARLY LAPAROSCOPIC APPENDICECTOMY FOR AN APPENDICEAL MASS IN CHILDREN

Goh BKP, Chui CH, Jacobsen AS.

Background: The management of an appendiceal mass remains controversial with 2 schools of thought; early surgical intervention versus non-operative management with or without interval appendicectomy. The aim of this prospective study is to determine the role and safety of early laparoscopic appendicectomy (LA) in children with acute appendicitis presenting with an appendiceal mass. **Methods:** Between May to October 2003, LA was attempted in 88 consecutive pediatric patients with suspected appendicitis including 22 patients who presented with an appendiceal mass. All the surgeries were performed by the residents or consultants in general pediatric surgery rostered on the day of patients' admission. The data was collected prospectively and statistical analysis performed using Chi-squared and Mann-Whitney U tests. **Results:** A total of 88 patients with a mean age of 10 $\pm$ 3 years (range: 3-16 years) underwent LA for simple appendicitis (n = 36), complicated appendicitis (n = 23), an appendiceal mass (n = 22) and a normal appendix (n =7). There were 7 conversions to open appendicectomy, 3 of which occurred in patients with an appendiceal mass. There were no perioperative or postoperative mortalities. Morbidity occurred in only one patient who underwent LA for perforated appendicitis. The patient had prolonged sepsis which resolved after 2 weeks of intravenous antibiotics. None of the patients with an appendiceal mass developed complications. Patients who underwent early LA for an appendiceal mass had a statistically significant ($p < 0.05$) longer operating time (median [interquartile range]: 102.5 [90-151] *vs* 86.5 [71-112] min), prolonged time to ambulation (median [interquartile range]: 2 [2-2.5] *vs* 1 [1-2] days), increased time to resumption of diet (median [interquartile range]: 4 [3-5] *vs* 2 [2-3] days) and longer postoperative stay (median [interquartile range]: 6 [5.5-6.5] *vs* 4 [3-5.5] days) compared with patients with non-mass-forming appendicitis. However, there was no statistical difference in these parameters when LA for an appendiceal mass was compared with LA for complicated appendicitis (perforated and gangrenous). Early LA for an appendiceal mass was also associated with a higher conversion rate of 13.6 % versus 6.1 % for non-mass-forming appendicitis although this was not statistically significant. **Conclusion:** Although early LA for an appendiceal mass is undoubtedly a technically demanding procedure, it can be performed safely in children with minimal morbidity and mortality. In an era where, patient demand for 'key-hole' surgery is rising, early LA is a safe and viable option in the management of children with an appendiceal mass. It also offers the advantage of avoiding the need for a second hospitalization and avoids misdiagnoses.

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LAPAROSCOPIC *VS* OPEN APPENDECTOMY: TWO CENTER EXPERIENCE

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Purpose: Compare the outcome of patients in two different institutions undergoing laparoscopic *vs* open appendectomy to the ones reported in the literature. **Methods:** Prospective, non-randomized, comparative trial from Jan. 1991 to Jan. 2003 in two different private institutions. Several variables were analyzed; statistical relevance was calculated. **Results:** A total of 1,347 consecutive patients with diagnosis of appendicitis underwent appendectomy. Laparoscopic appendectomy was performed in 879 patients and an open appendectomy was performed in 468 patients. Females in reproductive age group: 259 in laparoscopic appendectomy group and 195 in open appendectomy group. In the reproductive female group that underwent laparoscopic approach gynecologic pathology was found in 24%. Operative time: 55 min. (16-75 min) in the laparoscopic

group; 38 min (35-55 min) in open group. Length of stay: 1.8 days (1-3 days) in the laparoscopic group: 2.3 days (1-7 days) in the open group. Diagnosis of appendicitis by pathology report: 774 (88%) positive for appendicitis in the laparoscopic group, complicated appendicitis (peritonitis, perforated, appendicular abscess) was present in 93 cases (10.5%); diagnosis for appendicitis in open group was 403 (86%) and for complicated appendicitis was 98 (21%). Postoperative intraabdominal abscess formation: 9 (1.97%) patients in the laparoscopic appendectomy group (treatment: 2 underwent laparotomy, 7 percutaneous drainage); 4 (.85%) patients in the open appendectomy group (treatment: 4 underwent laparotomy). Specimen placed in bag for extraction was performed in 691 patients (78.6%) of the laparoscopic appendectomy group. In 20 (2.27%) patients of the laparoscopic appendectomy group abdominal wall abscess developed, in 11 of these patients the specimen was not placed in bag for extraction. Conversion rate from laparoscopic appendectomy to open appendectomy was performed in 37 patients (4.2%). **Conclusions:** In our study there is no significant difference in the presence of intrabdominal abscesses between the laparoscopic and conventional group when compared to the ones reported in the literature. Patients with postoperative intraabdominal abscesses were patients that presented with complicated appendicitis (perforated, appendicular abscess, peritonitis). The use of specimen bag extraction diminished abdominal wall infection rate. In reproductive female group the laparoscopic approach was a valuable diagnostic and therapeutic procedure.

FP-187

MORBIDITY OF LAPAROSCOPIC SURGERY IN COMPLICATED APPENDICITIS AN INTERNATIONAL STUDY

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Laparoscopic appendectomy (LA) now widely used, has several advantages over open appendectomy (OA), at the expense of increased direct cost, and in some papers a slight increase in surgical time and residual abscesses (IAA), both remain a controversial issue. To document the infectious morbidity in LA in complicated appendicitis (CA) a collective multi-institutional international study was done. **Material and methods:** 4 groups from 3 different countries participated in a retrospective review of CA only: Gangrenous (G), local perforation/localized peritonitis (LP), diffuse peritonitis (DP), with or without abscesses (A) and bowel obstruction (SBO). Complications reported: mortality, length of procedure, IAA type of drainage, port site cellulites/abscess (PI), days of hospitalization (HS), conversions to laparotomy and reoperations. **Results:** A total of 509 patients were reported of which 190 had G, 204 LP, 115 with DP, with 44 A and 4 SBO. Mortality 0, IAA: 7 (1.4%) of which 4 required relaparoscopy and 3 drained by guided puncture. PI: 17 (3.4%), HS ranged from 3-18 days (a:3.7), time of operation ranged from 30-132 min, (a:62), conversion to laparotorny: 7 (1.4%). **Discussion:** 44 complications (8.6%) including IAA (1.4%), in CA compare favorably with results published and is in agreement with several meta-analysis of new prospective randomized studies. Adequate equipment, instruments and considerable experience and skills are required to perform any endoscopic advanced surgical procedure such as LA in CA and a learning curve has been shown for all of them in the last 14 years. PI, reoperations and conversion are the accepted rates but IAA are surprisingly low. It is precisely in CA where the advantages of thorough inspection and irrigation under direct vision and debridement of the entire peritoneal cavity are used in benefit of the patient. If this is not done, residual sepsis is the consequence. A better preserved immune system in LA can also explain these results. A final answer could only be given in a double-blind, prospective, randomized study very difficult to carry out. **Conclusion:** LA infectious complications in CA including IAA in experienced groups compare favorably with those of OA.

FP-188

HOW CAN WE PREDICT CONVERSION IN LAPAROSCOPIC COLORECTAL SURGERY? EXPERIENCE IN 951 PATIENTS CONSECUTIVE PATIENTS

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Laparoscopic surgery has become a feasible approach to colorectal surgery. The purpose of this study was to assess factors predicting conversion to open surgery. **Methods:** Risk factors for conversion were analyzed from a prospective database of a series of 951 consecutive laparoscopic colorectal procedures between 1993 and 2003 (406 females [42%], AGE: 68 [21-94]) including age, gender, ASA classification, date of surgery, diagnosis, previous surgery, neoplastic disease, type of surgery and experience of the surgeon. In case of tumors we analyzed the influence of location, size, wall penetration, distance form the anal verge, presence of metastases, previous radiotherapy. Logistic regression analysis univariate and multivariate was used to test predicting factors for conversion. Variables affecting only neoplastic disease were considered separate. **Results:** A laparoscopic approach was done in 616 patients for neoplastic disease (64.7%), and 335 for benign or inflammatory disease (35.3%). Conversion to open surgery was performed in 117 of 951 interventions (12.3%). Highest rates of conversion were observed in low anterior resections (LAR) (23.9%), infiltration of adjacent organs (60%), tumors below 10 cm (30%) and preoperative radiotherapy (27%). Univariate analysis found significant predictors of conversion, age; (OR: 1.01 [1.01-1.03]), ASA III-IV (OR: 187 [1.22-2.88]), surgeon experience (OR: 4.12 [2.73-6.22]), neoplastic disease (OR: 2.55 [1.29-5.05]), LAR (OR: 2.77 [1.77-4.33]). In neoplastic patients: tumor size (OR: 1.25 [1.10-1.35]), T3-T4 lesions (OR: 2.77 [1.39-5.53]), resection of adjacent organs (OR: 12.47 [3.67-42.35]) and preoperative radiotherapy (OR: 3 [1.76-5.05]). Right hemicolectomy was a protective factor (OR: 0.34 [0.18-0.65]) with a conversion rate of 6%. Multivariate analysis found surgeon experience (OR: 197 [1.56-2.49]) and LAR (OR: 2.52 [1.4-4.3]) as independent predictors of conversion. Separate multivariate analysis including variables related to cancer confirmed tumor size (OR: 1.29 [1.12-1.49]), surgeons experience (OR: 1.7 [1.15-5.34]) and wall infiltration (OR: 2.48 [1.15-5.34]), as independent predictors of conversion. **Conclusion:** This study confirms surgical experience and LAR as the most important predictors of conversion in laparoscopic colorectal surgery. Based on this results, big tumors, advance cancer stage and low rectal location should be considered as difficult patients to start laparoscopic series.

V-189

LAPAROSCOPIC REPAIR OF A TYPE III-IV HIATAL HERNIA WITH COMPOSITE (TIMESH TC) MESH

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Hiatal hernias are classified as type I, II, III and IV according the Allison's criteria. The type III-IV has component of both papesophageal and sliding hernia. This type of hiatal hernias may be associated with life threatening mechanical problems. Elective repair is recommended at the time the condition is diagnosed. There are a number of proven traditional operation that can be performed through the chest or abdomen but the role of laparoscopy is debated. We present in this video a case with our personal technique for repair of type III-IV hiatal hernia. By the laparoscopic route using tension free method with composite (TiMeshTC) mesh. The patient was placed in a modified lithotomy position. Five trocars were used: one (10 mm) about 3 cm above the umbilicus, one (10 mm) in the sub-

xiphoid area, one (10 mm) below the left costal margin at the midclavicular line, one (5 mm) in the right quadrant and one (5 mm) on the subcostal left anterior line. The herniated stomach and a portion of the colon with the omentum were reduced into the abdomen by gentle traction after solution of adhesion formations. As the next step the short gastric vessels were divided. The hiatal defect was clearly prepared and its size measured. An oval sheet (15 x 10 cm) of fenestrated TiMeshTC was used for the tension free repair of the defect. A radial slot with a 3 cm defect in the center of the oval (keyhole) was cut into the TiMeshTC. The prosthesis was pushed into the abdominal cavity and placed around the gastroesophageal junction with the esophagus coming through the 3 cm defect and the keyhole slot oriented and anteriorly. The mesh was stapled to the diaphragm and the crura by means of ProTac stapler. The two leaves of the keyhole are sutured to each other. In the presented case the associated reflux required a Nissen fundoplications, which was performed as the last step of the procedure. The postoperative recovery was uneventful. At the 1 month follow up no complaints were mentioned, and the barium contrast study of the upper gastrointestinal tract did not show recurrence. Authors conclude; the laparoscopic tension free repair of large hiatal hernias with mesh may be a real alternative for reconstruction.

FP-190

VIDEO DEMONSTRATION: LAPAROSCOPIC REPAIR OF A PARAESOPHAGEAL HERNIA

Boushey RP, Burpee S, Kumar D, Poulin EC, Schlachta CM, Mamazza J.

Background: Paraesophageal hernias (PEH) are associated with significant patient morbidity and mortality. Over the past decade, traditional surgical approaches to this problem, including celiotomy or combined thoraco-abdominal approaches, have been replaced with novel laparoscopic techniques. Although these laparoscopic approaches have been shown to be associated with reduced post-operative pain, shorter hospital stay, and improved patient recovery, considerable variation in both peri-operative outcomes and hernia recurrence rates have been reported in the literature. The objective of this video is to demonstrate our surgical technique of laparoscopic paraesophageal hernia repair. **Methods:** The patient is a 61 year old female that presented with dysphagia and epigastric pain. Preoperative work-up included a UGI series, gastroscopy, and a CT scan. The key principles demonstrated in this video include correct patient positioning, technique for hernia reduction, dissection of the hernia sac from the hiatal margin, esophageal mobilization, and fundoplication with fundopexy. In addition, segments of video demonstrating closure of the difficult hiatus with pledgets and dual composix mesh are discussed. **Results:** Select powerpoint slides have been incorporated into our video presentation that summarize our institutional experience involving 58 consecutive patients between June 1998 to September 2002. Post-operative complications included 2 esophageal leaks, 1 ileus, 1 umbilical hernia, 3 pulmonary and 2 cardiac complications. Nineteen patients were completely asymptomatic following surgery, while the majority of the remaining subset of patients (83%) described marked symptom improvement with a mean follow-up of 24 months. UGI series performed in symptomatic patients identified 5 recurrent paraesophageal hernias (8.6%) and 5 small sliding hernias (8.6%). **Conclusions:** Our video demonstrating the technique of laparocopic repair of PEH is associated with low morbidity, improved long-term symptom relief and acceptable recurrence rates.

V-191

LAPAROSCOPIC TREATMENT OF PARAESOPHAGIC HERNIA WITH INTRATHORACIC STOMACH WITH REINFORCEMENT WITH A PTFE PATCH

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One of the better indications for laparoscopic approach are surgical diseases of the gastroesophageal junction. Type II and IH hiatal hernias (paraesophageal) and multivisceral hiatal hernias) can also be treated by laparoscopic approach, in spite of the increased technical difficulty and a higher incidence of recurrence, up to 40%. Some controversy exists about the type shape or placement of the mesh. **Aim:** To show the technique for placement of a reinforcing PTFE hiatal patch. **Clinical case:** A 72 y-old women, obese (106 kg) was admitted for a short history of progressive dysphagia, retroesternal pain and anemia. Gastroscopy and barium meal showed a large hiatal hernia containing a gastric volvulus. **Surgical procedure.** Six trocars, reduction of the viscera from the hernia sac. The sac is excised after incision of the peritoneum at the left diaphragmatic crura. The sac is gently retrieved facilitated by the pneumoperitoneum. Once the sac is reduces, the esophagus was found, and closure of the crura and a Nissen fundoplication is performed. A 7 x 13 cm PTFE patch with a window for the passage of the esophagus is placed around the esophagus covering widely the hiatal closure and encircling the esophagus. The patch is fixed cautiously with spiral staples. **Conclusion:** Periesophageal PTFE patch placement may reduce the incidence of recurrences. Furthers studies are needed to assure the efficacy of this approach.

FP-192

HELLER CARDIOMYOTOMY WITH POSTERIOR FUNDOPLICATION

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Background: Achalasia is an esophageal motor dysfunction characterized by the absence of esophageal peristalsis with incomplete relaxation of the EEI of idiopathic cause. Medical treatment offers temporary relief of dysphagia and associated symptoms, contrary to the laparoscopic surgical treatment, which offers definitive resolution with low morbidity. **Patients and methods:** Patients operated on from January 1997 to July 2003, of laparoscopic Heller cardiomyotomy with fundoplication were included in this study. Variables analyzed were: age, sex, surgical procedure, complications and postoperative course. **Results:** Thirty two patients were included, 21 women (65.6%) and 11 men (34.4%), with age 45.7 year-old average, with dysphagia as the main symptom, endoscopy and manometry demonstrating achalasia. We performed cardiomyotomies with anterior fundoplication (22%), 24 with posterior fundoplication (75%) and 1 myotomy alone (3%). Surgery has shown appropriate results in the patients with cardiomyotomy and posterior fundoplication in 100% of the cases, except 2 patients with cardiomyotomy and anterior fundoplication (6%) that required of later dilations and 1 patient (3%) who required later reoperation. **Conclusions:** Surgery is the most effective treatment to correct dysphagia since it is definitive, in comparison to treatment with dilations and botulinum toxin, since these alone have shown a temporary effectiveness. Laparoscopic approach is the gold standard treatment for this pathology, showing less hospital stay. It is still controversial which type of fundoplication should be added to the myotomy. However, we consider that patients treated with posterior fundoplication have good results.

V-193

CHEMICAL ABLATION OF CELIAC AXIS. LAPAROSCOPIC TECHNIQUE

Statti M, Ramos R, Benavides F, Capellino P, Pierini L.

Background: Celiac axis block for pain management was first described by Kappis in 1919, using percutaneous approach. After that Lillimoe in 1986 demonstrated its usefulness to take control of pain in irresecable pancreatic neoplasms. **Objective:** To show celiac axis chemical ablation technique by laparoscopic approach. **Design:** Video. **Setting:** Private Hospital affiliated to Buenos Aires

University. **Technique:** American position was used making the pneumoperitoneum with CO_2 pressure of 10 mmHg. Three ports were used: 10 mm right paraumbilical port, 5 mm left paraumbilical port and 5 mm epigastric port. Neddle introduction was carried out at epigastrium and after identification of caudate lobe, puncture is maked between inferior vena cava and the aorta. Twenty milliliters of ethylic alcohol 50% were injected carefully. **Results:** Thirty two patients underwent laparoscopic chemical ablation of celiac axis. No morbidity or mortality related to the procedure were recorded. Important relief of pain was achieved. **Conclusion:** Laparoscopic chemical ablation of celiac axis is feasible and safe.

V-194

PARAESOPHAGEAL HIATAL HERNIA

Astudillom R, Astudillo A.

The paraesophageal hiatal hernia is a rare presentation of hiatal sometimes they course without symptoms, but when they do, they can be catastrophic. In this study we make a review in a 8 year period (April 1995-June 2003). In Hospital Latinoamericano, Cuenca-Ecuador, focusing in ethiology, types, clinics, diagnosis and treatment. The study group (176 patients) had GERD, 82 patients had Hiatal-Hernia, an 9 of the them had paraesophageal hiatal hernia. We recommend TOUPET technique as the best one, because it accomplish with the criteria of reposition in paraesophageal hiatal-hernia type II and III.

V-195

UP SIDE DOWN STOMACH-LAPAROSCOPIC SOLUTION WITHOUT LENGTHENING PROCEDURE

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We present our experience in the field with diagnosis and laparoscopic solution of 35 hiatus defects of the type up side down stomach, based on 1,845 laparoscopic operations made at a single hospital for GORD et hiatal hernias. Altogether 1,630 - 88,34% - hiatus defects were identified, 1,186 axial and 409 mixed hernias. The diagnosis of Up side down stomach was verified by X-ray contrast examination and endoscopy. There were used laparoscopic operations with an emphasis on stomach and distal part of oesophagus deliberation, suture crus and fundoplication of the type Nissen **-** Rossetti as a standard method. In four cases we furthermore used a laparoscopic gastropexy and in 13 cases we reinforced the suture of crus with small mesh application. We made conversion to the classical operation once. The results are very good. Three times were early hernia recurrence, twice we reoperated laparoscopically and once we performed resection of cardia. We didn't use any lengthening procedure. **Conclusion:** On the basis of our experience we consider the laparoscopy to be the first-option method for the solution up side down stomach. We didn't have to use any lengthening procedure.

FP-196

MIDTERM ANALYSIS OF THE QUALITY OF LIFE AND SAFETY OF LAPAROSCOPIC REPAIR OF LARGE SLIDING AND PARAESOPHAGEAL HERNIA

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Introduction: Laparoscopic surgery is the gold standard treatment for gastroesophageal reflux associated to small hiatal hernia. Paraesophageal and big sliding hernias can also treated through a laparoscopic approach, but they are more demanding technically, and long term safety has been questioned. **Objective:** To asses the midterm results of laparoscopic repair of paraesophageal and big sliding hernias. **Material and method:** All patients operated for a large sliding or paraesophageal hiatal hernia and prospectively recorded on a data base between feb-98-apr-02. During April 2000, an interview was performed and 3 quality of life test were passed (DeMeester, Gastrointestinal Quality of Life Score (GIQL) and SF 36. Simultaneously a barium swallow was performed. **Results:** 40 patients were operated, with a mean age of 68 years (22-81). Any patients was converted, and one patient was reoperated due to hemorrhage. After a mean follow up of 29 m (1-50), 8 patients presented a radiological recurrence (8/40, 20%), and 4 of them, with associated symptoms, requiring medical therapy, and one a reoperation. Mean value of the DeMeester score (Optimum 0-worst 8) was 1.9, and mean value for GIQL was 112 (Normal > 72-140). **Conclusion:** Laparoscopic surgery of giant and paraesophageal is safe and is followed of a good digestive quality of life. However, the technique is demanding, and is necessary further studies to select patients that need a simple or reinforced repair (mesh), to avoid a number of recurrences.

FP-197

LAPAROSCOPIC TREATMENT OF GASTROESOPHAGEAL REFLUX DISEASE: POTENTIAL BENEFITS FROM COLLABORATION BETWEEN THE SURGEON AND THE GASTROENTEROLOGIST

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Introduction: Gastroesophageal reflux disease (GERD) affects million of patients each year and has long been recognized as a significant public health concern. Even though medical therapy is the first line of management, surgical treatment has been gaining acceptance in specific cases. However, the criteria for surgical therapy are not often the same for surgeons and gastroenterologists. **Objective:** To review the results of patients with GERD who underwent laparoscopic anti-reflux surgery, in cases where operative indications were considered collaboratively by the surgeon and gastroenterologist. **Methods:** Beginning in October 1998 we kept a prospective database on 57 patients who underwent surgical treatment. In all cases the surgical technique performed was Laparoscopic Nissen Funduplication. GERD was documented in all patients, either clinically, by diagnostic studies, or both. Indications for surgery were: Complications of GERD (stricture, grade III or IV esophagitis); atypical symptoms and reflux documented on 24 hour pH monitoring; failing medical management or recurrent symptoms after suspending medical therapy. Data collected were age, sex, primary symptoms, evolution, endoscopic findings, results of 24-hour pH monitoring, operating room time, length of hospital stay, outcomes in terms of patient satisfaction and symptom relief, morbidity and mortality. All procedures were done by the same surgeon. **Results:** Among the most frequent digestive symptoms found were, heartburn (80%), regurgitation (50%), dysphagia (27%) and belching (15%). Non typical symptoms were pharyngitis (69%), cough (37%), and aspiration episodes (26%).

Results NISSEN Funduplication (N = 57 patients)	
Mean Age	40
LES (mean pressure in mmHg) (57 of 57 patients)	7 mm
24-hour pH Monitoring (mean DeMeester score) (52 of 57 patients)	22%
OR time (average minutes)	110 min.
Hospital stay (mean)	1.9 days
Symptoms relieve (%)	94%
Postoperative dysphagia (6 weeks)	4%
Bloat syndrome (6 weeks)	2%
Conversion	0%
Mortality	0%

The most frequent pre and postoperative complications were bleeding at the trocar insertion site (6%), hepatic laceration (4%), and urinary infection (2%). There were no pneumothoraces or viscus perforations. **Conclusions:** GERD is a major health issue and patient orientation is cornerstone. Surgical treatment should not be considered as a last hope. Rather, having both specialists collaborate and agree on patient selection results in excellent patient satisfaction and outcome.

FP-198

ENDOLUMINAL SURGERY. EXPERIENCE IN GUILLERMO ALMENARA IRIGOYEN HOSPITAL AND VESALIO CLINIC
Castro DU.

Purpose: To describe their application in the treatment of gastric stromal tumors, pancreatic pseudocyst and a new experience about the approach of stenosis of some anastomosis. **Methods:** This study is a Case Related Series. The population involve all the patients submitted to Endoluminal Surgery between October 1999-September 2003. The statistical analysis used was rate, media, percentage and standard derivatic. **Results:** It was enrolled 18 patients. The age average was 42.50 years old. The main interval was between 20 and 65 years old. The sexual distribution was 44% female and 55% male. The surgery time average was 210 minutes. **Conclusions:** Useful in large tumors, allow full check the lumen is necessary a experienced surgeon, open a new horizon, advantage of minimally invasive surgery.

FP-199

EFFECT OF PREGNANCY ON EFFECTIVENESS OF LAPAROSCOPIC NISSEN FUNDOPLICATION
Bamehriz F, Gupta R, Pottruff GC, Head K, Allen C, Anvari M.

Symptoms of GERD are experienced in up to 85% of pregnant women. In patients with GERD, symptoms, particularly hyperemesis, may significantly affect the outcome of pregnancy. Some young females on maintenance PPI therapy are chosing laparoscopic fundoplication in order to avoid severe symptoms during pregnancy. There are no reports on the effect of pregnancy on effectiveness of laparoscopic Nissen fundoplication (LNF) during and after pregnancy. **Aim:** To evaluate the effect of pregnancy on effectiveness LNF. **Methods:** We surveyed 146 child-bearing age women (mean age of 26.12 ± 0.96 years) who had proven GERD and underwent LNF from 1992-2002. **Results:** 95 of 146 patients responded to the survey. Of these, 24 patients became pregnant after LNF (15 patients had one pregnancy, 8 patients had 2 pregnancies and 1 patient had 3 pregnancies after the fundoplication). Nine of 24 patients had asked for LNF in order to plan a pregnancy and stop intake of proton pump inhibitors. The mean duration period in which the pregnancy happened after LNF was 25.88 ± 4.63 months (range from 2-84 months). Eighteen of 24 patients (75%) had no reflux symptoms during pregnancy. Five of 24 patients (21%) required Tums or Gaviscon and/or ranitidine during pregnancy. One patient (4%) developed acute herniation of the stomach during pregnancy (6 years after LNF) and required emergency surgery, resulting in loss of the fetus. Seven of 24 patients (29%) had recurrent symptoms of GERD after pregnancy. Of those, 3 were controlled on prn use of PPI and 4 required redo fundoplication. **Conclusion:** In a majority of patients, pregnancy does not affect the effectiveness of laparoscopic fundoplication, during or after the pregnancy.

FP-200

LONGTERM FOLLOW-UP AFTER CONSERVATIVE MANAGEMENT OF SUSPECTED BILE DUCT STONES
Hamouda A, Khan M, Mahmud S, Nassar A.

Aims: To show that the majority of patients with suspected choledocholithiasis, unsuitable for laparoscopic management, can be spared ERCP with favorable results. **Patients and methods:** Over 6 years conservative protocols were applied prospectively, according to the presentation, to 124 patients with strong risk factor, with clinical, biochemical and radiological monitoring. ERCP's were performed only when clinical indicators suggested non-resolution. Analysis was done after follow-up between 2-70 months. **Results:** There were 144 episodes, in 124 unfit (108) or previously cholecystectomized (16.13%) patients (mean age 75 years, 45% males). There were 60 episodes of jaundice (42%), 50 with acute pain and deranged LFT's (35%), 18 with pancreatitis (12.5%) and 16 others. 89 (62%) had ductal dilatation, 98 (68%) had elevated bilirubin and 105 (73%) had elevated alkaline phosphatase. The ASA score was III in 83 and IV in 17. 24 patients with ASA I or II were managed conservatively due to; previous cholecystectomy (9), evidence of passing single stones (7) and others (8). Non-interventional management was successful in 99 episodes (69%). 45 ERCPs (31%) were required in 36 patients and 17 of these (38%) were negative or failed. The mean hospital stay was 6.3 days and the presentation to resolution 2.7 weeks. On follow up 17 patients (13.7%) had two or more episodes, and 19 (15%) eventually had surgery. There was no mortality. **Conclusion:** Expectant management saved ERCP in 62% of patients unsuitable for surgery. The use of ERCP can be limited to some previously cholecystectomized or deteriorating patients.

V-201

HARD CHOLECYSTECTOMY PERFORMED WITH ONLY ONE PORT
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The video shows a case of difficult cholecystectomy performed with a new endoscopic technique that uses a single umbilical port. The case is a female 53 years old, diabetic patient when entering with 320 mg% of glicemia, and 23.000 leukocytes, in who got a purulent cholecystitis broken and sealed, carrying out a cholecystectomy with technique of only one umbilical port. The intention of the video is to demonstrate the feasibility to perform the procedure in acute, difficult cases, without requiring greater surgical time or great number of work ports. We concluded that this new technique of cholecystectomy requires for its accomplishment: Experience in laparoscopic surgery. Experience in the use of percutaneous needles. Laparoscopie with 6 mm instrument channel. Laparoscopic instruments of 5 mm x 43 cm. Special accessories: suture with straight needle caliber 00, monofilament suture calibre 0, hook-needle, needle-fold instrument. Suture-passing needle.

FP-202

MANAGEMENT TRENDS FOR SUSPECTED DUCTAL STONES IN SCOTLAND
Hamouda A, Khan M, Mahmud S, Sharp CM, Nassar AHM.

Aims: To evaluate trends in the management of suspected bile duct stones 5 years after initial survey of all consultant surgeons in Scotland. Our aim was to identify changes in actual practice or opinions. **Patients and methods:** Questionnaires were sent to 190 Scottish surgeons on both occasions. The format of the questionnaire remained the same. Some questions were modified to take into account recent advances in diagnosis and treatment. **Results:** The response rates were 83% and 57% respectively. Seventy seven surgeons who indicated that they deal with gallstone disease responded (*vs* 120 previously). 40% declared an upper GI or hepatobiliary interest (41% previously). 55/77 (71%) said their first investigation in suspected duct stones was ERCP (96% previously) and 14% performed their own ERCP's (18% previously). The waiting time for an ERCP was more than 3

days in 61/77, 79%, (83% previously). 34% performed LCBDE (laparoscopic common bile duct exploration) themselves while 23% said it was available at their hospitals. However, ductal exploration was performed often by only 3.8% (4% previously) and occasionally by 38% (15% previously). Only 4/77 (5%) rated LCBDE as their current preferred practice, 23% thought it would the preferred future practice and a similar number rated it as the most cost-effective treatment (4%, 22% and 17% previously). ERCP prior to laparoscopic cholecystectomy was the current preferred practice in 77% *vs* 82%, the future preferred practice in 44% *vs* 55% and the most cost-effective treatment in 26% *vs* 32% of responders. **Conclusion:** Despite research showing an advantage for single-session LCBDE, surgeons have been slow to adopt this technique. Over the last five years the use of ERCP as a first line investigative has declined, perhaps as a result of the increasing availability of MRCP.

FP-203

EARLY CONVERSION FOR GANGRENOUS CHOLECYSTITIS-IMPACT ON OUTCOME

Bingener J, Stefanidis D, Richards ML, Schwesinger WH, Sirinek KR.

Purpose: Gangrenous cholecystitis represents a severe form of acute cholecystitis. Some authors have advocated early conversion to the open procedure to avoid complications when severe inflammation is found. We investigated the impact of early conversion on the outcome of patients undergoing laparoscopic cholecystectomy for gangrenous cholecystitis. **Methods:** Data from all patients with gangrenous cholecystitis undergoing laparoscopic cholecystectomy between 1992 and 2002 were prospectively collected. Sex, age, ASA classification, morbidity and mortality, length of hospital stay (LOS), duration of procedure and conversion were recorded. The data from patients who had had their procedure converted to the open procedure were analyzed. The diagnosis of gangrenous cholecystitis was made based on operative findings. The Chi square test was used for statistical analysis. **Results:** Between 1992 and 2002, 97 patients underwent an attempted laparoscopic cholecystectomy for gangrenous cholecystitis. Thirty-three patients (34%) underwent conversion to open cholecystectomy, 23 men and 10 women, (mean age 52 years). The mean ASA was 2.2. The morbidity rate was 21%. There were no deaths. The conversion rate was 69% between 1992 and 1997 and 27% between 1998 and 2002. Reasons for conversion were the inability to identify the anatomy (73%), bleeding (9%), perforation or abscess (6%), unknown (6%), the inability to perform an intraoperative cholangiogram (3%) and a bowel injury (3%). Twenty-four percent of the patients had their procedure converted early after the identification of a gangrenous gallbladder, 33% after some initial dissection and 37% after an extended attempt at completing the procedure laparoscopically. In two patients (6%) the time or reason for conversion was unknown. There was no difference in morbidity between the groups. LOS was 10 days for the early conversion group, 7 days for the group of patients that underwent some initial laparoscopic dissection and 6 days for the group with an extended attempt at completing the procedure laparoscopically. The operative time was longer in the late conversion group compared to the group of patients who had their procedure converted after some initial dissection and the patients who underwent conversion early after visualization of the inflammatory process (2.7 hrs *vs* 2.1 *vs* 1.8 hrs; $p = 0.01$). The operative time for the patients undergoing conversion after extended dissection was not significantly longer than the operative time for a historical comparison group of patients undergoing primary open cholecystectomy for gangrenous cholecystitis (2.7 hrs *vs* 2.3 hrs). The incidence of early conversions was 42% during the first half of the decade and 22% during the second half of the decade ($p < 0.05$). **Conclusion:** Laparoscopic cholecystectomy may not be feasible in all patients with gangrenous cholecystitis. The learning curve is protracted. Early conversion shortened the overall operative time. A concerted effort to perform the cholecystectomy with the minimally invasive approach did not adversely impact patient outcome but may benefit the patient even in the face of conversion.

FP-204

MALE GENDER-A RISK FACTOR TO PREDICT DIFFICULTY OF LAPAROSCOPIC CHOLECYSTECTOMY

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Purpose: Several studies indicated male gender to be a risk factor for conversion of laparoscopic cholecystectomy (LC). Nevertheless, predicting conversion remains controversial. Our aim was to investigate validity of male gender as a parameter predicting difficulty of LC. **Methods:** Prospective clinical cohort study. Every patient undergoing LC at our institution between March 2001 and April 2003 was included. Data on sex, intraoperative gallbladder perforation (IGBP), operating time (OT), conversion and surgeon's subjective evaluation (SSE) of difficulty of operation was recorded. OT was selected to be objective indicator and surgeon's evaluation subjective one to scale difficulty of LC. Patients were divided into two groups according to gender and obtained data was statistically tested (Mann-Whitney U test, unpaired t-test, Fisher exact Chi square test) for significant differences ($p < 0.05$).**Results:** Male group-126 patients, mean OT 67.2 min (SD = 24.4 min), mean SSE score 1.46 (SD = 0.83), conversion rate 3.17%, IGBP 37.3%. Female group-347 patients, mean OT 54.9 min (SD = 23.3 min), mean SSE score 0.68 (SD = 0.93), conversion rate 2.59%, IGBP 27.9%. There was no statistical difference in conversion rate between groups. OT was significantly prolonged ($p < 0.001$) and SSE score significantly higher ($p < 0.001$) in male group. Risk of IGBP was found to be elevated ($p < 0.001$) compared to female group. **Conclusions:** Male gender is clearly one of the factors determining difficulty of LC. It is associated with increased risk of intraoperative gallbladder perforation as well. Nevertheless, male gender as a risk factor predicting conversion remains controversial.

FP-205

BILIARY CYSTS AND POLYCYSTIC LIVER DISEASE: RESULTS OF THE LAPAROSCOPIC APPROACH

Neri V, Ambrosi A, Fersini A, Tartaglia N, Di Lauro G, Samele F, Petito L, Procaccini G, Valentino TP, Santacroce C.

Purpose: The anatomical-clinical condition and the therapeutic approach (enucleation, sclerotherapy, deroofing, hepatic resection, and transplantation) in relation to the symptomatic non-parasitic hepatic cysts (NPHC) and to the polycystic liver disease (PCLD) are very variable. In fact, there is not a full concordance in favour to the laparoscopic treatment, in consideration to the postoperative morbidity and the possibility of a relapse. The aim of the study is to value, in our series, the postoperative morbidity and to establish the incidence of the relapses to a medium term. **Methods:** During the period 1999-2002, twelve patients altogether (7 females, 5 males, median age 54 years) were treated with laparoscopic approach and retrospectively examined, 9 patient with NPHC and 3 with PCLD (type 1, Henke). In 5 patients a cholecystectomy for lithiasis was associated. In all patients was executed a preoperatory morphological study (CT-scan, US) of the hepatic lesions: number, seat, size, characteristics of the wall and densitometric study of the contents were executed to exclude parasitic cysts, or eventual suspicious of malignancy, biliary communications or infections. Moreover, were executed an echinococcus serology and tumor markers. All the patients with diagnosis of NPHC and PCLD were submitted to a laparoscopic fenestration with deroofing and resection of the superficial wall (with

the use of an ultrasonic harmonic scalpel). **Results:** The laparoscopic approach did not require conversions in no patients and there was no mortality. The mean operative time was 55 minutes for the simple cysts and 120 minutes for the polycystic disease. The incidence of the postoperative morbidity was low in both groups with 2 bronchopneumonic infiltrations. In one case with PCLD there was ascites resolved spontaneously in two weeks. The hospital stay was 6 days in mean (range 4-14 days). In all cases there was the resolution of the symptomatology. The histology of the removed wall confirmed the diagnosis of simple cysts. The following-up was performed with clinical observation and abdominal ultrasound examination for 3-38 months (mean 18 months): relapse of the disease or resumption of the symptomatology did not notice. **Conclusions:** The preoperative selection of the patients with NPHC or PCLD is fundamental for the programming of the surgical treatment. The laparoscopic fenestration and the deroofing can be considered a safe and efficacious treatment, in particular for the solitary hepatic cysts, but even for the polycystic disease characterized by great and superficial cysts. Henke-Bruns D, Klomp HJ, Kremer B. Non parasitic liver cysts and polycystic liver disease: results of surgical treatment. Hepatogastroenterology, 1993: 40; 1-5.

FP-206

LAPAROSCOPIC ASSISTED-INTRAOPERATIVE ULTRASOUND GUIDED-SINGLE HOLE CHOLECYSTECTOMY (LAIOUSC): ITS EVOLUTION THROUGH AN EXPERIENCE OF OVER 2,300 CASES

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Laparoscopic surgery is the procedure of choice for cholecystectomy, but incidence of bile duct injury and complications unique only to laparoscopic cholecystectomy are of concern. In an effort to develop an alternative technique of minimally invasive cholecystectomy without the above drawbacks "laparoscopic assisted intraoperative ultrasound guided single hole cholecystectomy (LIOUSC)" has evolved through and experience of over 2,300 cholecystectomies in 11 years. **Methods and procedures:** From November 1991 to May 1996 minilap cholecystectomy (3 to 5 cm incision) was performed in 540 patients. It was found that identification of bile duct system was problematic in few cases. To prevent bile duct injury, intraoperative ultrasound (IOUS) using 6.5 MHz end firing sector probe was done in all 1,035 single hole cholecystectomies from May 1996 to October 2000 (microlap: 3 to 3.5 cm muscle splitting incision, 4 cm in bulky patients). During October 2000 to August 2003 consecutively in 768 patients undergoing IOUS guided single hole cholecystectomy (IOUSC) initially effort was made to keep the incision around 3 cm (3.5 cm in bulky patients). Subsequently through this hole 0^{o}, 30^{o} and 45^{o} endoscopes/sinuscopes were used to assist in surgery as and when needed to perform LIOUSC. All the 1,803 patients after May 1996 were discharged 6 to 24 hours after surgery. **Results:** None of the 1,803 patients undergoing IOUSC or LIOUSC suffered bile duct injury compared to stated 0.2 to 1.4% or more incidence in laparoscopic cholecystectomy. **Conclusion:** Bile duct safety and early discharged after surgery make IOUSC a viable alternative to laparoscopic cholecystectomy. Evolution of LIOUSC makes this method gas-less, direct 3D viewing, minimally invasive and with laparoscopic assistance available. It does not have the complications unique only to laparoscopic cholecystectomy. LIOUSC has not been reported from elsewhere in the world.

FP-207

A PREOPERATIVE GRADING SYSTEM FOR LAPAROSCOPIC CHOLECYSTECTOMY

Takegami K, Kawaguchi Y, Kubota Y, Watanabe T, Nagawa H

Purpose: This study was performed to evaluate the operative conditions of abdominal wall-lifting laparoscopic cholecystectomy (ALLC) using a new preoperative grading system and to improve the operative outcome. **Methods:** Operative conditions of 145 cases of cholecystectomy from January 1997 to December 1999 were retrospectively analyzed. Allotting 0 to 5 points for each preoperative factor, which were coexisting cholecystitis, past history, previous supraumbilical laparotomy, preoperative drainage, location of the stones, and body mass index, the total points were defined as the predicting score. Cases were graded into four risk groups by this predicting score. The postoperative score, which evaluated actual conditions of ALLC, were defined by allotting 0 to 8 points to operative factors; operation time, blood loss, additional trocars and procedures, conversion and postoperative complications. Ninety-seven patients from January 2000 to March 2002 and were prospectively examined according to this preoperative grading system. The ratio of preoperative score/postoperative score was defined as skill score. **Results:** Conversion rate, operation time, and blood loss increased significantly for higher risk groups in the retrospective group. The mean postoperative score showed a strong correlation with the predictive score both in retrospective (correlation coefficient 0.416) and prospective (correlation coefficient 0.436) groups ($p < 0.01$). The mean operation time and the mean postoperative score differed significantly between surgeons with skill score more and less than 1.25 ($p < 0.05$); and they were significantly improved ($p < 0.05$) by choosing an operator according to the predictive score and skill score, **Conclusion:** Our preoperative grading system using the predictive score is valid to predict the actual operative conditions of ALLC. An adequately skilled operator should be chosen according to the difficulty of each case, to improve the operative outcome.

FP-208

LAPAROSCOPIC EXPLORATION OF COMMON BILE DUCT IN DIFFICULT CHOLEDOCHOLITHIASIS

Tang CN, Tai CK, Ha JPY, Li MKW

Objective: To review the role of laparoscopic exploration of common bile duct (LECBD) in the management of difficult choledocholithiasis. **Method:** Retrospective review of a prospectively maintained database of LECBD in difficult choledocholithiasis during the period 1995-2003. **Results:** Of the 97 LECBD performed in our centre during the period 1995-2003, 25 of them were performed for difficult choledocholithiasis. Difficult choledocholithiasis was defined as those which ERCP failed to retrieve because of various reasons including access and cannulation difficulty, difficult nature of the common bile duct (CBD) stones and presence of endoscopic retrograde cholangiopancreatography (ERCP) related complications. There were 7 patients with unsuccessful cannulation because of previous gastrectomy (5) and periampullary diverticulum (2). Of the 18 patients with failed endoscopic extraction, there were 10 impacted stones, 2 incomplete stone clearance after multiple attempts, 2 type II Mirizzi syndrome, 1 proximal stent migration, 1 repeated post-ERCP pancreatitis, 1 situs inversus and 1 relative stricture at distal common bile duct. There were 14 male and 11 female patients of mean age 67.8 $\pm$ 15 years. Altogether 2 transcystic duct explorations and 23 choledochotomies were performed. Mean operative time was 149.4 $\pm$ 49.3 minutes and there were 3 conversions (12%). Stone clearance rate was 100% and no recurrence was detected upon a mean follow-up of 16.8 months. Only 5 complications were encountered which included 3 bile leak and 2 wound infection. When the results were compared to the remaining 72 LECBD for non-difficult stone during the same period, the complication rate, conversion rate and residual stone rate were similar despite longer operation time (149.4 + 49.4 minutes *versus* 121.6 $\pm$ 50.5 minutes, P = 0.025). **Conclusion:** LECBD is the solution to difficult CBD stones where ERCP is impossible or stone retrieval is incomplete.

V-209

LAPAROSCOPIC CHOLECISTECTOMY AND NEPHRECTOMY JUST IN ONE SURGICAL TIME

Silva NL, Lozada LJD, Espinoza LF, Contreras AA, Abundez PA, Carreto AF. Santa Monica Hospital Cuernavaca, Morelos, Mexico.

Purpose: The objective of this video is to present us the surgical technique. **Material and methods:** We present us the clinical case of 52 years old female patient with diagnosis of persistent arterial hypertension with difficult control with three antihypertensive drugs, with concomitant asymtomatic cholelithiasis, the helical abdominal CT scan show hypotrophic right kidney, with renal artery estenosis and isquemia of the upper kidney pole like possible ethiology of persistent arterial hypertension, previous endotraqueal intubation, balanced general anesthesia, we put 11-12 mm trocar port in placed in the same cholecistectomy laparoscopic position, we start to dissect the visceral peritoneum of gallbladder Hartmann pouch dissecting cystic duct and cystic artery, skeletization, clippage and cut both structures and dissect the gallbladder of the hepatic bed, dissection of the upper right todd fascia and complete mobilization of the colon hepatic angle, identification, dissection and opening the Gerota fascia until the exposure of the right kidney parenquima, we dissect the renal hilum, squeletization clippage and cut of the main right renal artery and polar arteries, right renal vein and right uretero, we check complete hemostasia and we made the kidney extraction trought the umbilicus scar. **Results:** During the early postoperatively period time the patient had auricular fibrilation of high frequency that could be controlled with digitalis drugs and discharge hospital at the second postoperatively day. **Conclusions:** We considered that it is a feasible surgical technique to make by laparoscopic route with good results.

V-210

SLIDING WINDOW METHOD (SWM) IN COMBINATION WITH LAPAROSCOPIC-ASSISTED DISTAL GASTRECTOMY WITH SYSTEMATIC LYMPHADENECTOMY

Takanobu H, Yamada H, Hayase H, Suzuki T, Hashimoto D.

Description: Objective: Laparoscopic curative resection of stomach cancer has not yet been well established because of its anatomical complexity and relatively high incidence of lymph node (LN) metastases. This dilemma could be solved by our original procedure of gasless laparoscopic-assisted distal gastrectomy (LADG) with SWM. **Methods:** LADG by our method comprises two parts, gasless method for laparoscopic maneuvering and SWM for direct maneuvering. LN dissection within greater and lesser omentum, a highly complicated and time-consuming part, can be performed by direct maneuvering through \"sliding window\", a small abdominal incision (5-7 cm) which can be slided (or movable horizontally) by our system to cover the most of the area of the omentum to be dissected. Lymph nodes in deeper areas (such as LNs around the EG-junction, LNs around left gastric, common hepatic, and splenic arteries) are required to be dissected laparoscopically. Gasless method allows the \"window\" to be opened throughout the whole laparoscopic procedure. The combination of these two methods allows smooth, swift, and safe procedure of complicated LN dissection. **Results:** LADG with SWM was performed in 59 cases since June 1994. The mean operating time was 191 minutes, blood loss 138 ml, which were comparable to open distal gastrectomy. Conversion rate to open surgery was 0%, mortality and morbidity were both 0%. Oral feeding on 4.5 POD and hospital stay 12.0 days in average were both significantly shorter than those following open distal gastrectomy. Any kinds of recurrences, including port site recurrence, was not observed at all. **Conclusions:** LADG with SWM appears to be as safe, smooth, and curative as open distal gastrectomy, without jeopardizing the less invasiveness of laparoscopic surgery.

V-211

LAPAROSCOPIC RADICAL TOTAL GASTRECTOMY WITH OESOPHAGOJEJUNOSTOMY

Punatmbekar S, Sathe A, Gurjar J, Kulkarni. King Edward Memorial, Poona, India.

Description: Purpose: The aim of this presentation is to show the technical feasibility and oncological safety of radical gastrectomy. **Methods:** Since last one year we have been doing all cancer operations laparoscopically. Till date we have done 6 radical gastrectomies. All these have been completed laparoscopically and with oncological safety. This were done using five ports and the time taken was 4 hours. The average blood loss was 200 mL and all the patients had uneventful postoperative period. All the patients were discharged on the 7th day. **Results:** There were 4 males and two female patients. All the patients had adenocarcinoma as the histology. Four patients underwent distal gastrectomy and 2 total gastrectomy. Four patients had nodal metastasis and were offered adjuvant treatment. There was no postoperative morbidity and no mortality. **Conclusion:** Radical gastrectomy can be performed laparoscopically and with the same oncological principles as in open surgery and has definite advantage of decreasing the morbidity.

FP-212

LAPAROSCOPY ASSISTED GASTRECTOMY WITH LYMPHONODE DISSECTION FOR EARLY GASTRIC CANCER

Nagai Y, Nagai M, Tanaka N. Department of Surgical Endoscopy. Department of Surgery. Asahi General Hospital. Asahi.

Since 1993, we applied laparoscopic procedure of lymph node dissection followed by BI anastomosis and 82 early gastric cancer patients were treated. A laparoscope is inserted via the umbilicus and two ports are placed in the upper left for the surgeon. For the assistant, one port is placed in the right upper abdomen and another under the syphoid process. Under laparoscopic observation, right gastroepiploic artery, right gastric artery and left gastric artery are dissected on each root and divided after clipping with dissection of NO 8a lymph node. BI-reconstruction is performed with mechanical suture via the 4 cm transverse skin incision. All patients had a good postoperative course without any major complication. During 10-year follow-up period, in only one patient, liver metastases were found 3 years after operation. In comparison with open gastrectomy, the operation time took longer in laparoscopic gastrectomy than open gastrectomy. However, our method had many advantages over open gastrectomy in terms of postoperative pain, shorter febrile duration, less blood loss, earlier standing and earlier bowel movement. The wound was small, and an almost closed operation was possible. Furthermore, unlike other laparoscopic partial gastric resection, a major part of the regional lymph nodes can be extirpated such as D1 and α. Our laparoscopic assisted gastrectomy can be a standard operation in early gastric cancer.

FP-213

LAPAROSCOPIC *VERSUS* OPEN RESECTION OF GASTRIC CANCER, IS THERE AN ADDED RISK TO CONVERSION?

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Background: The management of gastric cancer using laparoscopic techniques remains controversial. The effect of conversion on outcomes has not been fully explored. The purpose of this study was to assess perioperative and cancer related outcomes in patients with gastric adenocarcinoma undergoing open (OR) and laparoscopic (LR) resection, as well as assess the role of conversion on these outcomes. **Methods:** Thirty consecutive patients with gastric cancer treated from 1998-2002 who underwent LR or OR were reviewed. Outcomes assessed as intent-to-treat included blood

loss (EBL), transfusion requirements, operative time, conversion rate, length of stay, final pathologic staging, survival and recurrence. **Results:** Fifteen patients each underwent LR and OR. The two groups were similar for sex distribution, age and BMI. Conversion rate for LR was 33%, 1 for bleeding and 4 for unclear planes. Mean operating time was significantly longer in patients treated with LR *vs* OR (284 min $\pm$ 69 *vs* 192 min $\pm$ 53, $p < 0.001$). There was no significant difference in median blood loss (LR 400 cc *vs* OR 450 cc) or transfusions (LR 27% vs OR 33%). The mean number of nodes retrieved (8.4 $\pm$ 5.6 *vs* 9.5 $\pm$ 5.9), clear margin rate (87% *vs* 67%) and stage distribution was similar for LR compared to OR. Median length of stay was significantly shorter in LR *vs* OR (7 *vs* 9 days, $p < 0.05$). Complication rates were similar. Median follow-up was equivalent (LR 17 months *vs* OR 13.5 months). There were no early postoperative deaths. At last follow up, 40% of patients treated with OR *vs* 13% of LR had died of their disease. Three patients (20%) in the LR group were alive with disease. Subgroup analysis revealed that patients requiring conversion had longer operating time than OR and significantly higher EBL than either OR or successful LR. Median length of stay was 7 days after conversion and 5 days with successful LR ($p > 0.05$). **Conclusion:** Laparoscopic surgery offered shorter length of stay but with significantly longer operative times. Conversion rates were associated with significantly higher blood loss but not increased length of stay. Cancer related outcomes were not altered by approach or conversion.

V-214

LAPAROSCOPIC ASSISTED PYLORUS PRESERVED GASTRECTOMY

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Introduction: Laparoscopic assisted distal gastrectomy is indicated for patients with early gastric cancer. Therefore, laparoscopic assisted pylorus preserving gastrectomy (LAPPG) should be considered for patients with a tumor located in the middle third of the stomach. In this study, we assessed post-LAPPG gastric emptying and motility using dynamic X-ray imaging. **Patients and methods:** Sixty six patients with preoperative Stage IA gastric cancer underwent laparoscopic assisted distal gastrectomy and lymphadenectomy between April 1998 and August 2003. All of them were classified according to the criteria of the Japanese Research Society for Gastric Cancer. Thirty three patients (twenty men and thirteen women with a mean age of 68.6 years) underwent laparoscopic assisted distal gastrectomy without preservation of the pylorus (LADG) for tumors located in the lower third of the stomach, while 33 patients (eighteen men and fifteen women with a mean age of 69.4 years) underwent laparoscopic assisted pylorus-preserving gastrectomy (LAPPG) for tumors in the middle third of the stomach. The volume of gastric content was measured by dynamic gastrointestinal (GI) X-ray every 15 minutes to determine gastric emptying ratio, and dynamic scan was used every two seconds to obtain the contraction ratio of the pre-anastomotic area and the frequency of peristaltic movement during three minutes to determine the motility index (MI). **Results:** The gastric emptying ratio was 55 $\pm$ 31% for LADG and 43 $\pm$ 20% for LAPPG, suggesting that gastric emptying was achieved significantly earlier in patients who underwent LADG than in those who underwent LAPPG ($p < 0.01$). MI was 2.27 $\pm$ 2.37% for Ladg and 7.63 $\pm$ 2.55% for LAPPG, suggesting that postoperative gastric motility was significantly better in patients who underwent LAPPG than in those who underwent LADG ($p < 0.001$). **Conclusion:** LAPPG has advantages over LADG in terms of gastric emptying time and remnant gastric motility. LAPPG should be used instead of LADG in selected patients with early gastric cancer arising in the middle third of the stomach.

FP-215

LAPAROSCOPY IN GASTRIC CARCINOMA. PRELIMINARY RESULTS

Toscano E, Moreno de la Santa P, Magdalena C, Otero R, Mantiñan R, Cerrada L, Estévez A, Gosende J, Rouco J. General and Thoracic Surgery Department. Povisa Medical Center Vigo, Spain.

Purpose: Conventional gastrectomy require a laparotomy, and it is associated with significant morbidity and mortality. As advances in minimally invasive surgical instrumentation and technique continue, some surgeons have reported the application of minimally invasive techniques to resection of the stomach in an attempt to decrease further the associated morbidity of gastrectomy. We reviewed our experience in staging, palliative and therapeutic treatment of gastric cancer by laparoscopy. **Methods:** Since 2001, all patients with diagnosis on gastric cancer and suitable for surgery have been included in this study. Patients are selected for minimally invasive gastrectomy after laparoscopy staging have excluded abdominal metastases and confirmed the presence of a resectable gastric carcinoma. In some cases, patients with bulky tumors or extensive nodal involvement, derivative surgery was performed with palliative intentions. **Results:** We show the differences between standard and laparosocopic staging. A video illustrating: minimally invasive gastrectomy and palliative measures is showed. **Conclusions:** The laparoscopic approach is useful in the staging of gastric carcinoma and has the benefit of avoiding a laparotomy. Curative resections and palliative measures can be performed safely. Patient comfort, pain management and hospital stay have all improved dramatically with the minimally invasive approach. We conclude that laparoscopy in gastric carcinoma is feasible, safe and effective. Further studies are indicated to confirm its long-term benefits.

FP-216

VIDEOLAPAROSCOPIC TREATMENT OF BENIGN GASTRIC TUMOURS

Fiolo F, Capellino P, Benavides F, Pierini L, Ramos R.

Background: Videolaparoscopic surgery is a very useful alternative in the diagnosis or resolution of benign gastric lesions. Seven per cent of gastric tumours are benigns, corresponding 40% to polyps. The most frequent mesenchimatic tumour in the gastrointestinal tract is stromal (Gist) being gastric among 50% and 70%. Resection of these lesions is indicated when became symptomatics (pain, bleeding, obstruction), or when its nature is confused. **Objective:** To evaluate the outcomes of videolaparoscopic approach of this lesions. **Setting:** Private Hospital affiliated to Buenos Aires University. **Design:** Retrospective study. **Patients and method:** From July 1997 to July 2002 13 patients underwent videoparascopic surgery for benign gastric tumours. Eleven were females with an aging range from 21 to 77 years old. **Technique:** Pneumoperitoneum with CO_2. Three of four ports. Laparoscopy and detection of lesion and transgastric resection. One patient needed endoscopic assistance to find the lesion. Seven stromal tumours were resected, one hyperplasic polyp, one hyaline calcified nodule, one fibrotic nodule, one polyp with severe dysplasia and two lesion with normal tissue. There were nor morbidity neither mortality in this series. Oral intake was started at second day of surgery, being length of hospital stay 4 days in average. **Conclusion:** Videolaparoscopic surgery is a good resource for patients that could not be resected with endoscopic procedures, being a feasible and reliable technique.

V-217

VARIOUS TECHNIQUES OF LAPAROSCOPIC GASTRIC TUMOR RESECTION

Podkameni D, Lomenzo E, Kennedy C, Villares A, Chousleb E, Soto F, Higa G, Szomstein S, Zundel N, Rosenthal R. The Cleveland Clinic Foundation. Florida, USA.

Background: The use of laparoscopy of the management and treatment of benign gastric tumors is wide accepted. Some centers will perform in addition to that staging and resection for gastric cancer. We described various techniques of gastric resection for excision of benign and malignant tumors. **Methods and results:** We retrospectively review four representative cases that would depict different techniques of gastric tumor resections. Gastric wedge resection, enucleation of a leiomyoma, endoluminal tumor excision and subtotal gastrectomy are described. Our first case is a 48-year-old male that during work up for reflux disease was found to have a benign mass near greater curvature in the prepyloric region. The second patient is a 42-year-old female who during anemia work up was found to have a gastric tumor in the greater curvature with a final diagnosis of ectopic pancreatic tissue. Third patient was found to have a carcinoid tumor on the body of the stomach, and an intragastric technique is used to excise this mass. Our fourth patient is a 52-year-old female that during work up for bariatric surgery was found to have anemia and gastroscopy done revealed gastric adenocarcinoma. This patient was submitted to a sub-total gastrectomy with a Roux-en-Y reconstruction. **Conclusions:** Resection of benign and in some cases malignant gastric tumors can be flawlessly done by laparoscopy, proven the same oncological care is taken as in open surgery.

V-218

EVALUATION OF THE USEFULNESS OF LAPAROSCOPY- ASSISTED DISTAL GASTRECTOMY

Hatori S, Imada T, Kunisaki C, Ohshima T, Yamada R, Yoshida K.

Purpose: The technique of laparoscopy-assisted distal gastrectomy (LADG) was developed for early gastric cancer, but its feasibility and the associated clinical outcome remain unclear. Our research was aimed at determining whether the laparoscopic procedure of LADG for early gastric cancer is really safe and minimally invasive, and whether or not the LADG improves quality of life, compared with conventional open distal gastrectomy (ODG). **Methods:** We reviewed 13 patients who underwent LADG (LADG group) and 21 patients who underwent ODG (ODG group) for early gastric cancer in our hospital, and compared the clinical date of the two groups. **Results:** The clinical and pathological backgrounds of the patients in the two groups were similar. The duration of surgery was significantly longer, but the blood loss was significantly less in the LADG group. The number of removed lymph nodes was not significantly different in two groups. The time to the first passing of flatus was significantly shorter and the times analgesic given was significantly lower in the LADG group. However, the first eating time and the length of hospital stay were not significantly different in two groups. The morbidity and mortality rates were not significantly different in two groups. **Conclusion:** LADG is a safe and minimally invasive procedure with earlier recovery of bowel movement and less pain as compared with ODG. Once the long-term outcome is established, LADG may become a standard surgical technique for the treatment of early gastric cancer.

V-219

INTRAGASTRIC LITHIASIS

Fiolo F, Staltari D, Capellino P, Benavides F, Premoli.

Background: The interrelation of different specialties allows through complementary technical resources to find the way to solve medical problems with the smallest aggression. **Objective:** To demonstrate the utility of the coordinated work among different specialties for the resolution of an illness. **Setting:** Private Hospital affiliated to Buenos Aires University. **Design:** Video. **Patient:** Female of 75 years old with antecedent of laparoscopic gastroenteroanastomosis for pyloric syndrome secondary to probable gallbladder cancer without confirmation on biopsy. Five month later she consults for vomits being carried out an endoscopy that shows the presence of cholecistogastric fistula with intragastric lithiasis that causes the obstruction. Due to the size of the lithiasis their endoscopic extraction is not achieved deciding to attempt a combined way in order to solve the problem. Videolaparoscopy was carried out with general anesthesia. Endoscopic capture of lithiasis was carried out and after that a gastrostomy with hook in anterior face of the stomach was carried out extracting through it the lithiasis. Operative time was 90 minutes. There was no morbidity. Oral intake was started at 48 hours postoperative. **Conclusion:** The coordination of different specialties for the resolution of medical problems allows to choose the best therapeutic option that redounds in more benefits for the patient.

FP-220

LAPAROSCOPIC PANCREATECTOMY IN INFANT WITH CONGENITAL HIPERINSULINISM, CASE REPORT

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Introduction: Congenital hiperinsulinism causes severe, hard to control hypoglycemia in newborns and infants. Without proper management, they may cause seizures and irreversible brain damage. 95% Pancreatectomy is the therapeutic choice for children in which there is no glycemic control can be established despite aggressive medical management, and it also offers more rapid reestablishment without further diabetes. **Case presentation:** Masculine 3 months old coming from Chihuahua mother 22 years, low socioeconomic conditions, GIII, weight at birth: 3,000 g HEALTH PROBLEM Starts al 1st month with hard to control seizures, treated with non specific anticomicial drugs. During hospitalization hypoglycemia is detected, and patient presented cardiorespiratory arrest, management unknown. Because of hard to control seizures comes to this institution. Hypoglycemia and seizures are corroborated, treated with Glucose IV 20 mcgkgmin and Octreotide 15 mcgkgday, glucose and insuline determinations during hypoglycemia are done with results 0.3, documenting hyperinsulinism, despite above management hypoglycemia continues. It is then decided to perform 95% Pancreatectomy November 15, 2002, with the following ports one below umbilical scar, for 19 mm lens, and two more ports in both iliac fossa of 3 and 5 mm. Anatomical structures are identified. Major omenta is dissected and cutt, reaching omental transcavity, pancreatic tail is identified, dissected, and vasculature feeding splenic vein is cauterized, freeing until Pancreas unneus right to superior mesenteric artery. Vycril-0 Endoloop is used, performing 95% Pancreatectomy getting our through 11 mm port. Surgical area is checked, hemostasia is corroborated, endinf surgical procedure. Later, octreotide and glucose requirements were progressively decreasing, enteral feeding isw reached November 19/2002. Drainage was scarce and decreased progressively, taking it of November 24. **Discussion:** This case shows that laparoscopic 95% Pancreatectomy is an adequate and safe option for infants with hyperinsulinism in which glycemia control cannot be reached by medical management alone.

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ELECTIVE LAPAROSCOPY SPLENECTOMY. REPORT OF EXPERIENCE

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Splenectomy for hematologic disease is the most frequent laparoscopy operation on solid organs. This abstract is our experience in effective laparoscopic splenectomy. Since February 1993 we have had 39 of these procedures mostly due to idiopathic thrombocytopenic purpura (ITP). There were no complications or readmissions in any of the cases and just two conversions to laparotomy techniques and time required for endosurgical procedures are described 78.9% of the cases were discharged from the hospital in 24 hours. Laparoscopic splenectomy is a safe alternative in patients with hematological diseases.