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ABSTRACT

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EXPERIENCE AND LEARNING POINTS IN THE MANAGEMENT OF ACHALASIA CARDIA IN CHILDREN

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Abstract**INTRODUCTION**

Achalasia is a rare but debilitating condition in children. Although endoscopic treatments, such as Botox injections and oesophageal dilatations, give very short term symptom relief, there is a very high failure rate in children. They also cause fibrosis which make surgery more challenging. We advocate primary Heller's myotomy with Dor fundoplication for children which gives an excellent long term outcome.

PATIENTS AND METHODS

Retrospective study of five children aged between 11 to 16 years presenting with Achalasia underwent laparoscopic Heller's myotomy and Dor fundoplication.

PROCEDURE AND OUTCOMES

Four patients had oesophageal dilatations prior to surgery and one had surgery as primary procedure. One patient needed TPN because he refused NG feeding, and he had 2 dilations before his Heller's myotomy. All procedures were performed laparoscopically. Harmonic scalpel was used for Heller's myotomy extending at least 4-5 cm proximally from the oesophago-gastric junction, and distally towards the body of the stomach for 2 cm. All patients had a Dor fundoplication to reduce gastro-oesophageal reflux. All patients had an excellent result on follow up. No patient needed redo surgery or further endoscopic treatments to date. In addition, no patient complained of reflux symptoms.

CONCLUSION

Harmonic scalpel or a similar energy device is safe and effective for myotomy. A curvilinear incision rather than a vertical incision provides a more anatomical myotomy. Endoscopic treatments have very high failure rates in children. The authors strongly recommend primary Heller's myotomy and Dor Fundoplication in all children and young adults with achalasia.

CAN LAPAROSCOPY-ASSISTED PERCUTANEOUS ENDOSCOPIC GASTROSTOMY (PEG) PREVENT MAJOR GASTROSTOMY COMPLICATIONS?

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Abstract

AIM

To determine gastrostomy method that has the least risk of complications.

MATERIAL & METHODS

Gastrostomy patients were evaluated according to gender, gastrostomy indications, simultaneous fundoplication and complications. Open gastrostomy group (OG), laparoscopic gastrostomy group (LG), percutaneous endoscopic gastrostomy group (PEG) were grouped. PEG was performed laparoscopy-assisted in patients who underwent PEG with fundoplication. Complications requiring surgical intervention were major and those requiring conservative treatment were evaluated as minor.

RESULTS

224 patients (male: 114 / female: 110) median age was 3.25 years (1 day- 17,91 years). OG consisted of 68 patients (30.4%), LG 56 (25.3%) and PEG 100 (44.6%). 27 (39.7%) of the OG, 49 (87.5%) of the LG, and 13 (13%) of the PEG had simultaneous fundoplication. The indication for gastrostomy was neurological disease in 29 (42.6%) patients in OG, 49 patients (87.5%) in LG and 73 patients (73%) in PEG. 6 patients (8,8%) in OG (3 with and 3 without fundoplication), 9 patients (16,01%) in LG (8 with and 1 without fundoplication), 4 patients (4%) in PEG without fundoplication had major complications. None of the patients who underwent laparoscopy asisted PEG (n=13) had major complications. 4 patients (5,8%) in OG (1 with and 3 without fundoplication), 5 patients (8,9%) in LG (3 with and 2 without fundoplication), 7 patients (7%) in PEG (3 with and 4 without fundoplication) had minor complications.

CONCLUSIONS

PEG is minimally invasive and easily applicable method among gastrostomy precedures. Laparoscopy asisted PEG may eliminate the risk of major complications.

HOW TO TREAT CHEMICAL BURNS OF THE ESOPHAGUS? - EXPERIENCES WITH THE HOME CATHETER BALLON DILATATION AS AN EFFECTIVE METHOD FOR TREATMENT

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Abstract

Every year more than 5,000 US children are treated for chemical burns of the gastrointestinal tract. After acute therapy, multiple endoscopic balloon dilatations often have to be performed to treat the resulting esophageal strictures or stenosis, which are often refractory to therapy. To prevent restenosis between balloon dilatations and multiple endoscopies under general anesthesia, we introduced a Balloon Catheter Home Dilatation in patients with long esophageal caustic burns. All patients were endoscopically balloon dilated several times. With the introduction of the Balloon Catheter Home Dilatation, we were able to increase the interval between endoscopies. The esophageal width remained stable during the course. In all cases there was no serious complication associated with the Balloon Catheter Home Dilatation. None of the children needed esophageal replacement therapy.

Balloon Catheter Home Dilatation is a good treatment option for long-range esophageal acid burns to save the patient's own esophagus.

LONG-TERM OUTCOME OF PRESERVING THE NATIVE ESOPHAGUS IN LONG GAP OESOPHAGEAL ATRESIA BY THORACOSCOPIC TRACTION TECHNIQUE

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Abstract

BACKGROUND

Long gap esophageal atresia (LGEA) can be treated by thoracoscopic traction technique. This allows us to preserve the native esophagus while performing an anastomosis within the first weeks of life. The aim of this study is to evaluate the long-term outcome of this technique in LGEA patients.

METHODS

From 2007-2018, 13 consecutive patients with LGEA were treated by thoracoscopic traction technique. After a diagnostic rigid bronchoscopy, thoracoscopic traction sutures were placed at both esophageal ends. Approximation was evaluated by postoperative X-rays. Thoracoscopic adhesiolysis was performed when necessary. Anastomosis was usually performed within a week.

RESULTS

The traction technique was feasible in 11 patients. In two patients it failed due to torn-out sutures and perforation of the proximal pouch by the Replogle tube. Median time on ventilation until after the final anastomosis was 14 days (range 4-34 days). Five patients required chest tube drainage for anastomotic leakage. Median hospitalization time was 47 days (range 31-170 days). Median number of dilatations was 4 (range 1-16) and 10 patients required antireflux surgery. Median weight at age of 2 years was -1.88 SD (range $-3.54 - -0.16$) and at age of 4 years -1.53 SD (range $-2.94 - 0.66$). All patients tolerated full oral feeding.

CONCLUSIONS

LGEA can be treated successfully by thoracoscopic traction technique while preserving the native esophagus. This procedure leads to earlier anastomosis and shorter hospital stay as compared to delayed primary anastomosis. Full oral feeding is possible in all patients. Dilatation for anastomotic strictures and antireflux surgery is necessary in almost all patients.

ACUTE GASTRIC VOLVULUS IN CHILDREN: OUR EXPERIENCE IN MANAGEMENT AND LAPAROSCOPIC GASTROPEXY

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Abstract

INTRODUCTION

The one-lung ventilation has been typically employed during a thoracoscopy, therefore currently we watch an increasing use of double-lung ventilation by some pediatric surgeons teams.

PURPOSE

Pediatric gastric volvulus (GV) is a rare condition defined as the stomach rotating more than 180° around an axis leading to gastrointestinal obstruction . GV can be defined as organoaxial, mesenteroaxial, or combined, primary or secondary, as well as acute or chronic. Acute GV is a potentially fatal condition for acute ischemia. We report our experience over the past 6 years in the treatment of Acute GV (AGV).

METHODS AND RESULTS

of the gastric fundus at the diaphragm and gastropexy anterior to the abdominal wall, while 2 patient undergoing at open From 2013 to 2019 we have managed 7 patients (3 females and 4 males) with a median age of 3 years (range 2 m-18 aa). Two cases with genetic syndromes.

The main symptoms were non-biliary vomiting, acute epigastric distention, acute abdominal pain, cyanosis, pallor, feeding difficulties; that can be resolved with the introduction of a nasogastric tube.

The upper gastrointestinal (UGI) study showed in 2 cases AGV of the axial mesenteric type while in the remaining patients axial mesenteric volvulus.

Five patients undergoing at laparoscopic gastropexy procedure (1 neonate and 1 GV after after Nissen fundoplication). If necessary we have corrected the hiatal hernia and placed a gastrostomy tube.

In a mean follow-up of 2 years there was no there were no postoperative complications or recurrence of GV;

CONCLUSION

GV requires high suspicion and prompt management, as mortality is considerable. The preferred surgical approach for GV include laparoscopic gastropexy with good long-term outcomes with minimal morbidity.

THE EFFECT OF LAPAROSCOPIC SLEEVE GASTRECTOMY IN TREATMENT OF TYPE 2 DIABETES MELLITUS IN CHILDREN AND ADOLESCENTS

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Abstract

INTRODUCTION

Obesity in children and adolescents is increasing world wide. Metabolic diseases like diabetes mellitus became a common finding among morbid obese children. We are introducing our series of pediatric patients with morbid obesity who underwent Laparoscopic sleeve gastrectomy for weight control and highlighting its effect on the glycemic pattern.

METHODS

It is a prospective study on the patients who were operated during the period between January 2016 and June 2018 in the department of pediatric surgery. we had 32 patients with morbid obesity and type 2 diabetes mellitus (DM) and were scheduled for lap sleeve gastrectomy (LSG). All the patients had body mass index BMI \geq 35 kg/m². Our primary outcome target was studying the effect of the surgery on type 2 DM by measuring fasting blood glucose and HbA1C before surgery and one year after the surgery.

RESULTS

All the patients had LSG with a mean operative time of 45 +/- 9.4 minutes; no intra-operative complications. In 84.3% of the patients, fasting blood glucose levels were below 126 mg/dl and HbA1c showed levels below 6.5% by the end of the period of follow up without the use of oral hypoglycemic drugs, while in (15.6.6%) there was no significant decrease in their levels after 3 months and were considered to be resistant cases.

CONCLUSION

we are highlighting the effect of LSG as a primary procedure for treating type 2 DM with efficacy like that in adults using it as a metabolic procedure rather than bariatric restrictive procedure only.

LAPAROSCOPIC VERSUS OPEN PYLOROMYOTOMY. OUR EXPERIENCE

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Abstract**INTRODUCTION**

Open transumbilical pyloromyotomy (UMBP) and laparoscopic pyloromyotomy (LAP) were compared on different outcomes, cosmetic results and post-operative complications in hypertrophic pyloric stenosis (IHPS). We present the our experience over a 12-year span.

METHODS

Between 2007 and 2019, 154 pyloromyotomies in IHPS were performed. 87 patients underwent UMBP using the Tan-Bianchi's circumbilical approach, while 67 were treated with LAP. 6 of these patients were converted to open surgery. LAP was initiated by introducing a Verres needle to create pneumoperitoneum. Then, a 5 mm port in the infraumbilical skinfold was inserted to hold a scope. Two stab incisions with a no. 11 scalpel in the abdomen, above the level of the umbilicus, were performed to introduce 3 mm instruments without trocars. The duodenum was grasped at the distal or at the level of the hypertrophied pylorus with atraumatic forceps. A longitudinal pyloromyotomy was performed in the avascular plane. The abdominal wound in the upper abdomen were approximated with Steri-Strips. Surgical time was improved on average from 90 to 20 minutes.

RESULTS

There were no significant differences in terms of return to complete feeding and hospital stay between UMBP and LAP. No post-operative complications were noted in LAP.

Post-operative complications, including umbilical wound infection and leakages, occurred in 10% of patients who had undergone UMBP.

CONCLUSIONS

LAP was performed safely and successfully. Use of trocarless instruments is safe and reduces incision size, improving cosmesis. Our team concluded that LAP is a better choice with regard to cosmetic results and fewer complications.

LAPAROSCOPIC VERSUS OPEN PYLOROMYOTOMY IN TREATMENT OF INFANTILE HYPERTROPHIC PYLORIC STENOSIS

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Abstract

BACKGROUND/PURPOSE

Laparoscopic pyloromyotomy gained wide popularity in management of pyloric stenosis with contradictory results regarding its benefits over classic open approach. This study aimed at comparing both regarding their safety, efficiency and outcome.

METHODS

This is a prospective randomized controlled study performed from March 2017 to March 2019. It included 80 patients, divided randomly into 2 groups; where laparoscopic pyloromyotomy performed in group A and open pyloromyotomy in group B. Both groups were compared regarding operative time, postoperative pain score, time required to reach full feeding, hospital stay, complications and parents' satisfaction.

RESULTS

Median operative time was 21 minutes in group A versus 30 minutes in group B ($P=0$). PAIN scores were generally higher in group B with more doses of analgesics required ($P=0$). Mean time needed to reach full feeding was 15.2 and 18.8 hours in groups A and B respectively ($P=0$). Median hospital stay was 19 hours in group A and 22 hours in group B ($P=0.004$). Parents' satisfaction also was in favor of group A ($P= 0.045$). Although no significant difference was reported between both groups regarding early and late complications, some complications as mucosal perforation and incomplete pyloromyotomy occurred in the laparoscopic group only.

CONCLUSION

Laparoscopic pyloromyotomy was found superior to open approach regarding faster operative time, less need of analgesics, easier development of oral feeding, shorter hospital stay and better parents' satisfaction. Yet, there still some concerns about the safety and efficiency of this procedure over open technique.

MINIINVASIVE MANAGEMENT OF HYPERTROFIC PYLORIC STENOSIS : A 10 YEARS SINGLE CENTER REVIEW

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Abstract**AIM**

To evaluate the efficacy and safety of the laparoscopic pyloromyotomy(LP) compared to open pyloromyotomy(OP) over a period of 10 years.

MATERIAL AND METHODS

We treated 142 patients with congenital hypertrophic pyloric stenosis(CHPS), 92/142 by LP(mean age 34.8 days) and 50 by OP(39.8 days).Our laparoscopic experience started in 2011: all procedures were performed using 3 accesses (5mm umbilical trocar, two 3mm operative trocars) with a standardized technique and dedicated tools. We have gradually replaced trocars with stab incisions. 3 LP were performed using a small scalpel and 89 with the pyloromyotomy knife.

RESULTS

Regarding OP: operative time was 43 minutes, re-feeding started 12 hours after surgery, hospitalization lasted a mean of 3 days. One patient (2%) had CHPS persistence requiring a second procedure. Since its introduction, LP has quickly replaced the conventional approach. It took 50 minutes for the first 30 cases and 37 minutes for the last 30. We had 3 complications with LP (3.2%), two requiring reoperation: 1 CHPS persistence (4th procedure out of 92), 1 duodenal perforation (due to a grasper defect) and 1 gastric perforation.The only statistically significant difference between the two groups was surgical time and re-feed time.

CONCLUSIONS

LP is safe and feasible with a short learning curve for high skill operators. Under proper assistance, it is also the prerogative for young surgeons. Complications are infrequent and could be managed laparoscopically. Parent's satisfaction is high, especially regarding short time to re-feed, aesthetical results and post-operative pain.

LAPAROSCOPIC TWO STAGE FOWLER-STEPHEN ORCHIOPEXY (FSO) VERSUS LAPAROSCOPIC STAGED TRACTION ORCHIOPEXY (SLTO) IN TREATMENT OF INTRA-ABDOMINAL TESTIS IN PEDIATRICS

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Abstract

INTRODUCTION

Intra-abdominal testes (IAT) that lack sufficient vessel length to perform an orchiopexy used to require division of the testicular vessels and doing a two-stage Fowler Stephen procedure with the assumption for the development of neovascularization along the vas deferens. Recent reports suggest laparoscopic staged traction (Shehata technique) may be performed with successful orchiopexy for elongation of the testicular vessels without division.

MATERIALS AND METHODS

Boys with unilateral or bilateral IAT located away from the ipsilateral internal inguinal ring with short vessels unfit for single stage laparoscopic orchiopexy proven by laparoscopy were selected for both techniques between November 2015 to January 2017 in pediatric surgery department at Mansoura University Children Hospital. Laparoscopic two stage FSO was performed in 12 cases three of them were bilateral IAT, SLTO was performed in 13 cases two of them were bilateral IAT. The Shehata technique entails fixation of the testis to a point one inch above and medial to the contralateral anterior superior iliac spine for 12weeks, while Fowler Stephen technique entails disconnection and division of the testicular vessels 3_4 cm proximally to the testis. Subdartos orchiopexy is then done laparscopically assisted at the second stage after 3m in Shehata technique and 6m in Fowler Stephen technique.

RESULTS

Two testes out of 15 were atrophied after SLTO (13.3%), while five testes out of 15 were atrophied after laparoscopic two stage FSO (33.3%). We had no testicular re-ascent in all 30 cases of the study done by both techniques SLTO and staged laparoscopic FSO.

ANALYSIS OF THE VOLUME CHANGE OF THE TESTIS AFTER INGUINAL HERNIA REPAIR USING THE PIRS METHOD - PILOT STUDY

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Abstract**AIM**

Analysis of how inguinal hernia surgery using the PIRS laparoscopic method affects the further growth of the testicle on the operated side.

METHODS

Prospective study of patients with hernia inguinal operated on inguinal hernia in 2016-19 Department of Pediatric Surgery in Regional Hospital in Kielce (Poland). The study included 50 patients aged 0-12. Preoperative ultrasound and follow-up examinations were performed at least 3 months after surgery. The volume of testis before and after surgery, the operated side and the non-operated side were compared. The results were analyzed statistically for statistical significance.

RESULTS

The study involved 50 boys aged 0-12 (mean age 4.3). The average follow-up time after surgery was 1.5 years. None of the laparoscopically operated patients showed atrophy of the testis. The volume of the testis in the ultrasound after the surgical procedure showed no inhibition of growth in relation to the pre-operative examination and in relation to the testis of the opposite, non-operated side.

CONCLUSIONS

Laparoscopic surgery using the PIRS method in the case of inguinal hernia does not result in the disappearance or reduction of the volume of the testis on the operated side.

TRANSRECTAL ACCESS IN THE SURGICAL TREATMENT OF BILIARY ATRESIA

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Abstract**INTRODUCTION**

Nowadays there are two ways for formation Kasai procedure: traditional Kasai operation and laparoscopic one.

AIM OF THE STUDY

to evaluate the results of treatment of children with biliary atresia, operated from transrectal access Methods.

MATERIALS AND METHODS

A retrospective analysis of the histories of children with biliary atresia who were treated in 2000-2018. 91 patients were included in the study. Patients were divided into three groups. Group A was the traditional Kasai operation (n=24), group B-Kasai laparoscopic surgery (n=45), group C-Kasai operation from transrectal access (n=22). The average weight at the time of surgery in group A was 3250g, in group B - 3175 g, in group C-3255 g. The average age of patients in the three groups was 71.91±24.7; 86.4±17.8; 84.3±21.3, respectively.

RESULTS

the duration of the operation in group A was 86.5±26.7min; in group B 93.6±19.2min; in group C -69.2±12.9min. The most frequent complication was cholangitis: in group A-21,7%, in B-21,1%, in C-19,1%. Other complications were: hemorrhagic syndrome (4 patients), bleeding from esophageal varices (7 patients). There were 5 complications in group A: perforation of intestine and adhesive intestinal obstruction. Similar complications after laparoscopic portoenterostomy and Kasai's operation from the transrectal access didn't occur.

CONCLUSIONS

The Kasai procedure increases survival with the native liver and creates favorable conditions for possible subsequent liver transplantation. Kasai's procedure, performed from the less traumatic approaches (laparoscopy, transrectal access) is preferable, because it reduces the number of postoperative complications and makes the postoperative period easier.

A NEW DEVICE FOR MINI-PERC IN PEDIATRIC RENAL STONE TREATMENT

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Abstract**INTRODUCTION**

Mini-Perc is adopted in pediatric renal stone disease with increasing success, but still is not free from possible complications. We adopted a new device to improve safety and efficacy of the procedure in children.

MATERIALS AND METHODS

Patients were in Valdivia modified Galdacao supine position with occluding ureteral catheter. The kidney access was performed directly by the 16ch "ClearPetra system" sheath, connected for continuous negative aspiration at 150-200 mmHg pressure. Stone fragmentation was performed by Holmium:YAG laser 30 Watt power, through 272 micron fiber using a 12ch nephroscope. The continuous negative pressure with closed circuit irrigation allowed efficacious fragments removal between the scope and the "ClearPetra" sheath, with clear working field and minimizing the risk of water overload during the procedure.

RESULTS

The "ClearPetra System" was utilized in 3 patients, 4-14 year aged (mean 12.5 years) presenting staghorn pyelo-calyceal stones (diameter 1.8 to 3.2 cm, mean 2.4 cm). A 10ch nephrostomy tube was left for 2-3 days postoperatively. The procedure required 130 to 220 min (mean 185 min). Free stone rate was achieved in all patients. No intraoperative or post-operative complications were observed.

CONCLUSIONS

The "ClearPetra System" was found effective for Mini-Perc procedures in pediatric patients, designed for increase efficiency and safety of renal stones treatment. The principle is based on maintaining constant negative pressure aspiration in the specifically designed sheath. The system reduces the intraluminal pressure in the urinary tract, prevents stone retropulsion and improves visual field, saving significantly the operative time of the Mini-Perc procedures.

COMPARISON OF TREATMENT METHODS FOR STONE IN LOWER CALYX IN CHILDREN WITH FLEXIBLE URETEROSCOPY AND MICROPERC - PROSPECTIVE STUDY

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Abstract

Development of the equipment and miniaturization of endoscopes allows for the treatment of children with stones in the lower calyx in each age group.

The aim of the paper is to compare the effectiveness of flexURS and MicroPERC in the treatment for urolithiasis (lower calyceal stones), and establishing the indications for the treatment.

The evaluation assessed 35 children (aged 1,5 – 18; mean 9,5) treated for urolithiasis with the application of flexible ureterorenoscopy method and 15 children (aged 3 -16; mean 8,2) treated with the application of MicroPERC. The procedures by the flexible scopes were done since 2013 and by the MicroPERC were done since 2015. The treatment was applied to children with stones in the lower calyx. A complete removal of the plague and no complications were considered as a very good result; residual plague up to 2mm and no complications were considered a good result, and resistant stone in the lower calyx with concomitant complications were considered as a bad result.

In the group of children treated with the flexURS method the results were as follows: 91.4% very good and 8.6% bad. In the group of children treated with the MicroPERC method the results were as follows: 87.5% very good, 6.25% good and 6.25% bad.

FlexURS is more effective than MicroPERC for a lower calyx stone of any size, and it carries a lower risk of complications. FlexURS is a very good method for children with wide ureters and enough developed renal pelvis, which allows for all of the movements of the endoscope.

INDICATIONS AND PITFALLS OF LAPAROSCOPIC OR LAPAROSCOPY-ASSISTED URINARY SYSTEM STONE REMOVAL

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Abstract

Age and clinic findings of the patients, stone location, size, opacity and ability to perform ESWL or retrograde intraluminal endoscopic surgery (RIES) determine the surgical strategy for stone removal in children. The aim of this study is to define indications and pitfalls of laparoscopic or laparoscopy-assisted urinary system stone removal.

METHODS

Data digitally recorded between 2013-March 2019 for 166 patients was evaluated. Only 2 patients had open surgery for renal staghorn calculus. Patients having follow-up, ESWL, RIES and open surgery were excluded. Nine patients were included. Seven patients were needed laparoscopic stone removal (LapSR) in upper urinary tract and ureter and two patients with urinary bladder stone (UBS) had laparoscopy-assisted lithotripsy and removal.

RESULTS

The age range was between 10 months to 8 years. Stone size was between 5 to 17 mm. The patient having nonopaque, multiple, enclaved and large stones with difficulty of access or associated with ureteropelvic junction (UPJ) obstruction needed LapSR. Two stones embedded in distal ureter, three stones in UPJ were removed by laparoscopy. Two renal pelvic stones were extirpated during laparoscopic pyeloplasty. Laparoscopy-assisted stone fixation, lithotripsy and fragmented stone removal from trocar were done in two patients with bladder stones.

CONCLUSIONS

Age of the patient, stone type and location, difficulty of access and associated pathologies determine how we can treat urinary system stones. If it is not possible to perform first-line minimally invasive procedures such as ESWL or RIES then LapSR or laparoscopy-assisted approaches could be considered as a better option to open surgery.

ENDOUROLOGICAL TREATMENT OF PRIMARY OBSTRUCTIVE MEGAURETER: TEN YEAR EXPERIENCE

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Abstract

INTRODUCTION

The minimally invasive treatment of the primary obstructive megaureter (POM) is performed with endoscopic dilation (ED) with a high pressure balloon catheter of the uretero-bladder junction (UVJ) and ureterotomy with cutting ballon (CB). We describe our ten-year experience.

MATERIALS AND METHODS

In ten years, 50 patients were treated for unilateral POM, average age 19 m (6-126). Diagnosis: ultrasound, VCUg and MAG-3 renoscintigraphy. The distal ureter had an average diameter of 18.2 mm. At the beginning of our experience, ED was performed with a 4 mm balloon catheter and, if necessary, replaced by CB catheter. Since September 2014 we have used 6 mm balloon catheter, reducing the need for CB.

RESULTS

Eight out 50 patients resulted affected by a functional obstructive megaureter and underwent open surgery. Of the 42 patients, 9 were treated with the 4 mm catheter and in 3 cases the CB was used. 33 patients were treated with a 6 mm catheter; in 29 an immediate resolution of the stenotic ring (RING) was obtained; in 4 we continued with CB. A JJ stent was left inside in all of them. At mean follow-up of 57 m (4-102) a resolution of urinary obstruction (MAG3) and an echographic improvement were observed in all but one, which was reimplanted. Only one complication occurred.

CONCLUSION

Endoscopic treatment of POM is a safe and effective procedure in cases of true anatomic stenosis of VUJ. It is necessary to use dedicated instruments and precautions since they are small children and delicate structures.

LAPAROSCOPIC LICH-GREGOIR REIMPLANTATION IN DAY-CASE SURGERY FOR THE TREATMENT OF HIGH-GRADE UNILATERAL VESICO-URETERAL REFLUX IN CHILDREN

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Abstract

PURPOSE

Surgical treatment of vesico-ureteral reflux (VUR) usually requires hospitalization for a few days. The development of laparoscopic extravesical ureteral reimplantation (LEVUR) contributed to the diminution of postoperative pain and length of stay. We report our experience with LEVUR in day-case surgery for the treatment of high-grade unilateral VUR.

MATERIAL & METHODS

This retrospective study included all consecutive children with VUR treated by LEVUR in day-case surgery from January 2015 to December 2018. Indications for surgery were repeated febrile urinary tract infection (UTI) and/or decrease of relative renal function on isotope studies. Only unilateral LEVUR were performed in day-case surgery.

RESULTS

Fifteen patients (9 females and 6 males) with unilateral high-grade VUR were included. The median age was 36.3 months (18-89). In 4 cases, LEVUR was associated with contralateral endoscopic injection for low-grade contralateral VUR. The median operative time was 70 minutes (60-100). All patients discharged after voiding and only 3/9 patients had moderate post-operative pain. The median postoperative hospital stay was 6.0 hours (4.0-8.2). Two patients had postoperative febrile UTI and controlled cystography showed VUR recurrence on the side of endoscopic injection for one and no VUR for the other. No patients required a new hospitalization. The mean follow-up was 25 months (3-42).

CONCLUSION

LEVUR can be performed in day-case surgery as an efficient, quick and safe treatment of high-grade unilateral VUR in children. It can be associated with endoscopic injection for contralateral low-grade VUR.

LAPAROSCOPIC TWO STAGE SPERMATIC VESSELS SPARING PROCEDURE FOR INTRA-ABDOMINAL UNDESCENDED TESTIS

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Abstract

AIM OF THE STUDY

Several techniques have been proposed to safely bring the intra-abdominal undescended testis into the scrotum. The laparoscopic elongation of the spermatic vessels by suturing the testicle to the opposite abdominal wall was performed by Professor Sameh Shehata with favorable results. The aim of this study is to present a new laparoscopic surgical technique for elongation of the spermatic vessels for intra-abdominal undescended testis.

CASE DESCRIPTION

A 5 year old boy was referred to our department for unilateral, intraabdominal undescended testicle on the right side. A laparoscopic exploration was performed and the right testicle could be identified. Traction suture were placed on the testis and brought through the inguinal canal all the way to the scrotum. The testicle was pulled down and the spermatic vessels were put on moderate traction. The testicle could be mobilized down to the superficial inguinal ring. Six months later orchidopexy could be performed by inguinal approach. Periodic ultrasound evaluation up to 6 months confirmed that the testis was secured into the scrotum and without ischemic modifications.

CONCLUSIONS

Our laparoscopic surgical technique for elongation of the spermatic vessels for intra-abdominal undescended testis seems to be a viable alternative to the Shehata procedure. By preserving the spermatic vessels this procedure has the potential of better outcome than Fowler-Stephens technique.

MIS ENDOSCOPIC TREATMENT FOR GASTRIC OUTPUT OBSTRUCTION

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Abstract**BACKGROUND**

It's known that gastric output obstruction (GOO) caused by peptic ulceration has a good response to endoscopic balloon dilation. Our goal was to revise the efficacy of such treatment at our center.

MATERIALS AND METHODS

Since April 2015 until April 2019 we had 11 patients with GOO due to peptic ulcers. All children developed stenosis at the site of the ulcer: n=8 (72.7%)- at antral area, n=3 (27.3%)- the pyloric canal. Average age of patients was 6 years \pm 3 month, mostly boys n=8 (72.7%). Diagnosis was confirmed by a contrast esophagogram and upper endoscopy. Endoscopic dilation was done under general endotracheal anesthesia using balloons of different diameter. Under endoscopic vision the balloon was inserted into the stenosis area then dilated and kept bloated for 2.5-3.5 minutes. The day of the procedure patients received a single dose of antibiotic and hemostatic. In-between dilations children received antacids.

RESULTS

For all patients endoscopic balloon dilation was a walk-in procedure that required hospitalization for the day of the procedure. In average children required 4 \pm 3 procedures, with intervals of 2-4 months. Duration of the treatment was 12 \pm 3 months. Average diameter of stenosis lesion before treatment was 3 \pm 0,8mm, and after treatment dilated to 10 \pm 0,4mm. After endoscopic treatment 9 (81.8%) children became asymptomatic. Two patients (18.2%) required further open-surgical treatment.

CONCLUSION

MIS treatment such as endoscopic balloon dilation for gastric output obstruction is safe and feasible in the pediatric population. It is effective and avoids surgical treatment in 81.8% of cases.

MINIMALLY INVASIVE SURGERY (MIS) VERSUS OPEN SURGERY (OS) IN NEWBORNS WITH CONGENITAL DUODENAL OBSTRUCTION (CDO) AND ESOPHAGEAL ATRESIA (EA). SHORT TERM OUTCOME COMPARATIVE STUDY

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Abstract

BACKGROUND

Neonatal minimally invasive surgery is increasingly appealing in specialized centers. Evidences for different outcome measure are still lacking. Aim of this study was to compare short term outcome of neonatal surgical correction of foregut malformation (esophageal and duodenal atresia) with open or video-assisted surgery.

METHOD

Data from cases treated in our center in the period 2016-2019 were analyzed: birth weight (BW), gestational age (GA) at birth, comorbidities, age at surgery, operation time, days of mechanical ventilation, stay in NICU/PICU, complications, parenteral nutrition (PN) duration (days), days until minimal enteral feeding, days until full enteral feeding, hospital stay, weight at discharge. Cases with type I and II EA or referred to our center after surgical complications, were excluded.

RESULTS

Data from Thirteen patients treated via open surgery and 16 with MIS were eligible; there were not significant difference in BW, GA or comorbidity rate; BW was significantly lower in open cases. Duration of surgery was longer for MIS. Complication rate was the similar (23% vs 18%). Lower percentage of MIS patients vs open required inotropic support after surgery. Average duration of mechanical ventilation after surgery was equal (2 days). Median stay in NICU/PICU, PN duration, and total duration of hospital stay (median 25 vs 22.5 days) were shorter for MIS patients.

CONCLUSION

Short term measure of outcome in this study would confirm shorter recovery time for MIS. Low BW may influence the surgeon choice towards open surgery. Larger cohort is needed to confirm this findings.

PRELIMINARY RESULTS OF LAPAROSCOPIC STAPLED DUODENO-DUODENOSTOMY FOR DUODENAL ATRESIA

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Abstract

BACKGROUND

Duodenal atresia (DA) is ideally repaired laparoscopically. Complications have been previously reported such as anastomosis leakage and stenosis. We report here the first results of laparoscopic stapled anastomosis for duodenal atresia.

PATIENTS AND METHODS

All patients operated for DA in 3 international pediatric surgical centers were reviewed retrospectively. A 4-5 mm 30° angle camera and two 3 mm operative port were used. One was switched for a 5 mm to be able to use a 5 mm stapler (Just Right Surgical, Boulder, Colorado, USA). Once the mobilisation of the distal part of the duodenum below the atresia was completed, the proximal and the distal duodenal part were approximated and the anastomosis was then performed using the stapler.

RESULTS

11 patients were operated on, 6 boys. Two presented with associated anomalies (Malrotation, Down's syndrome and AV canal). Median weight at surgery was 2800g [2200-3800]. Median time for the procedure was 60 min [25-118]. There were no peri- or postoperative complications. Median time to 1st feed was 4 days [2-8] and median time to reach full enteral feed was 8 days [7-16]. Median discharge day was on day 8 [8-18].

CONCLUSIONS

Laparoscopic DA repair with stapled anastomosis allowed to perform a wide anastomosis without any complication in this series. Full feed could be obtained rapidly. These results need to be compared prospectively with laparoscopic hand-sewed anastomosis.

LAPAROSCOPIC MANAGEMENT OF JEJUNO-ILEAL ATRESIA. A SYSTEMATIC REVIEW AND META-ANALYSIS

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Abstract

BACKGROUND

Jejunal-ileal atresia is a common cause of intestinal obstruction in the newborn. It is corrected by small bowel excision and end-to-end/end to side enteroenterostomy, performed through a transverse laparotomy incision. However Laparoscopic surgery is a novel and widely accepted surgical modality. Unlike open surgery, laparoscopy is considered as least invasive and is associated with low risk of post-surgical infections. The increased use of laparoscopy led us to review the literature on laparoscopic surgical procedure among jejuno-ileal atresia patients.

METHODOLOGY

Literatures regarding laparoscopic management of jejuno-ileal atresia were searched using 3 search engines: PubMed, CINAHL Plus and Cochrane library from the Year 2000-2018. The case reports and original research studies in which the laparoscopic surgery for managing jejuno-ileal atresia was performed and must discuss the length of stay, complications and other treatment outcomes were considered for review. A total of 38 studies were extracted after applying different filters, Keywords and MeSH words.

RESULTS

All the literature reviewed favoured for laparoscopic surgery for the treatment of jejuno-ileal atresia among neonates. In addition, the majority of the studies supported that the laparoscopic procedure is associated with decreased length of stay, least complications and better cosmetic/therapeutic outcomes.

CONCLUSIONS

Laparoscopic surgery for the treatment of jejuno-ileal atresia and stenosis has advantages of a small incision, less trauma, and rapid recovery. This review highlights the significance of laparoscopic surgery for treating jejuno-ileal atresia, but a multi-center randomized would be needed because it will provide stronger evidence for carrying laparoscopic procedures.

LONG TERM FOLLOW-UP AND OUTCOMES IN LAPAROSCOPIC DUODENAL ATRESIA REPAIR. ANALYSIS OF OUR EXPERIENCE

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Abstract

AIMS

Duodenal atresia(DA) routinely has been corrected by laparotomy and duodenoduodenostomy with excellent long-term results. The first reports of laparoscopic repair of duodenal atresia date 2001 and 2002, when Bax et al. and Rothenberg described their initial experience with the novel approach. We revisited the patients with DA treated laparoscopically in our center analyzing the long-term outcomes.

METHODS

we retrospectively reviewed 11 patients in the last 10 years affected by Congenital Duodeanal Obstruction (CDO) and treated in our Centre with laparoscopic duodenoduodenostomy. In detail 1 web, 8 Duodenal Atresia (DA), 2 extrinsic obstruction. Of these 11 patients: 6 had Down syndrome and 5 had concomitant malformations. 10 patients underwent laparoscopic procedure; all procedures were performed with 3-mm instruments. The web was treated endoscopically.

RESULTS

Average operating time was 200 minutes. The visualization was excellent and there were no conversions, no intraoperative complications and no anastomotic leakage. Feedings were started on 3-7 postoperative days. Follow-up upper gastrointestinal test shown no evidence of stricture or obstruction both after surgery (5-7 postoperative days) and at a distance.

CONCLUSION

Laparoscopic repair of DA is one of the most challenging among pediatric laparoscopic procedures. These patients have a shorter length of hospitalization and more rapid advancement to full feeding compared to patients undergoing the open approach. It is still safe to practice laparoscopic repair of CDO in skilled surgeons, with attention to the possibility of distal pathology.

LAPAROSCOPIC HEPATICO-DUODENOSTOMY ASSOCIATED WITH INTRAOPERATIVE FLEXIBLE ENDOSCOPIC CHECK IN THE TREATMENT OF CHOLEDOCHAL CYST: PRELIMINARY EXPERIENCE AND TECHNICAL DETAILS

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Abstract

BACKGROUND

Choledochal cyst is a congenital dilatation of the biliary tree; it may affect only the extrahepatic bile duct (type I, II and III), intrahepatic (type V) or both (type IVa). Since 1995 laparoscopic approach to choledochal cyst excision was described; the two most commonly reconstructive intervention after cyst excision are hepatico-duodenostomy (HD) and Roux-en-Y hepatico-jejunostomy (HJ), with HJ been the most favourite among surgeons. Aim of this report is to describe technical details of laparoscopic HD.

PATIENTS AND METHODS

Laparoscopy was performed using 5 ports. The liver was retracted, the cystic artery and the cystic duct divided. The choledochal cyst was excised preserving the hepatic artery, portal vein, pancreas and duodenum and cyst was opened anteriorly. Patency of the hepatic ducts was assessed by flexible endoscopy through 1 port. HD was performed at 2 cm from the pylorus, using monofilament absorbable interrupted sutures.

RESULTS

Total surgery time was 125 minutes. No intraoperative complications were described. Postoperative drainage was minimal and biochemical analyses were normal. Post-operative US and contrast study showed no leak or dilatation. Oral feeding was started on post-operative day 5 and patient was discharged on post-operative day 8.

CONCLUSIONS

Laparoscopic excision of choledochal cyst with HD represents a safe and feasible alternative to HJ. It permits good visualization of the anatomical structures and the benefits of minimally invasive surgery in term of post-operative pain, cosmesis and length of stay. Associated flexible endoscopy could represent a good method to verify the patency of the biliary tree.

TRANSRECTAL ACCESS IN THE SURGICAL TREATMENT OF BILIARY ATRESIA

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Abstract**INTRODUCTION**

Nowadays there are two ways for formation Kasai procedure: traditional Kasai operation and laparoscopic one.

AIM OF THE STUDY

to evaluate the results of treatment of children with biliary atresia, operated from transrectal accessMethods.

MATERIALS AND METHODS

A retrospective analysis of the histories of children with biliary atresia who were treated in 2000-2018. 91 patients were included in the study. Patients were divided into three groups. Group A was the traditional Kasai operation (n-24), group B-Kasai laparoscopic surgery (n-45), group C-Kasai operation from transrectal access (n-22). The average weight at the time of surgery in group A was 3250g, in group B - 3175 g, in group C-3255 g. The average age of patients in the three groups was 71.91±24.7; 86.4±17.8; 84.3±21.3, respectively.

RESULTS

the duration of the operation in group A was 86.5±26.7min; in group B 93.6±19.2min; in group C -69.2±12.9min. The most frequent complication was cholangitis: in group A-21,7%, in B-21,1%, in C-19,1%. Other complications were: hemorrhagic syndrome (4 patients), bleeding from esophageal varices (7 patients). There were 5 complications in group A: perforation of intestine and adhesive intestinal obstruction. Similar complications after laparoscopic portoenterostomy and Kasai's operation from the transrectal access didn't occur.

CONCLUSIONS

The Kasai procedure increases survival with the native liver and creates favorable conditions for possible subsequent liver transplantation. Kasai's procedure, performed from the less traumatic approaches (laparoscopy, transrectal access) is preferable, because it reduces the number of postoperative complications and makes the postoperative period easier.

GALLBLADDER DUPLICATION : TIMING AND PITFALLS OF LAPAROSCOPIC CHOLECYSTECTOMY IN CHILDREN

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Abstract

Gallbladder duplication (GD) is a rare congenital abnormality. Pediatric surgeons may be aware with this malformation. Four diagnostic situations can be described : sonographic fortuitous diagnosis in an asymptomatic patient, preoperative diagnosis in a symptomatic patient with biliary complications, peroperative surprise during a laparoscopic cholecystectomy for a symptomatic patient, postoperative complication after laparoscopic cholecystectomy failing to recognize GD. Prenatal diagnosis seems to be very rare (only few reports in english literature).

We report a case of prenatal sonographic diagnosis of gallbladder duplication confirmed in the first months of life by abdominal ultrasonography. This now 1-year old boy is still asymptomatic and we wonder about the place of biliary MRI and preventive laparoscopic cholecystectomy.

Literature review is proposed aiming to focus on prenatal diagnosis, best imaging methods, classification and surgical indications of this rare congenital malformation.

UNUSUAL CASE OF ABDOMINAL MASS: ENDOSCOPIC DIAGNOSIS OF RAPUNZEL SYNDROME

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Abstract

INTRODUCTION

Rapunzel syndrome is a rare intestinal condition, predominately found in females and can be associated with trichotillomania. Rapunzel syndrome, first documented in 1968, can be described as a trichobezoar starting in the stomach and extending into the small intestine.

CASE REPORT

A 14 years old girl was admitted to the emergency department with history of epigastric pain, vomiting and weight loss. Abdominal examination revealed a mobile mass in the epigastrium and left hypochondrium. Investigations like complete blood count, liver function test, renal function test and serology has been carried out with relevant findings, showing Haemoglobin (Hb) of 9,7 g/dl and microcytic normochromic anaemia. Ultrasound, direct abdomen X-Ray and Computed Tomography scan were done. The final diagnosis was made by upper gastrointestinal endoscopy that showed a voluminous gastric trichobezoar with a tail that extended through the pylorus into the duodenal bulb.

DISCUSSION

The problems encountered in the diagnosis and management of our clinical case have led us to re-evaluate this pathology and its correct management. The trichobezoar, thanks to the capacity of extension of the stomach, grows progressively without giving an important symptomatology, it can progressively determine weight loss, anemia, and subsequently an epigastric abdominal mass. The direct abdomen X-Ray is not diagnostic in these cases as it is not u.s. abdomen which are the tests normally carried out in patients with acute abdominal symptoms. The CT exam allows to suspect the intragastric mass, the endoscopic examination allows us to identify the nature of the mass and its dimensions.

MINIMALLY INVASIVE SURGERY FOR HIRSCHSPRUNG PATIENTS WITH PERSISTENT POSTOPERATIVE OBSTRUCTIVE SYMPTOMS

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Abstract**INTRODUCTION**

Surgery for Hirschsprung (HSCR) patients with persistent postoperative obstructive symptoms is technically demanding. Most of surgeons resort to conventional laparotomy. This paper will report the results of a series of symptomatic operated HSCR patients who underwent minimally invasive procedures.

PATIENTS AND METHODS

All consecutive HSCR patients with postoperative issues who underwent minimally invasive surgery for diagnostic or therapeutic purposes have been retrospectively included. Data regarding indications to surgery, surgical details, complications, and long-term outcome have been collected.

RESULTS

A total of 14 HSCR patients underwent 17 procedures (either laparoscopic or robotic) between March 2012 and March 2018. Male to female ratio was 6:1. Median age at surgery was 41 months. Nine patients suffered from rectosigmoid aganglionosis, 3 long HSCR, 2 total colonic aganglionosis. The following procedures have been performed: 6 colonic mapping for suspected residual innervative issues, 9 Redo Georgeson pull-through, 1 redundant rectal pouch robotic excision after failed Duhamel pull-through, and 1 redo Robotic Soave pull-through. No major intraoperative or postoperative complications occurred. One patient who underwent redo procedure experienced recurrent bouts of enterocolitis postoperatively. Another patient experienced withholding behaviour requiring persistent bowel management. Continence scored excellent to good in 8 out of 10 patients who underwent a redo pull-through.

CONCLUSIONS

Minimally invasive surgery proved to be safe and effective even for complicated HSCR patients. It can be used both for diagnostic and therapeutic purposes. Our study confirms that complicated HSCR cases can be safely managed with a minimally invasive approach to serve the best for our patients.

COMPARISON OF PERIOPERATIVE OUTCOMES BETWEEN LAPAROSCOPIC AND OPEN PARTIAL SPLENECTOMY IN CHILDREN

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Abstract

BACKGROUND

In order to avoid consequences of total splenectomy, partial splenectomy (PS) is increasingly reported. The purpose of this study was to compare the perioperative outcomes of laparoscopic (LPS) versus open partial splenectomy (OPS) in children and adolescents.

METHODS

After IRB approval all patients who underwent LPS or OPS between January 2008 and July 2018 were identified from the database of our tertiary referral center. Total blood volume was calculated through Nadler's equation. Estimated blood loss was calculated through the Mercuriali formula. Perioperative outcomes were assessed.

RESULTS

LPS was performed in 10 patients; 16 patients had OPS. Demographics, primary disease, preoperative spleen size and latest hemoglobin prior to operation did not differ between LPS and OPS. The frequency of simultaneous cholecystectomy was comparable (60% and 81% for LPS and OPS respectively; $P=0,369$). Median operative time (min) was 144 versus 185 for LPS and OPS respectively ($P=0,263$). Postoperative spleen volume (ml) was in median 12 and 16 for LPS and OPS respectively ($P=0,646$). Median time from operation (OP) to initiation of feeds ($P=0,431$), OP to full feeds ($P=0,619$), OP to mobilization ($P=0,531$) and length of hospital stay ($P=0,563$) did not differ between both groups. Adverse events according to Clavien-Dindo classification ($P=1$) and comprehensive complication index ($P=0,491$) and calculated perioperative RBC loss did not differ between LPS and OPS.

CONCLUSIONS

LPS and OPS in our small consecutive patient series had similar perioperative outcomes. In our perspective LPS in experienced hands appears safe and displays a viable alternative to OPS.

EXPERIENCE OF MINIMALLY INVASIVE SURGERY IN CHILDREN WITH NEUROGENIC TUMORS OF THORACOABDOMINAL LOCALIZATION ASSOCIATED WITH IDRF

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Abstract

The indications for minimally invasive surgery (MIS) in children with localized thoracoabdominal neurogenic tumors are determined regarding surgical risks evaluated on CT/MRI imaging.

To show the possibility of MIS in children with neurogenic tumors associated with surgical risks factors (IDRF).

From June 2015 to February 2019, 19 patients with neurogenic thoracic and abdominal tumors with IDRF were operated. Among all cases, there were tumors extending on two areas of the body (A2), involving vessels (C2, D1, E1), infiltrating rib-vertebral junction (D3) and other structures (H2, H3, H4). Age of patients ranged from 3 months to 17 years ($\mu=3,4$ years). Boys were 7, girls – 12. Thoracoscopy was performed in 16 patients, laparoscopy in 3. When the main vessels were involved in a tumor, precise their separation circularly was performed. There was a circular fouling of the thoracic aorta within tumor in two cases: one patient with two sided thoracic neuroblastoma was operated in in both hemithorax via thoracoscopy with releasing of the thoracic aorta. The duration of surgery ranged from 1 h 50 min to 5 h 30 min ($\mu=2,3$ h). Maximal blood loss was 18% of circulating blood volume ($\mu=4\%$).

There was one complication intraoperatively – injury of the wall of the common iliac vein (Clavien-Dindo IIIb). Blood flow in the released vessels was controlled by ultrasound dopplerography. Postoperative complications were chylothorax (1), transitory increasing Horner syndrome (3).

With the accumulation of experience of extensive cytoreductive operations, we are able to perform macroscopically complete removal of the tumor with IDRF.

LAPAROSCOPIC HILL SNOW REPAIR FOR PHYSIOLOGIC GERD IN OUR CENTRE. LONG TERM FOLLOW-UP

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Abstract

AIM

Nowaday laparoscopic fundoplication is considered a gold standard in surgical treatment of symptomatic gastroesophageal reflux disease(GERD). Laparoscopic Nissen fundoplication(LNF) and laparoscopic Hill-Snow repair(LHSR) are established surgical antireflux procedures. LHSR is a "Physiologic" technique that should have less side effects. The aim of this study is to clarify LHSR effectiveness and its indication in GERD patients according long-term follow-up data.

METHODS

We retrospectively studied 42patients affected from GERD and operated with LHSR from 2009 to 2019. We treated 29males(70%) and 13females(30%), aged 1-11years, with mean age of 3years. Weight range was 4-37kg. Six were cerebral palsy patients.

RESULTS

Neither intra nor postoperative complications were recorded. 40patients had a complete follow-up; mean was 60 months(2-12 years). They were evaluated with clinical examinations, barium swallow at 6 and 12 months(33/42pts), upper gastrointestinal endoscopy at 12months(14/42pts). Relapse was recorded in 3/6 of cerebral palsy patients. Overall relapse rate 7%(3/42pts). 35(83%) were symptoms free. 5 referred occasionally epigastric pain; 2 epigastric pain associated to vomit; 35 ability to vomit, 3 occasionally difficulty to swallow. All reported being able to burp. No gas air bloat and dumping was recorded.

CONCLUSION

LHSR yield excellent results in term of relapse and side effect (capability to vomit, burping) at 12years of follow-up. Our report represent in the literature the largest pediatric patients series with encouraging results. LHSR is technical demanding (number of stitches, cardias position and gastric fundus) but presented absent relapse above all in non-neurological impaired children.

COMPARISON OF INFLAMMATORY STRESS RESPONSE BETWEEN LAPAROSCOPIC AND OPEN APPROACH FOR PEDIATRIC INGUINAL HERNIA REPAIR IN CHILDREN

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Abstract**AIM OF THE STUDY**

To compare inflammatory stress response between laparoscopic percutaneous inguinal ring suturing (PIRS) and open modified Marcy technique for pediatric inguinal hernia repair.

METHODS

From May 2017 to April 2018, 32 male children with median age of 4.5 years undergoing inguinal hernia repair were included in randomized controlled trial. Divided in two groups, using random number generator, depending on surgical approach. The blood was tested in 3 time frames for white blood cells count(WBC), C-reactive protein(CRP), Interleukin-6(IL-6) and tumor necrosis factor alpha(TNF- α).

MAIN RESULTS

Significant increase in concentration for all inflammatory biomarkers, that occur over time, has been found($p < 0.001$ for all). Additionally, it was also found that the type of surgery significantly influenced the level of WBC, CRP and IL-6 with Marcy showing a higher level of inflammatory response(WBC $11.4 \pm 3.1 \times 10^9/L$; CRP 11.5 mg/L ; IL-6 11.0 pg/ml) than the PIRS(WBC $7.6 \pm 1.6 \times 10^9/L$; CRP 0.8 mg/L ; IL-6 2.0 pg/ml)($p < 0.001$ for all). Similar pattern was also found for TNF- α (Marcy 16.8 pg/ml ; PIRS 10.1 pg/ml), but correlation between surgery type and concentration of this biomarker was significant only at the 0.1 level($p = 0.055$). The mean operation time was significantly shorter($9 \pm 2 \text{ min}$) in PIRS group compared to Marcy group($25 \pm 7 \text{ min}$)($p < 0.001$). Significantly lower median of visual analog scale score(VAS) was found in PIRS group (VAS=2) compared to Marcy group (VAS=6)($p < 0.001$).

CONCLUSIONS

Use of PIRS technique in children shows significantly lower surgical stress in comparison to open hernia repair.

DEVELOPMENT IN THE SURGICAL TREATMENT OF ACUTE APPENDICITIS: A SINGLE CENTER EXPERIENCE

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Abstract**PURPOSE**

Laparoscopy has become the treatment of choice for acute appendicitis. Aim of study was to compare open (OA) and laparoscopic (LA) approaches in all forms of acute appendicitis.

METHODS

Two hundred and ninety-two children underwent appendectomy (238 LA/ 54 OA). 3/238 pts required conversion. LA surgical technique has been modified by closing also the distal stump of appendix (DSC) before removing it.

RESULTS

Early experience: 130 appendectomy, 44 by OA (34%) and 86 by LA (66%). Mean operative time was similar for both techniques. Complicated appendicitis (CA) was observed in 14 pts (11%). 10 treated with OA (10/14=71%) and 4 with LA (4/14=29%). Complications occurred mainly in the LA group without statistical significance. Late experience: 162 appendectomy, 10 OA (6,17 %) and 152 LA (93,8%). Thirty-eight children (23.4%) had CA. Mean operative time was lower in laparoscopic group without reaching statistical significance. Total CR was 7,4%. CR in pts with DSC was null and significantly lower when compared to pts without DSC.

CONCLUSION

Our results demonstrate that nearly all cases of appendicitis may be managed by laparoscopy. Ligature of distal appendiceal stump is a trick that may significantly improve outcomes during laparoscopic appendectomy.

LAPAROSCOPIC APPENDICECTOMY IN CHILDREN; CURRENT PRACTICE AND FUTURE CHALLENGES IN MALTA. A PRELIMINARY REPORT

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Abstract

INTRODUCTION

Progression of Minimal Invasive Surgery (MIS) in children has advanced greatly over years. Evolution of laparoscopic instrument miniaturization and advanced surgical skills gained over years of experience have resulted in a substantial increase in the use of MIS in many complex procedures. Prospective randomised trials and high-level evidence for benefit of endoscopic surgery are still limited. This article is a retrospective look on MIS in the paediatric population in tertiary referral centre in Malta.

AIM AND METHOD

A retrospective study of MIS in Paediatric tertiary referral centre in Malta. This review summarises the current practices in paediatric acute appendicitis cases. The team reviewed patients' demographics, presentation, hospital stay, investigations, radiological data, operative time, technique and outcome; hospital stay, analgesia and antibiotic use, morbidity, mortality and follow up including histology.

RESULTS

32 children have been involved in current study. No cases required conversion and all procedures were carried out by Paediatric surgical team as emergency cases. Age at surgery ranges from 4-15 years, with a mean operative time of 60 and 90 minutes for simple/perforated cases respectively. Morbidity was reported, with no mortalities.

CONCLUSIONS

Advantages include superior exposure, less tissue trauma and enhanced post-operative mobility. With endoscopic instruments of adequate size and appropriate surgical skills it appears that there is no age/weight limit for MIS. We strongly believe that MIS is safe to find its place in paediatric surgery and children will continue to benefit from this technique.

Our numbers though relatively small, are reflective of the Maltese population.

LAPAROSCOPIC CORRECTION OF A PRENATALLY DETECTED POUCH COLON TYPE 2 MALFORMATION

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Abstract

We report the case of a prenatally suspected anorectal pouch colon malformation in a male fetus.

The fetus was referred at 20gw because a dilated bladder, the intestinal dilatation was detected later at 24 gw. A fetal RMN was indicated and a colon pouch malformation was suspected.

The baby was born at 35gw by urgent cesarean section for PROM. At birth the absence of the anus was confirmed and an abdominal X-Ray confirmed the bubble shaped appearance of the pouch. In the first day of life an ileostomy was performed and the anatomy explored: the cecum and a small portion of the ascending colon were identified while the rest of the colon was all pouch shaped. At 6 months laparoscopic correction was planned. We used three ports: the umbilical port for a 5mm 30° optic and 2 operative ports, a 3 mm and a 5mm one. The fistula, on the posterior wall of the bladder slightly left sided, was isolated and divided between Hemolock clips. We freed the pouch, respecting the vascularization. The pouch was pulled to the anal region, with previous identification of the muscular complex by external and internal electrical stimulation. After perineal skin incision and dilatation of the neo-anal canal, the pouch was taken to the anal region and an anoplasty was performed. Recovery was uneventful.

Unfortunately the follow up is up to now too short to present our functional results of the use of the whole pouch, which in literature is still a matter of debate.

THE LAPAROSCOPIC APPROACH TO THE SPLENIC CYSTS IN CHILDREN

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Abstract**AIM**

Splenic cysts are rare in childhood. Laparoscopic approach (LA) has been gaining popularity in the majority of splenic cyst surgery. However, there is no sufficient data for LA. The aim of the study was to present the cases with splenic cyst treated by LA.

METHODS

The cases with splenic cyst treated by LA from January 2013 to April 2019 were retrospectively reviewed in terms of demographic and clinical features, diagnostic and surgical methods, and postoperative results. The laparoscopic method was performed by 3-4 ports on the left side oblique position, according to the location and structure of cysts. Extracted tissues and aspirated fluid were evaluated histopathologically.

RESULTS

LA was performed in 6 patients (mean age 12.1 years). The most common complaint was abdominal pain. The diagnosis was made by ultrasonography (US), computerized tomography (CT) and/or magnetic resonance imaging (MRI). The mean cysts diameter was 4.4 cm and located on the upper (n:1), middle (n:3) and lower pole (n:1). LA including aparoscopic unroofing (n=3), partial cyst excision (n=1) and pericystic excision (n=2) for the splenic hydatid cyst. There was no intraoperative complication, and no converted to open surgery. The mean time of surgery was 42 min. No postoperative complications were observed. The mean hospital stay was 3 days, there was no problem in follow up. Histopathological examinations showed no malignancy, simple cyst, cyst hydatid, and mesothelial cyst.

CONCLUSION

Laparoscopic spleen sparing surgery is a reliable and effective method for symptomatic patients, although spleen cysts rarely seen in childhood are mostly benign and conservative.

PANCREATIC SURGERY IN CHILDREN

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Abstract

Nowadays pancreatic surgery remains one of the most complicated section of pediatric surgery, because of the specific pathology and uncommon anatomy of the organ.

MATERIALS AND METHODS

77 children with pancreatic pathology were operated 2013-2018. Age- 6 months to 17 years. The spectrum of pathology was: pancreatic lithiasis - 1 patient (1,3%), malformations of pancreatic duct - 11 patients (14,2%), traumatic injuries - 4 patients (5,2%), pancreatic cysts - 35 patients (45,4%), solid pseudopapillary neoplasm of the pancreas - 18 (23,4%), cystic lymphangioma - 4 (5,2%), serous cystadenoma - 1 (1,3%), pancreatic metastasis from Ewing's sarcoma - 1 (1,3%), Burkitt lymphoma with pancreatic involvement - 1 (1,3%), mature teratoma - 1 (1,3%).

RESULTS

Various types of operations were performed, depending on the localization of cysts and neoplasm: Roux-en-Y pancreatic cyst-jejunostomy - 20, resection of pancreatic cyst with roux-en-y pancreaticojejunostomy - 6, atypical pancreatic resection with enucleation of the neoplasm - 17, distal pancreatectomy with splenectomy - 3. Roux-en-Y longitudinal pancreaticojejunostomy was performed in the presence of dilatation of pancreatic duct or traumatic injuries of the pancreas in 18 cases. Pancreatic resection with roux-en-y pancreaticojejunostomy - 9 (1 was performed by laparoscopic technique). Pancreatoduodenal resection - 3 (neoplasm in the head of the pancreas). And in one case laparoscopic enucleation of the neoplasm.

SUMMARY

Thus, type of surgical intervention depends on the localization of pathological focus and can be combined with spleen or duodenal resection. It is most expedient to perform Roux-en-Y longitudinal pancreaticojejunostomy with wide anastomosis to ensure an adequate outflow of the pancreatic juice during pancreatic trauma or dilatation of pancreatic duct.

SIGMOID VOLVULUS IN CHILDREN AND MINIMALLY INVASIVE TREATMENT

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Abstract

Sigmoid volvulus is rare in children and can present as acute or recurrent abdominal pain. We report our case studies of seven cases analyzing clinical features, diagnostics, therapeutic options and treatment. From 2012 to 2018 seven cases of sigmoid volvulus were diagnosed and treated (median age 7 years; male to female ratio 4:3). In two cases urgent laparotomy was performed with resection of the volvulus tract of necrotic appearance and primary anastomosis. One case underwent mini-laparotomy and resolution (derotation) of the volvulus. Three cases were treated conservatively with endoscopic derotation and one case resolved with barium enema. The post-operative course in all cases was regular without complications. Two cases treated conservatively have relapsed and underwent laparoscopic treatment. One case was treated by laparoscopic sigmoid resection with primary anastomosis whilst the second case, associated with malrotation, underwent laparoscopic widening of the mesosigmoid attachment according to the concept of Ladd's procedure to induce post-operative adhesion and prevent recurrence. Sigmoid volvulus, despite infrequent cause of acute abdomen in children, must be considered in the differential diagnosis especially in cases of acute onset in well-being. Treatment options can be surgical, endoscopic and with barium enema. The choice of the most appropriate treatment is related to the time of onset, the radiological characteristics and the clinical stability of the patient. In our experience there have been two episodes of recurrence of the volvulus and no case of association with aganglia.

LAPAROSCOPIC SUTURE RECTOPEXY AND SIGMOIDOPEXY FOR RESISTANT COMPLETE RECTAL PROLAPSE IN CHILDREN

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Abstract

AIM

To assess the effectiveness of Laparoscopic suture rectopexy and sigmoidopexy LRS for resistant complete rectal prolapse in children.

MATERIAL AND METHODS

Patients with complete rectal prolapse resistant for medical treatment more than 3 months or with complications .cases with pervious surgery for anorectal malformations were excluded .

Follow up at least for 6 months post operatively for recurrence, constipation.

Surgical technique includes 3-port laparoscopy. Fixation of the rectum to the sacral promontory with nonabsorbable suture, and fixation of the sigmoid colon to the abdominal wall at left iliac fossa.

RESULTS

23 patients were operated upon 15 males 8 females , age range 6 months 3 years with a mean of 1.3 years . Follow up ranged between 6 m and 14 months with a mean of 8.4 months . No case had recurrence during follow up.

CONCLUSIONS

LRS is simple and effective technique with high success and low complication rate for the management of resistant complete rectal prolapse in children.

LAPAROSCOPIC APPENDECTOMIES: MEDICO-ECONOMIC COMPARISON FOR "IN" AND "OUT" TECHNIQUES

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Abstract

In a context of increasing expenses related to growing laparoscopic equipment, a study was carried out to compare the efficiency of two appendectomy techniques with 3 trocars: « in » (intra-abdominal appendectomy) and « out » (extra-abdominal appendectomy). The aim was to determine which technique would optimize expenditures in this frequent pediatric condition without losing opportunities for children. Total cost of surgical equipment, as well as comparison of the post-operative complications were expertized. Data were retrospectively extracted over one year-period using the Ameli-Blocs software from the CCAM acts coding the appendectomies (uncomplicated appendicitis). The choice of the surgical technique was left to the discretion of the operators (senior surgeons). The following data were collected: demographic data; intervention (type, duration, material used, post-operative follow-up); stay (duration and valorisation). The « in » (n=49) and « out » (n=13) groups were comparable for sex, age, length of stay post-operative outcomes and facility revenue. Operating time and procedure cost (related to consumables) were significantly ($p < 0.0001$) superior for the "in" group. (Fisher's exact test and Mann-Whitney's test). Comparing two laparoscopic approaches for the same degree of appendicitis severity, results are equivalent in terms of quality of care and length of stay. The "out" technique reduces the duration of the procedure, and with equivalent income for the institution, it seems cheaper. In the current economically limited context, the use of the "out" technique for laparoscopic treatment of uncomplicated appendicitis would reduce costs while maintaining optimal patient care.

EFFECTIVENESS OF TULAA FOR ACUTE APPENDICITE IN CHILDREN: A LOCAL EXPERIENCE COMPARED WITH A META-ANALYSIS

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Abstract

AIM OF THE STUDY

to review effectiveness of TULAA technique in management of acute appendicitis in children in a single center compared with worldwide data performing a meta-analysis involving the most recent published articles.

MATERIALS AND METHODS

local database included patients under 18 y.o. undergoing TULAA procedure from January 2010 to June 2018. For the meta-analysis electronic search of EMBASE, PubMed, and MEDLINE articles published between January 2006 to August 2018 regarding TULAA. For both groups evaluation of mean age at surgery (AS), operation time (OT), length of stay (LOS), complications rate (CR), conversion to open appendectomy (OA), and need of additional trocars (AT). Statistical analysis comparing the 2 groups.

RESULTS

567 patients presented with acute appendicitis, 494 uncomplicated, 73 complicated. TULAA was finalized in 503 patients. AS 10.36 years, OT 86 min, LOS 5.62 days, CR 3%, OA 3%, AT 7.4%. For meta-analysis 7 retrospective studies, including 1.234 patients, were analysed. AS 10.8 years, OT 38.5 min, LOS 1.1 days, CR 7%, OA 2%, AT 3%. A significant increase of OA, AT, LOS (p-value <0.001) and a significant decrease CR (p-value 0.020) was found in our institution as compared to the meta-analysis. OT was similar.

CONCLUSIONS

From our experience compared with meta-analysis, TULAA is a safe, simple and cost-effective approach that provides an excellent exploration of the abdomen even for complicated appendicitis with a short hospital stay and a low complication rate. Prospective studies are needed.

VIDEO-LAPAROSCOPIC INGUINAL HERNIA REPAIR: SINGLE CENTRE EXPERIENCE

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Abstract

In the last two decades video-laparoscopic hernia repair gained an increasingly relevant role for inguinal hernias correction.

In our experience this procedure has been performed safely, from neonatal age to adolescence. After gaining laparoscopic access to the abdomen, according to the technique, we close the internal inguinal ring with a circumferential stitch of non-resorbable suture, preserving both spermatic vessels and vas deferens. We check if the contralateral ring appears to be open and correct it at the same time.

Since 2012, 152 patients underwent laparoscopic hernia repair: 109 males and 43 females. Mean age at time of surgery was 36 months. In 62 cases the repair was bilateral, in 57 cases on the right side, in 33 on the left. Mean operative time was 52 minutes. About 50% of patients were operated during their first year of life. In 36% of cases the procedure was in day surgery, while in 64% there was one night hospital stay. Among these patients, two underwent emergency laparoscopy due to non reducible hernias. Relapse occurred in only one case, while one patient developed meta-chronous contralateral inguinal hernia not seen at time of surgery.

The main advantage of this technique is the possibility to perform an easier and safer reduction of herniated contents; this is especially true for incarcerated and strangulated hernias where traction from inside the abdomen helps to reduce the viscera without compromising the spermatic cord. Moreover it allows closure of both inguinal orifices and surveillance for contralateral hernias.

POSTERIOR TRACHEOPEXY FOR SEVERE TRACHEOMALACIA: A NEW SOLUTION FOR AN OLD PROBLEM?

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Abstract

BACKGROUND

Tracheomalacia (TM) can cause severe respiratory conditions, including respiratory distress and/or infections, impossibility to wean from ventilation, apnea, cyanosis, and death. We aim to present our preliminary experience of thoracoscopic posterior tracheopexy (TPT) as a valid alternative to anterior tracheopexy in order to resolve TM.

PATIENTS AND METHODS

Patients affected by TM and referred at our Centre between April 2018 and April 2019 were recorded. Operative technique: after pre-operative dynamic bronchoscopy, a right thoracoscopic approach was performed with the patient on semi-prone lateral decubitus on the left side. Esophagus was carefully dissected and encircled with two laces with preservation of right and left vagus and lifted up, proceeding with the separation of the trachea from the esophagus in order to expose the pars membranacea. The anterior spinal ligament was prepared and the thoracic duct was respected. Under direct bronchoscopic visualization, in order to check the opening of the tracheal lumen, the posterior membrane was approximated to the spinal ligament.

RESULTS

Three patients were included. Indications were: TM associated with esophageal atresia, TM associated with tracheomegalia after FETO procedure for diaphragmatic hernia and primary tracheomalacia persistent after aortopexy. No intra-operative complications were observed and short-term follow-up was uneventful.

CONCLUSIONS

The treatment of TM has not been standardized. For severe cases, aortopexy is the classical approach, but it does not resolve posterior intrusion of pars membranacea. Few Centres have experience of TPT. In our preliminary experience, TPT can be a valid approach for treating these difficult patients.

THORACOSCOPIC MULTISTAGE REPAIR OF LONG-GAP ESOPHAGEAL ATRESIA USING INTERNAL TRACTION SUTURE TECHNIQUE – EVOLUTION OF THE METHOD

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Abstract

A multistage thoracoscopic repair of long-gap esophageal atresia using internal traction technique was developed that evolved with time and growing experience. The goal of the study is to present the changes in the strategy and important technical aspects of method.

35 cases of newborns with long-gap esophageal atresia (type A-26 cases and B-9 cases exclusively) were operated thoracoscopically between 2008 and 2019 using internal traction technique in different pediatric surgery centers (Poland-28, Czech-1, Ukraine-1, Switzerland-2, Egypt-2, Russia-1).

Of 35 newborns operated 2 patients died before the final stage from not surgically related causes. Two patients had complications that required neck fistula and had later Collis-Nissen and colon interposition respectively. For 31 cases the final esophageal anastomosis was completed in 2-stages - 17 cases, 3-stages - 9, 4-stages - 2, 5-stages - 2 and 6-stages -1. At the beginning the time between stages was planned for 4 weeks and it was shortened for the last three cases to 5 days avoiding gastrostomy. The internal traction was modified from using two traction loops to one traction loop with two slipping knots on each branch of the loop and different technique of clips placement to increase the created static traction force.

CONCLUSIONS

Results of the study may indicate that in majority of long-gap esophageal atresia it is possible to preserve native esophagus by thoracoscopic approach using internal traction suture technique. Shortened time between stages allowed to complete the final esophageal anastomosis with gastrostomy avoidance.

PRELIMINARY RESULTS OF LAPAROSCOPIC STAPLED DUODENO-DUODENOSTOMY FOR DUODENAL ATRESIA

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Abstract**BACKGROUND**

Duodenal atresia (DA) is ideally repaired laparoscopically. Complications have been previously reported such as anastomosis leakage and stenosis. We report here the first results of laparoscopic stapled anastomosis for duodenal atresia.

PATIENTS AND METHODS

All patients operated for DA in 3 international pediatric surgical centers were reviewed retrospectively. A 4-5 mm 30° angle camera and two 3 mm operative port were used. One was switched for a 5 mm to be able to use a 5 mm stapler (Just Right Surgical, Boulder, Colorado, USA). Once the mobilisation of the distal part of the duodenum below the atresia was completed, the proximal and the distal duodenal part were approximated and the anastomosis was then performed using the stapler.

RESULTS

11 patients were operated on, 6 boys. Two presented with associated anomalies (Malrotation, Down's syndrome and AV canal). Median weight at surgery was 2800g [2200-3800]. Median time for the procedure was 60 min [25-118]. There were no peri- or postoperative complications. Median time to 1st feed was 4 days [2-8] and median time to reach full enteral feed was 8 days [7-16]. Median discharge day was on day 8 [8-18].

CONCLUSIONS

Laparoscopic DA repair with stapled anastomosis allowed to perform a wide anastomosis without any complication in this series. Full feed could be obtained rapidly. These results need to be compared prospectively with laparoscopic hand-sewed anastomosis.

CONTINUOUS SUTURE TECHNIQUE FOR ANASTOMOSIS IN ESOPHAGEAL ATRESIA AND CLIP LIGATION OF TRACHEO-ESOPHAGEAL FISTULA IN NEWBORNS

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Abstract**AIM OF THE STUDY**

A recent biomechanical study in porcine esophagus model has shown that continuous running rather than simple interrupted suture technique for esophageal anastomoses achieved similar linear breaking strength as native tissue. This prompted us to apply this running suturing technique the anastomosis in esophageal atresia (EA) after clip-ligation of the tracheo-esophageal-fistula (TEF) in newborns.

METHODS

Two newborns with EA and TEF were treated using our novel suturing technique. Three trocars were placed in a left lateral decubitus: A 3mm trocar for the 30° angulated camera in the 5th intercostal space, a 3mm working trocar in the midaxillary line of the 8th intercostal space and a 5mm trocar in the axillar. Clip ligation and continuous suture of the anastomosis is carried out as shown in the video attached.

RESULTS

Tracheobronchoscopy showed a tracheo-esophageal orifice 1 cm above the carina. During thoracoscopy in 1 patient the fistula was noticeably cranial of the azygus vein and fistula ligation was facilitated using polymer locking clips. Both posterior and anterior walls were accomplished using a continuous braided polyglactin suture. Mean operating time was 104 minutes. Tansanastomotic feeding was started day 1 and contrast study on day 3 showed a wide open anastomosis without leakage.

CONCLUSION

Using continuous running sutures for the reconstruction of both the back and front wall of the esophageal anastomosis resulted in a quick, watertight, secure and widely patent anastomosis. Clip-ligation of the TEF was also easily performed and helped shorten the operative time even further.

THORACOSCOPIC REPAIR OF H-TYPE TRACHEOESOPHAGEAL FISTULA

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Abstract**AIM**

H-type isolated tracheoesophageal fistula (TEF) is a rare anomaly comprising about 4% of all types of esophageal atresia. We reviewed experience of two university centers with H-type fistula to assess the utility of thoracoscopy.

METHODS

A retrospective review was conducted of eleven cases who underwent a thoracoscopic procedure for H-type TEF.

RESULTS

There were 9 boys and 2 girls (age range 5days – 4years), 7 of these were neonates. Most common presenting symptoms were decrease of oxygen saturation during feeding in neonates and recurrent pneumonia in older. The diagnoses were established on X-ray contrast study and were confirmed via tracheoscopy. The fistulas were localized below thoracic inlet, distance between fistula and carina ranged from 2 to 4,5cm. The same surgical technique was used: the patient was placed in a semiprone position, and three trocars were positioned: the camera port below the tip of scapula (5mm), right-hand instrument more proximally in posterior axillary line (5mm) and left-hand instrument more posteriorly than the camera (3mm). Trachea and esophagus were bluntly separated above the azygos vein and the fistula was localized. The fistulas were closed using 5mm metallic clips or using non-resorbable ligation in cases of wide fistula. The fistula was divided in 8 pts, division of fistula was refrained in 3 pts. The postoperative course was uneventful in all except one who required treatment for chylothorax. No recurrence was observed during follow up.

CONCLUSION

Thoracoscopic repair of isolated H-type TEF below the thoracic inlet is effective minimally invasive procedure with satisfactory results.

THE APPLICATION OF PERCUTANEOUS SUTURING TECHNIQUE IN THORACOSCOPIC REPAIR OF CONGENITAL DIAPHRAGMATIC HERNIA

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Abstract

INTRODUCTION

Thoracoscopic surgery of congenital diaphragmatic hernia (CDH) is connected with a higher incidence of recurrence than open repair. This is usually caused by the dehiscence of diaphragmatic suture within its lateral part. This site is characterized by an increased tension on approximated tissues and difficult thoracoscopic suturing. For more effective repair, the authors adopted the original technique of Percutaneous Internal Ring Suturing (PIRS).

OBJECTIVE

The aim of this study was to present and evaluate the efficacy of percutaneous suturing technique for the repair of CDH.

MATERIALS AND METHODS

Retrospective analysis of the medical data of patients with CDH, treated in the Department of Pediatric Surgery of the Jagiellonian University Medical College in Kraków from January 2013 to March 2019. Percutaneous suturing method was applied when thoracoscopic repair under acceptable tension, appeared impossible.

RESULTS

Fifty one five patients were identified. Eleven children died before, while one after surgical repair. Thirty nine were operated and survived (76%). Thoracoscopy was applied in 28 (72%) cases, with 3 conversions. The overall recurrence rate in patients after thoracoscopic closure of the defect was 16%, with 6% in the group after thoracoscopic repair with additional use of percutaneous suturing (1 out of 16 patients). The follow-up ranges from 1 to 69 months.

CONCLUSION

The applied technique of percutaneous suturing enables safe and effective closure of intermediate size diaphragmatic defects, under acceptable tension. The method is feasible and can be listed among countermeasures against recurrence.

UTILITY OF FIBER BRONCHOSCOPY IN THE MANAGEMENT OF A NEONATE WITH VACTERL ANOMALAD

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Abstract

VACTERL anomalad is clinically defined by the presence of at least 3 features from a cluster of congenital malformations. As for many other conditions, the ability to detect it prenatally is very much dependent on the skill and experience of the practitioner.

Our male patient presented with confirmed left renal agenesis and suspected cardiac malformation antenatally. Clinical findings after birth raised the suspicion of an esophageal atresia type III, subsequently confirmed on x-Ray. A completely blank superior left lung was also noted and a right pulmonary artery stenosis was confirmed. An open right thoracotomy was performed, with successful closure of the T-E fistula and primary esophageal anastomosis.

During surgery, there was difficulty with left lung ventilation, that persisted long after the procedure, exacerbated by the severe pulmonary hypertension. A tracheobronchial exploration by 2 mm fiber bronchoscope was undertaken. It showed several features: a) a stenosis of the main left bronchus, reaching a barely 1 mm diameter at 0.5 cm from the tracheal bifurcation; this was associated with a left superior lobe agenesis, certified on CT scan; b) a lack of the 3rd ramification of the right main bronchus, suggestive for a "mirror lung" anomaly; c) a completely obturated T-E fistula, at 0.5 cm above the carina. Bronchial irrigation and aspiration were also performed through the fibroscope. The patient is currently at home, but will require subsequent surgeries.

Though pediatric sized fiber bronchoscopes are not readily available for use by neonatal surgeons, they may bring a tremendous contribution to patient management.

UNIQUE THORACOSCOPIC TECHNIQUE FOR POSTEROLATERAL TRIANGLE REPAIR IN CONGENITAL DIAPHRAGMATIC HERNIA; A BI-CENTRAL STUDY

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Abstract

BACKGROUND AND AIM

Obstacle and complication of open conversion, hypercarbia and bowel, splenic injury in left side and Liver in right side have plagued Thoracoscopic repair. To evaluate our Unique technique for Posterolateral triangle the thoracoscopic repair of CDH with formulated preoperative specific selection criteria in two centers.

METHODS

AA bi-central, study, from June April 2017 to March 2019, neonates were selected for unique thoracoscopic repair of CDH using physiological criteria (minimal Ventilatory support and no pre-operative clinical pulmonary hypertension).

All repaired thoracoscopic using Ethibond 3/0, cases had difficulty for the posterolateral angle suturing repaired by endo-close devise by the same suturing material and tied extra-corporeal.

RESULTS

Thirty-seven neonates with CDH were admitted to both center during the study period. Only 8 (22%) met selected criteria and went for thoracoscopic repair. Seven were left side and only one had right side CDH.

All babies tolerated intrathoracic insufflation and CDH repair without clinically pulmonary hypertension. Operative times ranged from 95 to 210 minutes. Post-operative ventilation ranged from 0 to 2 days. Longest follow up is 25 months. There has been no complication.

CONCLUSION

This unique technique of the posterolateral suturing enables a secure, fast, tension free repair. Neonatal thoracoscopic CDH repair is safe in selected patients who have a good preoperative pulmonary function.

PRIMARY FOCAL HYPERHIDROSIS IN CHILDREN: IS SURGICAL TREATMENT A SAFE AND EFFECTIVE OPTION?

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Abstract**AIM**

Evaluate surgical treatment of primary focal hyperhidrosis in the pediatric age.

METHOD

Retrospective, single-center review of all bilateral thoracoscopic sympathectomies performed between 2016 and 2018, with a minimum follow-up of 5 months. A phone inquiry was made to all caregivers.

RESULTS

Over the 3-year period, 34 patients were submitted to thoracoscopic sympathectomy. 23 caregivers agreed to participate in the phone inquiry (67.6%). A T2-T4 sympathectomy was performed in all patients, with selective lung intubation. Mean surgical time was 40 minutes. Mean age at surgery was 14.7 years. All but 2 patients were discharged in the first 24 hours; 2 post-operative pneumothoraces were reported, resolved with oxygen therapy. Mean follow-up was 7 months. The questionnaire included beginning of symptoms (mean 7±4 years), family history (26%), and previously medical therapy (30.4%). Mean pre-operative sweat intensity reported was 4.2 in a 0-5 scale; post-surgery, caregivers reported a very significant sweating reduction (mean 4.8, scale 0-5). 12 reported some degree of compensatory sweating. The general post-surgery satisfaction was 4.7 (0-5 scale). All but 3 caregivers stated they would do the surgery again. All caregivers would recommend the surgery to other hyperhidrosis patients.

CONCLUSIONS

Primary focal hyperhidrosis is a debilitating condition, affecting school performance, social interaction and diminishing self-confidence. Thoracoscopic sympathectomy is a safe and effective procedure to perform in the pediatric population, with the possibility to affect children's psico-social development. General satisfaction and recommendation levels of both patients and caregivers are high; compensatory sweating is a possible and non-negligible complication.

THORACOSCOPIC SYMPATHECTOMY FOR TREATMENT OF PRIMARY HYPERHIDROSIS IN CHILDREN: A RANDOMIZED COMPARATIVE STUDY BETWEEN CLIPPING AND ELECTROCAUTERY TECHNIQUES

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Abstract

Hyperhidrosis defined as a pathologic condition characterized by excessive sweating beyond the body's physiological needs to maintain its temperature within an adequate range. Treatment for primary palmar and axillary hyperhidrosis and facial blushing depends on sympathetic denervation of the affected area which is usually the region innervated by sympathetic ganglia T2, T3, and T4. This can be achieved by sectioning of the sympathetic chain using scissors, electric scalpel, or ultrasonic scalpel, and clipping of the chain.

MATERIAL/METHODS

A randomized comparative study on 80 patients suffering from primary Hyperhidrosis. These patients were allocated randomly into 2 groups. Group (A) was treated by Thoracoscopic sympathectomy using clipping technique and group B was treated by Thoracoscopic sympathectomy using electrocautery technique. Data was tabled and analyzed.

RESULTS

A total of 80 patients were enrolled. Success rate among the clipping group was (38/40) 95% and among the electrocautery group was (36/40) 90%, p value was 1.0. Moderate compensatory sweating was developed in 10 patients of the clipping group (25%) and in 8 patients of the electrocautery group (20%), p value 0.56. None of the patients of the clipping group requested reversal of the procedure.

DISCUSSION

Our results showed that clipping technique was as effective as electrocautery technique. Unfortunately, not only the success rates were equal but also the rates of compensatory sweating seemed to be the same. The clipping technique offered the advantage of theoretical reversibility of the procedure, That we couldn't confirm as none of our patients requested reversal of the procedure.

COMPARISON BETWEEN STANDARD AND THORACOSCOPIC EXTRAPLEURAL MODIFICATION OF NUSS PROCEDURE- TWO CENTERS EXPERIENCE

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Abstract**INTRODUCTION**

Pectus excavatum is one of the most common congenital deformities. The Nuss technique is preferred approach for its repair which is accepted by pediatric and thoracic surgeons. An extrapleural Nuss procedure is one of the new modifications. The purpose of study is to compare results of Nuss procedure in two clinical institutions: Pediatric Surgery Clinic Novi Sad in Serbia and Department of Thoracic Surgery from the University Medical Centre Maribor in Slovenia.

MATERIAL AND METHODS

We retrospectively analyzed the data of 68 patients, 34 from each clinic who underwent deformity repair (2006–2017). Patients in Novi Sad were operated by conventional Nuss procedure and in Maribor by modified Nuss technique – finger dissection from bilateral thoracic wall incision in midaxillary line, and extrapleural bar placement under thoracoscopic visualization. All the data were statistically analyzed.

RESULTS

In Novi Sad, there were 26 males and 8 females. Patients' mean age was 15.18. Haller index - mean value 3.91. There were 8 complications (2 bar dislocations, 3 wound infections, 1 pleural effusion, 1 pericarditis, and 1 allergic reaction). In Maribor there were 24 males and 10 females. Patients' mean age was 14.50. Haller index - mean value 4.17. There were also 8 complications (3 bar dislocations, 2 wound infections, 3 pleural effusions). Groups were statistically comparable and there was no statistical significance between results of these clinics.

Conclusion: Both clinical centers showed similar results in analyzed parameters. This study confirms safety and efficacy of both used surgical techniques.

ENDOSCOPIC STENT APPLICATION IN A CHILD WITH TRIPLE A SYNDROME AND ESOPHAGEAL PERFORATION

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Abstract**AIM**

We report here a case with Triple A syndrome, who had an esophageal perforation. She is cured with endoscopic stent application.

CASE

13 years old female with swallowing difficulty had an open Nissen fundoplication with a diagnosis of GERD elsewhere. She is diagnosed as Triple A syndrome afterwards. We performed a laparotomy, converted the Nissen to a modified Toupet fundoplication and a Heller myotomy was added. After discharge she was admitted with an esophageal perforation repaired primarily, however a recurrent perforation developed. We decided to insert an endoscopic esophageal stent and periesophageal drainage catheter. After a profound intensive care and treatment for 8 weeks, she was discharged in normal nutritional and general condition.

After one week, the stent was removed endoscopically and some endoscopic clips were applied to the site of the former perforation. She is in an excellent general condition without any swallowing difficulty and gained weight.

CONCLUSION

Triple A syndrome is a mitochondrial oxidation defect, and therefore, in any condition with the need of mitochondria has the risk of serious complication as in our case with repeated esophageal perforation. Endoscopic stent application and intensive supportive therapy may be the only successful treatment modality for failed repair of esophageal perforation.

oral communication

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BRONCHOGENIC AND DUPLICATION CYSTS IN CHILDREN

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Abstract**AIM**

Preoperative differential diagnosis of bronchogenic and duplication cysts is not always easy. Purpose of this study is to evaluate preoperative (radiologist) and intraoperative (surgeon) predictions and outcomes of both cysts.

PATIENTS AND METHOD

Medical records of patients who underwent surgical exploration for mediastinal cysts between January 2010- January 2019 were reviewed retrospectively . Demographics, symptoms, preoperative radiological imaging , intraoperative and histopathological findings as well as outcome were evaluated.

RESULTS

There were 16 patients (9F, 7M) with a median age of 15 months (2-156 months). Nine patients (56%) had respiratory symptoms including distress, persistent cough, frequent infections, chest pain and hemoptysis. Four patients were diagnosed incidentally, and 3 were detected prenatally. Out of 10 duplication cysts, 5 was symptomatic, radiological diagnosis was correct in 6, surgical prediagnosis was correct in 8 and 6 were managed with thoracoscopy. Out of 6 bronchogenic cysts, 4 was symptomatic, radiological diagnosis was correct in 5, surgical prediagnosis was correct in all that were managed with thoracoscopy. Total resection was achieved in 12 patients. Mucosectomy (n=3) or cauterization (n=1) were performed in each of the partial resections whereas there was one recurrence (5th postoperative month) in the latter case. There was one major complication (esophageal common wall perforation) that required esophageal replacement. Median follow-up period was 12.5 months (1-109 months).

CONCLUSIONS

Bronchogenic cysts are more likely to be distinguished compared to duplication cysts. Thoracoscopic approach should be the first choice for mediastinal cysts in children.

THE LAPAROSCOPIC APPROACH TO THE SPLENIC CYSTS IN CHILDREN

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Abstract**AIM**

Splenic cysts are rare in childhood. Laparoscopic approach (LA) has been gaining popularity in the majority of splenic cyst surgery. However, there is no sufficient data for LA. The aim of the study was to present the cases with splenic cyst treated by LA.

METHODS

The cases with splenic cyst treated by LA from January 2013 to April 2019 were retrospectively reviewed in terms of demographic and clinical features, diagnostic and surgical methods, and postoperative results. The laparoscopic method was performed by 3-4 ports on the left side oblique position, according to the location and structure of cysts. Extracted tissues and aspirated fluid were evaluated histopathologically.

RESULTS

LA was performed in 6 patients (mean age 12.1 years). The most common complaint was abdominal pain. The diagnosis was made by ultrasonography (US), computerized tomography (CT) and/or magnetic resonance imaging (MRI). The mean cysts diameter was 4.4 cm and located on the upper (n:1), middle (n:3) and lower pole (n:1). LA including laparoscopic unroofing (n=3), partial cyst excision (n=1) and pericystic excision (n=2) for the splenic hydatid cyst. There was no intraoperative complication, and no converted to open surgery. The mean time of surgery was 42 min. No postoperative complications were observed. The mean hospital stay was 3 days, there was no problem in follow up. Histopathological examinations showed no malignancy, simple cyst, cyst hydatid, and mesothelial cyst.

CONCLUSION

Laparoscopic spleen sparing surgery is a reliable and effective method for symptomatic patients, although spleen cysts rarely seen in childhood are mostly benign and conservative.

THORACOSCOPIC LOBECTOMY VERSUS SPARING RESECTION IN CONGENITAL LUNG MALFORMATIONS

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Abstract**BACKGROUND**

Management of congenital lung malformations remains debated. When a surgery is decided, the type of resection proposed depends on the surgeons' priority: avoiding the risk of residual malformation or sparing the most normal tissue as possible.

METHOD

This is a retrospective bi-centric study between 2008 and 2018. Only parenchymal resections by thoracoscopic procedures were analyzed: 69 lobectomies were compared with 54 sparing resections.

RESULTS

The median age at surgery was 6 months (12 days – 11 years) in the lobectomy group and 16 months (33 days – 11 years) in the sparing resection group.

In the lobectomy group, 7 patients (10%) had a postoperative pneumothorax, requiring a re-drainage in 5 cases and a redo-surgery in 2 cases. In the sparing resection group, 6 patients (11%) had a persisting pneumothorax treated by 5 drainages and 1 redo-surgery.

The LOS was comparable with a median of 3.5 days (2 – 41 days) in the lobectomy group and 4 days (4 – 15 days) in the sparing resection group.

All the patients with sparing resection had a low-dose CT scan in the follow-up, showing residual images in 5 cases (17%). Only one CT scan was performed in the lobectomy group, because of abnormal chest X-Ray, confirming a residual lesion.

CONCLUSIONS

Early post-operative outcome appear comparable. As expected residual lesion are observed after sparing surgery and complementary resection may be necessary. This specific point has to be discussed with the parents pre-operatively. However, abnormal post-operative lung images can also be observed after lobectomy.

LAPAROSCOPIC HILL SNOW REPAIR FOR PHYSIOLOGIC GERD IN OUR CENTRE. LONG TERM FOLLOW-UP

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Abstract

AIM

Nowaday laparoscopic fundoplication is considered a gold standard in surgical treatment of symptomatic gastroesophageal reflux disease(GERD). Laparoscopic Nissen fundoplication(LNF) and laparoscopic Hill-Snow repair(LHSR) are established surgical antireflux procedures. LHSR is a "Physiologic" technique that should have less side effects. The aim of this study is to clarify LHSR effectiveness and its indication in GERD patients according long-term follow-up data.

METHODS

We retrospectively studied 42patients affected from GERD and operated with LHSR from 2009 to 2019. We treated 29males(70%) and 13females(30%), aged 1-11years, with mean age of 3years. Weight range was 4-37kg. Six were cerebral palsy patients.

RESULTS

Neither intra nor postoperative complications were recorded. 40patients had a complete follow-up; mean was 60 months(2-12 years). They were evaluated with clinical examinations, barium swallow at 6 and 12 months(33/42pts), upper gastrointestinal endoscopy at 12months(14/42pts). Relapse was recorded in 3/6 of cerebral palsy patients. Overall relapse rate 7%(3/42pts). 35(83%) were symptoms free. 5 referred occasionally epigastric pain; 2 epigastric pain associated to vomit; 35 ability to vomit, 3 occasionally difficulty to swallow. All reported being able to burp. No gas air bloat and dumping was recorded.

CONCLUSION

LHSR yield excellent results in term of relapse and side effect (capability to vomit, burping) at 12years of follow-up. Our report represent in the literature the largest pediatric patients series with encouraging results. LHSR is technical demanding (number of stitches, cardias position and gastric fundus) but presented absent relapse above all in non-neurological impaired children.

THORACOSCOPIC RESECTION OF CONGENITAL LUNG MALFORMATIONS (CLM) IN INFANTS: INTRAOPERATIVE EVALUATION WITH CEREBRAL AND SOMATIC NEAR INFRARED SPECTROSCOPY (NIRS) MONITORING

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Abstract

AIM OF THE STUDY

Evaluation of cerebral and somatic oxygenation with NIRS in infants with CLM during thoracoscopic resections.

METHODS

Retrospective evaluation of thoracoscopic resections for CLM performed in our Centre (July 2016 - October 2018). All patients underwent tracheal ventilation and were positioned in lateral-prone decubitus. Two 3mm and one 5mm trocars were inserted, and capnothorax was maintained at 4-6mmHg with 1 l/min. Data from standard monitoring, cerebral and somatic NIRS recordings were collected intraoperatively both at critical surgical moments and continuously throughout surgery. Every decrease of the regional oxygenation > 20% of the basal value, or every absolute decrease < 50% lasting over 3 minutes was considered as potentially pathological.

MAIN RESULTS

13 patients were included, with a mean age at surgery of 8.28±6.19 months (range 4-25) and weight of 7.98±1.93 Kg (range 6.6-13.5). 9 lobectomies, 1 bronchogenic cyst resection and 3 sequestrectomies have been performed. No significant decrease of the cerebral and somatic oximetry was registered during the punctual evaluation. The continuous NIRS monitoring showed decreases of the cerebral oximetry > 20% in 2 patients (15%), respectively lasting 38 minutes, after prone-lateral decubitus positioning, and 65 minutes, 8 of which <50%, after CO₂ insufflation.

CONCLUSIONS

The thoracoscopic treatment of CLM with 4-6 mmHg CO₂ insufflation pressure seems safe in infants, especially if combined with monitoring devices able to quickly identify conditions at risk of cerebral hypoperfusion.

HOW IMPORTANT IS THE TIMING OF THORACOSCOPY TO PROVIDE EARLY RECOVERY IN CHILDHOOD EMPYEMA?

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Abstract**AIM**

Evaluation of children with empyema who underwent thoracoscopic debridement.

MATERIAL & METHOD

Patients with pleural empyema who underwent thoracoscopy were evaluated retrospectively for age, gender, duration of complaint, preoperative or/and postoperative chest tube stay, hospital stay (HS) and complications.

RESULTS

89 patients, 57 male, 32 female. Median age 6,14 years (7 months - 17.91 years). 43 patients (49.4%) had chest tube preoperatively. Thoracoscopic debridement was performed in patients who had a chest tube before, because clinical improvement could not be achieved after an average of 6.60 + - 3.38 days. After thoracoscopy, an average of 10.73 + -5.99 days chest tube was removed. The complaint period was median 10 days. The duration of chest tube stay median was 8 days and 14 days, respectively, for the patients with a complaint time more than 10 days or lesser. The median of HS was 10,5 days and 20 days, respectively, for the patients with a complaint time more than 10 days or lesser. The duration of chest tube stay and HS were statistically significantly lower than those with complaint period more than 10 days ($p = 0.00$, $p = 0.00$). Bronchopleural fistula developed in 1 patient. 9 patients required further intervention (5 thoracoscopy, 4 thoracotomy). The mean postoperative HS was 15.35 + -9.71 days for all patients. 1 (1.12%) patient died.

CONCLUSION

Thoracoscopic debridement is a reliable method in the treatment of empyema. The sooner the indication is given for thoracoscopy, the sooner the recovery will be.

FIVE-YEARS EXPERIENCE IN THE THORACOSCOPIC TREATMENT OF THE ONCOLOGICAL AND MALFORMATIVE LUNG DISEASES: LESSONS LEARNED AND PITFALLS

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Abstract

After the widespread of laparoscopy in children, thoracoscopy also is becoming the standard of care for many conditions in advanced paediatric surgical Centers.

Thoracic empyema was the first condition in which the thoracoscopic approach was deployed, and now more complex operations are managed in MIS.

We describe our five-years experience in the thoracoscopic treatment of the oncological and malformative diseases.

Cosmetic result, pain reduction and better anatomic visualization, are the main advantages of MIS applied to the thorax; moreover musculoskeletal complications due to thoracotomy could be avoided.

Thirteen patients with age comprised between 8 months and 14 years, were operated on at our Institution, between January 2014 and April 2019.

Pathologies were: five oncological lesions (one paravertebral neuroblastoma, one paravertebral ganglioneuroma, one lung metastasis in extrarenal Wilms tumor, one lung metastasis in abdominal neuroblastoma, one lung metastasis in Ewing sarcoma), five CCAM, one infected bronchogenic cyst, one lung sequestration and one pulmonary pneumatocele after-pneumonia.

Diagnosis was obtained with contrast-enhanced lung CT-scan.

Diameter of oncological lesions varied from 1 to 5 cm.

Conversion rate was 30% (four cases: two CCAM, one bronchogenic cyst and one pneumatocele), principally due to flogistic adhesions, sudden lung hyperinflation and not clear anatomy.

Instrumentation needed were 3 and 5 mm instruments, endoclips, endostaplers for sealing vessels and bronchi, and sealing devices (as Ligasure) for dissection.

Lung exclusion technique was always attempted but not always successfully applied due to the small age of certain patients.

An expert anaesthesiology team is the key-point for a successful thoracoscopic surgery.

THORACOSCOPIC PNEUMATOCELE ABLATION IN AN INFANT WITH RESPIRATORY INSUFFICIENCY

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Abstract

Medical treatment and observation resolve most cases of postbronchiolitis pneumatocele. But mortality exists when complications appear. We describe an extraordinary case in which surgery has to be used to solve a severe respiratory compromise.

CASE REPORT

a 3 month old male infant was operated on because of respiratory failure secondary to multiple pneumatocele secondary to bronchiolitis and bacterial infection. Indications for surgery were the presence of multiple bilateral pneumatocele with no regression and two episodes of tension pneumothorax and cardio respiratory arrest. We only treated by surgery the left lung as the right lung never caused any pneumothorax. At the first thoracoscopy extensive adhesions secondary to multiple tube insertion were evident. We opened a big basal pneumatocele with bronchial fistula. It was closed with an absorbable suture. An apical group of pneumatoceles were resected and closed using a 5 mm stapler (5 fires). An additional anterior pneumatocele was treated by 2 fires removing a major portion of it. Pleurodesis was also added to the operation. After this surgery the patient recovered well and the lung got full expansion. Ten days later a left pneumothorax developed again and thus surgical revision indicated. A big bronchopleural fistula was observed inside the basal pneumatocele. This was treated by closing the cavity by a total mass suture with nonabsorbable material.

CONCLUSIONS

In a rare case of pneumatocele secondary to RSV infection surgery was necessary to treat life threatening condition. Further studies are needed to decided the role an timing of surgery in complicated pneumatocele.

MINIMALLY-INVASIVE APPROACH TO COMPLICATED PNEUMONIA IN CHILDREN: WHY DON'T WE JUST PUT A TUBE?

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Abstract**BACKGROUND**

while in adults a 2008 Cochrane review concluded the efficacy of intrapleural fibrinolytic therapy in reducing the requirement for surgical interventions in complicated pneumonia, in children appropriate surgical approach is still a matter of debate.

AIM

To assess the evolution in management of children with complicated pneumonia (empyema and necrotizing pneumonia) in a tertiary referral centre.

METHODS

We conducted a retrospective review of paediatric patients needing surgical intervention for complicated pneumonia between January 2013 and December 2018. Digital database searches were performed to identify demographic data, radiological and microbiological investigations. Length of stay and morbidity were analysed.

RESULTS

Forty consecutive patients were included over the study period with a median age of 3 years (range 0-16). All patients had pathologic X-ray. All children but 2 were successfully treated with intercostal drainage (ICD) and urokinase fibrinolysis alone. There were 2 video-assisted thoracoscopic surgeries after initial intercostal drains. None required a thoracotomy. Only 3/40 had positive bacterial isolation from intraoperative drainage. We reported no complications. The median length of intravenous antibiotics was 12 days (range 4-30) and length of stay was 16 days (range 7-37).

CONCLUSION

Complicated pneumonia, both empyema and necrotizing pneumonia, can be successfully treated with intercostal drainage and intrapleural fibrinolytics; only a small proportion will require further surgical intervention.

SURGICAL SIMULATION IN PEDIATRIC SURGERY. ESSENTIAL BASES FOR SURGEONS-IN-TRAINING IN MINIMAL INVASIVE SURGERY (MIS)

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Abstract**INTRODUCTION**

The abilities to acquire surgical skills need to regular practice and evidences demonstrate that most of them can be learn away from operative room. The aim of this study is to describe the introduction of a training program in essential based education of MIS simulation for surgeons-in-training and to evaluate the benefits in this field.

MATERIALS AND METHODS

From June to October 2018, 7 Pediatric surgeons-in-training were included in this training program in our center. All trainees carried out 17 exercises with different levels of complexity. Each of them was repeat at lest five times until completed objective is achieved.

The session included two trainees, and the time session was in average 3Hs. The same instructor supervised all procedures. Seven criteria's were evaluated using five-points grading and were: depth, dexterity skills, tissue handling, flow of operation, efficiency, knowledge and the time to perform the exercise. Statistical analysis was done using T-Student, considering the p-value <0.05 significant.

RESULTS

All trainees completed the program. At the end of first exercise, the tendency was to improve all criteria's. Nevertheless the efficiency, knowledge and the time to perform the exercise were statistically significant. Comparing the progression of surgical skills from the first to 17th exercise, in all trainees the progression was statistically significant regarding depth, knowledge criteria's.

CONCLUSIONS

A regular supervised of surgical simulation programs in essential maneuvers on MIS, should be implemented as part of the curricular programs of all surgeon in training. It seems to be transferable to the operative setting.

THE NATIONAL PEDIATRIC SURGERY SIMULATION PROGRAM IN FRANCE: A TOOL TO DEVELOP RESIDENT TRAINING IN PEDIATRIC SURGERY AND PEDIATRIC LAPAROSCOPIC TRAINING

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Abstract

BACKGROUND/PURPOSE

To implement resident curriculum in France based on theoretical teaching and bedside training, the French national council known as the *SNF* examined the relevance and feasibility of systematically introducing simulation program in the pediatric surgery resident training.

MATERIALS AND METHODS

A national simulation training program was developed and took place in a 2-day session organized in 7 simulation centers in France. The program included technical (laparoscopic/suturing technique on low-fidelity models) and nontechnical (12 scenarios for standardized consultation, and a team work scenario based on errors prevention in the operative room) skills. Evaluation of the program (Likert scale from 1 (bad) to 5 (excellent) and notation on 20 points) concerned trainees and trainers.

For laparoscopic approach, gradual training include suturing (5 mm and 3 mm instruments) and low fidelity models (oesophageal atresia, pyloric stenosis, pyeloplasty) . device used were FLS* training box and Pediatric Laparoscopic Simulator (PLS*) training box.

RESULTS

T40 residents early for the 3rd year (95% of all pediatric surgery French residents) attended with a ratio of trainees/trainer of 1/2.

The training objectives earned a score of 4.46/5. The pedagogical value of the seminar scored 4.7/5, teaching quality 17.95/20, and the overall seminar score was 17.35/20.

CONCLUSIONS

This program, unique nationally, was assessed very favorably by the participating residents and by the involved trainers. To our knowledge, it represents the first mandatory national simulation training program included within a surgical training model. it included systematic basic and advanced laparoscopic training for all residents in France.

THORACOSCOPIC CONGENITAL DIAPHRAGMATIC HERNIA REPAIR - AN INNOVATIVE COST EFFECTIVE MODEL PROVIDING A TRAINING OPPORTUNITY FOR PAEDIATRIC SURGERY TRAINEES

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Abstract

AIM

To produce an inexpensive, reusable Congenital Diaphragmatic Hernia (CDH) model which would be repairable via a thoracoscopic approach for training purposes.

METHODS

The thoracoscopic model, based on a previous open CDH model constructed by the author, utilised easily available household products. Hydrocellular foam dressing material was used to form the diaphragm. Wire was used to construct palpable ribs to simulate realistic instrument placement. Neonatal bowel was simulated by jelly filled collagen sausage skins. The full model was created inside a silicone loaf tin which held its form even when wet.

The model was used for a UK Consortium Training Day. Standard 3mm laparoscopic instrumentation was used to effect the repair and a trainee also assisted with 300 camera manipulation.

RESULTS

The model successfully replicated operating in the confined space of the neonatal thorax. Trainees were able to successfully return the bowel, stomach and spleen to the abdominal cavity and close the diaphragmatic defect. Use of the model invoked discussion re positioning, handling of the bowel, stomach and spleen and laparoscopic camera skills. The repair sutures could then be removed and the replica bowel and organs returned to the chest cavity for reuse.

CONCLUSION

It is possible to produce a viable realistic reusable CDH model for less than £30 GBP. With instructions for manufacture, this model would be easily reproducible in other centres.

200 INITIAL PROCEDURES WITH 5 MM WORKING CHANNEL LAPAROSCOPE

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Abstract**INTRODUCTION**

Minimally invasive surgical techniques are increasingly applicable in pediatric patients. Nonetheless, the laparoscope with a working channel is not widely used in the pediatric population.

We present our experience in the use of a working channel laparoscope and its great versatilities.

METHODS

Retrospective review and descriptive study of the last 200 procedures using different surgical techniques in pediatric surgical pathologies, which were all performed with a 5 mm laparoscope with 3 mm working channel.

RESULTS

A total of 200 procedures were done in 146 children between October 2017 - April 2019 with the working channel laparoscope, including appendectomies (n=25), percutaneous inguinal hernia repair in boys (n=102), electrocautery treatment of inguinal hernia in girls (n=34), sympathectomies in palmar hyperhidrosis (n=4), hypertrophic pyloric stenosis (n=2), intestinal duplications (n=2), epigastric herniorrhaphy (n=8), Meckel's diverticulum (n=4), ovarian cysts (n=2), varicolectomy (n=15) and gastrostomy (n=2). Except in cases of hypertrophic pyloric stenosis, all interventions were performed with a single port site.

CONCLUSION

The 5 mm laparoscope with 3 mm working channel is a useful and versatile instrument that allows saving additional ports. Improves the cosmetical results and permits the application of conventional laparoscopic principles.

**COMPLICATIONS OF ROBOTIC ASSISTED LAPAROSCOPY IN CHILDREN:
A PROSPECTIVE STUDY**

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Abstract**AIM**

To present complications of robotic laparoscopy in a large series of children

METHODS

Children who underwent robotic laparoscopy by two laparoscopic surgeons from 2006 to 2017 were included. A 12 or 8mm optic, two 8 or 5mm robotic with/without one laparoscopic ports and/or a retractor was used. Theatre setup/team changed not infrequently throughout the study period. Patients had regular follow. Data was collected prospectively.

RESULTS

There were 536 procedures in 528 children (5 re-do, 2 bilateral, 6 concomitant). The procedures were urological in 51.5%, hepatobiliary and spleen 26.1% and gastrointestinal 22.4% (26 different procedures). The median age was 7.3 years (4 weeks - 16 years, 7% less than one, smallest 4.2kg). 18.6% had a significant comorbidity, 15.9% previous surgery, and 5.8% concomitant non-robotic procedures. The procedure was converted in 6% (32), none for surgical complications. In theatre complications occurred in 1.3 % (7) - of these, 3 were minor, 3 gastrostomy related, 1 damaged vagus nerve. Early postoperative complications occurred in 3.9% (21) - of these, 6 required further surgery (2 laparoscopy / laparotomy, 4 endoscopy) and the remainder were treated conservatively. Throughout the study period 2.4% (13) developed complications. These included redo-surgery 6, other surgical procedures 3, endoscopy 3, asymptomatic renal cyst 1. The rates and nature of complications did not correlate significantly with the patients age, timing of surgery or operator.

CONCLUSIONS

In the hands of laparoscopic surgeons, complications of paediatric robotic assisted surgery appears low even during the learning curve.

SINGLE-INCISION LAPAROSCOPIC FEMORAL HERNIA REPAIR USING A PERCUTANEOUS INTERNAL RING SUTURE-LIKE TECHNIQUE IN CHILDREN

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Abstract

INTRODUCTION

Femoral hernia is a rare condition in childhood, accounting for less than 1% of groin hernias and often being misdiagnosed. Laparoscopy improves diagnostic accuracy for groin hernias. However, there is no consensus regarding the best technique for laparoscopic repair. We describe a novel single-incision laparoscopic femoral hernia repair using a PIRS-like (percutaneous internal ring suture) technique.

CASE REPORT

A 15 year-old girl with mild disability due to neonatal hypoxia was referred to our practice due to a recurrent non-painful unilateral groin bulging. Ultrasonography revealed an inguinal hernia, and laparoscopic repair was proposed. An umbilical 5-mm trocar was inserted for introduction of a 30° laparoscope and 8mmHg CO₂ pneumoperitoneum was obtained. Intra-abdominal exploration revealed a left-sided femoral hernia. A 3mm dissecting grasper was placed through a supra-umbilical aponeurotic stab-incision. High ligation of the hernia sac was performed extraperitoneally in a PIRS-like manner using a 2-0 Prolene loop and a 2-0 Ethibond suture with extracorporeal buried knots, while simultaneously inverting the hernia sac and lipoma into the peritoneal cavity. Total intraoperative time was 40 minutes. There were no intraoperative complications. Postoperative recovery was uneventful, allowing for physical activity after 4 weeks. The patient remains asymptomatic after a 6-month follow-up.

CONCLUSIONS

Single-incision laparoscopic femoral hernia repair with a PIRS-like high ligation and sac inversion is a safe and effective procedure in children, while improving both diagnostic accuracy and cosmesis. Although these results are encouraging, more cases are needed to support our approach.

IS LAPAROSCOPIC PERCUTANEOUS INTERNAL RING SUTURING (PIRS) THE MOST COMPARABLE LAPAROSCOPIC TECHNIQUE TO OPEN HERNIOTOMY (OH)?

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Abstract

BACKGROUND

Open herniotomy (OH) is still considered the gold standard approach for children with inguinal hernia. We compared two different laparoscopic techniques with OH.

AIM

To compare PIRS and laparoscopic sac dissection with intracorporeal suturing (SDIS) to OH in pediatric population.

PATIENTS AND METHODS

Retrospective study of all pediatric inguinal hernia repair in our hospital from June 2013 to June 2018. We opened the inguinal canal in all patients of open herniotomy above 6 months of age. We used non-absorbable suture in PIRS group and the knot was tightened extraperitoneal in subcutaneous space. We added two additional ports in SDIS group and hernia sac was sutured intra-corporeal. We recorded mean operative time (MOT), intra and postoperative complications, cosmetic results, contra-lateral patency of processes vaginalis, and negative contra-lateral side exploration for both laparoscopic and OH. Patients were followed up for 6-12 months post op.

RESULTS

Total of 217 patients were operated. 194 OH were done in 166 patients. 55 laparoscopic PIRS were done in 39 patients. 17 laparoscopic SDIS technique were carried out in 12 patients. MOT for laparoscopic SDIS was significantly longer than other techniques. Six CPPV were found in laparoscopic surgery. We had one stitch granuloma, one umbilical hernia and 3 transient hydrocele in laparoscopic PIRS group. We had one recurrent hernia repaired by laparoscopic PIRS and 17 negative contra-lateral side explorations in patients underwent OH group.

CONCLUSION

Laparoscopic PIRS technique is comparable with OH and there is no significant difference in the MOT.

LAPAROSCOPIC REPAIR OF INCARCERATED INGUINAL HERNIA: 15 YEARS OF EXPERIENCE IN A REGIONAL PAEDIATRIC CENTRE

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Abstract

INTRODUCTION

While laparoscopic repair has been increasing in popularity for elective management of bilateral inguinal hernias, open repair remains the most common management for infants presenting with incarcerated inguinal hernias.

We present a case series of 34 patients who underwent emergency laparoscopic inguinal hernia repair following a history of incarcerated hernia between 2004 and 2019.

METHODS

A case notes enquiry of all paediatric patients undergoing laparoscopic repair of incarcerated inguinal hernias at a regional referral centre for Paediatric Surgery was undertaken. Data collection included presentation (gestation, sex), intra-operative findings (unilateral or bilateral hernia, evidence of bowel strangulation), operative time, and outcome (time to discharge, recurrence of hernia).

FINDINGS

All patients were under 6 years of age while the majority (n = 25) were under 1 year. 6 patients had evidence of strangulation at operation but the bowel was reduced without resection. 17 patients underwent bilateral repair (2 had presented with bilateral inguinal hernias, while 15 patients were found to have an open internal ring on laparoscopy). 5 patients experienced complications (1 superficial umbilical port site infection, 1 recurrence of right inguinal hernia following bilateral repair, 1 left hydrocele requiring ligation of a patent processus vaginalis, 2 bilateral undescended testis requiring orchidopexy).

CONCLUSIONS

Laparoscopic repair is a safe alternative to open repair for incarcerated inguinal hernias, and can even be used in situations where manual reduction has failed.

LAPAROSCOPY IN A CENTRAL EUROPEAN NATIONAL INSTITUTE: RESULTS OF THE PAST 10 YEARS FOCUSED ON COMPLICATIONS

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Abstract

INTRODUCTION

Minimally Invasive Surgery (MIS) was started in adult practice in the 1980's and developed rapidly, therefore MIS can be introduced in younger and younger children.

METHODS

A retrospective study was accomplished. Patients were studied between 2009 and 2018. Type of surgery, epidemiological data, type of trocar introduction (open technique or Veress-needle), intraabdominal pressure and complications were examined.

RESULTS

In the study period 738 laparoscopic surgery were performed (appendectomy: 349, cholecystectomy: 132, inguinal hernia: 49, varicocele: 63, ovarian surgery: 60, pyloromyotomy: 14, others: 71). The youngest patient was 1 month old, the oldest 18 years old. The chosen insufflation method was open technique 398 times, Veress-needle 324 times, (no data in 16 cases). Intraoperative complications were found in 25 cases.

Intraoperative bleeding requiring intervention was detected in 3 times (1 PIRS, 2 appendectomy). Gall bladder injuries as complication of manipulation were detected 10 times, umbilical wound suppuration 3 times, appendix perforation due to manipulation 6 times and serosal tear occurred once.

Postoperative complication was detected in 41 cases. Complication of the wound healing occurred 9 times, postoperative hydrocele 12 times (PIRS 1, varicocele 11). Mechanical or paralytic ileus 6 times, intraabdominal abscesses were found in 5 appendicitis patients. Reoperation was required in 9 cases.

CONCLUSIONS

In the past 10 years the frequency of pediatric laparoscopic surgery increased significantly. Due to the low complication rate and the well known advantages of MIS we are sure that the laparoscopy must be the gold standard in almost all type of pediatric surgery.

SUCCESSFUL USE OF MINI-INVASIVE APPROACH IN PEDIATRIC HEPATOBILIOPANCREATIC SURGERY AND IN ADULT-TO-CHILD LIVER TRANSPLANTATION

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Abstract

INTRODUCTION

Mini-invasive approach in hepatobiliopancreatic surgery is widely used in adults, while in children its application is limited due to the complexity of surgical procedures, the lack of adequate laparoscopic instruments and the long learning curve. The benefits of laparoscopic approach have been also reported for hepatectomy in adult-to-child living-donor liver transplantation (LDLT), giving indirect benefit to children in terms of graft outcomes.

MATERIAL AND METHODS

Single-center prospective study analysing all patients undergoing major hepatobiliopancreatic surgery and partial hepatectomy for LDLT with mini-invasive approaches between January 2016-January 2019.

RESULTS

Out of 110 children undergoing major hepatobiliopancreatic surgery, 72 (65%) patients [age: 36 months (3 months-18 years); body weight: 20 (4-49) Kg] were treated with mini-invasive techniques including laparoscopic distal-pansectomy (n=4), laparoscopic non-anatomical hepatectomy (n=8), mini-invasive epatico-enteroanastomosis (n=2), mini-invasive Kasai procedure (n=2). None required post-operative intensive-care stay and the median hospital admission was 7 (4-12) days. After surgery, all patients had early mobilization, easy management of abdominal pain and good recovery. Histologically, oncological radical resection (R0) was achieved in all tumors; only one patient had Clavien-Dindo I complication. In the same period, 13 mini-invasive left hepatectomy for LDLT [age: 36 (28-41) years; hospital stay: 6 (5-10) days] were performed with uneventful post-operative course and early recovery.

CONCLUSIONS

Mini-invasive approach in liver and pancreatic surgery is safe and feasible in children and in adult-to-child LDLT. Hepatobiliopancreatic laparoscopic procedures are feasible in small children and in LDLT, with significant benefit on the post-operative recovery. Adequate learning curve in specialized centers of laparoscopic and hepatobiliopancreatic surgery is essential for good outcomes.

ROBOT-ASSISTED RESECTION OF CHOLEDOCHAL CYSTS AND HEPATICOJEJUNOSTOMY IN CHILDREN : INITIAL EXPERIENCE IN 2 INSTITUTIONS

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Abstract**OBJECTIVE**

To report the initial experience of 2 pediatric institutions in robot-assisted choledochal cyst excision with Roux-en-Y hepaticojejunostomy.

METHODS

Children admitted with a choledochal cyst from 2007 to 2019 were included.

RESULTS

There were a total of 4 patients, with a mean age of 2 years (range 6 months–6 years) and weight of 7.6 kg (range 7.2–16). The choledochal cysts were types 1 (3) and 4 (1). The da Vinci Surgical System was used for the robot-assisted resection of the choledochal cyst and hepaticojejunostomy. Roux loop was fashioned extra-corporeally. All 4 cases were treated successfully by robotic resection of the choledochal cyst and hepaticojejunostomy. The median operative time was 395 min (320–555). There have been two complications (grade 2 Clavien-Dindo) : bile leak and angiocholitis. There were no open conversions or secondary surgery. The median length of stay was 11.5 days (8–22). Mean follow-up is 5 years (range 1 month–10 years).

CONCLUSION

We report the initial experience of 2 pediatric institutions with prior experience in robotic surgery. We had never attempted a minimally invasive complex hepatobiliary procedure prior to these cases. This study shows that robotic-assisted surgery is safe and effective. It can act as an enabler facilitating surgeons to take on and learn more complex minimally invasive

GLOVE SINGLE PORT LAPAROSCOPIC APPENDECTOMY VERSUS CONVENTIONAL LAPAROSCOPIC APPENDECTOMY IN CHILDREN AND ADOLESCENTS UNDER SPINAL ANESTHESIA; A RANDOMIZED CONTROLLED STUDY

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Abstract

The aim of this study is to compare home-made glove single port laparoscopic appendectomy (GSPLA)with conventional laparoscopic appendectomy (CLA) in children and adolescents using spinal anaesthesia (SA). Patients and Methods: Seventy-two patients with uncomplicated appendicitis were randomly divided into two equal groups. Group A received GSPLA and group B, received CLA. All cases were done under SA. Exclusion criteria: Patients of appendicular abscess, appendicular mass, Patients of appendicitis with generalized peritonitis. Results: Seventy-two children with acute uncomplicated appendicitis were treated either by GSPLA or CLA during the period from August 2017 to July 2018. They were 50 males and 22 females with a mean age 13 ± 2.8 years. All procedures were completed laparoscopically without conversion. Only 2 cases of Group A were converted to CLA. The mean operative time was 35.24 ± 12.14 min (range= 27 - 79 min) for CLA and 49.50 ± 12 min (range=39 - 87 min) for GSPLA. SA was successful in 66 cases [91.7%], while 6 patients [8.3%] were converted to general anaesthesia [GA]. Post SA headache was reported in 5 cases ($5/72 = 6.94\%$). The mean time for first post-operative need for analgesia was 6.35 ± 2.64 hrs (range= 4.5 to 8 hrs). Post-operative umbilical cellulitis occurred in two cases in CLA group. Conclusion: The GSPLA is a new technique which is very cheap in comparison with the other SILS devices in the market. The home-made glove port is easy to be done with high flexibility and wide range of movement of the instruments.

INDOCYANINE GREEN (ICG) FLUORESCENCE LYMPHOGRAPHY: A NEW TECHNIQUE TO PERFORM LYMPHATIC SPARING LAPAROSCOPIC PALOMO VARICOCELECTOMY IN CHILDREN

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Abstract

BACKGROUND

Laparoscopic Palomo varicocelectomy is one the most common approaches adopted to treat pediatric varicocele, but postoperative hydrocele still remains a potential problem with this procedure. The present study aimed to evaluate the outcome of a new technique of lymphography using indocyanine green (ICG)-enhanced fluorescence to perform lymphatic sparing laparoscopic Palomo varicocelectomy.

METHODS

The records of 40 patients who underwent laparoscopic left varicocelectomy in our unit from March 2017 to March 2018 were retrospectively evaluated. The average patients' age was 13.7 years (range 12-16). All patients had a high degree varicocele associated with left testicular hypotrophy and symptoms. All procedures were performed in laparoscopy using 3 trocars. After trocars' positioning, 2 ml of ICG solution was directly injected into the left testicle. Using ICG fluorescence, the lymphatic vessels were clearly identified and spared, then the entire spermatic bundle was clipped and divided according to Palomo's principle.

RESULTS

The average operative time was 18 minutes (10-25). No conversion to open surgery neither allergy or other adverse events induced by ICG were reported. At a maximum follow-up of 18 months, no recurrence of varicocele neither postoperative hydrocele was recorded.

CONCLUSIONS

Our preliminary experience showed that ICG fluorescence lymphography is a safe and effective option to perform lymphatic sparing laparoscopic Palomo varicocelectomy in children and adolescents with high degree varicocele. The intra-testicular injection of ICG and use of fluorescence vision allowed identification of lymphatic vessels in 100% of cases. No allergy to ICG neither postoperative hydrocele was reported in our experience.

VIRTUAL REALITY TRAINER FOR PAEDIATRIC LAPAROSCOPIC INGUINAL HERNIA REPAIR - FACE AND CONTENT VALIDATION

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Abstract

Due to the small operative field, the learning curve of Paediatric laparoscopic procedures is steep and requires advanced operative skills. Self-directed, validated training tools with objective feedback are rare in paediatric surgery. Computer based Virtual Reality (VR) simulators can offer a safe, cost-effective and configurable training environment free from ethical and patient safety issues.

We developed a prototype VR simulator for core manual skills training for Paediatric laparoscopic hernia repair. It consists of a hernia suturing task on a virtual, non-anatomical trainer at a real paediatric scale. 36 paediatric surgeons performed the task twice and completed a face and content validity questionnaire.

Overall simulation realism was on average marked 3.08 on a 5-point Likert scale (1 - 'very unrealistic', 5 - 'very realistic'). Participants were most satisfied with the visual realism (3.33 on average) and most critical about the behaviour of virtual tissue (2.42 on average). The simulator showed good content validity: its usefulness as a training tool for hernia repair, suturing and learning fundamental laparoscopic skills was marked, on average, 3.61, 3.64 and 3.89, respectively.

VR simulation of Paediatric laparoscopic procedures can contribute to surgical training and improve the educational experience without putting our youngest patients at risk. This simulator is a first prototype and the initial results indicate that it provides promising foundations for further development. More formal and larger studies, such as construct validity and transfer of skills will be conducted towards the end of the project after further refinement and development.

FETOSCOPIC REPAIR OF MYELOMENINGOCELE: PRELIMINARY RESULTS FROM A SINGLE CENTER

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Abstract**AIM OF THE STUDY**

to describe the preliminary results of fetoscopic treatment of open spina bifida (OSB) in our Center.

METHODS

After observership at Albert Einstein Hospital Israelita in San Paolo a multidisciplinary team was created in our Center. Since June 2018 patients with prenatal diagnosis of isolated OSB with lesions from T1 to S1 and hindbrain herniation, were offered fetoscopic treatment. The surgical repair was planned between 24 and 29 weeks. Four trocars were introduced in the amniotic cavity under ultrasound guidance. Trocar position changed according to that of placenta. Warm CO2 insufflation was performed (average 14mmHg, range 10-18). The neural placode was released and covered by a biocellulose patch, when the defect was too large two patches were used (bilaminar skin substitute and biocellulose patch). When primary closure was feasible the skin was closed over the patch. After birth, the bilaminar patch was protected with a dressing.

MAIN RESULTS

6 fetoscopic repairs of OSB were performed at a mean age of 28 weeks. 4 cases had posterior placenta: 2 had large defects requiring patch closure. In the 2 patients with anterior placenta primary closure was achieved. Post-operative course was uneventful. Patients were born at a mean gestational age of 34 (29-39). All patients are in a multidisciplinary follow-up protocol. Two ventriculo-peritoneal shunts were positioned and three patients had partial skin dehiscence requiring surgical revision.

CONCLUSIONS

fetoscopic repair of OSB is feasible. Prematurity still represents the main complication. Multidisciplinary long term follow-up is needed.

POSTOPERATIVE BLADDER DYSFUNCTION AND OUTCOMES AFTER MIS EXTRAVESICAL URETERAL REIMPLANTATION IN CHILDREN USING LAPAROSCOPIC AND ROBOT-ASSISTED APPROACH. RESULTS OF A MULTICENTRIC INTERNATIONAL SURVEY

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Abstract

BACKGROUND

We aimed to assess and compare postoperative bladder dysfunction rate and outcomes following laparoscopic extravesical ureteral reimplantation (LEVUR) and robot-assisted extravesical ureteral reimplantation (REVUR) in children and to identify risk factors associated with bladder dysfunction.

METHODS

TA total of 151 children underwent extravesical ureteral reimplantation using MIS in 5 international Pediatric Urology centers over a 5-year period. The patients were divided in 2 groups according to the surgical approach: G1 included 116 patients (median age 4.5 years) who underwent LEVUR whereas G2 included 35 patients (median age 7.5 years) who underwent REVUR. The two groups were compared in regard to: procedure length, success rate, postoperative bladder dysfunction rate. Predictors of postoperative bladder dysfunction were assessed using univariate and multivariate logistic regression.

RESULTS

REVUR was faster than LEVUR either for unilateral and bilateral repairs ($p=0.001$). The success rate was significantly higher in G2 compared to G1 (100% vs 95.6%) ($p=0.001$). The overall postoperative bladder dysfunction rate was 8.6% and no significant difference was found between G1 and G2 (6.9% vs 14.3%) ($p=0.17$). Acute urinary retentions (AURs) were managed with short-term bladder catheterization except for 2 LEVUR (1.3%) that required suprapubic catheterization. Uni- and multivariate analyses revealed bilateral pathology, pre-existing BBD and duration of surgery as predictors of postoperative bladder dysfunction ($p=0.001$).

CONCLUSIONS

A short-term bladder dysfunction is a possible complication of extravesical ureteral reimplantation, with no significant difference between LEVUR and REVUR. Bilaterality, pre-existing BBD and duration of surgery were confirmed as predictors of postoperative bladder dysfunction in our series.

FEASIBILITY OF THE ROBOTIC APPROACH FOR PEDIATRIC LUNG LOBECTOMY

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Abstract**AIM OF THE STUDY**

Robotic lobectomy is a developing procedure in adults. In the pediatric population, few reports exist in literature demonstrating its feasibility. The main limitation of its application in children is the reduced chest space. The aim of this preliminary analysis of prospectively collected data was to focus on peri-operative issues and post-operative outcomes of robotic lung lobectomy.

METHODS

From April 2017 to December 2018, 7 children (median age 13.1 years) underwent robotic lobectomy: two right inferior lobectomies, one middle lobectomy, two left inferior lobectomies, one culminectomy and one right middle-inferior bi-lobectomy. Indications for surgery were infectious complications related to congenital cystic malformation (n=2) and bronchiectasis (n=5). A four-arm 30°-vision setting inspired by an adult approach was adapted to children.

MAIN RESULTS

Median patient weight was 50 kg (range 21-70). Median anaesthetic preparation time was 67 minutes and the operative times ranged from 163 to 305 minutes. No major event occurred and no conversion was needed. No blood transfusion was required. All patients had thoracic drainage, removed in a median of 4 days, without post-operative air leakage. Two patients received intra-venous antibiotherapy for secondary lung infection (grade 2 Clavien-Dindo Classification). No other post-operative complication was observed. Total median hospital stay was 6 days (range 5-11).

CONCLUSIONS

Four-arm robotic lung lobectomy for non oncologic purpose in children is feasible and safe. However, prevention of robotic arm collision in a reduced chest space is a significant challenge.

RELIABILITY OF SUTURELESS LAPAROSCOPIC INGUINAL HERNIA REPAIR IN CHILDREN. OUR EXPERIENCE

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Abstract

Sutureless technique represents a further evolution of laparoscopic inguinal hernia repair in children (SLIR). We present our experience with SLIR in boys and girls.

METHOD

Thirty-eight children, 14 girls and 24 boys, aged 3 months to 7 years, underwent sutureless laparoscopic inguinal hernia repair. Were excluded patient with an internal inguinal ring larger than 1,5 cm. In girls, we utilized cauterization of the internal inguinal ring with a single trocar technique. In boys denudation of the peritoneum was obtained utilizing a three-trocar technique. The peritoneum around the internal inguinal ring was peeled off and detached from the vas and the vessels, and then wrapped around the grasper, resulting in a large area of denudation. In 10 cases a matrix haemostatic gelatin was applied on the denuded surface. No perioperative complications were observed. No recurrences nor testicular damage were noted after a mean follow-up of 24 months (range 8-36 months). The mean operative time was 11 min (range 7-20 min) for girls and 18 min (range 15-30 min) for boys. In one case, in a boy, we decided to apply a suture having detected a residual portion of omentum lying inside the processus vaginalis and this procedure was easy to perform without difficulties.

CONCLUSIONS

Sutureless laparoscopic inguinal hernia repair can provide a new option for the minimally-invasive management of pediatric inguinal hernia. The procedure appears safe and easy to. Further studies and larger number of patients are needed to draw definitive conclusions.

PARTIAL SPLEEN RESECTION PRESERVING BLOOD SUPPLY ARISING FROM LEFT GASTROEPIPLOIC VESSELS - VIDEO PRESENTATION OF INNOVATIVE METHOD

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Abstract

The aim of this study is to describe the technique of minimally invasive partial spleen resection in children with preservation of its lower pole, which is supplied by branches of the left gastroepiploic vessels.

A single-centre prospective study of patients between years 2015 and 2018 was conducted.

We applied this technique in 10 patients, with median age of 12.7 year, range 9 – 17 year. In our study, the lower pole of the spleen was without pathological findings in all cases. The cysts or other focal pathological conditions were localized in the middle or cranial part of the spleen. We used four trocars technique. The hilar artery and veins as well as short gastric vessels were cut of. The vessels originating from the left gastroepileptic were preserved. We evaluated the spleen remnant 6 months after surgery by ultrasound, we found vitality in all patients while maintaining 25% of the normal spleen size. None of the patients underwent conversion or total splenectomy; blood transfusions were also not required.

It seems, this minimally invasive technique can be advantageous for the patient for the following reasons. Although there is a small number of a patients, the pathological process did not affect the lower pole of the spleen. In all patients was detected a separate vascular supply for the lower pole of the spleen based on the left gastroepiploic artery. The irresponsible question remains whether the vitality of the remant corresponds to its functionality.

COMBINED FULL-LAPAROSCOPIC AND ROBOTIC SPLENECTOMY-CHOLECYSTECTOMY WITH SUPRA-PUBIC APPROACH IN PEDIATRIC PATIENTS

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Abstract**PURPOSE**

Multiple techniques for splenectomy are now employed. In case of associated cholecistectomy further trocars placement and a long sovrapubic incision for spleen extraction is required. Since scars appearance is essential in pediatric population, we gradually modified the trocars position to sovrapubic line to reduce visible scars.

METHODS

from 2008 to 2018 42 patients underwent splenectomy. 4 cases were treated open, 33 laparoscopically and 5 with robot Da Vinci Xi[®]. In 15 cases we performed associated laparoscopic splenectomy and cholecystectomy and in 3 associated robotic cholecystectomy and splenectomy.

Generally, combined approach required 3-4 trocars, we decided to move their site insertion more possible to sovrapubic lines to improve estetical results, and we adopted the same procedure even with robot.

RESULTS

we treated 8 patients with sovrapubic approach (3 F and 5 M), 5 laparoscopically and 3 with robot Da Vinci Xi. All patients underwent combined cholecystectomy and splenectomy. We used 3 to 4 trocars placed on sovrapubic line except one placed under the xiphoid process in patients treated laparocpically. In patients treated with Robot Da Vinci Xi, we used parallel trocars placed on sovrapubic line. Spleens were extracted through a Pfannestiel incision made on the same sites of trocar incision. Never morcellation was performed. Post-operative period was uneventful in all cases.

CONCLUSIONS

We believe that sovrapubic approach could be considered when a combined procedure is performed, the triangulation is respected, even if the angle is more acute, and the esthetical result is excellent because the visible abdominal scars are minimal.

LONG TERM FOLLOW-UP IN LAPAROSCOPY VASCULAR HITCH FOR UPJ OBSTRUCTION DUE TO LOWER POLE CROSSING VESSELS

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Abstract**PURPOSE**

The uretero-pelvic junction obstruction (UPJO) is the most common cause of hydronephrosis. Extrinsic obstruction due to crossing vessel (EUPJO) is rarer and often asymptomatic till the childhood. Dismembered pyeloplasty is the gold standard; in case of EUPJO vascular hitch (VH) is an alternative approach (Hellström).

AIM OF THE STUDY

the main VH criticisms is the risk of relaps, hypoplasia of the lower pole and risk of secondary hypertension. We analyzed the long term follow-up (minimum 8 – maximum 15 years) in the first group of patients operated with laparoscopic.

MATERIALS AND METHODS

we retrospectively analyzed 21 patients operated for pure EUPJO and treated with LVH from 2003 to 2010. Diagnostic pathway included ultrasound, MAG3 diuretic scan. All the selected patients had trans-peritoneal approach with identification and hitching of obstructive polar vessel, intraoperative lasix test and VH according Chapman modification.

Mean follow-up was 9 yrs; average age was 8,6 years. Post-operative FU consisted in:

- ultrasound at 1, 6 and every 24 months
- scintigraphy at 12 months and after 5 years
- clinical evaluation (symptoms, blood pressure)

RESULTS

all the patients had excellent results: no relaps, no hypertension, no lower pole kidney hypotrophy were recorded.

CONCLUSIONS

LVH may be an useful alternative to AHDP in the management of EUPJO. LVH is well tolerated by the patients; long term FU shows no relapse, no hypertension and no renal hypotrophy. We suggest this technique as a first choice in case of EPJO, recommending accurate preoperative assessment by clinical and radiologic evaluation associated with intraoperative diuretic test.

MICROPERCUTANEUS ENDOPYELOTOMY FOR RECURRENT PYELOURETERAL JUNCTION OBSTRUCTION

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Abstract**OBJETIVE**

Several techniques have proven effective in the management of recurrent pyeloureteral obstruction (PUJO). Percutaneous endopyelotomy shows better results in recurrent PUJO compared to primary PUJO. Micro-percutaneous approaches reduce damage to renal parenchyma and facilitate access to renal pelvis.

METHODS

In Valdivia position, a 5 or 6 mm high-pressure balloon is placed in the renal pelvis under cystoscopic and fluoroscopic guidance. The 4.8 or 8 Fr microperc puncture needle is placed into the pelvicalyceal system. After appropriate calyceal access, a three-way connector is placed to allow the 300 μ m laser fiber (4.8 Fr) or 2.5 Fr monopolar hook (8 Fr) go through. Endopyelotomy is performed with laser fiber or monopolar hook over high-pressure balloon. In order to improve the exposure of the cutting area, the PUJ is introduced into the renal pelvis by pushing the high-pressure balloon. Double J stent is left for weeks.

RESULTS

Between July 2014 and July 2017, 5 patients with recurrent PUJO were treated in our hospital (4 months, 8m, 18m, 2 years, 4y). Patients presented UTIs with ultrasound deterioration (n=3) or loss of renal function in renogram (n=2). Operative time was 50 ± 21 minutes. Hospital stay after surgery was 24 hours. Nephrostomy was not used. All patients were symptom free. Postoperative ultrasound and renogram showed that endopyelotomy was successful in all patients. We found no postoperative complications.

CONCLUSION

Micorpercutaneous endopyelotomy is a fairly effective technique to treat recurrent UPJO after failed pyeloplasty in children. In our opinion, it reduces kidney damage without increasing complications.

LAPAROSCOPIC URETEROCALICOSTOMY IN CHILDREN : THINK ABOUT IT!

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Robert Debre university Hospital,APHP,University Paris Diderot,MARVU,Pediatric urology, Paris, France Abstract

Abstract

Ureterocalicostomy (UC) for ureteropelvic junction obstruction (UPJO) has been described as primary procedure in case of unusual anatomical variation or after a failed pyeloplasty. Few cases of laparoscopic UC have been reported. The aim of this study was to report the results of laparoscopic UC in children. **MATERIALS AND METHODS.** 6 patients mean age 13,2 (10-15) underwent transperitoneal ureterocalicostomy for ureteropelvic junction obstruction (Jan 1993-Jan 2018). 3 patients had recurrent UPJO after primary pyeloplasty performed elsewhere and 3 patients had an a malrotated kidney and completely intrarenal pelvis with thin cortex at the lower calyx. The surgical approach was a laparoscopic transperitoneal UC anastomosis with four ports technique. This anastomosis was performed with 3 mm instruments with a 5/0 absorbable running suture over a double-J stent. Outcome measures included operative time, length of hospital stay, post operative infection, and postoperative ultrasound. **RESULTS:** Mean operative time was 168 minutes (range 102 to 204). All the patients have a JJ stent for 4 weeks. One patient presented with concomitant renal calculi, who was extracted in the same procedure. There was no intraoperative complication and no conversion. Median hospital stay was 2 [2-11] days. There was no post operative infection. Postoperative imaging studies showed marked improvement of the hydronephrosis in all the children at 3 and 6 months and at follow up 35 months [4-96]. **CONCLUSION:** Laparoscopic ureterocalicostomy is a feasible and safe approach for first or second- line treatment of UPJO in the pediatric population with a failed pyeloplasty or with a minimal pelvis.

POST-OPERATIVE COMPLICATIONS AFTER LYMPH-SPARING LAPAROSCOPIC PALOMO VARICOCELECTOMY IN CHILDREN AND ADOLESCENTS. FIRST LONG-TERM REPORT OF A SINGLE TERTIARY CENTER

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Abstract

PURPOSE

To investigate the long-term post-operative complications following lymph-sparing laparoscopic Palomo (LSLP) technique for the treatment of pediatric varicoceles.

MATERIAL/METHODS

The medical files of all patients with varicocele treated with LSLP from 2011 to 2018 were retrospectively reviewed. Data collected included patients' age at operation, side of the lesion, varicocele grading, time and means for diagnosis of complications and complication treatment. Median follow-up (f/u) consisted of 12 months (range 6-36).

RESULTS

Seventy one patients with median age of 12 years at operation (range 9-16) and varicocele grade 2-3, underwent 72 LSLP varicocelectomies (1 bilateral). Fifty three of them had at least 6-months f/u and adequate medical files to be included in the study. Five patients (9.4%) had grade 1 varicocele recurrence and were managed conservatively. Three patients had secondary hydrocele that needed surgical treatment (5.6%) while another ten had minor hydroceles that were managed conservatively. All recurrences were identified clinically and verified with ultrasound at the 6-month f/u appointment while for hydroceles this occurred either at the 6-month or 1-year appointment.

CONCLUSIONS

Although complications are considerable, the use of LSLP leads to decreased needs of re-operation. Significant complications are expected to be diagnosed between 6-12 months post-operatively. The combination of LSLP with subdartos dye injection could be the mean of decreasing secondary hydrocele formation and at the moment s under discussion at our department.

PAEDIATRIC ROBOTIC VERSUS OPEN PYELOPLASTY: IS IT LESS PAINFULL AND WILL I BE DISCHARGED EARLIER?

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Abstract

AIM

To compare, intra/postoperative analgesia requirements, post-operative pain scores, hospitalization between open and robotic pyeloplasty.

METHODS

Retrospective chart review of children above 3 years who underwent pyeloplasty between January 2013-December 2018. Data included demographics, surgical procedure, intra/post-operative analgesia requirement, pain scores, hospitalization. Fisher-exact and Mann-Whitney-U tests were used for analysis.

RESULTS

There were 38 children included: 18/38 open and 20/38 robotic pyeloplasty. Intra and post-operative, all patients received paracetamol. Fourteen of 18 in open and 17/20 in robotic group ($p=0.68$) required morphine. Seven of 18 in open and 2/20 in robotic group ($p=0.057$) had caudal analgesia. Nonsteroidal anti-inflammatory analgesia was given in 10/18 in open and 14/20 in robotic group ($p=0.5$). Oral opioids were given in 6/18 in open and 5/20 in robotic group ($p=0.7$). Intravenous morphine was required in 17/18 in open and 18/20 in robotic group; median boluses required was 8.5 in both groups (open:0-95, robotic:0-79, $p=0.67$). The boluses were required for median of 37.5 hours (0-97) in open and 26.5 (0-44) in robotic group ($p=0.3$). Six children with open procedures had epidural. Validated pain score results at 6, 12, 24 hours postoperative showed no statistical difference (table). Median hospitalization was 3.5 days for open (2-6) and 2 (2-10) for robotic pyeloplasty ($p=0.04$).

CONCLUSIONS

Hospitalization and the postoperative use of opioids is reduced after robotic pyeloplasty. Postoperative epidural analgesia was used only in open pyeloplasty.

POSTOPERATIVE HOURS	MEDIAN PAIN SCORE		P-VALUE
	OPEN	ROBOTIC	
6	3.	2	0.44
12	0.5	0	0.49
24	2	2.5	0.3

THE IMPACT OF BLUE DYE INJECTION IN THE MORBIDITY OF THE LAPAROSCOPIC TREATMENT OF VARICOCELE

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Abstract

Varicocele is a possible cause of male infertility and reduction of testicular growth. Laparoscopic varicocelectomy by Palomo technique is one of the most popular procedures, and the use of scrotal and testicular injection of blue dye to identify and spare the lymphatic vessels has been associated with a reduction in hydrocele incidence. The aim of this study is to analyse the impact of blue dye injection during laparoscopic treatment in our Pediatric Surgery Department.

All patients submitted to laparoscopic varicocelectomy between 2011 and 2018 were included. Redo procedures were excluded. The patients were divided in two groups: group A, an intra-dartos/intra-testicular injection of methylen blue or blue patent was performed; group B no dye was used. The groups were compared regarding the demography, pre-operative details, surgical details and follow-up.

Sixty-one patients were included. The majority had left varicocele (98.4%) without testicular asymmetry (88.5%) and a grade>II (82.6%). There was no difference in the asymmetry before and after the procedure. In A group (n=16) the procedure took on average 71.8minutes, 19.2minutes longer than in the B group ($p<0.001$). The A group were followed for 15.9months, less 43.0months then the B group ($p<0.001$). There was no difference in the recurrence rates between the two groups. The A group did not experienced postoperative hydrocele (0%vs22.2%, $p=0.001$).

The laparoscopic varicocelectomy with lymphatic sparing after intra-dartos/intra-testicular injection of blue dye is a safe and effective procedure, with a small increase of operative time. In our department it had dramatically decreased the incidence of hydrocele.

LAPAROSCOPIC VARICOCELECTOMY IN ADOLESCENTS: ARTERY LIGATION OR ARTERY PRESERVATION? A SYSTEMATIC REVIEW AND META-ANALYSIS

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Abstract

PURPOSE

Aim of this meta-analysis was to evaluate the efficacy and safety of artery-sparing versus artery-ligating laparoscopic varicocelectomy in adolescents.

METHODS

We performed a Medline search using the key-words "varicocele," "varicocelectomy," "laparoscopic" and "artery". Randomized controlled trials and cohort studies that compared the difference in two operative procedures in laparoscopic varicocelectomy performed in adolescents were included. The results were investigated in recurrence, atrophy and hydrocele formation. Statistical analysis was performed using Comprehensive Meta-analysis.

RESULTS

Out of 92 pooled studies, eight retrospective studies met the inclusion criteria for a total of 1445 varicoceles (308 artery-sparing versus 1137 artery-ligating procedures). Meta-analysis showed that artery preserving had higher recurrence rate [Odds ratio (OD) = 0.31, 95 % confidence interval (CI) 0.18-0.55; P = 0.000] but not significant difference of incidence of hydrocele formation (OD = 1.01; 95 % CI 0.42-2.43; P = 0.978) and post-operative atrophy (OD = 0.89; 95 % CI 0.43-1.81; P = 0.741).

CONCLUSIONS

Meta-analysis and literature revision documented that in adolescent population artery-ligating as compared to artery-sparing laparoscopic varicocelectomy offers a significant less incidence of recurrence. Moreover, both laparoscopic techniques showed similar incidence of hydrocele formation and atrophy. Considering the limitation of the included studies, it seems that artery-ligating laparoscopic varicocelectomy should be preferred to artery-sparing procedure. Therefore, more large-scaled RCTs are required to confirm the present findings.

DISTAL URETER PRESERVATION FOR CLEAN INTERMITTENT CATHETERIZATION DURING MINI-INVASIVE NEPHRECTOMY

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Abstract

INTRODUCTION

Clean Intermittent Catheterization (CIC) has become the first-line and preferred method of drainage in patients with neurogenic lower urinary tract dysfunction and obstructive diseases.

MATERIAL AND METHODS

from november 2017 to november 2018 we had 3 patients that presented with an important loss of renal function necessitating a nephrectomy and we used their ureter to create a cisto-ureterostomy for Clean Intermittent Catheterization.

The first patient had a Prune-Belly Syndrome with a disfunctional megabladder associated with severe hydronephrosis due to V° bilateral vescicoureteral reflux, (corrected on the left side by Hyaluronic Acid/Dextranome submucosal injection) and a severe reduction of right kidney function (<10%).

The second patient had a plurimalformative syndrome comprising a myelomeningocele, an anorectal malformation and a horseshoe kidney with a dysplasia on the left part (absent tracer uptake) and a pyeloureteral junction syndrome on the right side.

The third patient had a prostatic lymphangioma, that forced the use of a permanent indwelling bladder catheter, associated with bilateral hydronephrosis and severe reduction of right kidney function (<10%).

In all cases we performed a nephrectomy with a mini-invasive approach (2 laparoscopic procedures and a robotic-assisted procedure) associated with the creation of a cisto-ureterostomy for CIC.

RESULTS

the post-operative period was uneventful in all cases with no complications. Clean Intermittent Catheterization was started 6 weeks after

CONCLUSIONS

cisto-ureterostomy for CIC represents an excellent alternative to Mitrofanoff appendicovesicosomy in those selected cases in which a severe reduction of kidney function is found.

LAPAROSCOPIC EXCISION OF GANGLIONEUROMA SECRETING DOPAMINE: PRE-SURGICAL TREATMENT AND DIFFERENTIAL DIAGNOSIS WITH SECRETING PARAGANGLIOMA / FEOCROMOCITOMA

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Abstract

INTRODUCTION

Secreting ganglioneuromas are extremely rare tumors and differential diagnosis with paraganglioma or feocromocitoma is difficult even histologically. The principal concern in these tumors is about the catecholamine secretion during tumor manipulation and about rebound effects after the complete removal of the mass.

MATERIAL AND METHODS

We report a case of a retroperitoneal, paravertebral right mass secreting dopamine in an 11 years old male.

The diagnosis was occasional with ultrasound performed for a concomitant UTI and the urine 24h samples revealed a dopamine hypersecretion.

MRI confirmed a right paracaval mass above the adrenal gland, below vena cava and solid with vertebral bones.

PET revealed a normal metabolic activity of the tumor and no distant metastases were diagnosed.

We suspected a secreting paraganglioma / feocromocitoma and programmed the medical treatment together with the pediatric endocrinologist, in order to avoid hypertension crises during and after the operation.

The manipulation of the tumor did not cause hypertensive crises and the surgical removal was performed in 4 hours and was uneventful.

Histology revealed a "maturing" ganglioneuroma without any paraganglioma or feocromocitoma components.

CONCLUSIONS

This rare tumor was challenging because of the anatomical position under the liver and close to the vena cava and the need for extreme caution in order to avoid raw tumor manipulation and consequent catecholamine secretion.

LAPAROSCOPIC ADRENALECTOMY IN CHILDREN

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Abstract

AIM

more than cosmesis, laparoscopic adrenalectomy (LA) has numerous advantages such as better operative exposure and faster postoperative recovery. In the present study, the feasibility and safety of LA are assessed.

METHODS

the patients proposed for LA at a tertiary Pediatric Surgery center, between September 2006 and August 2017, were reviewed concerning demographics, diagnosis, lesions characteristics and per/postoperative outcome.

RESULTS

11 (4 male) patients (15 glands) were included (left, n=6; right, n=1; bilateral, n=4), most of them in the last 2 years. The patient's aged 9.7 years-old [28 days – 17 years], with a weight of 46 [3-101] kg. Lesions measured between 7 and 70mm. In unilateral lesions, 3 ports were used for left sided and 4 for the right ones; in bilateral lesions, 4 ports were used. Bilateral lesions were due to Carney Complex (n=3) and a paraganglioma/feocromocitoma (n=1), the latter (7cm diameter) being the only case that needed conversion to open approach. Operative time was 179 [112-276] minutes, and postoperative length of hospital stay was 4.7 [1 – 11] days. Histological examination revealed malignant disease in 5 patients (2 neuroblastomas, 1 adrenal cortex tumor and 2 paraganglioma/feocromocitoma). After a mean postoperative follow up of 9 years, there were no major complications.

CONCLUSIONS

Laparoscopic approach for adrenalectomy is an effective and safe procedure in pediatric patients, allowing the potential advantages over the open approach. The role of LA in malignant disease has gained increased acceptance, despite no clear indications (e.g. lesions dimension), have been established.

OVARIAN TRANSPOSITION AS A MINIMALLY INVASIVE PRESERVATION TECHNIQUE OF FERTILITY: TEN YEARS OF EXPERIENCE IN A PAEDIATRIC TERTIARY CENTRE

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Abstract**INTRODUCTION**

Ovarian transposition (OT) is a surgical procedure allowing gonadal mobilization from a radiation spotlight to a safer, radiotherapy-free place in patients receiving abdominal or pelvic radiotherapy. It is feasible to manage these patients with minimally invasive surgery. Although some authors described good results on fertility preservation with this technique, there are no long-term studies on paediatric population. We present our results from the last decade with this procedure in our oncological patients.

MATERIALS AND METHODS

Retrospective review of medical reports of patients who underwent a laparoscopic ovarian transposition in our paediatric oncological surgery unit from 2008 to 2018. The technique varied depending on age, irradiation zone or concomitant oncological resections.

RESULTS

A total of 18 ovarian transposition were performed successfully in 11 patients (median age: 13'56 years). Seven (63%) were bilateral and four (30%) were left ovarian transpositions. An ovarian cortex cryopreservation was made simultaneously in all patients. All procedures were completed laparoscopically (median time per intervention: 178,4 minutes). Median length of stay was 1,88 days and no complications in the immediate postoperative time were described.

CONCLUSION

Minimally invasive approach for OT is a practicable, safe technique. These patients require an extended follow-up to assess ovarian function after oncological treatment.

EVALUATION OF SURGICAL INTERVENTION IN VENOUS MALFORMATIONS AMONG CHILDREN

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Abstract

BACKGROUND

One of every three children is born with a vascular birthmark consisting of a red, blue, or purple blemish of the skin. Whereas the majority of these stains will fade or remain small and inconsequential, approximately one child in 100 has a birthmark that eventually will require medical evaluation.(1)

PATIENTS & METHODS

The study was conducted on fifteen patients through a case-series study. Non probability comprehensive sampling method was conducted. The data was obtained from the patients' records using a designed form.

RESULTS

The mean age of the total fifteen patients was 4.39 ± 3.55 years. Most of cases experienced the appearance of the lesions at the age of 2-3 weeks (46.67%). The main presenting symptom was local mass in 86.67% of cases. The most frequently affected site was the lower limbs in 33.33% of the patients. The majority of our study population was managed by excising the mass and primary closure. Only five patients reported complications (33.33%). Tumor excision and primary wound closure gave best outcome.

CONCLUSION

Surgical management of vascular anomalies was challenging owing to involvement of sensitive places, huge lesions involving all soft tissues. Excision and primary closure gave overall best outcome in this setting.

THE ROLE OF MINIMALLY INVASIVE SURGICAL METHODS IN THE DIAGNOSIS AND STAGING OF PEDIATRIC TUMORS - A SINGLE-CENTER EXPERIENCE

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Abstract**AIM**

The aim of this study is to analyze our experience with minimally invasive surgical methods for staging and biopsy of pediatric tumors.

MATERIAL AND METHODS

For a period of 15 years (2004-2019) in our Clinic a total of 60 minimally invasive procedures were performed on 58 pediatric patients with neoplasms. The age of patients varied from 2 months to 19 years. Boys in the series were 34, girls - 24. Of the 60 procedures performed 43 were VATS biopsy with staging and 17 - laparoscopic. Of the 57 malignant neoplasms 30 were lymphomas, and the remaining 27 were solid tumors.

RESULTS

Conversions to open procedures were 8 in the VATS group (19%) and 3 in the laparoscopic group (18%). Two of the conversions in the VATS group and one in the laparoscopic group were due to intraoperative complications and in all other cases conversion was indicated for a possible radical resection. Operative time was 35 to 150 minutes in both groups (with a mean of 78 minutes in the VATS group and 88 minutes in the laparoscopic group). Intraoperative bleeding was observed in four cases (6,6%). No late complications of the procedures were observed in the series. In 98% (59 procedures) the method was sufficient for diagnosis.

CONCLUSIONS

The presented methods for staging and biopsy are an accessible approach in the broad concept for diagnosis and treatment of pediatric tumors. In the presented series is noted the relatively low percentage of intraoperative complications and the absence of late surgical complications.

LOW-COST TRAINING SIMULATOR FOR LAPAROSCOPIC INGUINAL HERNIA REPAIR FOR BOYS: DEVELOPMENT AND FACE VALIDATION

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Abstract

OBJECTIVE

The aim of the study was to validate a model of a laparoscopic inguinal hernia repair for boys (LIHR) and to evaluate its interest for resident training for basic gestures.

METHODS

We created a simulation model with accessible and inexpensive hospital equipment (bottle of water, gloves, adhesive...) compatible with conventional pelvi-trainers. An explanation manual and an evaluation (11 items; 5-points Likert scale) were sent to all the participants (31 university hospitals teams of pediatric surgery, and 7 residents and 4 senior of general surgery). The statistical analysis was made with t tests comparing the residents vs the expert surgeons.

RESULTS

38 surgeons (8 experts and 22 residents) participated in the study (71% pediatric surgeons). The mean duration of the procedure was higher for the residents (32 ± 9 vs 22 ± 7 min, $p=0.004$).The results of the evaluation (/5) was comparable between the 2 groups (experts vs residents) for the following items : general impression (4.2), realism of the model (3.5), level of difficulty (3.1) ; accessibility to the equipment (4.7), quality of the manual (4.5), difficulty for the construction (4.1); usefulness for resident technic's learning (4.1) and for the basic gestures of laparoscopy (4.5).

CONCLUSION

This low-cost model is evaluated as an efficient tool teaching and training for LIHR and basic gestures.

LEARNING CURVE IN MININVASIVE SURGERY: THE FUNCTIONAL BRAIN ACTIVITY STUDIES TO GUIDE THE TRAINING PROGRAMS

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Abstract

AIM

We provide a tentative model for analyzing the learning curves associated with observation and active participation in learning different surgical techniques, using functional imaging.

METHODS

Forty medical students were enrolled and assigned to 3 groups: robotic (ROB), laparoscopic (LAP) and open surgery groups who respectively underwent training in robotic, laparoscopic and open surgery. Surgical/motor training included six 1-hour sessions completed over six days during the same week. All subjects underwent functional-magnetic resonance imaging (fMRI) scanning sessions, before and after training.

RESULTS

Twenty-three participants completed the study. The three groups exhibited different learning curves. A main effect of Day of training ($p < 0.01$) and Group ($p < 0.01$) as well as a significant interaction Day of training*Group ($p < 0.01$) was observed. The performance increased in the first four days reaching a peak at Day 4, when all groups were considered together. The OPEN-group showed the highest performance, compared with all other groups ($p < 0.04$). The OPEN-group showed rapid increases in performances, which peaked at day 4, followed by a decrease on the last day. Similarly, the LAP-group showed a steady increase in number of completed exercises, which continued for the entire training period, reaching a maximum on the last day. However, ROB-group, after an initial performance indistinguishable from LAP-group showed a dip in performance quickly followed by an improvement, and reached a plateau at day 4. fMRI documented the involvement of cortical and subcortical areas differed based on the type of training.

CONCLUSIONS

the differences in the learning curves of the three groups were noted. Functional brain activity represents an interesting starting point to guide training programs.

SURGICAL TEAM SATISFACTION IN ROBOTIC-ASSISTED PEDIATRIC SURGERY / UROLOGY: A NATIONAL SURVEY

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Abstract**AIM OF THE STUDY**

To evaluate surgical team satisfaction among members of all robotic-assisted pediatric surgery (RAS) programs active in Italy.

MATERIALS AND METHODS

An anonymous individual 10-items survey was e-mailed to all staff members. First 5 questions related to role of responder and program itself (duration, frequency of procedures, autonomous surgeons, team structuring). Five further question (1-5 Likert-scale, 1=completely disagree, 5=completely agree) on personal interest, involvement, training in RAS, perceived value for hospital, personal growth limitation as MIS surgeon attributed to RAS.

RESULTS

44/117 invited members (38%) participated (6 directors, 27 consultants, 11 trainees). Most programs provided ≤ 2 procedures/months (93%) and single surgeon-leadership (61%). A significant difference among roles, with lower satisfaction for trainees, was evident for involvement, training, perceived value for the hospital (table). Surgeon operating in staff with long-lasting program (> 2 years) significantly perceived RAS as limiting personal growth as MIS compared to more recent programs (mean score \pm SD, respectively: 2.58 ± 1.64 vs 1.6 ± 1.04 , $p=0.02$, t-test).

CONCLUSIONS

Leaders of active RAS program in our country have to deal with a low satisfaction rate of younger staff members, who should be subject to a more articulated training program. Low rotation of pediatric RAS procedures could negatively impact these results.

CONSIDERATIONS REGARDING PAIN MANAGEMENT AND ANESTHESIOLOGICAL ASPECTS IN PEDIATRIC PATIENTS UNDERGOING MINIMALLY INVASIVE SURGERY: ROBOTIC VS LAPAROSCOPIC-THORACOSCOPIC APPROACH

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Abstract

In the last decade the applicability of robotic surgery has been demonstrated in many interventions, expanding the indications of minimally invasive surgery also to pediatrics. We evaluate postoperative pain in order to demonstrate better control following robotic procedures compared to thoraco-laparoscopic surgery.

An observational, retrospective, multicentric study was performed involving 204 children undergoing robot-assisted surgery and thoraco/laparoscopic surgery at the Istituto Giannina Gaslini in Genoa and the Siena University Hospital (2013-2017): 83 children underwent robotic surgery, 121 thoracic-laparoscopic surgery. Personal data and type of intervention were assessed, dividing the patients into four categories: thoracic, gastrointestinal, hepatobiliary and urological surgery.

We analyzed the anesthetic risk (ASA classification) by type of intervention, the type of anesthesia used, the anesthetic drugs used during surgery and in the post-operative period.

Problems occurred during procedures and number of interventions converted into open during robotic surgery and laparoscopic thoracic surgery were analyzed.

Pain was measured in first, second and third day.

By comparing the two groups (robotics-non-robotics), the analysis shows that post-operative pain doesn't change with the chosen approach, but always maintains very low values. The pain score is significantly higher in patients undergoing thoracic surgery, robotic or thoracoscopic, compared to those undergoing gastro-intestinal surgery (P: 0.0006) and those undergoing urological intervention (P: 0.04).

No significant change in the intensity of postoperative pain between the two groups was found, while it emerges that the pain referred to patients undergoing thoracic interventions is more intense than that reported for the other types of interventions.

CLINICAL AND FUNCTIONAL LONG-TERM OUTCOMES OF LAPAROSCOPIC ASSISTED ANORECTOPLASTY: A COMPARATIVE STUDY WITH POSTERIOR SAGITTAL ANORECTOPLASTY

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Abstract

PURPOSE

The aim of this study is to compare the long term clinical and functional outcomes between laparoscopic-assisted anorectoplasty (LAARP) and posterior sagittal anorectoplasty (PSARP) for children with high anorectal malformation (ARM).

METHODS

14 ARM children who underwent LAARP between May 2013 and May 2018 were reviewed. The clinical and functional outcomes were compared with those of 16 ARM children who underwent PSARP between 2008 to February 2013. The age at operation, operative time, postoperative hospital stay and complications were evaluated. Bowel functions were assessed using the Krickenbeck classification and performing an anorectal manometry.

RESULTS

The mean operative time and the postoperative hospital stay were significantly shorter in the LAARP group (140 vs 180 mn - 6.2 vs 9.7 days). The wound infections and recurrent fistula were only present in PSARP group. A rectal prolapse developed in 1 patient of both groups and required a surgical correction. The median follow-up period was 3 years in LAARP group and 7,5 years in PSARP group. The rates of voluntary bowel movement, soiling grade 1 and constipation grade 1 were similar in both groups. More patients from PSARP group developed grade 2 or 3 constipation and grade 2 or 3 soiling. The anorectal channel pressure at manometry was significantly higher in the LAARP group.

CONCLUSION

LAARP procedure is safe for high ARM with good continence and correctable side effects. Compared to PSARP, LAARP is a less invasive procedure. The long term functional outcomes after LAARP are better respect of PSARP group.

LAPAROSCOPIC SURGERY OR CONVENTIONAL SURGERY IN THE TREATMENT OF HYDATID CYST OF THE LIVER, EXPERIENCE OF A PEDIATRIC SURGERY SERVICE

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Abstract

INTRODUCTION

The hydatid cyst of the liver is a benign parasitic pathology, but it is considered a public health problem in endemic countries. In recent years, its exclusively surgical treatment has been modified by the use of the percutaneous puncture technique, alcohol injection followed by aspiration (PAIR), and the introduction of medical treatment with Albendazol, as well as laparoscopy in surgical treatment. The objective of our paper is to report a series of patients operated on for a simple laparoscopic KHF by describing the technique and to show the feasibility and reliability of the latter.

MATERIAL AND METHOD

From 2015 to 2017 10 children were operated on for laparoscopic KHF. The average age was 8.5 years, a sex ratio of 2.75 (8 boys and 2 girls), the location of the cyst in the right liver was in 80% of cases. All our patients had a single unilocular cyst (type I and II) according to the classification of Gharbi, they had the same operating protocol: sterilization and aspiration of the cyst, removal of the proliferous membrane and resection of the salient dome followed by drainage, all by laparoscopy, 02 patients received adjuvant medical treatment.

RESULTS

Post-operative outcomes overall favorable, hospital stay on average was 04 days, morbidity rate was 6.6% and conversion was 13.3% (n = 2). In the long term the results were satisfactory without any recurrence after a decline of 36 months.

CONCLUSIONS

Although some surgeons remain reluctant in this technique because of the risk of rupture of the hydatid material of cysts intra peritoneal, the use of coelio surgery is of interes because of its minimally invasive nature and seems to be an alternative effective at laparotomy.

ORGAN-PRESERVING MANAGEMENT OF SPLENIC CYST VIA LAPAROSCOPY: COMPLICATIONS AND DOUBTS

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Abstract

AIM OF THE STUDY

To assess the complications after laparoscopic management of splenic cysts.

METHODS

We treated 10 patients with large nonparasitic cysts via laparoscopic procedure from 2011 to 2019. 6 patients were treated by laparoscopy, 4 underwent initial laparoscopy and conversion to open surgery. To minimize the risk of recurrence after cyst marsupialization, the cyst wall was removed by ultrasonic dissection, the cavity was coagulated and an omental flap was created to maintain drainage. Postoperative follow-up examination by ultrasound to exclude the possibility of recurrence after preservation of spleen was performed.

RESULTS

All splenic cysts (median cyst size 12 cm, range 6-17 cm) were either simple (3) or posttraumatic (7). The median age at the time of operation was 12.5 (8-18 years). 6 patients were treated by laparoscopic cyst marsupialization. Early postoperative course was uneventful except for one instance of bleeding from an umbilical port. 2 patients had cyst recurrence after 2 and 3 months (33%). The recurrence was solved by open technique at parents' request in both cases: partial splenectomy and splenectomy were performed. 4 other patients underwent conversion to open surgery after initial laparoscopic treatment due to hemorrhage from the hilus in 1 patient (splenectomy) and huge cyst with adhesions in 3 patients (2 partial splenectomies, 1 splenectomy).

CONCLUSION

Laparoscopic organ-preserving surgery is the goal of therapy for large splenic cysts. However, in some cases splenectomy is inevitable despite best efforts. Laparoscopic marsupialization is an acceptable procedure but the number of cyst recurrence seems to be high.

LIMITS OF THE LAPAROSCOPIC APPROACH FOR HYDATID HEPATIC CYSTS

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Abstract**INTRODUCTION**

MIS has become an advantage for hydatid hepatic pathology, due to the good view over the cystic cavity, observe and resolve a biliary fistula, identifying and removing the rests of the germinal membrane, reducing the recurrence risk and the infectious complications. Numerous laparoscopic techniques were described: complete pericystectomy, puncture aspiration followed by marsupialization, cystectomy, hepatectomy (large cysts, deep localization). Contraindications for laparoscopic treatment are: rupture of the cyst in the biliary duct, localization (segments 7, partially 8 and 1, close to vena cava), deep intraparenchymal cyst, dimension (more than 15cm).

MATERIALS AND METHODS

In our Department, the major limitation for the laparoscopic approach has been the localization and the depth. 10 hydatid hepatic cysts were treated over a period of 2 years and only two cases needed conversion due to the proximity to the diaphragm, dimensions and localization.

RESULTS

Simple cysts with easily accessible locations are easier to manage laparoscopically and the operation takes less time than the open one. There are still some concerns for the recurrence rate, spillage, anaphylactic shock. For the laparoscopic approach, it is believed that location is a very important factor to select the patients. The anteriorly, inferiorly and the left part located cysts are more appropriate for laparoscopic treatment.

CONCLUSION

Laparoscopic approach in the treatment of hydatid hepatic cysts is safe and feasible. Additionally, it has some advantages including shorter operative time and hospital length of stay. Conversions occur mainly for the segment VII – VIII diaphragmatic localization and the depth of the cyst.

THE USE OF STAPLE TECHNOLOGY FOR PARTIAL SPLENECTOMY IN CHILDREN: A SINGLE CENTRE EXPERIENCE

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Abstract

AIMS

The section of splenic parenchyma for partial splenectomy (PS) may represent an issue for the surgeon. Herein we report a single Centre experience with the PS performed using Staple Technology in the paediatric population.

METHODS

Data of patients treated with PS since January 2007 to April 2019 were retrospectively reviewed.

RESULTS

11 patients underwent PS. 10/11 were laparoscopically approached and 1 open. 6/11 were males, 5 females; the mean age at surgery was 10.9 years. In all patients the splenic parenchyma was sectioned by Endo-GiaTMwith Tri-StapleTMTechnology 60mm Medium/Thick (CovidienTM-Medtronic) in order to obtain a better and safer section of the healthy splenic tissue. The upper and lower pole splenic vessels were sectioned by Ligasure® while the hilar vessels were ligated or sectioned by vascular Tri- StapleTMTechnology 45mm (CovidienTM-Medtronic). All the laparoscopic cases had a benign cyst and the resected spleen was removed within an endo-Catch through the umbilical access. The open case (previous LCDH) underwent PS for splenic bleeding appearing during an oncological procedure. At long-term follow-up only 1 patients presented recurrence of a cyst requiring a laparoscopic total splenectomy.

CONCLUSIONS

In our experience the use of Endo-GiaTMwith Tri-StapleTMTechnology for PS is simple, fast and safe in order to minimize bleeding and recurrence risk. Its use avoid tearing the parenchyma allowing the organ preservation.

INTEREST OF LAPAROSCOPY IN THE DIAGNOSIS OF PERITONEAL TUBERCULOSIS

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Abstract**AIM OF THE STUDY**

Peritoneal tuberculosis is a rare presentation of tuberculosis, especially for children with no debilitating disease. Its diagnosis is difficult because of the lack of specificity of the clinical picture, biological and radiological exams.

The aim of our study is to evaluate the contribution of laparoscopy in the positive diagnosis of peritoneal tuberculosis.

METHODS

We retrospectively reviewed the medical records of six children with peritoneal tuberculosis, hospitalized in our department between the 1st of January 2012 and the 31st of December 2018.

RESULTS

Six patients (2 boys, 4 girls) of mean age 7 years (2-12 years) were diagnosed with peritoneal tuberculosis. The main symptoms were abdominal pain (5 patients) and fever (3 patients). No cases of coexisting pleural effusion of pulmonary tuberculosis were found. Mean duration from symptoms to diagnosis was 18,8 days (2 days- 4 months). Ultrasonography (performed in five cases) and CT scan (performed in three cases) showed ascites (5), mesenteric lymph nodes (2) and hepatomegaly (1). In all cases a laparoscopy was performed and showed peritoneal granulations as the most common appearance and adhesions in three cases. The diagnosis of peritoneal tuberculosis was confirmed histo-pathologically on peritoneal biopsies in all cases. All patients completed the antituberculous therapy without any complications.

CONCLUSION

Laparoscopy with peritoneal biopsies is the gold standard and remains the essential means for the diagnosis of peritoneal tuberculosis

ENDOSCOPIC PILONIDAL SINUS TREATMENT IN TEENAGERS

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Abstract

INTRODUCTION

Pilonidal sinus disease is a chronic condition of the sacrococcygeal region. Surgical treatment is indicated in symptomatic cases.

Due to the relatively high rate of postoperative recurrence, the ideal surgical technique is still controversial. Minimally invasive approach such as the Endoscopic Pilonidal Sinus Treatment (EPSiT) is becoming popular in adults and seems to offer good post-operative results.

This study evaluates our results with the EPSiT technique for the treatment of pilonidal sinus disease in teenagers.

METHODS

From April 2015 to April 2019 the files of all teenagers operated in our institution with EPSiT were analyzed. We evaluate short and long-term outcomes: healing rate/time, morbidity, recurrence rate and patient's quality of life (QoL).

RESULTS

28 patients underwent EPSiT in our institution. Mean age was 16 years with a male preponderance. In 17% of cases, another surgical procedure was previously performed. Average hospital stay was 15h. Complete wound healing occurred in 86%, whereas in the remaining cases complications led to re-operation. Recurrence rate was 14% (4/28). Normal activity was re-established in the first postoperative day. QoL significantly improved at the early postoperative phase.

CONCLUSIONS

EPSiT technique has shown promising results in teenagers. This study suggests that EPSiT provided to be feasible and safe in the pediatric population, with a low rate of recurrence, fast postoperative recovery and early return to normal life. Further studies are necessary to confirm the effectiveness of the procedure to support if this technique could become the best alternative to treat pilonidal disease in teenagers.

LAPAROSCOPIC ADVANCED PROCEDURES IN CHILDREN AFTER OPEN REPAIR OF THE GASTROINTESTINAL TRACT PERFORATION WITH PERITONITIS - A CASE SERIES

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Abstract

BACKGROUND

Challenges of the laparoscopic procedures not related to adhesive bowel obstruction in children with the previous history of gastrointestinal (GI) tract perforation handled with an open repair may be a valuable lesson.

CASE 1

A 10-year-old girl with a history of a gastric perforation with fulminant peritonitis was qualified for a laparoscopic Nissen fundoplication due to symptomatic advanced gastroesophageal reflux disease. The extensive adhesions required detailed dissection in the identification of the crucial anatomical structures with regard to safe hemostasis significantly prolonging the surgery (4 hours). The adjustment included the unusual angle of instruments during suturing the crura of the diaphragm and the sequence of the stomach mobilization. The minimally invasive procedure was successful.

CASE 2

A 17-year-old boy was referred after an open repair of the duodenal perforation in the course of the peptic ulcer disease. At that moment the abdominal ultrasound revealed previously undiagnosed left kidney agenesis and right-sided hydronephrosis. Further investigation showed the duplication of the pelvicalyceal system and suspicion of crossing vessels as the cause of the hydronephrosis. The patient underwent transperitoneal laparoscopic V-Y reconstruction of the pelviuretric junction as no crossing vessel was found. The procedure required careful handling with adhesions from the introduction of the first trocar, through the above standard mobilization of the bowel to establishing the working space for the ureter suturing.

CONCLUSIONS

Previous GI-tract perforation in children may be treated as an indication for a laparoscopic approach in further interventions in those patients. The technique needs to be adjusted individually.

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LAPAROSCOPIC PANCREATECTOMY FOR HYPERINSULINEMIC HYPOGLYCEMIA OF INFANCY. MANSOURA EXPERIENCE IN FOUR CASES

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Abstract

BACKGROUND/PURPOSE

Nesidioblastosis and islet dysregulation syndrome were used to describe Persistent Hyperinsulinemic Hypoglycemia of Infancy (PHHI). It is the most common cause of persistent hypoglycemia in neonates (>55%). When medical therapy fails, early pancreatectomy is recommended. Laparoscopic approach has gained over open pancreatectomy to treat PHHI. The aim of this study is the evaluation of Mansoura experience of laparoscopic near total pancreatectomy in 4 cases of PHHI.

PATIENTS AND METHODS

During the period of Jan 2018 to May 2019; 4 patients diagnosed with persistent Hyperinsulinaemic Hypoglycemia were accommodated at Mansoura university children hospital and referred to our department for surgery. They were 3 females and 1 male and were treated by laparoscopic near total (90-95%) pancreatectomy.

RESULTS

Primary success occurred in all 4 cases (100%). 1 case (25%) suffered recurrence of PHHI. Eventually total cure occurred in 3 cases (75%). The case that suffered recurrence was reoperated by open approach had an uneventful postoperative course.

CONCLUSION

Laparoscopic Near total (90-95%) pancreatectomy is as efficient and safe as open approach for treatment of PHHI.

LAPAROSCOPIC SUBTOTAL CYSTECTOMY AS PRIMARY TREATMENT FOR LARGE NON-PARASITIC SPLENIC CYSTS

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Abstract

BACKGROUND

Open debate is still going on whether operative or non-operative management should be the primary approach for non-parasitic splenic cysts (NPSC).

MATERIALS AND METHODS

A retrospective review of children (<18 years) treated for NPSC over a 5-year period was performed. Demographics, clinical and surgical records, outcome data were collected.

RESULTS

Between July 2014 and March 2019 7 patients (5 M;2 F; M/F ratio 2,5:1; mean age 13,7 years; age range 7,9-17,9) underwent laparoscopic subtotal resection of large NPSC at our center. Mean size of the cyst was 97mm. All children were symptomatic. Mean follow-up was 34,5 months. Only 2/7 patients (28,5%) experienced recurrence of the cyst but lesion was <3cm over long-term follow-up in both cases. Thus they did not require redo surgery. No peri-operative complications, need of conversion to open surgery or blood transfusion, total/partial splenectomy were reported. Mean hospital stay was 6 days.

CONCLUSIONS

While observation represents an appropriate strategy for small/asymptomatic NPSC, some authors sustain that partial splenectomy correlates with the best balance between recurrence risk and spleen preservation. Recently, percutaneous aspiration and sclerotherapy has been proposed as an alternative to the operative management but this procedure is related with higher incidence of recurrence. We reported sustainable outcomes after laparoscopic subtotal excision of large (>5cm) and symptomatic NPSC, namely relatively low recurrence rate and no other complications. None of our patients required redo surgery. A multicenter trial may support the best treatment algorithm for NPSC.

PRELIMINARY EXPERIENCE OF LAPAROSCOPIC COLLIS GASTROPLASTY AND THORACOSCOPIC ESOPHAGEAL ANASTOMOSIS FOR TYPE 1 ESOPHAGEAL ATRESIA

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Abstract**OBJECTIVE**

The type 1 esophageal atresia treatment may require complex techniques that involve esophageal replacement or multiple progressive traction interventions. We report a totally minimally invasive approach of gastroplasty (Collis) that allows the entire native esophagus to be used for direct anastomosis in one time.

METHODS

This prospective study concerns patients operated on for type 1 esophageal atresia between 2017 and 2019. A 4-5 mm and 30 ° scope and two 3 mm trocars were used for laparoscopic time as well as thoracoscopic time. Gastroplasty was performed manually and sutured by a V-Loc™ 4-0 overlock (Covidien, Medtronic, Minneapolis, USA).

RESULTS

4 patients were operated, 2 were boys. The median age at surgery was 90 days (50-107 days), with a median weight of 5510g (2700-6400g). The median operating time was 300 minutes (270-420 min). There was no intra-operative complication nor conversion. Three postoperative fistulas were identified at fluorescence control 7 days post-operatively, all fistulas spontaneously closed at the second fluorescence control on day 14. No esophageal stenosis requiring endoscopic or surgical treatment had been recorded with a mean initial follow-up of 130 days (11-349 days).

CONCLUSIONS

The Collis gastroplasty allows to keep the native esophagus and to perform a cure of the esophageal atresia long gap in one step. The totally minimally invasive approach allows a simple postoperative follow-up. A larger follow-up is necessary to confirm these results.

LAPAROSCOPIC APPROACH FOR TREATMENT OF PRIMARY SPLENIC CYST. CASE REPORT AND REVIEW OF THE LITERATURE

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Abstract

BACKGROUND

Non-parasitic, true, splenic cysts (NPSC) are usually congenital in origin with presentation in the younger age group and are commonly observed in the upper pole of the spleen. They are usually congenital in origin with presentation in the younger age group and are commonly observed in the upper pole of the spleen.

CASE

A 15-years-old girl came to our observation for a cystic mass of the upper left abdomen with recurrent pain. Examination of the abdomen showed a non-tender enlarged mass in the left hypochondrium spanning up to the right iliac fossa. US and MRI showed a splenic cyst of 6.7cm at level of the upper moiety of the spleen.

Due to RAP the patient underwent laparoscopic marsupialization after partial aspiration of the cyst content. The roof was punctured to better handling the cyst and to allow cytological examination. Hemostasis was done by Liga-sure.

Omental packing was performed at the end of the procedure sealing it with a Gelatin Hemostatic Matrix vial . After a follow-up of 6 months the patient is cyst-free and asymptomatic.

CONCLUSION

Optimum spleen preserving modes of treatment of NPSC include partial splenectomy, marsupialization, cystectomy, decapsulation and deroofing. After reviewing Literature, our case confirms laparoscopic fenestration with omental packing represents a reliable option for the treatment of NPSC.

LAPAROSCOPIC MALONE ANTEGRADE COLONIC ENEMA PROCEDURE IN A PATIENT WITH INTESTINAL MALROTATION AND PERSISTENT CLOACA

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Abstract

In children, Malone antegrade colonic enema (ACE) procedure could be done by laparoscopy. If it is possible, appendix is preferred as conduit. Appendix is located in the right lower quadrant, but in case of malrotation or intraabdominal adhesion due to previous surgery, it might be found in ectopic locations. Here we present a Malone procedure in a patient having intestinal malrotation and previous surgeries for persistent cloaca.

CASE PRESENTATION

A 8-year-old girl who had previous persistent cloaca operations including uretroplasty, vaginoplasty, anoplasty and Mitrofanoff procedure with ureter of nonfunctioning kidney needed an ACE procedure. Ureteral Mitrofanoff stoma was on the right lower quadrant. Laparoscopic exploration showed intestinal malrotation and adhesion due to previous colostomy operation. Working trocars were placed at the right upper quadrants in a space with no adhesion. Laparoscopic adhesiolysis was done and a short appendix was found in the left upper quadrant close to the umbilicus. A continent cutaneous stoma was done with appendix just above the left anterior superior iliac spine. Since the appendix was short, cecal collar around the appendix was not performed.

CONCLUSIONS

Intestinal malrotation or intraabdominal adhesion due to previous surgery might be present in a patient who needs Malone procedure. Before trocar insertion, laparoscopic exploration provides orientation and shows where the appendix is and the zone that is free of adhesion permitting to insert working ports. Surgeon should be ready for ergonomic challenges and orientation difficulties for surgical anatomy in such cases.

DUMPING SYNDROME FOLLOWING FUNDOPLICATION IN CHILDREN : AN UNDER-DIAGNOSED COMPLICATION?

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Abstract

Dumping syndrome (DS) is a known complication of antireflux surgery in children related to rapid emptying of the stomach. Its pathophysiology is unclear but DS is sometimes linked with vagus nerves damage. It is probably more frequent than expected because symptoms are unspecific. Oral glucose tolerance test (GTT) allows an accurate diagnosis leading to therapeutic measures.

We have recently observed 2 cases of DS following Toupet's funduplications performed by laparotomy when they aged 4 and 6 months old. These 2 infants had been operated from esophageal atresia with esotracheal fistula and suffered from persistent severe gastroesophageal reflux. DS was diagnosed and confirmed by oral GTT. A specific treatment combining dietetic adaptations and diazoxid slowly improved the symptoms.

The first french report of DS as a major complication of funduplications in children was published in 1978. To date, several reports can be found in english literature. Some authors described a common complication affecting 30% of the children presenting non specific postprandial symptoms. Gastric emptying scintigraphy and oral GTT are useful to establish the diagnosis. Measurements of pancreatic polypeptide excretion in serum after oral and simultaneous intragastric feeding of a fat- and protein rich meal can be helpful to demonstrate vagus nerve damage. Specific dietary regimen usually improves symptoms sometimes after several months of treatment. DS has been described in children with esophageal atresia not operated for gastroesophageal reflux.

We recommend to be aware of unspecific postprandial symptoms following fundoplication in children. DS should be screened using an oral GTT.

CHOLECYSTECTOMY IN PEDIATRIC AGE: 9 YEARS EXPERIENCE

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Abstract**PURPOSE**

Pediatric cholelithiasis (both unrelated to hematological disorders and not) is an increasing disease. We analyzed our experience of the last 9 years in the surgical treatment of these cases to evaluate multiple factors.

METHODS

From January 2010 to December 2018 we performed 57 cholecystectomies, 13 patients had hematological disorders, 44 cholelithiasis not related to these diseases. All the patients had preoperative ultrasound to confirm the diagnosis and exclude associated choledocholithiasis avoiding MRI. We retrospectively considered surgery (mean intervention time), co-pathologies associated, medical treatment, clinical presentation, post-op pain, days of hospitalization, follow-up.

RESULTS

All the procedures were performed laparoscopically with 4 trocars technique. Mean operating time was 85 min, no major post-op complications occurred, mean age of the patients was 11.6 years: the youngest was a 3.5 years girl, the oldest was a 18 years boy. In 3 cases was performed intra-op cholangiography, in 1 case we performed a ERCP rendez-vous for choledocholithiasis. In 3 of the 13 cases suffering from hematological diseases (2 spherocytosis and 1 sickle cell) we performed a splenectomy associated to the cholecystectomy. The mean hospital stay was 4.3 days (considering also the associated operations) but in the last 2 years the discharge is on the 2nd post-op day. Mean follow up was 1 year.

CONCLUSION

Cholelithiasis in pediatric age is related to multiple factors. Laparoscopic cholecystectomy is the gold standard. The learning curve is significantly important in decreasing mean operating time also with associated pathologies and therefore also mean length of stay.

ROBOT-ASSISTED HELLER MYOTOMY FOR ACHALASIA

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Abstract

Achalasia is a rare neuromuscular esophageal disorder in children. There are many surgical options to treatment including botulinum toxin (Botox) injections, oral pharmacologic therapies with nitrates and calcium channel blockers, pneumatic dilation (PD), and surgical myotomy (open surgery, endoscopy, laparoscopy and recently robotic approach). In pediatric age, usually, Heller's myotomy is the main choice. Laparoscopic approach is known and standardized. Few robotic have been published. We decided to report our first case to share our experience with scientific community.

CMANAGEMENT OF CHOLECYSTOCHOLEDOCHOLITHIASIS IN PEDIATRIC AGE: EXPERIENCE AT A TERTIARY CARE CENTER

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Abstract**BACKGROUND**

The treatment of choledocholithiasis is debated. Intraoperative cholangiograms (IOC) during laparoscopic cholecystectomy (LC) have been advocated to detect biliary anomalies and intraductal calculi. However, IOC is technically demanding, increases operative time and patient irradiation, and it is not universally used in pediatric age. Interventions for choledocholithiasis can be completed preoperatively, with an endoscopic retrograde cholangiopancreatography (ERCP) prior to cholecystectomy. The authors present their experience with the treatment of cholecystocholedocholithiasis.

METHODS

We retrospectively reviewed data from patients undergoing LC between 2005-2019.

RESULTS

We treated 175 patients with symptomatic gallbladder stones and 20/175 (11.4%) of these patients had a choledocholithiasis. 18 patients underwent ERCP about a month before the LC; 2 patients underwent percutaneous transhepatic colangiography (PTC) because of the age. In 3 cases we need to perform IOC during LC to exclude biliary anomalies in 2 and because of the impossibility to perform ERCP in 1. We have 1 case of bleeding after ERCP and no major complications after LC with a 2 days median hospital stay.

CONCLUSION

We believe that the key to successful management of patients with choledocholithiasis is a well-standardized institutional procedural algorithm based on the available local resources and technologies. We usually prefer solve choledocholithiasis before the LC, however the surgeon should be able to perform IOC if necessary.

LAPAROSCOPIC NISSEN FUNDOPLICATION - THE FIRST CHOICE TO TREAT GASTROESOPHAGEAL REFLUX IN A MALNOURISHED INFANT?

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Abstract

INTRODUCTION

Severe gastroesophageal reflux in neonates and small children is a complex interaction of developmental and anatomic conditions that limits adequate enteral intake and can be associated with significant morbidity. For children with gastroesophageal reflux common comorbidities include prematurity, failure to thrive, neurological impairment and chronic respiratory conditions, that can be exacerbated by the presence of anatomic anomalies that further predispose to the development or progression of the reflux.

MATERIALS AND METHODS

We present the case of a 10 months old girl that presented 20 to 30 episodes of vomiting/day, numerous respiratory infections and severe malnutrition, 5.5 kg at the moment of admission. Due to the severe symptomatic evolution and low quality of life we decided that surgical procedure is needed despite the small weight and dimensions of the patient. Laparoscopic Nissen fundoplication was the therapy of choice.

RESULTS

The main problem concerning the surgical laparoscopic procedure was the small dimension of the patient, not compatible with the setting of the operatory team and the instruments available. 3mm instruments were used for the surgery and a team of 4 surgeons. The operation took 2,5 hours and the outcome was favorable immediately post-surgery, the patient presenting with no vomiting and an increase of weight of 450 g in 10 days.

CONCLUSION

Currently, a primary laparoscopic approach is our preferred approach to gastroesophageal reflux, regardless of other comorbidities. The low weight, less than 7 kg, a relative contraindication for performing the open procedure, becomes less important if the approach is laparoscopic.

FAST TRACK SURGERY IN SHORT SEGMENT HIRSCHSPRUNG DISEASE

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Abstract**INTRODUCTION**

Trans-anal pull-through is the classic treatment of rectosigmoidal Hirschsprung's disease (RHD). The time of surgery is a discussed topics and varies by team. In order to harmonize and optimize the management of these patients in our center, we have established a rapid rehabilitation protocol. The aim of this study was to evaluate a fast track surgical protocol for management of RHD.

MATERIAL AND METHODS

A prospective study was carried on from May 1st, 2018, including all patients operated for a RHD. The exclusion criteria were long forms and associated malformations. The protocol consisted of a deferred intervention at 6 weeks of age, with parental nursings at home. The surgical procedure consisted in a laparoscopic-assisted (3 mm instruments) trans-anal pull-through with spinal anesthesia for postoperative analgesia). Ablation of the bladder catheter and the discharge at two post-operative day.

RESULTS

Eight patients were included in the study. The median age of surgery was 1.7 months (range 1-84 months). No enterocolitis complication has been reported preoperatively. Postoperative analgesia was provided by level 1 and 2 analgesics (nalbuphine and paracetamol). Discharge at postoperative 2 days was possible for all patients, no emergency readmissions were reported at the first postoperative follow-up (10 post-operative day). The only one complication reported with a median follow-up of 7.8 months (2.5-10) was one sphincter hypertonia requiring botulinum toxin injection.

CONCLUSIONS

The results of this study show that the fast track surgical protocol is feasible in RHD. Long-term follow-up will be necessary to confirm these results

NEONATAL TRANS-ANAL ENDORECTAL PULL THROUGH (ERPT) VERSUS LAPAROSCOPIC-ASSISTED TRANS-ANAL PULL THROUGH (LATAPT) AFTER 28 DAYS OF LIFE IN RECTO-SIGMOID HIRSCHSPRUNG DISEASE: EARLY OUTCOMES

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Abstract

AIM OF THE STUDY

Single-stage trans-anal endorectal pull-through (ERPT) is the common surgical treatment of rectosigmoid Hirschsprung disease (HSCR). Since 2017, timing for performing ERPT surgery changed (>28 days life) and laparoscopic assistance for rectal mobilization was introduced.

The aim of the study was to report on early outcomes according to surgical strategy.

PATIENTS & METHODS

A retrospective study was performed from 2013 to 2019 in non syndromic rectosigmoid HSCR patients treated by ERPT. Patients were stratified by operative age < 28 (group 1, newborn - ERPT only) or ≥ 28 days of life (group 2, infant - LATAPT). Patients characteristics, data on preoperative, postoperative management, surgical complications were collected. Statistical chi2 and T-student tests were applied.

RESULTS

Twenty-seven consecutive patients were included in this study (group 1 n=11, group 2 n=16). Median age at surgery was 12 days (7-24 days) in Group 1 and 56.5 days (28-135 days) in Group 2. The median follow-up was 21.6 months [2-75 months].

Early surgical complications (anal stenosis) were lower in the Group 2 than in the Group 1: 2/16 (12.5%) , 4/11 (36%) p=0.14; as the length of hospital stay : 3,2 days [2-5] days versus 6.6 days [3-14] respectively, p=0.003. In Group 2, 1/16 patient (6.25%) presented with enterocolitis versus 3/11 in group 1 (27%), p=0.13.

CONCLUSIONS

Patients with HSCR who underwent ERPT ≥ 28 days of life have a lower length of hospital stay and seem to have lower rate of postoperative complications when compared to younger patients. Furthers prospective studies will be necessary to confirm our results.

CROHN DISEASE, OPEN OR LAPAROSCOPIC APPENDECTOMY?

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Abstract

INTRODUCTION

Crohn's disease is considered to be a chronic relapsing inflammatory bowel disease. The rear inflammation of the appendix in a patient affected by Chron is called granulomatous appendicitis.

MATERIALS AND METHODS

the paper presents the cases of two patients that were treated in the Pediatric Surgical department of M.S. Curie Hospital Bucharest and were diagnosed with Chron disease of the appendix. Both patients did not have a previous diagnosis of Chron and presented with intraabdominal complications following the first laparoscopic surgery. We defined the final diagnosis according to histopathology.

RESULTS

The incidence of appendiceal Crohn disease was 0.09%. The main complaints were right lower quadrant pain, lower abdominal pain, and diarrhea. The duration of symptoms varied from 5 days to 2 months. Both cases had post operative complications and one needed a second open surgery for an abscess and fistula at the base of the appendiceal ligature.

CONCLUSION

The main discussion revolves around the type of surgical procedure that we should choose for patients that have the clinical suspicion of acute appendicitis and possible Chron disease. Whilst laparoscopy offers certain advantages of smaller abdominal wounds, lower risk of hernia and decreased rate of small bowel obstruction, there are concerns that occult segments of disease and severe strictures can be missed due to limited tactile ability, and that during an open surgery we usually perform supplementary security measures for the appendix base of implantation. Despite the evidence for the advantages of laparoscopic surgery, further randomized controlled trials are required.

LAPAROSCOPIC-ASSISTED APPROACH FOR INTESTINAL DUPLICATIONS IN INFANTS: 15 YEARS OF EXPERIENCE IN A SINGLE CENTER

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Abstract

INTRODUCTION

Alimentary tract duplications are congenital malformations that may be found anywhere from mouth to anus. The most common duplication is cystic and located on the mesenteric aspect of the small or large intestine. Most duplications in the abdomen can be approached using laparoscopic techniques or a laparoscopic-assisted approach. We present the experience matured at our Center in the last 15 years with the video-assisted trans-umbilical approach.

MATERIALS/METHODS

We retrospectively collected demographic, operative and post-operative data of patients presenting intestinal duplications, from 2004 to 2019. The technique consists in aspirating the cyst under direct visualization with a large gauge needle either transabdominally or at the umbilical incision. By aspirating the cyst the decrease in size makes it possible to bring out the duplication through the umbilicus.

RESULTS

At our Center 23 patients were treated for intestinal duplication (M/F 1.5): 20 in the small intestine, 3 in the large intestine, of which 2 rectal (excluded from our analysis). 21 were approached with a video-assisted technique: 8 were resected as one specimen (bowel resection and primary anastomosis); in the remaining 13 cases we performed enucleation of the duplicated bowel. We registered 5 conversions to laparotomy and 1 complications (laparocoele). Median age was 16,6 months and median operative time was 105 min. [55 min-155 min].

CONCLUSION

The laparoscopic-assisted transumbilical approach for intestinal duplication represents a valid minimally invasive technique, in terms of safety, efficacy and rapidity. These data should encourage the use of this technique as first approach for intestinal duplication.

ROBOTIC REVERSAL OF OPEN HARTMANN'S PROCEDURE FOR LARGE BOWEL NECROSIS AND PERFORATION IN A YOUNG GIRL: A CASE REPORT

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Abstract

INTRODUCTION

Hartmann's procedure for non-traumatic large bowel perforation is rare in children. We report a case of Hartmann's procedure by laparotomy for a large bowel necrosis and perforation in a young girl. The reversal procedure was successfully managed by robot-assisted laparoscopy.

CASE PRESENTATION

A 2-year-old girl was hospitalized for an unspecific large bowel infection. During hospitalization, she developed peritonitis due to a perforation of the left colon. An emergency laparoscopy was realized and an extended necrosis on the left colon was identified. A conversion to laparotomy was decided in order to realize a Hartmann's procedure. The sigmoid colon was sealed with a stapler row and the stoma was performed on the transverse colon. At 2 months follow-up, an endoscopy of the transverse colon and the rectum was normal.

After a few months the patient underwent a reversal Hartmann's procedure by robotic surgery. A manual colo-rectal anastomosis was performed. The post-operative period was uneventful and she was discharged 3 days later with no complication. At one year follow-up, she showed normal transit with 2 or 3 feces per day.

DISCUSSION

Several reports of laparoscopic reversal of Hartmann's procedure have suggested a lower morbidity and shorter postoperative recovery compared with open surgery in a population of adults. There's no study concerning robotic surgery, especially in children.

CONCLUSION

Reversal of open Hartmann's procedure by robot-assisted laparoscopy is a feasible technique in pediatric patients.

THORACOSCOPY IN CONGENITAL LUNG MALFORMATIONS: EXPERIENCE OF A SINGLE CENTRE

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Abstract**AIM**

To describe patients suffering from congenital lung malformation (CLM) who underwent a video-assisted thoracoscopic (VATS) intervention in our Center and analyze operative and postoperative features.

MATERIALS & METHODS

We searched our CLMs database for patients who underwent VATS surgery. Data regarding demography, diagnosis, symptoms, surgery and postoperative course were analyzed.

RESULTS

Fifty-two patients underwent VATS intervention for a CLM during period 2006-2018 in our Center. In 47/52 prenatal (PN) diagnosis was present: in 11 fetuses the lesion was regressed in the last PN ultrasound. All 52 patients underwent a post-natal CT-scan before surgery. Ten children present symptoms at birth and/or later. Median age at intervention was 12 months if only patients with PN diagnosis were considered. Procedures included: 18 sequestrectomies, 21 lobectomies, 7 atypical lung resection (ALR), 6 cyst exeresis (CE). Mean operative time varied according to the procedure: sequestrectomy (100 minutes), ALR (150 minutes), CE (170 minutes), lobectomy (170 minutes). Conversion to thoracotomy was necessary in 11/52 patients because of presence of adhesions or failed pulmonary exclusion. Most patients (40/52) had a regular postoperative course, 2/52 needed reintervention because of bronchopleural fistula and 10/52 had minor postoperative complications. Mean removal of chest tube was in 2nd postoperative day (POD) and patient discharge was in 3rd POD.

CONCLUSION

VATS surgery is safe and effective for CLMs corrections. Operative time depends on surgical procedure and lung exclusion is essential to avoid open conversion. Postoperative course is generally uneventfully and patient can be discharged quickly.

THORACOSCOPIC ESOPHAGEAL ATRESIA REPAIR WITH "PRIMARY" ANASTOMOSIS: SYSTEMATIC REVIEW

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Abstract

PURPOSE

Thoracoscopic "primary" repair of esophageal atresia with tracheoesophageal fistula (EA/TEF- Type C) is analyzed in this systematic review.

MATERIAL AND METHODS

PubMed database were reviewed for EA/TOF Type C. Descriptive statistics were used to analyze the quantitative parts of the study.

RESULTS

Twenty-two articles were identified from 1999-2019 (n= 595). At surgery median age was 1.4 days (1-3.25) and weight was 2600g (2400-3100). Single-lung ventilation was opted in n=137/301 (46%) and preoperative bronchoscopy in n=182/190 (96%) published reports. Instrumentation preference (n=333; 56%) was for single 5mm port and two additional 3mm ports. Azygos vein was divided in n=241 (11 reports), using electric cautery (n=133; 55%), suture ligation (n=65; 27%) or clips (n=43; 18%). TEF was ligated by transfix sutures in 60% (n=336/556) and clips 40% (n=220/556). The re-fistulation rate was 1.7% (n=10). There was no significance between type of material used and re-fistulation (p<0.05). Anastomosis was performed using absorbable suture n=405/513 (79%) braided n=337 (66%) and monofilament n=68 (13%). In n=352/456 (77%), a 5/0 suture was preferred and n=342/461 (74%) interrupted. Anastomotic leak was reported in n=49/543 (9%) and no significance between type or strength of material and leaks (p<0.05). Chest tube was placed routinely in n=349/490 (71%). Median time to first oral feed was 7 (5-10) days, and median hospitalization was 22 (14-57) days. N=92 (22%) required at least one dilatation. Conversion to open thoracotomy were done in n=40/595 (7%).

CONCLUSION

Successful thoracoscopic primary esophageal atresia is reported with low recurrence rate and minor complications.

THORACOSCOPIC APPROACH TO MEDIASTINAL MASSES IN THE PAEDIATRIC POPULATION

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Abstract

BACKGROUND

Mediastinal masses are rare in the paediatric population and they comprise of a large range of lesions, varying from benign cysts to aggressive malignant tumors. Minimally invasive surgery plays an important role in the management of these cases, either when performing biopsies or when performing curative resection.

The aim of this study is to report our initial experience in using thoracoscopy for the management of mediastinal masses.

METHOD

A retrospective review was conducted over a 10 year period on patients diagnosed with mediastinal masses where a thoracoscopic approach was performed.

RESULTS

A total of 11 patients who were diagnosed with mediastinal masses were included in our study. Mean age at presentation was 6.8 years (min 5 months, max 14 years). In 10 cases CT scan was performed prior to surgery. Diagnostic thoracoscopy with biopsies was performed in 7 cases, while in 4 cases we performed a surgical excision. A chest tube was left for a mean of 5 days in 10 cases. Hospital stay ranged from 5 to 22 days. 4 patients required reinterventions for complete surgical excision: in 2 cases a thoracoscopic approach was performed, while the remaining 2 cases an open approach was favoured. 8 patients underwent subsequent chemotherapy. 3 patients had neuroblastoma, 3 had ganglioneuroma, 3 had sarcomas and one patient had a mediastinal yolk sac tumor. Pathology reports could not be obtained in one case. One death was reported in a patient with sarcoma.

CONCLUSIONS

Thoracoscopic approach is feasible for paediatric patients with mediastinal masses.

THORACOSCOPIC RESECTION OF PRENATALLY TREATED PULMONARY SEQUESTRATIONS: REPORT OF TWO CASES.

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Abstract

INTRODUCTION

Pulmonary sequestrations are mostly asymptomatic. Occasionally they become complicated by hydrothorax, mediastinal shift and hydrops, leading to fetal or neonatal death. Fetal surgery has offered treatment options. The ablation of the anomalous artery seems the most effective, but postnatal management of the residual lesion is debated. We present two cases of complicated left extralobar pulmonary sequestration(EPS).

CASE REPORTS

Patient 1 presented with complicated EPS at 31 gestational age weeks (GA). Ultrasound-guided laser coagulation of the anomalous artery was performed successfully. The patient was born asymptomatic at 38 GA. Neonatal MRI showed a residual mass of 17x11x20mm, confirmed by CT at 6 months. No systemic artery was described, but vascularization was present. We decided for thoracoscopic resection. The pleural cavity presented important adhesions. A residual artery was identified and sealed. Surgery was uncomplicated.

Patient 2 presented with complicated EPS at 26GA, underwent fetal treatment and was born asymptomatic at 38 GA. Neonatal MRI showed persistence of 19x19x21mm lesion. CT at 4 months described localized mass-effect on the lung and no systemic vessel. We proceeded with thoracoscopy. Again, the pleural cavity presented adhesions and a residual vessel was ligated. Surgery was complicated by post-operative bleeding treated conservatively. The patients are now 14 and 10 months old and healthy.

CONCLUSIONS

Prenatal treatment of complicated EPS is a life-saving procedure. It results in involution, but not disappearance, of the lesion. Thoracoscopic resection of EPS is safe in trained hands. We believe that post-natal resection of prenatally treated PS should be recommended.

VIDEO-ASSISTED-THORACOSCOPIC REMOVAL OF RETAINED INTRATHORACIC PLEUROAMNIOTIC SHUNTS

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Abstract

BACKGROUND

Primary fetal chylothorax is associated with high perinatal morbidity and mortality. Pleuro- amniotic shunts (PAS) can improve lung development, reduce the risk of polyhydramnios and hydrops, and increase the survival rate. The procedure is not free from complications, including retention of shunts into the thoracic cavity.

CASE REPORT

A 30-week gestation female presented with severe bilateral pleural effusion and hydrops. She underwent PAS and the first attempt was complicated by dislodgement of 2 shunts into her chest. The second procedure was successful with progressive resolution of hydrothorax and hydrops and expansion of both lungs. The baby was born at 35-week gestation with the shunts in place that were clamped and removed. The chest x-ray confirmed the presence of shunts against the right hilum. The child was discharged home on day 16 of life and followed as outpatient for 12 months. At this age VAT was performed and 2 twisted drainages, wrapped around themselves and the hilum, were removed. Lung parenchima was normal. The procedure was uneven-ful and the patient discharged home on the second post-operative day.

DISCUSSION

PAS insertion for the treatment of primary fetal chylothorax improves perinatal prognosis, but carries a series of complications. Intrathoracic displacement has been reported up to 20%. Conservative management has been proposed by some authors, however we recommend removing the shunt as elective VAT procedure in the first year of life due to the possibility of wrapping around vital thoracic structures.

LAPAROSCOPIC PARTIAL NEPHRECTOMY IN DUPLEX KIDNEYS WITH GIANT MEGAURETER IN INFANTS LESS THAN 10 KG: TWO PECULIAR CASES

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Abstract

PURPOSE

We report two peculiar cases of laparoscopic partial nephrectomy in infants (< 10 Kg) with giant ectopic megaureter of non-functioning renal upper pole.

MATERIAL AND METHODS

6 month-old boy, with history of upper pole pie-hydroureteronephrosis managed by nephrostomy, was affected in the left side; while 18 month-old girl, with history of abdominal mass then proved to be a giant megaureter of non-functioning renal upper pole, was affected in the right side and she was previously treated for primitive obstructive megaureter (in the lower pole).

An early endoscopic placement of lower pole ureteral stent was performed. With a transperitoneal approach, for the right side 4 trocars were used, for the left 3 trocars. Special hemostatic devices for dissection and parenchymal section were used.

RESULTS

Mean length of surgery was 160 min. We reported no conversion to open surgery neither intraoperative bleeding/urine leakage. Mean hospitalization was 7 days. Reoperation and complications rate was 0%. In both case at preliminary follow up no loss of renal function on the residual kidney moiety was recorded.

CONCLUSION

Laparoscopic partial nephrectomy is considered a technically challenging procedure, especially for very small infant (< 10 Kg) but, according to our experience, it is safe and effective if performed in pediatric centers with high experience in minimally-invasive surgery (MIS).

5 MM OPTIC WITH 3 MM WORKING CHANNEL SINGLE-PORT FOR THORACOSCOPIC SYMPATHICOTOMY FOR THE TREATMENT OF PRIMARY PALMAR HYPERHIDROSIS

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Abstract

INTRODUCTION

Primary palmar hyperhidrosis can have a negative impact on the quality of life on pediatric patients, especially in adolescents. Surgical sympathectomy is still the best treatment for palmar hyperhidrosis. We present our initial experience in the treatment of primary palmar hyperhidrosis using 5 mm single port thoracoscopy.

MATERIAL AND METHODS

Between June and October 2018, two patients (12 and 13 years old respectively) were treated bilaterally at the same surgical act. Surgical technique: Under selective intubation, the patient is placed in a semi-sitting position with both upper extremities at 90 degrees with respect to the thorax. A 5 mm-0 degrees pleuroscope with 3 mm working channel is introduced at fourth intercostal space. A sympathectomy was performed in the cervical ganglionic chain at the level of T2 and T3, which extended 2 cm through the middle of the rib using a 3-mm bipolar electrocoagulator. At the end of the intervention, the lungs are expanded completely, the air present in the pleural cavity is aspirated and the thoracic drainage is removed.

RESULTS

The surgical time was 40 and 45 minutes respectively. There were no intra or postoperative complications. The hospital stay was 18 hours in both cases. None of the patients had residual or compensatory hyperhidrosis in 7 and 11 months of follow up.

CONCLUSION

Single port treatment is feasible and reproducible in surgeons trained in thoracoscopy and the cosmetic result are excellent. Patients semi-sitting position allows adequate exposure and it is easy to switch to the contralateral side.

PRELIMINARY EXPERIENCE WITH THE USE OF A NEW MIS TECHNOLOGY AT TWO PAEDIATRIC SURGICAL CENTRES

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Abstract

INTRODUCTION

Minimally invasive surgery(MIS) in infants and children has been limited by instrumentation size and energy applied. Over the past few years JustRight Surgical® introduced a 3mm vessel sealer with electrical isolation. We report our experience with the use of this new technology (NT).

METHODS

We performed a retrospective review, at two paediatric surgical centres, of MIS procedures in which the 3mm sealer were employed.

RESULTS

Since its introduction (1 year ago), 18 patients were treated with the NT at a mean age of 2 years: CPAM(7), pulmonary sequestration(7), multiple cysts after Type1 PPB resection(1), thoracic lipoblastoma(1), thoracic neuroblastoma(1), long-gap esophageal atresia(1). The use of 3 mm sealer didn't led to any complications.

CONCLUSIONS

The NT can be safely used in a wide range of cases, especially in small infants. The 3mm sealer is particularly useful in case of unfavourable anatomy, for example in lung surgery when the fissure is incomplete and vessels are not easily identified or in case of multiple adhesions (tumors, recurrent infections). Care should be taken in the management of vessels and parenchymal division according with the diameter and depth of the structures. These procedures should be tutored by an experienced operator.

IS THORACOSCOPIC LUNG-SPARING SURGERY FEASIBLE FOR THE TREATMENT OF CONGENITAL PULMONARY AIRWAY MALFORMATIONS?

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Abstract

INTRODUCTION

Lung-sparing techniques have been advocated for congenital pulmonary airway malformation (CPAM), even performed by thoracoscopy. Aims of our study are: evaluate clinical outcome of patients undergoing lung-sparing surgery in order to determine whether thoracoscopy (TS) is superior to thoracotomy (TO).

METHODS

We conducted a retrospective review of patients who underwent lung-sparing resection for intrapulmonar CPAMs from 2004 to 2018. Demographic data, presenting symptoms, size of CPAM, operative and post-operative data were analyzed according to surgical approach. Data were compared using Fisher's exact test for qualitative values and Mann-Whitney test for quantitative values. P values less than 0.05 were considered as statistically significant.

RESULTS

167 lung-sparing surgery procedures were performed (21,segmentectomy and 146,atypical resection). 67(40%) procedures were completed in TS. Congenital cystic-adenomatoid malformation (CCAM) accounted for 45% of cases followed by intralobar-sequestration (24.5%). All histological examination revealed negative margins for residual CPAM. Patients in the TS-group, compared to the TO-group, were older (33.98 ± 58.3 vs 15.45 ± 32.9 mo, $p=0.01$) and had a higher weight (14.9 ± 15.7 vs 8.79 ± 8.5 kg, $p=0.001$). TS was associated with shorter duration of pleural drainage (5 ± 3 vs 6.2 ± 4 days, $p=0.03$) and shorter hospital stay (12.8 ± 15 vs 17.4 ± 17.3 , $p=0.03$). No differences were noticed between the two groups concerning postoperative complications (TS 4% vs TO 8%) and rate of reintervention.

CONCLUSION

Lung-sparing surgery for CPAMs is a safe and feasible technique in pediatric patients. TS results in reduced postoperative morbidity compared to TO and should be proposed as first surgical approach for selected patients.

NEXT STEP IN OESOPHAGEAL ATRESIA SURGERY: ORTHOTOPIC POSITION OF THE OESOPHAGUS

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Abstract

INTRODUCTION

Thoracoscopy definitely improved the surgical details of oesophageal atresia repair. Among them is the preservation of the azygous vein. However, oesophageal anastomosis is usually performed on the right side of such vascular structure, which produce oesophageal axis deviation, and azygous compression.

AIM

We propose to maintain the anatomical position of the oesophagus on the left side of the azygous vein. So, it is mandatory to perform the anastomosis above or below this vein.

METHODS

We present a new-born of 41 weeks gestation and 3.260 gr of weight that presented a type C oesophageal atresia associated with ventricular septal defect and persistence of foramen oval without any other malformation.

RESULTS

Correction was performed by thoracoscopy on the second day of life. The Tracheoesophageal fistula (TOF) was located at the level of the azygous vein and very proximal to the upper pouch. A ligation of the TOF and end-to-end anastomosis was performed. The parietal pleura was closed and no pleural drainage tube was placed. Six days later oesophagogram, was normal and oral feeding initiated. Hospital stay was 12 days. A dilatation was needed at 3 weeks of life.

CONCLUSION

The oesophageal anastomosis may be performed in a normal anatomical position at the posterior mediastinum preserving the azygous vein. This procedure avoids the angulation of the oesophagus after the corrective surgery of this malformation.

PULMONARY FUNCTION AFTER THORACOSCOPIC LOBECTOMY FOR CONGENITAL PULMONARY AIRWAY MALFORMATIONS: MID TERM OUTCOME

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Abstract

INTRODUCTION

Congenital pulmonary airway malformation (CPAM) is the most common pulmonary malformation diagnosed prenatally. To date, few studies reported and analyzed pulmonary function after thoracoscopic lobectomy. The aim of this study was to evaluate the pulmonary function for all patient underwent thoracoscopic lobectomy for CPAM and to compare surgical and functional outcomes between patients operated before and after 5 months of age.

METHODS

Data were collected from 2007 to 2014. Two group were analysed according to the age at intervention (Group 1: below 5 month and Group 2 = above 5 month of age). All patients operated for CPAM requested to perform pulmonary function test (PFT), or Functional residual capacity (FRC). Chi square was used to compare between the 2 groups.

RESULTS

Forty patients were operated. Twenty-seven of 40 patients performed PFT resulting in the normal range all of them. Sixteen patients had full PFT and 11 had FRC measurement by helium dilution technique. In group 1, 12 patients were evaluated and in group 2, 15 patients. FRC predicted in 2 groups was similar (group 1: 91% , group 2: 88.2%). There was no differences between the two groups in term of FEV1 (83.9%,86.4%), FVC (86.8%,92.6 %) and TLC (86.5 % vs 87.8 %), FEV1/FVC ratio was higher in group 1 than group 2 (97.9%,89.4%).

CONCLUSIONS

In patient underwent thoracoscopic lobectomy for CPAM the PFT is normal and thoracoscopy is safe and reproducible. Surgery in patients under 5 month of age is feasible, without difference in terms of functional results when compared to older patients.

TOTALLY ROBOTIC TRANSHIATAL ESOPHAGECTOMY FOR CAUSIC BURNS IN A 2 YEAR OLD PATIENT

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Abstract

This paper will describe the case report of a 2-year old boy who was admitted to our Department for accidental caustic ingestion causing severe esophageal burns extending from the very proximal to the intrabdominal oesophagus. A laparoscopic gastrostomy was fashioned. Repetitive cycles of oesophageal dilatations were approached but oesophagus perforated twice. A covered oesophageal stent was inserted to dilate and cover the stricture but it dislodged and the child soon became unable to eat and even swallow. The option to fashion an esophagostomy was discarded as the stricture was so high that we wanted to avoid loss of oesophageal tissue. On the ground of these considerations, six months after admission the boy was scheduled for robotic transhiatal oesophagectomy and primary esophagocolonplasty. The procedure was uneventful and successful and the child could re-establish oral feeding on postoperative day 10. The child was discharged in full oral feeding 6 weeks postoperatively and the gastrostomy was closed 3 months later. To the best of our knowledge this is the first report of a totally robotic transhiatal esophagectomy for caustic burns in children. Surgical details will be provided and key technical aspect of surgery will be discussed for this innovative and effective approach.

CONGENITAL ESOPHAGEAL STENOSIS ASSOCIATED TO ESOPHAGEAL ATRESIA: HOW TO TREAT? CASE REPORT AND REVIEW OF LITERATURE

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Abstract

BACKGROUND

Congenital esophageal stenosis (CES) is a rare condition that could be associated with esophageal atresia (EA). Treatment could be conservative (endoscopic dilatation) or surgical (myotomy or resection-anastomosis).

CASE REPORT

Postoperative contrast study of a neonate undergone thoracoscopic correction of type III EA, showed a sub-anastomotic CES 1cm above the cardias. This was confirmed two months later with an EGDS (stenosis was not passable with a 5mm endoscope). With introduction of solid foods, patient presented dysphagia and episodes of food impaction. CT scan did not show any tracheobronchial remnants, so we managed CES conservatively. 5 endoscopic dilatations improved esophageal caliber but do not led to clinical or anatomical resolution: a 20 mm CES was still appreciable 1,5cm above cardias. At the age of 30thmonths, we programmed a laparoscopic correction. During procedure, we found a cartilaginous ring not seen during CT scan: because of the cardias proximity resection and anastomosis was not possible without removing the cardias, so we proceeded with: longitudinal myotomy; excision of anterior part of tracheobronchial remnant; closure of the muscular layer transversally to enlarge esophageal lumen; Dor fundoplication to prevent post-operative reflux. Postoperative EGDS demonstrated CES resolution. At 3 months follow up the patient was asymptomatic.

CONCLUSION

A correct definition of the anatomical features and the position of CES are critical to define preoperatively the best therapeutic approach. The solution we applied led to an anatomical and clinical resolution, but, as highlighted in literature, a longer follow up is needed to confirm the efficacy of treatment.

THORACOSCOPIC RESECTION OF MEDIASTINAL CYSTIC LESIONS: ADVANTAGES OF 3D TECHNOLOGY

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Abstract

BACKGROUNDS

Compared to open surgery, thoracoscopy offers proven advantages for resection of mediastinal lesions. Despite this, mediastinum still represent a difficult field for the surgeon because of the major anatomical structures that lies within. We present our recent experience.

METHOD

From May 2016, we treated four patients affected by mediastinal masses. Three came to our attention during prenatal period; one referred to our institution at the age of 4 years after the incomplete resection of an esophageal duplication.

RESULTS

The 3 patients with prenatal diagnosis underwent after birth an ultrasound follow up, MRI +/- TC study within the 6thmonth of life, surgery within 18thmonth. All presented a right posterior mediastinal localization of the mass, so we performed a right thoracoscopy. Considering the forth patient, MRI showed a residual lesion that extended in the left posterior mediastinum, so we chose a left approach. Complete excision was performed in all patients, even in two of them in which the mass extended to the contralateral side. We had no intra or postoperative complication. Instruments were: 5mm optic and 2/3 3-5mm operative trocars. All patients spent 24h in PICU. Postoperative hospital stay ranged from 3 to 7 days. Diagnosis were: bronchogenic cyst, lymphangioma, two esophageal duplications.

CONCLUSIONS

Thoracoscopy is a safe and effective technique for complete resection of mediastinal masses in infants and small children, among the well known advantages of this technique we want to highlight the possibility to extend resection to the contralateral side to perform a radical surgery.

THORACOSCOPIC POSTERIOR TRACHEOPEXY DURING PRIMARY ESOPHAGEAL ATRESIA REPAIR

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Abstract

BACKGROUND

Esophageal atresia (EA) is often accompanied by tracheomalacia. Severe tracheomalacia can lead to apparent life threatening events (ALTE's). Therapeutic strategies for severe tracheomalacia include aortopexy or secondary posterior tracheopexy. We have introduced a new approach by performing posterior tracheopexy directly during primary thoracoscopic correction of EA.

METHODS

In the period 2017 -2018, all consecutive EA patients (27) underwent a diagnostic rigid tracheo-bronchoscopy (RTB) during induction of anesthesia. Tracheomalacia was diagnosed in 11 patients. During the subsequent thoracoscopic EA-correction the posterior tracheal membrane was fixed to the anterior longitudinal spinal ligament with non-absorbable sutures prior to performing the esophageal anastomosis.

RESULTS

Preoperative RTB showed severe (66-99%) mid-tracheal collapse in six patients and moderate collapse (33-66%) in five patients. Primary thoracoscopic posterior tracheopexy via one to three sutures was feasible in all patients. Median time per suture was six minutes (range 4-12 minutes). All operative procedures were uneventful. A median follow-up duration of 10 months (range 2 to 22 months) revealed that eight patients recovered without respiratory complaints. One patient had respiratory symptoms caused by a suture granuloma that was removed by bronchoscopy and two patients had complaints of a viral upper respiratory tract infection. None of the patients had experienced ALTE's.

CONCLUSIONS

Thoracoscopic posterior tracheopexy during primary EA repair is feasible. This technique could prevent potentially deleterious sequelae of moderate to severe tracheomalacia. Furthermore, a second, sometimes complex surgical procedure can be prevented since posterior tracheopexy is performed during the primary thoracoscopic EA correction.

PREDICTIVE VALUE OF ENDOSCOPIC STRICTURE INDEX ON THE NEED AND NUMBER OF DILATATIONS IN ESOPHAGEAL ANASTOMOTIC STRICTURES AFTER ESOPHAGEAL ATRESIA REPAIR

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Abstract

INTRODUCTION

Anastomotic strictures following esophageal atresia (EA) repair occur in up to 60% of cases. Endoscopic stricture index (SIEN) has been introduced to classify esophageal strictures. The aim of the study was to establish a predictive model for esophageal dilatation following EA by applying SIEN.

MATERIALS AND METHODS

A retrospective chart review of children who underwent EA repair between 1998 and 2018 was conducted. Patients with EA Gross's type E EA and the ones needing esophageal replacement were excluded. SIEN was calculated on first endoscopy following surgery ($D-d/D$ where D is the diameter of pre-stenotic esophagus and d the stricture diameter). Esophageal dilatation was performed using Savary dilators. SIEN and number of dilatations were correlated using Spearman's test and linear regression analysis.

RESULTS

78 patients with EA were reviewed: the majority (59%) presented Gross's type C. 4 patients underwent esophageal replacement and 7 with EA type E were excluded; therefore 46 patients were eligible for the study. Endoscopic images were obtained in 39 patients, 8 (17%) of whom were dilated. The mean number of dilatations was $4,5 \pm 2,8$ (range: 1-10). The SIEN showed a good correlation with number of dilatations ($p < 0,0005$) and it was possible to stratify patients in two groups: one with $SIEN < 0,5$ (no dilatation required) and one with $SIEN \geq 0,5$ (at least 1 dilatation).

CONCLUSION

SIEN is a feasible diagnostic tool to classify anastomotic strictures following EA. Furthermore, its value can be predictive of number of dilatations required by each patient.

THE USE OF NEW TECHNOLOGIES IN PEDIATRIC MINIMALLY INVASIVE SURGERY: THE OTHER SIDE OF THE COIN. ATTITUDE AND STRATEGIES OF THE WISE SURGEON

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Abstract

INTRODUCTION

New technologies are always fascinating, especially when they allow us to better adapt to the specific characteristics of our young patients. However, at the beginning of a growth path, they are not without risks. We present our complications in the use of a 5-mm stapler in MIS, to discuss them with the audience.

METHODS

We started to use a 5-mm stapler in July 2018. We present our complications, in the form of brief case reports documented with intraoperative videos of the adverse events.

RESULTS

From July 2018 to April 2019, 15 patients were treated with MIS using the 5-mm stapler. We registered 3 complications related to the use of the new device: 1) 8-month-old boy, 16 days after wedge resection of left CPAM, presented with a massive pneumothorax and needed reintervention for an air leak from the previously stapled lung parenchyma; 2) 12-month-old boy, during elective resection of a bronchopulmonary sequestration, had an intraoperative delayed bleeding due to the reopening of a stapled vessel. Conversion needed; 3) 24-month-old boy, during thoracoscopic right inferior lobectomy for CPAM, after stapling of the lobar bronchus, underwent massive respiratory distress for complete reopening of the stapled line. Conversion was needed with manual suture of the bronchus.

CONCLUSIONS

The use of new technologies, although tempting, can lead to complications. They can be prevented through: adequate training in the use of new devices, careful selection of patients and indications, use by experienced operators able to deal with any complications, unfortunately inevitable at the beginning of the growth curve.

INITIAL EXPERIENCES WITH LAPAROSCOPIC HELLER'S ESOPHAGOCARDIOMYOTOMY

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Abstract

BACKGROUND

The aim of this study was to evaluate the initial experiences with laparoscopic Heller's esophagocardiomyotomy (LHM) of children at a tertiary children's hospital.

METHODS

Retrospective review of all consecutive patients with esophageal achalasia who underwent treatment by a laparoscopic Heller's esophagocardiomyotomy at a tertiary children's hospital from 1. 1. 2013 to 31. 12. 2018. Data including demographics, pre-operative investigations, operative approach, complications, outcomes, and follow-up were analyzed.

MAIN RESULTS

5 patients were included - two girls and three boys. Median age of 15 years (range 15 - 16) at time of operation and 13 years (range 8 - 15) at the time of first symptoms. Pre-operative investigations: all patients had upper gastrointestinal contrast series, manometry and upper gastrointestinal endoscopy. All patients underwent laparoscopic Heller's myotomy with fundoplication and no conversion. Dor fundoplication was performed in 100 % of patients. Median duration of the operation was 125 minutes (range 120 - 134). Median length of hospitalization was 4 days (range 4 - 6). There were no postoperative complications up to 30th postoperative day. Median of follow up was 13 months (range 1 - 23). 714 days after operation one patient underwent esophageal balloon dilatation during gastrofibroscopy for swallowing difficulties. In authors' group there was no need for reoperation.

CONCLUSION

Heller's myotomy with Dor fundoplication done laparoscopically were effective and safe for children with esophageal achalasia. Hospital stay and recovery time was short, and the functional results were satisfactory.

ROUTINE SCREENING FOR GASTROESOPHAGEAL REFLUX IS NOT NECESSARY PRIOR TO GASTROSTOMY IN NEUROLOGICALLY IMPAIRED CHILDREN

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Abstract**AIM**

To review results of laparoscopic gastrostomy and evaluate the efficiency of preoperative screening for gastroesophageal reflux (GER) in neurologically impaired children.

PATIENTS AND METHOD

Medical records of neurologically impaired children that have undergone laparoscopic gastrostomy between January 2004 and June 2018 were reviewed. In 2014, we switched to a protocol that only patients with vomiting were screened for GER preoperatively. Hence, Early (2004-2014) and Late (2014-2018) groups were constituted and characteristic and outcome of the groups were compared using Chi-square test.

RESULTS

There were 55 and 54 patients in Early (mean age: 61 months) and Late (mean age: 60 months) Groups, respectively. Primary diagnoses and mean follow-up (26 vs 24 months) were similar. Rate of GER screening was significantly lower in Late Group (63.6% vs 29.6%, $p=0.001$). Laparoscopic Nissen Fundoplication (LNF) was necessary in 38.2% of Early and 14.8% of Late Groups ($p<0.05$). Rates of new vomiters (11.7% and 13%) and LNF need (8.8% and 6.5%) following gastrostomy were similar ($p>0.05$).

CONCLUSIONS

Routine screening for gastroesophageal reflux is not necessary prior to gastrostomy in neurologically impaired children.

TECHNICAL STANDARDIZATION OF MIS MANAGEMENT OF CHILDREN WITH PILONIDAL SINUS DISEASE USING PEDIATRIC ENDOSCOPIC PILONIDAL SINUS TREATMENT (PEPSIT) AND LASER DEPILATION

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Abstract

BACKGROUND

This study aimed to standardize pediatric endoscopic pilonidal sinus treatment (PEPSiT) associated with laser depilation.

METHODS

The medical records of 59 patients, 23 girls and 36 boys with an average age of 16 years (range 13-18) with PSD, who underwent PEPSiT over a 30-month period, were retrospectively reviewed. Ten out of 59 patients (16.9%) had a recurrent PSD after open repair. Furthermore, 4/59 patients (6.7%) presented a concomitant pilonidal cyst. Pre- and postoperative management, surgical technique, recurrence of disease, post-operative pain, hospital stay, analgesic requirements and patients' satisfaction levels were evaluated.

RESULTS

All children underwent laser depilation before and after surgery in the last 15 months. The average operative time was 27.5 minutes (range 20-45). The average pain score during the first 48 post-operative hours was 2.7 (range 2-5). The analgesic requirement was limited to the first 24 hours postoperatively. The average hospitalization was 22.4 hours (range 18-36). They changed dressing daily, by applying topically 2% eosin and silver sulfadiazine spray, without physical limitations. At 1 month postoperatively, the external openings were closed in all patients. With a maximum follow-up of 30 months, only 1 recurrence (1.6%) was recorded and successfully re-treated with PEPSiT.

CONCLUSIONS

Our preliminary experience confirmed that PEPSiT should represent the technique of choice for treatment of PSD in children and teenagers. However, it is mandatory to standardize the steps of technique consisting in pre- and post-operative laser depilation, PEPSiT procedure and post-operative wound management with eosine and sulfadiazine spray for at least 2-3 weeks postoperatively.

MIDDLE TERM EVALUATION OF THE SIMULATION MODEL FOR LAPAROSCOPIC PYLOROMYOTOMY

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Abstract

INTRODUCTION

A key concern regarding laparoscopic pyloromyotomy (LP) lies with the process of learning this skill. The learning processes for open and LP appear to be different, with an earlier increased risk of perforation or incomplete pyloromyotomy for LP. Our aim was to develop a simple simulation tool to reduce these specific complications.

METHODS

A model of hypertrophic pyloric stenosis was created and inserted in a paediatric laparoscopic surgery simulator. A cohort of experts completed a six-item questionnaire, using a four-point scale regarding the model's realistic nature and accuracy. Evaluation of the LP procedure was based on a dedicated Objective Structured Assessment of Technical Skills (OSATS) score. Surgical residents and students were enrolled for the final evaluation to assess the relative performance of trainees who had practiced with this model (Group 1) versus those who had observed its use (Group 2).

RESULTS

Reproducibility of the model construction was considered to be satisfactory. The experts agreed that the model accurately simulated essential components of LP (mean 3.03 ± 0.7). They scored significantly better than the residents (27.2 ± 1.8 vs. 22.8 ± 2.9 ; $p < 0.001$), with a lower rate of complications. Group 1 (39 trainees) performed significantly better than Group 2 (26 trainees), with a significant decrease in the risk of an incomplete pyloromyotomy ($p < 0.05$).

CONCLUSION

This model appears to be sufficiently accurate to teach LP. In light of this, it can be considered to be an efficient tool for LP simulation teaching in our fellows' educational program.

UNICENTRIC EXPERIENCE WITH EPSIT FOR PILONIDAL DISEASE IN PEDIATRICS

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Abstract**INTRODUCTION**

Since its introduction in 2014, Endoscopic Pilonidal Sinus Treatment (EPSiT) has been adopted worldwide both in adult and pediatric practice. Aim of this study is to report a 3.5-year unicentric experience with EPSiT in pediatrics.

PATIENTS AND METHODS

All consecutive pediatric patients, who were operated on between July 2015 and December 2018 have been included. Data regarding clinical features, technical details, complications, hospital stay, and long-term outcome have been collected.

RESULTS

A total of 44 patients underwent 51 EPSiT procedures during the study period. Mean age at surgery was 15.2 years. Male to female ratio was 1.31:1. Mean length of surgery was 35 minutes. Median hospital stay was 24 hours. Median follow up was 18,5 months (ranging between 5 and 45 months). No major intraoperative complications nor technical issues occurred. We experienced 1 infection, 2 delayed healings, 2 persistence and 5 recurrences in 9 patients, leading to 7 reoperations. Median interval between surgery and recurrence was 9 months (ranging between 6 to 18 months). When addressing risk factors (gender, BMI, age), none proved to be significantly related to the onset of complications. One patient recurred twice and is now waiting for a further EPSiT. Overall, resolution rate proved to be 84%.

CONCLUSIONS

Although with a lower than previously reported resolution rate, EPSiT proved to be safe and effective in the pediatric patients. Definitive epilation could help in increasing success. Noteworthy, a long follow up is needed to rule out recurrences that can occur even years after surgery.

VIDEO ASSISTED SCLEROSIS WITH OK432 OF ENDOABDOMINAL LYMPHANGIOMA, AN EFFECTIVE, SAFE AND MINIMALLY INVASIVE CHOICE

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Abstract

Lymphatic malformations are congenital errors in vascular embryogenesis. Lymphangiomas are categorized in micro-cystic, macro-cystic or combined. Their localization is ubiquitous. Abdominal lymphangiomas are rare.

The presentation is variable: asymptomatic or, in abdominal localization, it may mimic an acute abdomen syndrome.

Options for treatment are the observation, the administration of oral drugs, the sclerosis with some chemiotherapeutic or the surgical removal.

Percutaneous sclerosis is the preferred treatment for lymphangioma with external localization, with excellent results. Surgical resection (open or laparoscopic) of abdominal lymphangioma is currently the mainstay of therapy, but recurrence and morbidity are high.

We describe two cases of abdominal lymphangioma successfully treated by video-assisted sclerosis with OK432.

The first case was a 5-months old girl with pre-natal diagnosis of left retroperitoneal lymphangioma which incorporated important vessels. We performed a laparoscopy to expose the mass and subsequently a video-assisted injection of OK432 in major cysts. Complete disappearance of cysts is reported at 6 months follow-up ultrasound.

The second case was a 15-years old boy who presented an acute abdomen to ER. After exams to confirm diagnosis of mesenteric lymphangioma, we performed a laparoscopy to expose the cysts and a video-assisted sclerosis of them with OK432.

There was no cysts evidence at ultrasound follow-up, 3 months later

In our experience video-assisted sclerosis with OK432 of abdominal lymphangioma can be a valid alternative to the surgical resection. The procedure is feasible, safe, effective and minimally invasive and we observed a complete resolution. Long-term follow-up is required to check the absence of recurrence.

THE VALUE OF LAPAROSCOPY IN THE TREATMENT OF BLUNT SPLENIC TRAUMA

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Abstract**BACKGROUND**

Laparoscopy for blunt abdominal trauma is not widely used, but may be a useful diagnostic and therapeutic tool. We performed a single centre retrospective review of laparoscopic approach for isolated blunt splenic trauma since year 2001 until 2019.

MATERIALS AND METHODS

68 patients were included in the study- mostly boys n-52 (76.5%). Average age was 9 years \pm 5 month. Retrospectively we identified that patients who had laparoscopy performed n-10 (14,7%) were hemodynamically stable and/ or receiving conservative therapy. Laparoscopy was performed as "stage treatment" during conservative therapy. Trauma mechanism was: playground accident- 41.6%; fall from height- 30.8%; car accident- 13.8%; fight trauma- 13.8%. Average haemoglobin level at admission was 12g/dL. Verification of diagnosis and control of spleen haemostasis was detected by ultrasound- 3 ultrasound studies in average, with intervals from 1 to 16 days. Laparoscopy was standard with 5mm ports and 10mm camera transumbilicaly. Suction of intra-abdominal blood (794ml in average) and washing of the cavity was performed following drainage tube placement.

RESULTS

Indications for laparoscopy were signs of peritonitis due to hemoperitoneum. No intra- or post-op complications registered. Average hospital stay was 12 \pm 6 days. All patients received haemostatic therapy, IV infusion and antibiotics. In 4 cases of laparoscopic treatment patients received auto- hemotransfusion of the extracted peritoneal blood filtered through "Cell Saviour"- device.

CONCLUSION

Laparoscopy is safe and feasible to apply as stage treatment in hemodynamically stable patients with blunt splenic trauma. It has diagnostic and therapeutic value, along with avoiding unnecessary laparotomies.

LAPAROSCOPIC MANAGEMENT OF SHOT GUN INJURY TO THE ABDOMEN IN A CHILD

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Abstract

INTRODUCTION

Laparoscopic procedures are progressively becoming the standard modality in managing paediatric abdominal trauma. It is safe, effective with all the added advantages of minimally invasive procedure avoiding complications of laparotomy.

PATIENTS AND METHODS

Prospective review of the management of an 8 year old girl who sustained a close range shot injury to her abdomen and stomach. A review of the literature is also presented.

PROCEDURE

After initial stabilization, CT abdomen was performed which demonstrated the bullet penetrating into the wall of the stomach with no other associated injury. Emergency laparoscopy revealed the bullet had penetrated and embedded in the muscular layer of the stomach. The bullet was removed and the stomach wound was repaired by intracorporeal sutures with added omental patch to cover the wound. The rest of the peritoneal cavity and contents were inspected. She had an excellent post op recovery and outcome.

DISCUSSION

Laparoscopy is increasingly being used in paediatric trauma, particularly in haemodynamically stable children with suspected intraabdominal injury. The advantage over laparotomy include less pain, quicker recovery, shorter hospital stay while avoiding morbidity of laparotomy with near 100% detection rate of injury. Detection of bowel injury is often associated with conversion to open surgery though this depends upon the expertise of the surgeon. Stomach injuries have been repaired laparoscopically. Our patient had a suspected stomach injury which was confirmed and repaired on laparoscopy avoiding laparotomy.

CONCLUSIONS

Laparoscopic repair of airgun shot injuries to the abdomen in children is feasible, safe and effective in expert hands.

CONGENITAL INGUINAL HERNIA TREATING BY PIRS TECHNIQUE: EVALUATING THE LEARNING CURVE

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Abstract

INTRODUCTION

The percutaneous internal ring suture (PIRS) technique is well known and used in several centres worldwide.

AIM

In our department the PIRS method was introduced in 2018. Our aim was to evaluate the first results of the learning curve.

METHODS

The study period was between 1st of January 2018 and the 28th of February 2019. All the patients were included who underwent PIRS surgery.

RESULTS

56 patients were treated by PIRS method. Unilateral operation was performed 34 times and bilateral 22 times. General anaesthesia was designed with intratracheal narcosis. For trocar introduction the open (Hassan) method was performed, 8-10 Hgmm intraabdominal pressure was used. Touhy needle was used for percutaneous suture manipulations. The youngest patient was 1 month old, the oldest was 10 years old. The majority of patients were girls, because the learning curve was started with female patients. 2 cases were converted to open procedure. Postoperative complication rate was 4/56 (7,14%): 1 umbilical wound dehiscence, 2 hernia recurrence, 1 hydrocele (formation). The average duration of surgery in girls was 16.4 min in unilateral, 29.3 min in bilateral cases. In boys 19.8 min in unilateral and 30 min in bilateral cases.

DISCUSSION

However the male cases are more difficult there was no big difference in the duration of surgeries. We had only a few complications during the learning curve. The design of the Touhy needle was ideal to prevent intraoperativ bleeding complications.

OBJECTIVE STRUCTURED ASSESSMENT OF TECHNICAL SKILLS FOR LAPAROSCOPIC RECONSTRUCTIVE SURGERY IN PEDIATRIC SURGERY TRAINING PROGRAMME

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Abstract

INTRODUCTION

How to assess laparoscopic reconstructive surgical skills of the pediatric surgery residents? In this study, an algorithm was proposed and the criteria were determined for an objective structured assessment of technical skills (OSATS) for laparoscopic reconstructive surgery (LRS).

METHOD

The goal was determined as "to make a wedge resection and anastomosis on a tubular structure". In an algorithm, the procedure was described first by images and videos then each participant was asked to have experience of holding camera during LRS. What is expected to be done was shown to each participant. In the third step, they were asked to make laparoscopic incision, excision and suturing on a soft elastic flat silicone plaques produced for surgical training. A wedge resection and anastomosis was performed on a polymer organ model with a lumen in the next step. OSATS criteria for step 3 and 4 were determined, including accuracy of target organ and trocar positioning, incision, excision, suturing and timing. 8 participants (5 residents and 3 young pediatric surgeons with limited experience) were included.

RESULTS

Likert Scale was used to measure the accuracy of the method and performance of the participants. Cronbach's alpha value was calculated as 0,81 for OSATS criteria. This proved the internal consistency of the method. Each participant completed the steps with some individual differences. The level of experience in laparoscopic surgery significantly affected the result of OSATS for LRS.

CONCLUSION

This preliminary study may suggest that OSATS criteria might be proposed for each laparoscopic procedure in pediatric surgery.

LAPAROSCOPIC HEMISPLENECTOMY WITH SPLENOPEXY FOR AN ENLARGED WANDERING SPLEEN

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Abstract

Wandering spleen is a very rare entity, with only about 500 reported cases. Clinical presentation of the anomaly is usually associated with splenomegaly, unusually positioned abdominal mass, or splenic torsion caused by its hypermobility. In pediatric population, splenopexy is increasingly used instead of traditionally applied splenectomy. Laparoscopy appears nowadays to be the preferred treatment modality in such cases.

We report a case of a 12 year old girl, presenting with an episode of torsion of an enlarged wandering spleen.

The patient reported with an acute abdominal pain, vomiting and an abnormal, painful, mobile mass within the left hypogastric area. The diagnosis of wandering spleen, located within the left iliac fossa and splenomegaly (20 x 7 x 5 cm) was achieved by ultrasound. Spectral Doppler sonography showed normal blood flow within the splenic vessels. The patient was qualified for elective laparoscopic hemisplenectomy and splenopexy. The remaining upper pole of the spleen was anchored under the left hemidiaphragm wrapped in absorbable mesh. The patient was discharged on the third postoperative day with no intraoperative or postoperative complications. Doppler ultrasound scan proved the viability of the preserved part of the spleen.

In patients with wandering spleen, laparoscopic splenopexy instead of splenectomy is less invasive, and allows to preserve splenic function. Splenomegaly in wandering spleen can be treated with laparoscopic hemisplenectomy before the fixation of the spleen. The combined laparoscopic procedure appears to be safe and effective, offering the advantages of minimally invasive surgical approach for the patients with enlarged wandering spleen.

LAPAROSCOPIC ADRENALECTOMY IN A CHILD WITH MEN 2A SYNDROME

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Abstract**AIM**

We report here a case of MEN 2a syndrome and its management of diagnosis, who was treated with laparoscopic adrenalectomy.

CASE

14 years old male with neck swelling had a fine needle aspiration biopsy. The diagnosis was medullary thyroid carcinoma. The calcitonin level was also elevated. His mother and grandfather had the same pathology. For the possible pheochromocytoma, his catecholamins were found to be very high. The abdominal MR revealed a right sided adrenal mass. A laparoscopic right adrenalectomy was performed. The histopathologic examination revealed benign pheochromocytoma. The diagnosis was MEN 2a syndrome and the RT c.1900T>C (p.Cys634rg) gene mutation was found. The postoperative calcitonin levels were dramatically decreased. He underwent total thyroidectomy and neck dissection. The thyroid staging was T3N1M0. He is followed up for the left adrenal gland.

CONCLUSION

In patients with MEN syndrome, the detection for pheochromocytoma has utmost importance before any other surgery. The adrenalectomy can be performed laparoscopically in many cases.

ONE TROCAR SURGERY: EXPERIENCE OF A SINGLE CENTER

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Abstract

AIM

We analyzed all the procedures performed by One-Trocar Surgery (OTS) at our pediatric surgery unit from January 2010 to December 2017.

METHODS

pathologies were divided by abdominal, retroperitoneal and thoracic approach. Transumbilical laparoscopic-assisted approach was performed in children with suspicion of acute uncomplicated appendicitis (455 cases), Meckel's diverticulum (22 cases), intestinal biopsies for Hirschsprung's disease (8 cases), adhesiolysis in previous laparotomy (7 cases), percutaneous needle liver biopsies (8 cases) and revisions of peritoneal dialysis catheters (3 cases). One-trocar retroperitoneoscopy was performed for treatment of varicocele (251 cases), renal biopsies, pyeloplasty for ureteropelvic junction (UPJ) obstruction (75 cases). One-trocar thoracoscopic procedure was performed in 21 cases of pleural empyema.

RESULTS

a total of 854 children: 503 laparoscopies, 330 retroperitoneoscopies and 21 thoracoscopies. Most of the laparoscopic interventions were due to appendicitis (90%): 73 conversions (60 open and 13 laparoscopic), 17 cases (4%) of umbilical infection and 5 cases (1,1%) of abdominal abscesses. In the case of Meckel's diverticulum the intestinal resection/anastomosis was performed in 16 patients, 5 had a wedge resection of the diverticulum. Retroperitoneoscopic procedures had 45 conversions: 25 varicoceles converted into transperitoneal laparoscopy; 20 cases (age greater than 2 years) of UPJ obstruction needed open conversion due to the difficulty in tractionating the UPJ outside the abdominal cavity. No complications were recorded in the thoracoscopic procedures.

CONCLUSION

OTS represents an excellent procedure in children because it offers advantages of less invasiveness and good cosmetic results. It remains a technique for selected cases.

WHAT DO PARENTS THINK ABOUT LAPAROSCOPY? A PORTUGUESE ONLINE SURVEY

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Abstract

OBJECTIVE

While laparoscopy is becoming widespread among pediatric surgeons, little is known about parental opinions. Moreover, knowing what advantages and hurdles are identified by parents and caregivers may improve overall communication between pediatric surgeons and families. Our study aims to evaluate parents' perceptions on laparoscopic procedures.

METHODS

An online survey was addressed to caregivers of children under 18 years living in Portugal via social media platforms, during a 7-day period. Parent and children's demographic data was collected. Previous knowledge about laparoscopy, its main advantages and concerns, children surgical background, and overall satisfaction (using a 0-5 scale) with laparoscopic procedures were assessed.

MAIN RESULTS

We received a total of 1,724 responses. 40 responses were excluded because of incomplete or inappropriate data. 83.7% were mothers. 91% had at least a high school degree. The median number of offspring was 1.59 (average age 6.56 years). 31.5% had no previous knowledge about laparoscopy. Previous laparoscopic interventions (43.9%) and the internet (12.6%) were the main sources of information of the remaining. The main advantages attributed to laparoscopy were faster recovery (72%) and improved cosmesis (12.7%). The main concerns were technical complexity (45%) and longer surgical time (5.8%). 493 surgical procedures were reported; 102 were laparoscopic. Median satisfaction with laparoscopic procedures was 5/5.

CONCLUSION

Even in a highly educated population, almost one third of parents are unaware of laparoscopic procedures. Those who are familiar with laparoscopy value its faster recovery and are concerned about technical difficulty.

HIGH DEMANDING PROCEDURES IN LOW-VOLUME CENTER. OUR INITIAL PARTNERSHIP EXPERIENCE

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Abstract

During last 10 Years mini-invasive procedures in Our Department increased rapidly and constantly. Every traditional OPEN approach was revised in order to switch to a mini-invasive approach, searching for the best therapeutic choice for each patient. We focused on technical ability of all surgeons and the learning curve for each mini-invasive technique, the complexity of the procedure and the number of procedures/year; for high-volume procedures where the surgeon's skill were already fulfilled, we started soon and we reached rapidly an over 90% rate of mini-invasive approach. For low-volume procedures we started a partnership program with a very mini-invasive surgeon, that helped surgeons to become more experienced and in some cases completely competent with mini-invasive techniques. We reviewed our surgical experience from 2008 to 2018. We included all surgical mini-invasive procedures: we divided data in two main groups (High and Low-volumes according to our territorial incidence and prevalence). We report results in the tables and graphs, that demonstrate how a partnership program and associations between low and high volume center, could improve the surgeons ability and safety for our patient, reducing the need of transferring them to very distant high-volumes centers.

ROBOTIC ASSISTED PAEDIATRIC HEPATIC TUMOR RESECTION. CASE REPORT

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Abstract

Benign tumors of the liver are very rare, and the diagnostic/therapeutic approaches are not univocal. Treatment needs to be tailored according to their nature.

When surgery is advocated, the miniminvasive approach may be technically demanding or considered unsafe. We herein report a case of a robotic assisted resection of a large hepatic hamartoma (6 cm) in a 9-year old girl, previously treated for a Wilms tumor. The lesion, deeply localized in the VI segment, was found during her usual follow up. The needle biopsy confirmed the diagnosis of hamartoma. The initial conservative approach was abandoned due to its progressive growth.

Surgical excision was accomplished with DaVinci Surgical Robot System. Intraoperative US embedded imaging system was needed to plan the line of resection.

The combination of Harmonic scalpel, monopolar diathermy, endo-clips was used to obtain safe resection and clean margins.

Robotic approach can guarantee safe and less invasive approach to paediatric hepatic lesions, in particular for non-malignant tumours. Accurate planning (patient positioning, trocar sites) is mandatory for this technique.

INTER-OBSERVER AGREEMENT ON SCAR EVALUATION FOR UNCOMPLICATED APPENDICITIS USING A VISUAL OBSERVER SCALE

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Abstract

AIM OF THE STUDY

To study the inter-observer agreement of a picture-based evaluation of esthetic results in pediatric patient treated with transumbilical (TUI) or subumbilical (SUI) incision for uncomplicated appendicitis (UA).

Methods Parents of 43 children approached with SUI or TUI for UA in a 2-years-period agreed to send a scar's image with Whatsapp. A 6-items qualitative [10 points Likert-like (1 best-10 worst)] and quantitative modified Visual Observer Scale (VOS) of Patient and Observer Scar Assessment Scale (POSAS) was independently attributed to each photograph by two observer trainees. Unpaired t-test for qualitative data (p significant <0.05) and Kappa statistic for inter-observer agreement of qualitative data were used for analysis.

MAIN RESULTS

A significant difference among observers were evidenced for each quantitative parameter of VOS (table). Inter-observer agreement for qualitative data resulted no agreement for symmetry ($k=0.006$), slight agreement for pigmentation and thickness ($k=0.179$ and 0.058 , respectively), fair agreement for visibility ($k=0.234$) and depth ($k=0.26$), substantial agreement for hypertrophic scar ($k=0.644$).

CONCLUSIONS

A visual photographic evaluation of surgical scar can be interpreted by different observers with a large interindividual variability. Surgeon should not give to patients and/or caregivers their assessment of esthetic results without direct scar evaluation with validated instruments.

ROBOTIC ENUCLEATION OF A SOLID PSEUDOPAPILLARY NEOPLASM IN A 9-YEAR-OLD GIRL

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Abstract

BACKGROUND

Solid pseudopapillary neoplasms (SPN) is a rare pancreatic tumor, seen most often in females in their second or third decades. It is considered a low-grade malignant epithelial neoplasm with low metastatic rate and surgical resection represents the treatment of choice with an excellent long-term prognosis.

CASE REPORT

We report the case of a 9-year-old girl presenting with vomiting and vague abdominal pain. US showed an epi-mesogastric solid mass of 8 cm, diagnosis confirmed by CT scan.

A CT-guided tru-cut biopsy was performed obtaining the histologic diagnosis of Solid pseudopapillary neoplasm (Gruber-Frantz tumor).

A Robotic enucleation of the neoplasm was performed and histopathology confirmed an SPN with complete resection.

DISCUSSION

In the case of low-malignant neoplasms like SPNs, enucleation, when feasible, represents the best surgical approach. Robotic procedures offer some technical and oncological advantages over minimally invasive techniques due to the stability of the operative field, the 3D and magnified vision and the articulated robotic arms.

CONCLUSIONS

Robotic enucleation of Solid pseudopapillary pancreatic tumors, when feasible, represents an excellent minimally invasive technique with a favorable long-term prognosis.

STAR WARS: SIMULATION TRAINING ALLOWS REALISM WITHOUT ANGUISH, RAISING STANDARDS A SIMPLE COST EFFECTIVE MODEL OF A LAPAROSCOPIC FIRST STAGE ORCHIDOPEXY AND NON-OPERATIVE TECHNICAL SKILLS SIMULATION

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Abstract

AIM

Simulation is endorsed by the UK Association of Surgeons in Training (ASiT) and the Joint Committee on Surgical Training (JCST). Our aim was to create a model for laparoscopic simulation of impalpable undescended testes, combined with assessing Non-Technical Skills for Surgeons (NOTSS).

METHODS

Paediatric surgical trainees from a regional consortium were paired as senior and junior trainees. A simple laparoscopic model presenting an intra-abdominal testis, vas and vessels was created using materials sourced in theatre. A scenario was created with anomalies including incorrect side, date of birth and procedure on the theatre list. Senior trainees were assessed on teaching ability to take the junior trainee through the operative steps of a first stage orchidopexy. Assessment included laparoscopic skills, professionalism, communication skills and consent.

RESULTS

10 paediatric surgical trainees participated in the exercise with 5 faculty members. 7 trainees had previous laparoscopic experience. All 10 agreed the simulated model was appropriate for training purposes. Feedback suggested the model was very good to excellent with excellent fidelity and 1:1 faculty teaching. Trainees felt the scenario simulated real life. They were able to demonstrate NOTSS. The cost per model was under £5. The model was reusable multiple times. The same model was also used for laparoscopic hernia simulation. Trainees expressed interest in participating in more such structured skills and NOTSS simulation training.

CONCLUSION

Operative skills simulation is a useful training adjunct to traditional methods and can be achieved using simple cost-effective methods. Skills can be effectively combined with NOTTS.

WRIST ARTHROSCOPY IN CHILDREN AND ADOLESCENT - ANOTHER FIELD OF THE MINIMALLY INVASIVE PEDIATRIC SURGERY

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Abstract

BACKGROUND

Wrist arthroscopy allows the implementation of minimally invasive surgical treatment in many wrist pathologies. There are few reports on the use of this method in the pediatric population. Younger patients require the adaptation of the technique to the anatomy of children, appropriate instruments and sometimes general anaesthesia.

METHODS

The analysis of 80 wrist arthroscopies in children performed between 2010 and 2019 included age, sex of patients, clinical indications, the surgical technique, applied anaesthesia and therapeutic effect in individual disease entities.

RESULTS

Wrist arthroscopy in children was performed due to dorsal and palmar ganglions, chronic wrist pain, acute and chronic lesions of the triangular cartilage complex (TFCC), scaphoid non-union, lesions of the scaphoid-lunate ligament (SL) and the lunate- triangular ligament (LT). We present video material of the applied surgical techniques: ganglionectomy, synovectomy, the inside-out technique of reconstruction of the TFCC and the capsulodesis using the Mathoulin technique in SL rupture and arthroscopic bone grafting to the scaphoid non-union. Selected patients presented pain reduction and an increase in the range of motion of the wrist. In some post-traumatic lesions, the arthroscopic assessment resulted in the use of a bone anchor or percutaneous Kirschner wire fixation. In one case the arthroscopic image determined biopsies of the synovium that proved a malignant tumour - synovial sarcoma.

CONCLUSION

Wrist arthroscopy is an effective diagnostic and surgical technique that should be available for the pediatric population. There are interesting analogies in the techniques used in the wrist arthroscopy and other minimally invasive surgical methods in children.

CREATION OF A VIRTUAL REALITY SIMULATION DEVICE TO TEACH SAFETY IN THE PRACTICE OF MINIMALLY INVASIVE SURGERY IN PEDIATRIC SURGERY

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Abstract

Before starting an intervention, the pediatric surgeon must check many safety elements unspecific and specific to minimal invasive surgery (MIS). To train surgical teams at this environment, a MIS operating room can be simulated where the learner must check and prioritize the safety elements to be checked. This technique is however very time and human resources consuming. Virtual reality is increasingly being used to replace traditional simulation techniques.

The purpose of this work was to describe the steps involved in developing a virtual reality (VR) operating room in order to facilitate the learning of these skills.

After defining the objectives to be acquired, various operating scenes were filmed with a 360° camera and then edited using the "stitching" technique to find an identifiable shot common to the sources. Hotspot have been integrated, prioritized by degree of importance or safety according to the user (different prioritization for the surgeon, nurse, anesthesiologist...).

The results could be analyzed semi-automatically using the Moodle platform. The scenario can be read on different media from the most immersive VR headsets to a simple computer screen.

We have created a VR scenario of a pediatric MIS operating room allowing students to master the pediatric MIS surgical environment. After this manufacturing phase, we propose to evaluate this new tool with other children's surgery teams. In the event of a positive evaluation, this tool will allow at a lower cost to improve the quality and safety of interventions in pediatric MIS.

FEASIBILITY OF LAPAROSCOPIC RESECTION OF NEUROBLASTOMAS IN PATIENTS PRESENTING SELECTED POSITIVE IDRFs

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Abstract

INTRODUCTION

The INRG (International Neuroblastoma Risk Group) described image-defined risk factors (IDRFs). We investigated the feasibility of laparoscopic neuroblastoma resection and which IDRFs could be selected.

METHODS

A retrospective study was conducted between 2012 and 2018, on patients who underwent resection for neuroblastoma. We compared IDRFs at diagnosis, medical imaging, medical features, characteristics of the tumor, complications, follow up and relapse.

RESULTS

On 34 patients, who underwent surgery during this period, 26 were neuroblastoma, 2 ganglioneuroma, and 6 ganglioneuroblastoma. 22 patients had positive IDRFs (64.7%). 29 were realised by laparoscopy (85.3%), 6 by initial laparotomy (17.6%). 5 patients underwent conversion (14.7%). 7 patients were diagnosed with a relapse (20%). No children died. 21 were located in adrenal regions (61.7%), 10 in thoracic localization (29%), and 3 in lumbar regions (8%). As far as concerned positive IDRFs, 12 (35%) include renal pedicle, 9 (26%) were encasing aorta and/or cava vein and 4 (11,7%) were compressing trachea or principle bronchi.

DISCUSSION

9 patients of 12 presenting encasement of the renal pedicle underwent laparoscopy (75%), with only one conversion and 2 relapses. In the same way, 9 patients with encasement of the aorta and/or cava vein underwent also laparoscopy, with also only one conversion and 3 relapses. One patient needed another surgery for intestinal incarceration.

CONCLUSIONS

In some selected positive IDRFs, such as renal pedicle encasement aorta/cava vein encasement, laparoscopic surgery seems to be considered as an option. Some furthers studies are necessary to consolidate these results.

poster

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DIFFICULTIES IN DIAGNOSIS AND TREATMENT OF URETEROLITHIASIS IN PRESCHOOL CHILDREN AND THE INTEREST OF URS-L FOR TREATING THIS AGE GROUP

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Abstract

Urolithiasis can affect all children aged 0 to 6 years. Diagnostic difficulties in the youngest children are due to the problems in locating pain and determining its character and severity. In keeping with the ALARA (As Low As Reasonably Achievable) protocol, the number of imaging tests possible to perform is very limited. Ultrasound is the first line exam. After diagnosis of the presence of a stone, ESWL should always be considered and offered to parents due to its high effectiveness and minimal invasiveness - especially for this age group. If ESWL is contraindicated or not well accepted by parents, the next therapeutic option is an endoscopic approach: URS-L (Uretherorenoscopy – Lithotripsy). Our study clinically analyzes 87 children, which were treated between 2009-2017 using the URS-L procedure. URS-L treatments were performed using Lithoclast until 2009, and after that time, using the holmium laser Ho:YAG. The overall effectiveness of treatments was 93.3%. There was no failure in the access to the stones. A macroscopic hematuria (Clavien-Dindo I grade) was observed through the second post-operative day in 9.2% of treated patients. No urosepsis was observed. Full metabolic evaluation was performed on all patients. Children remained under constant urological and nephrological observation. A recurrence of urolithiasis was observed in 35.6% of the cases. Treating ureteral lithiasis in young infants remains a big challenge. Our series shows that modern minimal invasive techniques used by very experienced pediatric urologists in high volume centers gives excellent results. In most cases, surgery should no longer need to be an option.

UROTHELIAL PAPILLOMA IN PEDIATRIC AGE: MANAGEMENT AND FOLLOW-UP. EXPERIENCE IN TWO CENTERS

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Abstract

AIM

Urothelial-bladder-neoplasms(UBN) typically occur in sixth or seventh decade of life while they are infrequent in children and young adults. They occur in 0.1–0.4% of the population in the first two decades of life. Their management is controversial and pediatric guidelines are currently unavailable. We describe the experience of our two Center trying to define a management and follow-up.

METHODS

we retrospectively reviewed the data of three patients with UBN treated in two Pediatric Surgery and Urology Units from 2014 to 2018. Lesions were classified according to the 2004 WHO/ISUPcriteria as urothelial papillomas(UP).

RESULTS

We've treated 3patients, 2 males (one treated for hypospadias) and 1 female of 15-22 and 14years respectively. In one case the lesion was discovered by ultrasound for abdominal pain; in other two for hematuria (ultrasound negative). All underwent to Trans-Urethral-Resection-Bladder(TURB). Histology described the lesions as UP. After 5years follow-up, one patient showed recurrence after 2years, and underwent to the same treatment. No recurrence in other two. Management after TURB varied among centres. One performed endoscopy at 6-12months recommending subsequently cytologies every 3months and endoscopies every 12months. The second performed endoscopies at 6-12months.

CONCLUSIONS

UP is a rare condition in children. Lesions are generally low-grade non-muscle invasive, but high-grade lesions can also be detected. After TURB follow-up with urine cytologies and endoscopies were considered in the two Centers. Follow-up criteria are the most controversial points in this age considering that in young patients endoscopy required general anesthesia and hospitalization.

STONE STREET AFTER ESWL - ANALYSIS OF PATIENTS AND WAYS OF TREATMENT

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Abstract

Incidence of urolithiasis in children has been constantly rising through last 20 years. There are many ways of treatment depending of the localization of stone, the child's anatomy and age. Therefore in a Pediatric Hospital in Warsaw in October 2017 a 'Center for treating urolithiasis' has been opened. The idea was to cure stone disease with all surgical procedures available.

One of these procedures is ESWL (Extracorporeal Shock Wave Lithotripsy) of which a possible complication is 'stone street', wherein a column of stone fragments forms that blocks the ureter.

The aim of the study was to assess the incidence of 'stone street', to analyze the patients with this complication and to show ways of treating it.

We have analyzed history charts of all patients who underwent ESWL with particular attention to those who developed "stone street".

Since October 2017 till April 2019 we have treated 120 patients aged 8 months to 18 years. 152 procedures have been performed. The diameter of stones ranged from 5 mm to bigger than 20 mm. 6 patients developed 'stone street'. 4 patients had stones bigger than 20 mm and 2 bigger than 10 mm.

All patients have been successfully treated with URSL (ureterorenolithotripsy) and double J stenting.

ESWL is a good and minimally invasive procedure for treating stone disease. Nevertheless children with stones bigger than 1 cm have higher risk for developing 'stone street' and should be treated in centers where treating complications is available.

MINIMALLY INVASIVE APPROACH FOR BLADDER FIBROEPITHELIAL POLYP TREATMENT

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Abstract

The fibro-epithelial bladder polyp is a rare benign tumor whose initial symptomatology may be similar to that of vesicoprostatic rhabdomyosarcoma. The purpose of this multicenter study was to present the different surgical therapeutic approaches with a special emphasis on minimally invasive management.

A retrospective survey with questionnaire data collection was sent to all French-speaking pediatric surgical centres.

12 boys and 1 girl were treated between 2003 and 2018 by 6 pediatric surgical centres for bladder fibroepithelial polyp with a median age of 6.4 years [0.5 - 15.5] at the intervention. Symptoms at diagnosis were often multiple, associating obstructive syndrome with hematuria and/or infection with an average preoperative time of 16 months [1,3-144]. Two patients had a prenatal diagnosis. All had a urinary ultrasound with a description of a pedicle bladder mass, 11 children were managed either with MRI or retrograde cystogram for diagnosis. Two had a cystoscopic biopsy prior to removal. All were operated on by cystoscopy first completed for 3 patients either by intravesical laparoscopy or by supra pubic approach for extraction of the tumor. The locations were the posterior urethra (9), bladder neck (2) and bladder (2). The average size was 15 mm (5-30). The postoperative outcomes were simple with a hospital stay of 1 day (0-4). After an average follow-up of 1.6 years, there was no recurrence.

The treatment of the urinary fibroepithelial polyp can be safely and definitively carried out by single cystoscopy procedure, combined with a laparoscopic approach in cases of large lesions sizes.

LAPAROSCOPIC APPROACH OF GIANT MUCINOUS BORDERLINE OVARIAN TUMORS: CASE REPORTS AND REVIEW OF THE LITERATURE

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Abstract

AIM OF THE STUDY

Ovarian neoplastic tumors are rare in children (incidence of 2.2/100000) and malignant neoplasia represents one quarter of them. Borderline ovarian tumors comprise around 15% of all malignancies. Their surgical treatment is debated in terms of approach (laparoscopy or not) and kind (conservative or not). We present two cases of a giant mucinous borderline ovarian tumor (mBOT) treated laparoscopically.

CASE REPORT

Both cases occurred in pre-menarchal girls within 6 months sharing similar history of progressive abdominal distension (around 1 year) with no other symptoms associated.

In the first case, ultrasound and CT revealed a capsulated multi-cystic formation (17x35x26cm) with preoperative increased level of CA19.9 and CA125.

In the second one, MRI evaluation showed an intra-abdominal single-cystic formation (13x35x26cm) associated to a smaller cyst located cranially; increased level of CA125. After drainage of the tumor through a sub-umbilical access, both laparoscopies showed a giant left adnexal tumor, replacing all ovarian tissue. Since cystectomy was not feasible, left salpingo-oophorectomy was performed. Histopathology diagnosed mucinous borderline ovarian tumor (intestinal subtype) in both girls. Post-operative course uneventful. Ultrasound and laboratory findings at 1 and 3 month negative.

CONCLUSIONS

Although rare, borderline and malignant ovarian tumors should always be suspected when dealing with an adnexal tumor. mBOT is a rare cause of abdominal mass in children and laparoscopic management is feasible, but should always be performed in tertiary centers. Conservative treatment in younger children for fertility reason is preferred. Nevertheless, a prolonged follow up is required due to the possibility of recurrence.

MINIMALLY INVASIVE TREATMENT OF FALLOPIAN TUBE PATHOLOGY IN CHILDREN: A SINGLE CENTER EXPERIENCE

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Abstract

AIM OF THE STUDY

Isolated tubal abnormalities in children are rare but may initiate significant morbidity and/or manifest as life-threatening clinical problems. The presenting symptoms are nonspecific and are common to many other conditions, so preoperative diagnosis is rarely made. Management with minimally invasive approach with preservation of the salpinx, whenever possible, is mandatory.

MATERIALS AND METHODS

7 cases of tubal pathology without any ovarian disease were treated with minimally invasive surgery in our department. Age ranged from 12 to 15 years. 3 patients presented with acute abdominal pain: a case of isolated tubarian torsion, one of pelvic inflammatory disease (Chlamydia salpingitis) and 1 tubarian torsion for huge cystadenoma. The remaining patients were affected by hydrosalpinx (one patient) and by tubal cystadenofibroma (three cases).

RESULTS

all patients underwent to minimally invasive surgery; operative time ranged between 95 and 160 minutes. Ovaries and Fallopian tubes were preserved in all patients but two presenting complete tubarian necrosis due to torsion. In all cases we preserved ovaries. No major or minor complications were recorded with at least 1-year-follow-up.

CONCLUSIONS

Salpingeal abnormalities in children are rare. Nevertheless, in case of abdominal pain, tubal pathology should to be taken in mind. Laparoscopy is first choice of treatment, with preservation of the fallopian tubes whenever it's possible.

ROBOT-ASSISTED VS LAPAROSCOPIC PYELOPLASTY IN CHILDREN WITH URETERO-PELVIC JUNCTION OBSTRUCTION (UPJO): RESULTS OF A MULTICENTRIC SERIES

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Abstract

BACKGROUND

This multi-institutional study aimed to report our experience with robot-assisted laparoscopic pyeloplasty (RALP) and laparoscopic pyeloplasty (LP) in children with uretero-pelvic junction obstruction (UPJO).

METHODS

The records of 67 patients (39 boys and 28 girls) with an average age of 4 years, who underwent MIS repair of UPJO over a 2-year period, were retrospectively reviewed. Thirty-seven patients (55.2%) underwent RALP and 28 patients (44.8%) underwent LP. A redo-procedure was performed in 3 patients of RALP group (8.1%) with recurrent UPJO.

RESULTS

The average operative time was 143.5 minutes (100-205) for RALP and 139 minutes (120-300) for LP. No conversions neither intra-operative complications occurred. Surgical success rate was 96.5% for LP and 100% for RALP. Regarding postoperative complications, one stenotic UPJO following LP (3.5%), that was re-operated using RALP, was recorded. At follow-up, all patients (except 1 of LP group) reported complete resolution of symptoms, ultrasonographic improvement of hydronephrosis and no obstruction on diuretic renogram.

CONCLUSIONS

Our results showed that RALP and LP give excellent results in children with UPJO. LP is more minimally-invasive compared to RALP, considering the smaller size of laparoscopic ports (3-mm vs 8-mm). Conversely, LP is technically more challenging with bad ergonomics compared to RALP. The main disadvantages of RALP remain the high costs of robot and the size of instruments that make it difficult to apply in children < 2-3 years. We believe that the indication for LP or RALP should be tailored on individual base, considering patient's age and surgeon's personal experience.

CORRELATION BETWEEN OVARIAN MASS AND OVARIAN TORSION: PROTECTIVE FACTORS OR NEGATIVE PROGNOSIS?

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Abstract**INTRODUCTION**

ovarian torsion (OT) is uncommon in children and it can be a simple OT or OT dues to a concomitant ovarian mass.

METHODS

18 patients with OT during 13 years. Our purpose was to evaluate if the presence of an ovarian mass was a positive or negative factor on ovary prognosis. We used Chi Square test: P value < 0.05 were considered significant.

RESULTS

the mean age was 7.6 +/- 3.8 years. No incidence of bilateral OT. All patients presented acute abdominal pain onset. Torsion involved the right ovary in 11 of 18 cases. Ovaries were necrotic in 11 cases and an oophorectomy were done; in only 3 necrotic ovaries an ovarian mass was present. In the remaining 7 cases a conservative approach was possible. We shared patients in two subgroup: in the first group we included 9 cases of isolated ovarian torsion and in second one 9 cases of OT associated to ovarian mass. In cases of simple OT we performed adnexectomy in 8 cases whereas in case of secondary torsion an oophorectomy was made in only 3 patients. Chi square test demonstrated a statistical significant correlation between absence of concomitant ovarian mass and risk of ovarian necrosis in cases of OT (P= 0.048).

CONCLUSION

we suggest conservative approach and salvage of ovarian tissue, also in case of OT with ovarian mass, except in cases where the intraoperative appearance of ovary is frankly necrotic.

FEASIBILITY, IN TERMS OF EFFICACY AND SAFETY, OF VIDEO-ASSISTED PYELOPLASTY (OTAP) IN THE FIRST 90 DAYS OF LIFE

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Abstract

INTRODUCTION

The uretero-pelvic junction (UPJ) is the most common site of obstruction in the pediatric upper urinary tract, causing hydronephrosis. There is no consensus on how to manage patients with hydronephrosis; the main concerns regard type of treatment, conservative or surgical, timing of surgical intervention and appropriate technique for each single patient. In our institution, the gold stand approach for hydronephrosis in infants is the One-Trocar-Assisted Pyeloplasty (OTAP). The aim of this study is to evaluate the feasibility of OTAP in terms of efficacy and safety in the first 90 days of life.

METHODS

We retrospectively reviewed all charts and long-term follow-up of 138 infants treated with OTAP; we selected and examined the ones with a defined diagnosis of severe UPJO, thus treated in the first 90 days of life: 28 patients. Indications for early surgery were: Antero-posterior Pelvic Diameter (APD) >20 mm and an obstructive pattern on renography; impaired echotexture and/or Relative Renal Function (RRF) <40% had to be associated.

RESULTS

Out of 23 patients we witnessed one conversion to open surgery (4,35%) and one recurrence (4,35%) of UPJO. The mean pre-surgery APD was 35.2 mm while the mean post-surgery APD was 17,32 mm. The mean operative time was 133 minutes. The mean hospitalization time was 7,71 days. The mean average of follow-up was 46,41-months (minimum 1 year).

CONCLUSION

Our experience suggests OTAP is a valid and feasible technique in terms of safety and efficacy for the early treatment of very young infants affected by UPJO.

A HISTORY OF MIS: FROM THE PRE-NATAL DIAGNOSIS TO THE FINAL TREATMENT

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Abstract

The story of three years old girl who had a pre-natal diagnosis of bilateral multistictic dysplasia and for which therapeutic abortion was recommended. The parents turned to our Pediatric Urology Service for a second opinion. The case was discussed collectively.

Our diagnosis was: right multicystic dysplasia and hydroureteronephrosis on the left without dysplasia, for which the continuation of pregnancy was recommended. Ultrasound performed at birth: presence of multicystic renal dysplasia on the right and a picture of hydroureteronephrosis on the left. Voiding cystography: presence of RVU of V degree on the left. Renal scintigraphy demonstrated functionally excluded right kidney.

Framework relative to left kidney compatible with RVU and conditioned by nephronic immaturity. We decided to put her in prophylaxis waiting to be able to perform the endoscopic treatment of RVU as early as possible. F-U: checks on renal function and parenchyma status. The baby has always enjoyed good health.

At the age of ten months: endoscopic treatment of the RVU, on the only working kidney left-handed.

The post-operative course was complicated by failure to release urine and vomit. There was an ureteral due to post-implant inflammatory edema. Emergency operation was performed for double J ureteral stent placement.

The post-operative course was excellent. Three months later, cystoscopy was performed: Persistence of previous endoscopic treatment of VUR. Removal of the double J. It is well observed ureteral peristalsis. Rx cystography: not recurrence of VUR. Two years later the baby is in excellent health, never presented urinary infections. Renal function tests are excellent.

MINIMALLY INVASIVE SURGERY FOR COMPLICATED NEONATAL OVARIAN CYSTS: A SINGLE CENTER EXPERIENCE

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Abstract

AIM

Laparoscopic management of neonatal surgical cases requires advanced laparoscopic skills and specialized equipment. Moreover, case load and limited indications for laparoscopy in newborns may limit learning curve in minimally invasive neonatal surgery. Complicated neonatal ovarian cyst (c-NOC) may represent a good indication and training option to develop and improve technical ability, since the procedure is relatively simple. Therefore, the present study was aimed to critically review our single center experience with laparoscopic surgery for c-NOC, comparing outcomes to minimally open approach.

METHODS

Retrospective review of patients treated for c-NOC between 2012 and 2018. Patients were categorized based on surgical approach: Group A minimally "open" surgery (Uceda/Bianchi single incision), Group B laparoscopic surgery (2 or 3 trocars approach). Fisher exact test and Mann-Whitney tests were used for comparisons ($P < 0.05$ was significant).

RESULTS

31 newborn-infants were treated during the study period: 20 patients, Group A, were treated with mini-laparotomy [Uceda (15 patients), or periumbilical Bianchi (5 infants) approach], while 11, Group B, underwent laparoscopy. Histology confirmed necrotic ovarian cyst in all cases. No differences were found between the two groups: weight at surgery [4865gr(4012-5790) vs. 4370gr(3510-4690), $p0.11$], operative time [45 min(38.25-52.75) vs. 53min(46-61), 0.053], post-operative stay [1.5(1-2)vs.2(1-3), $p0.72$], complications (1vs.0, $p 1.0$) were similar between the two groups.

CONCLUSIONS

Both laparoscopic and minimally "open" approaches have similar outcomes and rapid recovery. Laparoscopy for c-NOC is a relatively simple procedure with short learning curve and should be considered as a privileged technique to develop laparoscopic neonatal skills.

LAPAROSCOPIC CONSERVATIVE MANAGEMENT OF ADNEXAL TORSION

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Abstract**AIM**

Evaluation of the conservative approach to adnexal torsion in paediatric patients.

METHODS

Retrospective review of patients with adnexal torsion treated between April 2008 and March 2019 in Department of Pediatric Surgery in Regional Hospital in Kielce (Poland).

RESULTS

Of fifty-six girls with adnexal torsion, forty-three were operated with minimally invasive techniques. The mean age was 12 years (range 6 months to 17 years). All girls except one presented with abdominal pain. Duration of symptoms ranged from few hours to almost 2 months. Increase of utilisation of laparoscopy during the latter half of the study was observed as well as adnexal salvage. Laparoscopy was converted to laparotomy in 12 cases. 35 patients were treated by conservative approach after detorsion. Underlying pathology was observed in 15 cases. One malignancy and 4 benign neoplasms were present in this group. One girl had recurrent ovarian torsion and one girl had bilateral ovarian torsion. There were no complications due to detorsion of the affected adnexa observed. 30 patients were controlled via ultrasonographic examination during 0-70 months postoperative period.

CONCLUSIONS

Conservative management is a safe way to preserve the adnexal function. In some cases oophoropexy should be considered.

TREATMENT OF INTRINSIC AND EXTRINSIC UPJO: SURGICAL OUTCOME SHIFTING FROM OPEN TO LAPAROSCOPIC SURGERY IN A SINGLE CENTRE

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Abstract

BACKGROUND

Uretero-pelvic junction obstruction (UPJO) is the most common cause of hydronephrosis in children. It could be intrinsic, extrinsic due to crossing vessel or mixed. In the last years minimally invasive techniques were proposed as pyeloplasties (dismembered and non dismembered) and vascular hitch (VH). This work aims to evaluate the results switching from open to mini-invasively surgery.

METHODS

a retrospective analysis of all children operated between 2011 and 2018 was conducted. Demographic information, pre and post-operative pelvic antero-posterior diameter (APD), intra-operative parameters, complications, hospital stay and follow-up were considered.

RESULTS

T128 patients were included and 79 procedures were performed by minimally invasive surgery (6 cases robot assisted). Of these 30 were VH and 49 pyeloplasties. Etiology was intrinsic in 71.9%, extrinsic in 25.0% and mixed in 3.1%. The median age between intrinsic and extrinsic groups was statistically different. The median hospital stay was 2 days for VH, 4 days for laparoscopic pyeloplasties and 7 for open ones with statistically significance comparing open vs mini-invasive approaches. APD improvement was 46% in laparoscopic pyeloplasties and 50% in VH. The success rate after VH was 90.3%, after open pyeloplasties 97.9% and after mini-invasive pyeloplasties 91.8%.

CONCLUSIONS

Our series confirm the feasibility and safeness of minimally invasive approach for UPJO. Moreover VH could be the first option to treat UPJO caused by CV.

SHEHATA TECHNIQUE IN THE MANAGEMENT OF NON-PALPABLE TESTIS

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Abstract**AIM OF THE STUDY**

To evaluate the shehata technique in the management of non-palpable testis

METHODS

It is a retrospective study conducted over a period of 2 years, having collected four children, operated according to the laparoscopic shehata technique.

RESULTS

There were four three-year-old middle-aged children with a unilateral impalpable testis (One left, three right). At first the gubernaculum testis and the inferior pole of the testes were fixed with a nonabsorbable wire in the contralateral iliac fossa. All the testis were sitting at a distance less than two centimeters of the internal inguinal orifice. The laparoscopic exploration showed an adequate lengthening of the spermatic vessels. In a second time, laparoscopic assisted testicular lowering was performed two months later by introducing atraumatic forceps scrotally after release of the testis from the abdominal wall. With a mean follow-up of 6 years, the testes were found intrascrotally with normal size and volume compared to the contralateral testis.

CONCLUSION

The technique of shehata must enter the therapeutic arsenal of nonpalpable testis. Its advantage is to lengthen the spermatic vessels without the risk of testicular atrophy.

CHOLELITHIASIS IN CHILDREN: IS LAPAROSCOPIC CHOLECYSTECTOMY BECOMING A MORE FREQUENT SURGICAL PROCEDURE IN CHILDHOOD?

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Abstract

AIM OF THE STUDY

To examine the changes in frequency of cholecystectomies performed in the last twenty years and to determine the trends in the incidence of cholelithiasis in children. Methods: The case records of 45 children who underwent cholecystectomy due to cholelithiasis from January 1998 until December 2017 were retrospectively reviewed. The patients were divided into two groups regarding the year of surgery (Group I: 1998-2007; Group II: 2008-2017) and compared by demographic and anthropometric data, clinical findings, indications for surgery, procedure type and treatment outcomes.

RESULTS

The number of cholecystectomies has increased from 11 in the period 1998-2007 to 34 in the period 2008-2017 ($p=0.002$). The median age of children has risen from 11 to 15.5 years ($p=0.001$) and the average BMI has increased from 19.2 cm/m² to 23.0 cm/m² ($p=0.012$). The share of hereditary spherocytosis within the indications for cholecystectomy has decreased from 63.6% to 11.8% ($p=0.0005$) in favour of the diagnoses that are etiologically related to cholesterol stones, whose proportion has increased from 27.3% to 70.6%, according to spectrophotometric analyses ($p=0.006$). The frequency of laparoscopic cholecystectomy has increased from 36.4% to 85.3% ($p=0.0005$).

CONCLUSIONS

The number of cholecystectomies in children has increased threefold in the last twenty years and the average BMI of observed children is significantly higher in the last ten years compared to the BMI in the ten years before that, which means that there is a correlation between the rising obesity rates in pediatric population and the increase in frequency of symptomatic cholelithiasis.

COELIOSCOPIC ANTEGRADE SUB SEROUS CHOLECYSTECTOMY: ABOUT 125 CASES

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Abstract

AIM OF THE STUDY

The purpose of this study was to describe the particularities of the sub serous cholecystectomy technique and to relate its feasibility by laparoscopic mean in children.

Methods

We retrospectively reviewed the medical records of 125 patients operated by laparoscopic subserous cholecystectomy over a period of 10 years between the 1st January 2008 and the 31th December 2018.

RESULTS

The incidence was 12, 5 cases by year. The mean age was 12, 2 years (29 months-20 years). The gall stone disease was idiopathic in 45, 6% and secondary in 54, 4%. Etiologies were dominated by the hemolytic anemia in 47, 2% of the cases. Ultrasonography allowed the diagnosis in all cases. Preoperative incidents were mainly hemorrhagic (0, 8% of cases), arising from the lesion of aberrant cystic artery. No bile duct injuries were observed. The mean length of stay was 5 days. The mean follow up period was 5 years and 8 months (6 months- 10 years). No readmission and no reoperation were noted.

CONCLUSION

Coelioscopic antegrade sub serous cholecystectomy offers an assured postoperative comfort, an excellent cosmetic result and almost no morbi-mortality. Its efficiency and its safety make it the Gold standard of the surgical therapeutic arsenal of the gall stone disease in children.

MINIMALLY- INVASIVE APPROACH IN TREATMENT OF DUPLICATIONS OF THE ALIMENTARY TRACT- 5 YEARS EXPERIENCE

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Abstract

INTRODUCTION

Alimentary tract duplications are rare congenital anomalies demanding surgical treatment. Considering their sporadic occurrence, surgeon is always faced up to a challenge.

METHODS

Retrospective analysis of medical files of patients with the diagnosis of enteric duplication treated at the Department of Paediatric Surgery in Bratislava between years 2013 and 2018.

RESULTS

Group consisted of 9 patients. Enteric duplications were derived from midgut and hindgut: 1 involving jejunum, 4 involved terminal ileum, 2 cecum, 1 descending colon and 1 sigmoid colon. 8 patients were operated electively, having previous CT or MRI scan. 1 patient with signs of obstructive ileus required an acute surgery. 3 patients had undergone a laparotomy involving bowel resection. In 3 cases standard 2 working ports laparoscopy was performed, without adjacent bowel resection. Laparoscopic assisted surgery was performed in 3 cases, in 2 cases bowel resection was needed. Complete excision was made in all cases. The postoperative and follow up period in all the patients was uneventful, without evidence for any recurrence.

CONCLUSION

Laparoscopic approach in treatment of alimentary tract duplications seems to be a safe and effective way. Good quality of reproduction of real image and possibility of precise manipulation allows surgeon to perform a complete excision of the enteric duplicature cyst without bowel resection. If bowel resection is needed, laparoscopic assisted surgery should be considered without hesitation.