Purpose. Despite the recent advances in neonatal care of congenital diaphragmatic hernia (CDH), a wide variety of disease severity interfered with the improvement in outcome for CDH neonates. The aim of this study was to analyse the risk factor for the survival at discharge after the introducing the standardised protocol in a high volume centre experience in Japan.

Methods. During the period from 2004 to 2015, seventy nine CDH neonates were treated in our department. The patients were divided into the survival group (n=61) and the non-survival group (n=18). Prenatal and postnatal variables were compared between these two groups. Baseline variables which showed significance in univariate analysis were entered into multiple logistic regression analysis for analyzing the data. A value of P< 0.05 was considered to be statistically significant.

Result. The overall survival rate was 77.2%, and the isolated CDH survival rate was 92.7%. The univariate analysis showed liver herniation, Apgar score at 1 min, pH and O.I. were the risk factors for survival. Multiple logistic regression analysis showed the Apgar score at 1 min ≤ 3 was the significant risk for the survival. (adjusted odds ratio 20, 95% C.I.: 1.75-657.3)

Conclusion. After conducting the standardized protocol from 2004, the CDH neonates with the Apgar score at 1 min ≤ 3 was 20 times higher risk of survival at discharge, compared to the CDH neonates who had Apgar score > 4 in our institution.
PIGEON CHEST: COMPARATIVE ANALYSIS OF SURGICAL TECHNIQUES IN MINIMAL ACCESS REPAIR OF PECTUS CARINATUM (MARPC)

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¹“Grigore Alexandrescu” Emergency Hospital for Children, Bucharest, Romania; ²Chelsea and Westminster Hospital NHS Foundation Trust, Imperial College London, London, UK

Aim: After pectus excavatum (PE), minimal access surgery for pectus carinatum (MARPC) techniques were developed. The study analysed the various MARPC technique and compared the outcomes.

Methods: Articles were searched on Pubmed with terms “pectus carinatum”, “minimal access repair”, “minimally invasive surgery”, “thoracoscopy” and “children.”

Results: Eleven MARPC techniques that included 12 articles and 138 patients (127 males; 11 females) with X̄ 15.5 years (10-36) met the inclusion criteria. Success rate of corrections was n=123 ~70% in cumulative reports, with 6 articles reporting (n=71) 100%. Complications n=54; 39.1% were used as endpoints for this comparative study. Since the pectus bar is placed over the sternum and has a large contact area, skin irritation was the most frequent morbidity n=20 (14.5%). However, within the complication group n=54, wire breakage n=21; 38.8% and bar displacement n=10; 18.5% were the most frequent complications. Fifteen (10.8%) patients required a second procedure: n=9 for repositioning/refixation of the bar due to displacement or wire breakage, n=4 early bar removal due to complications (pain, displacement of bar, wound infection and skin necrosis) and n=2 open resection of the lower sternal protrusion to obtain an excellent cosmetic result. Pneumothorax was treated with a chest drain tube n=1 and needle aspiration n=1. There were no lethal outcomes.

Conclusions: MARPC techniques are not standardized as PE, so comparative analysis is difficult as the only common denominator is minimal access. Surgical morbidity is high in MARPC and affects >2/3rds of patients with ~10% requiring surgery for complication management. Recurrences have been reported in 4 of 12 techniques.

<table>
<thead>
<tr>
<th>Complications (n=54)</th>
<th>Skin irritation</th>
<th>Bar displacement</th>
<th>Wire breakage</th>
<th>Pain</th>
<th>Pneumothorax</th>
<th>Recurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abramson (2005/2009)</td>
<td>15 (37.5%)</td>
<td>5 (12.5%)</td>
<td>3 (7.5%)</td>
<td>1 (2.5%)</td>
<td>1 (2.5%)</td>
<td>12 (30%)</td>
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<tr>
<td>Kalman (2009)</td>
<td>-</td>
<td>1 (7.1%)</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Hock (2009)</td>
<td>-</td>
<td>4 (80%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 (20%)</td>
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<tr>
<td>Perez (2010)</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
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<tr>
<td>Study</td>
<td>Count (%)</td>
<td>Count (%)</td>
<td>Count (%)</td>
<td>Count (%)</td>
<td>Count (%)</td>
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<tr>
<td>Yuksel (2011)</td>
<td>3 (16.6%)</td>
<td>3 (16.6%)</td>
<td>1 (5.5%)</td>
<td>1 (5.6%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lee (2013)</td>
<td>-</td>
<td>-</td>
<td>15 (100%)</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Schaarschmidt (2006)</td>
<td>2 (5.4%)</td>
<td>-</td>
<td>-</td>
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<td></td>
<td></td>
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<tr>
<td>Kim (2009)</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Varela (2010)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 (25%)</td>
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<td>Poullis (2010)</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Andreetti (2012)</td>
<td>-</td>
<td>-</td>
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<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Total (n)</strong></td>
<td><strong>20 (37%)</strong></td>
<td><strong>10 (18.5%)</strong></td>
<td><strong>21 (38.8%)</strong></td>
<td><strong>1 (1.8%)</strong></td>
<td><strong>15 (10.8%)</strong></td>
<td></td>
</tr>
</tbody>
</table>
FIRST YEAR FOLLOWING DISCHARGE AFTER SURGERY FOR ESOPHAGEAL ATRESIA (EA)

Santosh Dey, Sreekar Gundapaneni, Sandeep Agarwala, M Srinivas, Veereshwar Bhatnagar
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Aim: To identify complications, their incidence and risk factors for their occurrence in patients of Esophageal atresia (EA) in the 1st year after discharge, following surgery.

Materials and methods: Cases of EA discharged after surgical intervention in the period July 2011 to July 2013 were considered as the cohort.

Results: 76 such patients were discharged in this period, six of whom were lost to follow-up (FU) and hence 70 patients were included in the study. Of these 70, 48 (69%) had esophageal continuity restored (46 EA+TEF; 2 pure EA), while 22 (31%) had been diverted (3 for pure EA, 8 following major leak and 11 long gap EA+TEF). Risk of developing any complication (except death) was 48/70 (68%; 95% CI 57.4-79.7). Twenty-six of 48 patients, with esophageal continuity, demonstrated narrowing on contrast study (54%; 95% CI 39.5-68.7) but only 18 of these 48 (37.5%) had dysphagia, of whom 17 underwent one or multiple dilatations and one had re-anastamosis done. Thirty-one of 70 on FU had an episode of lower respiratory tract infections (44.2%; 95% CI 32.3-56.2). Poor weight gain was observed in 27/70 (37%) and this was significantly commoner in diverted patients (63% vs 25%; p = 0.009). Twenty-one of these 70 (30%) patients died within first year (90% deaths within first 6 months).

Conclusion: Sixty-eight percent patients developed some complication while 30% patients died within the first year following discharge. The common complications observed were stricture, lower respiratory tract infections and poor weight gain, which were observed more often in diverted patients (RR-1.23) and those with cardiac anomalies (RR-1.3).
PW01-04

LATE PRESENTING CONGENITAL DIAPHRAGMATIC HERNIA IN CHILDREN: REVIEW OF THE LITERATURE

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¹Paediatric Surgery Department, Spirito Santo Hospital, Pescara, Italy, ²Paediatric Surgery Department, G d’Annunzio University, Chieti-Pescara, Italy

Aim of the Study: To assess the presentation, diagnostic pitfalls, surgical management and prognosis of late-presenting congenital diaphragmatic hernia (LPCDH).

Methods: A review of the literature about LPCDH (CDH detected after 30 days of life) was performed. Eighty-eight full-text articles were analysed, including only Bochdalek hernias (BH). Data (n or median (range)) were compared using t-Student test; p<0.05 was significant.

Main Results: Of 398 BH found, 284/398 (71.4%) were left-sided, 66/398 (16.6%) were right-sided, 48/398 (12%) unknown. M:F distribution was 1.6:1; age was 1.2 years (34 days-17 years). When mentioned, symptoms were gastrointestinal in 87/238 (36.5%), respiratory in 111/238 (46.7%), both gastrointestinal and respiratory in 40/238 (16.8%). Gastrointestinal complaints were more common in left-sided BH than right (86.7% vs 13.3%, p<0.05, OR:3.2). The onset was acute in 142/231 (61.5%), chronic in 73/231 (31.6%); 16/231 (6.9%) subjects were asymptomatic. Cardiovascular instability occurred in 13 patients; 12/13 (92.3%) had left-sided BH, 7/12 (58.3%) with stomach herniation. Diagnosis was mainly made with chest-Xray (230/371-62%). Misdiagnosis occurred in 72/337 (21.4%); of these, 25 were pneumothorax, and 13/25 (52%) had stomach herniation. Open primary repair was performed in 212/233 (91%). Malrotation appeared in 48/255 (18.8%) of patients; other associated anomalies were reported in 80/371 (21.5%). Perioperative mortality was 4.3% (17/398). Ventilation support was required in 25/371 (6.5%); 16/25 (64%) presented stomach herniation.

Conclusion: LPCDH have a wide spectrum of nonspecific clinical presentation, leading to misdiagnosis. Their outcome is good when promptly identified and repaired, due to the low percentage of associated anomalies and respiratory distress. However, the herniation of the stomach is more challenging to manage, due to the recurrent respiratory distress and cardiovascular instability associated.
THORACOSCOPIC MANAGEMENT OF THYMIC DISORDERS - WHAT IS EFFICACY OF THE THORACOSCOPIC APPROACH IN THE PRESENT ERA?

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Aim: Video-assisted thoracic surgery (VATS) for thymectomy has standardized in the recent decades. This study performed a literature review to evaluate efficacy of pediatric VATS thymectomy.

Methods: Medline/PubMed databases were reviewed from 1995-2015 for articles published in English, Portuguese and Spanish. Data was collected for type of thymic pathology, instruments, preference of surgical approach side, need for conversion, complications, mortality and length of hospital stay (LOS).

Results: Total of 15 articles were included in qualitative analysis with 124 patients with median age of 10.9 years (1.7-18 years). Indications for thymectomy included Myasthenia Gravis n=114, thymoma n=8, thymolipoma n=1 and teratoma n=1. Procedures were performed with 3-4 ports with sizes that varied from 3-10mm. Only 4 articles mentioned the specific instruments used (1-LigasureTM, 1-Endo GIATM, 1-harmonic scalpel, 1-LigasureTM/harmonic scalpel). The right side access was used in n=90 (72.5%), left n=19 (15%) and bilateral access combined with cervical incision in n=14 children (11.3%); n=1 no information on access route. Complications/morbidity were documented in n=5 (4%): bleeding n=1, pneumothorax n=1, placement of drain n=1, reintubation n=1 and persistent atelectasis n=1. The median LOS was 3.57 days (1-7 days). There were no conversions and no lethal outcomes.

Conclusions: VATS thymectomy is offered in ~90% school age children for Myasthenia Gravis. Right-side access is preferred in 3/4th patients, however left side and hybrid approaches are opted in 1/4th patients. Although data is scarce on specific instruments used, irrespective of this, VATS thymectomy can be safely offered as it has a low complication rate and no conversions/mortality.
Aim of the study. In the last few years, fetal endoscopic tracheal occlusion (FETO) became an arrow in the quiver for the treatment of most severe congenital diaphragmatic hernia (CDH). Nonetheless, maternal, fetal, and neonatal side effects are reported, limiting the indication for fetal treatment. Aim of this study is to evaluate our FETO experience and its influence on early outcomes.

Methods: All patients with severe or moderate CDH treated between January 2011 and December 2015 enter the present study, and were prospectively evaluated. CDH severity was defined according to O/E LHR at 27 weeks of gestation. Patients were gathered into two groups according to FETO +/- . Early mortality and perinatal outcomes were studied. Fisher’s exact test and Mann-Whitney test were used. Results are median (IQR), significance p<0.05.

Main results: Table summarized main results.

Conclusion: FETO+ infants, in spite of a lower O/E LHR (therefore considered more severe CDH), experienced similar rate of mortality and adverse outcomes compared to FETO- group. Our data are consistent with the value of FETO to improve mortality and morbidity in more severe CDH infants.
WHAT DOES THE NEED FOR A PATCH TELL US ABOUT THE PROGNOSIS IN CONGENITAL DIAPHRAGMATIC HERNIA?

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1Radboud University Medical Center, department of Paediatric surgery, Nijmegen, The Netherlands, 2Radboud University Medical Center, department of Health Evidence, Nijmegen, The Netherlands, 3Radboud University Medical Center, department of Neonatology, Nijmegen, The Netherlands

Introduction: Congenital diaphragmatic hernia (CDH) is characterized by a diaphragm defect, pulmonary hypoplasia, and pulmonary hypertension. The diaphragm defect can be closed primarily or with a patch, depending on the defect size. The morbidity of patients with a large defect needing a patch is greater, which is often contributed to the use of the patch. This study evaluates the outcome of patients needing a patch compared to primary repair.

Method: All patients treated in our expertise center from 2000-2015 were retrospectively evaluated. The demographics, CDH specific characteristics, medical and surgical treatments, survival, 30 day surgical, and pulmonary outcome were described.

Results: Of the 212 patients, 192 survived until repair, of which 71 (37%) needed patch repair and 121 (63%) were repaired primarily. The mortality was higher in the patch group (41%) compared to the primary repair group (7%) (p<0.001). The recurrence rate was 8.5% for patch and 5.0% for primary repair (OR 0.8 (95%CI: 0.2-3.8) adjusted for ECMO treatment). Both pulmonary morbidity and surgical complications were encountered more often in the patch repaired group (Table).

Conclusion: The mortality and pulmonary morbidity of patients with the need for a patch repair is significantly higher than of patients with a primary repair, probably due to the severity of the disease.

<table>
<thead>
<tr>
<th>Table</th>
<th>Primary repair (n=121)</th>
<th>Patch repair (n=71)</th>
<th>P-value χ2-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survival</td>
<td>93.4%</td>
<td>59.2%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Pulmonary hypertension on pre-operative ultrasound</td>
<td>35.2%</td>
<td>76.7%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>ECMO-need</td>
<td>14.9%</td>
<td>62.9%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Postoperative surgical hemorrhage</td>
<td>5%</td>
<td>19.7%</td>
<td>0.001</td>
</tr>
<tr>
<td>Extubated and on room-air at 30 days</td>
<td>82.6%</td>
<td>39.5%</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
PW01-08

DIAGNOSTIC PITFALLS AND OUTCOME OF LATE PRESENTING CONGENITAL DIAPHRAGMATIC HERNIA: A SINGLE CENTRE EXPERIENCE.

Valentina Cascini¹, Vittorio Guarriero², Giuseppe Lauriti¹, Dacia Di Renzo¹, Gabriele Lisi¹,², Pierluigi Lelli Chiesa¹,²

¹Paediatric Surgery Department, Spirito Santo Hospital, Pescara, Italy, ²Paediatric Surgery Department, G. d’Annunzio University, Chieti-Pescara, Italy

Aim of the Study. To analyse the presentation, diagnostic issues and outcome of late presenting congenital diaphragmatic hernia (LPCDH) treated in a single Centre.

Methods. Bochdalek hernias (BH) diagnosed after 30 days of age between January 1982 - January 2016 were included. Data (n or median (range)) were compared using t-Student test; p<0.05 was significant.

Main Results. Twenty LPCDH (17 left-sided, 3 right-sided BH) were found. Fourteen were boys and 6 girls, with an age at presentation of 2 years (34 days - 13 years). Weight was 11 Kg (4,5-60), corresponding to the 52° percentile (1°- 97°); 2/20 (10%) had failure to thrive. One/20 (5%) showed major associated anomalies (exomphalos). Symptoms were found in 19/20 (95%): gastrointestinal in 11/20 (55%) and respiratory in 3/20 (15%), with chronic presentation in 50%. Five/20 (25%) had both gastrointestinal and respiratory complaints. Gastrointestinal issues were more common in left BH than right (94% vs 33%, p<0.05, OR:2.8). Diagnosis was mainly made with chest-Xray (15/20 - 75%), CT-scan and contrast studies (6/20-30%). Three/20 (15%) had previous negative imaging and 4/20 (20%) received a misdiagnosis. All hernias had primary repair, requiring a Ladd’s procedure for malrotation in 6/20 (30%). A ventilation support was needed in 2/20 (10%) before and in 3/20 (15%) after surgery. All patients survived without recurrence.

Conclusion. LPCDH are unusual, and have a different presentation and more favorable outcome than CDH perinatally diagnosed. Associated anomalies and respiratory distress with the need of ventilation are uncommon. The diagnosis is challenging due to nonspecific and frequently chronic symptoms, leading to misdiagnosis.
THE INDICATIONS OF RIGID BRONCHOSCOPY IN SUSPECTED FOREIGN BODY ASPIRATION IN CHILDREN

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Ege University Faculty of Medicine, Department of Pediatric Surgery, Izmir, Turkey

Aim of the study: Foreign body aspiration (FBA) is an important public health problem in children. In this study, we aimed to present our management strategy and treatment results.

Methods: Retrospective analysis of patients underwent bronchoscopy with an initial diagnosis of FBA was performed. Our management strategy consisted of indications for bronchoscopy as clinical history of FBA and high clinical suspect due to physical examination/radiological studies.

Main results: 205 patients (130M, 75F) underwent rigid bronchoscopy with a mean age of 4.2±2.7 years (7 months-16 years). 170 patients (83%) presented with a clinical history of FBA. 12 cases were referred our clinic after an unsuccessful bronchoscopy in another center. 27% of patients had no abnormal findings on physical examination. Chest X-ray was normal in 39% of patients. The overall detection of foreign body on bronchoscopy was 65.3%. The sensitivity of clinical history was 79%. Also, foreign bodies were detected in 49% of the patients without a clinical history, who had suspected physical findings/radiological studies. 98% of foreign bodies were removed in the first bronchoscopy. Re-bronchoscopy was required in three patients to remove the residual foreign body. Also, 17 patients underwent control bronchoscopy due to investigate residual granulation tissue which detected in first bronchoscopy. No morbidity or mortality was seen in a 36.4±21.2 months follow-up period.

Conclusions: Foreign bodies can be detected in the majority of cases presenting with clinical history of FBA and half of the patients with typical physical examination/radiology. Rigid bronchoscopy should be performed in all of the patients with the suspicion of FBA as a safe and effective treatment option in experienced hands.
CONGENITAL PULMONARY MALFORMATIONS: INCIDENCE OF ASSOCIATED CONDITIONS. A SINGLE CENTER STUDY
Sara Costanzo, Claudio Vella, Paola Fontana, Mariangela Rustico, Andrea Farolfi, Salvatore Zirpoli, Giovanna Riccipettoni
V. Buzzi Children’s Hospital, Milano, Italy

Aim of the study There is no updated literature about the incidence of anomalies associated to congenital pulmonary malformations (PM). Aim of our study is to analyze our series of patients affected by PM to identify associated conditions.

Methods We retrospectively reviewed the charts of patients born or admitted at our Institution with a diagnosis of PM in the period between January 2007 and January 2016. Telephone questionnaires were also administered to complete available data. The incidence and entity of prenatal and postnatal associated conditions was analyzed.

Main Results Fifty-two patients were identified in the period of study, 26 males and 26 females. Four of them died in the early postnatal period for severe prematurity and were excluded from the analysis. Median gestational age was 38 weeks (31-41), median weight at birth 3130 g (1720-4080). Prenatal maternal associated conditions were: infections 5 (10.4%), endocrine diseases 6 (12.5%; 4 gestational diabetes, 2 hypothyroidism), other 11 (4 twins – 3: twin died in utero, 1: twin not affected; 5 drugs assumption; 1 autoimmune condition; 1 consanguinity). Postnatal screening and follow-up revealed the following associated conditions: cardiac malformations 6 (12.5%, 4 minor), CNS/neurological anomalies 6 (12.5%, 3 mild), visual defects 7 (14.6%), abnormal audiology tests 1 (2%), genitourinary abnormalities 6 (12.5%), skeletal anomalies 8 (16.7%), other 6 (12.5%).

Associated conditions were detected in a total of 29/48 (60.4%) PM patients.

Conclusion Rate of prenatal and postnatal associated conditions seems to be higher in our series than in the population of healthy term babies. Most of them are minor anomalies. Further prospective studies on wider multicentric series could help in elucidating the need of a more thorough work-up for this group of patients.
EVALUATION OF THE SYMPTOMS OF DYSPHAGIA AND GASTROESOPHAGEAL REFLUX AFTER HELLER ESOPHAGOMYOTOMY WITH/WITHOUT FUNDOPICATION IN CHILDREN WITH ACHALASIA

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Hacettepe University Faculty of Medicine Department of Pediatric Surgery, Ankara, Turkey

Aim: To evaluate the symptoms of dysphagia and gastroesophageal reflux (GER) after modified Heller esophagomyotomy (MHE) with/without fundoplication in children with achalasia, and to investigate the correlation of the symptoms with the presence of fundoplication procedure.

Methods: Children who underwent MHE for the last 15 years were evaluated for age, sex, diagnostic methods, number of preoperative and postoperative esophageal dilations and results of surgical interventions retrospectively. Postoperative dysphagia was evaluated with dysphagia score (DS) [mild:1-44, severe:>44] and pediatric eating assessment tool-10 (pEAT-10), and GER was evaluated with reflux score (RS) and upper gastrointestinal (UGI) studies. Results of the patients who underwent MHE with and without NF were compared with non-parametric tests.

Results: Twenty-three patients who responded DS, pEAT-10 and RS were included. Six of the cases underwent only MHE and Nissen fundoplication (NF) was included in 17 cases. Demographic features, diagnostic methods, number of esophageal dilations and median scores of DS, EAT-10 and RS are listed in Table 1. Four of the cases (23.5%) in MHE+NF group required reoperations for swallowing problems. Hiatus was widened (n=1), and NF was converted to partial fundoplication (n=3). None of the patients had GER in postoperative UGI studies.

Conclusion: Postoperative dysphagia is still a common problem after successful HE in children. Difficulty in swallowing requires detailed evaluation of possible problems relevant to NF, and may even necessitate reoperation. Even it was not significant, patients without NF revealed better swallowing and eating capabilities, none of them had severe GER symptoms that required medical or surgical GER treatment.
PW01-12

TRANSSTERNAL THYMECTOMY VS THORACOSCOPIC THYMECTOMY: SURGICAL CONTRIBUTION IN THE TREATMENT OF GENERALIZED FORM OF JUVENILE MYASTHENIA GRAVIS

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Juvenile myasthenia gravis (JMG) is an autoimmune neuromuscular disorder characterized by weakness, fatigue and pathologic exhaustion of the voluntary muscles. In children and adolescence with myasthenia gravis the studies of the effect of thymectomy have shown a wide consensus on the general effectiveness of the procedure, with differences concerning the rate of complete remission, improvement and failure. Indications for thymectomy, as well as surgical approach are partially controversial. The aim of this study is to present our 25-years experience in the surgical treatment of JMG, specially taking into consideration the age at the time of thymectomy and the time elapsed from onset of symptoms until thymectomy, and their effect on the outcome.

**Methods:** From 1992 to 2008, 55 patients with JMG, aged 4 to 18 years, underwent transsternal thymectomy. In period from 2008 to 2015 thoracoscopy thymectomies were done in 12 patients. Postoperative follow-up period ranged from 2 months to 20 years.

**Results:** Mean operative times were 100+/−20 minutes from incision to closure. There were no intraoperative or postoperative mortalities or complications. On histological examination, there were no thymomas. Postoperative follow-up period ranged from 2 to 18 months. 52 patients (77,6%) had complete remission of symptoms or minimal deficit over the first two years after thymectomy. Our experience confirmed that radical thymectomy was an effective and beneficial for most patients and minimal invasive surgery in these patients has huge advantage as minimal blood loss, shorter duration of operation and postoperative recovery. The best results were achieved in patients who underwent early thymectomy with a maximally shortened period of preoperative preparation of the patient.

**Conclusions:** We conclude that both ways thymectomy are a beneficial procedure for JMG patients, with a complete clinical remission rate of 77,6% at 18 months postoperatively in our series. Thoracoscopic thymectomy is a safe and efficacious treatment with all benefits from minimal invasive surgery. It is option for most patients for myasthenia gravis and its huge advantage as minimal blood loss, shorter duration of operation and postoperative recovery is strong highlighted.
THE IMPACT OF UNDERNUTRITION ON PEDIATRIC SURGICAL MANAGEMENT OF NEUROLOGICALLY IMPAIRED CHILDREN

Noemi Pasqua¹, Veronica Carlini¹, Mario Fusillo¹, Marco Brunero¹, Valeria Calcaterra², Gloria Pelizzo¹
¹Fond. IRCCS Policlinico San Matteo, Dpt of Pediatric Surgery, Pavia, Italy, ²Fond. IRCCS Policlinico San Matteo, Dpt of Pediatrics, Pavia, Italy

Aim of the study: Poor growth and malnutrition are reported in neurologically impaired (NI) children. Pediatric surgical management should always include a nutritional evaluation to avoid postoperative complications. Preoperative refinement of determinant factors related to caloric intake needs (muscle tone, activity and growth) define the best type of nutrition (oral, EN) to support surgery.

Methods: Anthropometric measurements, body composition and energy expenditure by bioelectrical impedance analysis, hormonal and nutritional evaluations were performed in a cohort of NI children. According to the feeding modalities, the patients were divided into 3 groups: oral diet, continuous and bolus enteral nutrition (EN). Undernutrition was defined as BMI <2SD and low mid-upper arm circumference plus at least 2 pathological blood investigations. A single-day food diary was recorded to quantify daily caloric intake at admission. Energy needs were calculated using Krick’s formula.

Main results: More than 65% individuals in this study population were undernourished. Malnutrition was primarily observed in patients who were fed orally. Inadequate daily caloric intake was recorded in 50% of cases. Bioelectrical impedance measurements fell within the pathological reference intervals in most patients. Iron deficiency anaemia and low prealbumin levels were commonly revealed.

Conclusion: Malnutrition is not intrinsic to neuromotor disability but strictly related to energy needs. Nutritional interventions are a part of an integrated treatment in NI and it should be developed by a pediatric multidisciplinary team before surgery. Focusing attention on improving nutrition early in the NI child may result in safety postoperative outcomes and long term better prognosis.
EARLY COMPLICATIONS FOLLOWING LAPAROSCOPY-ASSISTED GASTROSTOMY PLACEMENT

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¹University of Oslo, Oslo, Norway, ²Oslo University Hospital, Oslo, Norway

Aim of the Study: To investigate frequency and factors associated with early complications after laparoscopy assisted gastrostomy placement (LAP-G).

Methods: Retrospective study of patients <15 years undergoing LAP-G from 2005-2015. Early postoperative complications (<30 days) were grouped as gastrostomy related or general. Complications requiring systemic medical treatment or procedures under general anesthesia were classified as major. Ethical approval was obtained.

Main Results: LAP-G was inserted in 75 patients, and all were included. Median age and weight at LAP-G insertion were 1.2 years [10.4 weeks-14.9 years] and 8.0 kg [3.4-33], respectively. Operating time was median 42 min [24-105] and was shorter in the second half of the patients (57 vs. 39 minutes, p=0.04). Forty-four (55%) patients had neurological impairment.

48 complications (40 gastrostomy related, 8 general) occurred in 30/75 (40%) patients. Fifteen gastrostomy related complications were major; peristomal infection (n=12, 6 also with leakage), tube dislodgement (n=1), too short button (n=1), and feeding difficulties (n=1). Minor gastrostomy related complications were granulation tissue (n=8), peristomal infection (n=6), tube dislodgement (n=6), minor bleeding (n=3), tube blockage (n=1), and detached skin sutures (n=1).

The frequency of complications in patients with and without neurological impairment was 32% and 50 %, respectively (p=0.11). Odds ratio for complications adjusted for age was 1.12 (95% CI: 0.97-1.23, p=0.12).

Conclusions: Complications were common after LAP-G, and peristomal infections were most frequent. Age and neurological status were not associated with complication rate. Surgery time declined during the study period.
TOPICAL MITOMYCIN- C IN THE TREATMENT OF ESOPHAGEAL STRICURES IN CHILDREN
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Aim of the study: Several treatment techniques may be used in the treatment of esophageal strictures (ES). In this study, we aimed to present the effects of topical mitomycin (TM) as a useful adjunct to dilatation in ES.

Methods: Retrospective analysis of patients who underwent TM between February 2015-October 2015 was performed. Dysphagia score, periodic dilatation index (PDI) and number of dilatations were compared before and after intervention to investigate the efficacy of TM.

Main results: TM was performed to 15 patients with a median age of 4 years (2-17 years). The diagnosis was CES in 13 patients and anastomotic stricture in 3 patients (after repair of esophageal atresia, gastric transposition). Eight of the patients underwent intraloesional steroid injection (ISI) before TM application. The length of the stricture was long in 9 patients (56%). Mean number of TM sessions was 3.7±1.3 (1-5). Median dysphagia score was decreased from 2(1-3) to 0(0-2) after application (p=0.001). Median number of dilatation sessions was decreased from 8(1-41) to 1(0-5) after intervention (p=0.001). Median PDI was decreased from 1(0-2) to 0(0-2) after TM (p=0.013). Esophageal dilatation was terminated in 11 of 15 patients after application (73%). The length of the stricture or initial diagnosis didn’t affect the efficacy of TM. Only, long treatment period before TM (>3 years) was determined as a significant negative factor on the efficacy of intervention (p=0.001). No complications were seen in a 6.1±1.9 months (3-10) postoperative period.

Conclusions: Several disorders like corrosive or anastomotic strictures can cause esophageal strictures. TM has a significant positive effect on dysphagia in patients with a short treatment period lower than 3 years.
PW02-05

POSTOPERATIVE UPPER GASTROINTESTINAL STUDY IN THE EARLY DIAGNOSIS OF STENOSIS AFTER TREATMENT OF OESOPHAGICAL ATRESIA: A BETTER RESOLUTION OF COMPLICATIONS?

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Aim of the study Anastomotic stricture, the most common postoperative complication of trachea-oesophageal repair (TEF), is often diagnosed at a symptomatic stage and treated with repeated endoscopic dilatations. We hypothesized that an early detection of the anastomotic stricture by upper gastrointestinal study (UGI) systematically performed one month after surgery and its treatment by radiological dilatation would improve the long-term outcome.

Methods We retrospectively studied the clinical and radiological data of patients operated on for TEF and treated with radiological dilatations for an anastomotic stricture in our institution between March 2005 and December 2014. All patients had an UGI one month after surgery and were divided into two groups: G1 patients treated at the time of appearance of clinical symptoms of stenosis regardless the results of UGI; G2 patients clinically asymptomatic but presenting radiological signs of stricture.

Main results Among a total of 70 patients, 18 (25.7%, 9G1 and 9G2) were treated for a stricture and radiologically dilated without complications. Five patients from G1 but none from G2 (55%) had further endoscopic dilatations, 4/5 needing mitomycin injections. The median value of the ratio between upstream and downstream stenosis (measured with pre-dilatation UGI) for G1 and G2 is respectively 1.55/1.41 (frontal view) and 1.38/1.46 (lateral view). At 57 months of follow-up, signs of blockage, stricture or dysphagia were present in respectively 2, 1, 1 patients of G1 and 0, 0, 2 patients of G2.

Conclusions Systematic UGI one month after surgery seems a reasonable approach to early detect and treat anastomotic stricture after TEF repair.
PROLONGED USE OF PROTON PUMP INHIBITORS AS STRicture PROPHYLAXIS IN INFANTS WITH RECONSTRUCTED ESOPHAGEAL ATRESIA

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Introduction: Proton pump inhibitors (PPIs) are used as prophylaxis, guarding against anastomotic stricture (AS) in the aftermath of surgically treated esophageal atresia (EA). The incidence of stricture formation was studied in this setting, comparing outcomes of 3- and 12-month PPI prophylactic regimens. The study was approved by the Ethical Review Board, registration number 2010/49.

Population and Design: Patient characteristics (gestational age, birth weight, prevalence of chromosomal aberrations, and other malformations), as well as rates of survival, AS formation, and required balloon dilatation, were recorded in the following therapeutic subsets: 1) all infants undergoing primary surgical anastomosis for EA in years 2010-2014 and given postoperative PPI prophylaxis for 12 months and 2) all infants similarly treated for EA in years 2001-2009 but given postoperative PPI prophylaxis for 3 months only. Duration of follow-up was 1 year in each group.

Results: Patient characteristics and survival rates in 12-month (n=34) and in 3-month (n=32) treatment groups did not differ significantly. The prevalence of AS was 44% in each group (12-month, 15/34; 3-month, 14/32; p=1). Median number of dilatations required was 3 (range, 1-9) per patient in each group (p=0.69). Median age at initial dilatation was 163 days and 63 days in 12- and 3-month groups, respectively (p=0.04).

Conclusion: Development of AS in the first year after reconstruction of EA was not reduced by prolonged PPI prophylaxis (12 vs 3 months), but initial balloon dilatation procedures were performed later in infants who were treated longer.
PREOPERATIVE GASTRIC EMPTYING RATE AND OUTCOME AFTER FUNDOPLICATION

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Aim of the study: The aim was to examine whether preoperative gastric emptying (GE) rate was related to symptomatic outcome and recurrence of gastroesophageal reflux disease (GERD) after fundoplication.

Methods: GE was assessed using scintigraphy and a standardized meal with cow’s milk. Preoperative gastric emptying half time (T1/2) and patient demographics were recorded. GERD symptoms including vomiting 4-7 days/week, retching 4-7 days per week, feeding time >3 hours/day, and discomfort after meals pre- and postoperatively. A standardized follow-up included a 24-hour pH-monitoring and an upper gastrointestinal contrast study. Out of 74 patients accepted for fundoplication between 2003-2009, 35 underwent a preoperative GE study. The remaining 39 patients were not examined due to volume intolerance, cow’s milk intolerance, inability to lie still, or parents refusing participation. Regional ethical committee approved the study.

Main results: Age at fundoplication was median 4.9 [min-max 1.1-15.4] years, and follow-up time was 4.3 [1.9-8.9] years. Seven patients had recurrent GERD. Preoperative T1/2 in the seven patients with recurrent GERD was 45 [21-87] minutes, compared to 44 [16-121] minutes in the 28 patients without recurrent GERD (p=0.92). Furthermore, there was no significant difference between the one third of patients with the slowest GE and the remaining patients with faster GE with regard to either preoperative or postoperative frequency of vomiting, retching, prolonged feeding time or discomfort after meals.

Conclusion: There was no difference in preoperative GE rate between patients with and without recurrence of GERD after fundoplication. Furthermore, GE rate was not associated with postoperative symptomatic outcome.
THE INCIDENCE OF ASSOCIATED AIRWAY ABNORMALITIES IN OESOPHAGEAL ATRESIA AND TRACHEOESOPHAGEAL FISTULA CASES. DOES THIS WARRANT ROUTINE PRE-OPERATIVE BRONCHOSCOPY?

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Aim of study: Pre-operative bronchoscopy in oesophageal atresia (OA) and tracheo-oesophageal Fistula (TOF) had been advocated:

- To identify very high cervical OA /TOF amenable to anastomosis through the neck.
- To identify carinal fistulas.
- To recognise a right aortic arch.
- To assess the incidence of airway abnormalities.

This study aimed to assess the occurrence of associated abnormalities that may support pre-operative bronchoscopy.

Methods: A single surgeon’s database of 400+ OA/TOF cases over 35 years (1980-2015) was reviewed for cases that presented with an associated abnormality.

Main results: Seven patients had tracheo-bronchial abnormalities.

One patient had extensive congenital tracheal stenosis (CTS) post OA repair due to failed weaning from mechanical ventilation.

One patient had a very long fistula extending into the neck to communicate at the level of a tight tracheal stenosis that was diagnosed intra-operatively. This necessitated immediate trans-cervical segmental tracheal resection.

One patient had right oesophageal bronchus.

One had OA and a laryngo-tracheo-oesophageal cleft.

One patient with right pulmonary hypoplasia had a fistula entering low into the left main bronchus, which required intraoperative turning for a left thoracotomy. All patients with right aortic arch were successfully managed through a right thoracotomy.

A 15 year old child presenting with a life-long history of asthma had a missed TOF with segmental CTS.

Patients with a subglottic stenosis that required a temporary tracheostomy were scarce.

Conclusion: The benefit of pre-operative bronchoscopy is clear for 2% of patients but remains debateable due to the very low incidence of associated abnormalities.
PW02-12

A NOVEL APPROACH IN LONG GAP ESOPHAGEAL ATRESIA

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Aim: In this study we describe a novel technique to perform the esophageal anastomosis in case of long gap atresia: when the thoracotomy does not permit the anastomosis, we use, during the same operation, a right cervicotomy to dissect and to lengthen the upper part of the esophagus to perform the anastomosis.

Method and patients: It is a prospective study of 3 neonates (2 female, 1 male) with a type I long gap esophageal atresia, managed initially by a gastrostomy for alimentation and by a pharyngeal suction. At the age of 5 months, the imaging shows a gap that measures 36 to 42 mm.

Results: The three patients were operated at the age of 6 months. In the 3 cases we started with a thoracotomy but the anastomosis was impossible because even after the dissection of the superior and the inferior part of the esophagus, the gap was more than 25 mm. During the same operation, we decided to perform a cervicotomy that allowed us to dissect and lengthen the upper part of the esophagus. In the 3 cases the vascularisation of the proximal esophagus was normal especially in its distal area and it was possible to perform an esophageal anastomosis without excessive traction. Post operatively, the assisted ventilation has been maintained during 3-5 and 7 days. One patient has presented an esophageal fistula that has recovered by maintaining the drainage during 9 days.

After a mean follow up of 12 months the patients are doing well under oral feeding with no major complication. Two patients continue to receive medical treatment for gastro esophageal reflex well tolerated.

Conclusion: The cervical incision seems to be a promoting approach in the long gap esophageal atresia, this technique may help when the primitive anastomosis seems to be impossible after a dissection by thoracotomy.
SPECT DEFECOGRAPHY - A FUTURE EVALUATION TOOL FOR STOOLING PATTERNS IN HIRSCHSPRUNG’S DISEASE?

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Aim of the study: A feasibility study of scintigraphic defecography with 3D reconstruction as a quantitative assessment tool of stooling patterns in terms of evacuation fraction (EF%) in Hirschsprung’s disease.

Methods: This pilot study was conducted in four patients with different kinds of surgical definitive procedures for Hirschsprung’s disease (Table 1). Rectal enema followed by instillation of technetium-99m-labelled methylcellulose mimicking feces, volume guided by urge to defecate. Three gamma camera acquisitions of ten minutes duration were performed in each patient; one before defecation followed by two post-defecation scans with thirty minutes intervals. Since scans showed activity orally to the neo-rectum/ileoanal pouch, two different volumes of interest (VOIs) were drawn on the tomographic images. Relative tracer activity in each VOI was determined and total EF% was calculated. Since the 3D images allowed for separation of the different segments we also calculated the EF% per VOI.

Main results: Figure 1 shows scan results and delineation of the ileoanal pouch for patient number 4. The other patients had similar results.

Conclusion: Scintigraphic defecography with 3D reconstruction is feasible in patients operated for Hirschsprung’s disease. We obtained information regarding the ability to empty the bowel expressed as EF%. 3D images allowed a superior separation of the different bowel segments in comparison to planar images. 3D image could be useful to rule out mechanical obstructions. The method is easy to perform in any department with SPECT facility and well tolerated by the patients.
EFFECTIVENESS OF ACTIVE OBSERVATION IN DIAGNOSING PEDIATRIC ACUTE APPENDICITIS

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**Aim of the Study:** This study aims to detect the effectiveness of active observation with serial physical examination for early and accurate diagnosis of acute appendicitis (AA).

**Methods:** Children with suspected AA were prospectively enrolled over a year after ethical committee approval.

**Main Results:** 357 patients were admitted for suspected AA and 265 (74%) of them were operated on. There were 128 (36%) girls and 229 (64%) boys. Their median age was 12 (1-18) years. Serial physical examinations were done in suspected cases. Ultrasonography (US) was done in 339 (95%). CT scanning was done in 28 (8%); 21 of these were performed prior to referral to our hospital. Eleven patients underwent surgery without radiological investigations. Complicated appendicitis was present in 119 (44%). The average time interval from admission to surgery was 6.8 (±7.3) hours in acute and 7.9 (±7.4) hours in complicated appendicitis with no significant difference. The negative appendectomy rate was 4% (11/265). Among these, four patients had other surgical pathologies. There were 92 (26%) patients discharged without operation at a mean of 1.8 (± 0.7) days. Among these 45 (49%) had initial imaging findings (US and/or CT) compatible with acute appendicitis. A telephone survey was done in 85 (92%) non-operated patients after discharge and none had undergone surgery.

**Conclusion:** The present study showed that active observation combined with US when necessary do not increase the complication risks and also keeps the negative appendectomy rate within acceptable limits. CT scanning should be reserved only for selected cases.
FUNCTIONAL RESULT OF CHILDREN AND ADULT PATIENTS FOLLOWED FOR ANORECTAL MALFORMATION. RESULTS FROM THE MARQOL NATIONAL STUDY

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Introduction: Even after a successful anatomic repair of their anorectal malformation, many patients may not be able to ensure optimal bowel control, with sometimes the need of bowel management programs.

Materials and methods: We conducted a national multi-centric prospective study in order to evaluate functional results after the cure of anorectal malformation, involving 26 pediatric surgical departments. Among the 487 patients included, born between 1980 to 2008, 388 accepted to be seen in medical consultation. Bowel movements, constipation, soiling, and use of enema were evaluated according to the Krickenbeck score.

Results: Voluntary bowel movement and gaz/stool discrimination were acquired in 78.6% and 76.9% of our series, respectively. Patients often experienced constipation (15.3%), soiling (20.4%) or both (26.9%). As expected, soiling was more frequent for high imperforate anus (60.7%) than for low forms with perineal fistula (33.9%; p<0.001) and improved with time, from 51.3% in childhood (6 to 16 year-old) to 36.1% in adulthood (17 and more; p<0.01). Less expected, constipation was more frequent in high imperforate anus (47.2% versus 36.5%; p<0.04) and wasn’t significantly different in adulthood (from 45.1% to 34%; p>0.05). Enema were used in 27.8 % of cases, and 4.3% of patients had a Malone procedure.

Conclusion: Functional morbidity is still high for patients after cure of anorectal malformation, even in the low forms with perineal fistula. We are proceeding to a quality of life study for that cohort, using generic and specific questionnaires, in order to correlate such functional result and their impact in patient life.
RISK FACTORS FOR AMYAND’S HERNIA IN CHILDREN: A SINGLE CENTER EXPERIENCE AND REVIEW OF THE LITERATURE

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Aim of the Study: The presence of vermiform appendix in pediatric inguinal hernia sac (Amyand’s hernia, AH) is uncommon. Our aims were: (i) to determine possible risk factors for AH, (ii) to review the literature on this topic.

Methods: A retrospective analysis of our center experience between 2000 and 2015 was performed: 3095 inguinal hernia (IH) were managed (2417M, 678F), with 14/3095 AH (0.45%). Two authors independently reviewed the literature using defined search criteria. Of 822 abstracts screened, 17 full-text articles were analyzed. Case reports were excluded. Data were compared using Fisher’s Exact Test and one-way ANOVA and are expressed as mean±SD.

Main Results: All 14 AH were males and right-sided. Males with incarcerated IH (IIH, 99pts) showed an increased incidence of AH (11/99pts, 11.1%; p<0.0001, OR 100.2), as those with ipsilateral undescended testis (2/70pts, 2.9%, p=0.06, OR 5.7). Children with AH were significantly younger than males with IH (1.4±2.8yrs, median 3.2mo versus 3.7±3.2yrs, median 3.3yrs, respectively; p<0.001) and males with IIH (4.5±3.9yrs, median 3.7yrs; p<0.001, Figure). Only inflamed appendices were removed (11/14 AH). Median postoperative stay was 4dd (range 1-9dd). Five papers were included in our review: AH was detected in 115/15778 IH (0.73%). AH was left-sided in 5pts (0.03%) and 4pts were female (0.02%). When mentioned, the incidence of AH was significantly increased in IIH (13/33pts, 36.4%; p<0.0001).

Conclusion: AH is rare in pediatric IH (0.73%), especially on the left side and in female. Risk factors for an increased incidence of AH are males with IIH and those with ipsilateral undescended testis, particularly in younger children.
DO WE PREFER NON-OPERATIVE TREATMENT FOR APPENDICITIS? A SURVEY OF PORTUGUESE PEDIATRIC SURGEONS AND PEDIATRICIANS

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Aim of the study: The aim of this study is to determine the preferences of Portuguese pediatric surgeons and pediatricians concerning therapeutic options for non-complicated appendicitis in children.

Methods: A total of 81 professionals were surveyed via a 10-item electronic questionnaire administered by Survey Monkey, which included a clinical vignette portraying a case of non-complicated appendicitis. Collected data included respondents’ demographics, beliefs on appendicitis and preferences of management options (surgical vs. nonoperative treatment), operative timing and surgical approach.

Results: A total of 33 pediatric surgeons (41%) and 48 pediatricians (59%) answered the survey. The majority (83%) considered the best treatment for non-complicated appendicitis to be surgery within 24h of admission. When deciding upon the clinical case, appendectomy was selected as the best choice treatment (94%) and laparoscopy as the preferred approach (82%). Only 6% of the responders considered maintaining IV antibiotherapy for 24 hours before any decision to either operate or not.

Conclusions: Despite recent proposals of non-operative management of appendicitis, Portuguese pediatricians and pediatric surgeons still prefer laparoscopic appendectomy within 24h of admission.
INTESTINAL GANGLIONEUROMATOSIS IN PATIENTS WITH MEN2B: ROLE OF EARLY RECTAL BIOPSY

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Aim of the study: The histopathologic basis of the gastrointestinal malfunction in patients with MEN2B is intestinal ganglioneuromatosis (IGN). We present a case of a female infant with a severe postnatal course of gastrointestinal complains diagnosed with IGN and MEN2B at the age of 6 months. Literature was analysed for characteristics of gastrointestinal symptoms and relevance of rectal biopsies in diagnosing IGN in patients with MEN2B.

Methods: Literature search was done using databases of PubMed and Scopus with search terms gastrointestinal, intestinal, symptoms, and MEN2B.

Main results: Literature search revealed 188 publications including 30 publications with sufficient patient data on gastrointestinal symptoms. Including our own case a total of 55 patients were analysed. Gastrointestinal symptoms consisted constipation in 40/55 patients (73%) corresponding to the radiologic finding of colonic dilatation in 21/55 patients (38%). In 45% gastrointestinal symptoms occurred below the age of one. However, the median age of MEN2B diagnosis was 13 years (range 0-46 years). 33/55 patients (60%) underwent surgery for gastrointestinal complaints. Among these patients 22 patients had rectal biopsies at a median age of 2.5 years (range 2 weeks – 24 years). In only 10/22 patients the histopathological diagnosis of IGN lead to prompt work-up for MEN2B. In the remaining 12 patients the diagnosis of MEN2B was delayed for up to 11 years.

Conclusion: Gastrointestinal symptoms of MEN2B are already present in early infancy. Intestinal ganglioneuromatosis should be diagnosed early by rectal biopsy and will lead to the diagnosis of MEN2B at early age.
BEST PRACTICE OF TRANSANAL IRRIGATION IN PEDIATRIC PATIENTS WITH BOWEL DYSFUNCTION: LESSON LEARNED BY A MULTICENTRIC ITALIAN STUDY

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Introduction  
Transanal Irrigation (TAI) was reintroduced in clinical practice in children with neurogenic bowel dysfunctions (NBD) and today it is a common practice both in children and adults. A best practice of TAI in adult is well defined, but in children it is not yet defined. Based on clinical experience the aim is to provide a best practice of TAI in children affected by spina bifida (SB) and anorectal malformation (ARM).

Methods  
A consensus group of pediatric surgeons and pediatricians, from eight centers with expertise in colorectal diseases and neurogenic bowel, discussed the most recent literature data and compared individual centers’ experiences in patients with SB and ARM. Each participant had been working in the field of TAI for more than 5 years.

Results  
A best practice protocol was developed to select patients who would benefit from TAI and to optimize the administration, management, results, and follow-up. The importance of trained staff and patient training is a crucial point in order to increase safety and maintain efficacy in the long-term.

Conclusion  
The increasing TAI indications suggest it should be administered based upon a defined best practice protocol. The careful selection of patients is crucial to avoid drop-outs and inappropriate prescriptions, as well as the follow-up in centers with large experience in pediatric colorectal diseases, are keys to improve the quality of life of incontinent patients.
PW03-08

REDO PULL-THROUGH SURGERY IN HIRSCHSPRUNG’S DISEASE: SHORT TERM CLINICAL OUTCOME

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Aim: Although surgery is effective in most patients with Hirschsprung’s disease (HD), some maintain obstructive symptoms. Additional medical treatment is generally sufficient but a small fraction of these patients need secondary surgery. Series on redo-surgery are scarce. Aim of this study is to evaluate the short-term clinical outcome of patients in need of redo surgery for HD.

Methods: Sixteen patients underwent redo endo-rectal pull-through surgery in our center between 2007 and 2015. Medical records were reviewed and demographics, indication for redo-surgery, surgical procedures, and complications and short-term outcome were scored.

Results: The median age at the time of redo was 4.6 years (range: 2 months-21 years). Median follow up after redo was 3 years (9 months–25 years). Before redo surgery, thirteen (81%) patients had obstructive symptoms, one patient had recurrent entero-colitis, two (13%) were fecally incontinent. Surgical procedure consisted of a transanal endorectal pull-through (TEPT) in all patients, with a laparotomy in 7 (44%) cases, and a protective stoma in 5 cases (31%). Complications after redo surgery were anastomotic dehiscence (2; 13%), wound abscess (3; 19%) and rectovaginal fistula’s (2; 13%). During follow-up there were no patients with stenosis, obstructive symptoms, remaining rectovaginal fistula, or small bowel obstruction. One patient noted entero-colitis. Six patients (38%) reported soiling (grade 2-3).

Conclusion: TEPT for redo surgery for HD is effective in resolving sustained severe obstructive symptoms after primary surgery, but the short-term outcome is complicated by a relatively high rate of soiling.
EVALUATION OF LONG TERM CONTINENCE STATUS OF PATIENTS WITH STRAIGHT ILEOANAL ANASTOMOSIS

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Background: Total colectomy is necessary for treatment of ulcerative colitis (UC), total colonic Hirschsprung's disease (TCHD) and familial adenomatous polyposis (FAP). In recent years, agreeable results are reported for ileoanal anastomosis with or without pouch in children compared to permanent ileostomy as in adults. In this study, we aimed to evaluate long term continence status of patients with straight ileoanal anastomosis.

Patients and method: Hospital records of patients that underwent ileoanal anastomosis between 2004-2014 were reviewed. Demographic characteristics, operation age and postoperative follow-up were evaluated. Long term continence status of remaining 11 patients was assessed according to modified Holschneider scoring system.

Results: Mean operation age of 11 cases (7 UC, 1 FAP and 3 TCHD) was 117(8-228) months. All patients had undergone open total colectomy and straight ileoanal anastomosis except one with laparoscopic approach. Routine nutrition regime and loperamide treatment were commenced in all patients. Three patients required temporary anal dilatation in early postoperative period and laparoscopic bridectomy with stoma revision was necessary in a patient with brid ileus and stoma leak. Mean ileostomy closure time was 4.5 (2-9) months and mean follow-up period was 4.6(1-8) years. Long term continence evaluation revealed good continence in 3, fair continence in 6, and poor continence in 2 patients (Depicted in table below).

<table>
<thead>
<tr>
<th>Frequency of defecation</th>
<th>1-2/days:0</th>
<th>3-5/days:8</th>
<th>&gt;6/days:3</th>
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<tr>
<td>Stool consistency</td>
<td>Normal:8</td>
<td>Loose:1</td>
<td>Liquid:2</td>
</tr>
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<td>Daytime soiling</td>
<td>No:10</td>
<td>Stress:1</td>
<td>Permanent:0</td>
</tr>
<tr>
<td>Nighttime soiling</td>
<td>No:4</td>
<td>Often:2</td>
<td>Very often:5</td>
</tr>
<tr>
<td>Urgency period</td>
<td>Normal:10</td>
<td>Short:1</td>
<td>Absent:0</td>
</tr>
<tr>
<td>Need of therapy for stool control</td>
<td>No:3</td>
<td>Occasionally:0</td>
<td>Continuously:8</td>
</tr>
</tbody>
</table>

Conclusion: Straight ileoanal anastomosis offers fair results in anal continence except nighttime soiling problem which can be diminished to acceptable degree by time with conservative approaches specified for every patient and disease.
LAPAROSCOPY AND LAPAROTOMY IN HIGH ANORECTAL MALFORMATION: SINGLE CENTER EXPERIENCE

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Background: The aim is to analyse the short term outcome of patients needing abdominal approach for the surgical treatment of high anorectal malformation (hARM) in our Centre.

Materials and methods: Surgical and postoperative records of patients treated for hARM from 1st January 2006 to 31st December 2015 have been reviewed.

Results: 20 patients required abdominal approach for hARM. The type of malformation was recto-prostatic fistula (8), recto-vescical fistula (4), cloaca (4), pouch colon (2), cloacal extrophy (1) and ARM without fistula (1). The median age at surgery was 146 days (6F, 14M). We identified three groups according to the procedure: A) laparoscopic (6), B) laparotomic (8) and C) needing conversion (6).

The average operative time was 300 minutes (range 180-480) in A, 493 (360-750) in B and 449 (300-570) in C; the duration of antibiotic therapy was 5,6 days (range 5-6) in A, 8 (7-9) in B and 7,7 (7-10) in C; the duration of analgesia was 4,2 days (range 3-5) in A, 7 (5-8) in B and 7,7 (7-10) in C; the length of stay was 6,8 days (range 6-8) in A, 10,8 (8-16) in B and 12,3 (9-17) in C.

Laparoscopic approach showed significant differences in term of duration of antibiotics (p=0,003), length of pain therapy (p=0,005) and length of stay (p=0,005).

Conclusions: Laparoscopy for high ARM is technically challenging. In our series it offered better short term outcome, it has been useful to assess the anatomical features of complex ARM in those cases needing conversion.
SURGICAL MANAGEMENT OF ANORECTAL MALFORMATIONS IN PATIENTS WITH LUMBAR SYNDROME

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Aim of the Study Evolution, extension and risk of bleeding of pelvic hemangioma in patients with LUMBAR syndrome (Lower-body hemangioma (LBH), Urogenital anomalies, Myelopathy, Bony deformities, Anorectal malformations (ARM), Arterial anomalies, Renal anomalies) are variable. The aim of the study was to provide guidelines for surgical management of ARM in patients with this syndrome.

Methods We describe two cases of LUMBAR Syndrome and review the literature on publications about PELVIS, SACRAL or LUMBAR cases.

Results Two female newborns presented with ARM and developed a pelvic hemangioma. One patient had ARM with recto-vaginal fistula. Ulcerated perineal LBH developed during the first months of life and spontaneously regressed. Colostomy was performed at birth and correction of ARM made once the regression of LBH. No complication occurred at 2 years follow-up. The other patient had anterior anus, no-ulcerated perineal LBH and lumbar skin tag. She had no treatment; LBH had completely disappeared at 3-years follow-up.

Sixty-eight cases of LUMBAR Syndrome were described since 1982 (our patients included); 32 presented ARM associated with LBH (50% ulcerated). Among these cases, the management was described for 19 patients: for ARM, 8 primary colostomies and 8 anoplasties; for LBH, 4 pharmacologic treatments and 3 complete excisions; 5 patients showed a spontaneous regression.

Conclusion The combination of LBH to ARM modifies the classical surgical management of ARM. A preoperative evaluation of LBH extension is indicated to define the bleeding risk. Caution is recommended in care and timing of surgery, preferring temporary colostomy and treatment of LHG before correction of ARM to benefit from optimal cicatrization.
**PW03-12**

**SMALL BOWEL OBSTRUCTION DUE TO ANOMALOUS CONGENITAL BANDS IN CHILDREN**

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*Istanbul University, Istanbul Medical Faculty, Department of Pediatric Surgery, Istanbul, Turkey*

**Introduction:** The aim of the study was to evaluate our children who are operated for anomalous congenital band while increasing the awareness of this rare reason of intestinal obstruction in children which causes a diagnostic challenge.

**Patients and Methods:** We retrospectively reviewed the records of fourteen children treated surgically for intestinal obstructions caused by anomalous congenital bands.

**Results:** The bands were located between the following anatomical regions: the ascending colon and the mesentery of the terminal ileum in 4 patients, the jejunum and mesentery of the terminal ileum in 3 patients, the ileum and mesentery of the terminal ileum in 2 patients, the ligament of Treitz and mesentery of the jejunum in one patient, the ligament of Treitz and mesentery of the terminal ileum in one patient, the duodenum and its mesentery in one patient, the ileum and mesentery of the ileum in one patient, the jejunum and mesentery of the jejunum in one patient, and Meckel’s diverticulum and its ileal mesentery in one patient. The obstructions were caused by one of three mechanisms. The obstructive mechanisms were compression of the bowel by the band in eight patients (57.1 %), partial volvulus in four patients (28.6%), and entrapment of an intestinal loop between the band and mesentery in two patients (14.3 %). Band excision was adequate in all of the patients except the two who received resection anastomosis for intestinal necrosis.

**Conclusion:** Although congenital anomalous bands are rare, they should be considered in the differential diagnosis of patients with an intestinal obstruction.
EARLY RESULTS WITH THE MILLARD-MOHLER-FISHER MODIFICATION OF PRIMARY UNILATERAL CLEFT LIP REPAIR

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**Background:** The presence of unilateral cleft lip (UCL) is one of the most common congenital deformities. UCL involves deformity of the lip in addition to the alveolus and nose. The Millard-Mohler-Fisher modification of primary unilateral cleft lip repair (UCLR) incorporates the principles of rotation-advancement technique, anatomical subunit approximation and philtral and vermilion length adaptation on both cleft and non-cleft sides. Our aim was to design this study to evaluate our early experiences with this novel technique.

**Methods:** The hospital records of 25 consecutive patients who had UCLR by the same surgeon between January 2014 and December 2015 were retrospectively examined. Our schema for the management of unilateral cleft lip and palate (UCLP) is shown in Figure. Early cosmetic and functional results were collected.

**Results:** Mean follow-up time was 230 days (32 days-579 days). Patient’s characteristics are shown in Figure. Operations were uneventful (Figure) and oral intake was introduced 4-6 hours postoperatively in all cases. 22 of 25 patients were discharged on the 1st and three patients on the 2nd postoperative day. No complication was experienced on the regular 1-week and 1-month follow-up. Satisfactory cosmetic and functional results were detected in all cases.

**Conclusion:** This surgical technique has proven to be appropriate and could be adapted to close all the unilateral cleft lips in our study. This procedure combines the advantages of well-defined, widespread approaches and has shown very good early postoperative results in our institute. However, larger patients group, objective anthropometric evaluation and longer follow-up period are necessary to draw major consequences.
ANATOMIC AND STRUCTURAL CARDIAC CHANGES IN CONGENITAL DIAPHRAGMATIC HERNIA IN THE RABBIT MODEL

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Aim: Congenital diaphragmatic hernia (CDH), besides pulmonary, can be considered a cardiac disease. Due to the anatomical abnormalities on arterial pulmonary vessels, producing increased afterload, the right ventricle (RV) can be structurally affected. Herniated viscera of left CDH, mostly liver, cause a compressive mechanical effect on the left ventricle (LV). We hypothesize that both right and left cardiac sides are anatomically affected in severe CDH. Our aim was to test this hypothesis in a fetal rabbit model.

Methods: IACUC#2013-0294. Left CDH was surgically created in New-Zealand rabbit fetuses on day E25 and harvested on day E30. CDH pups were compared to sibling controls (n=6 per group). Body, total lung, and heart weights and their ratios were measured (BW, TLW, HW, TLBR, HBR). Cardiac ventricle histometric analysis was performed in both heart sides.

Results: All CDH neonates showed liver-up. TLW and TLBR were decreased in CDH (p<0.0005). BW, HW and HW/BW were not significantly different between both groups. Wall thickness, inner area, and perimeter in LV were smaller in CDH than controls (p<0.005). RV showed higher values than LV in CDH hearts (p<0.005). RV wall thickness was smaller in CDH than controls (p<0.005), whereas RV inner area and perimeter appeared higher (p<0.05). (Figure).

Conclusion: Severe CDH with liver herniation showed hypoplastic left ventricle and dilated and thinner wall RV in this fetal rabbit model. These cardiac changes could be explained by the mechanical compressive effect of the hernia in the left ventricle, and by the RV afterload related to pulmonary hypertension.
IMPACT ON THE EPITHELIAL BARRIER OF AN INDUCED RECTAL AGANGLIONNOSIS IN A LARGE ANIMAL MODEL

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Objectives and study: Pathogenesis of Hirschsprung’s associated enterocolitis remains unclear. Our objective was to develop a model of rectosigmoid aganglionnosis to study barrier function in a model close to human physiology.

Methods: We implemented a surgical model of benzalkonium chloride (BAC) application on the rectosigmoid. After ethical approval, piglets were operated on at day 5. Application of either 0.5% BAC solution (BAC group) or saline solution (PHY group) around rectosigmoid was performed for one hour. Piglets were sacrificed 7 or 21 days later. Impact of BAC application and denervation on epithelial permeability (Ussing chamber) was studied. We used 2 way ANOVA for statistical analysis. Data are given in mean.

Results: 23 piglets were included: 12 BAC and 11 PHY. In BAC piglets, myenteric plexus aganglonnosis was noted on 34% and 28% of rectum circumference at day 7 and day 21 respectively. Transcellular permeability did not change with age in PHY piglets whereas it increased significantly within BAC piglets between day 7 and day 21 (p=0.015), resulting in greater transcellular permeability at D21 in BAC piglets (p=0.017). Similarly, paracellular permeability decreased with age in PHY piglets but not in BAC ones, resulting in greater paracellular permeability in BAC piglets at day 21 (p=0.001).

Conclusion: Our study presents a promising large animal model of reproducible partial denervation of the rectosigmoid myenteric plexus. This aganglonnosis causes major changes of the intestinal barrier that could explain enterocolitis onset in Hirschsprung’s disease (HD). This large animal model could be of interest to study stem cell transplantation therapy in HD.
PW04-05

PAEDIATRIC LAPAROSCOPIC SURGEONS: BORN OR MADE? PRELIMINARY RESULTS OF A LEARNING CURVE STUDY

Giuseppe Retrosi¹, Simon Clarke², Thomas Cundy³, Camilla Fedele¹, Erika Adalgisa De Marco¹, Laura Merli¹, Munther Haddad², Lorenzo Nanni¹

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Aim of the Study: To identify different learning curve patterns in paediatric laparoscopy.

Methods: Eleven participants with limited experience in laparoscopy were enrolled to perform 10 repetitions of the object transfer task on a paediatric laparoscopic simulator. Participants’ skills were assessed using motion analysis software. Assessment criteria were task completion time and instruments total path length. Proficiency level was established by testing experienced paediatric laparoscopic surgeons. Learning curves patterns were analysed using Friedman ANOVA test.

Main Results: We identified 3 distinct learning curve patterns. Participants in Group 1 (45%, n=5) achieved pre-defined expert criteria between their 2nd and 9th repetition, and demonstrated significant learning curves for task completion time (p=0.002) and total path length (p=0.018). Participants in Group 2 (36%, n=4) achieved improvement but failed to reach proficiency standard and did not demonstrate significant learning curves for both metrics (p=0.380 and p=0.873). Participants in Group 3 (19%, n = 2) failed to achieve iterative skill improvement and did not demonstrated significant learning curves (p=0.463 and p=0.105), reflecting a group of subjects who probably are unable to learn laparoscopy.

Conclusion: Paediatric laparoscopic surgeons are made not born. The majority of participants were able to improve their performance during the training sessions. Some subjects showed more natural talent and they achieved the proficiency level in less than 10 repetitions, while some other participants were less able to perform and they never achieve the proficiency level. Further research is required to address this issue.
THE LIPOFIBROBLAST CELL LAYER SURROUNDING THE LARGE AIRWAYS IS AFFECTED BY REDUCED MIR-200B EXPRESSION IN NITROFEN-INDUCED ABNORMAL LUNG DEVELOPMENT AND CDH

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University of Manitoba and Children’s Hospital Research Institute of Manitoba, Winnipeg, Manitoba, Canada

Introduction: Abnormal lung development in congenital diaphragmatic hernia (CDH) is poorly understood. We previously discovered that microRNA miR-200b is down-regulated in early nitrofen-induced hypoplastic lung development and upregulated in late human CDH lungs. miR-200b expression was most decreased in the cell layer surrounding the large developing airways. Here, we aim to identify which cells in this layer surrounding the large airways is associated with the observed lower miR-200b expression in nitrofen-induced abnormal lung development.

Methods: We used the nitrofen model of abnormal lung development and CDH, and isolated E18 and E21 control and nitrofen-induced hypoplastic lungs. We processed the lungs and then combined miR-200b in situ hybridization with alpha-smooth muscle actin (a-SMA, identifying airway smooth muscle cells) or adipose differentiation-related protein (ADRP, identifying lipofibroblasts) immunohistochemistry.

Results: miR-200b expression was most reduced in the mesenchymal cell layer surrounding the large airways in nitrofen-induced hypoplastic lungs at E18. ADRP abundance was reduced in the same cell layer, whereas a-SMA abundance was unchanged when compared to control lungs both at E18 and E21.

Conclusion: Our results suggest that lipofibroblasts surrounding the large airways are affected by reduced miR-200b expression in nitrofen-induced abnormal lung development. This will help us better target prenatal therapies using miR-200b to prevent the abnormal lung development associated with CDH in future studies.
INHIBITION OF NETOSIS SIGNIFICANTLY REDUCES INTESTINAL DAMAGE AFTER MIDGUT VOLVULUS IN RATS

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¹Department of Pediatric Surgery, UKE Medical Center, Hamburg, Germany, ²Institute of Clinical Chemistry and Laboratory Medicine, UKE Medical Center, Hamburg, Germany

Introduction: Midgut volvulus in neonates and children leads to considerable morbidity and mortality. Thrombosis and inflammation are believed to play a major role in the development of intestinal infarction. It was hypnotized that these thrombi are NETs dependent (neutrophil extracellular traps) and that inhibition of NETosis would reduce intestinal damage.

Methods: Nineteen rats were utilized for the study. In three rats a sham procedure was performed. In sixteen iatrogenic midgut volvulus was induced for 3 hours. The rats received DNase1 (treatment group) or Ca²⁺-solution (controls). Intestinal damage was accessed via Chiu score and TUNEL assay, oxidative stress via GSH and MDA, neutrophil recruitment via MPO, neutrophil extracellular trap formation via pDNA.

Results: Sixteen rats survived midgut volvulus (3/3 sham, 6/8 controls, 8/8 DNase1). Treatment with DNase1 showed significantly less intestinal damage and significantly reduced oxidative stress than controls.

Conclusion: The study highlights the importance of NETs in the establishment of intestinal IR injury. NET formation could be blocked by inhibiting NETosis, thereby ameliorating intestinal IR pathology. Modulation of intravascular coagulation for the treatment of midgut volvulus ought to be evaluated in Humans.
CARDIAC TROPONINS AS A POTENTIAL EARLY MARKER OF PULMONARY HYPERTENSION IN CONGENITAL DIAPHRAGMATIC HERNIA IN RABBIT MODEL

Rebeca Figueira1, Lourenço Sbragia1,2, Federico Scorletti1, Mehmet Arslan3, Marc Oria1, Jose L. Peiro1
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Aim: Pulmonary hypertension and related alterations on right heart function has been associated to the high mortality rate in neonates with congenital diaphragmatic hernia (CDH). Due to the anatomical abnormalities on arterial pulmonary vessels, producing increased afterload, the right ventricle (RV) can be structurally affected. Cardiac troponin I (cTnI), and T (cTnT) are biomarkers of myocardial damage. We hypothesize that RV myocardium may express these marker in severe CDH during gestation. Therefore, our aim was to evaluate the cardiac troponins in a fetal rabbit model.

Methods: IACUC#2013-0294. CDH was surgically created in New-Zealand rabbit fetuses on day E25 and harvested at term on day E30. CDH pups were compared to sibling controls (n=10 per group). Body, total lung, and heart weights and their ratios were measured (BW, TLW, HW, TLBR, HBR). RV troponins in myocardial tissue were determined by immunofluorescence and western blot (WB).

Results: BW, HW and HW/BW were not significantly different between both groups. TLW and TLBR were decreased in CDH group [(0.763±0.162 vs 0.489±0.134) and (0.019±0.031 vs 0.013±0.002) (p<0.0005), respectively]. Troponins cTnI and cTnT of RV myocardium were higher expressed in CDH group than controls [(0.564±0.293 vs 1.269±0.463) and (0.570±0.224 vs 0.901±0.236) (p<0.005)] respectively, in WB (Figure) and immunofluorescence.

Conclusion: Tissue troponins were higher expressed in RV myocardial tissue in neonatal CDH pups. These findings may represent early myocardial suffering by RV afterload related to pulmonary hypertension.
Aim of the study. Intestinal atresia is a rare congenital disorder characterized by the interruption of intestinal continuity. Despite surgical treatment, severe intestinal dysmotility leading to bacterial translocations occurs in about one-third of cases. Previous studies mainly focused on enteric nervous system (ENS) alterations. We hypothesized that other components of the digestive tract could be involved in this intestinal dysfunction. Our aim was to investigate the whole intestinal components using an innovative transcriptomic approach in this pathological condition.

Methods. Preliminary transcriptomic approach was elected to screen global gene expression involved in intestinal maturation and atresia-linked disorders. Intestinal interruption was assessed using a rat model (ethical approval) of surgically induced atresia (ligature of E17 rat embryos). Global gene expression was studied upstream and downstream to atresia (E21, n=9), and on control intestines at different stages of maturation (between E15 and E21, n=12). In order to understand the molecular mechanisms involved on this dysgenesis, targeted approach was used to identify specific markers including epithelial, muscular, nervous and endocrine intestinal tissues. These results were confirmed using IHC and RT-qPCR methods.

Main results. Gene expression varies more upstream than downstream with a redistribution of neuronal subtypes and an increase of epithelium markers, particularly those of glandular cells. No differences were found concerning apoptosis and proliferation.

Conclusions. These results suggest global changes between segments on both sides of the obstruction involving ENS but also intestinal epithelium. The most relevant changes concern the proximal segment and favour the role of epithelial cells more than ENS immaturity.
THE COMPLEX TREATMENT OF CLEFT LIP AND PALATE IN CHILDREN WITH GENETIC SYNDROMES

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Aim. Although majority of facial clefts are isolated developmental anomalies, genetical aspects of cleft lip (CL), cleft lip and palate (CLP), cleft palate only (CPO) are well documented. The aim of this study was to analyse the treatment of the syndromic patients of a cleft team in a 15 years period (1999-2014). Did the algorithm - used in the complex treatment of clefts - change in patients who had syndromes?

Patients and methods. Data of the patients, treated by a cleft team between 1999 and 2014, were obtained. These included the surgical and genetical documentation as well. Epidemiology data from the national registry of birth were also used.

Results. Six hundred and seven patients were treated by the cleft team during the given period. Among these patients 25 (4,1 %) were found to have associated anomalies. Sixteen patients (2,63 %) were identified as having a particular syndrome. Eight different syndromes occurred, Pierre Robin syndrome represented 50% of this cohort. Majority (81 %) of the syndromic patients had CPO, while in 19 % CL and CLP occurred. In 3 patients the usual treatment algorithm was followed, while in 13 patients the algorithm had to be modified. Fifteen surgical intervention were performed due to associated anomalies. Velopharyngeal insufficiency (VPI) occurred in 30% of patients. Ten secondary operations (37,5%) were required in 6 patients due to cleft lip and palate during the given period.

Conclusion. Genetic syndromes significantly affect the treatment algorithm in children born with cleft lip and palate. The surgical treatment of associated anomalies have priority over the reconstruction of cleft lip and palate. CPO and VPI are more common in syndromic cleft patients.
PW04-11

IMPACT OF A DEDICATED PRENATAL DIAGNOSIS AND COUNSELLING SERVICE ON THE SURGICAL ACTIVITY OF A DEPARTMENT OF NEONATOLOGY

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Aim of the study: Prenatal diagnosis is available for a growing number of disorders, usually complex. Our aim was to evaluate the prevalence of prenatally diagnosed surgical disorders in patients admitted in a Department of Medical and Surgical Neonatology (DMSN) with both medical and surgical facilities. In addition, the impact of a dedicated prenatal diagnosis service on its surgical activity was analysed.

Methods: Retrospective study on all patients consecutively admitted in our third level DMSN between January 2011 and December 2015. Overall prevalence of surgical disorders (not cardiac nor neurosurgical disorder), proportion of surgical disorders detected prenatally, and proportion of surgical disorders detected prenatally referred from our own dedicated prenatal diagnosis service was determined.

Results: During the study period we admitted 3633 patients, 1513 (42%) had surgical disorders, 620 (41%) of whom had disorders detectable prenatally. Among the latter, 410 (66%) were diagnosed prenatally. Of prenatally detected patients, 329 (80%, 66/year) came from our dedicated prenatal diagnosis service.

Conclusions: A huge proportion of patients admitted in our multidisciplinary third level DMSN have a surgical disorder. Over 40% of surgical patients have a prenatally detectable disorder, which is actually detected prenatally in 2/3 of them. Most of prenatally detected surgical disorders are directly referred from our own prenatal diagnosis service. A dedicated multi-specialist prenatal diagnosis service may function as “scouting” service to recruit patients with complex congenital abnormalities, while offering a safe harbour to parents waiting for their childbirth.
TREATMENT OF HIRSCHPRUNG’S DISEASE IN SLOVENIA IN YEARS 2010 - 2015

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Objective: Hirschsprung’s disease is one of the common causes of intestinal obstruction in neonates. Transanal endorectal pull-through (TEPT) represents the golden standard in the concept of the minimally invasive surgery for Hirschsprung’s disease. In this study, we present our experience with TEPT. We retrospectively reviewed all patient cases that were treated for Hirschsprung’s disease in Slovenia from January 2010 to January December 2015.

Material and Method: 25 children who presented with Hirschsprung’s disease in Slovenia were studied. Follow up period ranged from 3 months to 5 years. One child was excluded from our study due to unfinished treatment of a very long segment Hirschprung’s disease at the time of the study.

Results: A total of 24 patients, 19 males (79%) and 5 females (21%) aged 23 days to 13 years (mean 11.8 months), were operated over a 60-month period. In all children we were able to do a TEPT, in 8 children there was a need for transabdominal mobilisation and resection. The mean length of the resected aganglionic segment was 15.9 cm; the shortest segment was 7 cm and the longest 53 cm. The postoperative hospital stay was on average 15 days, oral feeding was started at 1 - 4 days, the first bowel movement was at 1 - 8 days. Two patients had a constipation problem that resolved with medical treatment. Two patients needed ileostomy for anastomosis leakage and one child had inflammation of the wound after occlusion of colostomia. None of the patients had a continence problem. No urethral damage was observed and there were no abscesses at the muscular cuff. We observed that mucosal dissection was more difficult in the rectal biopsy area.

Conclusion: Advancement in pediatric anaesthesia, availability of pediatric surgical expertise, improvement in pre-operative and post-operative management and nursing care has made transanal pull-through to be a feasible option in all children from neonates to older children.
CAN EARLY POSTOPERATIVE DOPPLER ULTRASOUND PREDICT THE LONG-TERM STATUS OF DETORSIONED TESTIS?

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Background: Approach for detorsioned testis with uncertain viability after testis torsion is controversial. Decision-making in orchiectomy is a dilemma for surgeon. In this study, evaluation of long-term results of detorsion and fixation of testicular torsion is aimed.

Patients and method: Hospital records of patients with testicular torsion (n=33) who had undergone detorsion and bilateral fixation were reviewed. Age, symptoms and duration and operative findings as well as preoperative and early (<24 hours) postoperative Doppler ultrasound (DUS) and long-term examination and DUS findings are evaluated. Patients were grouped into 3 groups according to testicular flow detected on DUS in early postoperative period (Normal Group 1, uncertain Group 2, no testicular flow Group 3). Groups were then compared in terms of duration of symptoms, long-term (>6 months) scrotal examination and DUS findings.

Results: Median age of patients was 14 (5 days-17) years. Majority of symptoms were scrotal pain in 28, swelling in 15 and scrotal hyperemia in 7 patients. Torsion was more common on left side (21/33, 63.6%). All but one (newborn) torsion was intravaginal. Findings of scrotal examination and long-term DUS in a mean period of 39 (7-100) months are depicted in table below.

<table>
<thead>
<tr>
<th></th>
<th>Group1 (n=24)</th>
<th>Group2 (n=4)</th>
<th>Group3 (n=5)</th>
<th>Total (n=33)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean duration of symptoms(Hours)</td>
<td>23(1-72)</td>
<td>33(12-48)</td>
<td>127(48-336)</td>
<td>38.8</td>
</tr>
<tr>
<td>Median degree of torsion</td>
<td>360°(90-1080°)</td>
<td>540°(360-720°)</td>
<td>720°(180-720°)</td>
<td>450°</td>
</tr>
<tr>
<td>Testicular atrophy on examination</td>
<td>8/24</td>
<td>4/4</td>
<td>5/5</td>
<td>17/33</td>
</tr>
<tr>
<td>Testicular flow(+) on long-term DUS</td>
<td>11/11</td>
<td>1/3</td>
<td>0/1</td>
<td>12/15</td>
</tr>
<tr>
<td>Ipsilateral pathology on long-term DUS</td>
<td>3/11</td>
<td>3/3</td>
<td>0/1</td>
<td>6/15</td>
</tr>
<tr>
<td>Contralateral pathology on long-term DUS</td>
<td>4/11</td>
<td>1/3</td>
<td>0/1</td>
<td>5/15</td>
</tr>
</tbody>
</table>

Conclusion: Detection of testicular flow on early postoperative DUS can't guarantee testicular well-being in long-term. Long-term testicular atrophy seems to correlate with duration of symptoms and degree of torsion. Long-term follow-up is necessary in these patients due to possibility of developing additional pathologies.
URINARY BIOMARKERS FOR PEDIATRIC APPENDICITIS

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Aim of the study: To evaluate novel biomarkers in urine and to use the most promising biomarker in conjunction with the Pediatric Appendicitis Score (PAS), to see whether this could improve the accuracy of diagnosing appendicitis.

Methods: A prospective study of children with suspected appendicitis was conducted with assessment of PAS, routine blood tests, and measurements of four novel urinary biomarkers: leucine-rich a-2-glycoprotein (LRG), calprotectin, interleukin 6 (IL-6), and substance P. The biomarkers were blindly determined with commercial ELISAs. Urine creatinine was used to adjust for dehydration. The diagnosis of appendicitis was based on histopathological analysis. The study was approved by the Regional Ethical Review Board (registration number 2013/614).

Main results: Forty-four children with suspected appendicitis were included of which 22 (50%) had confirmed appendicitis. LRG in urine was elevated in children with appendicitis compared to children without, 0.08 and 0.01 g/mol, respectively (p < 0.001), and was higher in children with gangrenous and perforated appendicitis (0.2 g/mol) compared to those with phlegmonous appendicitis (0.06 g/mol) (p = 0.003). No statistical significances between groups were found for calprotectin, IL-6 or substance P. LRG had a receiver operating characteristic area under the curve of 0.86 (95% CI: 0.79–0.99), and a better diagnostic performance than all routine blood tests. LRG in conjunction with PAS showed 95% sensitivity, 90% specificity, 91% positive predictive value, and 95% negative predictive value.

Conclusion: LRG is a promising novel urinary biomarker for appendicitis in children. LRG in combination with PAS has a high diagnostic performance.
PW05-03

THE ROLE OF LAPAROSCOPIC SLEEVE GASTRECTOMY IN PEDIATRIC PATIENTS WITH SECONDARY OBESITY

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Aim of the study: Laparoscopic sleeve gastrectomy (LSG) is gaining credibility as a simple and efficient bariatric procedure with low surgical risk also in children. Aim of this study is to evaluate the effectiveness of LSG in pediatric patients with secondary obesity.

Methods: From November 2012 to September 2015, 10 patients with mean age 15.2 years (range 8 – 19) underwent LSG. Seven patients were male (7/3:M/F). Eight had Prader-Willi Syndrome (PWS), 1/10 had Bardet-Biedel Syndrome (BBS) while the last one had mental retardation. Five patients had nocturnal sleep apnea, 3 patients diabetes. Indication for surgery was: BMI > 40 Kg/m2 with severe comorbidities or BMI > 50 Kg/m2 with mild comorbidities.

Main Results: Mean pre-op weight was 115.1 ± 27.2 Kg (Range 65–140 Kg). Mean pre-op BMI was 45.6 ± 4.3 (range 41.8–50.5). Mean Follow-up was 16 months (range 6–26 months). Post-op mean weight was 91.5 ± 24.8. The difference between pre and post-op values was statistically significant (p<005). Post-op mean BMI was 37.1 ± 8.1 the difference between the 2 groups was statistically significant (p<005). Mean operative time was 74 minutes (range 72–138 min). Mortality was 0%. There were no post-operative complications or deaths. All comorbidities resolved or improved. A consistent reduction of the hunger was reported in 9 out of 10 patients.

Conclusions: Our data support the role of LSG in achieving a significant weight/BMI reduction as a stand-alone bariatric operation also in secondary obesity determining a substantial reduction of the hunger. Appropriate patients selection and close collaboration with parents/caregivers are essential.
EARLY POSTOPERATIVE PARENTERAL NUTRITION IN APPENDICULAR PERITONITIS

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Aim of the Study: The protein hypercatabolic state in postoperative patients can be minimized by an effective nutrition therapy. We conducted a study to evaluate the benefits of early parenteral nutrition (EPN) assessing its effect on nutritional parameters and clinical relevance in the postoperative of appendicular peritonitis.

Methods: Prospective randomized study from 2012 to 2015, in patients undergoing surgery for appendicular peritonitis in which nothing by mouth was anticipated for a period ≥ 3 days. Blood tests were performed assessing nutritional parameters in the 1st and 5th postoperative day. After extraction of the first sample, 2 groups were created: starting EPN in group A and standard fluid therapy in group B. Informed parental consent prior to the study inclusion was obtained.

Main Results: Forty-two patients were included, 16 in group A and 26 in group B. In the first analysis all had decreased levels of prealbumin and retinol binding protein. On 5th day, 50.0% of group A normalized prealbumin levels compared to 11.5% of B (p: 0.009, EF=77%) whereas retinol binding protein was normalized in 62.5% and 34.6%, respectively (p: 0.7 EF=44%). Three patients in group A (18.7%) had postoperative infectious complications compared to 8 in B (30.7%), differences no statistically significant but clinically relevant (NNT=8.36), since the latter showed low prealbumin levels and longer hospital stay. No complications related to EPN were detected.

Conclusion: Administration of EPN in postoperative of appendicular peritonitis appears to be safe and beneficial for recovery, being prealbumin an early indicator of good nutritional response.
THE ASSOCIATION BETWEEN EARLY LACTATE CLEARANCE AND MORTALITY IN SURGICAL AND MEDICAL NEONATES. A RETROSPECTIVE COHORT STUDY

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Aim of the study: Early lactate clearance is an important prognostic marker and treatment target in critically ill patients. Its value in neonatal intensive care unit (NICU) is not well defined. Aim of the study is to define the utility of the lactate clearance within the first 24 hours after admission as an indicator of outcomes in medical and surgical neonates.


Results: 715 patients were included with mean GA 35.1±4.9, birth weight 2.4±1.1 kg and in-hospital mortality rate 2.7%. 99/715 (13.8%) were surgical neonates with a significantly higher in-hospital mortality (5.1%). 6.9% of the surgical neonates had lactate >4mmol/L at admission compared with 2.1% in the medical group. There was a 40% decrease likelihood of mortality in the surgical neonates reaching a significant lactate clearance at 24-hours from admission. 40% of the neonates affected by Necrotizing Enterocolitis (NEC) had a lactate at admission >4mmol/L with an overall 8% mortality rate. There was a 60% decrease likelihood of mortality in infants with NEC and significant 24-hours lactate clearance. Clearance of lactate was not associated with LOS in medical or surgical neonates.

Conclusions: Lactate clearance within the first day after admission is associated with a significant decreased mortality in surgical neonates, especially when affected by NEC.
Early Detection of Necrotizing Enterocolitis Following Operation for Congenital Intestinal Malformations by Intestinal Fatty Acid Binding Protein: A Prospective Observational Study

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Aim. We sought to determine if intestinal fatty acid binding protein (iFABP) can serve as a biomarker for NEC in infants after surgery for congenital malformations of gastrointestinal tract (CMGiT).

Methods. Neonates admitted between 2012 and 2014 to the Pediatric Surgery Department for CMGiT were included in our prospective observational case control study. The study was approved by the local medical ethics committee, informed consents were signed. Urine samples were gathered every 6 hours for 48 hours after the surgery and again in the same time table from the moment of NEC suspicion. Results are presented as mean [SD] and compared by Kruskal-Wallis and Mann Whitney test, p<0.05 significant.

Results. A total of 259 neonates were operated for CMGiT between 2012-2014 in our department. Those with complete data were included to the study (n=232). The dynamics of iFABP values in the first 48 hours after the surgery was described. In 12th hour after surgery iFABP decreased to level of 2.47pg/nmol [SD1.15]. 26 infants were suspicious of NEC after surgery, NEC was proved in 10, sepsis was proved in 16 infants. IFABP in the first 12-hour sample significantly discriminates NEC infants from matched controls (10.82 [SD10.8] vs. 2.52 [SD1.5] pg/nmol, p<0.05, sensitivity 81%, specificity 100%, PPV100%, NPV69%) and is significantly different from those with sepsis (1.89pg/nmol [SD2.89], p≤0.05, sensitivity 81%, specificity 100%, PPV100%, NPV67%).

Conclusions. IFABP can serve as an accurate biomarker for NEC in infants later than 12 hours after surgery for congenital malformations of GIT.
ADVANTAGES OF OPERATING ON A NEWBORN WITH NECROTIZING ENTEROCOLITIS BEFORE AN INTESTINAL PERFORATION: NONE

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Aim of the study. The perfect time to operate on a patient with necrotizing enterocolitis (NEC) remains controversial. The aim of this study is to evaluate which factors are associated with intestinal perforation and to assess if operating on these patients before the intestinal perforation improves their outcome.

Methods. We conducted a retrospective study of 46 patients with NEC operated on between 2012 and 2015. We divided our patients in two groups according to the operative findings: those with intestinal perforation (40 patients) and those without intestinal perforation (16).

We reviewed risk factors, clinical, radiological, intraoperative and postoperative findings. We also evaluated the postoperative outcome, such as when intestinal transit was recovered, when enteral nutrition was restarted, intubation days, local complications, reoperations and mortality.

For the analysis we used Pearson chi-square test and Mann-Whitney test.

Main results. Blood in stool was more frequent in the group of perforated patients (36% versus 6%, p=0.025), and ectopic air only was found in perforated patients (30% vs. 0%, p=0.015).

There were no more differences in both groups except for the necessity for intestinal resection: 73.3% in the perforated patients Vs 25% in the non-perforated patients (p=0.02). Patients with intestinal resection didn´t have short bowel syndrome.

Only non-perforated patients presented intestinal stenosis as complication (18% vs. 0%, p=0.016)

Conclusions. In our experience, operating on a patient with NEC before intestinal perforation has not showed to improve the patient’s outcomes. Although those patients needed bowel resection more frequently, it was not associated with short bowel syndrome.
IMPACT OF SURGICAL INTERVENTION FOR SURVIVAL RATE AND HOSPITAL DISCHARGE RATE OF INFANT WITH TRISOMY 18

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Aim: The aim of this study is to examine the influence of surgical intervention (SI) to the survival rate and the hospital discharge rate of infants with trisomy 18.

Method: A retrospective chart review of 89 patients born in or transferred to our institution with trisomy 18 between January 2000 and December 2015 was done. Patients divided into two groups, patients who received surgical interventions (Group SI, n=46) and patients who did not receive any surgical interventions (Group NSI, n=43). This study was approved by our institutional review board (R27-23).

Result: The median overall survival time and the 1-year survival rate were 157 days (range 1.5 hour to 5-year-5-month) and 30.0% (27/60) respectively. The survival rate was significantly higher among female infants than male (p=0.0014). Survival was longer for births after 37 weeks compared with those before 36 weeks (p=0.0099). All patients except one case had major cardiac anomalies, and 24 cases of them underwent palliative operation. Twenty-two cases had esophageal atresia (EA), and presence of EA was associated with mortality (p=0.038). Thirteen cases of patients with EA underwent palliative operation and 2 cases underwent definitive operation. Overall hospital discharge rate was 39.8%, and it was significantly higher in Group SI than in Group NSI (p=0.0005). In the most recent 5 years, 1-year-survival rate and hospital discharged rate in Group SI, achieved 59.3% (19/32) and 66.7% (22/33), respectively.

Conclusion: Surgical intervention can provide improvement of overall survival rate and hospital discharge rate in trisomy 18.
**PW05-09**

**WHAT PRENATAL ULTRASOUND FACTORS ARE PREDICTABLE OF COMPLEX OR VANISHING GASTROSCHISIS?**

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**Aim of the study:** to evaluate prenatal ultrasound features as prognostic factors for complex and vanishing gastroschisis.

**Methods:** retrospective multicentric study of 200 gastroschisis over 13 years (2000-2013). No IRB approval was mandatory for this retrospective study. Collection of prenatal ultrasound evaluation of foetal growth parameters, intra- and extra-abdominal bowel dilation, abdominal wall defect diameter and changes in bowel appearance. Correlation of these factors with the presence of mechanical intestinal complications at birth, named “complex gastroschisis”.

**Main results:** 52 patients (26%) had complex gastroschisis, including 10 vanishing gastroschisis. The presence of an intra-abdominal dilation at the 2nd and/or 3rd trimester ultrasound was predictive for complex gastroschisis (odds ratios at 6.69 and 4.72 respectively), with a cut-off value at the last exam at > 19 mm (sensitivity (Ss) 64%, specificity (Sp) 88%, positive predictive value (PPV) 82%, negative predictive value (NPV) 75%). A small abdominal wall defect diameter was predictive for complex gastroschisis too, with cut-off values at < 9.2 mm at the 2nd trimester (Ss 64%, Sp 75%, PPV 43% and NPV 88%) and < 12.5 mm at the 3rd trimester (Ss 50%, Sp 84%, PPV 58%, NPV 79%). Vanishing gastroschisis recorded earlier intra-abdominal dilation diagnosis, since the 2nd trimester exam, associated with a small wall defect and no extra-abdominal dilation.

**Conclusion:** Intra-abdominal bowel dilation and a small abdominal wall defect diameter accurately predict complex gastroschisis, and could be a first sign of vanishing gastroschisis when they occur early and are associated with the absence of extra-abdominal bowel dilation.
THE ROLE OF FDG-PET/CT FOR THE ASSESSMENT OF TREATMENT EFFICACY IN PEDIATRIC MALIGNANCIES

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Aim of this Study. The indication of 18-F-FDG-PET/CT as nonspecific tumor preparation has been expanded in pediatric malignancies. However, the role of FDG-PET-CT as a clinical assessment of response to therapy has not been established. This study investigates the correlation between FDG-PET uptake and pathological features of the residual tumor after chemotherapy.

Methods. This is a retrospective review of the records of children diagnosed with malignant disease including positive FDG-PET-CT scan before any therapy. Patients with post-chemotherapy CT scan showing residual tumor, who underwent FDG-PET-CT and resection of the residual tumor, were included in this study.

Main Results. Eight patients diagnosed with various pediatric malignancies (3 rhabdomyosarcomas, neuroblastoma, hepatoblastoma, Burkitt lymphoma, undifferentiated sarcoma, testicular tumors invaded by ALL) eligible for this study. Nine times evaluations of residual tumors after chemotherapy performed using FDG-PET-CT and pathological finding from excised tumors. In 7 out of 9 evaluations, FDG-PET uptake correlated to the pathological finding. Histological examination revealed false negative and false positive FDG-PET uptake respectively. The patient with false negative FDG-PET uptake was given additional intensive chemotherapy.

Conclusion. Although FDG-PET-CT is potentially valuable for therapy response assessment of pediatric malignancies, FDG-PET uptake sometimes shows discrepancy from the pathological feature. To establish the role of FDG-PET-CT for evaluating the treatment efficacy, further investigation must be continued.
PW05-11

A NEW SIMPLIFIED SCORING SYSTEM FOR ACUTE APPENDICITIS IN CHILDREN
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Aim: Creating new, simplified scoring system (SS) that can improve diagnosing acute appendicitis (AA) in hospitals with limited diagnostic tools available.

Method: After getting Ethical Committee approval, prospective study included overall 200 patients, divided in 2 groups: group I (n= 100) children with abdominal pain treated non-operatively, and group II (n=100) patients operated on due to AA. There were 21 parameters investigated: abdominal pain, vomiting, fever, 12 physical signs for AA (Mac Burney, Bloumberg, Grassman, Ben Asher, Rovsign, Rosenstein, Obturator, Owing, Markle, Psoas, Lanz-Horn, Giordano), 9 laboratory tests (leukocyte count - Le, neutrophile percentage - N, neutrophile/lymphocyte ratio - N/L, mean platelet volume - MPV, C reactive protein, procalcitonine). Logistic regression analysis was done to determine association of investigated parameters and AA. After creating a new SS, prospective analysis on 60 patients was carried out to assess its clinical utility. Also, in those patients Alvarado and Pediatric Appendicitis Score (PAS) were calculated and compared to our SS.

Results: Of all investigated parameters only vomiting, Grassman’s and Markle’s signs, Leu > 12, Neu > 70, N/L > 4, proved to be strongly associated with AA and formed our SS. In a prospective study, its sensitivity was 80% and specificity 97%. Compared to the performances of Alvarado SS (sensitivity 80%, specificity 73%), PAS (sensitivity 77%, specificity 82%), our SS was superior.

Conclusion: New SS we created can be a useful system for a first, rapid and economic evaluation of patients with possible diagnosis of AA in the Pediatric Emergency department.
LAPAROSCOPY-INDUCED RENAL INJURY

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Aim: We aimed to evaluate the effect of the carbon dioxide pneumoperitoneum on the renal injury.

Methods: The study was initiated after its approval by the Animal Investigation Ethical Committee. Carbon dioxide pneumoperitoneum was created in Wistar-Albino rats (n=40). Groups I, II, III, and IV were subjected to abdominal pressures of 0 (control), 8, 12, and 16 mmHg, respectively. After 2-hour insufflation, left kidney was taken out followed by removal of the right kidney after 3-hour desufflation. The tissue specimens were kept in 10% formolin for evaluation of the renal injury by using hematoxylin-eosin staining. The 20 glomerulus from cortical and juxtamedullary area were scored. According to the scoring system, +1 upon the lesion included less than at 25% of the glomerulus, +2 upon 25%-50%, +3 upon 50%-75%, +4 upon 75%-100%.

Results: Just after insufflation, the injury scores of the left kidney showed that there was significant difference only between group I (control) and group IV (p<0.05). After 3-hour desufflation, the injury scores of the right kidneys in all insufflated groups significantly increased compared to the controls (p<0.01). The injury of the right kidney in group IV was higher than that of the left kidney (p<0.001).

Conclusions: At three hours of desufflation, the injury in the insufflated groups was detected higher. However, after insufflation, the renal injury increased in only 16 mmHg-pressure group. These results suggest that the remaining kidney may have risk of the increased injury in the early period after laparoscopically donor nephrectomy.
LONG-TERM OUTCOMES OF SIX PATIENTS AFTER PARTIAL EXTERNAL BILIARY DIVERSION FOR PROGRESSIVE FAMILIAL INTRAHEPATIC CHOLESTASIS

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Background: Partial internal biliary diversion (PIBD) is an alternative approach for patients with progressive familial intrahepatic cholestasis (PFIC). In these patients, liver transplantation may be delayed. The aim of our study was to evaluate six patients with PFIC who have undergone PIBD in long-term follow-up.

Methods: Retrospective review of six patients who underwent PIBD for PFIC between 2008 and 2010 was conducted to evaluate age, growth, clinical and laboratory studies for long-term outcome.

Results: Serum postoperative bile acid concentrations were reduced from a mean 340,1 μmol/L (range 851-105) preoperatively to a mean of 96,3 μmol/L at five-year post-operative values. The difference in the decrease was statistically significant (p=0.018). AST decreased from 79,1 U/L (range 43-150 U/L) to 64,6 U/L (range 18-172 U/L), ALT decreased from 102,8 U/L (range 35-270U/L) and total bilirubin decreased from 2,9 μmol/L (range 0,35-6,4 μmol/L) to 1,53 μmol/L (range 0,3- 2,4). Again, the decrease in total bilirubin levels were significantly significant (p=0.043). Pruritus was diminished from a mean of +4 (range 4-4) preoperatively to a mean of +2 (4-0). One patient who underwent liver transplantation died from post-operative sepsis at the fifth year after PBID. Five symptom-free patients have not required liver transplantation on the mean 6.1 ± 0.83 years (5.1-7.0 years) follow-up.

Conclusion: PIBD is an effective surgical procedure in long-term and short-terms results to postpone the need of liver transplantation in children with PFIC by reducing jaundice and pruritus.
ANTENATAL DIAGNOSIS OF BILIARY ATRESIA VERSUS CHOLEDODHAL CYST IN PATIENTS WITH BILIARY CYSTIC MALFORMATIONS

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Aim of the Study: It remains difficult to distinguish between biliary atresia (BA) and choledochal cyst (CC) in patients with biliary cystic malformations (BCM) in utero. We explored the possibility of performing antenatal diagnosis by assessing chronological change in cyst size by ultrasonography.

Methods: We conducted a retrospective review of all patients diagnosed antenatally with BCM from 1994 to 2014 at our institutions. Data collected included the cyst size measured by serial antenatal ultrasonography, perinatal characteristics and postnatal operative diagnosis. To eliminate the influence of fetal growth, we also examined the ratio of cystic area to fetal abdominal area (C/A ratio) using ultrasonography.

Main Results: There were six patients with CC and three patients with BA (two type I-cyst and one type III-d). There were no significant differences between the two groups in gestational age and cyst size at first detection of BCM. The cyst size was significantly larger in CC than in BA after 34 weeks of gestation (Figure 1). The C/A ratio gradually decreased to less than 3% before birth in BA, and tended to increase in CC (Figure 2). After 35 weeks gestation, the line obtained by straight-line approximation of respective BA cases had a negative slope, which was significantly different from CC (p = 0.033).

Conclusion: Fetuses with BCM < 21 mm in diameter and a downward trend in C/A ratio during late gestation are more likely to have BA than CC.
PW06-03

CLINICAL PRESENTATION AND MANAGEMENT OF CHRONIC PANCREATITIS IN CHILDREN

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Aim: To evaluate the clinical features, management and outcome of chronic pancreatitis in children.

Patients and Methods: Children with the diagnosis of chronic pancreatitis were investigated in respect to the etiology, clinical findings, complications, therapeutic approach and outcome retrospectively.

Results: Twenty cases with a median age of 6 years (1-15), and male to female ratio of 1:1 were included in the study. The median duration of symptoms was 1 year (6 months-6 years), and the median number of recurrent attacks was 4 (2-10). The etiologies were long common channel (n=5), idiopathic (n=4), pancreas divisum (n=3), cystic fibrosis (n=3), hereditary pancreatitis (n=1), hyperlipidemia (n=1), duodenal duplication cyst (n=1), annular pancreas (n=1), choledocholithiasis (n=1). Radiologic evaluation with ultrasonography (n=20), magnetic resonance cholangiography (n=19), computed tomography (n=8) revealed the morphologic changes of ductal dilatation (n=9), stones (n=6), pancreatic calcification (n=4), atrophy (n=2), with complications of pseudocyst (n=6) and ascites (n=3). Therapeutic management with endoscopic retrograde cholangiopancreatography (ERCP) included sphincterotomy (n=16) and pancreatic duct stenting (n=9). Recurrence of attacks in four of these 16 cases necessitated surgical approach. Surgical management included cholecystodudodenostomy (n=2), choledochoduodenostomy (n=1), hepaticojejunostomy (n=1), pancreatic cyst excision (n=2), and duplication cyst excision (n=1). Three of the operated cases required further endoscopic therapy. Clinical features and management are summarized in Table 1.

Conclusion: Chronic pancreatitis in children has a wide spectrum of etiologic factors with significant complications. Therapeutic approach depends on the etiology and clinical findings, including endoscopic interventions and surgical management. Some refractory cases may necessitate further treatment strategies and long-term follow-up.
HEPATOCELLULAR CARCINOMA: EXPERIENCE AT A TRANSPLANTATION UNIT

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Aim of the study. Although hepatocellular carcinoma (HCC) is a rare tumor, it still is the second primary hepatic malignancy in children, and has poor prognosis.

We present our experience in children with HCC referred to our center for liver transplantation (LT) to find new strategies against this tumor.

Methods. We examined all the HCCs referred for LT in the last 20 years (1994-2015). We collected several variables: age at diagnosis, disease free survival, recurrence, treatment and mortality.

Main results. Among the 45 liver tumors evaluated for LT, 9 patients had HCC, with male predominancy (3.5:1).

In 2 of the patients, HCC was found incidentally, on previous tyrosinemia. The other 7 had no previous liver disease and were referred for unresectable HCC. Primary resection had been performed in 4.

We desestimated 4 of the patients for LT and finally performed 5 liver transplantations (2 with tyrosinemia and 3 with “novo” HCC). Only one of the transplants was primary, while the rest were performed as rescue therapy.

After follow up, the 2 patients with tyrosinemia are alive and disease free at the present moment.

The other patients presented distance relapse and finally died because of tumor progression.

Conclusions. HCC is a rare tumor in children, very aggressive and with not very optimistic prognosis.

On account of the bias present in this study, it is not possible to deduce any significant conclusions, but as some multicentre studies note, HCC prognosis could be improved if initially resectable HCC received LT as primary procedure.
Echinococcosis Surgical Management in a Non-Endemic Center: Evaluation and Analysis of Outcomes

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Aim: This study aimed to analyse data in a non-endemic center with regards to the outcomes in surgical management of echinococcosis.

Methods: Hospital records from 2005-2015 were reviewed for demographics, age, gender, location and number of the cysts, operative procedure, complications and outcome.

Results: In the 10-year period, there were n=24 children treated for echinococcosis; 15 boys and 9 girls with mean age 8.83 years (2-17). Standard procedures for diagnosis were followed in all patients except in 2 patients who had rupture of their solitary cysts after abdominal trauma. Solitary cysts were found in n= 16 (n=13 liver, n=2 lungs and n=1 spleen). Multiple cysts were in n=8 with (n=3 only liver affected, n=1 in one lung and n=4 multivisceral echinococcus affecting liver and lungs). Mean number of cysts in multivisceral echinococcus were 4 (2-14 cysts). With regards to surgery; there were n=22 cystectomy with partial pericystectomy, n=1 partial liver resection and n=1 Puncture-aspiration-injection-reaspiration (PAIR). There were 5 complications, n=1 anaphylactic shock, n=1 bronchopleural fistula, n=1 biliary fistula, n=1 suboculsion and n=1 hydropneumothorax. Mean follow was 27 months (6-48). No recurrences and no mortality were observed.

Conclusion: Complications after echinococcosis surgery are high, but are similar to those in endemic centers. Relapse after echinococcosis surgery was not observed. Multivisceral disseminated echinococcus presents challenges as concomitant major surgical procedures are performed, but the outcomes have been good in our cohort as there were no recurrences or lethal outcomes.
Aim of the Study was to evaluate the outcomes of treatment children with large hydatid cysts of liver.

Methods: We have observed fifteen patients aged 5-17 with large liver cysts. An ultrasound and CT scanning detected the cysts sizes, which ranged from 425 to 2600 ml. The predominant cysts localization was the right lobe of the liver (73.3%) with a typical lesion of 6-8 segments. All patients underwent the laparoscopic echinococcectomy with the use of three disposable laparoscopic ports. The fibrous membrane of the cyst wall was removed by ultrasonic scalpel Harmonic and bipolar coagulation Enseal. After that we used an argon plasma coagulation, which allowed preventing development of a residual cavity and it achieved the elimination of residual hydatid scolices.

Results: Intraoperative complications were not observed. Two patients (13.3%) were observed with the postoperative biliary fistulas, which folded in two-month time. The early postoperative period took its easy course. After 8.3±1.7 hours, patients began to walk. The pain syndrome wore off in 16.2±3.1 hours after surgery. Disease recurrence was not observed.

Conclusion: Thus, the laparoscopic echinococcectomy, involving the treatment of the residual cavity with argon plasma coagulation, has proved to be an effective surgery of children with large cysts of liver.
A SIMPLE NEW TECHNIQUE FOR SAFE REMOVAL OF PERCUTANEOUS ENDOSCOPIC GASTROSTOMY DEVICES (PEG), AN ALTERNATIVE FOR CUT-AND-PUSH METHOD

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Aim: The Cut-and-Push technique is a simple and cost-effective method used for a long time. Although cutting the tube at the skin level and passing the bumper spontaneously is not always feasible and safe. In dystrophic patients with a history of previous GI surgery or physiologically narrow bowel caliber an unremoved inner bumper can lead to ileus, bowel perforatio, bleeding, etc. PEG removal during upper endoscopy with grasper also may be difficult in babies, or in the case of esophageal strictures. Our goal was to develop a simple and safe method for removing PEG tubes completely.

Method: We present previously observed two cases with potentially life threatening complications where Cut-and-Push method has been used. Therefore the technique was modified; an incision is made on the tube at the level of the skin through which a cord is introduced into the stomach. Then the tube is transected, the bumper pushed in the stomach, both ends of the cord are pulled out through the mouth using endoscopy foreign body forceps. Finally the hanging bumper is pulled out.

Results: This method was used in 7 patients. Average age was 6.5 years (range, 1.1-15.2 years). The mean time of anaesthesia was 54 minutes (range, 40-90min.), however 40-45 minutes in the last 5 cases. Mic-Key Buttons (Ch10-14/1-2cm) where placed in all patients, enteral nutrition was started after 2-3 hours. Neither intraoperative nor postoperative complications were observed associate with the procedure.

Conclusions: Our technique for complete removal of PEG tubes is safe, fast and simple. It is easy to perform. There is no need for additional equipment as compared to PEG insertion. We have not experienced any complications so far.
IATROGENIC GASTRIC PERFORATIONS IN VERY LOW WEIGHT NEONATES (<1200G)

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Aim of the Study: Neonatal Gastric Perforations (NGP) are uncommon, serious and potentially lethal. Among the different etiological factors, we found iatrogenic NGP. The aim of this study was to review the outcome and treatment of the NGP with very low weight.

Methods: review of three patients with low weight (<1200g) that suffered an iatrogenic gastric perforation (due to nasogastric tube). Baseline characteristics, treatment and clinic outcome were analysed.

Main results: three neonates of 30, 28 and 28 weeks of gestation were treated; the weight at surgery was 600g, 1035g and 1150g respectively. A plain radiography was made for diagnosis, demonstrating massive pneumoperitoneum in all cases. The first patient was operated at the 4th day of life, finding a perforation in the anterior wall of the greater curvature of the stomach. The second patient was operated at the 5th day of life, finding a posterior wall tear from the gastroesophageal junction to the greater curvature of the stomach. In both cases, a gastrorhaphy was successfully performed, with correct postoperative outcome. The third patient presented a sudden deterioration in his 5th day of life with hemodynamic instability that precluded surgery. An abdominal drainage was placed during stabilization without marked improvement. The patient subsequently died and the necropsy demonstrated a single gastric perforation in the minor curvature of the stomach.

Conclusions: gastric perforations in neonates with very low weight are associated to a high mortality, being essential a prompt diagnosis and early treatment.
PW06-09

CLINICAL SPECTRUM OF THE INTESTINAL TRACT DUPLICATIONS - RETROSPECTIVE ANALYSIS AND ETIOLOGICAL CONSIDERATIONS

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**Introduction.** Intestinal duplications (IT) are rare malformations known as enteric cysts. They are benign in nature, but can lead to serious complications. Preoperative diagnosis is difficult. Clinical symptoms resemble acute abdomen.

**Clinical material.** For a period of 20 years (1996 – 2015) 29 children with gastro-intestinal duplications of various types and localization are treated. Three newborns with abdominal duplications were diagnosed prenatally and operated on at the first month of life. The remaining 26 children were diagnosed at the time of surgery, indicated by abdominal complaints, interpreted as acute abdomen.

**Results.** Children were 19 males and 10 females, with age ranged from 1 day to 10 years. 16 IT (55.2 %) was cystic type, while 15 cases (44.8 %) were tubular one. Of them 12 cases (41.3 %) were located in the ileum, 10 cases (34.5 %) at the ileo-coecal area, 7 cases (24.2 %) were located at colon-rectum, or had multiple localization. All the children were approached with an open surgery. Cystic (spherical or tubular) lesions without communication with the lumen of the organ were found out in 8 cases (27.6 %). They underwent simple excision. The other cases with cylindrical lesions had one or more communications with the host lumen and required extended resection. The postoperative course was uneventful in all the cases.

**Discussion.** Abdominal duplications cause acute ileus or chronic abdominal complaints. Patients experience intermittent abdominal pain or intestinal obstruction, due to compression of the normal intestine or vascular injury. Acute hemorrhage may occur as a result of ulceration of ectopic mucosa or erosion of adjacent blood vessels. US scan and CT is helpful for the diagnosis abdominal duplications.
LONG TERM RESULTS OF CHOLEDОCHAL CYSTS IN CHILDREN: AN 18-YEAR EXPERIENCE OF A SINGLE CENTER

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Aim of the study: Choledochal cysts (CC) are caused by congenital dilatation of the biliary tract. This study aims to report our experience in treatment of CC.

Methods: Retrospective analysis of patients with CC between 1997-2015 was performed. A survey has been conducted to the parents by phone call. Data including demographics, surgical details and long-term outcomes were analysed.

Main results: 37 patients (27F, 10M) were treated with a mean age of 5.7±4.4 years (2 months-17 years). Six patients couldn’t be connected by phone call and excluded from the analysis. The anatomical type of CC was type 1 (25 patients), type 4 (four patients), type 3 (one patient) and type 5 (one patient). Most of the patients (29 of 31 patients) underwent hepaticojejunostomy. One patient (type 3) was treated by dilatation with endoscopic retrograde cholangiopancreatography (ERCP). One patient who is 17 years old underwent Todani operation due to severe inflammation. Mean follow-up period was 3.6±1.3 years. Re-anastomosis was required in one patient with anastomotic stricture. Mechanical bowel obstruction was occurred in two patients. Cysto-jejunostomy was performed in one patient due to pancreatic pseudocyst. In the long-term follow-up, three patients had intermittent abdominal pain and one patient had pruritus despite having normal liver function tests and ultrasonography (USG). All of the patients were controlled by USG and no dilatation was demonstrated at biliary tract.

Conclusions: CC must be excised in childhood due to the risks of biliary obstruction and malignancy. Hepaticojejunostomy should be preferred primarily as definitive procedure. The other options may be necessary in some situations. Long-term follow-up is necessary for potential clinical problems.
VACUUM ASSISTED CLOSURE (VAC) OF SEVERE FOOT INJURIES – REPORT OF TWO CASES

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Aim: Aim of this study is to report two cases of severe foot injuries treated successfully with vacuum assisted closure (VAC).

Methods: Hospital records of treated patients were analysed.

Results: In the one year period 2 patients with severely infected foot injuries were treated. First patient was 13-year-old boy who sustained foot injury with deep soft tissue defect involving extensor tendons and joint capsules. Wound Isolates revealed poly-microbial infection appropriate antibiotics have been administered. VAC closure of the wound was applied immediately. His wound has been covered with free skin grafts on the day 17 after 2 changes of VAC dressing. Second patient was a boy, aged 15 with foot injury infected with Streptococcus and MRSA. After thorough debridement VAC system has been applied and antibiotics have been given according to antibiogram. After wound culture become sterile and granulations sufficient his wound has been covered with free skin grafts on day 25. Four changes of VAC dressing were necessary.

In both patients continuous negative pressure of -125 mm Hg have been applied. Each procedure of VAC wound dressing has been conducted under sterile conditions and general anaesthesia or conscious sedation. Auto-grafts were used for final wound coverage in both patients.

Conclusion: In both patients VAC proved to be very effective method of treatment of infected wounds with soft tissue defects in paediatric patients. The main advantage was the significant decrease in need for wound dressing and debridement procedures under general anaesthesia which is routine in classic approach.
LAPAROSCOPIC CHOLECYSTECTOMY IN OBESE CHILDREN: OUR EXPERIENCE ABOUT MANAGEMENT AND OUTCOME

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Aim: We reported our experience about management and outcome of laparoscopic cholecystectomy (LC) in obese children and adolescents.

Methods: We retrospectively reviewed the records of 6 obese patients (average age 12.2 years) underwent LC in our unit over the last 5 years. The average BMI percentile was 98%. The pre-operative assessment included the investigation of metabolic panel (insulin resistance, hyperlipidaemia, hypertension), and airway evaluation (spirometry, chest radiography). A pre-operative bowel preparation (simethicone, enemas) was performed in all patients.

Results: All interventions were completed laparoscopically, without no conversions neither intra-operative complications. The average operative time was 85 minutes. LC was performed using laparoscopic instruments longer than that usually adopted in paediatric age (mean length 45 cm). An hepatic retractor and special haemostatic devices were always adopted. After surgery, all patients received a compressive bandage of the lower limbs, antibiotic therapy and a prophylaxis for deep venous thrombosis (DVT) with enoxaparin. The patients started to mobilize themselves on the 2nd post-operative day. The average analgesic requirement was 2.2 days. The average hospital stay was 5.8 days. No post-operative complications were reported.

Conclusions: LC is a safe and effective procedure in the paediatric obese population but it needs a dedicated instrumentation, an adequate equipment and a proper hospital environment. These patients should be managed in a multidisciplinary setting. The use of new haemostatic devices is fundamental to reduce the operative time. The advantages of LC are the reduced post-operative pain and the quick mobilization of the patients that reduce the risk of DVT.
ACUTE GASTRIC DILATATION IN PATIENTS WITH EATING DISORDERS

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Aim of study: To describe the epidemiologic characteristics of this disease, making hypothesis of the different physiopathologic mechanisms involved and establishing a treatment protocol.

Patients and methods: Descriptive and retrospective study, including patients with eating disorders diagnosed of an acute gastric dilatation by plain abdomen x ray during the years 2007 to 2015. Systematic review of literature was done. A treatment protocol is established based in the results.

Results: We report 35 patients with acute gastric dilatation among the 1887 patients with new diagnosis of an eating disorder in the period of study. Their diagnoses were anorexia nervosa restrictive type (21/35) compulsive type (9/35) and bulimia nervosa (5/35). In 13/35 patients the acute gastric dilatation was caused by binge eating, the rest occurred with little or any intake of food. In the latter a low body mass index (BMI) was found to be responsible of the event. All the patients were initially treated with conservative measures (nasogastric tube and npo). Most of the patients (25/35) showed a favourable course in 48 hours. Nine patients went to intensive care unit due to hemodynamic instability. One patient underwent urgent surgery because of massive gastric perforation.

Conclusions: - Acute gastric dilatation is an uncommon complication of eating disorders, but it can be life threatening. Its early diagnosis and treatment can prevent from needing urgent surgery.

- Acute gastric dilatation physiopathology is related with low BMI, and binge eating.

- Patients with hemodynamic instability, BMI lower than 15 or gastric content that could not be evacuated in 48 hours should stay in intensive care unit.
SHOULD THE LAPAROSCOPIC APPROACH BE AVOIDED IN A NISSEN FUNDOPICATION PROCEDURE?

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Objective. A trial recently published in Annals of Surgery concluded that the recurrence of GERD by laparoscopic fundoplication (LF) is higher than in open surgery (OF) modifying informed consent and the surgical approach. Objective: Determine, based on our results, whether the laparoscopic approach is in fact the right choice.

Material and methods. Retrospective study of patients operated to treat GERD in the period of 2010-2015. The same criteria of the trial were applied to the data collection process and the recurrence studies (upper gastrointestinal series or pH monitoring in symptomatic patients).

Results. 56 patients were operated (median 6 years, range 0.2-14 years). Our patients were comparable to those of the study on sex and neurological damage, with less rate of patients [5 (8.9%)] with preoperative gastrostomy (p=0.0001).

Our average follow-up time was 2.6 years (range 0.07-6.3 years). Five recurrences and five death occurred.

The relative risk (RR) of failure in the LF group was 4 times higher than ours (RR 4.19; 95% CI, 1.66-10.5). Nonetheless, comparing our results with the OF group showed no statistically significant difference (RR 0.76, 95% CI: 0.19-3.03).

Our survival rate (event = recurrence) was 90% a year.

Conducting a multivariate analysis (Cox regression controlling presence of the neurologically impaired, esophageal atresia and preoperative gastrostomy) only neurological damage (chi square, p=0.01) was a risk factor for recurrence.

Conclusion. Currently, our results do not suggest increased risk of recurrence with laparoscopy. Given our follow up of less than 3 years, we must verify the absence of recurrence.
LAPAROSCOPIC REDO FUNDOPICATIONS IN CHILDREN
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**Aim.** Laparoscopic fundoplication is still controversial in patients with recurrent GERD who underwent surgery. The aim of this study was to assess the feasibility and efficacy of laparoscopic redo fundoplication and causes of recurrence.

**Material and method.** In period 2000-2015 laparoscopic fundoplication was performed in 304 children (155 girls and 150 boys) in age from 3 months to 18 years (average 9.4 years). 14 (4.6%) patients (3 girls and 11 boys) required re-operation for recurrent GERD and/or symptomatic hiatal hernia. All reoperations were performed with laparoscopic technique. Redo was performed 0.5 to 13 years (average of 4.2 years) after the previous antireflux surgery. Intraoperatively in 9 (64.4%) patients rupture of hiatal crura and sliding hernia, in 3 (21.4%) sliding hernia and wrap disruption, in 1 (7.1%) wrap disruption and 1 (7.1%) paraesophageal hernia with normal wrap location were recognized. In all patients hiatal crura were re-stitched and in 8 (57.1%) strengthened using synthetic mesh. Nissen refundoplication was performed in 12 patients, Toupet in 2.

**Results.** There were no intraoperative complications and conversion. Postoperative course was uneventful in all patients. In all good result was achieved and postoperative control 24-hours pH-metry confirmed the effectiveness of reoperation.

**Conclusions.** The main cause of recurrences is a crura disruption and sliding hernia so important is to pay special attention to the proper suturing of crura during first operation. Laparoscopic redo fundoplication is feasible, effective, but difficult technically. The use of mesh to strengthen crura seems to be reasonable and prevents further recurrences.
FLUOROSCOPIC BALLOON DILATATION FOR ESOPHAGEAL ACHALASIA IN CHILDREN: A 7-YEAR EXPERIENCE

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Aim of the Study: Fluoroscopic balloon dilatation (FBD), when performed with large diameter balloon, can efficiently treat esophageal achalasia (EA) in children. Herein, we present 7 years of experience treating EA.

Methods: We retrospectively reviewed the medical records of 28 children in whom we performed FBD under general anesthesia for EA between January 2009 and December 2015 in our hospitals. All EA diagnoses were confirmed with cine-esophagogram and upper gastrointestinal endoscopy. Caustic or reflux lower esophageal stricture, congenital esophageal stenosis/ring and cricopharyngeal achalasia were excluded from this study. FBD was mostly performed with achalasia balloon dilatators.

Main Results: All FBD sessions were successfully performed in 28 children (aged 5 months to 17 years) in general anesthesia. Complete remission was achieved in 89%. There were no esophageal perforations or mortality.

Conclusions: For treatment of EA, FBD is safe and has a low rate of complications as well as a high success rate. However, it should be performed gently with large balloons. These results suggest that FBD to treat EA may be considered a primary treatment for children of all ages.
PW07-05

TRANSITION OF PATIENTS WITH ESOPHAGEAL ATRESIA TO ADULT CARE: RESULTS OF A TRANSITION-SPECIFIC EDUCATIONAL PROGRAM

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Aim of the Study: A history of esophageal atresia (EA) may result in chronic morbidity. Transition of patients from pediatric to adult care has been recognized as an important factor to maintain disease specific follow-up and prevent exacerbation of chronic disease. Patient education is recognized as a necessary part of transition programs for children with chronic diseases. Structured education programs for patients with EA have not yet been developed. We aimed to evaluate the efficacy of a transition specific educational program in adolescents with a history of EA.

Methods: Ethical approval was obtained. Patients with a history of EA (age 14 to 21 y) and their parents were invited to participate in a 2 day transition-specific educational program. 29 patients and 25 parents were recruited of whom 10/7 were allocated to the intervention group (program) and 19/18 to the control group (no program). Subjective satisfaction (ZUF-8) and expected effects of the program on the future course of the disease, transition-specific knowledge (standardized questionnaire addressing organizational and health related aspects of transition), health-related quality of life (DISAB-KIDS) and confidence for self-management (PAM-13) were measured with appropriate psychological instruments. Nonparametric tests were used for statistical analysis.

Main results: Subjects participating were highly satisfied with the program (patients 26/32 points, parents 25/32; ZUF-8). 90% of patients and 67% of parents anticipated a positive effect on the future course of the disease. Patient’s transition-specific knowledge was low prior to the program (32% correct answers). It improved by 18% after the intervention (52% correct answers; p=0.004). It did not change in the control group (55% vs. 50%; n.s.). Parent’s transition-specific knowledge did not change after the intervention (66% vs. 67% correct answers; n.s.). In patients, there were no detectable effects on health-related quality of life (78.9 intervention vs. 81.6 controls; DISABKIDS general score) or self-management (44.4 intervention vs. 41.4 controls; PAM-13).

Conclusions: We identified a deficit of transition-specific knowledge in adolescents with a history of EA. These patients benefit from a transition-specific educational program. Thus, transition to adult care may be facilitated resulting in improved long-term care of patients with EA.
SURGICAL ROLE IN EOSINOPHILIC GASTROENTERITIS

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Aim of the Study. Eosinophilic gastroenteritis (EGE) is a rare disease that affects the gastrointestinal tract with the presence of inflammatory infiltrate rich in eosinophils. Clinical manifestation is heterogeneous depending on the localization, being an unusual one intestinal obstruction.

We discuss here our series of children with EGE who presented with pyloric obstruction.

Methods. Retrospective study of children with EGE that presented with pyloric obstruction in the las 4 years. We collected clinical and epidemiological data. Histologic diagnostic was made if infiltration of 40 or more eosinophils in highpower field was found. We excluded other causes of peripheral eosinophilia.

Main Results. We found 4 patients with pyloric obstruction and EGE. All of them were male and median age at diagnostic was 4.2 years (1-6). One of the patients underwent multivisceral transplantation in the context of short bowel syndrome.

Most frequent symptoms were vomiting and recurrent abdominal pain. First diagnostic approximation was made by ultrasound and upper endoscopy, and it was confirmed by pathology. Three of the patients also presented peripheral eosinophilia and two of them associated eosinophilic esophagitis.

Two of the patients needed surgical treatment (duodenoduodenostomy and pyloroplasty), while the other two were controlled with omeprazol and corticosteroids.

Conclusions. Eosinophilic gastroenteritis (EGE) is an uncommon disease that usually responds to medical management. However, some cases may need surgical treatment in the presence of complications like intestinal obstruction. Pediatric surgeons should be aware of this condition and consider it in the differential diagnosis.
WHICH TECHNIQUE SHOULD BE PREFERRED PRIMARILY FOR ESOPHAGEAL REPLACEMENT IN CHILDREN: GASTRIC TRANSPOSITION OR ESOPHAGOCOLOPLASTY?

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Aim of the study: Different surgical techniques may be used for esophageal replacement (ER) in children. In this study, we aimed to compare the results of gastric transposition and esophagocoloplasty for ER.

Methods: We retrospectively analyzed the medical records of children who underwent ER between 2005 and 2015. Patients’ clinical characteristics, surgical details, complications and final outcomes were reviewed.

Main results: 38 patients underwent ER with diagnosis of corrosive esophageal stricture (CES) (24) or esophageal atresia (EA) (14). Patients were divided into two groups as gastric transposition (GT) in 19 patients and esophagocoloplasty (EC) in 19 patients. Mean age of operation was higher in EC group (7.9±4.1 years & 3.2±2.3 years). All of the patients were operated with a one-staged procedure in GT group. Although, two staged procedures were necessary in 10 of 19 patients in EC group (52%). EC could not be performed in one patient due to insufficient vascular feeding during operation. In another patient, colon necrosis was occurred after EC. Major bleeding which required sternotomy was seen in one patient for each group. Postoperative anastomotic stricture rates were equal in both techniques (15%). The rate of anastomotic leakage was 21% in GT and 16% in EC group. Mild dysphagia was seen in one patient in GT group. However, dysphagia (30%), halitosis (60%), vomiting (30%) and gastroesophageal reflux (50%) was seen frequently in EC group. Mean postoperative follow-up period was 3.9 years (8 months-9 years).

Conclusions: ER may be necessary in patients with long segment CES or EA. GT should be preferred primarily for ER due to the advantages as strong vascular feeding and lower postoperative clinical problems.
IATROGENIC PHARYNGOESOPHAGEAL PERFORATION IN THE NEONATAL PERIOD – CLUES FOR CONSERVATIVE TREATMENT

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Introduction. Iatrogenic perforation of the esophagus in neonates is a rare occurrence, and is most frequently seen in low birth weight infants.

Presenting of the cases. Five premature infants suspected for surgical pathology of the esophagus are retrospectively discussed. They are presented with a history of difficult nasogastric tube insertion followed by its stoppage at different thoracic levels and failure to reach the abdomen, as well as haemorrhage from the tube lumen. The commonly reported symptoms of these incidents are sudden onset respiratory distress and failure of endonasal feeding.

Clinical investigations. The contrast roentgenography yields a diverse x-ray image. In two cases the contrast material revealed a contrast depot parallel to the esophageal lumen up to a point overlying the diaphragm, indicating tubular duplication of the esophagus. In another two cases the contrast x-ray study shows a normal esophageal lumen with diverticulum-like enlargement at the upper third, initially interpreted as esophageal atresia. The last case presented with pneumomediastinum and subcutaneous emphysema followed by apnea that required mechanical ventilation. In this case an extirpation of esophagus is necessitated.

Conclusion. Iatrogenic neonatal pharyngoesophageal perforation is a rare complication in the modern neonatal intensive care, but is associated with significant morbidity or mortality. Most cases can be treated conservatively; nevertheless surgery presents an emergency option in severe cases. Correct interpretation of the x-ray image on the base of the previous history and clinical symptoms are crucial for the choice of appropriate treatments approach.
DOES UPPER GASTROINTESTINAL TRACT CONTRAST STUDY IN SUSPECTED MALROTATION TELL THE WHOLE STORY?

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**Aim:** To evaluate the results of upper GI contrast study (UGICS) and surgical findings in children presenting with a diagnosis of possible malrotation.

**Method:** Retrospective review of case notes and radiological images from September 2010 to August 2015.

**Results:** Total of 104 patients were identified (58 males and 46 females). Age range from 31 week of gestation to 14 years (median 17 days). All UGICS were performed in acute setting due to bile-stained vomiting. Sixty-two (60%) were performed by consultant radiologist and 36(40%) by trainee radiologists. A total of 40(41%) were performed during normal working hours and 5(59%) studies were performed out of hours (17:00 to 08:00). Seventy-two (69%) patients had normal UGICS. 2/72 confirmed as Hirschsprung’s disease on rectal biopsy. Sixteen (15%) patients were reported as IM went to laparotomy and had Ladd procedure. Ten (9%) patients had equivocal findings on UGICS; 3 had laparotomy and found to have malrotation, one with 3600 volvulus. A further 2 had delayed abdominal x ray which did not show evidence of bowel obstruction. The rest improved clinically and subsequently discharged without surgical intervention. One patient had normal UGICS but was symptomatic and laparotomy revealed IM with partial volvulus. In 5 patients reported as IM on UGICS no malrotation was found at laparotomy.

**Conclusion:** In this series 80% of the patients presented with bilious vomiting did not have IM. Equivocal and normal findings of UGICS need to evaluate with clinical findings to avoid possible short gut in individual patients.
THORACOSCOPIC APPROACH FOR REOPERATION AFTER ESOPHAGEAL ATRESIA REPAIR

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Aim: Esophageal atresia (EA) and tracheoesophageal fistula (TEF) pose a major surgical challenge. Thoracoscopic repair has been described and is being carried out in growing numbers during the recent years. Major anastomotic complications as disruption, leak, stricture or missed fistulae sometimes require a second operation. In the recent years, we approached these complications thoracoscopically. The aim of the current study is to assess the safety and the feasibility of this approach.

Methods: A retrospective inspection of the files of all the children who were operated in our institution over a ten years period (01/2006-12/2015) for EA and TEF. Demographic data as well as clinical information about the primary lesion, the primary operation, the anastomotic complication and its treatment were collected and analysed.

Results: Re-thoracic operation took place in 7 of the 36 operated children (19.44%). One for completion of the primary operation, after withholding it for baby’s instability, one for creating the anastomosis in a long gap type A EA, two for a recurrent TEF, one for a severe stricture and re-TEF and two cases of partial anastomosis disruption during esophageal dilatation. Of these reoperations five were performed thoracoscopically, one was converted and the last was done open. None of these children required a third thoracic operation and no mortality was recorded.

Conclusions: Treating anastomotic complications after EA and TEF repair may require a second operation. We found thoracoscopic approach to be feasible and safe in various types of complications.
BALANITIS XEROTICA OBLITERANS IN BOYS: MISSED DIAGNOSIS

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Aim: To review management and outcomes of boys circumcised for Balanitis xerotica obliterans (BXO or Lichen sclerosus) together with the accuracy of paediatric surgeons at our institution in suspecting correctly the diagnosis of BXO on examination.

METHODS: Retrospective analysis of the records of all boys (0 to 18 years old) circumcised from October 2014 to November 2015 for pathological phimosis. Every foreskin after circumcision was sent for histology and the result compared with pre-operative diagnosis on examination. Religious circumcisions and patients lost to follow-up were excluded.

Results: 110 boys underwent circumcision in the analyzed period. Out of 101 patients included, 61 underwent total and 40 partial circumcision, according to surgeon’s or parental preferences. BXO was confirmed histologically in 28 boys (28%), age 3 to 15 years (the average 10 years). In the out-patient clinic BXO was suspected only in 10 boys out of 28 (36%). Extra 7 boys were suspected during the operation, making the overall suspicion in 17 patients out of 28 (61%). 7 patients needed meatotomy, all of them with confirmed BXO. 10 total circumcisions were performed for recurrent scarring after previous partial circumcision, 7 of these were newly diagnosed BXOs. No signs of BXO were seen after total circumcision on the last follow-up 2 to 15 months post-operatively (the average 6 months).

Conclusion: BXO in boys is underestimated and often missed diagnosis on examination by paediatric surgeons. If suspected, total circumcision should be recommended even in the countries where partial circumcision is preferred due to cultural reasons.
SINGLE CENTRE EXPERIENCE WITH PERCUTANEOUS ENDOSCOPIC GASTROSTOMY (PEG) IN INFANTS: A FEASIBLE AND SAFE TECHNIQUE

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Aim of the study. To present a single centre experience in Percutaneous Endoscopic Gastrostomy (PEG) in infants.

Method. Clinical records of patients weighting less than 10 kg who underwent PEG between 2007 and 2015 were reviewed. All patients underwent an upper GI contrast study prior to the procedure in order to exclude anatomic anomalies. PEGs were performed with a 5 mm endoscope using the standard pull-through technique under general anaesthesia.

Data regarding Gestational Age at birth (GA), birth weight (BW), age and weight at the time of intervention (AI, WI), days to feeding start (FS) and to full diet (FD), and complications were reviewed.

Results. 21 patients were included. The most common indication was dysphagia related to hypoxic-ischemic encephalopathy at birth.

Main GA was 34.3 weeks (range 24-41) and main BW was 2374 grams (560-4460).

Patients underwent PEG positioning at a mean age of 161 days (48-350), mean WI was 5.4 kg (3.2-8.8).

In all patients but one a 12 Fr tube was positioned. Mean FS was 3 days (1-5) and full diet was reached averagely 8 days after the procedure (2-16).

6 minor complication were recorded (4 hyperemia and 2 granulomas) and were treated in the outpatient clinic with complete resolution within few weeks. At the follow-up no major complications were recorded.

Conclusion. We believe that in a tertiary level centre PEG is a safe and feasible technique even in infants and represents a valid alternative to surgical gastrostomy.
PW08-01

CURRENT ANESTHETIC RISK OF ANTERIOR MEDIASTINAL MASSES

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Aim: To analyze the current risk of an anesthetic event during surgical acts in pediatric patients with anterior mediastinal masses (AMM) in a tertiary oncology center, when the previously published statistically significant (SS) defined risk factors are taken into account to plan the procedure.

Materials and methods: Retrospective study 2009-2015 of pediatric patients with AMM who underwent surgical procedures at debut. Published risk factors (symptoms, radiological findings), with special focus on the SS ones, diagnosis, surgical and anesthetic procedure, special measures, and anesthetic events were recorded. Patients were classified as high or low-risk when airway or vascular compression or severe symptoms were present.

Main results: 38 patients (age 13.5 years, 1.4-17.3) were included. Diagnosis was lymphoproliferative disorder in 94.7%. 50% showed respiratory symptoms and 76.3% were considered as “high risk” patients, presenting one or more SS risk factors. Only 2 patients received neoadjuvant treatment. The procedures were: 29 biopsies (4 thoracoscopically), 11 central venous catheters, 2 chest drains and 3 mass resections. Anesthetic management consisted on sedation in 52.6% and different forms of general anesthesia in 47.4% (14/18 high-risk cases). In 63.2% the patient’s position was half-sitting. Only 2 events (5.3%) happened, consisting on difficult ventilation, and both responded to basic rescue measures. All procedures could be satisfactorily finished.

Conclusions: Preoperative evaluation of risk in AMM through clinical history and CT/MRI and surgical/anesthetic planning leads to excellent outcomes. The least aggressive procedures should be favoured, but if needed, planned general anesthesia under experienced hands is safe even in risk patients.
LAPAROSCOPIC RESECTION OF PANCREATIC TUMORS IN CHILDREN

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Aim: Our study aimed to report the results of a multicentric survey about laparoscopic treatment of pancreatic tumors in children.

Methods: The data of 15 patients (average age 5.5 months) operated using MIS for a pancreatic tumor in 5 International centers of Pediatric Surgery in the last 5 years were retrospectively reviewed.

Results: The most common symptoms at presentation were related to the hypoglycemic hyperinsulinism, followed by abdominal pain and vomiting. Tumor types were insulinoma (n=4), Congenital Hyperinsulinism (CHI) diffuse type (n=3), CHI focal type (n=3), solid pseudopapillary tumor (n=2), pseudocyst (n=3). As for diagnostic assessment, ultrasound associated with CT was performed in all centers; 18 FDO-PA PET/CT was adopted in 2 centers. The MIS procedures performed were: tumor enucleation (n=4); distal pancreatectomy (n=8); subtotal pancreatectomy (n=2) and pancreatico-jejunostomy (n=1). The average operative time was 120 minutes and all procedures were performed using hemostatic devices, without conversions neither intra-operative complications. As for post-operative complications, we recorded a persistent hypoglycemia in 1 case, requiring redo-surgery (IIIb Clavien-Dindo) and a thrombosis of splenic vein, not requiring any treatment (I Clavien-Dindo).

Conclusion: For most pancreatic tumors, surgical enucleation or distal pancreatectomy via laparoscopy are safe and effective treatment options for these lesions. The transparietal suspension of the stomach and the use of haemostatic devices are key factors for the success of the procedure. Considering the rarity of the pathology and the scanty experience of pediatric surgeons, these patients should be referred only in experienced centers with high-volume MIS activity.
OVARY SPARING RESECTIONS FOR MATURE TERATOMA IN CHILDREN

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Mature ovarian teratoma is benign tumour, however in 10-15% develops in both gonads. This condition can be diagnosed synchronously or metachronously. It is of utmost importance to preserve the fertility in young individuals affected with this problem, thus the multidisciplinary/multicentre approach including paediatric surgeons, gynaecologists, endocrinologists and oncologists is recommended. Aim: Review of the 15 cases submitted to ovary-sparing resection for teratoma (2012-2014).

Patients & Methods: 15 adolescent girls aged from 12 - 16 years diagnosed to have an ovarian tumour(s), all alfa-FP and beta-HCG negative, located in the unique gonad following previous adnexectomy for teratoma (in 3 patients) or in both gonads (in 12). In all patients, the USG examination was supplemented with MRI to assess the non-involved portion of the gonad and serve for planning the surgery. At surgery, the intra-operative USG was used to verify the accuracy of the pre-operative imaging and the intraoperative palpation.

Results: Of 12 girls diagnosed to have synchronous bilateral mature teratoma of the ovaries, 10 underwent bilateral partial ovariectomy, 2 one-sided adnexectomy and partial ovariectomy on the opposite side. 3/15 girls underwent one-sided adnexectomy for teratoma before entering this study and were diagnosed to have a tumour in the contra lateral ovary at 12-36 follow-up. In all 3, the ovary sparing resection of their tumours appeared feasible. Regarding the functional outcome, all 10 girls after bilateral partial ovariectomies menstruate regularly, but 2 girls of 5 after complete ovariectomy on one side and partial ovariectomy on the opposite side. None of girls get pregnant thus far (all are still in school/study age). One girl had the local relapse which was managed with the local gonad-preserving re-excision (FU=2 years).

Conclusion: Assured that alfa-FP and beta-HCG are negative and imaging (best – MRI) is in favour of the mature teratoma, surgeon shall do his best to preserve as much of the ovary as possible.
MULTICENTRIC INFATILE MYOFIBROMATOSIS VERSUS METASTATIC INFANTILE FIBROSARCOMA: A CHALLENGING DIAGNOSIS

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Aim of the study. Infantile Myofibromatosis (IM) is the most common fibrous tumour of infancy involving more commonly cutaneous and musculoskeletal tissue. Differential diagnosis between IM and Metastatic Infantile Fibrosarcoma (MIF), specifically in neonatal multicentric forms, is challenging being at the origin of potentially harmful mistreatment.

We present our experience in the management of multicentric IM, with diagnosis evolving from MIF to IM and their treatment indications, including radical surgery and chemotherapy

Methods. A retrospective study of patients with definitive diagnosis of IM in the last 15 year at our Institution was performed. Epidemiological data were collected and imaging studies, treatment options and outcomes reviewed.

Results. Nineteen pediatric patients and four adults were included in the study. 19 tumors (83%) were properly identified as IM: 18 local forms were treated surgically, 1 cutaneous multicentric neonatal form experienced spontaneous resolution.

The additional 4 tumors (17%) presented as a large mass, surgically excised first and developing multifocal invasion later (bone involvement in 2 patients, liver in 1 and lungs in 1). They were initially diagnosed as MIF, receiving chemotherapy for a period of 9 months. After performing a further carefull immunohistochemical and molecular analysis of the supossed to be metastatic tissue, the final diagnose was IM.

Conclusion. The histological diagnosis of IM is complex, and should be confirmed before initiating any treatment. MIF is frequently misdiagnosed, mainly in the multicentric forms.

Appropriate identification of both tumors is crucial in order to avoid unnecessary chemotherapy and its potentially serious side-effects
TREATMENT OF SLOW-FLOW VASCULAR ANOMALIES BY BLEOMYCIN SCLEROSIS: OUR EXPERIENCE

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Aim of the study. The high incidence of slow-flow vascular anomalies has allow a great development of their treatment. In the therapeutic options, bleomycin sclerosis is an effective tool; even if it is performed under ultrasound guidance.

Methods. We present the cases of slow-flow vascular anomalies treated with bleomycin from January 2008 to May 2015. We analyze the age, the gender, the vascular anomaly type, the location, the treatment (type, number of sessions, dose and time between sessions) and complications.

Main results. We present 56 patients aged from 17 days of life to 16 years, most women. Venous malformations are the most common type of anomaly and the predominant location is the cervico-facial. The treatment more used was simple bleomycin sclerosis, performing under ultrasound guidance in more than 50% of cases. It was effective in more than 90% of cases and only 17% of complications appeared (all of them minor).

Conclusions. The sclerosis with bleomycin has proven to be a good therapeutic choice for the treatment of slow-flow vascular anomalies being effective and with very few complications. Performing ultrasound guidance the security and the effectiveness is higher.

Our experience using this treatment, alone or combined, shows that it must be a valid treatment option for these anomalies.
AIM OF THE STUDY: The role of surgery in the treatment of HRNB remains controversial. Tumor resection is often a surgical challenge due to its size, location or relationship to surrounding vital structures, so radiological evaluation is mandatory in order to plan surgical treatment. In this setting, we aim to evaluate the radiological response of HRNB after chemotherapy induction and its impact on the subsequent surgical treatment and prognosis.

METHODS: Retrospective study of HRNB treated in two tertiary hospitals from 1994-2014. Patients with high-risk tumors who have received chemotherapy induction and have the relevant radiological studies available were included. The response evaluation was performed by volumetry in CT-scan or MRI by two different radiologists blinded to final result. Tumor volume measurement and identification of IDRFs were made before and after chemotherapy. Surgical complications and survival data of patients were recorded. A threshold level of p<0.05 was considered significant.

RESULTS: A total of 58 HRNB (31M) with a median of 75(0-439) months at diagnosis were included in the study. N-myc was amplified in 36% of patients and main location was adrenal gland (58%). Overall survival was 47% and complete or near complete removal was achieved in 70% of patients. A volumetric reduction >65% was not related with survival or complete resection.

CONCLUSION: In our series, a radiological volume reduction >65% was not able to predict neither the chance of complete tumor resection nor the survival of the patient.
DOES RADICAL SURGERY WORTH IN HIGH-RISK NEUROBLASTOMA (HRNB)? EXPERIENCE FROM 2 TERTIARY HOSPITALS

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Aim of the study: The role of extensive surgery in HRNB is controversial. The aim of this study was to investigate if the degree of tumor resection could predict outcome in these patients.

Methods: Retrospective study of a cohort of patients with HRNB treated in two tertiary hospitals from 1994-2014. Patients in HRNB who have received chemotherapy induction and delayed surgery were included. Extension of resection was classified as complete (>95%), near-complete (90-95%), or incomplete (<90%) based on surgical reports. The extent of resection was then correlated with surgical complications, recurrence and survival rate. A p value less than 5% was considered significant.

Results: Total of 58 HRNB (31M) with a median of 75(0-439) months at diagnosis were included in the study. A complete or near-complete removal was achieved in 70%. Surgical complications occurred in 21% of the patients. After a median follow-up of 41(5-239) months, 47% of the patients survived. Extensive resection was only associated with lower local relapses (RR 0.411, CI 95% 0.172-0.982). Surgical complications, distance metastasis or overall survival were not influenced by type of resection.

Conclusion: In our experience, a complete or near-complete resection of the primary tumor was a protective factor for local control of disease in HRNB. However, extensive surgical removal was not related with recurrent metastasis or survival rate.
EPITHELIAL OVARIAN TUMORS IN CHILDREN – AN 11 YEARS RETROSPECTIVE ANALYSIS

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Aim: The aim of the study was a retrospective analysis of patients who underwent surgery with a diagnosis of epithelial ovarian tumor between 2005 and 2015 and evaluation of early and long-term treatment results.

Material and methods: In the period from 2005 to 2015 146 operations were performed in patients with a diagnosis of ovarian tumor. Out of this group 15 patients were diagnosed with an epithelial tumor in postoperative histopathological findings (11 cystadenoma, 3 adenofibroma, 1 adenocarcinoma), which represented 10% of all patients. The age of these patients ranged from 12.6 to 18 (med. 16 years). All girls were postmenarchal. Prior to surgery clinical symptoms were reported by 10 patients, including bleeding from the genital tract in 1 patient. The remaining 5 patients were asymptomatic. In all patients imaging studies and tumor markers were assessed.

Results: In 11 patients, surgery was performed laparoscopically, 4 patients were operated through laparotomy. 7 patients underwent cystectomy, 7 ovariectomy, and in 1 patient salpingoovariectomy was performed. There were no intraoperative complications. In 1 patient adhesive bowel obstruction was observed in the early postoperative period requiring surgery. 1 patient underwent postoperative chemotherapy. Long term observations ranged from 4.5 months to 10 years (med. 4 years). No clinical symptoms were reported by all 12 patients that have remained in our observation. Control ultrasound examinations showed no recurrence of the changes.

Conclusions: Conservative approach with cystectomy appears to be a safe operation in pediatric patients.
Aim of the study: We aimed to present our experience in pulmonary metastasectomy (PM) in children.

Methods: Retrospective analysis of patients underwent PM between 2005-2015 was performed. The effects of parameters included number of nodules, nodule localization (uni/bilateral), re-metastasectomy, complete resection, metastasis during initial diagnosis, live tumor histopathology, nodule progression and stability were analyzed on 1 and 3 year event free survival (EFS), nodule recurrence and mortality.

Main results: 27 patients (18M, 9F) underwent PM with a median age of 15 years (3-18 years). The diagnosis were listed as osteosarcoma (13), Wilms’ tumor (7), Ewing sarcoma (3), synovial sarcoma (2), rhabdomyosarcoma (1) and mixed germ cell tumor of testis (1). The number of nodules was \( \geq 4 \) in 10 patients (37%). Five patients had bilateral nodules (17%). 15 patients had metastatic nodules during initial diagnosis (55%). The nodules were classified as stable (7 patients), progressive (7 patients) or new onset (13 patients). Three of the nodules had benign pathologies and excluded from statistical analysis. All of the parameters which were stated at methods had no statistical effect on 1 year EFS. Only one parameter as nodule stability had a significant positive effect on 3 year EFS (p=0.017). Nodule recurrence was seen more frequently in progressive nodules and live tumor histopathology (p<0.05). Similarly, mortality was occurred more frequently in progressive nodules and live tumor histopathology (p<0.05). The nodule stability had a significant positive effect on nodule recurrence and mortality (p<0.05).

Conclusions: Pulmonary metastatic nodules must be excised surgically to achieve better prognosis. Nodule progression and live tumor histopathology has a significant negative effect on survival and recurrence statistically. However, some of the other parameters had significant effect rationally. Therefore, large patient numbers were necessary to investigate the effects of these parameters.
RADICAL PANCREATEIC RESECTION IS NOT NECESSARY IN THE SURGICAL MANAGEMENT OF SOLID PSEUDOPAPILLARY TUMOR OF THE Pancreas IN CHILDREN

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Aim of the study: Radical surgical resections are usually preferred in the treatment of solid pseudopapillary tumor (SPPT) of the pancreas. In this study, we aimed to present our surgical strategy based on minimal resection by enucleation or limited resection in localized SPPT of the pancreas.

Methods: We retrospectively analysed the medical records of children who underwent surgical excision for SPPT in our clinic between October 2011 and May 2015.

Main results: Four female patients were operated with a mean age of 15.7±0.9 years (range, 15-17 years). Tumors were located in head (3) or tail (1) of the pancreas. Mean greatest tumor diameter was 8.2±3.6 cm (range, 5-13 cm). Patients underwent enucleation (3) at head localization or local distal resection without splenectomy (1) at the tail of the pancreas. At postoperative follow-up, major leakage was seen in one patient and managed by placement of a pancreatic stent to main pancreatic duct under endoscopy. Surgical margins were negative in all patients. The median follow-up period was 35 months (range, 7-50 months) and no local recurrence or distant metastasis was seen in the post-operative period.

Conclusions: The optimal surgical strategy is still controversial in the treatment of SPPT in children. Radical resections like pancreaticoduodenectomy or distal pancreatectomy with splenectomy result with an important loss of pancreatic tissue for endocrine and exocrine functions of the pancreas. Minimal resections like enucleation or limited pancreatic resection with negative surgical margins should be performed in selected patients with no invasion to main pancreatic duct or adjacent organs.
FOETAL TUMOURS IN A SINGLE TERTIARY CENTRE. A REVIEW OF 33 CASES

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Objective: Foetal tumours are a heterogeneous group of neoplasms; their epidemiology is poorly known because stillbirth and termination are underreported in tumour registries. Our objective was to determine epidemiology and management of these tumours in a single tertiary centre.

Method: We performed a retrospective study on foetuses followed up in our prenatal diagnostic centre (∼20 000 births per year) between 2003 and 2015.

Results: 33 foetuses with tumours were identified: 14 males and 19 females. Mean mother age was 32 years. There were 9 sacrococcygeal teratomas, 1 hepatic mesenchymal hamartoma, 2 cephalic teratomas, 2 intracardiac rhabdomyomas, 10 cystic lymphangiomas (4 cervical, 1 thoracic subcutaneous, 2 axillary, 2 retro peritoneal, 1 intra peritoneal), 4 subcutaneous hemangiomas, 1 hepatic hemangioma, 1 oligodendroglioma, 1 IVs neuroblastoma, 1 hamartoma of the posterior fossa and 1 extra renal rhabdoid tumor.

Four foetuses (12%) died in utero: 2 sacrococcygeal teratomas and 2 cystic lymphangiomas. Six termination of pregnancy (18%) were performed for 2 cervical and 4 cranial tumours. There were 23 (70%) newborn (one preterm at 26WG). 4 infants died (12%): 3 during neonatal period (1 sacrococcygeal teratoma after surgery, 1 rhabdoid tumour in palliative care, 1 hepatic hemangioma despite embolization) and 1 chemoresistant neuroblastoma. Overall mortality rate was 42% and mortality without TOP was 24%.

Conclusion: Prenatal tumours have a specific epidemiology. Considering the high mortality rate, variable outcomes depending on the location/type of tumour, and ethical issues, prenatal counselling and management of these tumours have to be referred to tertiary centres with multidisciplinary team.
PEDRIATRIC CLEAR CELL RENAL SARCOMA

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Aim of the study. Our purpose is to compare the presentations and the outcomes of our patients operated for clear cell renal sarcoma with the current literature to define therapeutic strategy.

Methods. A retrospective study was done during the between 1st January 2005 and 1st January 2015. The following indicators were reviewed: age, sex, symptoms, associated malformations, localization of the tumor, treatment and evolution.

Results. Five cases of clear cell sarcoma were identified, accounting for 20% of all renal tumors in our department. The median age at diagnosis was 6 months (4-12 months). The sex ratio was 5. Abdominal mass was associated with hematuria in three cases. No congenital malformation syndrome or familial renal tumor were observed. Ultrasound and CT scan revealed heterogeneous mass, arising from the right kidney (2 cases) consistent with Wilm’s tumor. Biopsy of the mass was done in none case. Given the massive size of the tumor, preoperative chemotherapy was given according to the “SIOP” protocol. All our patients underwent total and enlarged nephrectomy. Tumor measurements varied through 7-10 centimetres. The histopathology confirmed the diagnosis of clear cell renal sarcoma. Postoperative chemotherapy was done in all the cases. Median follow up of 21.6 months, one patient showed bone metastases (25%). Long term survival is nearly 80% of patients alive at 5 years.

Conclusion. Pediatric clear cell sarcoma is an uncommon and aggressive tumor. The diagnosis is suspected with the imaging studies and confirmed by histology.
EVIDENCE IN OUTCOMES OF INTRAABDOMINAL TESTIS TORSIONS (ITT)

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Aim: Intraabdominal testicular torsion (ITT) is rare and preoperative diagnosis is challenging. This study performs a literature based analysis of ITT and their outcomes.

Methods: Literature was searched on Pubmed® (1995-2015) using terms „intraabdominal“, „testis“ and „torsion“.

Results: One review article and 16 reports with 56 patients were analyzed. ITT presented in two age-peaks: <4 year (3-48 months) (n=7; 12.5%) and adolescents/adults 11-49 years (n=49; 87.5%). ITT was right-sided in n=27 (48 %), left-sided in n=18 (32 %) and no data in n=11 (20 %). Indications for emergency surgery for acute abdominal presentation were in n=16 (28.5%). Ultrasound (US) was performed in n=10 (n=3; 5.4% preoperative confirmation of ITT), Computed Tomography (CT) in n=9 (n=7; 12.5% masses detected) and Magnetic Resonance Imaging (MRI) in n=3 (n=3 masses detected) and abdominal films in n=2 (reason unknown). In n=36 (65%) data about symptoms and diagnostics was absent. Laparoscopy was performed in n=5. All ITT were found to be necrotic at the time of surgery and were resected. Histology revealed 48 (85.7%) tumors: n=34 seminomas, n=8 teratomas, n=5 embryonal carcinomas and n=1 choriocarcinomas. Necrosis and atrophy was found in n=8 without malignancy.

Conclusions: ITT has 2 age peaks of presentation with 1/4th patients presenting as emergencies. Preoperative diagnosis is rarely confirmed; CT and MRI can detect solid intraabdominal masses; however only Doppler US can confirm ITT. During surgery, these testicles are non-viable and orchiectomy is inevitable. Since there is a high occurrence of tumors, ITTs warrant biopsies in case of testicular salvage.
STEP MANAGEMENT FOR VUR: A NEW STRATEGY SUITABLE FOR EVERYONE?

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Purpose. VUR is one of the most common ailments in children and its management is still controversial. Our purpose is to evaluate step management as a new strategy, based on continuous antibiotic prophylaxis (CAP) only for patients under 1-year-old, considering endoscopic or open surgery (step-up) in those who develop a breakthrough febril UTI.

Material and methods. A prospective review was performed in 136 children with VUR (January 1, 2008-1 December, 2014). Data extracted included age of presentation, family and prenatal backgrounds, radiographic evaluation including US, DMSA scans and VCUG. US was considered normal if there was no evidence of scarring, hydronephrosis or duplication. Grading of VUR was established according to the International Reflux grading system. DMSA scans were considered normal if there were no captation defects and differential function was greater than 45%. Clinical significance disease was considered if renal injury was identified or grade 3 or higher VUR. SPSS program was used for statistical analysis.

Results. 127 patients (59 girls-68 boys) were diagnosed, 39.4% prenatal ultrasounds examinations detecting hydronephrosis and 57.5% history of UTI. Mean age at diagnosis 19.05 months (0.10-191.47), 57.7% low-moderate grade of VUR. The high grade of VUR at initial VCUG were associated with renal damage at diagnosis (p 0.029). There were a greater proportion of boys with renal scarring due to a high percentage of prenatal diagnosis (72%) and high VUR (63.9%, OR0.576, p0.075). 104 patients did not develop a breakthrough febril UTI (mean follow-up 37.80 months). The 76.5% patients with DMSA presented no changes in kidney function and parenchymal scarring. Surgery was proposed in 23.5%-Endoscopic surgery (96.55%). After surgery, the 76.51% did not present UTIs. Bilateral reflux patients needed step-up in a great proportion (p<0.001). There were no difference for VUR grades, age of presentation, prenatal renal scarring or sex.

Conclusions. Step management was effective in our patients and 92.86% did not present renal damage worsening during follow-up. Step-up needing was associated with bilateral reflux. This approach appears to be suitable for every patient.
PW09-03

DIAGNOSIS AND LONG-TERM OUTCOME OF RENAL CYSTS AFTER LAPAROSCOPIC PARTIAL NEPHRECTOMY IN CHILDREN

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Aim: We aimed to document the US appearances following laparoscopic heminephrectomy in children.

Methods: We reviewed the US imaging reports performed during follow-up in 125 children (77 girls, 48 boys- average age 3.2 years) underwent laparoscopic heminephrectomy in 2 centers of pediatric surgery over a 10-years period (2005-2015).

Results: Transperitoneal approach was adopted in 83 cases while retroperitoneoscopy was adopted in 42 cases. The average follow-up was 4.2 years. At US, an avascular cyst related to the site of surgery was found after 61/125 procedures (48.8%). Of these 61 cysts, 53 were simple and anechoic and 8 appeared septated. The average diameter of the cysts was 3.3 x 2.8 cm. As for their course, 13 cysts disappeared after mean 4 years, 26 cysts not changed in dimension, 17 cysts decreased in size and only 5 cysts enlarged. The cysts were asymptomatic in 41 cases (67.2%) while they caused urinary infections, voiding dysfunction and abdominal pain in the remaining 20 patients. None of these patients required a re-intervention.

Conclusion: The US finding of a simple cyst after laparoscopic heminephrectomy is a common event during follow-up in about 50% of patients. In regard to haetiology, it seems that a sieroma takes the place of the removed hemi-kidney. There is no correlation between cysts and type of surgical technique adopted. In our series, the cysts were asymptomatic in the majority of patients and no children have required redo-surgery. In conclusion, renal cysts after laparoscopic partial nephrectomy can be managed conservatively.
TIMING OF FEMINIZING GENITOPLASTY FROM THE VIEWPOINT OF EGYPTIAN CLINICIANS AND FAMILIES OF GIRLS WITH VIRILIZED EXTERNAL GENITALIA

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Background: There are important controversies regarding the timing and outcomes of feminizing genital reconstructive surgery for female children with virilized external genitalia due to congenital adrenal hyperplasia. Deferring surgeries beyond childhood, which is a growing trend in the Western world, is difficult to implement in other societies, and may result in stigmatization and distress to the affected individuals and their families.

Methods: Thirty girls with genital virilization were admitted for a single-stage feminizing genitoplasty, between 2011 and 2014. We prospectively studied the concerns and input of the families represented by the mothers, who completed a questionnaire to clarify their priorities and concerns related to surgery, after comprehensive counselling.

Results: Surgeries were performed at a mean age of 22 months. Most families (70%) believed that the timing of surgery was suitable, but 30% required even earlier surgery. The mean follow-up period was 39 months, and regardless their degree of satisfaction with the outcome, the families remained fully positive about the decision of early surgery. All the parents were concerned that their girls would have had significant psychological disturbances without surgery. They are marginally more concerned about vaginal functional outcomes (being a genital and birth canal), than external appearance and cosmetic outcomes. The absence of the hymen was not a stand-alone concern, and although mentioned by 80% of families, was usually overlapped with other worries.

Conclusions: A global consensus needs to include input from different cultures in order to be comprehensive. The social canvas affects the management plan within conservative societies. Egyptian families believe that early surgical reconstruction is in the best interest of their girls. Early genital reconstructive surgery needs to remain a viable option, when reasonably indicated, and within a multidisciplinary approach.
PW09-05

INDICATION OF IPSILATERAL AND CONTRALATERAL ORCHIDOPEXY IN TESTICULAR TORSION

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Aim of the study: assessment of the indication for bilateral fixation of the testis during the surgical exploration of a testicular torsion.

Methods: Prospective study of 69 patients undergoing surgery for testicular torsion between 1996 and 2014. We evaluated epidemiological characteristics (age, side, duration and background), fixation of both testis, type of fixation and long and short term outcomes of both gonads (recurrent torsion, fertility and evolution).

Main results: The average age was 10.85 years (SD 4.6 years). In 18 patients (26%) orchiectomy was performed. Detorsion was performed in the other 51 patients, being 43.1% right side testicular torsion and 56.9% left side testicular torsion. Only in 4 patients the contralateral testis were fixed, and in 47 (92.1%) contralateral testis were not fixed. Regarding the torsed testicle: in 26 (50.9%) patients the testis were fixed by sutures through the tunica vaginalis, in 25 (49.1%) cases the torsed testis was not fixed. Median follow-up was 12.75 years (1.5 - 20 years) with no evidence of retorsion in either group, or torsion of the contralateral testis. Long term percentage of atrophy of the affected testicle was 8% for the fixed testicles and 19% for not-fixed testicles. (Chi square= 1.35, p=0.41)

Conclusion: Taking into account the low incidence of recurrent torsion, in our experience, there is no indication for ipsilateral and/or contralateral fixation of the testis. In our opinion, it is enough warning the patient about the importance of being evaluated by a specialist in the emergency department, if a new episode of scrotal pain appears.
LYMPHATIC SPARING LAPAROSCOPIC LIGATION OF INTERNAL SPERMATIC AND DILATED DEFERENTIAL VEINS FOR PEDIATRIC VARICOCELE

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Aim of the Study: The ideal method of varicocelectomy remains controversial. We present our approach of lymphatic-sparing laparoscopic varicocelectomy with simultaneous division of dilated deferential veins.

Methods: We performed a prospective study of all pediatric patients who underwent laparoscopic varicocelectomy from 12/2011 to 6/2015. We employed a three-trocar configuration. The internal spermatic vessels were identified after a peritoneal incision at the internal inguinal ring. At least 3 lymphatics were preserved while the rest of the vascular bundle were ligated with two nonabsorbable sutures. The deferential veins with diameter greater than half of the vas deferens diameter were considered dilated and were divided after coagulated with bipolar diathermy. All additional veins going through the internal ring were dissected and coagulated.

Main Results: 39 patients with a median age of 12.5 years (range, 10 - 16 years) underwent the above mentioned approach. Lymphatic sparing was accomplished in all cases. Dilated deferential veins were observed and divided in 10 patients and other additional veins coagulated in 11 patients. The mean follow-up period was of 17 months (range, 6 - 48 months). There was 1 patient with hydrocele which spontaneously resolved at follow-up examination. No residual varicocele was noted either clinically or according to color Doppler ultrasound scanning. Mean testicular volume difference diminished.

Conclusion: Our proposed lymphatic-sparing technique with interruption or coagulation of all laparoscopically identified dilated veins included deferential veins is accomplished with promising results, comparable with those of subinguinal microsurgical varicocelectomy.
URETEROPELVIC JUNCTION OBSTRUCTION IN THE SOLITARY KIDNEY IN CHILDREN: FUTURE OF THE RENAL FUNCTION AFTER PYELOPLASTY

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Aim of the study. Ureteropelvic junction obstruction (UJPO) in solitary functional kidney may result in chronic kidney disease (CKD), but long-term data are scarce. We evaluate renal function after pyeloplasty for the treatment of UPJO on children in the setting of a solitary kidney.

Methods. 31 patients with solitary kidney underwent classic Henderson-Hynes pyeloplasty: posterior lombotomy (n=25), retroperitoneoscopy (n=5) and one laparotomy. Solitary functional kidney was due either to contralateral non-functional kidney (n=28) or to renal agenesis (n=3). Two patients had a complex uropathy (bladder extrophy, urethral duplication). Indication for pyelopasty was prenatal diagnosis of hydronephrosis with increasing renal pelvis dilatation on follow-up (n=18), renal failures in newborn period (n=10), urinary tract infections (n=2) and 1 flank pain. Serum creatinine, blood pressure, height and weight were measured preoperatively, and at all post-operative follow-up examinations

Main results. Median age at surgery was 5.3 months (10 days-15 years): 22 patients were operated on before 2 years of age. Median follow up after surgery was 7.3 years (0.6-33.8 years). At last follow-up six children remained with CKD: 2 had CKD stage 2 at the age of 9 and 17 years, and 3 had CKD stage 4 at the age of 9, 12 and 20 years respectively (all of them had renal failure before surgery). The last patient was successfully transplanted at 2 years of age.

Conclusion: UJPO in solitary kidney in children is associated with a high prevalence of CKD (19,3 %) and warrants long term renal function follow-up.
LONG-TERM EVALUATION OF CONGENITAL VENTRAL PENILE CURVATURE REPAIR USING DORSAL APPROACH

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Aim of the study: Congenital ventral penile curvature, with or without hypospadias, can be successfully corrected by mobilization of neurovascular bundle and dorsal plication of tunica albuginea. Our aim was to evaluate long-term results with this procedure.

Methods: We evaluated 185 patients, aged 11 – 18 years (mean 15.5), who underwent congenital ventral curvature repair between January 2002 and April 2007. There were 101 cases of curvature with hypospadias and 84 patients with isolated curvature. Artificial or pharmacological erection by Prostaglandine E1 was used intraoperatively to determine the degree and exact point of maximal curvature, and to check the result after correction. Complete straightening of the penis was achieved by mobilization of neurovascular bundle with preservation of all structures, followed by minor dorsal plications using absorbable suture material in all cases.

Main results: Mean follow-up was 11.4 years (ranged from 8.6 to 14 years), and all patients were tested for penile length, presence of curvature, as well as quality of erection and sensitivity of the glans. Length of the erect penis varied from 12.8 to 17.2cm. Residual ventral curvature was noted in 5 patients who were initially treated for curvature with hypospadias (5%). Two cases of recurvature and one lateral curvature were diagnosed in the second group of 84 patients (3.6%). All boys reported good quality of erection and preserved sensitivity.

Conclusion: Dorsal plication of tunica albuginea presents a safe and simple method for congenital ventral curvature repair. Satisfactory length of the penis, preserved sensation and erection, with low rate of recurrence is confirmed in long term follow up.
PROTEOMIC ANALYSIS OF URETEROPELVIC JUNCTION OBSTRUCTION SEGMENTS IN CHILDREN

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Aim Ureteropelvic junction obstruction (UPJO) is the most common obstructive uropathy in children. Its etiology has not been delineated yet. In this study, we aimed to understand the differential protein ingredients of UPJO segment in order to identify an etiologic factor.

Patients and Methods After local ethics committee approval, children operated for intrinsic UPJO were included in the study. An intrinsic pathology was confirmed during pyeloplasty. UPJ was excised with the resection margins of 2–3 mm above and below this segment. The excised materials were divided into three parts: the obstructed UPJ segment, the distal normal ureteral part and the proximal pelvic segment. All tissues were washed, packaged in tubes and immediately placed in liquid nitrogen. The laboratory studies were done to all tissues at the same time. After protein isolation, two dimensional electrophoresis were done for each sample.

Results Twelve patients were included in this study. There were five girls and seven boys with an average age of 6.9 months (Range 0.7-22.6 m). UPJO was on the left side in 8 and right in 4 patients. Annexin A1 and Annexin A5 were increased in the distal part of the obstructed segment. Vimentin, mitochondrial ATP synthase subunit beta, peroxiredoxin-2 were expressed more in the proximal segment compared to the obstructed part. In the obstruction segment, Carbonic Anhydrase 1 protein, heat shock protein beta-1 expression was increased compared to proximal part. And Desmin, Aortic Smooth Muscle Actin Protein (ACTA2) and, tropomyosin beta and alpha-1 chains were increased in the obstructed segment compared to distal.

Conclusion Proteomic analysis gives a wide range of protein identification. This modality in UPJO may give clues about the etiology of this condition. However, the results should be carefully interpreted to explain this congenital problem.
BLADDER NECK PLICATION; CURRENT EXPERIENCE IN SELECTED CAUSES OF INCONTINENCE

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Introduction & Aim of the work: various procedures with varying complexity and popularity have been described for bladder neck reconstruction and management of incontinence. Bladder neck plication has first been described in 2001 as a novel simple procedure with satisfactory success rate. Recently, it has been used in Robotic prostatectomy to minimize the period of postoperative incontinence.

This study evaluates the procedure in children in selected pathologies.

Patients & Methods: After approval of ethical committee, this study has been conducted on patients presenting with urinary incontinence secondary to incontinent epispadias or spina bifida associated neurogenic bladder. Two transverse retropubic stitches using non absorbable sutures were placed while inserting an indwelling urethral catheter. Clinical wetting and urodynamics were compared before and 6 month after the operation.

Results: during the period between April 2010 and June 2015, 23 patients were operated upon for incontinence; 18 of which had previously repaired spina bifida and 5 incontinent epispadias. Of the spina bifida group, 11 had concomitant augmentation and catheterizable stoma and 7 had only catheterizable stoma. Of the epispadias group, only 1 patient had a catheterizable stoma.

17 patients are completely dry for a minimum of 3 hours and 5 patients leak at 1 and 2 hours. Only one patient showed increased pressure in urodynamics from the spina bifida group and is planned for augmentation.

Conclusion: Bladder neck plication is a simple, successful, with low incidence of complications and failures in selected cases.
PW09-11

INCIDENCE OF URINARY TRACT INFECTIONS IN INFANTS WITH ANTENATALLY DIAGNOSED HYDRONEPHROSIS

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Purpose. To evaluate natural incidence of urinary tract infections (UTI) in infants after antenatally diagnosed hydronephrosis (ANH).

Patients and methods. Patients with ANH from a single institution 2003-2013 were included. Patients with a duplex system, ureteroceles, posterior urethral valves or neonatal decompression of the urinary tract were excluded. All UTIs were collected from urinary samples. Febrile UTIs were considered as pyelonephritis.

Results. Of a total 193 infants (145 males), 136 patients had nonrefluxing hydronephrosis (HN), 21 patients nonrefluxing hydroureteronephrosis (HUN), and 36 patients had vesicoureteral reflux (VUR) (24/36 grade 4-5). There were 58 controls (38 males). During the median follow-up period of 2.5(0.1-11.2) years, 27(14%) patients (17(12%) males and 10(21%) females) (p=0.148) and 2(3%) controls experienced at least 1 UTI (p=0.033). 18(67%) of breakthrough UTIs were febrile. Patients’ median age at the first UTI was 0.4(0.0-1.5) years in boys and 1.0(0.5-4.8) years in girls (p=0.003). UTI was detected in 16(67%) patients with grade 4-5 VUR (p <0.001), in no patients with grade 1-3 VUR (p>0.999), in 10(7%) of the patients with HN (p=0.516) and in one (5%) patient with HUN (>0.999). At the time of UTI, 15(56%) were on antimicrobial prophylaxis.

Conclusions. Infants with ANH combined to grade 4-5 VUR had significantly increased risk for UTIs. Males experienced UTIs in significantly younger age, but females tended to be in greater risk for UTIs altogether.
COMPLETE NON FUSION OF THE TESTIS AND EPIDYDIMIS. DIAGNOSTIC PITFALLS AND LESSONS LEARNED

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Goal: Fusion anomalies of the testis and epididymis are common finding in patients with cryptorchid testis. However complete non fusion (CNFTE) is very rare. We aim to present four cases of complete non fusion found intraoperatively and discuss all unique difficulties in their diagnosis and management.

Material and Methods: This retrospective study included 2048 children with unilateral cryptorchidism who were treated surgically at Penteli Children’s Hospital Athens from 1998-2014. Fusion anomalies of the testis and epididymis were found in 47.8% (n=979). Four of them (0.2%) had CNFTE. We studied and assessed intraoperative findings and management.

Results: In two CNFTE cases epididymis was either found inside or near the scrotum but the testes were intrabdominal, smaller than the opposite and the decision was made to remove it. There was another patient in whom epydidimis was near the external inguinal ring but was mistaken for a dysplastic testis and was removed with no further investigation. One year later an inguinal swelling was noticed, ultrasound showed characteristics of a testis. At a second look operation the real testis was found at the inner inguinal ring and was removed. Uncomplicated orchidopexy was performed in the fourth case.

Conclusion: Our results showed that CNFTE may complicate diagnosis and management of patients with cryptorchidism. Anatomy may be confusing, dissection may be complicated. Paediatric surgeons should be thorough in recognizing this anomaly and very delicate in its management.
J.H. LOUW ADAPTATION OF DISCONGRUENT SEGMENTS OF INTERINTESTINAL ANASTOMOSIS CONSTRUCTING A MATHEMATICAL MODEL

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Aim: To study loading of intestinal anastomosis zone of new-born with disproportional adaptation (J.H. Louw method) of intestinal tube segments by mathematical design.

Materials and methods: 20 parts of new-born’s bowel were investigated, each of that was divided into five equal fragments: 1 transversal, 2 longitudinal with a mesentery and 2 longitudinal with an antimesentery parties (100 samples). The investigated parameters were automatically fixed. The biomechanical parameters (maximum break loading, maximum deformation, Yunga module) of bowel’s fabric were determined using of research complex Instron 3342. In accordance to the data obtained by the programmatic package of SolidWorks was lined up the algorithm of the construction interintestinal anastomosis with different variants of discongruental segments. Inside every model of the intestinal anastomosis was set pressure about 30 mm/Hg.

Main results: The analysis of colour charting distribution of pressure in all models showed, that intestinal suture line had a uniform distribution of tension - 4-5 H/m2. The maximal tension was in the mesentery edge of the distal segment - 7-8 H/m2. The numerical analysis based on the finite element method showed that the area of intestinal anastomosis adaptation experienced permissible load even in critical conditions.

Conclusion: The mathematical model of intestinal anastomosis adapted by J.H.Louw allows us to prove that intestinal suture line is not subject to critical loads during normal conditions and there is no risk of anastomotic leak at any difference in the diameters of the segments.
NEONATAL OUTCOME IN 50 CONSECUTIVE CASES OF ISOLATED FETAL ASCITES, OBSERVED IN A TERTIARY REFERRAL CENTER

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Prenatal detection of isolated ascites is a rare finding on ultrasound. As in most cases of ascites, an underlying pathology is usually present and it may negatively influences neonatal outcome. The purpose of the present study was to evaluate the outcome of primary isolated ascites in relation to gestational age (GA) at diagnosis.

Data were prospectively collected for fetuses with ascites who have been followed in our center from 2004 to 2014. Patients have been divided according to precocity of diagnosis in: Group I when ascites was detected before 24 weeks of GA and II if later. For each group data about fetal and neonatal outcome were obtained.

50 fetuses were included. Among them, 28 in Group I and 22 in Group II. The median GA at diagnosis was 24.4 weeks (Group I 21, Group II 28.6). Prenatal paracentesis was performed in 29.4% of cases (32% vs 26% p=ns). No significant differences were observed between the two groups in terms of demographic data. An associated disease was identified in 61% of cases in Group I and in 74% in II (p= ns). There was a significant prevalence of gastrointestinal pathology in Group II (47% vs 10% p<0.05); with a significant incidence of meconium peritonitis (32% vs 4% p<0.05). 9 patients (18%) died, all in Group I, due to severe medical conditions.

A late diagnosis of isolated fetal ascites is associated with an increased risk of gastrointestinal diseases (meconium peritonitis). Nevertheless an early diagnosis of ascites is associated with adverse neonatal outcome.
URGENT LAPAROTOMIES IN NEONATES: THE NEONATAL INTENSIVE CARE UNIT COMPARED WITH THE OPERATING ROOM

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Aim of the Study: transferring critically ill neonates to the operating room (OR) is not always possible and is not riskless. The aim of this study was to assess the results of patients that underwent urgent laparotomies in Neonatal intensive care unit (NICU), and to compare with those operated in the OR.

Methods: retrospective study (2010-2015) of the neonates that underwent abdominal surgery, comparing the results among OR and NICU.

Main results: A total of 146 neonates were included in the study, 41 (28.1%) underwent surgery at the NICU and 105 (71.9%) in the OR. The most frequent indications at the NICU were necrotizing enterocolitis/ischemia (21(51.2%)) and gastroschisis (18(43.9%)); while in OR were necrotizing enterocolitis/ischemia (45(42.9%)) and intestinal atresia (29(27.6%)). The weight at the moment of surgery was 1653 (SD808g) in NICU and 2420g (SD895g) in OR. The previous pH, need of inotropes and invasive ventilation in NICU was 7,26(SD0,17), 39% and 100% respectively; while in OR was 7,37(SD0,09), 16,2% and 35,2% (p<0.05). The initial median temperature was 36,15ºC (r:37,5-34) in NICU and 35,5ºC (r:37,5-31) in OR; at the end was 36,5ºC (r:37,6-31,8) and 35,8ºC (r:37,7-32,7). In the NICU 9,76% of patients presented wound infection and 34,2% postoperative sepsis; in OR were 12,4% and 23.1%. The mortality in NICU was 14,6% and in OR 6.8% (p>0.05).

Conclusions: surgeries in the NICU are a safe alternative for neonates that cannot be transferred. Although those patients are more unstable, the results are similar to the ones in the OR, avoiding the possible mobility resulting with the transfer to OR.
SIROLIMUS IN THE TREATMENT OF VASCULAR ANOMALIES

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Aim of the study. mTOR inhibitors are showing promising results in the management of vascular anomalies. Although current controlled trials remain to be completed, many individual experiences are being published.

We present our series of children with complex vascular anomalies treated with Sirolimus.

Methods. A retrospective review of 41 patients treated with Sirolimus between January 2011 and December 2015 was performed. 15% (n=6) had vascular tumours (4 KHE, 1 PTEN) and 85% (n=35) had malformations (13 GLA/GSD, 1 KLA, 11 large LM in critical areas, 2 Lymphedemas, 4 VM and 4 aggressive AVM).

Several variables were collected: type of vascular anomaly, duration of treatment, dosage, response and secondary effects.

Main results. There was a female predominance (1.4:1). All patients received Sirolimus, at initial dosage of 0.8 mg/m2/12hr. Overall successful response rate was 83% of cases, presenting improvement in radiologic imaging and quality of life (QOL) measurements, at a median time of 10 weeks. Patients showing no response included 4 AVM’s, 1 GSD, 1 LM and 1 KLA.

Sirolimus was well tolerated, even in neonates, with insignificant side effects. No patients had complete resolution and no patients worsened on therapy. 30 patients remain under treatment at the present moment.

Conclusions. Sirolimus has become a new therapeutic option for patients with vascular anomalies that do not respond to other treatments. Unfortunately, important questions as what’s the most appropriate dosage and for how long should the patient be treated, remain unanswered.

An international registry followed by customized controlled trials are mandatory in order to clarify the future of this therapy.
PW10-05

SCLEROTHERAPY OF VENOUS MALFORMATION USING SODIUM TETRADECYL SULPHATE (STS) AND ETHANOL: A RETROSPECTIVE STUDY

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Aim of the Study: Sclerotherapy is first-line treatment in venous malformation (VM). In this study we review the safety and efficacy of two commonest sclerosants, sodium tetradecyl sulphate (STS) and ethanol.

Methods: Children with VM under image-guided sclerotherapy in 2010-5 by STS or ethanol were recruited. Demographic data, VM size and site, post-sclerotherapy course and complications were reviewed.

Main results: Thirty-one children (M:F = 11:20), aged 1 to 17 years, were recruited. Fourteen (45.1%) had STS as initial treatment. Nineteen (61.2%) had single sclerotherapy. Patients with residual VMs had repeated (2 to 8) sclerotherapy or excision done.

<table>
<thead>
<tr>
<th>Patients</th>
<th>STS (n=14)</th>
<th>Ethanol (n=17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median age</td>
<td>8 (1-17)</td>
<td>10 (2-17)</td>
</tr>
<tr>
<td>Median Size (ml)</td>
<td>8.75 (0.5-65.4)</td>
<td>10.6 (0.3-20.6)</td>
</tr>
<tr>
<td>Head &amp; Neck</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Trunk</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Limbs</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Fifty-eight sclerotherapies were performed. All lesions had size reduction post-sclerotherapy. Minor complications including skin bruises, mucosal ulcer and numbness occurred after 10 sclerotherapies (17.2%), were managed conservatively. In 16 patients (51.6%), VMs were cured. Larger sclerosant volume (≥4ml) were used in 22 sclerotherapies and were associated with cure (p=0.03).

<table>
<thead>
<tr>
<th>Sclerosants</th>
<th>STS (n=23)</th>
<th>Ethanol (n=35)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median volume injected (ml)</td>
<td>2 (0.5-8)</td>
<td>3.5 (0.4-11)</td>
<td>0.08</td>
</tr>
<tr>
<td>Cured lesion</td>
<td>4 (17.4%)</td>
<td>12 (34.3%)</td>
<td>0.23</td>
</tr>
<tr>
<td>Complications</td>
<td>2 (9.5%)</td>
<td>8 (29.7%)</td>
<td>0.29</td>
</tr>
</tbody>
</table>

Conclusions: Sclerotherapy is safe and effective treatment in VM. Ethanol showed trend of higher curative rate but higher complications, though not reaching statistical significance. Larger sclerosant injection volume was associated with cure. Further prospective study is necessary to validate these findings.
PERIOPERATIVE D-DIMER LEVEL IN CHILDREN WITH VENOUS MALFORMATIONS

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Aim of the Study. The level of D-dimer has been shown to be raised in patients with venous malformation (VM). Few studies to date have looked into the peri-operative trend of d-dimer level and its correlation with post-operative response. Our aim is to study whether an intense response as evidenced by a raised post-operative D-dimer correlates with a better treatment outcome.

Methods. A prospective study that recorded perioperative D-dimer level for patients undergoing alcohol sclerotherapy for venous malformations between December 2014 to October 2015 was done. Demographics collected include age at presentation, gender, clinical symptoms and indications for treatment. Characteristics of venous malformation including location, volume and presence of muscular involvement were recorded. D-dimer levels were taken 2 weeks pre-operatively, then on day 1, 2, 5 and 14 post-operatively. Raised d-dimer level was defined as a level more than 500ng/ml. Outcome including complications and response to treatment were presented.

Main results. Fifteen patients were included (9 female, 6 male). Raised D-dimer was seen pre-operatively in 7 patients (46.7%) and postoperatively in 11 patients (73.3%). Of that 11 patients with high post-operative D-dimer, most (60%, n=9) had peaked level on day 1 post-op (9 on day 1, 1 on day 2 and 1 on day 3). Seven patients in this group (63.3%) have no residual lesion on follow up. However, for the group without raised post-operative D-dimer, all (100%) patients had residual lesion on follow up (p= 0.077).

Conclusions. D-dimer level was raised postoperatively in majority of VM patients undergoing sclerotherapy. Although statistically insignificant, a trend has been observed that an increased level correlates with a better treatment outcome.
PRE OPERATIVE MANAGEMENT IN PYLORIC STENOSIS: TWO EUROPEAN CENTERS COMPARATIVE STUDY

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Aim of the study. Electrolytes disturbances are common in hypertrophic pyloric stenosis (HPS) and pre operative management is well described in paediatric surgery textbooks. We herein analysed this aspect in patients treated in two tertiary paediatric surgical centres belonging to different health systems.

Methods. Records of cases treated for HPS from 2012 to 2015 were collected. Demographics, pre and peri-operative blood tests, type of fluid resuscitation regime, average time to surgery, to full feed and to discharge, were considered.

Main results. 30 patients have been treated in centre A and 59 in B. Age at diagnosis was 35.2 days (Group A) and 33.1 days (Group B); blood pH at the presentation exceeded 7.45 in none of the cases in A, while in 21/59 (35%) in B (p 0.0002). Standard iv fluids (composition and rate) were preoperatively administered, according to age and weight, in A; five different fluid regimes were given in B. Stabilisation time prior to surgery was 21.2 hours (A) and 36 hours in B (p<0.05). Time to discharge were 2.3 days in A and 2.4 in B (p>0.05).

Conclusions. The populations differs for the blood test derangement at the presentation. Aggressive blood monitoring and fluid resuscitation tend to be applied diffusely in the group B and it might have led to increased surgical delay. No ultimate pre-operative management can be defined as mandatory in HPS babies. Larger studies may be needed to evaluate the influence of different health system.
IS HYPERHYDRATION STILL NEEDED IN THE POST OPERATIVE MANAGEMENT OF LAPAROSCOPIC SPLENECTOMY FOR SICKLE CELL DISEASE?

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Aim of the study. Homozygous sickle cell anemia (SCA) carriers have increased perioperative mortality. The anesthetic management is fundamental to prevent pain, hypovolemia, hypothermia and acidosis to avoid complications as acute chest syndrome (ACS) or vaso occlusive crisis (VOC). We hereby check the utility of postoperative hyperhydration in this population to prevent complications.

Methods. We conducted a retrospective analysis of post-operative management of all SCA carriers who underwent a laparoscopic splenectomy in our single institution between 2005 and 2013, with a special focus on their hydration status. The oxygenation was monitored to get blood O2 saturation above 90% and pain was controlled with paracetamol, nalbuphine and morphine if needed for the first post-operative 48 hours. Patients were divided in two groups for fluid infusion: those with a minimum of 4 ml/kg/h (group A) and those below this level (group B).

Main results. Thirty-six patients with SCA had a laparoscopic splenectomy. Fifteen patients received fluid infusion at a minimum of 4 ml/kg/h (group A), the others 21 patients received a mean of 2.7 ml/kg/h (group B). We compared the two groups of patients and no significant differences were observed in term of complications (A=20%/B=15%), length of hospitalization (A=3.6/B=3.1 days), need of morphine (A=60%/B=61%) and need of oxygen (A=33%/B=47%).

Conclusions. An appropriated perioperative management is mandatory in SCA patients to reduce the risk of postoperative complications. However, hyperhydration above 4 ml/kg/h as recommended did not seem to bring any advantage in our cohort. These results should be confirmed in further studies.
**PW10-10**

**PRENATAL DIAGNOSIS OF INTESTINAL COMPLICATIONS IN TWIN-TO-TWIN TRANSFUSION SYNDROME (TTTS)**

Alba Sánchez-Galán, José Luis Encinas Hernández, Eugenia Antolín Alvarado, Alejandra Vilanova Sánchez, Vanesa Núñez Cerezo, Martha Romo Muñoz, Manuel López-Santamaría  
*Universitary Hospital La Paz, Madrid, Spain*

**Aim of the study:** The hemodynamic imbalance due to placental vascular anastomoses in TTTS but also vascular changes generated after treatment may lead to complications. Different intestinal complications in TTTS are reviewed in this paper.

**Methods:** Retrospective review of TTTS cases treated by laser coagulation (LC) from 2012-2015. Demographic data, fetal therapy, prenatal diagnosis (US, MRI) and perinatal incidents were recorded. We describe cases with intestinal complications and their postnatal management. Results are expressed by median and range.

**Results:** We have treated 31 monochorionic pregnancies with TTTS (25 LC, 4 cord occlusions and 2 cord occlusions after LC). The diagnosis was made at 19(16-25) weeks, 50% presented stage I-II and 50% stage III-IV of Quintero. In 70% of mothers survived at least one fetus with a median of 27(17-37) weeks at birth. Four patients had intestinal complications (1 perforated necrotizing enterocolitis, 1 jejunal atresia, 2 ileal atresia) half of them were found in the donor fetus. Postnatal resections of the affected segments and ostomies were performed. Intestinal transit was restored and there were no severe digestive sequelae after 21(8-38) months of follow up.

**Conclusions:** Different types of intestinal complications were associated with TTTS and LC. US and MRI enable prenatal diagnosis of these complications and this allows prompt decisions after birth.
DAY CASE SURGERY FOR CLEFT LIP: IT’S WORTH IT!

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¹Paediatric surgery department, University Hospital, Rennes, France, ²Paediatric anaesthesiology department, University Hospital, Rennes, France

Objective: Cleft lip primary surgery is well codified and is usually performed during a 2 to 6 day conventional stay in hospital. Nowadays, in a restricted budget context, day case surgery is more and more common in paediatrics. Bearing in mind the optimal medical care and economic cover of these children, we started to perform day case primary cheilorhinoplasty in 2011. We wanted to evaluate this new approach.

Methods: We performed a retrospective study on patients operated on from 2011 to 2015. The same surgeon operated on all patients under general anaesthesia with a maxillary block. Patients were given paracetamol and ibuprofen as painkillers for at least 48h. Parents were asked to answer a phoned questionnaire expressing their degree of satisfaction.

Results: 26 patients (12 girls, 22 boys) were included for 27 cleft lip. Median age was 6 months (6-21). There were 12 cleft lip, 8 cleft lip alveolar, 3 total unilateral cleft lip and palate (labial time as a day case) and 3 bilateral cleft lip (4 lips as daycase). Post-operative care was uneventful for all patients. Paracetamol-ibuprofen was sufficient to relieve postoperative pain. Feeding was started few hours after surgery by baby bottle, breastfeeding or spoonfeeding. All patients were given a normal intake at 24h postoperative.

All parents were satisfied with this daycase surgery. However, 7 manifested a stress about early discharge.

Conclusion: We advocate primary cheilorhinoplasty in children suffering from cleft lip should be performed as daycase surgery if the family environment allows it.
PW10-12

ASYNCHRONOUS BILATERAL OVARIAN TORSION IN GIRLS- ANALYSIS OF APPROACH AND OUTCOMES WITH SURGICAL OPTIONS?

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Aim: Bilateral ovarian torsions with complete loss of ovaries is devastating. This study analyzed the literature on bilateral ovarian torsions in girls in order to evaluate the surgical options and outcomes in salvaged ovaries.

Methods: Literature was searched on Pubmed® (1987-2014) using terms “bilateral” “adnexal” “ovary” “torsion” and “children” Data was collected age at presentation, type of surgery performed and possible pathology that led to the torsion.

Results: The 27-year literature search revealed 13 articles of which 10 met the inclusion criteria (5 case reports, 5 review articles); and analyzed 17 girls with a mean age of 8.75 years (range 1-16). Regarding surgery in these girls; there were n=4 bilateral oophorectomies, n=10 ipsilateral oophorectomy of severe affected ovary and contralateral oophoropexy, and n=3 detorsion of bilateral ovaries and bilateral oopheropexy. There was 1 torsion recurrence after two oophoropexies (suture material unknown). Laparoscopy was done in n=2 and open surgery n=15. Considering etiology, only information found was simple tuboovarian torsions in n=4, and polycystic ovary associated with Down syndrome in n=1. No tumors were reported. Serial ultrasound follow-ups in n=5 ipsilateral oophorectomy and contralateral oophoropexy confirmed follicular function in n=4 and viability and position of the ovary in n=1. Late outcomes were not evaluated in all studies.

Discussion: Though extremely rare, school age girls present bilateral ovarian torsion. Ipsilateral oophorectomy and contralateral detorsion with oopheropexy has been the preferred approach. Tumors are not associated in asynchronous bilateral torsions. Literature is completely void on long-term follicular functions and fertility outcomes.
SURGERY FOR MAJOR HEPATIC AND BILIARY TRAUMA IN CHILDREN

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Aim of the Study: The aim of the study was to present clinical, diagnostic and pathological findings in children with hepatic and biliary trauma who underwent surgery during 25 year period.

Methods: Retrospective analysis of 28 patients with hepatobiliary injury was particularly focused on diagnostic tools, surgical procedures and outcome. The study followed rules of the Institutional Ethical Committee.

Main Results: There were 14 girls and 14 boys, age at the presentation ranged from 1 week to 17 years. Blunt trauma was the cause of injury in 23 cases. Car accident was the most common cause of injury (36%). Hemoperitoneum and hemodynamic instability were indication for urgent surgery in 21 patients, delayed surgery was performed in 5 patients who underwent primary attempt of damage control in a regional hospital and in 2 with biliary peritonitis. Hepatobiliary injuries were associated with renal injury in 6, splenic injury in 5 and rupture of vena cava in 2 cases. Surgery was performed via subcostal laparotomy in most cases. Suture of liver was performed in 17 cases, segmental hepatic resection in 5 and lobectomia was performed in 1. Hepaticoenteroanastomosis for biliary trauma was performed in 2, suture of left hepatic duct in 1, insertion of biliary stent via ERCP in 7 patients. Associated injuries required ureteronefrectomy in 5, splenectomy in 4 patients.

Conclusion: The treatment of hepatobiliary trauma is non-operative in most cases, but surgery may be necessary in severe liver damage, especially those that cause uncontrollable bleeding or severe injury of biliary tree.
PW11-02

PAEDIATRIC MAJOR TRAUMA: A 5-YEAR EXPERIENCE OF A LEVEL 1 TRAUMA CENTRE

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Queen Elizabeth Hospital, Hong Kong.

Aim of study: To evaluate the demographics of paediatric major trauma patients of a level 1 trauma centre in Hong Kong and assess the validity of the Injury Severity Score (ISS) and other factors in predicting mortality.

Methods: This is a retrospective analysis of patients aged less than 18 years old with ISS more than 15 managed in our institution from 2010 to 2014. Demographic data, cause of injury, surgical interventions and outcomes were analyzed.

Main results: 120 patients with a mean age of 8.1 years met the inclusion criteria. Mean ISS was 22.2. Majority of injuries were due to domestic injuries and road-traffic accidents. (Table 1) 92 patients sustained isolated intracranial injury (76.7%) with mean ISS of 20.3 while 26 patients had multi-system injuries (21.7%) with a mean ISS of 29.2. 53 patients (44.2%) required operation while others were treated conservatively. Overall mortality was 5.8% (7/120). 3 died of isolated intracranial injury and 4 had multi-system injuries. Patients who succumbed had higher ISS score, lower GCS and tachycardia/bradycardia on admission. (Table 2)

<table>
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</thead>
<tbody>
<tr>
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<td>50</td>
</tr>
<tr>
<td>Traffic (Pedestrian)</td>
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</tr>
<tr>
<td>Sports</td>
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<td>16</td>
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<td>Fall from height</td>
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<td>Assault</td>
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<tr>
<td>Others</td>
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</tbody>
</table>

(Table 1)

<table>
<thead>
<tr>
<th></th>
<th>Alive</th>
<th>Dead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean ISS</td>
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<td>34.1</td>
</tr>
<tr>
<td>Mean GCS</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Abnormal pulse</td>
<td>21/111</td>
<td>5/7</td>
</tr>
</tbody>
</table>

(Table 2)

Conclusion: ISS score, GCS on admission and abnormal pulse are important parameters in determining prognosis in paediatric major trauma.
APPLICATION OF SYSTEMIC ENZYME THERAPY IN BONE FRACTURES TREATMENT IN CHILDREN

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Aim of the Study: to evaluate the benefits of using the systemic enzyme therapy (SET) of Phlogenzym in traumatology and orthopedics for bone fractures treatment in children.

Methods: From 2010 to 2015, 678 children aged 1-18, who had bone fractures, were treated at the department of traumatology and orthopedics. They took a standard fracture treatment (extramedullary osteosynthesis), which included K-wires, limited contact and angular stability plates or osteosynthesis with biodegradable materials. All children was divided in two groups: the first group (patients received Phlogenzym 3 times per day, for two weeks in the postoperative period) – 117 children and the second group (standard treatment) – 561 children.

Results: The use of preparation of SET has reduced the average hospital stay from 9.2 to 6.2 days. Also, it has helped to reduce the number of postoperative complications such as hematoma, festering, false joints, and osteoporosis. Moreover, it has improved the life quality of patients. Complications have not been observed.

Conclusion: The use of preparation of SET Phlogenzym allowed reducing the number of early postoperative complications (hematoma and festering wounds) and late complications (osteoporosis and false joints) in children with bone fractures. Also it reduces the average length of hospital stay.
PW11-04

MANAGEMENT OF HIGH GRADE BLUNT RENAL TRAUMA - A 10-YEAR SINGLE PEDIATRIC CENTER EXPERIENCE

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Aim: To report the management and outcome of pediatric patients sustaining high grade blunt renal trauma injury.

Methods: Medical records were examined of all Grade III to V blunt renal trauma cases admitted to a pediatric trauma center from 2005 to 2015. Data collected included demographics, imaging modalities, management, length of hospital stay, complications and follow-up outcome.

Results: 18 children (12 males, 6 females) with a mean age 11 years (4-15) were included. According to AAST Grading criteria, 39%(7/18) had Grade III, 50%(9/18) Grade IV and 11%(2/18) Grade V injuries. 44%(8/18) patients had concomitant injuries. 89%(16/18) were managed conservatively although 2/16 patients subsequently needed JJ stent insertion during their inpatient stay for symptomatic urinoma. 11%(2/18) required emergency selective embolization for life threatening renal tract haemorrhage. 89%(16/18) patients had at least one follow up imaging study prior to hospital discharge with the majority(13/16) having ultrasound only. Median length of hospital stay was 11 days (range 4-31). 17%(3/18) required readmission within 30 days for complications and all required intervention: 1 JJ stent for expanding urinoma, 1 embolisation with renal arterio-venous fistula and 1 embolisation for pseudoaneurysm. Overall median patient follow-up in the study was 6 months (2-60). 72%(13/18) have had DMSA studies with 11/13(85%) showing reduction in renal function (range 3% to 44%).

Conclusions: This study supports a care strategy advocating conservative management of high grade renal injuries in children. However patients may experience a relative decline in renal function with higher grade injury indicating the need for monitoring and follow up.
MANAGEMENT OF SEVERE PENILE SHAFT INJURIES

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Pediatric Surgery Department, Ain Shams University, Cairo, Egypt

Background & aim of study: Circumcision remains to be the oldest known surgical practice to Mankind. For ages, its popularity was based on religious and ethnic backgrounds. Nowadays, there is a growing worldwide acceptance of performing circumcision to all males particularly with the assumptions of decreasing the incidence of genital malignancies as well as sexually transmitted diseases. Despite the vast experience in performing circumcision with various techniques, it is not devoid of complications which are infrequently devastating and difficult to manage. The purpose of this study was to evaluate the outcome of a reconstructed penis after a severe shaft injury following circumcision.

Patients & Methods: From June 2009 to June 2015, 18 patients with severe penile shaft injury after circumcision where subjected to staged reconstruction. Based on the remaining corporeal tissues and skin, the reconstruction was planned using local flaps, release of trapped corpora and excision of scar tissues as well as using more distant grafts with urethral reconstruction.

Results: All of the 18 patients achieved acceptable penile tissue length, erectile function and distal urethral meatus. Cosmetic appearance although appreciated by the parents is yet not comparable to the original.

Discussion: Despite safety, short learning curve and frequent practice, circumcision seems to present a rare but serious risk. Penile shaft injuries are very challenging to reconstruct and requires a tedious planning and operation. Good results after reconstruction do not affect the necessity of a safe practice for circumcision to avoid the need for such reconstruction.
Aim: Approximately 500,000 children’s injuries per year are treated in Czech Republic. The authors present an analysis of 35,785 injured children and monitoring the accidents development depending on the targeted prevention. The main tool was the new National Register of Children's Injuries (NRDU).

Methods. NRDU allows answering a specific question on a traumatic mechanism, place of injury, dangerous activity or dangerous tools depending on the type of injury, the injured part of the body and the severity of injury. It allows observing specific parameters before the implementation of some preventive measures and after their implementation in regard to assess their effectiveness. This analysis was carried out between years 2009 - 2015; the life-threatening injuries and the number of child deaths caused injury were monitored.

Main results. The main positive finding was the reduction in the number of child deaths caused injury (221 in 2009, 104 in 2015 – Graph 1) and a reduction in the number of serious injuries (309 in 2009, 146 in 2015 – Graph 2). Reduce the number of serious accidents is the direct result of a well-led child injury prevention, the mortality rate together with improvements of the traumatology care.

Conclusions. The mortality rate and several injuries incidence is decreasing in Czech Republic. Especially because of systematic analysis of child injuries (NRDU), there was possible to search for the risk factors of pediatric injuries and lower the children mortality with traumatic etiologies in Czech Republic. Analysis was supported by grant from Norway.
RADIATION EXPOSURE IN PEDIATRIC MINOR HEAD TRAUMA – CAN LESS BE MORE?

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Aim of the Study: Minimizing radiation exposure in infancy or early childhood may prevent cancer induction. The aim of our prospective study was to evaluate and approve our guidelines and treatment algorithm in pediatric minor head trauma.

Methods: Symptomatic patients after minor head trauma (vomiting, loss of consciousness, severe headache, behavioral changes) were admitted at our department for at least 24 hours and routinely had a neurological evaluation including EEG before discharge. We recorded the medical data of all consecutive patients following blunt head trauma with a standardized questionnaire in a 13-month period (from March 2014 to April 2015).

Main results: 215 patients (mean age 9,3yrs) were included in our study; the mean hospital stay of all our patients was 2,0 days. 15 children (7,0%) had a skull fracture, 2 patients (0,9%) suffered from a pyramidal fracture and an intracranial haemorrhage was diagnosed in three patients (1,4%). One patient underwent neurosurgery because of an epidural bleeding, which was detected because of progressive neurological symptoms 24 hours after the trauma. The overall CT rate was 11,1%. 170 patients (79%) had an EEG, which showed pathologic findings in 30%.

Conclusions: Neuroobservation without initial CT scan is safe. All clinically relevant intracranial haemorrhages were detected and the rate of neurosurgical interventions following minor head trauma is low. A CT scan in asymptomatic patients with linear skull fracture is not routinely indicated. The clinical relevance of routine EEG after minor head trauma remains questionable.
ULTRASOUND AS FIRST IMAGING STUDY IN THE ABDOMINAL TRAUMA

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Hospita, Valencia, Spain

Objective. Currently, CT-scan (an imaging study with high radiation) is the study of choice in algorithm diagnostic of the abdominal trauma, with a high percentage of non-pathologic results. We present our results based on ultrasound (US) as first imaging test.


Results. Four hundred and sixty five patients were included, of which 77 (16%), presented lesions.32 were diagnosed of solid visceral injury (SVI) with US, being the results of US enough for diagnosis in 10 patients (31%) with no need of further tests.

We performed 45 CT-scan: 32 (60%) were preceded by US and 13 (40%) were the first imaging study requested. The request was based on the mechanism of injury: traffic accidents (n = 5), high energy impact (n = 5), knife attack (n = 5), precipitation (n = 1) and pelvic fracture (n = 1). Only in 4 cases (6%) CT-scan was normal.

Only 2 patients with SVI required surgery, performing an splenectomy in centers of low complexity. 8 patients with splenic injury (grade IV/V) were managed conservatively in our center.

Conclusion. The study of abdominal trauma begins with ultrasound and could be the only study to diagnose SVI. A CT-scan must be performed if the mechanism of the trauma suggest other abdominal injuries or in traumatic brain injuries.

In our Institution, it was possible to diagnose SVI only with US, decreasing the need to perform tests with high radiation (CT-scan).
THE SUCCESS OF A SYSTEMATIC, MULTIDIMENSIONAL INJURY PREVENTION SYSTEM IN AUSTRIA OVER 30 YEARS

Peter Spitzer1, Holger Till2
1Research Center for Injury Prevention, Graz, Austria; 2Medical University, Dept. of Pediatric Surgery, Graz, Austria

Aim of the Study. More than 30 years ago Prof. Hugo Sauer founded the Austrian society for injury prevention in childhood. It was his vision to create a safer world. This presentation describes the systematic data acquisition, the multidimensional prevention projects and their effects in terms of mortality.

Methods. An electronic medical documentation system called “Styrian Injury Surveillance System” records specific data of each accident for the whole state. Based on these analyses specific injury prevention projects have been designed following the International Safe Children Community Program. Multiple helpers including government, police, firefighters, teachers and many others run educational events.

Main Results. At present data of 160,000 injured people, including 30,000 children, are collected every year. In 1983, Austrian Statistics saw annually 270,000 childhood accidents, 198 of which were fatal. Currently, 160,000 children have an accident each year and “only” 20 of these children die.

A broad Safe Children Community Program was introduced in 2007. Local risk analyses were the key to success: During a 5 year period we saw that in the control district the injury rate increased by 4.6%, but decreased by 7.2% in the program area. Especially severe head injuries have decreased significantly.

Conclusion. Injury prevention in children works when: (1) significant epidemiological data are available to identify risk factors, (2) accident data can be correlated with hospital data (severity of injuries), (3) data lead to multidimensional prevention projects, (4) communities support such projects and (5) a longitudinal study observes morbidity and mortality.
The aim of this study was to present our experience with ingestion of foreign bodies in children from level one Pediatric Trauma Centre in the Czech Republic.

**Methods:** Patients, less than 18 years old, presented in our department between 1/2015 and 12/2015 for suspicion for ingestion of FB were included in this retrospective study. Data about disease history, gender, etiology, time of ingestion of FB, clinical examination, X-ray, algorithm of treatment, timing of endoscopic or surgical intervention and complications were analyzed.

**Main Results:** 139 patients were examined with a suspicion on the ingestion of FB in our department last year (2015), but only 102 patients met our search criteria (confirmation of FB on X-ray and/or finding a FB in the stools). Median age of included patients was 4 years (range 0 - 17) and 62.7 % were male. The most frequent FB were coins (27.5% of patients) and some parts of toys (21.6%). We observed 61.5% of FBs in stomach, 2.1% in oesophagus, 2.1% in small intestine and 10.4 % in colon. We performed endoscopic intervention in 27 cases (48.2% coins, 18.5 % batteries and 11.1% magnets). Surgical intervention was not necessary in any of cases from our cohort from 2015, but earlier we operated on 3 children for ingesting multiple magnetic spherical objects. Complications, mainly ulceration, were seen in 5/102 cases.

**Conclusions:** Our study showed that ingesting of foreign bodies in children is a common problem and that observation and eventual endoscopic or surgical intervention must be performed early as a prevention of more severe complications (perforation, ulceration, fistula formation, volvulus of the small and large intestine etc.)
FOREIGN BODY INGESTION IN PEDIATRIC PATIENTS

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Introduction: We aimed to analyse the patients who admitted to our clinic with the complaint of foreign body ingestion retrospectively.

Patients and Methods: Between 1986-2015, the patients admitted with the complaint of foreign body ingestion are retrospectively analysed for age, gender, ingested material, localisation, radiologic, clinical findings and the treatment.

Results: 435 patients have admitted for foreign body ingestion. 196 of them were female, 239 of them were male. Foreign body has been detected by radiography in all of them. The mean age of the patients were 3.66 ± 2.85 years (min 1.5 month- max 14 years). The most detected foreign body was coin in 256 patients (58.9%), safety pin in 61 patients (14%), sharp metal objects (pin, nail, earings, screw, string, buckle) in 52 patients (11.95%), nutritional material (chicken bone, grape, meat, seeds) in 28 patients (6.4%), blunt objects in 24 patients (ring, necklace, battery), plastic objects (button, magnet) in 11 patients, bezoar in 3 patients (%2.5).

Conclusion: Foreign body ingestion is one of the most common surgical emergencies. Due to the ingestion of foreign body, airway obstruction, esophageal injury, mediastinitis, eneteroenteric and esophageaortic fistulas can occur. The type of the foreign body and clinical findings in children differ from adults and needs individually different managements. Good timing and accurate surgical interventions can decrease the complication rates.
CRYPTORCHIDISM AND PESTICIDES: IS THERE A CONNECTION?

Ivana Fratric\textsuperscript{1,2}, Jan Varga\textsuperscript{1,2}, Saša Vukmirovic\textsuperscript{2}, Jan Sudji\textsuperscript{3}, Dragana Živkovic\textsuperscript{1,2}

\textsuperscript{1}Institute for Children and Youth Healthcare of Vojvodina, Novi Sad, Serbia, \textsuperscript{2}University of Novi Sad, Faculty of Medicine, Novi Sad, Serbia, \textsuperscript{3}Institute of Public Health of Vojvodina, Novi Sad, Serbia

**Aim of the study:** To compare the level of the most common organophosphate (OP) metabolite (dimethyl phosphate DMP) in urine of women giving birth to both boys with cryptorchidism, study group, and healthy boys, control group, as well as to compare the level of DMP in our population with the results obtained in other populations.

**Methods:** After the ethical approval we included thirty women in study and control group respectively. All newborns were born in 38th-42nd gestational week. Urine samples were taken 3rd postpartal day. Gas chromatography with phlame photometric detection was used to analyze OP metabolites in urine following the method of Wu et al. Statistical analysis was done with Mann-Whitney test to compare the results in the two groups.

**Main results:** Geometric mean of DMP in study group was 7.18 ± 8.26 μg/L, corrected for the creatinine level 5.63 ± 5.95 μg/L, and in a control group was 7.98 ± 6.75 μg/L, corrected for the creatinine level 6.15 ± 7.01 μg/L. There was not a statistically significant difference in levels of DMP between these two groups (p=0.72786). DMP levels obtained in similar studies are: in Israel (4.312 μg/L), Spain (1.3 μg/L), Caribbean islands (1.60 μg/L) and Canada (2.60 μg/L).

**Conclusion:** Pregnant women in our country are exposed to OP pesticides, but a correlation between the exposure to OP pesticides and cryptorchidism was not found. Compared to the other countries the exposure to OP pesticides is much higher in our country, and we believe it requires further studies.
HYPOSPADIAS REPAIR: DOES THE GLANS SIZE MATTER?

Ahmed Hadidi
Emma & Offenbach Hospitals, Offenbach, Hessen, Germany

Purpose: There are no reports of systematically measured glans dimensions in boys with different grades of hypospadias. To determine the impact of the glans dimensions on the functional and cosmetic outcome of hypospadias repair, we prospectively measured 3 dimensions of the glans before and after hypospadias repair and evaluated the outcome.

Methods: The Dorsal Vertical Length (DVL), the Ventral Vertical Length (VVL) of the glans and the maximum Glans Width (GW) were measured in a prospective study in boys admitted for hypospadias repair. These 3 dimensions were measured again 6 months after surgery and results were documented. Mean follow up was 8 months (range 6-12).

Results: Data were obtained in 139 boys referred with hypospadias, 40 boys were referred with complicated hypospadias and were excluded. The mean age was 10 months (range 6-24). They were 22 glanular, 47 distal, 16 proximal and 14 penoscrotal and perineal with severe Chordee. Interestingly, the DVL was equal to the GW in 95 cases (95%). GW was classified into 3 groups: A: 16-18mm, B: 13-15mm and C: 10-12 mm. VVL was classified into 2 groups: I: more than 6 mm and group II less than 6 mm. 12% of glanular hypospadias, 16% of distal hypospadias, 30% of proximal hypospadias and 65% of perineal hypospadias belonged to GW group C (10-12mm) and VVL group II (less than 6mm).

Conclusion: There is a direct relation between the severity of the hypospadias with the GW and VVL. Boys with VVL less than 6 mm had significantly less satisfactory results.
PW12-03

URODYNAMIC RISK FACTORS FOR UPPER URINARY TRACT DETERIORATION IN CHILDREN WITH SPINA BIFIDA

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2Istanbul Bilim University Spina Bifida Research Center Department of Pediatric Neurosurgery, Istanbul, Turkey

Aim. Upper urinary tract deterioration is a severe consequence of neurogenic bladder in spina bifida. Urodynamic studies are important to investigate the status of urinary bladder. The aim of this study was to delineate the urodynamic risk factors for upper urinary tract deterioration in children with spina bifida.

Patients and Methods. The urodynamic studies of patients with spina bifida were evaluated retrospectively. Patients were divided into two groups; Group 1, randomly selected patients without upper urinary tract sign and symptoms and Group 2 those patients with upper tract changes. The age, gender, bladder capacity, postvoiding residual urine, compliance, detrusor and sphincter activity, leak point pressure or maximal detrusor pressures were noted. Numeric values were analysed with student’s t-test and qualitative values with chi-square test.

Results. In a two years period, a total of 1200 patients were evaluated in our center. There were 50 patients in Group 1 and 41 patients in Group 2. The mean age of the patients was 15.6±25.6 months in Group1 and 70.2±54.3 months in Group 2. The gender distribution was insignificant. Among all urodynamic parameters, the difference of bladder compliance and detrusor activity was significant between the groups. The bladder compliance was decreased in 46% of Group 2 patients whereas this ratio was 22% in Group 1 (p=0.004) and detrusor underactivity was more in Group2 than Group 1 (39% vs 16%, respectively, p=0.024).

Conclusion. The status of the bladder is an important determinant for upper urinary tract changes in spina bifida. Decreased bladder compliance and underactivity may show a severe form of bladder condition which may predispose for upper urinary tract deterioration. Delineation of the risk factors for this condition may help for an effective follow up in spina bifida.
INHIBITION OF NETOSIS SIGNIFICANTLY REDUCES TESTICULAR DAMAGE AFTER TESTICULAR TORSION IN RATS

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Introduction: It has been demonstrated that testicular torsion (TT) induces thrombus formation and that anticoagulation significantly reduce testicular damage after TT. It was hypnotized that these thrombi are NETs dependent (neutrophil extracellular traps) and that inhibition of NETosis would reduce testicular damage.

Methods: In 24 rats iatrogenic TT was induced for 3 hours. After detorsion and randomization, they received DNase1 or Ca2+. NETs formation was accessed via pDNA, oxidative stress via GPx and MDA, cellular damage via inhibinB and testosterone. Histological damage was evaluated using Johnsen score, Cosetino grading and TUNEL assay.

Results: Twenty-three rats were included in the study. Treatment with DNase1 showed significantly less testicular damage, oxidative stress, significantly improved Sertoli, but no effects on Leydig cell function.

Conclusion: The results of the study indicate that thrombus formation during TT is NET-associated and that NET dissolution significantly ameliorates testicular damage in rats. Modulation of intravascular coagulation for the treatment of TT ought to be evaluated in Humans.
**ZAONTZ URETHRAL STENT VS NELATON BLADDER CATHETER FOR URINE DRAINAGE AFTER HYPOSPADIAS REPAIR**

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*Federico II University of Naples, Naples, Italy*

**Aim:** We aimed to evaluate whether urethral stents (Zaontz, Cook Medical) are superior to bladder catheters (Nelaton).

**Methods:** We evaluated 60 cases of hypospadias (average age 2.8 years) underwent TIP urethroplasty and preputioplasty over a 2-years period. A 8F urethral stent (Zaontz, Cook Medical) was used in 30 patients (group 1). In the other 30 patients the same size bladder catheter (Nelaton) was adopted (group 2). The groups were compared regarding time of catheter/stent removal, postoperative pain and discomfort, need for drugs, complications and the clinical nursing in their application.

**Results:** Time of catheter/stent removal (7.4 [G1] vs 7.8 [G2] days; p>0.5) was similar in the 2 groups. Post-operative pain and discomfort scores, evaluated by Wong-Baker scale, were better in G1 compared with G2 (1.1 vs 5.6; p<0.05). In G2, bladder catheters required frequent washing (at least 1-3 per day) due to their obstruction. The average analgesic requirement was lower in G1 compared with G2 (3.5 vs 6.2 days; p<0.05). As for complications, in 2 stented patients, the Zaontz stents were removed on the 14th postoperative day because of postoperative edema of the reconstructed prepuce. The incidence rates of fistula (10% vs 3.3%) and stenosis (6.6% vs 0%) were markedly higher in G2 than in G1 (p<0.05).

**Conclusion:** For urine drainage following urethroplasty, the Zaontz urethral stent seems to be more effective and safe than the Nelaton catheter, as it significantly reduces postoperative pain and discomfort and complications, shortens the analgesic requirement and decreases workload of nursing care.
DOES MORPHOLOGICAL CHANGE OF THE PATENT PROCESSUS VAGINALIS OCCUR BASED ON AGE?

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Aim of the Study: Laparoscopic herniorraphy enables accurate observation of the anatomical morphology of the contralateral internal rings. The aim of this study was to classify variable contralateral morphology of the internal rings in patients with unilateral inguinal hernia and to analyze this variation based on patient demographics.

Methods: Five hundred sixty-three pediatric patients who underwent laparoscopic herniorraphy of unilateral inguinal hernia between November 2008 and March 2015 were enrolled in this study. The morphology the contralateral patent processus vaginalis (CPPV) was examined and classified as a complete hole, partial veil, or complete veil.

Main Results: The presence of CPPV was confirmed in 236 cases (41.9%). The incidence of CPPV was significantly higher in females compared to males (43.3% vs. 34.7%; p=0.029) and among children younger than 6 months of age (53.3% vs. 39.3%; p=0.008). When we analyzed CPPV incidence based on morphologic classification, differences were observed according to age group. The rate of complete hole was higher in the ≤6 months age group (78.5% vs. 55%) and the rate of complete veil was higher in the >6 months age group (1.7% vs. 17.9%) (p=0.002).

Conclusion: The CPPV rate was higher in females and infants less than 6 months of age. The processus vaginalis may exhibit morphological change up to an age of 6 months. A strategy for adequate management of asymptomatic CPPV should be developed to prevent contralateral metachronous hernia.
EXPRESSION OF TRANSGLUTAMINASE IN FORESKIN OF CHILDREN WITH BALANITIS XEROTICA OBLITERANS

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Aim. Balanitis xerotica obliterans (BXO) is a chronic inflammatory skin disorder of unclear etiology, it is considered the male genital variant of lichen sclerosus. The etiology and the exact molecular mechanisms underlying the disease are still unknown. The human transglutaminase (TG) family consists of several proteins with catalytic activity essential for biological processes such as blood coagulation, skin barrier formation, and extracellular matrix assembly but can also contribute to the pathophysiology of various inflammatory, autoimmune, and degenerative conditions. We investigate in the present research transcript levels of three TGs together with interferon-gamma (IFN-γ) in patients operated for congenital phimosis without or with histologically confirmed BXO.

M&M. Thirty children with acquired phimosis were enrolled. The removed foreskins were sent both for the histological diagnosis and for the analysis of transcript levels of keratinocyte TG (TG1), tissue TG (TG2), epidermal TG (TG3) and IFN-γ, these were evaluated by quantitative Real-Time PCR.

Results. We observed a significant increase in IFN-γ and TG2 mRNA levels by 2.8 and 2.9 folds (p<0.001), respectively, and a decrease in TG1 and TG3 transcripts by about 70% (p<0.001) in foreskin from patients with BXO (n=15) in comparison with patients without BXO (n=15).

Conclusions. The reduced expression of TG1 and TG3 is associated with altered structure of foreskin in BXO and can be a consequence of damage to keratinocytes. Increased expression of TG2 and IFN-γ can be the result of chronic inflammation. TG2 overexpression can play a pivotal role in triggering and maintaining the inflammatory response in BXO patients.
Natural History and Conservative Treatment Outcomes for Hydroceles: A Retrospective Review of One Center’s Experience

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Baskent University, Ankara, Turkey

Purpose: While surgeons have reached consensus regarding conservative treatment of hydroceles in children aged <1 year (1), controversy remains regarding hydrocele management in older children. For patients aged >1 year, recent articles advise older age thresholds (2) or a period of observation before deciding whether to perform surgery (3, 4). We reviewed pediatric patients diagnosed with hydroceles in our institution to elucidate epidemiological data and hydrocele progression.

Materials and Methods: We reviewed data from 355 pediatric patients with hydroceles. Questionnaires regarding age at diagnosis, time of delivery, presence of hydroceles in the father and brothers, age at recovery, age at surgery, cause of hydrocele (if present), type of hydrocele, associated pathologies, treatments, and post-hydrocelectomy complications were completed by reviewing patients’ medical records and interviewing their families. This study was approved by the Baskent University Institutional Review Board and Ethics Committee (Project no: KA14/333).

Results: Patients with congenital hydroceles were more frequently born prematurely (32.5%) than were patients with noncongenital hydroceles (15.9%; p = 0.001). Fathers of 10 patients (3.7%) and brothers of 21 patients (7.7%) also had hydroceles. The time to recovery (the period from diagnosis to spontaneous resolution) was 6 months in 70.8%. Among patients aged >1 year (n = 185), 27 did not undergo operations and healed spontaneously at an average of 5.30 ± 3.36 months. Among patients with noncongenital hydroceles, 13.8% had a history of trauma, 9.7% had a history of infection, 9.0% had a history of inguinal surgery, 1.4% had a concurrent testicular tumor. Hydroceles were associated with inguinal hernias on the same side (12.2%), cryptorchidism (7.5%), inguinal hernias on the contralateral side (6.0%), varicoceles (6.0%), and testis torsion (0.5%).

Table 1: Distribution and age of patients.

<table>
<thead>
<tr>
<th></th>
<th>Number of Patients</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at diagnosis</td>
<td>355</td>
<td>27.65 m</td>
<td>35.33 m</td>
<td>15 m</td>
<td>0 m</td>
<td>207 m</td>
</tr>
<tr>
<td>Congenital hydrocele</td>
<td>179</td>
<td>10.79 m</td>
<td>14.22 m</td>
<td>4 m</td>
<td>0 m</td>
<td>81 m</td>
</tr>
<tr>
<td>Non-congenital hydrocele</td>
<td>145</td>
<td>50.84 m</td>
<td>42.41 m</td>
<td>38 m</td>
<td>1 m</td>
<td>207 m</td>
</tr>
<tr>
<td>Age at surgery</td>
<td>185</td>
<td>41.50 m</td>
<td>37.62 m</td>
<td>31 m</td>
<td>1 m</td>
<td>207 m</td>
</tr>
<tr>
<td>Age of recovery*</td>
<td>120</td>
<td>18.57 m</td>
<td>26.24 m</td>
<td>10 m</td>
<td>1 m</td>
<td>182 m</td>
</tr>
</tbody>
</table>

SD: Standard deviation. m: months. *: Age of spontaneous resolution at patients without surgery.
Table 2: Distribution of hydrocele patients. Congenital and non-congenital hydrocele patients were compared.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Due to presence</th>
<th>Due to age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Congenital</td>
</tr>
<tr>
<td>Patients</td>
<td>Ratio (%)</td>
<td>Patients</td>
</tr>
<tr>
<td>Hydrocelecy</td>
<td>179</td>
<td>59,5</td>
</tr>
<tr>
<td>No surgery</td>
<td>120</td>
<td>39,9</td>
</tr>
<tr>
<td>Aspiration</td>
<td>2</td>
<td>0,7</td>
</tr>
</tbody>
</table>

Important ratios with significance are shown in bold.

Conclusions: Until strong evidence of hydrocele-induced testicular damage in children arises, we recommend following up congenital hydroceles until at least 1 year and preferably 2 years of age. We recommend following up noncongenital hydroceles for at least 6 months and preferably 1 year if there is no associated pathology indicating the need for earlier surgery such as an inguinal hernia, cryptorchidism, tense hydrocele, testis torsion, or testis mass.

References:


AN INCIDENTAL FINDING OF ECTOPIC ADRENOCORTICAL TISSUE DURING INGUINAL SURGERY IN CHILDREN

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Aim of the study: Ectopic adrenocortical tissues are rare findings in children. Usually it could be find incidentally during the inguinal surgery in children, but they could be located from diaphragm to pelvis. The purpose of this study was to determine the incidence of ectopic adrenocortical tissue finding during the inguinal surgery in children in our hospital and compare our results with the world results.

Methods: We analysed 622 patients with inguinal surgery in our hospital between January 2012 and January 2016. All our clinical findings were confirmed histologically. We compared our results with other study from the World.

Results: Between January 2012 and January 2016 we operated 622 children with inguinal pathology. In 315 cases we made herniectomy of inguinal hernia, in 56 cases hydrocoela operation and in 251 cases we made orchidopexy of undescendend testis (205 unilateral and 46 bilateral). We incidentally found ectopic adrenocortical tissue in 3 cases which is only 0.48% of all cases. In all 3 cases were ectopic adrenocortical tissues found in bilateral undescended testis (1.2% of all (251) orchidopexy). In all 3 cases we found small yellow nodolus, in 2 cases was at the right side located between the testis and epididymis and in 1 case it was at the left side, in this case we found two small nodolus, one located along spermatic cord and another located between the testis and the epididymis. In all cases we got the histologically verification of adrenal cortex surrounded by fibrous tissue. We did not find any ectopic adrenocortical tissue in female patient.

Conclusion: Our data show that Ectopic adrenocortical tissues is rare pathology in children and we found out that in our Hospital the incidences of ectopic adrenocortical tissues is lower (0.48%) than in other world studies which is between 1-2% of all inguinal surgery in children.
PW12-10

LAPAROSCOPIC FOWLER- STEPHENS: INDICATORS FOR OUTCOMES IN THE LAST DECADE?

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Aim: This study analyzed indicators for outcomes in undescended testes (UDT) managed with laparoscopic 2-stage Fowler-Stephens orchidopexy (LFSO) in the past decade.


Results: Twenty reports of LFSO with 706 testes were analyzed that included n=145 (20%) bilateral UDT. Testicular vessels were divided by clipping+/-division (13 reports; n=367 testes), diathermy (2 reports; n=56 testes), ligation (2 reports; n=25 testes) and not specified (5 reports; n=258 testes). Time interval for 2nd stage was 2-19 months (\( \bar{x} \) 6 months). At 2nd-stage, the testis was channeled through a medial neohiatus (17 reports, n=631 patients), or internal ring preserving collateral vessels within gubernaculum (4 reports; n=75 patients). Outcomes were successful in n=591 (85%). In bilateral UDT, testicular atrophy (TA) was not observed after (6 reports; n=71 patients) synchronous approach, however in 3 (5 reports; n=43 patients) after metachronous approach (p=0.05). Orchidectomy for TA after 1st stage was n=9 (1.25%). Re-ascent after orchidopexy was in n=27 (3.8%). TA was observed in 16/367 after clipping and 6/56 after diathermy (N.S.) Successful outcomes were in 72/75 (96%) gubernaculum sparing LFSO, versus 535/631 (84.8%) non-gubernaculum sparing (p=0.05).

Conclusion: In the past decade, LFSO has 85% success. TA after 1st stage LFSO was 1.25% and 2nd stage was 15%. TA is independent of the type of testicular vessel ligation technique. However, TA is significant in (a) non-gubernaculum saving procedures and (b) when metachronous orchidopexy is performed for bilateral UDT.
ISOLATED FALLOPIAN TUBE TORSION IN PEDIATRIC AGE. IS THERE A ROLE FOR A CONSERVATIVE MANAGEMENT?

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Aim of the study Early diagnosis and management of an isolated Fallopian tube torsion (IFTT) are not so easy due to the lack of radiological, clinical features and clinical awareness of the disease in pediatric practitioners. Aim of the study was to review IFTT cases in order to characterize diagnosis and management as well as the chance for a conservative treatment.

Methods In a retrospective review (Jan 2005 – Dec 2015) clinical charts coded with the ICD-9 diagnosis 620.5 and treated at our Institution were reviewed. Inclusion criteria were ages 1 month-16 years; diagnosis of IFTT in the operative report. Data analysed with a simple descriptive statistics: age at diagnosis; age at intervention; abdominal pain location; US, CT and MR findings; preoperative diagnosis; intraoperative diagnosis; pathology and follow-up.

Main Results Seven patients (mean age: 11.6 yrs) were selected all presenting with abdominal and side-located pain. Preoperative US showed hydrosalpinx with tubal torsion in 3/7 (42.8%). MR confirmed diagnosis in 2/3. Postoperative pathological specimen showed associated tubal pathology (hydrosalpinx – tubaric cyst) in 4/7 (57.1%). Six patients (85.7%) underwent salpingectomy and 1 laparoscopic detorsion as a definitive treatment.

Conclusion Clinical course and related management of IFTT is challenging. Its relative rarity before menarche makes a pediatric diagnosis uncertain. Despite recent reports on the opportunity of a prompt and early preservation of the fallopian tube through surgery in pediatric surgery, in cases of IFTT with underlying tubal pathology this goal is still far from being achieved as our and the majority of studies seem to confirm.
PW12-12

CAN FIBRIN GLUE BE A USEFUL ADJUNCT TO SURGICAL MANAGEMENT OF RECURRENT FISTULA POST HYPOSPADIAS SURGERY?

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Purpose: To evaluate the efficacy of fibrin glue as a sealant agent in repair of recurrent urethro-cutaneous fistula post hypospadias surgery.

Materials and methods: Over the period from Oct. 2014 to Dec. 2015, 20 patients in the pediatric age group with history of hypospadias surgery and at least two failed attempts of fistula repair operations leading to recurrent urethrococutaneous fistula. 17 patients underwent surgical repair using fibrin glue & the other 3 patients, two of them were candidates for repeated dilatation prior to surgery due to meatal stenosis and the other one needed diverticulectomy and urinary diversion.

For those underwent repair using fibrin glue, during the operation, fibrin glue was applied over the suture lines and beneath the skin. A urethral catheter was kept in place for 5 – 7 days. Follow up ranged from 6 to 14 months (mean 10 months).

Results: fourteen patients had an uneventful postoperative course. In one patient, partial wound dehiscence occurred and urethra remained intact, he recovered after 2 months with no further surgical intervention. Accidentally early cath. removal occurred in 2 cases with no subsequent problem. No fistula recurrence was reported during follow up period.

Conclusion: A fibrin glue as a sealant agent could be a useful adjunct to surgical management of patients after multiple failed attempts of post hypospadias surgery urethro-cutaneous fistula repair.

Moreover, trials concerning using single donor fibrin glue should be considered.
ARTIFICIAL REFEEDING INTO THE DISTAL ILEUM PRIOR TO THE ILEOSTOMY CLOSURE FACILITATES THE BOWEL ADAPTATION IN INFANTS

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Purpose: In the infants with ileostomy, disuse atrophy of the distal intestine makes the closure of ileostomy technically difficult because the ratio of the distal to proximal bowel diameter becomes inappropriately large. The disuse intestine atrophy could delay postoperative bowel adaptation as well. We determined if preoperative artificial refeeding into the distal mucus fistula was associated with favorable bowel recovery.

Methods: Twenty-seven neonates underwent ileostomy for intestinal perforation or meconium peritonitis during the last 10 years were evaluated. Stoma output was injected into the distal ileum before the ileostomy closure in Group A (N=11) but not in Group B (N=17). Age and body weight at ileostomy closure was not significantly different between the two groups: 2.6 and 3.7 months, and 2890 and 3266 g, in Groups A and B, respectively. The ratio of the distal to proximal intestinal diameter at the time of ileostomy closure, postoperative day of starting enteral feeding, and the time elapsed before resuming to full oral feeding were determined.

Results: The ratio of the distal to proximal intestinal diameter was smaller, in Group A than B (1.38 vs. 2.25, p<0.05). The enteral feeding was started earlier, albeit non-significantly, in Group A than B (5.3 vs. 8.7 days). Infants in Group A returned to the full oral feeding sooner than Group B (10.1 vs 21.6 days, p<0.05).

Conclusion: Preoperative artificial refeeding into the distal mucus fistula prevented disuse atrophy of the distal intestine resulting in early recovery of the intestinal function.
APPENDICOSTOMY FOR BOWEL CONTROL IN CHILDREN AFTER TRANSANAL ENDORECTAL PULL-THROUGH FOR HIRSCHSPRUNG DISEASE

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Aim: To evaluate the indications for, and outcome, of appendicostomy for patients with Hirschsprung disease (HD) who underwent transanal endorectal pull-through (TERPT).

Method: Children with HD > 4 years old who received an appendicostomy between 2005 and 2011 at a tertiary pediatric surgery center were included. Pre- and post-appendicostomy bowel function was evaluated by a bowel function score (BFS). HD-patients not receiving an appendicostomy were the controls. The study was approved by an institutional ethics committee (2010/49).

Results: Seven of 37 HD-patients received an appendicostomy. Syndromes were present in 43% of the appendicostomy and 6% of the controls (p<0.05). The indication for appendicostomy for all patients was low compliance with regular rectal enemas due to the following: physical pain (n=3), patient psychological intolerance (n=4), patient and parent intolerance (n=5) or patient desire for autonomy (n=7). Daily fecal accidents were confirmed in 6 (85%) of the children prior appendicostomy and in 4 (14%) of the controls (p<0.001). Inability to control defecation was confirmed in 7 (100%) and 1 (3%) respectively (p<0.001). At a median post-appendicostomy follow up of 12 (8-46) months, 2 children had received a colostomy and 5 used their appendicostomy daily. Five (100%) of the patients with appendicostomy and 21 (70%) controls reported absence of fecal accidents (p=0.297). Three (60%) with appendicostomy and 14 (47%) controls, respectively, reported absence of soiling or soiling < 1/week (p=0.658).

Conclusion: Appendicostomy improved compliance with enemas and increased bowel control in children with HD and poor functional outcome after TERPT.
DEFICIENCY OF T-TYPE CALCIUM CHANNELS IN HIRSCHSPRUNG’S DISEASE

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National Children’s Research Centre, Our Lady’s Children’s Hospital Crumlin, Dublin, Ireland

Aim: Voltage-dependent calcium channels mediate the entry of calcium ions into excitable cells and thus are involved in a variety of calcium-dependent processes, including muscle contraction, hormone or neurotransmitter release, gene expression and cell motility. T-type calcium channels have previously been reported to be expressed in interstitial cells of Cajal of the murine gastrointestinal tract. We designed this study to investigate the expression of the T-type calcium channel, Cav3.3, in the normal human colon and in Hirschsprung’s disease (HSCR).

Methods: HSCR tissue specimens (n=10) were collected at the time of pull-through surgery, while colonic control samples were obtained at the time of colostomy closure in patients with imperforate anus (n=10). Immunolabelling of the T-type calcium channel, Cav3.3, was visualized using confocal microscopy to assess the distribution of immunoreactive cells, while Western blot analysis was undertaken to quantify Cav3.3 protein expression.

Results: Confocal microscopy revealed Cav3.3-immunopositive cells within both the submucosal and myenteric plexus, as well as within the smooth muscle in normal controls and ganglionic HSCR, with a marked reduction in Cav3.3-immunopositive cells in aganglionic HSCR. Western blotting revealed high levels of Cav3.3 protein expression in normal controls and ganglionic HSCR, while there was a striking decrease in Cav3.3 protein expression in aganglionic HSCR specimens (Figure).

Conclusion: These findings suggest that the altered distribution of Cav3.3 T-type calcium channels in the aganglionic bowel may contribute to the motility dysfunction in HSCR.
**PW13-04**

**EFFICACY OF HUC/D AND CD56 IMMUNOSTAINING AS STANDARD HISTOLOGICAL DIAGNOSTIC TOOL FOR CONGENITAL AND ACQUIRED HYPOGANGLIONOSIS**

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¹Department of Pediatric Surgery, Reproductive and Developmental Medicine, Faculty of Medical Sciences, Kyushu University, Fukuoka, Japan, ²Department of Pathology, National Center for Child Health and Development, Tokyo, Japan, ³Department of Anatomic Pathology, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan

**Background** Hypoganglionosis (HG) has been established as distinct entity and classified into two categories, congenital and acquired HG. In our nation-wide survey, 104 cases of congenital HG and 8 cases of acquired HG were experienced in 10 years. However, due to the rarity of disease and the lack of histological criteria, the concept of HG is not well accepted widely, even in pathologists. Therefore, establishment of standard histological diagnostic tool for HG is called for.

**Patients and methods** Since January, 1996 to December, 2015, patients with Hirschsprung’s disease (HD) (n=49), congenital HG (n=25), and acquired HG (n=5) were identified. Definitive diagnosis of all case was obtained, based on clinical and conventional pathological findings. Immunohistochemical staining for HuC/D and CD56 were performed. This retrospective study was performed according to the Ethical guidelines of government and will be approved by Institutional Ethics Review Board.

**Results** All of ganglion cells including nuclei and cytoplasm showed positively immunoreactive to HuC/D in normoganglionic myenteric plexus. No HuC/D positive cells were present in aganglionic segment. The decrease of the numbers of ganglion cells was clearly demonstrated in congenital as well as acquired HG. CD56 (NCAM) demonstrated all component of neurons. Therefore, all myenteric plexuses of normoganglionic colon and all nerve bundles of aganglia were positively stained. The decrease of size of myenteric plexus was well demonstrated in congenital HG using CD56, whereas, the size is almost normal in acquired HG.

**Conclusion** Immunostainings using Hu/CD and CD56 are useful diagnostic tool for congenital and acquired HG.
PATIENT CHARACTERISTICS AND OUTCOME AFTER TRANSANAL ENDORECTAL PULL THROUGH IN PATIENTS WITH HIRSCHSPRUNG DISEASE – A GENDER STUDY

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Institution of Clinical Sciences, Lund University, Lund, Sweden

Aim: The aim was to analyze preoperative symptoms, patient characteristics and postoperative care of patients with Hirschsprung disease (HD) with regard to gender and to compare the functional outcome between girls and boys.

Methods: All patients with rectosigmoid HD operated with transanal endorectal pull through (TERPT) from 2005 to 2014 at a tertiary center of pediatric surgery were included. Information about birth data, initial symptoms, time to biopsy and surgery, postoperative time to oral feeding and length of hospital stay was compiled from medical charts, as were the numbers of admissions during the first year after TERPT, anal strictures, enterocolitis and bowel obstruction. Bowel symptoms in patients >4 years were reported by patients according to the bowel function scale (BFS, score 1-20). The Ethics Review Board approved the study.

Results: Eleven girls and 37 boys were operated. Delayed meconium release was more common among boys (23/37; 63%) than girls (2/11; 18%) (p<0.05). More boys (2/37; 4%) than girls (0%) had emergency hospital stays during the first year after TERPT (p<0.05). Included in long term follow-up were 9 girls and 26 boys, median aged 8 and 7 years (range 4-10) respectively. More girls (3/9; 33%) than boys (1/26; 4%) reported never to experience soiling (p<0.023). Similar, more girls (8/9; 88%) than boys (11/26; 42%) reported never to experience fecal accidents (p<0.022).

Conclusion: Delayed meconium release was more common among boys than girls with HD. In follow-up more girls than boys reported to be free of soiling and fecal accidents.
A SINGLE CENTER EXPERIENCE WITH VLBW INFANTS AND SPONTANEOUS INTESTINAL PERFORATION: COMPARISON OF PRIMARY ANASTOMOSIS VS STOMA OPENING

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Aim of the study: To present a single center experience in the surgical approach to VLBW infants with spontaneous intestinal perforation (SIP).

Methods: Clinical records of VLBW infants that developed SIP and underwent surgery between 2006 and 2015 were reviewed. Patients were divided into 2 groups according to the procedure performed: perforation repair or primary anastomosis (group1), stoma opening (group2). Patients with gastric perforation, or patients that underwent clip&drop were excluded.

Information regarding birth-weight (BW), gestational-age (GA), weight at surgery (WS), number of abdominal reoperations, and demise was recorded.

Main results: 41 patients were included in the study: 23 (56%) were males. Mean GA was 25.9 weeks (23-30) and mean BW was 821 grams (440-1490). Mean WS was 930 grams (500-3250).

Group1 consisted of 23 patients and Group2 of 18.

Mean BW was 856 grams in Group1 and 778 in Group2 (p-value:0.2).
Mean GA was 26.2 weeks in Group1 and 25.6 in Group2 (p-value:0.44).
Mean WS was 893 grams in Group1 and 789 in Group2 (p-value:0.35).
Duration of surgery was 133 minutes in Group1 and 118 in Group2 (p-value:0.35).

5 patients initially belonging to Group1 later developed complications and required stoma opening. In Group1 5/23 patients (22%) demised and 6/18 (33%) in Group2 (p-value:0.5).

19 abdominal reoperations were performed in Group1 and 22 in Group2. The average number of reinterventions for each patient was 0.9 and 1.22 respectively.

Conclusions: Both procedures appear to be safe. When possible, primary anastomosis should be performed as it reduces the number of abdominal reinterventions.
COMPARING LAPAROSCOPIC AND OPEN SURGERY FOR CROHN’S DISEASE

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**Aim:** To define the role and applicability of laparoscopic surgery in the surgical treatment of patients with Crohn’s disease (CD).

**Material and methods:** We retrospectively reviewed all patients <18 who had undergone surgery for CD between 2004-2015 (since the introduction of laparoscopy), excluding patients without segmental resection (laparoscopy was used only, when segmental resection was planned). 93 patients underwent surgery for CD, of which 81 met criteria. They were divided into two groups: 40 patients underwent laparoscopy and 41 open surgery.

**Results:** No statistically significant difference regarding the preoperative status (disease extension according to the Paris classification, medical treatment, indication) was found between groups. However open surgery group had a higher percentage of patients with previous operations (39% vs 14%, p=0,02) There was no difference in the type of performed surgery. 4 patients (10%) required conversion to laparotomy because of impaired working space and poor operating field visualization. Laparoscopic management decreased hospitalization time (9 vs. 12 days, p = 0,000019) and lowered antibiotics use (7 vs 10 days, p=0,000587). No significant difference in the incidence of complications or disease progression was observed between the two groups during follow up (mean 17,1 months).

**Conclusions:** Laparoscopic surgery for CD is technically feasible and safe, it does not increase the number of complications, and is associated with a shorter hospital stay and decreased antibiotics use.
PREVALENCE OF VACTERL ASSOCIATION AND OTHER CONGENITAL ANOMALIES IN A COMPLETE POPULATION OF PATIENTS WITH RECTOURETHRAL AND VESTIBULAR FISTULA

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**Aims.** To determine the prevalence of associated anomalies in a complete population of rectourethral fistula (RUF) and vestibular fistula (VF) patients from a single centre.

**Methods.** After ethical approval, the case- and imaging records of all patients treated for RUF and VF 1983-2006 and were reviewed. Patients with Currarino syndrome or total sacral agenesis were excluded.

**Results.** Of 89 patients (43 RUF/46 VF; median age 16 range, 4-29 years), all had been followed up since birth and none were lost to follow-up. 91% of RUF and 61% of VF patients had at least 1 associated anomaly, and VACTERL association was present in 40% of RUF and 26% of VF (p=NS). 63% of RUF patients had vertebral anomalies vs 24% of VF (p=0.0003), and spinal cord anomalies were found in 28% of RUF and 40% of VF patients (p=NS). Tracheobronchial and esophageal anomalies affected 14% 17% respectively (p=NS). VUR was equally common in RUF and VF (30%vs28%;p=NS), and structural renal abnormalities affected 15% and 7% respectively (p=NS). Peno-scrotal and gynaecological abnormalities affected in 16% and 9%. Radial/thenar abnormalities affected 11% of patients overall. In RUF and VF, palatoschisis (5%vs6%), choanal stenosis (7%vs0%), and ear anomalies (13%vs0% respectively) were less commonly found (p=NS).

**Conclusions.** Nearly all patients with RUF and 2/3 of those with VF have at least one associated anomaly, and 40% and 26% respectively fulfil the criteria for VACTERL association. Understanding the anatomical patterns of associated malformations in anorectal malformations is essential for elucidating the genetic influences on their aetiology.
ACCURACY OF FROZEN-SECTION BIOPSIES DURING PULL-THROUGH PROCEDURE FOR HIRSCHSPRUNG’S DISEASE.

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Aims of the study: We evaluated the accuracy of the frozen-section biopsy (FSB) taken during the pull-through (PT) procedure for Hirschsprung’s disease in determining the level of the ganglionosis.

Methods: In this retrospective study from January 2004 till December 2015 we included 68 infants (53 boys, mean age 5.1 months (1-12). FSB was performed by placing the tissues on a special metallic holder to provide a cryostat section with appropriate spatial relationship, to identify the plexuses and any ganglion cells. We reviewed all pathological results of the FSB and the resection specimens on the presence of ganglion cells and for residual aganglionosis when redo-PT was done.

Results: In 67 of the 68 patients the intra-operative FSB results were confirmed with the final histological analysis. Two or more biopsies had been taken in 10 operations. Both a ganglionair and an aganglionair segment was found in the PT resection specimens of all patients. Four patients underwent a redo-PT; the redo-resection specimen of three of them contained an aganglionair segment.

Conclusions: In 99% of the cases the intra-operative FSB result was confirmed by the definitive pathology report. Still, four patients needed a redo-PT upon which in three aganglionair segments were found in the resection specimen. It is not clear whether this can be explained by the possibility that the FSB was taken in the transition zone, by the uneven distribution of ganglion cells in the transition zone, or by the length of the distal anal cuff. Therefore, resection should be performed with awareness of transition zone length.
PW13-10

PREDICTIVE VALUE OF MEAN PLATELET VOLUME AND RED BLOOD CELL DISTRIBUTION WIDTH IN CHILDREN WITH ACUTE APPENDICITIS

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The aim of the study: Lately, a number of studies on adult patients about the introduction of new markers in diagnosis of acute appendicitis have been performed. The aim of this study was to determine the predictive value of Mean Platelet Volume (MPV) and Red blood cell Distribution Width (RDW) in children with acute appendicitis and with complicated appendicitis, particular.

Methods: This study was a prospective assessment of laboratory findings (MPV and RDW), of all the patients operated because of acute appendicitis by laparoscopy or open technique, from January until September 2015, approved by Ethic committee of the Institute.

Main results: During this period, we performed 121 appendectomies. Patients were aged from 2 to 18 years (11.61 ± 3.65 years), 76 (60.8\%) males and 49 (39.2\%) females. There were 62 (49.6\%) complicated, 55 (44.0\%) uncomplicated and 5 (4\%) negative appendectomies. The mean RDW level was 13.39\% ± 1.71. In 39 /121 (32.23\%) patients RDW was higher than 14\% (normal range: 12.0-14.0\%). 21/62 (33.87\%) patients with complicated appendicitis had RDW more than 14\%. The mean MPV value was 7.25fl ± 1.09. In 21/121 (17.35\%) MPV value was below 6fl, and in 11/55 (20.00\%) patients with complicated appendicitis, MPV was below 6fl (normal range: 6.0-13.0\%). There was no statistically significant difference regarding MPV and RDW values (P > 0.05).

Conclusion: Our study showed that Mean platelet volume (MPV) and Red blood cell distribution width (RDW) have no diagnostic value in pediatric acute appendicitis, nor in the assessment of the degree of appendix inflammation.
STOMA COMPLICATIONS IN CHILDREN

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Aim of the Study was to evaluate the outcomes of complications of stoma in children.

Methods. The study included 152 children with intestinal stoma (IS). Boys - 93 (61.2%), girls - 59 (38.8%). The average age of patients was 12.3±7.2 days of life. Children has an atresia of the intestinal tube - 28 (18.4%), meconium ileus - 10 (6.6%), Hirschsprung's disease - 11 (7.2%), ARM - 39 (25.7%), NEC - 56 (36.8%), multiple malformations - 11 (7.2%), other reasons - 7 (4.6%). The level of superimposed stoma was: ileostomy - 37 (24.3%), ileocolostomy - 46 (30.3%) and colostomy - 69 (45.4%).

Results. The duration of the IS ranged from 18 to 217 days. Early complications noted: dehiscence in the area of stoma – in 4 (2.6%) children, evagination - in 7 (4.6%), marginal necrosis of stoma - in 2 (1.3%), retraction of the ostomy intestine into the abdominal cavity - in 1 (0.6%), and abdominal skin maceration - in 8 (5.2%). Later complications noted: peristomal dermatitis - in 35 (23.1%) children, stenosis of stoma - in 9 (5.9%), evagination of stoma - in 12 (7.9%). Also, 5 patients were unable to use the colostomy bag. Using the colostomy bags and skin care products around the stoma for children, significantly allowed (p <0.01) to reduce the number of complications under the inpatient treatment.

Conclusion. At the heart of successful stoma functioning there are not only technical aspects but also the obligatory care performance along with the timely corrections of developed complications.
CONTINUOUS DECOMPRESSION USING AN INDWELLING TRANSANAL TUBE FOR INFANTS WITH LONG AND TOTAL TYPE HIRSCHSPRUNG’S DISEASE AS A BRIDGE TO CURATIVE SURGERY

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Aim of the Study. To assess the usefulness of continuous decompression using an indwelling transanal tube (ITT) for preoperative management in infants with long (L) and total (T) type Hirschsprung’s disease (HD).

Methods. Between 2001 and 2015, Fourteen patients with L and T type HD had undergone preoperative decompression using an ITT (I group: n=7) or colostomy (C group: n=7) from the diagnosis to curative surgery at our hospital. Decompression using an ITT was done by placing a 10-12F flexible drainage tube through the rectum up to the dilated colon under fluoroscopic guidance, and by keeping it fixed to the bilateral buttock. Decompression success rate, duration and complications of preoperative management in the I group were compared to the C group.

Main results. The mean ages at the start of decompression and curative surgery were 25.6 days, 111 days in group I, and 14 days, 426 days in group C (p=0.33 and 0.09), respectively. Replacement of the ITT was needed three times on average because of accidental removal, stenosis, or hardening of the ITT. During decompression, abdominal distention, enterocolitis, and any other complications did not occur, and almost all the patients could stay at home in both groups before curative operation. Postoperative outcome and complications revealed no differences between the groups.

Conclusions. Decompression using an ITT is easy, safe, and effective for preoperative management in L and T type HD, which may permit single-stage surgery sparing colostomy.
Aim: Long gap esophageal atresia (LGEA) is still challenging. Besides esophageal replacement, use the own esophagus seems to be goal. Many techniques have been designed for esophageal elongation by stretching. Foker's technique is the most used method, but detachment of the sutures before complete the elongation is a common complication. Our aim is to mechanically test other methods to perform traction for esophageal lengthening.

Methods: IACUC#2013-0294. Adult New-Zealand white rabbit esophagus were harvested to create esophageal pouch-like structures (n=30). Six different methods of traction (3 extraluminal/3 intraluminal) were performed including the classic Foker’s technique (method#1). Each group (n=5) was bio-mechanically tested by means a testing-machine100R6 (TestResources, Inc.) measuring displacement, time-to-failure and peak-load. Sutures were hanged on a S-type hook and were stretched in a 10mm/min rate. The end point was when the sample was broken. Data recording started once the preload of 1N was reached.

Results: The results of time-to-failure were quite similar as the results of displacement. Time-to-failure and displacement in methods#5 and 6 were significantly higher than the method#1 control group. Peak-load was opposite to our expectation where the control group (Foker) showed significantly higher values than all the other methods.

Conclusion: Method#3 was acceptable, but didn’t show better performance than control. Using methods#2,4 and 6 to elongate the pouch in LGEA might lead to unsatisfied outcomes. Overall, method#5 would be the best choice. It can afford larger displacement and as well as retain longer pulling time, and the peak load is also large enough to bear the loading in clinical setting.
INTERLEUKIN-1, 4, 6, 7, 8, 10 (IL-1, 4, 6, 7, 8, 10) APPEARANCE IN CONGENITAL INTRA-ABDOMINAL ADHESIONS IN CHILDREN UNDER ONE YEAR OF AGE

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The aim of our study was to evaluate the appearance and relative distribution of cytokines (Il-1, 4, 6, 7, 8 and 10) in patients with congenital intra-abdominal adhesions.

Methods. Tissue samples were obtained from 50 patients who underwent abdominal surgery due to obstructive gut malrotation. Tissue specimens were stained with hematoxylin and eosin and by immunohistochemistry for Il-1, 4, 6, 7, 8 and 10. The number of immunoreactive structures was graded semi-quantitatively. Spearman’s rank correlation coefficient (rs) was calculated.

Results. Occasionally to moderate number of Il-1, Il-4 and Il-8 positive inflammatory cells (macrophages, neutrophils) and fibroblasts (including modified fibroblasts) were observed. Few to moderate connective tissue cells contained Il-6, but moderate to numerous - Il-7 and Il-10. Statistically significant positive correlation was found between Il-7 and Il-1 (rs = 0.471, p = 0.001), Il-7 and Il-4 (rs = 0.491, p<0.001), Il-7 and Il-8 (rs = 0.440, p = 0.001), Il-7 and Il-10 (rs = 0.433, p = 0.002) as well as between Il-10 and Il-1 (rs = 0.438, p = 0.002).

Conclusions. The relatively common finding of Il-6 in intraabdominal adhesions points out the relevance of other cytokines in the stimulation of an ongoing inflammation.

The coherence between the inflammation mediator Il-7 and other pro-/anti-inflammatory cytokines suggests about T cell-dependent activation of macrophages and inflammatory aggregate formation.

The essential Il-10 and less distinct Il-1 findings in the adhesion material points out local defence reactions.

Il-4 and Il-8 are not among the most significant factors in pathogenesis of congenital peritoneal adhesions.
EVALUATION OF SPLENIC HISTOLOGICAL ALTERATIONS TO ASSESS THE WORTHINESS OF PARTIAL SPLENECTOMY IN SICKLE CELL DISEASE

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Aim of The Study: Evaluation of splenic histological alterations in sickle cell disease (SCD) in order to assess the worthiness of partial splenectomy.

Methods: This retrospective study considers 6 SCD spleens (mean age: 6.5 years) compared to 8 hereditary spherocytosis (HS) spleens (mean age: 9.2 years) and 10 spleens from traumatic splenectomy (mean age: 16.2 years). The evaluated parameters are: percentage of lymphoid follicles (LF) and fibrosis, architecture of LF, alteration of CD8+ sinusoids and of SMA+ myoid cells. Data were analyzed with Stata-MP13.

Main Results: In SCD patients the percentage of LF was significantly lower and the percentage of fibrosis significantly higher compared to HS and traumatic spleens. No significant difference was found between HS and traumatic spleens (Table I) (Kruskall-Wallis equality-of-populations rank test and Dunn’s test with Bonferroni correction for multiple comparisons). The architecture of the LF was altered in 5 out of 6 SCD patients, while preserved in all HS and traumatic spleens. In SCD spleens the CD8+ sinusoids appeared indefinite and SMA+ myoid cells were over-expressed with greater entity than in HS and traumatic spleens (Table II).

Conclusion: The reduction of quantity and the alteration of structure of the LF in SCD spleens make the usefulness of partial splenectomy with the purpose of maintaining the immunological function questionable. More investigations may help in determining the role of this procedure in SCD for the prevention of vascular complications. The altered immunohistochemical patterns suggest a more complex damage mechanism than the usually described splenic infarction.

Table I: Median values of lymphoid follicles percentage and fibrosis percentage in the three samples of the study, results of the Kruskall-Wallis equality of population rank test and results of the Dunn’s pairwise comparison test for these parameters.

<table>
<thead>
<tr>
<th>LYMPHOID FOLLICLES</th>
<th>FIBROSIS</th>
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<tr>
<td>Lymphoid Follicles %: median (min-max)</td>
<td>Fibrosis %: median (min-max)</td>
</tr>
<tr>
<td>SCD 15 (5-35)</td>
<td>SCD 15 (1-20)</td>
</tr>
<tr>
<td>HS 28 (20-40)</td>
<td>HS 0 (0-5)</td>
</tr>
<tr>
<td>Trauma 30 (25-35)</td>
<td>Trauma 0 (0-3)</td>
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**Table II:** LF architecture alteration, CD8+ and SMA+ expression in the three studied samples.

<table>
<thead>
<tr>
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<th>Patients with altered LF architecture/total</th>
<th>CD8+ expression: strongly altered-slightly altered-normal</th>
<th>SMA+ expression: strongly altered-slightly altered-normal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SCD</strong></td>
<td>5/6</td>
<td>2-3-1</td>
<td>4-1-1</td>
</tr>
<tr>
<td><strong>HS</strong></td>
<td>0/8</td>
<td>0-0-8</td>
<td>0-5-3</td>
</tr>
<tr>
<td><strong>Trauma</strong></td>
<td>0/10</td>
<td>0-0-10</td>
<td>0-6-4</td>
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VEGF AS A MARKER OF KIDNEY INJURY IN EXPERIMENTAL INTRA-ABDOMINAL HYPERTENSION

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Aim of the Study: To investigate the effect of intra-abdominal hypertension (IAH) on plasma levels of VEGF and renal histology in newborn rats.

Methods: The study was approved by the local research ethics committee. A total of 100 newborn rats were randomized into five groups. Group 1 served as control [mean intra-abdominal pressure (IAP), 2 mm Hg]. Groups 2 and 3 were subjected to mild IAH (mean IAP, 9 mm Hg) for 3 and 8 days, respectively. Groups 4 and 5 were subjected to severe IAH (mean IAP, 17 mm Hg) for 3 and 8 days, respectively. IAH was created by intraperitoneal injection of collagen gel as a bulking agent. Concentrations of VEGF (in pg/mL) were measured by ELISA. Renal histology was evaluated by light microscopy.

Results: In control, plasma VEGF concentration was 30 (29–31) [median (IQR)], and no histopathological changes in the renal tissue were observed. In rats subjected to mild IAH, VEGF was 31 (28–35) by day 3 (group 2) and increased to 43 (41–49; P<0.001) by day 8 (group 3); in both groups, histological examination revealed glomerular congestion. In rats subjected to severe IAH, VEGF concentration increased to 39 (38–40; P<0.001) by day 3 (group 4) and reached 64 (42–65; P<0.001) by day 8 (group 5); in both groups, histological examination revealed glomerular congestion and foci of interstitial hemorrhage.

Conclusion: VEGF levels and histopathological changes in the renal tissue progress as a function of severity and duration of IAH in neonate rats.
TREATMENT OF FAST-GROWING MAXILLOFACIAL AREA HEMANGIOMAS IN INFANTS

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Aim of the study was to study the propranolol’s treatment efficacy in infants with fast-growing maxillofacial area hemangiomas.

Methods. We have observed 28 children aged from 1 month to 1 year old with maxillofacial hemangiomas of mixed type (size from 1.2 to 5.0 cm) for the treatment of which the propranolol in a dose 1.5-2.5mg/kg per day was used. The therapy process includes 3 stages:

Stage 1 (7-10 days): Individual selection of propranolol doses was in hospital environment with a daily training of mother to control blood pressure and heart rate in child.

Stage 2 (3-22 months): It was carried out at home. Drug was used under the control of blood pressure, heart rate and body weight.

Stage 3 (2-3 weeks): Including in gradual decrease of dose of propranolol under the control of blood pressure, heart rate and ECG monitoring.

Results. In all cases propranolol provided stable and fast effect on fast-growing maxillofacial hemangiomas. Improvement was observed as early as 4-7 days after treatment start. During the first month the most marked changes were registered. After 6 months of treatment in 82.1% of cases the complete or almost complete regression was observed. The most pronounced effect of propranolol was noted in children less than 4 months of life. Also, a full regression of hemangiomas was observed in infants who do not receiving other treatments.

Conclusion. Thus, it was advisable to start of propranolol in infants with fast-growing maxillofacial hemangiomas immediately after diagnosis and prior to other types of treatment.
INNERVATION OF THE CLITORAL GLANS IN VIRILIZATION OF THE EXTERNAL GENITALIA

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Aim of study: to determine the nature of glans of clitoris innervation during virilization.

Materials and methods: Between 2014 and 2015 histological samples were collected from the various parts of clitoral glans, which were resected at the correction of clitoromegaly from patients with intersex disorders. The age of children at the time of the surgery ranges from 9 months to 3 years old. Twenty samples of multilayered areas of clitoral glans were prepared, 14 of which were lateral fragments of the glans (group 1), 6 were ventral (group 2) and 5 were dorsal (group 3). Prior to collecting the sample and conducting the research parental consent was obtained and permission from local ethics committee was granted.

Main results: In all the samples subepidermal skin layers did not contain any major nerve trunks. It dominated by chaotically arranged small endings, which were distributed uniformly in all the samples. The number of nerve endings in the field of view of the first and third groups were on average 1-2 trunks, whereas in the second group it was 3-5 trunks. In the tunica albuginea accumulation of large nerve trunks and Vater-Pacini corpuscles were noted, and the amount of them varied in a wide range in all groups.

Conclusion: It was determined that innervation of the skin of the glans of clitoris occurs at the expense of the randomly located small nerve endings. The amount of nerve endings in the skin of the ventral surface was higher than in the dorsal and lateral fragments.
WHAT CAUSES SCOLIOSIS IN THE BODY STALK ANOMALY?

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Aim of the Study: Body stalk anomaly (BSA) is a rare congenital abnormality associated with an abdominal wall defect, severe scoliosis, limb deformity and a short umbilical cord. We created an abdominal wall defect in fetal lambs to investigate the mechanisms underlying the severe scoliosis in BSA.

Methods: We created gastroschisis in 60-day gestation fetal lambs, cutting the left rectus muscle or the lateral abdominal muscles. The mean fetal surgery time was 5 minutes. At term (145 days) the lamb was delivered by cesarean section, sacrificed and dissected to confirm the presence of a scoliosis.

Main Results: Twenty-five fetuses had a gastroschisis created. Thirteen died or miscarried. A successful lateral incision was made in five lambs and the left rectus muscle was cut in seven. Severe scoliosis was identified in three medial incision lambs. There were no lambs with a scoliosis in the lateral incision model. The lambs with a medial incision with liver and most of the bowel out had scoliosis. No scoliosis was identified in lambs with just small bowel prolapsed. Three of our Scoliosis lambs had the convexity of the curve on the left.

Conclusion: The fact that the scoliosis in our model was concave on the right side suggests that muscle imbalance plays an important role in creating the scoliosis. However, if the liver prolapses, traction on the spine through the hepatic attachments may also play a role.
THE ASSOCIATION BETWEEN BONE MINERAL DENSITY, NUTRITION AND PHYSICAL ACTIVITY IN CHILDREN

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Aim of the study: Multiple studies have reported the influence of either physical activity or nutrition on bone mineral density (BMD). However, there is scarce information emphasizing the intertwined association between BMD measured using Quantitative Ultrasound (QUS), nutrition and physical activity in healthy children.

Methods: Following ethical approval, speed of sound (SOS) values were obtained from the proximal finger phalanges using QUS in 195 school children. Data concerning nutrition was assessed using standard food frequency questionnaires (FFQ). Physical activity was evaluated by accelerometers.

Main Results: Mean SOS of all children was 1904.4 ± 70.5. A significant difference between mean BMD in female (SOS 1927.4 ± 64.42 m/s) and male (SOS 1884.25 ± 69.63 m/s) school children was found (p<0.001). Mean BMD was negatively correlated with BMI (p=0.005) but not with weight (p=0.241). The mean daily walking distance of all children was 5240 ± 160 meters. Physical activity of the children showed a significant positive correlation with BMD (p=0.039). No correlation between BMD and history of bone fractures could be demonstrated. Micronutrient analysis revealed a mean daily intake of calcium and Vitamin D of 542 ± 264 mg and 1.10 ± 1.70 μg, respectively. There was no association between nutrient intake (specifically calcium and Vitamin D) and BMD.

Conclusion: Unlike in adults, weight does not have a positive effect on BMD in children. In accordance with the literature, physical activity has a positive effect on BMD. Nevertheless, an association with calcium and Vitamin C intake could not be shown.
ENZYME ACTIVITY IN PERIPHERAL BLOOD FOR CHILDREN WITH CHRONIC COLONIC STASIS

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Aim: State evaluation of lymphocyte metabolism for children with chronic colonic stasis (CS).

Methods: 215 children were examined. Patients were divided into 3 groups: 78 with compensated, 117 with subcompensated and 20 with decompensated form CS. The activity of glucose-6-phosphate dehydrogenase, glycerol-3-phosphate dehydrogenase, lactate dehydrogenase, NAD- and NADP-dependent isocitrate dehydrogenase, NAD- and NADP-dependent glutamadehydrogenase, NAD- and NADP-dependent malate dehydrogenase, glutathione reductase in whole blood and liver tissue was determined.

Results: It was revealed, that the activity of G6PD in lymphocytes in children of first group is reduced in 5 times compared to normal state. Indicator changes at 3 stages are immaterial. G3FDG of children with 1 stage was increased in 10 times, in groups with 2-nd and 3-rd stages differences were minor in nature. Indicator of NADITSDG of 1-st group became lower in 8 times compared with normal state. In 2-nd group indicators did not practically changed. The enzyme NADFITSDG of children with first stage GISKH decreased in 25 times. The enzyme activity in 2-nd and 3-rd group is not significantly changing. HT in 1-st group is increased to 3.6±2.8.

Conclusions: Thus, at various stages of CS it was observed: decrease in reaction activity of the Krebs cycle, ensuring the production of ATP, due to decrease in membrane permeability and metabolic substrate limitation. Also the possibilities of macromolecular synthesis in cells are reduced because of reduced admission of metabolites in it and as a result, that leads to a limitation of its mitotic activity and reception.
EFFECT OF CHELERYTHRINE ON INTESTINAL CELL TURNOVER FOLLOWING INTESTINAL ISCHEMIA-REPERFUSION INJURY IN A RAT MODEL

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Background: Chelerythrine (CHE) is a benzophenanthridine alkaloid that is a potent, selective, and cell-permeable protein kinase C inhibitor. The purpose of the present study was to examine the effect of CHE on intestinal recovery and enterocyte turnover after intestinal ischemia-reperfusion (IR) injury in rats.

Methods: Male Sprague-Dawley rats were divided into four experimental groups: 1) sham rats underwent laparotomy, 2) Sham-CHE rats underwent laparotomy and were treated with intraperitoneal CHE; 3) IR-rats underwent occlusion of both superior mesenteric artery and portal vein for 30 minutes followed by 48 hours of reperfusion, and 4) IR-CHE rats underwent IR and were treated with IP CHE immediately before abdominal closure. Intestinal structural changes, Park’s injury score, enterocyte proliferation and enterocyte apoptosis were determined 24 hours following IR. The expression of Bax, Bcl-2, p-ERK and caspase-3 in the intestinal mucosa was determined using real time PCR, Western blot and immunohistochemistry.

Results: Treatment with CHE resulted in a significant decrease in Park’s injury score in jejunum (three-fold decrease) and ileum (two-fold decrease) and parallel increase in mucosal weight in jejunum and ileum, villus height in jejunum and ileum and crypt depth in ileum compared to IR animals. IR-CHE rats also experienced a significantly lower apoptotic index in jejunum and ileum, which was accompanied by a lower Bax/Bcl2 ratio compared to IR animals.

Conclusions: Treatment with chelerythrine inhibits programmed cell death and prevents intestinal mucosal damage following intestinal IR in a rat.
EVALUATION OF PREDICTING FACTORS OF REDUCIBILITY OF INTUSSUSCEPTIONS WITH BARIUM ENEMA IN CHILDREN

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Aim of Study: evaluation of the predicting factors of reducibility with barium enema in children with intussusception

Methods: In a Case series study in 2015 children consecutively admitted with intussusception diagnosis were selected. Exclusion criteria were: clinical symptoms of peritonitis, free air in plain x-ray and shock. Data such as age, sex, fever, leukocytosis, free fluid in sonography, time of symptom appearance and positive bloody stool were collected with checklist. Then barium enema was performed. The relationship between level of success of treatment with check list data was analysed.

Main Results: 45 children were evaluated (35 boys, 10 girls). The mean age of patients was 2.48 ± 1.27 years. There was a relationship between Positive blood stool and free fluid in sonography with unsuccess of barium enema treatment

Conclusion: In attention to, the bloody stool and free fluid in sonography reduce successfulness of Barium enema. Our recommendation is to attempt not more than one session in barium enema if there are signs of positive blood stool and free fluid in sonography.
ATYPICAL PLACEMENT OF HYDATID DISEASE IN A CHILD
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Introduction: Hydatid Disease (HD) is an endemic, zoonotic and parasitic infestation in Turkey. The mainly affected organs are liver and lungs. We aim to present the patient with HD in atypical location and had a pressure symptom.

Case report: Male, 13 years old teenage was applied to orthopedia clinic, complaint from pain on the right thigh has lasted for 5 years. Only pain while right thigh movement was found on physical examination. Lung x-ray graph was normal but magnetic resonance imaging (MRI) revealed “a 90x45x40 mm mix semi-solid mass near or in right internal obturator muscle. The mass could be smooth tissue tumor, hydatid cyst (HC) or organized plastrone appendicitis”. Patient evaluated by pediatric oncology department and considered pelvic mass was benign lesion but germ cell tumor could not be excluded. Patient’s alpha-fetoprotein and β-human chorionic gonadotropin levels were found normal. HD indirect hemagglutination test was found negative. Cranial MR was normal. After one week andazol treatment, the patient was operated. After laparoscopic exploration, right inguinal incision was made. Cyst was found in internal obturator muscle. Cyst was opened and clear liquid and daughter vesicules was discharged. HD was confirmed by pathology. Post-operative andazol therapy was carried on. Patient has followed uneventfully for six months.

Conclusion: Because of zoonotic disease; patient history should be carefully taken to diagnose of HD. When encounter a cyst in body, atypical placement of HD should be remembered with patient’s history.
EARLY APPROACHES AND OUTCOMES OF LIFE THREATENING LYMPHATIC MALFORMATIONS

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Aim of the study: Lymphatic malformations may represent a life threatening abnormalities, especially when closely anatomically connected to airways. Sclerotherapy is considered the first line treatment of choice, with surgery only as second line therapy. Aim of the present study is to evaluate the experience of a third level neonatal referring centre in treating these congenital defects, while defining early outcomes.

Methods: All patients admitted for lymphatic malformations between January 2000 and December 2015 were reviewed; Patients with lymphatic malformations not anatomically closely connected to airways were excluded from the present analysis. Patients were categorized based on the presence/absence of respiratory distress at birth. Main outcomes considered were prenatal diagnosis, need for tracheostomy, n° sclerotherapy during the 1st year, need for surgery, residual disease beyond 1st year, deaths. Fisher’s exact test and Mann-Whitney test were used. Statistical significance was set at p<0.05.

Main results: Table summarizes main results.

Conclusion: Patients with respiratory distress at birth often present lymphatic malformations involving oral cavity, are at higher risk for tracheostomy, and regularly require surgical reduction of the lymphatic abnormalities. Moreover, although no deaths were observed, a persistent disease is frequently encountered beyond the 1st year of life in patients with respiratory distress at birth, requiring close monitoring and follow-up.
SPONTANEOUS PNEUMOTHORAX - WHEN THERE ARE INDICATIONS FOR THORACOSCOPIC INTERVENTIONS?
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The aim of the study was to determine the indications for thoracoscopic interventions in patients with spontaneous pneumothorax.

Material and methods. In the years 1997-2015 62 thoracoscopic interventions in 57 patients were performed. There were 12 girls and 45 boys in age from 7 to 18 years (average 15.3 years). 5 patients underwent surgery twice because of a pneumothorax or the presence of blebs on the opposite side. The qualification for the surgery was ineffective conservative treatment with drainage - 14, another incident of pneumothorax - 15, the first incident of pneumothorax - 32 cases, the presence of blebs in the top of the lungs without pneumothorax - 3 cases. In 56 (90.3%) cases apex of the lung was resected (25 after ligation with endo-loop, 31 using stapler) and scarification of pleura was done; in 6 patients (9.7%) only scarification was performed.

Results. There were no intraoperative complications and conversions. Average drainage time was 3.7 days, hospital stay 7.2 days. In 58 (93.6%) patients good result was achieved, in 4 (6.4%) recurrence was observed. In these 4 cases redo thoracoscopic intervention was effective.

Conclusions. Thoracoscopic intervention is a safe and effective treatment for spontaneous pneumothorax. It should be the treatment of choice in classic indications - ineffective drainage and recurrent pneumothorax. In the first incident of pneumothorax reduces the risk of recurrences and lets avoid multiple punctures or drainage. It shortens hospital stay and improves the quality of patient life who doesn't worry about recurrences.
PW15-03

CONGENITAL BILOBAR EMPHYSEMA

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Introduction Congenital bilobar emphysema is a rare congenital malformation. Our purpose is to review the diagnosis problems and to define a therapeutic strategy of this condition.

Methods We retrospectively reviewed the medical records of all the children who were treated for congenital lobar emphysema, of which were defined the bilobar emphysema cases between 1st January 1973 and 31 December 2015.

We identified the gender, the age, symptoms revealing the pathology, the radiological findings, the lobars involved, treatment and complications.

Results 38 patients were operated for congenital lobar emphysema. 6 of them were bilobar (15.7\%) comprising 4 males and 2 females. The median age at diagnosis was 6.1 months (1 month-12 months). All the patients had mild respiratory distress, recurrent respiratory tract infections and cough. Chest radiography showed an hyper-inflated hemithorax and suspected a bilobar involvement in 2 cases. A CT scan was performed for 3 patients. Only one case had a perfusion lung scintigraphy. The emphysema was unilateral in all the cases and affected the superior right and medium lobars in 4 cases and the inferior right and medium lobars in 2 cases. A bilobectomy was done for all the patients. The postoperative course was uneventful. The average follow-up period was 9 +/-5 years.

Conclusion Diagnosis of bilobar congenital emphysema involvement may be difficult. Surgical management should be guided by clinical and radiologic findings.
PAEDIATRIC THORACOSCOPIC SURGERY PRACTICES AND OUTCOMES IN EUROPEAN CENTRES

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Aim: There is a distinct possibility that variable preoperative management protocols by the practicing paediatric thoracoscopic surgeons may be influencing the outcome. The aim of this study was to evaluate the current thoracoscopic practices, perioperative management protocols and post-operative morbidity in four European Paediatric centres.

Methods: A retrospective review of thoracoscopic surgery cases was undertaken in Paediatric Surgery units of Siena (S), Vicenza (V), Strasbourg (ST) and Birmingham (B), from June 2009 to September 2014. We collected demographics, indications, operative and postoperative management and outcome data.

Results: We focused on 120 thoracoscopic procedures containing 95 congenital lung lesions (Congenital Adenomatoid Cystic Malformation [CCAM=33], bronchopulmonary sequestration [BPS=52] and Congenital Lobar Emphysema [CLE=10]) and 25 mediastinal masses. Overall CO2 insufflation and ipsilateral lung collapse was successful in 72%, while single lung ventilation was feasible in 28% of cases. Seven children (6%) had early post-operative complications: 6 persistent air leak (3 after partial lobectomy) and 1 left phrenic nerve damage. Five cases (3 bronchogenic cyst, 2 lymphatic malformation) of 25 mediastinal masses required re-do surgery. The variability of postoperative chest tube drainage was noticeable and that may have been the reason for the delayed discharge (Table).

Conclusion: Although this multicentre study highlighted some differences in pediatric thoracoscopic practices between European centres, similarities were also observed. Better understanding and co-operation may unify the management protocols reducing the postoperative morbidity and improving expertise in paediatric thoracoscopic surgery.
THE SURGICAL OPTIONS IN CONGENITAL PULMONARY AIRWAY MALFORMATION (CPAM): ACCORDING TO THE LOCALIZATION OF THE PULMONARY INVOLVEMENT
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Aim of the study: Treatment of CPAM consists of different surgical options. In this study, we aimed to report our management strategy in CPAM.

Methods: We retrospectively analyzed the medical records of patients who underwent surgery for CPAM between 2005 and 2015. Patients with antenatal diagnosis were operated in 1-6 months old. Early resection was necessary in patients with severe respiratory insufficiency.

Main results: 20 patients (14M, 6F) were operated with a median age of 4 months (-1day-12years). Antenatal diagnosis was positive in 12 patients (60%). The other patients were admitted with a median age of 3.5 years (1day-12years). Respiratory infection was seen in four patients (20%). Nine patients underwent early operation due to severe dyspnea and recurrent respiratory infection (45%). All of the patients were examined by computerized tomography. The most frequent localization was left lower lobe (40%). Lobectomy was performed in 17 patients with single lobe involvement (85%). Lobectomy and segmentectomy was performed two patients with unilateral multi-lobar involvement. One patient with bilateral multi-lobar involvement required multiple thoracoscopic wedge resections. Two patients who had severe dyspnea before surgery required mechanical ventilation after operation and one of them died. Two postoperative complications were seen as empyema and pneumothorax. Mean postoperative follow-up period was 5.5 years.

Conclusions: CPAM must be excised totally due to the risk of pulmonary infection and malignancy. The resection strategy should be decided with the number of the lobes which are affected. Lobectomy should be performed in single lobar involvement. Unilateral multi-lobar involvement requires lobectomy for major lesion and segmentectomy for the minor one. Thoracoscopic wedge resections should be preferred in bilateral multi-lobar CPAM.
ANATOMIC SEGMENTAL RESECTIONS FOR PULMONARY MALFORMATION: FEASIBILITY AND INDICATIONS
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Prophylactic resection for pulmonary malformations still debated, particularly in cases of small and microcystic lesions. Partial lobectomy seems an option to preserve normal lung. Anatomically based procedures may assure complete resection of the malformation. We describe indications, procedures and difficulties encountered in the firsts thoracoscopic partial anatomic resections performed in our unit.

Patients and methods: Records of all patients undergoing lung resection for pulmonary malformation from April 2013 to September 2015 were reviewed.

Results: 24 lung resections were initiated under thoracoscopy. Eighteen patients were under one year of age. Four of 7 lobectomies, 3 of 8 anatomic segmental resections based on the bronchial anatomy (SR) and 1 of 9 non anatomical partial lobectomies (NAPL) needed conversion to thoracotomy. Factors of conversions were anatomic in four cases, exposition difficulties in 3 and uncertain resection’s limits in two. In four cases initial SR strategy had to be change to lobectomy. The operative time averaged 120 minutes. The mean length of stay was 4 days (range 2 to 9 days) without differences between the SR, NAPL and lobectomy groups.

Conclusion: Anatomic segmental resection is feasible and does not object to other strategies - lobectomies, not anatomically partial lobectomy - which have different indications. Prospective researches are needed to precise them.
THYMIC CYSTS IN CHILDREN – IS SURGERY JUSTIFIED?

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Aim of the study: Thymic cysts are rare lesions. They may present as either mediastinal and/or neck masses. The spectrum includes benign as well al malignant conditions.

Methods: During the 10 year observational period 4 children with cysts of thymic origin were treated surgically

Main results: Ultrasound (n=4) and magnet resonance tomography (n= 3) showed the cystic nature and topography of the lesions. Aspiration of 1 cervical cyst led to recurrence. In 2 cases cysts were resected via cervicotomy (n =2 ). In these patients the diagnosis was established postoperatively by histology. In 2 cases the cystic lesion affected the thymus itself. The resection was performed via cervical mediastinotomy and lobectomy was performed to preserve enough tissue for immunological reasons. Epithelial lined cysts were found in all cases. Surgical complications did not occur.

Discussion: Since the clinical symptoms are mild and a benign behavior can be expected, a watch and wait strategy seems appropriate for simple cysts. Spontaneous regression has been described. Otherwise, surgical removal of simple thymic cysts can be performed safely with minimal morbidity.
The aim of the study was to present our own experience with Nuss technique.

Material and methods. In the years 1999-2015 789 correction of funnel chest deformity using Nuss technique were performed. Among treated was 160 girls and 629 men in age from 3 years to 32 years (average 15.1 years). In 166 (20.9%) patients two stabilizing plates were introduced, in 67 (8.5%) with asymmetric chest and the rigid front wall of the chest transverse incision of the sternum, and/or resection of parasternal parts of the ribs were done. In 592 (75%) patients parasternal fixation of the plate was performed and only in 10 (1.6%) side stabilizer was used.

Results. There was no mortality. In 17 (2.1%) patients perioperative complications were observed, in 9 (1.1%) complications were observed in the postoperative period. Duration of surgery ranged from 25 to 130 min, the average was 59 minutes. Hospitalization time ranged from 4 to 12 days, medium was 4.8 days. In 600 patients bar was removed. In 570 good late result was achieved. 30 patients (3.3%) were reoperated for recurrent deformity.

Conclusions. Nuss operation has all advantages of minimally invasive surgery and is technically simple. The best clinical effect is achieved in patients with a symmetrical deformity before 15 years of age. In patients older than 15 years and patients with asymmetric deformation, it is often necessary to use two bars and to combine Nuss technique with Ravitch procedure. Parasternal fixation of the bar lets avoid bar displacement.
PW15-09

CONGENITAL DIAPHRAGMATIC HERNIA WITH LATE ONSET: SINGLE CENTRE EXPERIENCE

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Aim: This study was undertaken to highlight the clinical profile and prognosis of congenital diaphragmatic hernia (CDH) cases with late onset, in a tertiary level hospital.

Methods: Retrospective study included patients operated on due to late presenting CDH, for a period 2000-2014. Demographic data, symptoms, rentgenographic findings, operative approach and 2-year follow up were analysed statistically.

Main results: Overall, n=10 children were operated on. There were 6 boys and 4 girls, mean age 5.22 (2-14). Three clinical presentations were recorded: n=2 children presented with acute onset of symptoms (vomiting and abdominal pain), n=4 had chronic non-specific respiratory symptoms, and in n=4 was incidental finding. Patients with abdominal complaints were older (p<0.001). Chest X-ray was the initial diagnostic tool, followed by CT in n=3 and NMR exam in n=6. Spectrum of rentgenographic manifestations included obvious presence of bowel in the chest in n=7 patients; the findings simulated pneumonia in n=3. In all patients open surgery was performed, using abdominal approach. No prosthetic material was used. Recovery period was uneventful in all but n=2 (one developed pneumothorax, one was reoperated on due to adhaesive intestinal obstruction). All patients were followed, up to 2 years. No mortality or late morbidity was recorded.

Conclusion: Diagnostic errors are due to the fact that the possibility of late CDH is neglected. In every child presenting with unspecific respiratory or gastrointestinal symptoms and an anomalous chest x-ray, a diagnosis of CDH should be considered. Outcome is excellent if these patients are identified and treated surgically.
IS ROUTINE THORACOSCOPIC APPROACH JUSTIFIED IN PEDIATRIC PULMONARY HYDATID CYST TREATMENT?

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Background: There are recent reports on thoracoscopic management of pediatric pulmonary hydatid cyst (PHC). We aim to review our results and evaluate the efficiency of this approach in our patients.

Patients–method: Hospital records of patients with PHC who were surgically treated through 2005-2015 were reviewed. Demographics, cyst characteristics and operative/postoperative data were compared between thoracoscopically treated patients (Group 1) and patients that underwent thoracotomy (Group 2).

Results: Twenty-six consecutive children (14 girls, 12 boys) with a mean age of 9.4±2.7 were included. Except 2 incidentally diagnosed patients, all were symptomatic (ruptured cyst in 9), 4 had multifocal lesions and multi-organ involvement was detected in 11. Thoracoscopy was performed in 10 patients of whom conversion was necessary in 2. Group 1 included 8 thoracoscopically-treated patients and remaining patients constituted Group 2 (n=18). Comparison of demographics, cyst characteristics and operative/postoperative data are depicted in table below. In Group 1, thoracotomy and fistula ligation was necessary in one patient due to prolonged bronchial fistula, and tube thoracostomy was performed in 2 patients with pneumothorax. One patient with localized air cyst was treated conservatively. In Group 2, one patient developed anaphylactic shock due to bronchial leakage, tube thoracostomy was necessary in one patient with pneumothorax and one patient with localized air cyst followed conservatively. There was no mortality in each group.

<table>
<thead>
<tr>
<th></th>
<th>Group 1 (n=8)</th>
<th>Group 2 (n=18)</th>
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<tbody>
<tr>
<td>Mean age (months)</td>
<td>8.9±2.7</td>
<td>9.4±2.5</td>
</tr>
<tr>
<td>Mean cyst diameter (cm)</td>
<td>6.6±1.2</td>
<td>7.5±2.2</td>
</tr>
<tr>
<td>Fistula ligation</td>
<td>4 / 8</td>
<td>14 / 18</td>
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<tr>
<td>Mean chest drain duration (days)</td>
<td>10.1±5.9</td>
<td>7.5±4.6</td>
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<tr>
<td>Mean hospital stay (days)</td>
<td>16.2±9.6</td>
<td>11.2±5.3</td>
</tr>
<tr>
<td>Postoperative complication</td>
<td>4 / 8</td>
<td>3 / 18</td>
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</tbody>
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Conclusion: Routine thoracoscopic hydatid cyst treatment is yet far from being gold standard in children with its high conversion and morbidity rates. Randomized controlled studies and patient selection criterias are needed.
**PW15-11**

**CLINICAL EXPERIENCE OF TREATMENT OF ACUTE HEMATOGENOUS OSTEOMYELITIS IN CHILDREN**

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**Aim of the study** was to evaluate the outcomes of treatment of Acute Hematogenous Osteomyelitis (AHO) in children.

**Methods:** The study included 93 children with AHO aged 3 to 16 years old. There were 57 boys (61.3%) and 36 girls (38.7%). Practical relevance of the study was to provide an adequate operative treatment with sufficient drainage of primary infections site and prevent appearance of burrowing pus (based on CT and MRI). The most frequently isolated pathogen was S. aureus (n=81; 87.1%, of which 2.2% were MRSA). The main culture sources of primary pathogens were intraoperative bone aspirates and blood. All patients received postoperative antibiotic therapy. Combinations of Cephalosporins II-III generations with Amikacin were most frequently used. Also patients had a monotherapy (Vancomycin or Daptomycin).

**Results:** The clinical success was achieved in most patients. Morality cases were not observed. Duration of hospitalization was 19±0.7 days. Registered complications of AHO were transition to a chronic form in 3 (3.2%) patients, fistula formation - 2 (2.2%) and pathological fracture - 1 (1.1%).

**Conclusion:** Based on the results of our experience, integrated approach was found to be effective and safe in patients with AHO. Histological and microbiological tests were very important in AHO treatment as well.
A SYSTEMATIC REVIEW OF NECROTIZING FASCIITIS IN CHILDREN
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Aim of the study: Necrotizing fasciitis (NF) is a rare disease, especially in children. The aim of this study was to review the literature and identify specific features of NF in children.

Methods: A search was performed in Medline, Scopus and the Web of Science with a predefined search strategy depicted below. Inclusion criteria were age between one month and 18 years, at least one skin symptom and outcome reported. Exclusion criteria: Fournier's gangrene and neonates. We assessed skin symptoms, systemic sepsis signs, underlying conditions, organisms cultured, affected body regions, morbidity, case fatality rate (CFR), geographic distribution in individual cases and categorized them identified into age groups.

Main results: In total only two of four cohort studies with 45 cases combined and one case-control study included patients prospectively. The incidence varies from 0.22/million to 2.85/million children with a CFR from 0% to 14.3%. Skin and sepsis symptoms were consistent within the case-control studies but varied widely in the pooled individual cases. Despite being level IV evidence, the identified pooled 239 cases of children (see Flowchart) indicated that infants did not have the highest CFR (7.14% in infants accounting for 11.11% of all fatalities), which occurred in school children (15.71% CFR, 40.74% of all fatal cases). Varicella was present in only 28% of cases as underlying condition.

Conclusion: Our systematic review failed to identify specific features of NF in children. The level of evidence is poor and prospective studies are necessary to clarify the symptoms on presentation and population at risk.
FORESKIN RECONSTRUCTION FOR PATIENTS WITH HYPOSPADIAS: OPTIMISING PRE-OPERATIVE COUNSELLING AND PARENTAL CHOICE

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Background: Foreskin reconstruction (FR) for patients with hypospadias can be performed safely, with a low complication rate. However, it is not always offered.

Aims: 1) To determine what proportion of parents choose FR when given the option. 2) To quantify how often FR is achievable when requested.

Methodology: Between March 2014 and Dec 2015, parents of boys with hypospadias were offered FR or circumcision in outpatient clinic (OPC); their preference was recorded prospectively. They were asked again on the day of surgery (DOS). Patients requiring a planned two-stage procedure were excluded. Operative outcome was recorded.

Results: 119 patients were recruited and counselled; 68 have undergone surgery and were included. In OPC, the parents of 25 (37%) patients requested FR, 21 (31%) circumcision, 22 (32%) had no preference. On the DOS, a further 4 chose circumcision, 2 FR and 2 changed from circumcision to FR. Median age at surgery was 16-months (10 – 117).

Of the 29 (43%) requests for FR, it was performed in 25 patients (86%). Of the 16 cases without a preference, 10 received FR. Of the 35 receiving FR (51%), position of the urethral meatus was: 5 glanular, 14 coronal, 12 sub-coronal, 4 mid-shaft. Operations included: 30 Snodgrass, 5 FR only. Reasons for not undertaking FR were: unaesthetic appearance, deficient ventral skin requiring the foreskin for coverage, two-stage repair required.

Conclusion: A significant proportion of parents requested FR, highlighting the importance of pre-operative counselling and parental choice. FR was achievable in the majority of cases who requested it.
Aim of the study. Pyeloplasty is the gold standard treatment for pelvi-ureteric junction obstruction. Postoperative internal or external ureteral stent can be placed, according to the Surgeon’s preference. Timing of stent removal is diffusely based on US measurement of pelvic dilation. Aim of our study is to evaluate the predictive value of the US with JJ stent on the surgical outcome.

Materials. In the period between 2010 and 2015 we performed a total of 128 pyeloplasties according to the Anderson-Hynes technique. 68 patients were eligible for our study. Median age at operation was 1.5 years (3 months-16 years). A 3 to 4.8 Fr JJ stent was positioned. US-measured Antero-posterior (AP) diameter with JJ stent was compared with AP diameter measured one month after JJ removal.

Main results. Median AP diameter with JJ stent was 1.8090 cm (SD 1.2207). Median AP diameter one month after removal of JJ stent was 1.2032 cm (SD 0.9730). A highly statistically significant difference between the two groups was demonstrated through paired Student’s t-test (p<0.0001).

Conclusion. The significant reduction in the AP diameter before and after the JJ-stent removal shows the non predictivity of the US with JJ stent on the surgical outcome. These data might show an obstructive role of the JJ stent. On the basis of these considerations, US with JJ stent could not be indicated. The decision to leave the stent in place or to substitute it should not be made on the basis of the detection of a pelvic dilation in the presence of a JJ stent.
Aim: We evaluated the efficacy of the second layer flaps used to prevent the development of the urethrocutaneous fistula after hypospadias repair.

Methods: 72 cases with coronal or midpenile hypospadias (1yrs – 15 yrs) were retrospectively evaluated. In all cases, neourethra was created by tubularized of the plate in the ventral penile surface, and obtained second layer flaps were laid onto the neourethra. The second layer flaps were harvested from the preputial dartos in 51 patients (group 1). The perimeatal-based dartos flap which was obtained from ventral surface of the penis, was used in 21 patients (group 2); 16 cases had previously undergone hypopadias repair, three cases had been done circumcision before, and two patients had not been done any operation before. The urethral catheter was inserted in all patients, and removed on postoperative days 6 to 8.

Results: In group 1, urethrocutaneous fistula developed in four patients (7%), and completely dehiscence was detected in only one patients (2%). However, no patients developed postoperative complications such as urethrocutaneous fistula and dehiscence in group 2. In regard to the complications there was no significant difference between both groups (p>0.05).

Conclusions: These early results demonstrated that there was no complication detected in the patients with using perimeatal-based dartos flap, and that’s why may be encouraged to be used as an alternative to the other second layer flaps.
Endoscopic Management of Utricle Cyst in Children: An Alternative to Be Considered

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Aim of study. To describe endoscopic management of Utricle Cyst, a successful technique in adults, as a real alternative in pediatric age.

Material and methods. Retrospective review of patients undergoing endoscopic management in a single pediatric institution between 2007-2015. Demographic, clinical and diagnostic data were recorded as well as information regarding treatment given to each patient.

Results. Eight patients (46xy), age 8.2 yo [3-18] have been included in this report. Two associated as well proximal hypospadias and three cryptorchidism.

Repeated urinary tract infection was the most associated symptom (6/8), followed by dysuria (4/8), impossible catheterization (4/8) and obstructive pattern in uroflowmetry (3/8).

Preoperative diagnosis was definitive in 7/8 patients: Ultrasound was performed in all cases and voiding cystourethrogram in 6/8.

All patients underwent an endoscopic section of the utricle meatus and de-roofing to avoid urine stasis.

There were no intraoperative complications. Average hospital stay was 1.4 days. All patients referred disappearance of symptoms and the procedure had to be repeated in one patient. Average follow-up: 29.8 months [7-83].

Conclusions. 1. In our experience, endoscopic management of utricle cyst is an effective and safe option for selected symptomatic patients: UC length less than 2 cm long and narrow neck.

2. Its excellent results, minimizing perioperative risks and reducing hospital stay, makes it a real alternative in childhood.

3. Although minimum (up to 3%), the risk of malignancy has been described in adult patients. This approach does not limit the future diagnosis and treatment options in case of failure.
PW16-05

CURRENT DEVELOPMENTS IN THE TREATMENT OF CHILDREN WITH DISORDERS OF SEXUAL DEVELOPMENT: ASPECTS OF SURGERY BASED ON A CASE SERIES

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Aim: The treatment guidelines for disorders of sexual development have changed during the past decades, including a revised nomenclature and classification. Surgical treatment of these children has become more refraining. Referring to this, our own cases series was analyzed.

Material and methods: All cases with DSD from 2002 – 2015 were analyzed retrospectively, according to age, karyotype, number of procedures, and type, complications, follow-up, gender assignment, as well as gender identity.

Results: During the reported period, 85 patients were operated on. Out of 47 patients with 46, XY DSD, there were 41 penoscrotal hypospadias, 3 partial androgen insensitivity syndromes (PAIS), 3 cloacal extrophies, and one Swyer syndrome. Out of 32 patients with 46, XX DSD, there were 12 adrenogenital syndromes, 10 cloaca, 8 cloacal extrophies, 3 vaginal atresias, and one testicular DSD (SRY-). Out of 5 sex chromosome DSD, there were 2 mixed gonadal dysgenesis, 3 Turner-syndromes. In 9 cases, mild to severe associated malformations were described. In 8 cases, diagnoses were delayed significantly. 78 children received different forms of sex reassignment surgery; one child with chromosome DSD and ambiguous genitalia received orchidopexy after biopsy. Four cases of 46, XY and 2 cases of sex chromosome DSD received feminizing genitoplasty in early childhood, 3 of them after delayed diagnosis and incorrect gender assignment. Of these, gender identity was different in 1 of each group. The median follow-up was 69 months.

Conclusion: Establishing a precise diagnosis in DSD is important and bear lifelong consequences. The determinants of gender identity still remain inconsistent. A better collaboration between the health services and the respective encounter groups should be established to improve the long-term outcome of these patients.
ELABORATION OF A NEW APPROACH TO CHILDREN WITH URACHAL REMNANTS

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Aim of the study. Historically it was generally agreed that urachus obliterates on 4-5th month of embryological development and regresses into the fibromuscular structure to the time of birth. Because of generally asymptomatic course long time disturbance of the urachal remnants (UR) obliteration was considered as a rare condition. It was treated surgically because of high risk of complications, first of all – malignization. The goal of this study was to evaluate the real frequency of UR in asymptomatic children and to work out a guideline for our hospital.

Methods. Thanks to postoperative histology we succeeded to set up a correspondence between the sonographic morphology and histological structure of the URs, that brought to better interpretation of sonographic data in the first part (screening) of our investigation. The second part included the retro- and prospective analysis of 53 children, that were laparoscopically treated because of URs in a period from 2003 to 2014 and the comparison to traditional surgery.

Main results. 159 children (79 boys, 80 girls) were included in the first part of our study. Ages ranged from 5 month to 17 years. The structure of UR was detected in 150 patients (94.34%). Signs of UR differentiation were revealed in 66 (41.5%; percentage of patients with UR – 44%), lumen – in 50 patients (31.44% and 33.33% accordingly). «Protrusion» had a place in 139 children (92.6% of all children with URs). Analysis of 53 operations as well as postoperative period allowed us to determine the details of laparoscopic treatment by the different types of URs. By comparison of laparoscopic and traditional surgery we came to conclusion, that laparoscopy is a preferred method of treatment. The length of hospital stay and analgetic medication were significantly lower, whereas the rate of simultaneous operations – higher.

Conclusion. The URs are not rare in occurrence. In overwhelming majority of cases they are asymptomatic. We think, that the risk of malignization was significantly overestimated. In our opinion indications for surgery include symptomatic patent urachus, recurrent abdominal pain and inflammatory complications, signs of tumor growth, weeping umbilicus, presence of concrements and sizeable cysts. Laparoscopy is a preferred method of treatment and can be estimated as a «golden standard» in children. The resection of bladder dome is unnecessary in most cases.
COMPARISON OF HOMOZYGOUS RECESSIVE TRAITS IN BOYS WITH HYPOSPADIAS AND NORMAL BOYS

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Aim of the study: The incidence of hypospadias is one in every 200-300 male births. Increased recessive homozygous traits have been reported in patients with several medical conditions (spina bifida, diabetes mellitus, coronary heart disease, congenital hip dislocation, etc). It has been suggested that 2D/4D digit ratio is related to intrauterine androgen exposure. It has also been suggested that normal development of male external genitals is associated with adequate androgen levels during gestation.

Methods: Between August and December 2015, we evaluated 64 boys with hypospadias for presence of recessive homozygous traits and compared them to control group of 95 boys with no genital abnormalities.

Main Results: Mean age of boys with hypospadias was 66.94±40.82 months (range 37-211 months), while the mean age in control group was 80.04±41.99 months (range 40-196 months). Observing recessive homozygous traits presence in boys with hypospadias and controls, we found statistical significance in presence of soft hair among the two observed groups (P=0.0182). Observing the 2D/4D digit ratio, as the one of the traits considered to be related to androgen exposure, we found the mean 2D/4D to be 0.937±0.034 in patients with hypospadias, and 0.946±0.033 in control group with no statistical significance between two groups (p>0.05).

Conclusions: We could not conclude that presence of homozygous recessive traits in group of patients with hypospadias is statistically significant. We believe that we need to pursue our investigation further with bigger homogenous samples.
LABIA MINORA REDUCTION IN ADOLESCENCE: EDGE AND WEDGE RESECTION PROCEDURES

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Aim of the Study: Vaginal labiaplasty is becoming a more frequently performed procedure also in pediatric age. In adolescence primary indications are hypertrophy of labia minora (LH) or labial asymmetry often associated to dissatisfaction towards the appearance of genitalia and poor quality of life in terms of body image. The etiology of LH is not known. A recent classification divides LH into 4 classes according to the protrusion of the labia minora beyond the fourchette and the labia majora. Surgical procedures can be categorized into “edge trim” and “wedge” techniques; the choice of technique should be based on the anatomical variant.

Methods: In the last 18 months we treated 6 patients (3 bilateral), age ranging from 8 to 16 years. Primary indication to labiaplasty was hypertrophy or labia asymmetry; a case (8 year-old girl) required labiaplasty for a giant nevus. In 3 cases we used “edge” resection due to irregularities of the labial margins, while in the remaining wedge resection technique was adopted.

Main results: Results were aesthetically, functionally and psychologically satisfactory in all 6 cases and no major or minor complications were observed.

Conclusions: Many techniques for labia minora reduction have been described (edge resection, wedge resection, Z-plasty, deepithelialization, W-plasty). Complications are usually related to excess tissue resection or scars. In our experience both edge and wedge resection techniques resulted in good outcomes, including high patient satisfaction and low morbidity. Wedge technique should be preferred in girls without anomalies of labia margins so to allow natural appearance without scars.
PW16-09

URODYNAMIC STATUS IN PREPUBERTAL CHILDREN WITH MYELOMENINGOCELE

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Aim: Bladder dysfunction in children with myelomeningocele (MMC) is a potential risk for renal damage. The aim of this study was to evaluate urodynamic status of the bladder before puberty.

Methods: We reviewed the Videourodynamics (VUD), performed before puberty, of all MMC patients born between 2001 and 2009, followed at our Institution. Parameters analyzed were, bladder capacity, trabeculation, vesicoureteric reflux, end filling pressure, detrusor overactivity (DOA), leakage and bladder treatment at the time of the VUD.

Main results: Thirty-nine patients were identified, 20 males; ten were excluded (7 lost of follow-up/insufficient data, 3 dead from unrelated reasons). Median age at VUD was 91 months (72-141). Twenty-seven patients (93%) were on CIC, 1 refused CIC and 1 had vesicostomy. Twenty-six (90%) patients were on anticholinergics; 8 (28%) had received intravesical botox injections (1-3 times). Normal bladder capacity was found in 25 (86%), trabeculation in 6 (21%), VUR (Grade I-III) in 3 (10%). Increased end filling pressure, median 20 cmH2O (12-47) were identified in 14 (48%), DOA (23-71 cmH2O) in 11 (38%) and leakage in 16 (55%).

Conclusions: Close surveillance and early treatment (CIC, anticholinergics, botox) maintain a normal bladder capacity in the majority of the prepubertal patients born with MMC. However, high bladder pressure and DOA causing leakage is found in about half of the children confirming that the goal of achieve full continence and maintain normal upper tracts remains a challenge.
FACTORS ASSOCIATED WITH ABNORMAL IMAGING AND INFECTION RECURRENTNESS AFTER A FIRST FEBRILE URINARY TRACT INFECTION IN CHILDREN

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Introduction: We determined factors associated with abnormal imaging and recurrent infections after a first febrile urinary tract infection in children under 3 years old.

Materials and methods: We retrospectively reviewed the records of all patients treated at our institute during the years 2000-2009, for a first febrile urinary tract infection before the age of 3 years, who underwent ultrasonography and voiding cystourethrography. We evaluated data regarding factors potentially associated with abnormal ultrasonography and voiding cystourethrography results and recurrence of infections, and formulated a risk score system to assess risk of reflux and high-grade reflux.

Results: There were 282 patients. The only factor predicting abnormal ultrasonogram was non-Escherichia coli infection. Risk factors for vesicoureteral reflux included abnormal ultrasonogram, atypical infection, non-Escherichia coli infection and infection recurrence. Patients with no identified risk factors for vesicoureteral reflux were unlikely to have high-grade reflux. Higher risk scores were associated with a higher risk for reflux. Non-Escherichia coli infection was the only statistically significant predictor of infection recurrence.

Conclusion: All children under 3 years old with first febrile urinary tract infection should undergo ultrasonography. Thereafter, patients with no predictive factors for VUR may be followed-up without further imaging. A non-Escherichia coli infection is associated with reflux and infection recurrence.
OMENTUM TORSION: AN ABDOMINAL PAIN REASON SHOULD BE KEEP IN MIND

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Aim: To make an awareness about omentum torsion for a child whom planning an operation for abdominal pain. Omentum torsion is a rare cause of abdominal pain and published cases in literature generally occurred in middle aged adults.

Case Report: A nine years old, male child was reviewed who applied to emergency for abdominal pain. He has lasted right abdominal pain for two days. He had got not any other complaint. Right abdominal sensitivity was found on physical examination. Abdominal radiography was normal. White blood cell was found 16000. Biochemistry and urine analysis were in normal limits. On abdominal ultrasound study liquid collection around cecum was found but was not able to distinguish appendix. Patient was operated as appendicitis. After Rockey-Davis incision serous-hemorrhagic liquid was found on right lower quadrant and appendix was normal. While abdominal exploration, torsioned omentum (Figure 1, 2) was noticed. Torsioned omentum part was excised and appendectomy was done.

Conclusion: Many reason cause abdominal pain in children and some of them could result in operation. Even omental torsion is unusual cause of abdominal pain, it could be imitate surgical pathologies of abdomen. So omental torsion should be remembered when encounter a child has an abdominal pain.
Aim of the study: To evaluate outcome of patients with proximal hypospadias and affecting factors.

Methods: All patients were repaired in two stages: Urethral plate is transsected to correct chordee (first stage), urethroplasty by Thiersch-Duplay principle (second stage). Dorsal prepucial skin flaps were utilized in all cases.

Main Results: Fortyone boys older than one year (31 penoscrotal, 3 scrotal and 7 perineal) had chordee of >600. Twenty-four received testosterone ointment preoperatively. Twenty patients had intersex (16 PAIS, two 5α-reductase deficiency). Fourteen patients had scrotal transposition. All patients’ karyotype was 46XY. Two patients developed urethral diverticulum, 10 meatal stenosis and five urethral fistula. Fistula was significantly less in peno-scrotal than perineal hypospadias (p=0.002), and significantly more in transposition (p=0.039). Penile length had no relation with stricture, fistula or diverticulum. HOPE scores: meatal position: 9.46, meatus shape 5.8, glans shape 7.2, torsion 9.3. Interval between the stages (Fistula(+): 12.2months, fistula(-): 9.81months; Stricture(+): 12.7months, stricture(-): 9.26months), the age (Fistula(+): 10.8months, fistula(-): 24.67months; Stricture(+): 32.2months, stricture(-): 20months) and preoperative testosterone ointment were not related with stricture and fistula (p>0.05).

Conclusion: Functional and cosmetic outcome of two-staged correction of proximal hypospadias are very satisfactory and complication rates are low. Utilizing dorsal prepucial skin flaps in staged procedures is a reliable alternative method.
PW17-01

PREDICTORS OF MORTALITY IN NEONATES WITH GIANT-OMPHALOCELES

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Aim: This study analyzed giant-omphalocele literature to determine the predictors of mortality.

Methods: Pubmed® (1985-2015) was searched for terms “giant” “omphalocele” and “mortality.” Primary end points included mortality correlation with gestational age (GA), birth weight (BW), eviscerated organs, associated anomalies and management.

Results: The search revealed 35 articles of which 18 met inclusion criteria with 207 giant-omphaloceles for this analysis. Mean GA was 36 weeks (21-41) and BW 2774g (1100-3400). Amniotic sac contents beside intestines included liver n=142, stomach n=11, spleen n=1, gallbladder n=5; with n=18 sacs ruptured (prenatal n=4, birth n=6 and postnatal n=8). There were n=91 (44%) major anomalies, n=80 (38.6%) minor and n=15 (7.2%) chromosomal aberrations. Management included conservative treatment n=19 (9%), primary closure n=15 (7.2%) and staged closures n=173 (90.8%). Most frequent complication was sepsis n=23 (11%) and wound infections n=10 (4.8%). There were 44 (21.2%) lethal outcomes within the 1st year of life, with respiratory insufficiency being the leading cause n=20 (9.7%); within this group n=16 were premature (GA 32.4 weeks, BW 1860g and 5/16 ruptured sacs). Other causes for mortality were sepsis n=7 (3.4%), cardiac anomalies n=4 (1.9%), renal failure n=1, mesenteric vein bleed in ruptured sac n=1, angiomatosis hepatic portal system n=1, torsion of liver lobe n=1, mercury toxicity (mercurochrome application) n=1 and major associated anomalies n=8.

Conclusion: Giant-omphaloceles have lethal outcome in 1/5th neonates. Predictors of mortality incuded respiratory insufficiency in 1/10th neonates; with prematurity and ruptured sacs implicated within this group. Sepsis was the independent iatrogenic factor in mortality.
PROPOSAL FOR FUTURE DIAGNOSIS AND MANAGEMENT OF FACIAL INFANTILE HEMANGIOMA USING AUTOMATIC SOFTWARE FOR IMAGE PROCESSING AND STATISTIC PREDICTION

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Aim of the study. Infantile Hemangiomas are the most frequent vascular tumors in children. Specific types of IH due to the location, dimensions and fast evolution, can determine important functional and esthetic sequels. In order to prevent these complications, the study proposes a method to predict the evolution and treat them according to an algorithm.

Methods. The study is based on clinical data collected by serial clinical observations correlated with imaging data, and processed by a computer-aided diagnosis system (CAD).

The data base is composed of 40 patients divided into 4 groups according to the treatment management they received: medical, sclerotherapy, surgical and no treatment. The period of evaluation is January 2013 to September 2015.

Main Results. For the facial hemangiomas treated using Propranolol the amelioration rate is of 52% in 3 months of medication and 78% after 6 months. Medical treatment has the best satisfaction degree from the part of the family and the surgical excision is considered the worst approach. The epidemiologic results are accordingly to those presented in the literature except for the importance of the placenta previa that was found in 23% of the patients.

Conclusions. Processing the photographic and ultrasound images using the CAD system allows us to project an algorithm of treatment that predicts the best approach of the facial hemangiomas.
THE ROLE OF LAPAROSCOPY IN REDO SURGERY FOR POSTOPERATIVE PERITONEAL ADHESIONS

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Aim of the study To compare in a retrospective analysis feasibility and safety of laparoscopy and open surgery in the management of bowel occlusions due to postoperative peritoneal adhesions (PPA).

Methods We retrospectively reviewed the records of 15 patients who underwent laparoscopic redo surgery (Laparoscopic Group - LG) for PPA and bowel occlusion, comparing them with an historical same size and age group treated with an open approach (Open Surgery Group - OSG).

Primary surgery was: in LG: 14 peritonitis (13 appendicular; 1 intestinal perforation), 1 Nissen fundoplication; in OSG: 15 appendicular peritonitis.

Median operative time, postoperative pain, time to bowel opening, hospital stay, redo surgery, cosmetic patient satisfaction were compared.

Main results LG procedures were completed laparoscopically. All patients needed extended enterolysis with a long operative time. Median operative time was 146 minutes in LG and 158 in OSG (p>0.05). Time to bowel opening was 30-48 hours in LG and 96-108 hours in OSG. Pain control was more effective in the LG with a lower use of major analgesics; in OSG the use of painkillers after discharge was registered. Mean hospital stay was 5 days for LG and 9 days in OSG (p<0.0001). Two (13%) OSG cases required a reoperation for recurrent PPA. Patient satisfaction for cosmetic result was significantly higher in the LG.

Conclusion In our experience laparoscopic enterolysis could be an effective approach also on complex surgical fields like in PPA with better results compared to OSG. It is not a straightforward procedure and a special attention must be kept in trocar insertion and dissection to avoid intraabdominal injuries.
SUPERB MICRO-VASCULAR IMAGING: A NEW ERA IN DIAGNOSTIC ULTRASOUND FOR PEDIATRIC HEPATO-GASTROINTESTINAL DISORDERS

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Aim of the Study: We herein evaluated a novel ultrasound technique, Superb Micro-vascular Imaging (SMI), in pediatric hepatobiliary disorders. SMI uses advanced clutter suppression to extract flow signals from vessels and depict an image of flow without using contrast. SMI helps us to observe very small vascular structures that previously were not visible.

Methods: Fifty-six pediatric patients, with a total of 76 SMI examinations, were enrolled in this study. The Aplio 300 ultrasound system (Toshiba) was used. Subjects underwent conventional ultrasound examinations including Doppler imaging followed by SMI. SMI findings were compared with those of standard imaging. All examinations were performed without sedation.

Main Results: The average age was 4 years, with 38 males and 18 females. The clinical diagnoses were hepatobiliary disorders in 29 patients, acute appendicitis in 10 and other intestinal disorders in 17. The target organs for SMI were the liver in 28 patients, small intestine or colon in 9, appendix in 9, rectum in 9 and gallbladder in 1. SMI demonstrated excellent visualization of microvascular structures in the liver parenchyma (Figure). Particularly, for patients with fibrotic liver or metabolic disorder, a decreased number of microvessels and abnormal branching of vessels were often observed. In the intestines, vascular flow changes in the intestinal walls were well visualized, which helped us to determine the operative indications.

Conclusion: SMI is especially useful for depicting the microvascular flow. SMI can aid in the diagnosis and treatment planning of pediatric hepatobiliary-gastrointestinal disorders.
Aim of the study: To describe the technique of two-trocar laparoscopic appendectomy and compare the outcome between two- and three-trocar techniques in children.

Methods: All children who underwent laparoscopic surgery for suspected appendicitis from 2006 to 2014 in a center for pediatric surgery were included in the study. Converted surgeries and patients with appendiceal abscess or concomitant intestinal obstruction were excluded. A total of 259 children underwent appendectomy with either two (35%) or three (65%) laparoscopic trocars according to the surgeons’ preference and intraoperative judgement. Patient demographics, clinical symptoms, surgery characteristics, and complications were reviewed.

Main results: The mean age of the children was 10.4 years (SD ±3.0). No significant differences in age, gender, weight, or signs and symptoms were found between the two- and three-trocar groups. The mean surgery time was significantly shorter in the two-trocar group (47 min) than in the three-trocar group (66 min; p < 0.001). No two-trocar surgeries were converted. The rates of surgical complications were 2% vs. 4%, (p = 0.501), and the rates of postoperative complications were 0% vs. 5% (p = 0.054), in the two- and three-trocar groups. The overall incidence of postoperative wound infection was low (< 1%) and did not differ between groups.

Conclusions: Two-trocar laparoscopic appendectomy seems to be a safe and quick technique with a low rate of postoperative wound infections. The present findings demonstrate that when the two-trocar technique could be applied, it is a good complement to the conventional three-trocar technique.
SINGLE INCISION LAPAROSCOPIC-ASSISTED APPENDECTOMY: IS IT WORTH IT?
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Aim of the Study: Single-incision laparoscopic-assisted appendectomy (SILA) is the technique of choice for all types of appendicitis in our department. It combines the advantages of laparoscopy (global vision and minimally invasion) and open surgery (lower cost). The objective was to assess the results of our SILA series and compare them to the results of standard laparoscopic appendectomies (SLA) performed during the same period.

Methods: Retrospective review of total appendectomies performed since SILA introduction (September 2003 to December 2015) with statistic analysis of the results.

Main Results: A total of 1286 patients underwent SILA approach, but 116 (9%) needed reconversion to laparotomy, 3 (0.2%) to SLA and 9 (0.7%) introduction of a second port. Mean age and weight of patients was 120±37 months and 37±14 Kg respectively. Mean operative time was 40.9 ±15.5 minutes, ranging from 7 to 110. All stages of appendicitis were present, with 361 complicated (31.2%). Postoperative complications were seen in 167 patients (14%), being readmitted 38 and needing reintervention only 4 (2 intestinal occlusions and 2 abscess debridement). When comparing SILA and SLA, there were no significant differences in length of hospitalization, time to tolerate diet, complications and doses of narcotics depending on the stage of appendicitis, but SILA was significantly faster and cheaper (average 900€).

Conclusion: In our hands, SILA have shown to be as effective as SLA, easier to learn and faster, maybe due to our lower practice in SLA. Reduction of costs is probably its principal advantage, which might be an encouragement in times of crisis.
PAEDIATRIC NEEDLE INGESTION: LOCATING THE MORBIDITY BOTTLENECKS
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Aim: Foreign body ingestion in children is a common reason for presentation to the emergency department. Ingestion of needles can be associated with serious complications and morbidity. The study analysed the literature to identify areas of complications with ingested needles as the traverse the gastrointestinal tract.

Methods: Literature was searched on Pubmed® (1995-2015) using terms “needle,” “ingestion” and “children.” Data was collected age at presentation, type of needle, presenting symptoms, the site of retrieval/ complication and method for retrieval.

Results: The search revealed 52 articles of which 7 met the inclusion criteria and 9 children identified (mean age 8.9 years; range 2-11). Regarding the type, in n=7 a sewing needle, n=1 a nail and n=1 a safety pin were documented. Abdominal pain was documented in n=7 and n=2 were symptomatic. Location of the needle was in the colon n=3, small intestine n=2, liver n=2, omentum n=1 and hemi-thorax n=1. Colonic perforation after needle ingestion was found in n=3. With regards to interventions, n=5 underwent mid-line laparotomy, n=1 laparoscopy, n=1 endoscopy, and n=1 thoracotomy for needle retrieval. Postoperative recovery and follow-up in all patients was unremarkable.

Discussion: Needle ingestion is common in school age children and associated with dislodgement in the thorax, liver and throughout the intestinal tract; which often requires interventions for removal. The literature is void on data on safe passage of ingested needles. Although this analysis seems simple, it demonstrates an extremely low level of evidence in numbers with regards to identifying significant bottlenecks for ingested needles.
CROSSED TESTICULAR ECTOPIA: THE ROLE OF VARIOUS DIAGNOSTIC MODALITIES

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Aim of the Study: To highlight the role of imaging and diagnostic scopes in diagnosing and managing cases with crossed testicular ectopia.

Methods: We retrospectively analyzed the data of 11 crossed testicular ectopia cases. All were managed surgically in our institutes in the last 5 years. Analysis included: age of presentation, primary complaint, clinical presentation, and radiological, operative, and histopathological findings.

Main results: Mean age at presentation was ≈3.26 years. The primary complaint was inguinal hernia in 9 cases, four of them were incarcerated. Although clinical examination of the remaining 2 cases revealed inguinal hernia, their primary presentation was contralateral empty scrotal compartment. There were hypospadias in 3 cases and bifid scrotum in two. Ultrasonography diagnosed 5 out of 7 cases. Urethrography and cystoscopy showed Müllerian remnants in 5 cases, two of them were detected by laparoscopy. All internal rings were closed at the original site of the crossed testis. Spermatic cords were of sufficient length. There was segmental loss of one vas at the level of the internal ring in one case. Both testes were identical in size and shape in all cases. The histopathological report confirmed the presence of uterine tissue in one case.

Conclusions: High index of suspicion is essential to diagnose crossed testicular ectopia. Preoperative ultrasonography helps in some cases. Urethrography, cystoscopy, and laparoscopy are of value in assessing the anatomical variants and decision making.
DISTANT AND LONG-TERM OUTCOME OF ESOPHAGEAL REPLACEMENT IN PATIENTS WHO UNDERWENT SURGERY AT EARLY AGE

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Aim: Esophageal replacements in children by use of colon or whole stomach is most preferred for treatment of different congenital or acquired lesions. Considering a high quality of life in these patients, long-term results must be investigated systematically. The aim of this study is to evaluate comparatively the functional outcome and QUOLY of adult persons who underwent surgery at early age.

Patients and methods: Between the years 1989 and 2009 we performed esophageal replacement in 96 children. The prospective study was designed between the years 2012 – 2015. It includes 37 persons aged from 15 to 34 years (25 males and 12 females). Indications for esophageal replacement were as follows: caustic disease - 23, esophageal atresia - 11 and others - 3. In 24 cases the graft was placed in posteromedistinal and in 13 patients – in retrosternal position. Distant long-term results and actual status were evaluated through clinical investigation and by use of brief questionnaire both for persons and parents.

Results: 23 patients (62.2 %) did not have any squeals being considered healthy. Another 10 patients (27 %) presented with symptomatic graft reflux, colonic redundancy, food impaction and failure to thrive. The remaining 4 patients (10.8 %) required further corrective surgery.

Conclusions: Esophagoplasty allows restoration of upper GI tract continuity and offers good long-term results and sufficient functional ability late in the ages. The whole stomach transposition, especially thorough the posterior mediastinum has more advantages compare to the colon transposition. Most of the patients consider themselves healthy, acceptable quality of life.
PREOPERATIVE AND POSTOPERATIVE URODYNAMIC DIFFERENCES OF CHILDREN WITH SPINA BIFIDA APERTA

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Aim. Neurological injury starts from antenatal period in spina bifida. After postnatal repair, patients are followed up neurourologically. The aim of this retrospective study was to compare the preoperative and postoperative urodynamic results to predict the outcome in these patients.

Patients and Methods. The urodynamic reports of patients with the diagnosis of spina bifida aperta (SBA) were evaluated. Only the reports before the closure of the defect were included in the study. The postoperative patients were randomly selected and their urodynamic results were noted. Age, sex, postvoid residual urine, leak point pressures, capacity, compliance, detrusor and sphincter activities were noted. One way ANOVA test for comparison of numeric values and chi-square test for nominal values were used.

Results. Among a total of 780 patients, 24 newborns with SBA and 50 postoperative cases were selected, randomly. Preoperative evaluation was done at a mean age of 2.4±3.4 days. The measured bladder capacity was significantly assessed as low in newborn SBA patients (p=0.015). The bladder compliance was found to be significantly lower in postoperative group (15.7±25.6 months of age) (p=0.05). Detrusor overactivity is marked in preoperative group (p=0.036) but sphincter dyssynergia was equally common in both groups. There was no significant difference in terms of postvoid residual urine and leak point pressures in both groups.

Conclusions. Neuropathic bladder dysfunction is a congenital injury in SBA patients. Preoperatively the patients are born more prone to detrusor overactivity and decreased capacity. This overactivity and bladder compliance decreases with age. The delineation of the course of the disease may give the opportunity for proper neurourological follow up.
POST-DISCHARGE READMISSION IN PATIENTS WITH GASTROSCHISIS

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Aim of the study: Despite infants with gastroschisis have significant morbidity, paucity of data is available about re-admissions. Our purpose was to determine frequency, risk factors, and indications for hospital re-admissions of patients with gastroschisis after initial discharge.

Methods: Retrospective study on patients treated for gastroschisis between 2002 and 2014. Prevalence and indications for post-discharge re-admissions were recorded. Patients requiring or not re-admission were compared for perinatal factors, type of gastroschisis [simple or complex (associated bowel atresia, stenosis, necrosis, volvulus or perforation)], and surgical technique (primary or staged closure). Mann-Whitney or Fisher’s exact test were used as appropriate. Results are median (IQ range) or prevalence.

Results: During the study period we treated 47 patients with gastroschisis; 42 (89%) had prenatal diagnosis, 38 (81%) were preterm (≤37 weeks’ gestation), 7 (15%) had complex gastroschisis, 24 (51%) had one or more associated anomaly, 7 (15%) required staged closure. Three (6%) patients died during the neonatal period. Median follow-up was 6 years. Twenty (43%) patients required re-admission, 6 (30%) of whom multiple readmissions. Median time to readmission was 24 months. In 12/20 (60%) patients, readmission was due to complications directly related to gastroschisis. Readmitted patients had a significantly higher prevalence of complex gastroschisis (26% vs 0%; p=0.002). Other variables were not statistically different between the two groups.

Conclusions: In patients treated for gastroschisis, post-discharge readmission is common. The only significant predictor of post-discharge readmission was complex gastroschisis. Post-discharge counselling of patients with complex gastroschisis should be tailored accordingly.
TESTICULAR TORSION IN UNDESCENDED TESTIS: A MISLEADING DIAGNOSIS

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Aim of the study: To evaluate the management and outcomes of children with torsion of an undescended testis and review the reported series in the literature.

Methods: The case records of twelve patients, who underwent surgery for testicular torsion involving undescended testis, were retrospectively reviewed. The medical records included age at presentation, medical history, physical examination, operative findings and the results of follow-up. The diagnosis of torsion of undescended testis was made clinically and confirmed by inguinal exploration.

Main Results: In six cases the testis was preserved and orchiopexy was performed, while in the other six cases orchidectomy was performed due to testicular gangrene. Mean duration of symptoms at time of surgery in the orchiopexy group was 6.5 hours and in the orchidectomy group was 18.4 hours. From six patients treated by orchiopexy, two patients suffered from testicular atrophy at a mean of 24 months.

Conclusion: Testicular torsion in undescended testis is still diagnosed with delay which may affect testicular salvage. Authors highlight the importance of examination of the external genital organs which should be routinely performed by emergency physicians during physical examination for abdominal or groin pain.
**PW18-01**

**SAFETY APPROACH TO TUNNELED CENTRAL VENOUS CATHETERS PLACEMENT IN PEDIATRIC ONCOLOGIC PATIENTS**

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**Purpose** The insertion of tunneled central venous catheters (CVCs) is indispensable for intensive chemotherapy in pediatric oncologic patients. Although the ultrasound-guided approach to CVC has been reported as the standard technique in adult patients, it is not common in pediatric patients for its difficulty. Herein we review our experience of central venous access.

**Methods** A retrospective review was performed of pediatric oncologic patients who underwent CVC placement between January 2012 and August 2015. We adopted the ultrasound-guided percutaneous puncture of axillary vein (UGPAV) as a standard method of CVC placement. Open surgical cut-down (OSC) was indicated to the patients who were not suitable for UGPAV because of pancytopenia, coagulopathy or under 5.0kg body weight. Hickman® 7Fr dual-lumen catheter was used for CVC placement in all patients.

**Result** Forty-eight patients underwent UGPAV and 36 patients underwent OSC. Two of 48 patients were converted from UGPAV to OSC because of the difficulty of puncture and one of 36 patients was converted from OSC to UGPAV for the reason of narrow external jugular vein. CVC placement was successfully performed in all patients without complications such as pneumothorax, hemothorax, or cardiac tamponade.

**Conclusion** We performed safety and successful CVC placement in pediatric oncologic patients. It is reasonable to classify the patients into two groups, UGPAV group and OSC group.
NEUROENDOCRINE TUMORS OF THE APPENDIX

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Aim of the Study: Neuroendocrine tumors (NET) are rare in children although they are the most common tumors of appendix. We present experience on appendiceal NETs.

Methods: Records were retrospectively evaluated for those who underwent appendectomy between the years 2001-2015.

Main Results: Among 3765 appendectomy specimens, well-differentiated NET was detected in 11 (0.29%). There were 5 males and 6 females with a mean age of 13 (8-18) years. NET was not suspected in any of them before the pathology results and none had findings consistent with carcinoid syndrome. The mean tumor diameter was 0.8 (0.20-1.30) cm and was >1 cm in two patients (pathological stage pt1b). The histology was consistent with classical type in 8 specimens, classical/tubular in 2 and tubular in one. It was located in the tip in 9 and body in two. The depth of invasion was at the mucosa in 2, muscle in 2, serosa in 2 and mesentery in one. Mesenteric surgical margin was positive in one and <1 mm in four. There was lymphovascular and perineural involvement in one. The ki67 index was <2% in all. No recurrence or metastasis was detected in the six patients who were followed up by serotonin and 5HIAA levels including the two having stage pt1b tumors. No secondary surgery was done in any of the patients.

Conclusion: A standardized treatment is not available for NET. A more conservative approach should be followed in children. Appendectomy alone should be regarded therapeutic even in those who had complicated appendicitis.
PW18-03

MINIMAL INVASIVE APPROACH IN PEDIATRIC AND ADOLESCENT OVARIAN CYSTIC MASSES

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Aim: Pediatric ovarian cystic masses are mostly benign in nature, however, the clinical picture may present as huge abdominal mass or acute abdomen. Minimal invasive approach is feasible with favorable outcomes even in extremely large cystic masses.

Method: We have treated 17 units in 16 patients aged one month to 16 years. Nine cases were older than 10 and three younger than one year of age. US and/or MRI study was performed in all cases. Two or three 3.5 - 5.0 mm working ports were utilized according to underlying pathology. Camera port being tailored according to size. Specimen were removed via endobag, except for one large teratoma which was removed through a small Pfannenstiel incision.

Results: Four cases were diagnosed as mature cystic teratomas, one of which presenting six liters of fluid material, one with torsion and one bilateral presentation. Five were simple ovarian cysts. Two were diagnosed as giant paraovarian cysts. An autoamputated cyst was present in five infants. Radiology however, failed to detect this pathologic entity. Serum tumor markers were within normal range. There were no operative complications and the mean operative time was 76 minutes.

Conclusion: The size of the ovarian cystic mass is not necessarily a contraindication, keeping in mind that leaving viable ovarian tissue is the most pertinent issue in preserving the young patient’s childbearing potential. The possibility of an otherwise silent ovarian auto amputation in a neonate, presenting with persistent complex ovarian cyst, necessitates laparoscopic intervention for correct diagnosis.
TREATING PERITONEAL SEEDING OF AN PERFORATED FRANTZ TUMOR WITH HYPERThERMIC INTRAPERITONEAL CHEMOTHERAPY (HIPEC)

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Aims of the Study: Solid pseudopapillary tumor (SPPT) is frequently asymptomatic or minimally symptomatic and low malignant Tumor. We would like to report the case of SPPT, who was found coincidentally after ski accident. The child was surgically cured of SPPT of the left pancreas and then developed peritoneal metastases, requiring surgical resection, within 2 years.

Method/Results: A 11-year-old girl was admitted to the emergency unit with blunt abdominal trauma after ski accident. Computerized tomography showed intra-abdominal hemorrhage and a 7 x 5,5 cm ruptured mass, originating from the tail of the pancreas. The patient was taken to laparotomy and a total mass resection of the perforated tumor was performed. After 2 years a suspected lymph node showed up in CT scan. A laparotomy was performed, and exploration revealed 2 nodules adjacent to the Morrison pouch. All of these lesions were extirpated. However follow-up imaging studies depicted small nodules adjacent to the peritoneum. Suspecting peritoneal seeding a hyperthermic intraperitoneal chemotherapy (HIPEC) with Mytomycin c and cytoreductive surgery was performed. Two years follow up showed no recurrence of Tumor.

Conclusion: This case indicates that SPPT of the pancreas has a latent ability to recur, regardless of its benign pathological features, and peritoneal spread may be promoted by trauma. A close postoperative follow-up is thus mandatory in all patients with SPPT even after a radical resection. In this case Adjuvant hyperthermic intraperitoneal chemotherapy (HIPEC) was an option to treat.
Introduction. Diagnosis and treatment of acute surgical diseases and emergency conditions occurring in pediatric patients with solid tumors, hematological malignancies and disorders of the immune system often causes difficulties in the practice of pediatric surgeon.

The aim is to show clinical features, diagnosis and treatment of acute surgical diseases of the chest and abdominal cavities in pediatric patients with oncological pathology.

Materials and methods. Between January 2012 and January 2016 at our clinic were performed 4287 operations, 191 among them (4.5%) – on emergency indications. They included 114 abdominal (59.7%), 42 thoracic (22.0%) and 35 other operations (18.3%). Patient age at the time of a surgery ranged from 2 months up to 20 years. Among operations on the thoracic and abdominal cavities the next approaches were used: puncture – 59 (37.8%), endoscopic – 50 (32.1%), open approach – 47 operations (30.1%).

Results. All 50 endoscopic operations were laparoscopy. Conversion rate was 28% (14 cases). Among 156 operations on the thoracic and abdominal cavities we observed 4 intraoperative complications (2.6%): damage of the small intestine during diagnostic laparoscopy (1) and the colon during open appendectomy (1), an unsuccessful attempt to perform a puncture nephrostomy (1), injury of intercostal vessels during puncture of the pleural cavity (1). Postoperative complications were observed in 5 cases (3.2%): intussusception after laparoscopic appendectomy (1), perforation of the stomach during puncture of the abscess of subphrenic space after laparoscopic splenectomy (1), suture failure after suturing the stomach wall perforation (1), adhesive intestinal obstruction after laparotomy with adhesiolysis (1). There were no deaths.

Conclusion. Knowledge and practical skills of urgent pediatric surgery is a necessary condition of successful work of pediatric surgeon in oncological hospital.
BREAST MASS IN GIRLS - IS THERE ANY REASON TO WORRY?
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Aim of the study: To evaluate a clinical and histopathological spectrum of breast tumors in girls with an attempt to elaborate a management algorithm useful in clinical practice.

Methods: Retrospective review of medical records of all girls aged up to 18 years referred to the pediatric surgical centre between 2006 and 2015 because of breast mass.

Results: 44 girls constituted the study group. 24 patients (aged 13 - 17 years) presented with benign neoplasm, of which 21 were fibroadenoma, 2 were phylloides tumor and 1 was focal ductal hyperplasia. 9 girls had breast abscess and 11 girls had cystic lesion. 16 girls had non-neoplastic lesion (aged 13-15 years). All patients had breast ultrasound performed. Solid neoplastic mass ranged from 5,2 cm³ to 144 cm³. Multiple lesions were noted in 1 girl with neoplastic mass and in 5 girls with cystic lesion. Aspiration biopsy was performed in 8 cases. Surgical excision was undertaken in all girls with solid mass and in 1 patient with cystic lesion. 8 patients with breast abscess had incision and local drainage performed. 1 girl in the study group developed a wound hematoma and in 2 girls hypertrophic scar was observed. No recurrences were noted on further follow-up in 23 patients with neoplasm.

Conclusions: Painful or asymptomatic breast lump in adolescent girls represents benign lesion in most cases. Excisional biopsy with a cosmetic approach seems to be the most appropriate management in patients with a solid mass. Cystic mass should be an indication for conservative management.
PW18-07

PREVENTIVE EXCISION OF MELANOCYTIC NAEVI - HOW ARE WE DOING?

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Introduction: Excision of melanocytic naevi is very common procedure preformed by various practitioners. Aim is to prevent development of melanoma in the future, histological assessment and occasionally cosmetic improvement.

Aim: To assess frequency of histologically incompelete excisions and risk factors for failure.

Methods: Histological results of specimens from melanocytic naevi excised between January 2014 and June 2015 were analized both retrospectively and prospectively. Inconclusive histological reports and naevi planned for staged excisions were excluded. Patient age, sex, anatomical location, type of anaesthesia, source of referral (operating theatre, general surgical outpatients, surgical oncology outpatients), performing surgeon (trainee versus consultant) and size were recorded and corelated with their impact on completeness of the excision.

Results: 722 naevi in 527 patients were analized. 10,9% of all specimens were found to be incompletely excised. There were no statistically significant differences between sexes, age groups and various mole sizes. There was also no difference between procedures performed by a trainee and a consultant. There was significantly increased rate of incomplete excision of naevi from the face (42%, p=0,000) and - surprisingly - those excised in the operating theatre under general anaesthesia (18,9%, p=0,013). Naevi exised in our Surgical Oncology Outpatients had the lowest incompletness rate (7,6%, p=0,013). We had one case of melanoma - exised with margin. Patient underwent wide excision with sentinel node sampling and remains in our follow up with no recurrence.

Conclusion: Human factors have larger impact on surgical results then commonly presumed. Extra care must be taken while performing surgery in comfortable enviroment not to loose one’s focus. Surgical centres and individual practitioners should monitor their performance and have awareness of international standards.

Human factors have larger impact on surgical results then commonly presumed. Extra care must be taken while performing surgery in comfortable enviroment not to loose one’s focus. Surgical centres and individual practitioners should monitor their performance and have awareness of international standards.
TESTICULAR TORSION – THE EMERGENCY DELAYED BY SHAME
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Introduction: Testicular torsion is a surgical emergency; it affects nearly 8.6/100,000 males between 10-19 years. It has two incidence peaks, first year of life and after puberty. Testicular torsion must be treated within 4 to 8 hours of onset to avoid orchiectomy and reduced fertility. The poor information and the body shame normal to this age group sometimes impedes its recognition within useful time.

Objective: Characterize the patients with testicular torsion treated in a Pediatric Surgery Department since 1 January 2013 until 31 December 2015.

Materials and methods: Retrospective study using clinical and demographic data of 110 patients with testicular torsion admitted in the paediatric emergency department from 2013 to 2015. All the patients in this study were surgically intervened (surgical diagnostic code in system: testicular torsion).

Results: The mean age was 13.31 years [1:17] the majority of the patients (66) underwent surgery during daytime (8am-7pm) and were inpatients for 24 hours or less (92.73%). Orchietomy and contralateral orchiopexy were performed in 21 cases (19.09%), 89 patients had bilateral orchiopexy. For the patients that underwent orchietomy the mean age was 14.14 years [11:17].

Conclusion: Orchiectomy was performed due to testicular torsion in a significant percentage of patients (19.09%) and in this study only occurred in children older than 11 years. The contralateral/bilateral orchiopexy was, as recommended, performed in all cases. Public clarification of this condition explaining its emergent character to the population may help improve the results in saving the testicle.
ANORECTAL MALFORMATION AND VACTERL ASSOCIATION: WHICH ARE THE CATEGORIES AT MAJOR RISK?

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Background. Anorectal malformations (ARM) can occur as isolated defects or in non-random association with multiple anomalies. The present study aims to assess demographic differences among patients with isolated ARM and ARM in VACTERL association.

Methods. A 20-year retrospective (1996-2015) analysis of 161 ARM patients treated at a tertiary pediatric surgical unit. Isolated ARM (VACTERL-, 136 cases; 55 males, 81 females) were compared to ARM in VACTERL association (3 or more anomalies, VACTERL+, 25 cases, 13 males, 12 females) to assess differences among groups in sex distribution, birth-weight, type of ARM defect according to Krickenbeck classification.

Results. A significant difference among groups was evidenced for birth-weight (gr, mean±SD; VACTERL- 3208±575, VACTERL+ 2664±586, p<0.0001). An higher incidence of perineal fistula was present in VACTERL- group (94 cases; VACTERL+, 9 cases, p=0.002). VACTERL+ group presented a significantly higher incidence of urethral (bulb) fistula (6 pts vs VACTERL- 1 pt; p=0.0001), vestibular fistula (5 pts vs VACTERL-, 12 pts; p=0.03) and cloaca (2 pts vs VACTERL-, 0 case; p=0.01).

Conclusions. The association between ARM and VACTERL anomalies resulted equally frequent in both sexes, thus suggesting their accurate research in every ARM patient. Particularly at risk for VACTERL association resulted patients with lower birth-weight and specific ARM defects such as males patients with urethral fistula and female patients with vestibular fistula or cloaca. A lower risk seems associated to patients with perineal fistula. Larger series could be needed to better define categories at risk for VACTERL association in ARM patients.
PRIMARY ANASTOMOSIS: A SAFE AND FEASIBLE OPTION FOR NECROTIZING ENTEROCOLITIS

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Aim. To determine the safety of primary anastomosis for necrotizing enterocolitis (NEC) and compare the outcome with those that underwent bowel resection and stomas.

Method. Retrospective study of all babies with NEC, operated on by our surgical team from 2014 to 2016. All patients with NEC who received surgery were included. We compared those who received primary anastomosis with those who first received stoma and later closure. Ethics were obtained.

Patients and Results. Twenty patients with confirmed NEC received surgery during this time. The mean age at surgery was 10 days. 7 of the patients had a birth weigh of less than 1 kg (740 g being the lowest) and 7 of our patients were twins. Majority of our patients were female (65%).

Eight patients received bowel resection with primary anastomosis (mostly Ileo-colic), with 12 having bowel resection with an enterostomy (ileostomy or colostomy).

The primary anastomosis group were faster to full feeds (table 1) and received less TPN. The stoma group had longer average ICU stay compare to the other group. Total days from admission to discharge from surgery were shorter in the primary anastomosis group (p-value <0.05).

Complications from stomas included high stoma losses, multiple lines, hyponatremia, failure to thrive and multiple ICU admissions. The Primary anastomosis group had 1 patient who developed colonic stricture 6 weeks later.

We had 2 mortalities, 1 patient in each group.

Conclusion. Primary anastomosis in the acute setting is a safe and feasible option. It is cost effective with less TPN, ICU and hospital days compare to patient receiving stomas. We acknowledge that longer follow-up is needed in the future.
Injuries of knee in childhood and adolescence are a part of everyday practice because in this age young people are playful and they practice lot of sports. Among these injuries, chondral and osteochondral injuries are common and failure to recognize these injuries can result in long term disability.

Articular cartilage is a complex viscoelastic tissue that allows load bearing and is able to withstand tremendous forces, but does not have the ability to heal even after a minor injury. Trauma during sports, falling from bicycle or motocycle, falling from high ground are most common causes of the chondral/osteochondral injury. After admission careful clinical exam is of the great importance. Swelling of the injured knee, painful movements are the first signs. Plain x-ray and puncture of the knee are next diagnostic measures. If there is blood in the knee joint MRI is the next step to determine lesion location, size and grade. Arthroscopic evaluation usually is very important for definitive diagnosis and classification of articular lesion by configuration and give us possibility for therapeutic measures.

From 2002 to the end of the 2015 among injured patients we have done 309 arthroscopies and among them there were 173 chondral/osteochondral injuries of the condyle of femur and patella. Among them there were 137 males and 77 female, as we expected in that age. Contusion of the condyle of the femur as a special entity was found in 138 children/adolescents.

During arthroscopic procedure blood was washed from knee, free osteochondral parts were taken out if they were small. If large parts were found we tried to put them back on their previous places and we fixed them with Kirschner wires or screws. Microfractures were also done. Arthroscopy of the knee is very important method not only as diagnostic measure but also as therapeutic procedure. Crutches and decrease of weight bearing, physiotherapy from the first day are measures that we found very important in chondral/osteochondral injury.

All these measures are very important to avoid premature arthrosis and to preserve normal function of the knee.
Aims - Surgery for Hirschsprung's disease in older children, adolescents and adults is relatively rare and technically demanding. We aimed at minimizing sphincter trauma and maintaining a safe endorectal dissection in patients older than 12 months of age who usually required longer and more traumatic endorectal dissection.

Methods - We adapted robotics (DaVinci® - Intuitive) to original Soave's technique:

1) Robotic colonic vascular pedicle preparation and mobilization
2) Robotic endorectal dissection started 2-3 cm above the peritoneal reflection and carried downwards close to the pectinate line.
3) Transanal completion of endorectal dissection with a minimal submucosal residual upward dissection to meet the robotic one (usually 1-2 cm).

Results - We enrolled 3 patients older than 12 months. Patients were aged 15 months and 7 and 16 years. Surgery lasted between 230 and 540 minutes. The procedure was carried out uneventfully and we didn't observe intraoperative complications in any of the patients. Both patients older than 4 reported to be able to hold back stools, did not report soiling at the short term follow up, and did not complain any other continence issue nor constipation.

Conclusions - This is the very first report of a robotic Soave endorectal pull-through in pediatrics. Although based on a small series, results are encouraging. Neonates and infants could also benefit from this procedure in the next future as sphincteric trauma is significantly reduced without giving up minimally invasive approach. Nonetheless, adults are the ones who seem to benefit most from this innovative approach.
USE OF SIMPLIFIED LAPAROSCOPIC ACE (L-ACE) AND A NEW ACE-STOPPER DEVICE IN THE MANAGEMENT OF SEVERE CONSTIPATION AND FAECAL INCONTINENCE IN YOUNG CHILDREN

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Aim: The antegrade continence enema (ACE) is a well-recognised procedure to manage severe constipation and faecal incontinence. Despite modifications of the technique, including laparoscopic adaptations (L-ACE), stenosis, leakage and stomal breakdown are known complications. We present outcomes with L-ACE and routine use of a new ACE-stopper device for preventing complications in young children.

Methods: We reviewed children (≤16 years) who underwent simplified L-ACE (April 2014-July 2015). Clinical outcomes were assessed through outpatient follow-ups and a 34-item questionnaire. In all patients an ACE-stopper was sited in the conduit and removed only for catheterisations. We also assessed the patient and parent satisfaction of two different stopper devices in a separate questionnaire on aspects of daily life.

Results: Ten patients (7 boys, 3 girls) were included. Mean age at surgery was 9.7±3.6 years. Underlying diagnosis was severe idiopathic constipation 7(70%), ano-rectal malformation 2(20%) and Hirschsprung’s Disease 1(10%). ACE was indicated to treat refractory faecal incontinence and constipation. No perioperative complications were encountered. Mean follow-up was 11±5 months. No patients developed stomal stenosis. Leakage was reported in 2(20%) but judged minimal/occasional and improving with the use of ACE-stoppers. No surgical revision was needed. One patient (10%) required hospital admission for faecal disimpaction regime via ACE due to non-compliance. Overall outcomes with L-ACE and its impact on life were good to excellent.

Conclusions: Simplified L-ACE and routine use of ACE-stopper devices show encouraging results with a low complication rate. Outcome and quality of life can be improved by choosing the right ACE stopper device.
DOES MILD SACRAL DYSPLASIA HAVE ANY EFFECT ON LONG-TERM BOWEL FUNCTIONAL OUTCOME OR PREVALENCE OF LOWER URINARY TRACT SYMPTOMS IN PATIENTS WITH ARMS?

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Aims – To evaluate whether mild sacral dysplasia (3-4 segments remaining) has any effect on bowel functional outcome or prevalence of lower urinary tract symptoms (LUTS) in patients with vestibular fistula (VF) and rectourethral fistula (RUF).

Methods – A single-institution, cross-sectional study. After ethical approval, all patients treated 1983-2006 for VF (ASARP) and RUF (PSARP) were invited to answer a previously validated questionnaire on bowel function and LUTS. Patients with significant cognitive impairment (n=3), Currarino (n=1) or total sacral agenesis (n=2) were excluded. Outcomes in patients with sacral dysplasia were compared to patients with a normal sacrum.

Results – 68 (79%) of patients (n=68; 50% male) responded. Sacral dysplasia affected 24% (n=16). Essential characteristics between patients with sacral dysplasia (56% RUF; 38% high fistula; median age 16(5-26) years) and those with a normal sacrum (48% RUF; 31% high fistula; median age 15(5-29) years) were comparable (p ≥ 0.23). Although difficulties with recognition of the need to defecate (38% vs 21%), withholding defecation (57% vs 37%) and fecal accidents (50% vs 35%) tended to be more common in patients with sacral dysplasia, the difference was not statistically significant between groups (p ≥ 0.20). Soiling (69% vs 63%), constipation (38% vs 46%), and requirement for ACE bowel management (19% vs 10% respectively) were comparable between groups (p ≥ 0.16). LUTS of any kind, including UTIs (44% vs 33%), urge (75% vs 54%), urge incontinence (25% vs 29%), stress incontinence (19% vs 21%), straining (38% vs 30%) and bedwetting (19% vs 10%) were not significantly different between groups (p ≥ 0.16).

Conclusions – Our results do not suggest a significant effect on functional outcomes from mild sacral dysplasia in patients with RUF or VF for either bowel function or LUTS in the long-term. Larger series are needed to confirm findings.
**PW19-04**

**REVIEW OF ENTEROCOLITIS RATE AND OUTCOMES IN HIRSCHPRUNG’S DISEASE**

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**Aim of study:** To establish enterocolitis rate and outcomes of Hirschprung’s disease (HD) in our centre from 1996 - 2015.

**Methods:** Retrospective review of departmental databases were completed to identify HD patients. All case records were reviewed. Primary outcome was rate of enterocolitis. Secondary outcomes included complications and continence. Statistical analysis was performed using Graphpad. p-values of <0.05 were significant.

**Main Results:** 48 patients (M:F 34:14). Overall 35 (73%) patients underwent a Soave and 13 (27%) a Duhamel procedure. 19 patients (40%) were treated for enterocolitis. 13 patients (27%) had early post-operative complications. Median follow up was 6.29 years. 48% of children aged above 3 years had on-going faecal soiling.

**Conclusion:** Enterocolitis rate was 40% and no significant differences were identified between the enterocolitis and non-enterocolitis group.

<table>
<thead>
<tr>
<th></th>
<th>Enterocolitis (n=19)</th>
<th>No Enterocolitis (n=29)</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Gender (M:F)</td>
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<td>21:8</td>
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<tr>
<td>Gestational Age (Weeks)</td>
<td>Median 40</td>
<td>Median 39</td>
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<tr>
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<td>Range (37 – 42)</td>
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<tr>
<td>Age at presentation (Days)</td>
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<tr>
<td></td>
<td>Range (1 – 978)</td>
<td>Range (1 – 1438)</td>
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<tr>
<td>Birth weight (Kilograms)</td>
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<td>Median 3.28</td>
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<td></td>
<td>Range (1.78 – 4.62)</td>
<td>Range (2.38 – 4.18)</td>
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<tr>
<td>Trisomy 21</td>
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<tr>
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<td>21</td>
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<td>Descending colon Aganglionosis</td>
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<td>Transverse Aganglionosis</td>
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<td>3</td>
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<tr>
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<tr>
<td>Soave</td>
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<tr>
<td>Duhamel</td>
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<td>5</td>
<td>0.10</td>
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<tr>
<td>Age at operation (Days)</td>
<td>Median 226</td>
<td>Median 210</td>
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<tr>
<td></td>
<td>Range (29 – 1314)</td>
<td>Range (43 – 3223)</td>
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<td>Weight at operation (Kilograms)</td>
<td>Median 7.04</td>
<td>Median 7.66</td>
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<td></td>
<td>Range (3.19 – 12.3)</td>
<td>Range (3.67 – 29)</td>
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</table>
ENTERIC DUPLICATION CYSTS IN CHILDREN: A SINGLE-INSTITUTION SERIES WITH FORTY PATIENTS IN TWENTY-SIX YEARS

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**Purposes:** The purpose of the study was to evaluate our experience with enteric duplication cysts in forty children during the past twenty-six years while assessing the variability of their presentations.

**Methods:** We retrospectively analyzed sex, age, clinical presentations, duplication site, surgical treatment, presence of ectopic tissue, complications, associated anomalies and prognosis of forty patients with gastrointestinal tract duplications surgically treated in our clinic.

**Results:** Overall, there was a predominance of boys with 670 (28 males and 12 females). Twenty-one of 40 patients had ileum cysts, 5 had colonic cysts, 4 had cecum cysts, 3 had jejunal cysts, 3 had duodenal cysts, 2 had gastric cysts, and 2 had esophageal duplications. In 30 patients, a complete excision of the cyst with additional segmental intestinal resection and anastomosis was performed. Complete excision of the cyst without an additional resection of an intestinal loop, was performed in 7 patients. Complete excision of the cyst with additional wedge resection was performed in 2 patients. Wrenn operation (mucosectomy) was performed in one patient.

**Conclusion:** Due to the variability in the site of enteric duplications, a wide range of presenting symptoms can exist causing a challenge in the diagnosis. In children with a diagnosis of acute abdomen, enteric duplication cysts should be kept in mind and those children should be further investigated for additional skeletal, urogenital and gastrointestinal system pathologies.
A PROSPECTIVE STUDY OF BOTULINUM TOXIN FOR PERSISTENT CONSTIPATION AFTER PULL-THROUGH IN HIRSCHSPRUNG’S DISEASE

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Background. Although botulinum toxin was introduced to solve the achalasia of the internal anal sphincter after the pull-through in Hirschsprung’s disease (HD), evidence of the safety and efficacy is still lacking.

Method. Patients with HD who experienced persistent constipation after a minimum of 6 months after operation were included. Rectal biopsy and colon study were performed before the toxin injection to exclude secondary agangliosis. Intersphincteric injection was performed on 3, 6, and 9 o’clock direction. Manometry, Waxner’s constipation score (WCS), quality of life score according to defecation (QOL), abdominal distension and enterocolitis score (DES) were checked before, 2 weeks after, and 3 months after the injection. Holschneider incontinence score (HIS) and evaluation of pain or discomfort was performed 2 weeks and 3 months after the injection.

Result. A total five patients who underwent Soave procedure for rectosigmoid aganglionosis were analyzed. Four patients showed subjective improvement of symptoms and anal resting pressure decreased in four patients. WCS and QOL were improved in case 3, 4, and 5 (60%), and HIS did not deteriorate in four patients (80%). Although pain or discomfort were reported in two patients (40%) after 2 weeks after the injection, it was spontaneously resolved. (Table 1)

Conclusion. Intrasphincteric botulinum toxin is a safe and less-invasive procedure that can be utilized as an alternative treatment of internal anal sphincteric achalasia.
MALROTATION AND/OR VOLVULUS IN NEUROLOGICALLY IMPAIRED CHILDREN

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Aim of the study: Neurological malformations are said to be present in 12% of the malrotation cases, but there is usually no detailed description. A retrospective study was performed to evaluate the presence of neurological problems in children with malrotation and/or volvulus and characteristics of their signs and symptoms.

Method: Cases of malrotation and/or volvulus between January 2011-Jan 2016 were evaluated retrospectively. Age, gender, history, complaints, associated diseases, diagnosis, operation and results were recorded.

Main results: Sixteen patients were found. Of these, 6 were neurologically impaired and one had attention deficit disorder. Neurological conditions were MNGIE syndrome (2), microcephaly and epilepsy (1), spinal bifida with hydrocephalus (1), severe neuro-developmental retardation (1) and cerebral palsy (1). All had constipation. Laparotomy revealed malrotation (1), cecal volvulus (1), non-rotation with Ladd’s bands (1), and volvulus due to Meckel’s diverticulum (2). Retrospective history revealed intermittent abdominal pain in all. Sibling of the MNGIE syndrome patient that was operated for intestinal obstruction due to malrotation was brought by parents, recognizing that he has similar symptoms. He was found to have malrotation with cecal volvulus and diagnosed later as having MNGIE syndrome as well.

Conclusions: In this series, 37.5% of the malrotation and/or volvulus patients were neurologically impaired. Siblings with MNGIE syndrome are the first patients being reported for having malrotation. Constipation and abdominal pain are frequent in neurologically impaired children and mostly considered as normal. A thorough search for these malformations should be made in such patients especially in the presence of intermittent abdominal pain.
THE USE OF NEW MODEL OF BIPOLAR MYOSTIMULATOR IN LAPAROSCOPIC-ASSISTED ANORECTAL PULL-THROUGH IN CHILDREN

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¹Central Clinical Hospital of the Presidential Administration of the Russian Federation, Moscow, Russia, ²Stavropol State Medical University, Stavropol, Russia

Purpose: The study aimed to evaluate the outcomes of laparoscopic treatment of anorectal malformations (AMR) with our model of bipolar myostimulator (BM).

Methods: We performed 104 laparoscopic-assisted anorectal pull-through (LAAPT) in children with AMR from 2007 to 2014. There were 86 (82.7%) boys and 18 (17.3%) girls, aged 11.3±0.4 months. Under visual control of laparoscope, the distal rectum passed through the tunnel in the cavity of pelvis and placed in the centre of muscle sphincter defined with the assistance BM. Our operative technique combines the advantages of laparoscopic and open techniques. We used our BM on the perineum and bipolar laparoscopic dissector in abdominal cavity for clearly visualization of levator ani muscles and the pull-through site.

Results: The mean duration of the operation was 126.5±17.2 minutes. At the beginning of the learning curve three children (2.9%) had technical complications requiring conversion to laparotomy. Six months after laparoscopic-assisted anorectal pull-through, 72 patients were hospitalized for closing the stoma. Excellent functional and good cosmetic results were achieved in 39 (54.2%) children. 24 (33.3%) patients were found to have mucosal prolapse. The circular symmetric anal reflex to tactile stimulation was observed in 53 (73.6%) children and a tactile weakened anal reflex was observed in 5 (6.9%) children.

Conclusions. Our experience confirms that LAAPT with our model of BM enabled complete correction of ARM in the meanwhile avoiding damage to the rectum and anus.
Aim of the Study: Dynamic Defecography (DD) is one of the most valuable methods for the evaluation of pelvic floor dysfunctions. The value of DD has reached a consensus in adulthood but is still limited in childhood. We herein evaluated the usefulness of DD for pediatric rectal mucosal prolapse syndrome (MPS) and related disorders.

Methods: DD was carried out in 3 patients with MPS and related disorders. First, the patient keeps the left lateral decubitus position and about 200 mL of thick barium paste is injected into the rectum. Then, the patient goes to sitting position and, during subsequent evacuation, the morphology of rectum and anal canal is recorded under real time fluoroscopy.

Main Results: Case 1 is a 9 year-old boy with the complaint of rectal bleeding. DD showed intussusception of rectum and subsequent colonoscopy diagnosed as MPS. Case 2 is an 11 year-old girl with the complaint of rectal prolapse. DD showed intussuscepted rectal prolapse with anterior rectocele (Figure). Case 3 is a 10 year-old boy with the complaint of fecal incontinence. DD showed mild intussusception of rectum with anterior rectocele. The clinical symptoms of these patients have been improving due to the contraction training of anal sphincter muscles.

Conclusion: Routine diagnostic studies, including barium enema and manometry, could not find such disorders as described in this study. The results revealed that DD could detect structural abnormalities and assess functional parameters in pediatric pelvic floor dysfunctions, including MPS and related disorders.
PW19-10

THE ANALYSIS OF SURGERY FOR HIRSCHSPRUNG’S DISEASE IN RUSSIA
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I. M. Sechenov First Moscow State Medical University, Moscow, Russia

Aim: to analyze methods of diagnosis and surgical treatment of Hirschsprung’s disease (HD) in Russian children’s hospitals at the present stage

Methods: The study is the organization of the Russian consensus on treatment of HD. The survey included 27 children’s surgical centers: Research Institutes (2), University clinics (18), regional hospitals (7). We made the analysis of the annual number of HD and patterns of pathology. Also we studied surgery for HD in newborn, methods of diagnostics, and reasons to use colostomy first. Studied the experience in every hospital: traditions, preferred methods of surgery, the introduction of endoscopic and transanal techniques, general assessment of results of their experience. Comparative analysis was performed in three groups of hospitals, depending on the annual experience of surgery for HD.

Results: The overall annual experience of 27 teams amounted to about 350 operations. Three centers have experience 40 procedures a year; one - 30 operations. Most of the clinics (14) treated 7-10 patients. 13 hospitals use radical surgery during the neonatal period, 14 - preferred colostoma. In the diagnosis all surgeons are based on analysis of the clinical experience and the contrast enema, 18 use a biopsy of the colon before surgery, 8 - biopsy during surgery, three – rectal manometry and three – immune histochemistry. Indications for pre-overlay colostoma: HD in neonatal period (12 respondents), complications of HD (18), the inefficiency of enemas (15), long-segment HD (13). The analysis of many years of experience showed that in Russia often equally used the Soave (10), Swenson (6) and Duhamel procedures (7), primary laparoscopic pull-through Georgeson (6). 8 hospitals used two techniques simultaneously. Today surgery for HD has changed. 17 clinics use laparoscopy: Georgeson (14) or Swenson (3); 5 perform transanal approach de la Torre, 6 – transanal full-thickness Swenson dissection. 15 clinics continue to use laparotomy: Duhamel (3), Swenson (3) and Soave (9).

Conclusions: There are many differences in the treatment of HD in Russia. Most of the teams use modern and effective methods of surgery for HD, however most transactions must be made in strict accordance with international standards or in major colorectal centres. Colostoma must be performed in regional hospitals.
IL-6 -174G/C PROMOTER POLYMORPHISM IS A GENETIC RISK FACTOR FOR SEVERITY OF ACUTE APPENDICITIS IN PEDIATRIC POPULATION

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Aim of study. In cases with infection as appendicitis, the response of the body can be affected by hereditary differences in innate immunity genes which also include interleukin 6 (IL-6). IL-6 is also an important indicator used to predict the severity of the disease. rs1800795 (-174 G/C) is an important promoter polymorphism effecting the levels of cytokine.

The correlation between severity of inflammation in acute appendicitis and the rs1800795 polymorphism on IL-6 gene promoter region which is responsible from innate immunity was evaluated.

Methods. Seventy-six children with acute (AA) and 124 children with perforated appendicitis (PA) were included in this study. The functional rs1800795 (-174G/C) promoter polymorphism was analysed using an automated Real Time-PCR system (Stratagene, MXPro 3000, California, USA) with SYBR® Green probe technology.

Main Results. The allele and genotype frequencies for IL-6 rs1800795 polymorphism were statistically significantly different between the acute and perforated group (p<0.05) but allele frequencies were not different between these groups (p>0.05). Any statistically significant differences were not detected as for gender between the acute and perforated appendicitis for genotype-allele frequencies (p=0.841). Age frequencies was statistically different between the acute and Perforated appendicitis (p<0.05) and regarding other laboratory parameters including C-reactive protein (CRP) (p<0.05). Genotype frequencies in acute (p=0.029) and perforated (p<0.001) appendicitis were not consistent with Hardy-Weinberg equilibrium (HWE).

Conclusions. The polymorphism (-174 G/C) on IL-6 gene is associated with the severity of appendicitis. The observed variation in IL-6 gene may be considered a risk factor for the development of complicated appendicitis.
PW19-12

ANALYSIS OF OUTCOMES AFTER SURGICAL CORRECTION FOR HIRSCHSPRUNG’S DISEASE. ARE THE LONG-TERM OUTCOMES OF THE TRANSANAL PULL-THROUGH AND TRANSABDOMINAL PULL-THROUGH EQUALLY SATISFYING FOR CHILDREN AND THEIR PARENTS?

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Aim of the study: The aim of this study is to analyze the long-term outcome after surgical correction of Hirschsprung’s disease using standardized questionnaire designed specifically to address the long-term outcome of surgical treatment of Hirschsprung’s disease, in correlation to the physical examination of each patient.

Methods: The data was collected from the clinical notes on the basis of documentation of patients treated over 15 years period (2000 – 2014). Sixty two patients were treated, (33) using one-stage and (29) using multistage surgical procedures. Duhamel-Martin and Transanal Pull Through techniques were used. Statistical analysis was performed using STATISTICA 10. The statistical significance was set at p < 0.05. To examine the relationship between described variables the Mann-Whitney’s test and the Spearman’s rank correlation coefficient were used.

Results: The most common side effect after surgical treatment was fecal incontinence (23 patients). Post operatively there were significant correlations (p < 0.05) between number of loose stools and the growth of these patients, 48% of the children were outside the normal centile (10-90) and 74% for weight with consideration to their sex and age. We also found that children operated on below the age of 4 months have a higher incidence of fecal incontinence.

Conclusions: The long-term results after surgical treatment of Hirschsprung’s disease are satisfactory for children and their parents. Fecal incontinence is common, and it is higher in children operated upon below the age of 4 months, but its frequency decreases with increasing age of patients.
Aim of the Study: Pure esophageal atresia without tracheo-esophageal fistula represents a major challenge for most pediatric surgeons. Here, we present our experience with isolated esophageal atresia who successfully underwent immediate primary anastomosis.

Methods: Eight neonates were Gross type A isolated esophageal atresia, from among neonates with oesophageal atresia, treated between January 2009 and December 2015. Six neonates were female; two were male. The mean birth weight was 2300 (range 1500–3100) g.

Main Results: All eight neonates successfully underwent immediate primary anastomosis with or without Livaditis myotomy (mean 2; range 0–4) within 10 (median 2) days after birth. The gap ranged from 6 to 8 cm. One neonate died of a major cardiac anomaly. Another neonate was lost to follow-up after being well for 3 months. Three anastomotic strictures were treated with balloon dilatation, and six anastomotic leaks were treated conservatively. The mean duration of follow-up was 30 months.

Conclusions: To treat pure esophageal atresia, an immediate primary anastomosis can be achieved. Although, this approach is associated with high complication rates, as are other similar approaches, these complications can be overcome.
Hypertrophic pyloric stenosis is one of the most common indications for surgical interventions in neonates. In the recent years laparoscopic technique has been adapted in its treatment.

**Aim of the study:** Analysis of complications of an operative treatment of hypertrophic pyloric stenosis in children

**Methods:** A retrospective analysis of medical files of children undergoing operative treatment for hypertrophic pyloric stenosis at the paediatric surgical centre in years 2007-2014.

**Results:** The study group comprised 149 patients (mean age - 37.89 days; proportion of boys to girls - 8:1). All patients had an abdominal ultrasound performed. 36 children underwent open pyloromyotomy and 113 had laparoscopic procedure. Mean time of hospitalization was 3.96 days and it was shorter in the patients operated with an open technique (3.70 vs 4.02). Postoperative vomits were noted more often in the laparotomy group. Overall surgical complication rate was 7/149 (4.69 %). In the laparotomy group, there was 1 case (2.78%) of incomplete pyloromyotomy, requiring second procedure. Among patients who had laparoscopy, 3 had mucosal perforation at the incision site (2.65%). Gastric perforation was noted in 1 case (0.88%) and incomplete pyloromyotomy in 2 cases (1.77%). All procedures were performed under supervision of a consultant but all but one complication in the laparoscopy group were noted when a trainee was a first surgeon.

**Conclusions:** Introduction of laparoscopic technique of pyloromyotomy, although promising, carries a risk of surgical complications predominantly due to lack of adequate experience. Strict adherence to the operative principles in infants may prevent many potential complications.
**PERCUTANEOUS ENDOSCOPIC GASTROSTOMY AND FACTORS AFFECTING COMPLICATIONS**

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**Aim of the study:** To investigate the patients with percutaneous endoscopic gastrostomy (PEG) and its complications.

**Methods:** We retrospectively reviewed 53 patients with PEG between 2009 and 2015. Patients’ age, sex, primary disease, postoperative complications, length of stay (LOS) were analyzed.

**Main Results:** Twenty-six patients (49.1%) were female and 27 (50.9%) were male. The mean age was 6.1 years (6 months - 19 years). In 23 (43.4%) cases metabolic syndromes, in 24 (45.9%) neurological/asphyctic problems and in 6 (11.3%) tumors were underlying problems. Patients with metabolic problems had a significantly lower age compared to those with neurological/asphyctic and tumors (p<0.05) (Table). One of our patients had a previous ventriculo-peritoneal shunt. All patients had upper gastrointestinal contrast study and 24 h pH monitoring prior to the procedure. Significant GER was not detected in any of the patients. Eight patients (15.1%) developed postoperative complications requiring secondary surgery. Each one patient had colon perforation and catheter slipping into the abdomen, and separation of the stomach from the abdominal wall. Five patients had severe leakage surgically repaired. There was no significant difference between patients with metabolic, neurological/asphyctic problems and tumors according to complications (13.4%, 16.67%, 20% respectively). No procedure-related death was observed. Twelve patients died from primary disease-related causes.

<table>
<thead>
<tr>
<th>Type of disease</th>
<th>Mean Complication (+)</th>
<th>Complication (-)</th>
</tr>
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<tbody>
<tr>
<td>Metabolic</td>
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<tr>
<td>Neurologic</td>
<td>LOS (days)</td>
<td>6.51</td>
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<tr>
<td>Tumor</td>
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</table>

**Conclusion:** PEG is a safe and effective method in pediatric patients requiring enteral nutrition, even with previous abdominal surgery.
PW20-04

EVALUATION OF THE IMPLEMENTATION OF A QUALITY CONTROL SYSTEM FOR LAPAROSCOPIC PYLOROMYOTOMY IN HYPERTROPHIC PYLORIC STENOSIS

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Aim of the study: In 2011 a new image-based system for quality control of laparoscopic pyloromyotomy (LP) was implemented in our hospital. We evaluated its implementation and its use in predicting postoperative outcomes.

Methods: Four keypoints images or short video-segments were recorded peri-operatively: pre-pyloromyotomy, parallel-mobility testing, perforation testing and post-pyloromyotomy. A retrospective analysis was performed for all 134 patients undergoing LP from September 2011 to December 2014. Five pediatric surgeons independently assessed the anonymized operative images for predicting re-operation and time to full-enteral feeding.

Results: The percentage of recorded images increased from 45% in 2012 to 75% in 2014. Over the study period, one or more images were recorded in 89 of the 134 (66%) patients. In only 17 (13%) all four images were documented. The keypoints images were made for pre-pyloromyotomy in 33%, parallel-mobility testing in 57%, perforation testing in 28% and post-pyloromyotomy in 63%. Six patients (4.5%) were re-operated for incomplete pyloromyotomy (N=5) or mucosal perforation (N=1), in 4 of the 6 reoperated patients images were recorded. The need of re-operations was correctly predicted for 1 of the 4 patients. Full-enteral feeding within 24 hours was correctly predicted for 61% of the patients (range 40-85%).

Conclusions: The increase in recorded images over the years is promising however re-operation or a protracted postoperative course could moderately be predicted from the operative images. Further increase of compliance of recording and better instructions for evaluating the images are needed to improve the usefulness of the images in e.g. telementoring, education and medicolegal practice.
RIGID BRONCHOSCOPY IN THE TREATMENT OF FOREIGN BODY ASPIRATION

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Introduction: Rigid bronchoscopy is useful in foreign body aspiration treatment as well as many diagnostic procedures.

Patients and Methods: In this study we aimed to evaluate our patients with foreign body aspirated patients, between 2001-2015, in terms of age, gender, type of aspirated material, localisation and complications.

Results: During this period 162 patients have undergone rigid bronchoscopy for aspirated foreign bodys. In 17 patients metallic object, in 33 patients plastic material, 112 patients food partials were detected. Post-operatively 3 patients needed intensive care unit.

Conclusion: Rigid bronchoscopy is a reliable life-saving procedure in pediatric patients for foreign body aspiration.
**PW20-06**

**POST OPERATIVE PARENTERAL GLUTAMINE IN HIRSCHSPRUNG’S DISEASE: A PILOT STUDY**

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¹Ain Shams University, Cairo, Egypt; ²Helwan University, Helwan, Egypt

**Aim of the Study:** To figure out the effect of parenteral Glutamine on the postoperative course in paediatric patients with Hirschsprung’s disease.

**Methods:** In the period between January 2015 and December 2015, patients with Hirschsprung’s disease were included in the study (Group I). Inclusion criteria were age between 6 months and 3 years, short segment Hirschsprung’s disease, and a single stage repair. All patients received the same perioperative management. Parenteral Glutamine with a dose of (0.3 gm/kg/day) was started the day of surgery and continued for 5 days. Our concern was the incidence of intestinal leak, hospital stay and occurrence of postoperative enterocolitis. Data was compared to our medical records between January 2014 and December 2014 (Group II). Range of age, pathology, and operative management were considered. Patients in group II did not receive postoperative parenteral Glutamine.

**Main results:** Group I included fourteen patients; their mean age was ≈1.9 years. There were sixteen patients in group II; their mean age was ≈ 1.7 years. In group I there was one case of postoperative leak (7.1%) versus two cases of intestinal leak and two cases of postoperative enterocolitis in group II (25%). Enteral clear fluids started in group I as early as the second postoperative day in comparison to the fourth postoperative day in group II. Postoperative hospital stay in group I was shorter (average ≈ 4.4 days) when compared to group II (average ≈ 6.2 days). No complications were recorded from Glutamine administration in group I.

**Conclusions:** Postoperative administration of parenteral Glutamine in paediatric patients undergoing colonic surgery improved the properties of intestinal lining, thus decreased postoperative complications and hospital stay with no recorded medical hazards.
DECISION-MAKING FOR GASTROSTOMY AND FUNDOPPLICATION IN NEUROLOGICALLY IMPAIRED CHILDREN: RETROSPECTIVE EVALUATION

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**Background:** Dysphagia, gastroesophageal reflux (GER) and vomiting are frequent in neurologically impaired children. These problems can cause significant clinical problems as feeding difficulty, growth retardation and pulmonary aspiration. Due to risk of morbidity and mortality, detection of GER in these patients prior to gastrostomy is critical. GER secondary to gastrostomy may be seen whereas decision-making in additive anti-reflux procedure may be difficult. Results of gastrostomy alone and gastrostomy with anti-reflux surgery are presented herein.

**Patients and method:** Hospital records of 55 neurologically impaired children who had undergone gastrostomy or gastrostomy+Nissen fundoplication in a 10 years-period were reviewed. Patients were divided into two groups according to surgical procedure performed; laparoscopic gastrostomy alone (GroupG, n=34) and laparoscopic Nissen fundoplication and gastrostomy (GroupN+G, n=21). Presence of postoperative GER, clinical findings, operative results, complications and parental satisfaction rates were compared.

**Results:** Total of 55 patients (25 boys, 30 girls) with a mean age of 61 (6-204) months and mean body weight of 17kg were enrolled in the study. Average follow-up time was 2.2 (1-5) years. There was significant weight and height gain and decrease in frequency of pulmonary infections in both groups following surgery. Decrease in frequency of vomiting was only significant in GroupN+G. Gastrostomy alone didn’t cause postoperative vomiting in 26 cases of GroupG (96.3%). In GroupG, there were 7 GER(-) patients with rare preoperative vomiting. In 4 of these, vomiting complaints disappeared following gastrostomy whereas secondary anti-reflux surgery was necessary in remaining 3 patients due to increased postoperative frequency of vomiting. There was no recurrence of GER in GroupN+G. The difference of complication between groups was insignificant. Parental satisfaction following surgery was high in both groups (GroupG: 79%, GroupN+G: 90%).

**Conclusion:** Both gastrostomy alone or gastrostomy with anti-reflux surgery improves clinical condition and quality of life with high rate of parental satisfaction in neurologically impaired children with dysphagia. Gastrostomy alone doesn’t cause postoperative vomiting in symptom-free patients. Presence of vomiting is important and sufficient for planning and management of these patients prior to surgery.
PW20-08

ALIMENTARY TRACT DUPLICATIONS: A SURVEY OF 24 CASES

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Aim of the study. The present study analyzes a single surgical team experience in alimentary tract duplications (ATD).

Methods. The medical records of 24 consecutive patients diagnosed and treated for ATD from 2006 to 2015 were reviewed.

Main results. The clinical picture varied from asymptomatic to a broad spectrum of findings - feeding difficulties, recurrent abdominal pain, palpable mass, GI bleeding, bowel obstruction. The anatomical distribution of ATDs was ileocecal 8 (33%), followed by jejuno-ileal - 5 (21%), colon - 4 (17%), esophageal - 3 (12%), one duplication (4%) of oral structures, one rectal duplication and one ano-rectal duplication; we note a case of complex caudal duplication syndrome involving terminal ileum, appendix, cecum, colon and rectum. One of the esophageal duplications associated esophageal atresia, both conditions being treated at birth in a single operation. In one patient (4%) the elective surgery concerning removal of the duplicated ano-rectum was not considered because of associated comorbidities. In 12 cases (50%) removal of duplication required segmental corresponding enterectomy. In one case, an anastomosis between the colon and its duplication was performed, while in the rest of situations exclusively excision of the duplication was made.

Conclusions. ATD are rare malformations with a wide variety of anatomical particularities. The clinical presentation is vague and imaging studies may be tricky, leaving the surgeon to complete the picture with intraoperative findings. In complex duplication cases multidisciplinary approach is mandatory in order to obtain the best results. Outcomes of ATD are very good if proper management is made.
TECHNIQUE FOR SAFE PLACEMENT AND SECURING OF WORK PORTS IN NEONATAL LAPAROSCOPIC PROCEDURES

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Aim: The neonatal abdominal wall offers challenges for work port placement when compared to the pediatric and adolescent population. A safe technique for work port placement for neonatal laparoscopic procedures is presented after evaluation.

Methods: After placement of the optic port in the umbilical area, insufflation with abdominal pressure of 5-8mm Hg is achieved. The abdomen is incised at the desired work port site with a pointed scalpel in the horizontal plane. A sharp pointed scissor is then inserted in the wound, again in the horizontal plane; with the cutting action of the scissor used to penetrate when closed and to spread the muscle when open. This is performed under vision until the peritoneum is reached and cut open. Before the scissor is retracted, the blades are spread at the level of the abdominal wall to increase the tract diameter. A 3mm port with a blunt trocar tip is then eased through the tract. Steristrip® is placed on the edge of port after insertion of desired length, and a 4-0 Vicryl is used to approximate the excessive skin incision (if present) and secure it to the Steristrip® for secure port fixation.

Results: The technique was used in 125 neonates from M=21.5 days (1-45 days) without any complications of bleeding, internal organ injury, gas escape or dislocation in all procedures.

Discussion: The scissor tract technique allows safe and secure placement of work ports under vision in neonates. It completely eliminates any dangers of injury that may arise from forced application of trocar in neonates.
SURGICAL MANAGEMENT OF THE VERY LOW BIRTH WEIGHT (VLBW) AND EXTREMELY LOW BIRTH WEIGHT (ELBW) PREMATURE INFANTS WITH INGUINAL HERNIA; TIMING OF THE REPAIR, TYPE OF THE ANESTHESIA AND POSTOPERATIVE OUTCOME

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**Aims of the study:** VLBW (<1500g) and ELBW (<1000g) premature infants need a special care. This study evaluates timing of surgery, type of anesthesia and postoperative outcome in VLBW and ELBW prematures with inguinal hernia.

**Methods:** This is a retrospective review of VLBW and ELBW premature infants undergoing inguinal hernia repair from 2012 to 2014. They underwent inguinal herniorrhaphy at a body weight of 1800-2000g by experienced surgeons under awake caudal anesthesia before discharge from the hospital.

**Results:** 24 prematures were included. 10 of them were ELBW infants and the lowest birth weight was 445g. From gender aspect, there is a significant difference towards males. 10 patients have had bilateral, 8 patients right sided and 6 patients left sided inguinal hernias. All patients underwent surgical repair under awake caudal anesthesia. One patient needed a change to general anesthesia. After a median follow up of 8 months one recurrence had occurred. There were neither peroperative surgical complications nor postoperative respiratuary problems.

**Conclusion:** Inguinal hernia repair is one of the most common surgical procedure in pediatric surgery. Premature babies reveal special conditions like a high incidence of inguinal hernias and increased risk of postoperative apnea.

We favor herniorrhaphy under awake caudal anesthesia for these patients and timing of surgery before discharge from the hospital.
LATERAL THERMAL DAMAGE OF MESOAPPENDIX AND APPENDICEAL BASE DURING LAPAROSCOPIC APPENDECTOMY IN CHILDREN: COMPARISON OF THE HARMONIC SCALPEL (ULTRACISION™), BIPOLAR COAGULATION (LIGASURE™), AND THERMAL FUSION TECHNOLOGY (MISEAŁ™)

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Background: The aim of this study was to compare lateral thermal damage of mesoappendix and appendiceal base using the harmonic scalpel (UltracisionTM), bipolar coagulation (LigaSure™), and thermal fusion technology (MiSeal™).

Methods: From December 2013 to May 2015, 99 children undergoing laparoscopic appendectomy were included in this study. The patients were divided in three groups based on instrument used for sealing and cutting of mesoappendix and base of appendix: UltracisionTM (n=36), LigaSure™ (n=32) and MiSeal™ (n=31). Lateral thermal damage, intraoperative and postoperative complications, duration of surgery, hospital stay and economic value were compared within groups.

Results: The median lateral thermal damage using UltracisionTM was 0.1 mm on base of appendix and 0.08 mm on mesoappendix, for MiSeal™ 0.10 mm on appendiceal base and 0.80 mm on mesoappendix and for LigaSure™ 0.16 mm on base of appendix and 0.13 mm on mesoappendix. The group of patients treated with LigaSure exhibited significantly higher thermal damage at mesoappendix and base of appendix than patients from other groups (p≤0.012, post hocs p≤0.017). Duration of surgery and length of hospital stay were significantly longer using UltracisionTM than when using other devices (p≤0.012, post hocs p≤0.046), on average by 10 min and by 1 day, respectively. There were no statistical difference among the groups regarding intraoperative and postoperative complications (p=0.098). No statistical difference in thermal damage on base of appendix or on mesoappendix between appendicitis group and non appendicitis group was found (p≤0.266).

Conclusions: Using of UltracisionTM, LigaSure™ and MiSeal™ in laparoscopic appendectomy in children is safe and useful. In group of patients operated using LigaSure™ lateral thermal damage was significantly greater compared to other instruments. MiSeal™ is economically the most cost effective and produces at least thermal damage comparing to other instruments.
THE INCIDENCE OF HYPOSPLENISM IN CHILDREN AFTER DIFFERENT METHODS OF SPLEEN INJURY TREATMENT

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Aim of study: to compare the rate and severity of hyposplenism in children who were undergone non-operative management, saving surgery and splenectomy for spleen injury; to highlight the main clinical features for prediction of overwhelming post-splenectomy infection (OPSI).

Methods: 24 children (median age 11.3 years, 20 males) with an average postoperative period 1.6 years (range 3 months - 8 years) were divided into three groups according to the kind of treatment was carried out: non-operative management – 9, saving surgery (laparoscopic hemostasis) – 4, splenectomy – 11. The studied parameters were clinical presentation, laboratory blood tests (immunological findings, hematological parameters - Howell–Jolly bodies, acanthocytes and codocytes, platelet counts), 99m Tc- labelled sulphur colloid scintigraphy.

Main results: after conducted study patients were divided into four groups according to the presence of the splenic tissue: patients with saved healed spleen – 5, patients with saved spleen and foci of splenosis – 8, with only splenosis – 7, and without any splenic tissue – 4. Hyposplenism was reliably confirmed in 2 children with preserved spleen, in 1 out of 8 patients with preserved spleen and foci of splenosis, in 3 children with splenosis and in 100% cases with total asplenia. One patient (female, 15 years) had recovered from OPSI (meningococcal form) six months after laparoscopic hemostasis of spleen rapture.

Conclusion: This study shows that risk of hyposplenism and OPSI depends on complex of factors. Splenosis can support normal immunological status in children after splenectomy and the presence of healed spleen can not rule out possibility of OPSI.
Introduction. According to the International Organization for Migration, in 2015 more than 1,000,000 refugees have crossed the European borders; more than 200,000 were children (Eurostat). UNHCR reports more than 3,500 drownings across the Mediterranean Sea. The dead bodies of children being washed up on coasts, amputated, burned or even decapitated children compose the image of an unprecedented humanitarian crisis.

This paper aims through a case presentation to unveil the impact of the ongoing migration crisis upon paediatric trauma and to point out the medical, legal and social challenges arising.

Case report. A 7-year-old boy was run over by the overbooked bus, which transported his family to the borders. He had abdominal injury, upper and lower extremities fractures, pelvic fracture and a life-threatening trauma extending from the left inguinal area to the coccyx; the perineum and pelvic floor were smashed and torn in half with the anorectal canal being detached from the sphincter complex. He underwent emergency laparotomy and colostomy formation. Restoration of the pelvic floor and the anus was extremely challenging and prolonged ICU hospitalization followed. The functional outcome was excellent. Housing of the boy and his mother during rehabilitation period was troublesome regarding legislation issues and financial support. The contribution of non-governmental organizations was crucial.

Conclusions. Europe faces the largest migration influx since World War II with unique social and financial consequences. Determined European political action ensuring hippocratic ethics and solidarity is mandatory for palliating the humanitarian crisis.
Rapid Response Team Activations in Pediatric Surgical Patients

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Aim: The Rapid Response Team (RRT) is a multidisciplinary team who evaluates hospitalized patients for concerns of non-emergent clinical deterioration. RRT evaluations are mandatory for children whose Pediatric Early Warning Sign (PEWS) score (assessment of child's behavior, cardiovascular and respiratory status) is ≥ 4.

Methods: Retrospective review of all children with RRT activations between 1/08-4/15 at a tertiary care pediatric hospital.

Results: Of 2991 RRT activations, 324 (11%) involved surgical patients. 96 RRTs occurred in 17,747 pediatric surgery admissions (rate 0.5%). Surgical patients were older than medical patients (median 7 vs 4 years; p<0.001). RRT evaluations were called for lower PEWS score in surgical patients compared to medical (median 3 vs 4, p<0.001). Surgical patients were more likely to remain on the inpatient ward following the RRT (51% vs 39%, p<0.001) and were less likely to require an advanced airway than medical patients (0.9% vs 2.1%; p=.412). RRT evaluations did not differ between day or night shifts (51% day vs 49% night; p=0.17). All surgical patients and all but one medical patient survived the event; surgical patients were more likely to survive to hospital discharge (97% vs 91%, p<0.001).

Conclusions: RRT activations are rare events among pediatric surgical patients. When compared to medical patients, RRT evaluation is requested for surgical patients with a lower PEWS score and these children are less likely to require transfer to a higher level of care suggesting that pediatric surgery team, families and nursing staff, may not be as comfortable with clinical deterioration.
DOES APPLICATION OF TOPICAL STEROIDS FOR BALANITIS XEROTICA OBLITERANS AFFECT THE RATE OF CIRCUMCISION? - A SYSTEMATIC REVIEW

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Aim of study: Balanitis Xerotica Obliterans (BXO) is usually managed with circumcision. In 2001 Kiss et al. reported improvement in BXO with topical steroids but all patients underwent circumcision regardless of response to treatment. This systematic review aimed to determine whether treatment of BXO with topical steroids reduces the rate of circumcision.

Method: Two independent reviewers performed a literature search of studies reporting treatment of BXO with topical steroids using EMBASE and MEDLINE database(s). Inclusion criteria: boys aged 0-18 yrs, clinical diagnosis of BXO, treatment with topical steroids. Literature reviews, studies of phimosis without BXO and adult patients were excluded. Data analysed for each paper included age, duration of treatment, length of follow up and outcome notably circumcision or no surgery.

Main results: The original search identified 26 titles. Removal of duplicates and application of exclusion criteria left 6 articles for inclusion. Eighty nine patients with BXO were treated with topical corticosteroids. Circumcision was avoided in 31/89 (35%; range 0% - 100%). Median patient age was 6.5 yrs (range 1 month - 15 yrs). Median duration of treatment was 2 months (range 1 - 23 months); median follow-up 4 months (range 6 weeks – 5 yrs).

Conclusions: Treatment of BXO with topical steroids reportedly avoided circumcision in 35% of boys. Duration of medical therapy and patient follow up in analysed studies were however short. Long term follow up would seem advisable to monitor patients for BXO recurrence that may ultimately require circumcision. A prospective randomised trial would provide a definitive answer.
PW21-05

HAIR TOURIQUET SYNDROME, NOT JUST A REPAIR

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Aim of the study. We are trying to clarify the course of the lesion in a series of our patients from the anatomical and pathological points of view, and why the same mechanism causes different lesions with blotting a new classification according to the severity of the lesion.

Patients and methods. In the period between May 2015 and November 2015, we analyzed the data of fifteen patients of penile hair tourniquet syndrome presented to our department during the past three years. The presentation varied from skin circumferential constriction with no urethral affection, up to cases with complete transaction of the cavernosa and urethra with only intact part of the dorsal aspect of the corpus spongiosum at 12 o’clock. We put a classification to categorize them

Main Results. We are presenting fifteen patients of hair tourniquet syndrome. With a mean age of (1.5 years) and average time (5 months) for follow up. We had to blot a new classification based on the anatomical course of the lesion which we believe is influenced by the differences in the blood supply and strength of different penile layers. In two patients, we had to make a staged repair. Subcutaneous dartos tissue was used as a natural filler to treat the sub coronal circumferential constriction to overcome the post operative shaft furrow and improve the cosmetic results. Follow up showed no complications postoperatively.

Conclusion. Hair tourniquet syndrome is an uncommon type of lesion, more understanding for the anatomical configuration of the penis helps to understand the course of the lesion in its different stages. Postoperative outcome of the repair is satisfactory according to literature with no special concern to the post operative cosmetic result which we tried to pay more attention for. Staged repair may be indicated in severe cases to guarantees better results.
EVALUATION OF CLINICAL RESULTS AND QUALITY OF LIFE IN CHILDREN AFTER BLADDER AUGMENTATION

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Aim of the Study: This study aims to evaluate clinical results of bladder augmentation (BA) and its effect on patients’ quality of life

Methods: Pre- and post-operative biochemical parameters, degree of hydronephrosis and urodynamic findings were comparatively analysed retrospectively. Health-related quality of life (HRQoL) questionnaire was used to assess improvements in quality of life. Wilcoxon and McNemar stat below 0.05 showed a statistical significance over time.

Main Results: BA was done in 15 patients. There were 9 (60%) females and 6 (40%) males. The mean age at the time of operation was 9.8 (5.6-14.4) years. A concomitant ureteroneocystostomy (UNC) was done in 14 patients and Mitrofanoff procedure in 13. The mean follow up period was 5.6 (0.5-9.1) years. Laboratory parameters did not show a significant difference over time. There was a significant improvement in the degree of hydronephrosis (p=0.031). The increase obtained in maximum cystometric capacity and compliance (p=0.0007) and the decrease in bladder filling pressure (p=0.012) were significant. The percentage of patients staying dry both at daytime and at night time significantly increased from 13.3 to 60% (p=0.039). HRQoL evaluation showed improvement both in ‘health’ and ‘way of life’ scores (p=0.001 and p=0.018, respectively).

Conclusion: The main preoperative targets of urodynamic improvement and improvement in hydronephrosis were achieved in NB patients who underwent BA and UNC operation. The obtained urinary continence as assessed by “being dry” was satisfactory. Overall, the quality of life was improved in patients with NB with high level of patient satisfaction.
PW21-07

PATIENTS WITH GASTROCHISIS HAVE A GOOD QUALITY OF LIFE WITHOUT LIMITATION IN COMPARISON WITH THE GENERAL POPULATION: A QUESTIONNAIRE SURVEY

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Aim of the Study: To evaluate long-term quality of life and somatic growth of patients with gastroschisis and compare them with the general population.

Methods: We performed a questionnaire survey of the quality of life of our patients treated between 2004 – 2012. Statistical analysis of the anthropometric data was performed.

Main Results: A questionnaire was sent to our 56 former patients with gastroschisis, 38 mothers of our patients (68%) responded to the questionnaire. 33 of 38 mothers (87%) claim that the quality of life of their child is very good, 4 of them responded that it is good. 1 mother confessed that the quality of life was very poor. Anthropometric data show comparable results with the standard population except for patients of 1 year of age who still have lower weight (p<0.001) and body height in the 5th percentile and patients of 3 years of age who are also significantly thinner. 13% of patients in our study group have gastrointestinal problems. 9 patients (24%) attend follow-up at the neurological center (Attention Deficit Hyperactivity Disorder n=6, mental retardation n=1, dysarthria n=2), however, overall intellectual abilities are within normal range. 7 patients underwent surgery for umbilical (n=3) or inguinal hernia (n=4), 2 patients were operated on for undescended testicles, 3 patients were operated on for an adhesive ileus. 92% of mothers are very satisfied with the cosmetic results of the scar.

Conclusion: The study has shown that the majority of patients after operation of gastroschisis have a very good quality of life without limitation in comparison with the general population. The presented anthropometric data confirm that the development of patients with gastroschisis is favourable. This conclusion is an important piece of information for prenatal counselling and is also energizing for the gastroschisis surgical and paediatric teams.

Keywords: gastroschisis, long term follow-up, quality of life, anthropometric data
INTESTINAL MOTILITY DISORDERS: FROM CHILDHOOD TO ADULT AGE

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Aim. The majority of patients born with intestinal motility disorders (IMD) a few decades ago are approaching the adult age and colleagues from adult care need to be informed on possible complications. A series of such patients is herein presented.

Methods. Four female patients, affected by congenital intestinal pseudo-obstruction (3) and total Hirschsprung disease (1), are now 18 years (range 15-20). All of them carry, since infancy, a permanent ileostomy and central venous access (CVC) for parenteral nutrition (PN). One patient also required a gastrostomy to support the enteral nutrition and Mitrofanoff to empty the bladder; another performs intermittent catheterization.

Results. These patients required periodical replacement of CVC, adjustment of enteral and parenteral nutrition according to different period of growth, pediatric and adult stoma therapist, hematological consultation, and psychological support. Moreover, as unpredicted events, they were repeatedly admitted into emergency, both pediatric and adult, for sepsis, bowel obstruction, and recurrent episodes of dehydration and electrolyte imbalance. In many cases it was necessary to prolonged the admission and, because of their transitional age, they were randomly transferred to pediatric or adult departments without an uniform established treatment plan.

Conclusion. Advance in the treatment of intestinal failure have prolonged the survival of patients with IMD until adulthood. It is of great importance the creation of a well established network between pediatric and adult medical departments to insure the best care and limit complications for these difficult patients.
**PW21-09**

**PNEUMOTOSIS INTESTINALIS AND PNEUMOPERITONEUM IN CHILDREN; IS SURGERY ALWAYS INDICATED?**

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**Aim of study:** Pneumotosis intestinalis (PI) is a condition in which multiple gas-filled cysts form within the wall of the gastrointestinal tract in either the subserosa or submucosa. The presence of pneumoperitoneum in the presence of PI can present a therapeutic dilemma. The aim of our study was to review our experience and management of this condition.

**Methods:** A single centre retrospective study of consecutive children (>1 year) presenting with a pneumoperitoneum and evidence of PI (2009-2015). Demographics, case notes, microbiology and imaging were reviewed.

**Main results:** Seven patients were identified (four male; age range 5-14 years). Four children had global developmental delay and were PEG/PEJ fed, one was immunocompromised (acute lymphoblastic leukaemia). The others had encephalitis and eosinophilic gastroenteritis. One patient proceeded to an exploratory laparotomy; no perforation was identified, pneumotosis of the colon was observed and a loop ileostomy was formed. The remaining six were managed conservatively and made nil by mouth with intravenous antibiotics commenced. Five of the six had a CT scan, which revealed PI and free air with no other worrying signs. One died from non-gastrointestinal causes whilst the remaining five had feeds reintroduced uneventfully.

**Conclusions:** Free air in the setting of PI may represent rupture of the gas cysts and not always transmural perforation. Surgery may not always be indicated and conservative management may suffice. A CT scan can be useful and continued clinical assessment is essential.
LINKING NEONATAL SURGICAL OUTCOMES DATA AT A NATIONAL LEVEL: ANALYSIS OF METHODS AND COSTS

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Study Aims: Prospective national databases are becoming essential tools to evaluate and compare outcomes. The aim of this study is to define methods and costs to develop a software to link clinical data from existing databases related to surgical neonates in England.

Method: We performed an extensive online and market search to answer the following questions: 1) Which national databases collect data on neonates? What are the methods of linking data amongst databases and hospital electronic records (ER)? 3) What is the role of the National Health Service (NHS) Information Technology (IT) departments in linking hospital data nationally? 4) What is the role of private companies in supporting and implementing the process of data linkage? 5) How much will the process cost and are there funding for it?

Results: Standardised Electronic Neonatal Database (SEND) and Hospital Episode Statistics (HES) collect prospective data on neonates. Eight papers were found on Pubmed and the most significant are detailed in the Table. NHS IT services are largely disjointed among hospitals due to different programs used for the ER. Private companies (Fortrus, IMSHealth, SAP, Oracle) and Health & Social Care Information Centre have experience in linking large databases. The average cost for linking data from different databases and hospitals in a prospective platform ranges from £80,000-150,000. Funding applications should be made to different streams of the National Institute for Health Research (NIHR).

Conclusion: The implementation of a software that links existing national databases/electronic records is feasible, financially viable and it will enable improvement of the quality of care.
PW21-12

ANORECTAL MANOMETRY IN CHILDREN WITH COLORECTAL PROBLEMS
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Aim of the study. To understand the capabilities of anorectal manometry in children with colorectal problems.

Methods. Station-pull through manometry and High-resolution Anorectal Manometry was used in 57 children aged 7 months to 17 years (20 girls and 37 boys).

Results. Rectoanal inhibitory reflex was absent in children with Hirschsprung disease, allowing diagnosis in case of difficulties with contrast enema and biopsy (3 children).

In 7 children with prolonged constipation diagnosis of Hirschsprung disease was not confirmed with anorectal manometry, but dyssynergic defecation was identified. In children with Hirschsprung disease and anorectal malformations after surgical treatment the anorectal manometry in assessing the condition of the muscles of the pelvic floor and determine the cause of constipation or fecal incontinence. As a result, we have appointed a reasonable rehabilitation for each child.

Conclusion. Anorectal manometry is a valuable complement in the diagnosis, treatment and rehabilitation of children with colorectal problems.
ASSESSMENT OF GASTROINTESTINAL FUNCTIONS IF CHILDREN WITH FAMILIAL MEDITERRANEAN FEVER

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Aims of the Study: We aimed to evaluate the gastrointestinal effects of Familial Mediterranean Fever (FMF) and amyloid deposition in particular, in pediatric age group.

Methods: 27 patients predicted to be at risk for colonic mucosal amyloid deposition were enrolled in the study after a search through patient files. They had M694V homozygous mutation, high level of proteinuria, irregular use of colchicine and/or were on long-term treatment. An anorectal manometry test (AMT), a rectal suction biopsy and Rome III questionnaire were done.

Main Results: The mean age was 12.15±2.40 years among 17 male and 10 female patients. Rectal mucosal amyloid deposition was detected in 2 (7.4%) patients both with homozygous M694V mutation (p<0.028). Proteinuria levels were higher in patients with familial FMF history (p<0.046). Rome III questionnaire results were consistent with irritable bowel syndrome in 5 patients and abdominal migraine in 3. All had gastrointestinal complaints (p<0.033). No correlation was detected between the AMT and Rome III questionnaire results. No comparison between AMT or Rome III questionnaire results could be done between those with or without amyloid deposition due to low rate of amyloid deposition.

Conclusion: The number of FMF patients who had amyloidosis was lower than expected even though all included patients had risk factors for amyloid deposition. The time interval for such a deposition is much shorter in children than in adults. Rome III questionnaire results were consistent with functional abdominal disorders in one third of patients independent of FMF.
PW22-02

LAPAROSCOPIC SURGERY OF SPLENIC CYSTS IN CHILDREN

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Aim of the Study: To evaluate the effectiveness of laparoscopic surgery of splenic cysts in children.

Methods: The study included 5 children with cysts of spleen of acquired etiologies aged 5 to 17 years old. The instrumental examination was performed with an ultrasound duplex scanning to eliminate the blood flow in the cysts. CT and Doppler US scanning were performed to clarify the location of the cystic formation and the differential diagnosis of parasitic cysts. All patients underwent the laparoscopy with the use of transparent disposable laparoscopic ports - Exell (Johnson & Johnson) and VECTEC. As three ports were installed, the cyst puncture was performed with the evacuation of its contents. The cyst was dissected and its fibrous walls were removed with an ultrasonic scalpel and bipolar coagulation Enseal. The residual cyst cavity was elaborated with argon plasma coagulation. This allowed to perform not only the cyst lining coagulation, but also to achieve the stable hemostasis.

Results: Intraoperative and postoperative complications were not observed. The early postoperative period was unremarkable. Children began to walk in 10.6±5.2 hours after surgery. Anesthetic drug was induced during the first days after surgery. The use of laparoscopic treatment reduced the postoperative period (up to 50% compared with open surgery).

Conclusion: Thus, the laparoscopic cystectomy can improve the treatment results of children with splenic cysts, significantly reducing the duration of the surgery and the postoperative period.
EVALUATION OF THE LEARNING CURVE IN LAPAROSCOPIC PERCUTANEOUS EXTRAPERITONEAL CLOSURE FOR INGUINAL HERNIA

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Aim of the Study. Laparoscopic percutaneous extraperitoneal closure (LPEC) is becoming a common procedure for repairing inguinal hernia. As a laparoscopic approach, pediatric surgical trainees require more training to learn LPEC than a traditional open approach. The aim of this study was to clarify the experience needed to acquire the skill to perform LPEC adequately.

Methods. This descriptive single-center study used clinical data from patients who underwent LPEC between January 2010 and December 2015. The mean operative time for 10 consecutive unilateral repairs was used as an index of proficiency with the procedure. The number of repairs performed before the mean operative time became <20 min was evaluated for each trainee.

Main results. During the study period, 842 patients underwent LPEC performed by 6 pediatric surgical trainees. The total number of repairs was 1211, including 473 unilateral repairs, and 369 concurrent bilateral repairs. Overall, the mean operative time was 21.8 ±8.1 min for unilateral repair and 31.4 ±9.7 min for concurrent bilateral repairs. The mean number of repairs performed before acquisition of skill for dexterous LPEC was 108 ±30.

Conclusions. Although individual differences were seen, all trainees acquired the skill to perform LPEC adequately within 1 year. With appropriate guidance, LPEC can become a standard technique for pediatric surgical trainees, along with traditional open surgery. These results provide valuable information for planning LPEC training.
THE UTILITIES OF LAPAROSCOPIC APPROACH FOR INGUINAL HERNIA IN CHILDREN

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Aim of this study. Laparoscopic surgery for inguinal hernia (IH) in children has become common. The major benefit of this approach is confirmation of a contralateral patent processes vaginalis (CPPV). This paper presents our experience with this approach.

Methods. The records of the 413 patients undergoing laparoscopic surgery for inguinal hernia from 2011 to 2015 were reviewed, comparing age, gender, pre- and post-operative diagnosis.

Results. The average age was 4.04 years, 222 of whom were male. Bilateral IH was diagnosed preoperatively in 35 cases and CPPV was identified in 165 cases, for a total of 199 cases. Two females lacking a uterus and fallopian tubes were diagnosed as having Complete Androgen Insensitivity Syndrome confirmed by karyotype post-operatively. 1 case suspected to have suffered a recurrent inguinal hernia after 2 Laparoscopic Percutaneous Extraperitoneal Closures (LPEC) was shown to have a direct inguinal hernia on the 3rd laparoscopic operation. Using a laparoscopic approach could avoid the unnecessary incision that would be made when preoperative diagnosis would be going through as re-recurrence because approach itself should be changed in that case. 1 case diagnosed as having an incarcerated IH preoperatively, was shown to just have infective lymphadenitis at laparoscopy.

Conclusion. The laparoscopic approach for inguinal hernia is useful for diagnosis of unexpected conditions as well as confirming patent CPPV.
DIAGNOSTIC FINDINGS AND TREATMENT RESULTS OF INTRAUTERINE OVARIAN TORSIONS

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Background: Intrauterine ovarian torsions (IUOT) are rare in pediatric population and may mimic other pathologies. In this study, evaluation of prenatal characteristics and postnatal results of IOT is aimed.

Patients and methods: Hospital records of patients with diagnosis of IUOT (n=19) between 2004-2015 were reviewed and prenatal characteristics, postnatal examination, imaging, operative and histopathological findings are evaluated.

Results: Nineteen patients were enrolled in the study. Majority of the patients (89.5%) were prenatally detected. All were term babies with a mean birth weight of 2900 grams. Mean maternal age was 25 years. Prenatal history was event-free in all and none had additional anomalies. Physical examination revealed mobile intraabdominal cystic lesion in 10 patients. IUOT mimicked intestinal duplication cyst, simple renal cyst, simple ovarian cyst and ectopic kidney in 9 patients and 6 patients had been evaluated by CT scan and MRI before admission. Urgent laparotomy was necessary due to giant cystic masses in 3 patients whereas remaining 16 were treated by laparoscopic oopherectomy electively. On exploration, right ovary was involved in 12 of 19 patients. Ovaries were auto-amputated in 9 patients. Hystopathological examination revealed necrosis and dystrophic calcification in all specimens. There was tumoral involvement in 2 patients (Serous cystadenoma and gonadoblastoma). No complication occurred in early follow-up period (mean: 3 months).

Conclusion: Although rare, IUOT can be detected easily in antenatal period. It may mimic other cystic pathologies therefore it should be considered especially in newborn girls with mobile intra-abdominal cystic lesions to prevent unnecessary imaging studies. Malignity is rare but possible, and it can be efficiently and safely managed by minimal invasive techniques.


**Aim of the study.** Non-absorbable prosthetic patches represent a valid tool to treat abdominal wall and diaphragmatic defects in pediatric age, but they can be a source of infection and complications. Biological dermal scaffolds can provide the desired support and reduce the occurrence of complications. At our Institution we have been using porcine dermal collagen CL biological implant (BP) from 2009. We present our experience and a meta-analysis to evaluate the use of BP in pediatric patients.

**Methods.** From January 2009 to January 2016 21 patients were treated with 23 BP (4 CDH; 7 giant omphalocele; 4 gastroschisis; 2 cloacal extrophy; 2 continent bladder reservoir; 1 abdominal wall implant in CDH and 1 post-NEC defect; 2 prosthesis substitution). We conducted a meta-analysis on PubMed/Medline databases regarding the use of BP in pediatric population.

**Main Results.** 3/21 (14.3%) patients experienced complications: 2 patients with skin necrosis healed conservatively and 1 developed laparcele (1/21=4.8% redo surgery). In patients who had a BP implanted no adverse reactions occurred with optimal functional outcome. The overall complication rate from the meta-analysis of 13 studies has been estimated to be 27.6% (12.4 to 42.9). As shown in the figure, it ranged from none to 40%, except from Beres who reported an 85% rate. The most frequent types of complications were infection and reintervention, both about 10%.

**Conclusions.** Despite few data reported in literature, our experience has shown the effectiveness of BP, in particular for the non-occurrence of infections. Randomized controlled studies might be useful to better determine the specific indication of PB application in pediatric abdominal surgery.
IS TUBULARIZED INCISED PLATE URETHROPLASTY (SNODGRASS) A VERSATILE TECHNIQUE THAT CAN BE USED IN CASES OF PROXIMAL HYPOSPADIAS?

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Purpose: Tubularized incised plate (TIP) technique of urethroplasty adopted by Snodgrass had proven feasibility & success in repair of distal hypospadias. Its versatility in management of proximal hypospadias needs to be evaluated.

Patients & Methods: From May 2011 to June 2014, 42 patients with proximal hypospadias in the pediatric age group were managed surgically. 32 patients underwent TIP urethroplasty & 10 were candidates for a two stage repair due to severe ventral curvature or deficient urethral plate, all of whom the urethral plate was sacrificed. For those undergoing TIP, 16 patients showed no chordee after artificial erection test, 8 cases presented chordee < 30o corrected by dorsal plication, 8 cases with chordee > 30o were corrected by elevation of urethral plate from corpora cavernosa and dorsal plication with maintaining of urethral plate.

Results: The ten cases with sacrificed urethral late were excluded from analysis. Mean follow up for the TIP cases (n=32) was 12 months (2-38). Complication rate was 34.3% in the form of fistulae in 3 cases (9.375%), 2 meatal stenosis (6.25%), one glanular dehiscence (3.75%), one urethral diverticulum (3.75%), 2 neourethral stricture (6.25%) & meatal recession in 2 (6.25%).

Conclusion: Snodgrass (TIP), a definitive technique for correction of distal hypospadias has evolved and proven feasible for proximal hypospadias as well. Dorsal plication and dissecting the urethral plate has aided in preservation of the urethral plate. In some cases it is inevitable to transect the urethral plate either for being deficient or due to severe chordee and ventral curvature.

Key words: Proximal Hypospadias, Snodgrass, TIP
Aim. Balanitis Xerótica Obliterans (BXO) is a chronic inflammatory disease of the skin and mucosa of male genitals. It is most likely related to an inflammatory process of unknown etiology and it may affect children of any age. Although it has a low incidence 9-19%, it represents a potential premalignant lesion. The aim of our study is to establish the incidence of BXO at our center and establish its correlation between clinical and immunohistochemical (IHC) findings.

Methods. Prospective cohort of children <14 years of age with foreskin pathology that required a circumcision. A basic anatomopathological (AP) and IHC examination was performed to all specimens searching for inflammatory response, presence of premalignant lesions, and microbiological associations.

Results. A total of 104 boys with phimosis had circumcision with a mean age of 7±3 years (Range 2-14), 28.1% (n=9/32) children with 5 years or younger had BXO. Presurgical diagnosis of BXO was suspected in 28.9% (n=30) whereas AP confirmed a total of 24% (n=25) with a good interobserver concordance (κ0.76: p<0.01). Children with BXO had previous corticoid treatment in 62.5% (n=15/24). The inflammatory response was mediated by T-Lymphocytes, with a positive correlation between p53 expression and chronic inflammation. Meatal stenosis was found in 8.0% (n=2/25) children with BXO requiring meatal/urethral dilations.

Conclusions. The incidence of BXO is greater than previously reported. The surgeons’ criterion has a good concordance with the AP findings. The AP/IHC findings indicate that BXO is a chronic inflammatory disease mediated primarily by T-lymphocytes and a high expression of p53.
IS IT WORTHY DOING PRIMARY REPAIR OF UNILATERAL CLEFT LIP NASAL DEFORMITY SIMULTANEOUSLY WITH LIP REPAIR

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Background: The cleft lip nasal deformity presents a challenge to the pediatric plastic surgeon. The deformity is complex and involves all tissue layers. Controversy exists regarding the best time to perform the surgical correction of these deformities. There is a consensus that these nasal deformities are better to be dealt with along with repair of cleft lip. This is a study to evaluate the concept of repairing unilateral cleft lip simultaneously with the nasal soft tissue deformity and to evaluate the procedure regarding; cosmesis, symmetry, function and parents' satisfaction.

Methods: Twenty patients with unilateral cleft lip nasal deformity. Their ages range at the time of surgery was from (3) months to (12) years old of any sex, not operated upon before, non-syndromic with no comorbidity and no associated cleft palate. All procedures were done under general anesthesia with oral centrally located endotracheal intubation and I.V line. Lip repair was done using Millard rotation advancement repair as described by Mulliken and Martinez-Perez for all patients. This modification gave the chance to elongate the shortened columella. Primary nasal repair was done using mccomb's technique, in which we freed the nasal skin from the nasal bone and cartilage through incision in the buccal sulcus. The scissors were also passed up through the columella to free the skin from the medial crus and dome of the alar cartilage. The extent of the nasal dissection was from the alar rim over the nasal tip and up to the nasion on the cleft-side hemi-nose.

Conclusion: The post-operative frontal and basal views showed that all cases in the study yielded excellent to fair results based on the symmetry of the nostrils. The overall parent's satisfaction was excellent.

Based on the finding of this study we recommend the use of primary repair of cleft lip nasal deformity in all cases with cleft lip-nose for its better aesthetic results and balanced nasal growth that it yields.

Key words: Cleft lip nose, Primary cleft lip nasal deformity repair
THE USEFULNESS OF LAPAROSCOPY IN OF UNI- AND BILATERAL NONPALPABLE TESTIS

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Aim: Evaluation of laparoscopy in the diagnosis and treatment of the nonpalpable testes in long term results.

Methods: Laparoscopies were performed on 130 children (152 unpalpable testes) in 2004-2014. The follow up period was 1 - 11 years. Intraoperative findings, operation methods, outcomes and histology of resected tissues were analyzed in both groups.

Results: Average age was 3 years in both groups. During laparoscopy hypo- or atrophic testes were found in 88 (81.5%) unilateral and in 15 (34.1%) bilateral nonpalpable testes. 20 (18.5%) orchidopexies (including 5 single-stage Stephen-Fowler procedures) were performed in unilateral and 29 (65.9%) orchidopexies (including 11 Stephen-Fowler) were performed on 22 children with bilateral nonpalpable testes. Testes were found in the abdominal cavity in 16 (14.8%) unilateral and in 20 (18.5%) bilateral nonpalpable testes. There were 15 peeping testes: unilateral 4 (3.7%), bilateral 11 (25%) most of them located in unginal canal. In the follow up 3 (15%) testicular atrophies after unilateral and 8 (27.6%) testicular atrophies after bilateral orchidopexies were noticed. Histological examination blind ending vas deferens, hypo- or atrophic testes before or after orchidopexies revealed no neoplastic tissue in both groups.

Conclusion: Laparoscopy is the only conclusive diagnostic method in nonpalpable testes. Absent or invaluable testes were found in vast majority of unilateral nonpalpable testes in comparison to bilateral problem. Post-orchidopexy testicular atrophy rate is pretty high in unilateral and bilateral cases.
RECURRENT PATELLA DISLOCATION IN ADOLESCENT PATIENTS WITH PATELLA-FEMORAL DYSPLASIA – LONG-TERM OUTCOME OF MPFL RECONSTRUCTION COMBINED WITH A MODIFIED GRAMMONT TECHNIQUE

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Aim of the study: Patella dislocation is one of the major causes for knee joint hemarthrosis during adolescence. Patella-femoral dysplasia and malalignment have been identified as risk factors for recurrent dislocation. In the growing skeleton, treatment options are limited due to open physes. This series presents the long-term outcome of medial patella-femoral ligament (MPFL) reconstruction in combination with a modified Grammont Technique.

Methods: Between 2009 and 2013, 7 knees in 6 patients (4 male, 2 female) were treated by MPFL reconstruction in combination with a distal soft tissue realignment. Patient were evaluated by clinical examination, functional scores (Tegner, Kujala), and radiographs of the knees before and after surgery.

Main Results: Mean age at time of operation was 16 years (14-17). Five knees show a trochlear Dysplasia Dejour B, one a type A and one type C. The mean tibial tuberosity trochlea groove (TTTG) was 18.5 mm (range 16mm-21.9mm). Postoperative evaluation was performed after a mean of 45 months (range 20-61 months). Kujala score significantly improved from preoperatively 52.17 (SD 28.25) to 92.67 (SD 9.99) at follow-up (p < 0.04). Tegner Score improved from 2.5 preoperatively (SD 2.74) to 6 (SD 1.79) at follow up (p < 0.06). No re-dislocation occurred.

Conclusion: MPFL reconstruction combined with a modified Grammont procedure prevents patella instability in adolescent patients with patellofemoral dysplasia and malalignment.
PW22-12

FIVE-YEARS EXPERIENCE WITH OUTPATIENT THYROGLOSSAL DUCT CYST SURGERY

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Aim of the study: Many pediatric surgeons feel uncomfortable doing Sistrunk procedure without drain placement and in an outpatient setting. This study aimed to review our pediatric surgery department’s experience in managing thyroglossal duct cyst surgery and to prove feasibility and safety of Sistrunk procedure without drain placement in an outpatient setting.

Methods: A retrospective review was performed of all patients who underwent Sistrunk procedure, between January 2011 and December 2015, in our department.

Main results: A total of 36 patients were included, with age ranging from 1 to 14 years (mean 6.3 years). Sixteen patients underwent day surgery, and 20 stayed overnight (with less than 24h postoperative discharge). The main reason to stay overnight was distance (greater than 60km or 1 hour driving) between the hospital and patient’s residence. All patients had histopathological confirmation of the diagnosis. None of the patients had a postoperative drain. There was only one readmission at 48h postoperative; a patient who underwent day surgery came back with cervical edema, which resolved with non-operative treatment. Short-term complications included post-operative local wound infection (11.4%) and hematoma (2.9%), none of which required surgical treatment.

Conclusions: Sistrunk procedure without drain placement is safe and can be performed in an outpatient setting.
Aim of the study: Vesicoureteral reflux (VUR) is the most common urologic anomaly in children. Duplex ureters are often associated with VUR. Although DefluxR injection has been widely used for VUR treatment, DefluxR for VUR with duplex system has still been controversial. We modified the standard procedure by using an epidural catheter insertion into ureteral orifice prior to DefluxR injection. Our technique, epidural-catheter assisted DefluxR treatment (EDCAT), allows us to confirm ureteric patency immediately by using indigo carmine injection through the catheter. We report our experience of cases treated by EDCAT.

Case 1: 3yrs old girl having bilateral VUR with left duplex system underwent bilateral EDCAT (Figure). Right VUR was completely disappeared 6 weeks after EDCAT, whereas left VUR with duplex system was downgraded but remained moderate. Left VUR with duplex system was downgraded to grade I and antibiotic prophylaxis was terminated after second EDCAT. VCUG at 1 year after second EDCAT still showed grade I VUR and UTI/renal scarring has never been observed.

Case 2: 7yrs old girl who had right VUR with right duplex system underwent right EDCAT. Right VUR with duplex system was completely disappeared 6 weeks after EDCAT. UTI or renal scarring has never been observed since then.

Conclusions: We report, for the first time, that EDCAT is feasible and effective in children having VUR with duplex ureters. EDCAT allows postoperative ureteric patency to be confirmed immediately and prevents ureteric obstruction secondary to DefluxR injection.
ACUTE APPENDICITIS WITH SPONTANEOUS INTRA-VESICAL MIGRATION OF COPROLITH

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Introduction. Development of entero-vesical fistula following appendicitis is a rare event. We report its spontaneous resolution after intra-vesical migration of coprolith from the appendix mass.

Case report. A 5 year-old girl was diagnosed with an appendix mass containing a 1.3cm coprolith on ultrasound, after presenting with abdominal pain and fever. Her pain was difficult to control despite intravenous morphine analgesia during the first 48 hours of admission. After this, her symptoms and mass improved with triple antibiotic. During the following weeks the patient started to complain of dysuria/haematuria. A second USS demonstrated a 1.3cm bladder calculus and significantly reduced appendix mass. At cystoscopy: coprolith confirmed within the bladder and removed, mucosa otherwise normal, few inflammatory pseudo-polyps in the right postero-lateral bladder wall. After the procedure dysuria resolved. At laparoscopic interval appendectomy at 7 months no fistula tract or bladder wall adhesions were found. Histology of the appendix confirmed chronic inflammatory changes. Later MRI of the small bowel excluded inflammatory bowel disease. At 4 months follow-up patient was asymptomatic.

Discussion. Although an inflammatory response from the abutting bladder during appendicitis is well described, the development of entero-vesical fistula is extremely rare. We postulate that the significant pain suffered by our patient during the first 48 hours of admission may reflect the spontaneous rupture of the appendix mass, including the coprolith, into the bladder. The fistula tract then closed spontaneously restoring the anatomical continuities. In view of the rarity of this event, we continue to advocate further investigations to exclude more common fistulating aetiologies.
Case summary: A 14 year-old boy with good past health presented with intermittent abdominal pain for three months associated with bilious vomiting. Physical examination revealed a tender right upper quadrant abdominal mass. Urgent computer tomography scan of the abdomen revealed intussusception at ileo-colic region. There was no definite intramural lesion or enlarged lymph node seen.

At emergency laparoscopy, distal ileum was found invaginating into ascending colon. Laparotomy and open reduction proceeded after failed laparoscopic reduction, revealing a suspicious 3cm mass lesion palpable inside the ileal lumen at 20cm proximal to the ileo-caecal valve. There were no enlarged lymph nodes. Segmental small bowel resection and primary anastomosis was performed. A fungating tumour was verified after cutting open the specimen.

His post-operative recovery was uneventful.

The final histology was Ewing’s sarcoma with clear resection margins in the specimen, carrying the gene-translocation, EWSR1-FLI1. Staging CT scan and bone isotope-scintigraphy postoperatively revealed no metastasis. 6 months after operation, he is symptom free after 6 cycles of chemotherapy and awaits further surveillance imaging.

Discussion: In literature primary Ewing’s sarcomas of the ileum carrying EWSR1-FLI1 gene-translocation are associated frequently with metastases at presentation with a mean survival of 14 months. For this rare reported case, the unusual complication of tumour intussusception led to early presentation which might have impacted favorably on prognosis.
PW23-04

UNREPORTED COMPLICATION OF COLONIC INTERPOSITION: COLONIC PERFORATION

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A 1 year-old girl who underwent colonic interposition with a diagnosis of long gap esophageal atresia (EA) developed colonic perforation on the second postoperative day with well vascularized colonic graft is presented.

The girl was born with EA with distal tracheoesophageal fistula and underwent fistula ligation and cervical esophagostomy since it was no possible to have primary esophageal anastomosis. After an uneventful one year, she underwent retrosternal colonic interposition with right colonic graft supplying with middle colic artery. The anastomosis of cervical esophagus and colon was tension-free and there was no vascular insufficiency. On the second postoperative day, she developed airway obstruction due to secretions and required ventilation assistance with airway mask. In her follow-up, chest x-ray showed fluid accumulation in right hemithorax and tube thoracotomy was performed. Saliva drainage was seen from chest tube and contrast graph showed leakage from the colon graft (Figure 1). Surgical exploration revealed colonic perforation from the thoracic side of colon and colon graft had normal vascularization. Colonic perforation was repaired with two-layered interrupted sutures. Two weeks after the operation, contrast graph showed normal colonic graft without leakage.

Colonic perforation with normal colonic vascular supply is extremely rare complication after colon interposition and has not been reported previously. We suggest that this complication may related with high pressure ventilation during resuscitation and can be prevented with gentle ventilation. Colon perforations can be successfully repaired primarily until the colonic graft was well vascularized.
Aim of the study: Generally, low recurrence rates occur after open inguinal hernia repair. Here, we report two cases of direct bladder herniation in neonates after hernia repair.

Methods: During this 5-year observation period, 1100 inguinal hernia repairs were performed. We retrospectively identified two cases involving bladder herniation between 2010 and 2014.

Main results: Both affected infants were formerly of extremely low birth weight (600 g and 506 g). Bilateral hernia repair was performed at postnatal ages of 4 and 3 months, respectively. Both infants developed a unilateral inguinal hernia recurrence on the right side. At relapse surgery a direct hernia with protrusion of the urinary bladder wall was found. In one case the anatomy was confirmed by laparoscopy. Hernia repair was finished without bladder laceration in both cases.

Conclusion: Especially in immature babies, direct bladder herniation should be considered in cases relapse. Misinterpretation may have disastrous consequences.
RESOLUTION OF PORTOPULMONARY HYPERTENSION BY MESO-REX BYPASS SURGERY IN A CHILD WITH EXTRAHEPATIC PORTAL VEIN OBSTRUCTION

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Aim of the Study. Portopulmonary hypertension (PPH) is a rare but life-threatening complication of extrahepatic portal vein obstruction (EHPVO). Meso-Rex bypass (MRB) is a physiologically curative surgery that can restore intrahepatic portal blood flow and normalize extrahepatic portal vein pressure. Although MRB has proved to be effective on gastrointestinal varices and hypersplenism, it remains unsolved whether MRB surgery is also effective on PPH due to EHPVO. Herein, we report a case of a child with PPH for which she underwent MRB surgery.

Case Report. An eight-year-old girl developed an episode of hematemesis, palpitation, and anemia. Abdominal imaging and endoscopy revealed EHPVO, splenomegaly, and gastroesophageal varices. Cardiac ultrasonography (US) and catheterization demonstrated PPH with the main pulmonary artery pressure (MPAP) of 60/36 mmHg. Transrectal portal scintigraphy indicated the portosystemic shunt ratio of 68%. She was maintained on oxygen therapy and medication (Bosentan and Tadalafil) for about half a year to achieve mild improvement of PPH (MPAP 44/24).

She underwent modified MRB surgery using a recanalized umbilical vein, through which sufficient intrahepatic PV blood continued to flow more than half a year. At the latest follow-up, she achieved not only improvement of platelet counts, prothrombin-INR, ammonia, and total bile acid levels but also resolution of PPH resulting withdraw from oxygen therapy and medications.

Conclusion. Despite being a case report, our experience may suggest that MRB surgery can provide resolution of PPH due to EHPVO when PH is reversible. Therefore, PPH should be considered as an indication for MRB.
URETHRAL DUPLICATION WITH TWO HYPOSPADIC MEATI – AN UNUSUAL VARIANT

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An ex-premature male infant, born at 27 weeks, was referred at one year of age with a proximal hypospadias. Examination revealed mild chordee, a hooded foreskin, a peno-scrotal urethral meatus and a second urethral meatus opening at the level of the corona. A micturating cysto-urethrogram (MCUG) showed a urethral duplication (Figure 1) with a main proximal urethra ending at the base of the penis and a patent, narrow, accessory distal urethra. This variant differs from the classical Effman Type II-A2 because of the presence of two hypospadic urethral meati, as opposed to a single ventral or dorsal meatus associated with a normally positioned distal urethra.

The patient underwent a single stage surgical repair at 21 months of age. Complete penile degloving was performed to correct the chordee and expose the distal urethra, which was opened in the midline to the level of the proximal urethral opening. The bridge between proximal urethra and duplicated urethra was divided and urethro-urethroplasty was performed. A complete distal urethroplasty, layered closure and glanuloplasty resulted in a single, glanular urethral opening (Figure 2).

The child remains under follow-up and 18 months post procedure continues to pass urine in a full, straight stream. This case represents an unusual variant of urethral duplication, managed with a single-stage repair, with excellent results in function and cosmesis.

Figure 1: MCUG showing a duplication of the urethra

Figure 2: Perioperative images
UNUSUAL SIDE-EFFECT OF CANNABIS USE: ACUTE ABDOMEN DUE TO DUODENAL PERFORATION

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Aim of the Study
Chronic use of synthetic cannabinoids (SCs) which have become an increasingly prevalent problem can rarely cause gastric, and duodenal ulcer because of their effects on gastric secretion, and emptying.

Since peptic ulcer disease (PUD) is a rarely seen entity in patients who consult to the emergency service with complaints of abdominal pain, most of the physicians do not suspect of this clinical diagnosis. Perforation is a mortal complication of PUD, and early diagnosis, and emergency surgery are life-saving procedures.

Methods: Herein we have reported an adolescent who developed symptoms of acute abdomen after chronic SC (Bonzai) use.

Main Results: Plain abdominal radiograms of standing position revealed subdiaphragmatic free air, then we performed laparotomy which disclosed perforation of the first part of the duodenum. Surgical intervention with omental patch and primary closure (Graham patch) was successful. The patient who underwent nasogastric decompression, and received antibiotherapy had not experienced any complication during the postoperative follow-up period.

Conclusion: Herein as an unusual manifestation a patient who developed duodenal perforation following chronic SC use has been reported.

In adolescent patients admitted with PUD or its complications to the emergency services, it is important to inquire for the use of addictive substances which are increasingly prevalent in order to determine the etiology.
A RARE CASE REPORT OF CONGENITAL SIGMOID STENOSIS COMBINED WITH LADD’S BANDS

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Background Congenital colonic stenosis is one of the rarest GI anomalies in the newborn, even less common than colonic atresia. Only two cases of late onset have been reported in the last almost 50 years, none of them affecting the rectosigmoid tract. Association with other intestinal anomalies creates even more complicated case.

Methods A 5-months-old girl was presented with diffuse abdominal distention and vomiting, and failure to thrive. Greyish, putty-like stools were passed after enema. Barium enema proved cone-shaped occlusion high in the sigmoid colon, and no evidence of Hirschsprung disease was shown. Laparotomy discovered significant narrowing of the sigmoid, which appeared to pass mainly gases. Bowels above the stenosis were considerably dilated, with thickened wall and full of putty-like stools. Ladd’s bands, pressing the duodenum were also dissected. Sigmoid was open at the site of the stenosis and colostomy with two pouches performed.

Results. After surgery the baby stopped vomiting, started regularly to pass yellowish stools from the colostomy and was tending to thrive normally. Elective surgical repair of GI tract was easily performed six months later and the child was discharged healthy.

Conclusions. Although very rare, congenital colonic stenosis is possible cause of intestinal obstruction. It should be kept in mind, even in complicated cases of late onset and these resembling Hirchsprung disease. Colostomy with secondary repair of GI tract proved to be a method of choice in late-onset cases with dilated bowels.

No conflict of interest declared.
PERITONITIS CAUSED BY CANDIDA ALBICANS. CAN A URETERAL STUMP CAUSE THIS CATASTROPHE?
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Introduction: Ureteral stump syndrome is a medical condition caused by a refluxing distal ureteral remnant left after nephrectomy. Fungal colonization of the stump is uncommon and distant site infection is exceptional. The case presented of fungal peritonitis by contiguity is unique.

Case Presentation: 13-year-old boy with a history of right lower-pole heminephrectomy at age 3, operated on for suspected peritonitis of only 4 hours of evolution. During surgery, no cause of peritonitis was found but Candida albicans was isolated in the peritoneal fluid. The immunity-host defense study, blood and urine cultures were negative. The postoperative CT and MRI showed no abnormalities in the ureteral remnant.

The evolution was torpid requiring antifungal therapy and laparoscopic debridement of a subphrenic abscess by Candida.

Failing to find a source of infection, it was suspected that the ureteral stump might be acting as septic reservoir despite negative urine cultures.

The ureteral mucosa biopsy diagnosed fungal colonization of the stump, which we treated cystoscopically with mucosal fulguration and antireflux technique.

After endoscopic treatment, the patient has remained asymptomatic with an unstructured ureteral remnant.

Conclusion: In our patient, the ureteral stump served as reservoir for Candida resulting in the subsequent fungal translocation to the peritoneum. The insistence in finding the fungus, despite repeated negative urine cultures and imaging studies, allowed the etiological diagnosis and resolution of the case.
LUDWIG'S ANGINA: A MAJOR COMPLICATION AFTER MINOR SURGERY

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Aim of study. Case report of Ludwig's angina after sublingual frenulum surgery describing the clinical course, diagnostic methods, outcome and review of the literature.

Material and methods. An 11 yo patient presents to the Emergency Room with important sublingual swelling and significant sublingual edema. The patient had undergone frenuloplasty 72 hours before. Intravenous antibiotic (Cefotaxime 100mg/kg/day and Clindamicin 40mg/kg/day) and steroid (Metilprednisolone 2 mg/kg/day) therapy was immediately initiated and a cervical CT was performed. The patient required clinical surveillance at the Pediatric Intensive Care Unit (PICU).

Results. CT confirmed the presence of a sublingual inflammatory process with cervical extension in phlegmonous phase compatible with Ludwig's angina. The patient remained respiratory and hemodynamically stable, with good clinical outcome and resolution of the process within 7 days.

Conclusions. 1. Ludwig's angina is a severe but very rare complication after lingual frenulum surgery. This potentially fatal medical picture should be considered on an inflammatory process with rapid and progressive course and extension to the cervical region.

2. Clinical surveillance in a PICU with exhaustive airway control, and early introduction of antibiotic and corticosteroid treatment are essential measures to achieve a favorable outcome in Ludwig's angina.
CONGENITAL INFANTILE FIBROSARCOMA OF THE CHEST WALL: AN ANATOMICAL SITE OF BAD PROGNOSIS

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Aim: Infantile fibrosarcoma (IFS) is a rare soft tissue sarcoma with a generally good outcome. Non-aggressive management regarding surgery and adjuvant treatment is recommended. However, axial located tumours could have a worse prognosis. We report a new case of infantile fibrosarcoma of the chest wall and perform a literature review.

Case report: Full-term newborn with prenatal diagnosis at week 34 of a giant solid-cystic mass on the right chest wall, born through C-section. Progressive anemia happened. After performing an MRI, R1 excision was performed at 7 days with confirmed pathology of IFS even in absence of ETV6-NTRK3 expression. Local massive recurrence without metastasis occurred after 2 months, treated with 7 cycles of chemotherapy alone with a complete remission. The patient is currently 7 months old.

Methods: A PubMed search was performed through years 2000-2015 with the terms “infantile fibrosarcoma” and “congenital fibrosarcoma.” Only cases which detailed axial non-visceral location (thoracic, abdominal, paraspinal or retroperitoneum), treatment and follow-up of at least 6 months or until death were included. More than 150 papers were found with the initial criteria, but only 13 matched the final criteria. This makes a total of 28 cases including the one exposed. Of those, 35% developed local recurrence, 32% distant metastasis and 43% died, with a mean follow-up of 50 months.

Conclusions: Axial body non-visceral anatomical sites of IFS seem to have worse prognoses in terms of local control, metastasis and survival. A more aggressive management could be suggested for this subgroup of patients.
SOLITARY CYSTIC PULMONARY LESION IN A 5 YEAR OLD GIRL: AN UNUSUAL CASE OF SPONTANEOUS PERSISTENT INTERSTITIAL PULMONARY EMPHYSEMA

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Introduction: Persistent interstitial pulmonary emphysema (PIPE) is an acquired pulmonary lesion typical of preterm newborns with acute respiratory distress. In rare occasions it can appear spontaneously in infants without underlying pulmonary disease being diffuse or localized. We describe hereby a 5 year old girl with symptomatic localized PIPE and her treatment and outcome.

Case report: A 5 year old girl with apparently no relevant previous medical events was admitted to the ICU unit with the diagnosis of acute disseminated encephalitis. Plain X-ray of the thorax revealed a solitary pulmonary cyst of 55 x 62 x 45 mm in the right lower lobe. A retrospective revision of the radiological records showed the same lesion in other radiography dated two years before, but smaller in size (45 x 43 x 51 mm). Further interrogation to the family revealed new clinical data such as chronic cough and fatigue with the sportive activity. An angio-CT confirmed the solitary cystic lesion in right lower lobe associated to some distal atelectasis. Right lower lobectomy was indicated and performed thoracoscopically. Pathological report informed of persistent interstitial emphysema with areas of chronic bronchiolitis. 6 months after surgery the patient express a clear improvement of her respiratory symptoms.

Conclusions: Although spontaneous PIPE is a rare entity, it should be taken into account in the differential diagnosis of solitary unilocular pulmonary cysts, even in infants beyond the first year of life. Surgical resection of the affected lobe may be required to alleviate compressive symptoms as it did in our patient.
CONGENITAL MESOBLASTIC NEPHROMA IN A PREMATURE TWIN GESTATION:
A CASE REPORT

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Congenital mesoblastic nephroma (CMN) is a rare renal tumor, most often identified in infants. It has been described as the most common renal tumor in infants less than six months, however it remains exceedingly rare. We present a case of a 31-year old G2P1 female who was pregnant with male twins resulting from in vitro fertilization. At 19 weeks Twin B had premature rupture of membranes, leading to bed rest therapy. An abdominal mass was identified in Twin A on routine ultrasound at 27 weeks. Preterm labor at 29 weeks led to emergent Caesarean section. Twin A was born at 1360g with normal amniotic fluid; Twin B was 1000g, had oligohydramnios and ultimately expired after several hours. A large right side abdominal mass in Twin A was confirmed by physical exam. After the infant was stabilized, a radical right nephrectomy was performed on day of life 12. Pathology demonstrated CMN with invasion of the capsule at the hilum (stage III). Fluorescent in situ hybridization did not identify ETV6 gene rearrangement or any karyotype anomalies. Given the extreme prematurity the decision was made to not administer adjuvant therapy. Surveillance with serial abdominal sonograms is to be performed going forward. At five weeks post-resection the infant is on nasal CPAP and tolerating enteral feeds. This report describes one of the youngest and smallest infants to be diagnosed with and treated for CMN to date.
A GIANT MEDISTALLNAL MASS PRENATALLY DIAGNOSED

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Aim of the study: To present a rare case of prenatally diagnosed giant mediastinal mass.

Methods: Clinical records of a patient born at our center were reviewed.

Main results: A prenatal ultrasound performed at 32 weeks on a female fetus revealed a mediastinal mass with bilateral hydrothorax. On the fetal MRI the mass measured 70x57x38 mm and originated anteriorly, dislocating the heart posteriorly. EXIT procedure was performed at 34 weeks, and the patient was intubated. Apgar was 3 and 4 at 1 and 5 minutes respectively. The patient had massive edema of the extremities. Bilateral chest drains were positioned in the neonatal ICU. At 3 days of life she underwent a chest-CT that confirmed a giant mediastinal mass without calcifications. On day 10, when clinically stable, a sternotomy was performed. Intraoperatively a large intrapericardic polilobulated mass with cystic and solid components was identified. In order to be delivered outside the chest, the mass was punctured and drained. It was connected to the anterior portion of the ascending aorta through a small pedicle that was excised.

The postoperative period was unremarkable. Histopathology was consistent with an immature capsulated solid teratoma with free excision margins.

The post-operative MRI performed at 50 days of life was unremarkable and the patient was discharged. At the follow-up appointments she is in good clinical conditions. Alfa-fetoprotein is on downward trends.

Conclusions: We present the unusual case of a giant mediastinal mass. The prenatal diagnosis, delivery, surgical and post-natal management were possible thanks to a multidisciplinary team.
EARLY POST-PARTUM GASTRIC BAND SLIPPAGE AFTER BARIATRIC SURGERY IN AN ADOLESCENT OBESE GIRL

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Aim of the study: to report a case of a rarely described complication of laparoscopic adjustable gastric banding (LAGB), slippage during the postpartum period, after LAGB had been realised in an adolescent obese girl.

Main results: The LAGB had been placed after one year of medical and nutritional care initiated at the age of 16. Maximal pre-operative body mass index (BMI) was 48.5 Kg/m2 and obesity was associated with insulin resistance (HOMA-IR = 3.87). The procedure was uneventful and the band had been fixed to the stomach. Within 18 months after LAGB, there was a loss of 17 Kg (final BMI = 41.5 Kg/m2) corresponding to a 28% of excess body weight loss and a resolution of insulin resistance. The patient became pregnant 21 months after LAGB, and whole pregnancy was uneventful for both mother and foetus. Weight gain during pregnancy was 1.7 Kg, and the delivery occurred at 39+5 weeks of amenorrhea by spontaneous vaginal delivery, for a 3.1 Kg boy. Six weeks after delivery, the patient suddenly complained for total food intolerance. Contrast meal showed an anterior band slippage, with partial stoma occlusion. After discussion with the patient, she preferred to definitely remove the band.

Conclusion: Slippage is now a rare complication of LAGB, but quick anatomical changes after pregnancy could explain its occurrence during the postpartum period. With the increase of surgical treatment for obesity in adolescents, surgeons will have to deal with the risk of LAGB complications around pregnancy with their female adolescent patients.
A CASE REPORT OF THE PERINATAL MANAGEMENT OF AN ANTENATALLY DIAGNOSED MORGAGNI HERNIA

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Background: Morgagni hernia is an uncommon type of hernia. We report the perinatal management of an antenatally diagnosed Morgagni hernia in a full term baby boy.

Case report: Antenatal ultrasound detected diaphragmatic hernia in a male fetus at 23 weeks' gestation. Subsequent fetal MRI performed showed small right Morgagni hernia with herniated liver. The baby was carried to term and postnatal investigations including ultrasound pleura and CT confirmed the diagnosis of a small Morgagni hernia. Robotic assisted laparoscopic repair of the Morgagni hernia was performed at ten months of age. Postoperative recovery was uneventful.

Discussions: Various imaging modalities were employed in the diagnosis of Morgagni hernia. Robotic assisted repair of the Morgagni hernia in an infant is safe and feasible.
PYLORODUODENAL DUPLICATION CYST: CASE REPORT
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Aim: Pyloroduodenal duplication cysts are reported to be extremely rare, representing just 2.2% of all gastric duplications.

Case Report: Five-year-old female patient was admitted with complaints of intermittent vomiting, abdominal pain and distension with weight loss since 4 months. Physical examination revealed fullness sensation in the right upper quadrant. Abdominal US revealed a cystic mass 7x4 cm in size, presumably covered by GIS mucosa in the vicinity of liver, pancreas and gallbladder. Abdominal CT confirmed a cystic lesion 74 x 46 mm in size with a well-developed smooth muscle coat with similar anatomic location. Laboratory tests were normal. The diagnosis was suggestive of an intestinal duplication cyst.

Result: At laparotomy, the cyst was located on the pyloroduodenal region extending onto the third part of the duodenum, the tail of the pancreas could be seen on inferiomedial part of the cyst. Nearly two thirds of the surrounding muscular coat was peeled from the epithelial lining of the cyst before it gave way from the second part of duodenal wall. The remaining densely adherent lining was meticulously peeled from duodenal mucosa avoiding perforation. Less than 1/4 of unroofed cyst wall was left in situ. The histopathological examination revealed findings compatible with duplication cyst including gastric mucosa with small pancreatic inclusion. Her recovery was uneventful and gained weight during three-month follow up period.

Conclusion: The attending surgeon is required to manage this extremely rare anomaly appropriately, since it can present in various clinical forms and may cause significant morbidity.
MANAGEMENT OF FAMILIAL OVARIAN DERMOIDS: THE NEED FOR GUIDANCE

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**Aim.** Ovarian dermoids in prepubertal females are uncommon (<0.1/100000), but familial ones are exceedingly rare. We report an ovarian dermoid in an 8-year-old girl, her mother and her maternal grandmother and discuss the management.

**Methods.** Case report and literature review (Medline and Pubmed database (1924 – 2015)).

**Results.** Case: An 8-year-old girl presented with a one-week history of vague abdominal pain and was found to have a suprapubic mass. CT showed a 6 cm complex ovarian mass while AFP and bHCG were negative. She underwent right salpingooophorectomy for torsion and infarction. Histology reported the mass as immature teratoma.

Of note - the girl’s mother had required bilateral ovary-sparing dermoid resection aged 21 years, and her grandmother had undergone oophorectomy for the same reason aged 25 years.

**Conclusions.** Only one further case of familial ovarian dermoid across 3 generations appears in the literature. Few other familial occurrences of these tumours have been reported (2 generations or siblings), suggesting a genetic component for these tumours which is yet unclear. The management of familial ovarian dermoids poses a number of questions for the responsible physician: one – how to monitor the remaining ovary and two – what advice to give to the patient’s siblings. The risk of a metachronous tumour (and torsion) in the contralateral ovary remains unclear. Genetics advised us to perform regular ultrasound scans – but our patient had a normal ultrasound 3 months prior to presentation. We can find no guidance on the second question and will seek further advice.
WILMS TUMOUR AND NEUROCRIST SYMPTOMS IN A CHILD WITH HIRSCHSPRUNG DISEASE

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Background: Cancer associated with Hirschsprung disease (HD) is usually MEN 2 (Multiple Endocrine Neoplasia) syndrome giving rise to neuroblastoma, phaeochromocytoma and thyroid cancer. Previously one case of Wilms tumour without any anomalies, was described in a child with HD.

Case description: At a tertiary center of pediatric surgery a girl with HD was also diagnosed with unilateral congenital ptosis, impaired hearing and atrial septal defect (ASD). She was operated with trans endorectal pull-trough procedure (TERPT) at 6 weeks of age. A genetic analysis showed normal karyotype. Two months post operatively abdominal distension and a palpable mass in the left hypochondrium was observed. An x-ray of the abdomen revealed a translocation of the left colon towards the midline. An ultrasonography of the abdomen and urinary tract revealed a suspect kidney tumour with massive intra-tumoural haemorrhage. A computer tomography of the chest and abdomen revealed no signs of metastatic disease. A biopsy was conducted and a nephrectomy was performed. The pathology showed a Wilms tumour stadium 1 at intermediate risk. Follow-up according to SIOP protocol was initiated. Until now, 7 months later, she has had a normal neuropsychological and physical development.

Conclusion: An early routine ultrasound of the urinary tract could be of value also in non-syndromic children with Hirschsprung disease, in order reveal diseases related to neurocrest symptoms.
Instillation therapy with OK-432 is the first line therapy for cystic lymphangiomas. Herein we report 2 cases were instillation therapy led to prolonged problems.

**Method:** The presence of large cystic lymphangiomas was assumed by magnetic resonance imaging and aspiration biopsy. It was confirmed by histology.

**Main Results:** *Case 1:* The boy (14 months) suffered from an lymphangioma of the right shoulder girdle. Six days after OK-432 instillation swelling, pain and redness of the lymphangioma occurred. After this time the boy was continuously in a reduced condition, and the lymphangioma persisted larger than before. Surgical resection was performed 3 months after the instillation therapy. Six month later ultrasound revealed a small residual cyst below the clavicle.

*Case 2:* This boy (12 months) had a large lymphangioma in the right submandibular region. Five days after OK-432 maximal swelling of the lymphangioma and serious impairment of the general condition occurred. Discoloration and superficial general rupture of the overlying skin led to drainage of the cyst. Symptoms were accompanied by leukocytosis and thrombocytopenia. After that, he continued to refuse drinking over weeks, and a paralysis of the mandibular facialis nerve was found. After 3 months, surgical resection was performed. Three month later the boy was in a excellent physical and mental health.

**Conclusion:** Instillation therapy with Ok-432 may be accompanied by acute and prolonged side effects. Persistent swelling over months may occur, and the resulting morbidity may stress the compliance of the parents. Therefore, early surgical resection might be a good solution for affected patients.
PW24-10

SPONTANEOUS FECAL FISTULA COMPLICATING STRANGULATED INGUINAL HERNIA IN A NEWBORN; A CASE REPORT

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Spontaneous fecal fistula secondary to strangulated inguinal hernia in infants is a rare condition. We managed an infant with spontaneous fecal fistula complicating strangulated inguinal hernia.

A 2 months old boy presented with 1-day history of fecal discharge from skin opening below right inguinal crease with severely inflammed and necrotic tissues on inguinal opening edges. Condition started when a reducible inguino-scrotal hernia became irreducible 2 days before fecal discharge. Clinically he suffered dehydration, fever, tachycardia and toxic look. Inguinal region was soiled with greenish fecal matter and showing fistula below inguinal crease with surrounding necrotizing fasciitis.

Right infraumbilical incision was performed with intestinal loops extraction, revealing ruptured cecum with greenish necrotic edges. Resection of proximal half of ascending colon with ileo-ascending anastomosis was done using 5/0 interrupted vicryl sutures. Herniotomy was performed. Right testis was showing severe congestion & edema. Debridement of inguinal fistula and wound lavage were done. The wound was left open for drainage and repeated dressings. Patient was discharged. Six months follow up showed healed wound & atrophic testis.

Delayed diagnosis and management may result in this rare complication which reflects the state of health care in developing countries that needs to be addressed by concerned authorities.
LAPARO-ENDOSCOPIC SINGLE-SITE (LESS) APPROACH FOR TRANSPOSITION OF KIDNEY LOWER POLE CROSSING VESSELS IN CHILD

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Introduction: We describe two cases of a 5-year-old girl and a 12-year old boy, both with a right pelvi-ureteric junction obstruction due to lower pole crossing vessels.

Materials and methods: Through a laparo-Endoscopic Single Site umbilicus approach, we performed a vascular hitch by enclosing the vessels in an overlapping tunnel of pelvic tissue. In the first case, we used during the procedure a 30° scope and standard straight laparoscopic instruments. In the second case, we used in addition the JAiMY articulated and motorized 5-mm needle holder (Endocontrol TM), with bidirectional flexion and unlimited rotation of its end-effector.

Results: The operative time was 90 min for the 5-year-old girl and 136 min for the 12-year old boy. The postoperative recovery was uneventful, with discharged during second postoperative day and the first day, respectively. In both cases, the umbilicus scar became quite invisible, and ultrasound follow up was characterized by a marked decrease of the pelvic dilatation two months later, with a normal size of the kidney pelvis.

Conclusion: These two cases showed the feasibility of minimally invasive single port approach for kidney vessels transposition in child. Articulated and motorized instruments could make the procedure less tricky. Longer operative time in boy’s case didn’t impact the short hospital stay of such patient treated mini-invasively.
PW24-12

PULMONARY HERNIA, THE EVANESCENT MASS

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A 13 year old male was referred to the emergency department with an injury due to blunt force trauma with a bicycle handlebar. ABC approach showed a clear airway with adequate respiratory movements and no signs of hemodynamic instability.

However, deep inspiration was painful and during expiration a 5cm-mass bulged from the right 6th intercostal space. Physical examination revealed ecchymosis affecting the ipsilateral hemithorax.

Chest x-ray ruled out pneumothorax but showed a non displaced 6th rib fracture and a subcutaneous tubular lucency corresponding with the mass found during physical examination.

Blood tests, cervical x-ray and abdominal ultrasound examination were normal. Bedside chest ultrasound didn’t detect pulmonary hernia that was otherwise evident at clinical examination. Further image tests were dismissed due to absence of symptoms.

The patient remained under PICU care for 24hours. After 48 hours of observation in the surgical ward, the patient was discharged with analgesic treatment.

One month follow-up, the patient remained asymptomatic and there were no findings on physical examination.

We present a case of pulmonary hernia that resolved spontaneously without medical or surgical treatment. Management of this pathology is controversial. Conservative treatment is feasible when there is no respiratory compromise.
INDEX
<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdel-Latif Mohammed</td>
<td>197</td>
</tr>
<tr>
<td>Abdullateef Khaled</td>
<td>280</td>
</tr>
<tr>
<td>Acer Tugba</td>
<td>135</td>
</tr>
<tr>
<td>Acker Shannon</td>
<td>238</td>
</tr>
<tr>
<td>Adorisio Ottavio</td>
<td>48</td>
</tr>
<tr>
<td>Aguilera Pujabet Montserrat</td>
<td>270</td>
</tr>
<tr>
<td>Aguilera Pujabet Montserrat</td>
<td>82</td>
</tr>
<tr>
<td>Ajrapetjan Maxim</td>
<td>159</td>
</tr>
<tr>
<td>Ajrapetjan Maxim</td>
<td>106</td>
</tr>
<tr>
<td>Ajrapetjan Maxim</td>
<td>157</td>
</tr>
<tr>
<td>Ajrapetjan Maxim</td>
<td>236</td>
</tr>
<tr>
<td>Alvarenga Ana</td>
<td>209</td>
</tr>
<tr>
<td>Antic Jelena</td>
<td>150</td>
</tr>
<tr>
<td>Arnaud Alexis</td>
<td>37</td>
</tr>
<tr>
<td>Arnbjörnsson Einar</td>
<td>19</td>
</tr>
<tr>
<td>Arnetz Christoph</td>
<td>123</td>
</tr>
<tr>
<td>Aslan Adnan</td>
<td>180</td>
</tr>
<tr>
<td>Aslan Adnan</td>
<td>57</td>
</tr>
<tr>
<td>Avolio Luigi</td>
<td>185</td>
</tr>
<tr>
<td>Ayrapetyan Maksim</td>
<td>246</td>
</tr>
<tr>
<td>b o</td>
<td>77</td>
</tr>
<tr>
<td>Baglaj Maciej</td>
<td>207</td>
</tr>
<tr>
<td>Ballouhey Quentin</td>
<td>42</td>
</tr>
<tr>
<td>Balogh Brigitta</td>
<td>94</td>
</tr>
<tr>
<td>Barbosa Sequeira Joana</td>
<td>27</td>
</tr>
<tr>
<td>Beale Peter</td>
<td>21</td>
</tr>
<tr>
<td>Betancourth-Alvarenga Josue Eduardo</td>
<td>254</td>
</tr>
<tr>
<td>Bicakci Unal</td>
<td>189</td>
</tr>
<tr>
<td>Biró Ede</td>
<td>64</td>
</tr>
<tr>
<td>Bitterman Sivan</td>
<td>163</td>
</tr>
<tr>
<td>Bizic Marta</td>
<td>184</td>
</tr>
<tr>
<td>Boettcher Michael</td>
<td>40</td>
</tr>
<tr>
<td>Boo Yoon-Jung</td>
<td>133</td>
</tr>
<tr>
<td>Bota Balaz</td>
<td>35</td>
</tr>
<tr>
<td>Botden Sanne</td>
<td>9</td>
</tr>
<tr>
<td>Boussaffa Hamza</td>
<td>201</td>
</tr>
<tr>
<td>Brankov Ognyan</td>
<td>66</td>
</tr>
<tr>
<td>Brankov Ognyan</td>
<td>198</td>
</tr>
<tr>
<td>Braungart Sarah</td>
<td>277</td>
</tr>
<tr>
<td>Brinsighelli Giulia</td>
<td>146</td>
</tr>
<tr>
<td>Brinsighelli Giulia</td>
<td>273</td>
</tr>
<tr>
<td>Brinsighelli Giulia</td>
<td>29</td>
</tr>
<tr>
<td>Caballero Ada Yessenia Molina</td>
<td>49</td>
</tr>
<tr>
<td>Caballero Ada Yessenia Molina</td>
<td>268</td>
</tr>
<tr>
<td>Cascini Valentina</td>
<td>10</td>
</tr>
<tr>
<td>Cascini Valentina</td>
<td>6</td>
</tr>
<tr>
<td>Catania Vincenzo Davide</td>
<td>107</td>
</tr>
<tr>
<td>Catania Vincenzo Davide</td>
<td>200</td>
</tr>
<tr>
<td>Cerchia Elisa</td>
<td>169</td>
</tr>
<tr>
<td>Cerchia Elisa</td>
<td>169</td>
</tr>
<tr>
<td>Coelho Ana</td>
<td>258</td>
</tr>
<tr>
<td>Cohen Fraser</td>
<td>245</td>
</tr>
<tr>
<td>Costanzo Sara</td>
<td>12</td>
</tr>
<tr>
<td>Davidson Joseph</td>
<td>265</td>
</tr>
<tr>
<td>De Girolamo Fabiana</td>
<td>33</td>
</tr>
<tr>
<td>De Lucio Marta</td>
<td>181</td>
</tr>
<tr>
<td>de Lucio Marta</td>
<td>269</td>
</tr>
<tr>
<td>Dede Olga</td>
<td>186</td>
</tr>
<tr>
<td>Di Iorio Giovanni</td>
<td>179</td>
</tr>
<tr>
<td>Dingemann Jens</td>
<td>74</td>
</tr>
<tr>
<td>Dingemans Lex</td>
<td>30</td>
</tr>
<tr>
<td>Divarci Emre</td>
<td>90</td>
</tr>
<tr>
<td>Divarci Emre</td>
<td>91</td>
</tr>
<tr>
<td>Divarci Emre</td>
<td>11</td>
</tr>
<tr>
<td>Divarci Emre</td>
<td>170</td>
</tr>
<tr>
<td>Divarci Emre</td>
<td>17</td>
</tr>
<tr>
<td>Divarci Emre</td>
<td>67</td>
</tr>
<tr>
<td>Divarci Emre</td>
<td>76</td>
</tr>
<tr>
<td>Djordjevic Ivona</td>
<td>62</td>
</tr>
<tr>
<td>Doi Takashi</td>
<td>259</td>
</tr>
<tr>
<td>Dokumcu Zafer</td>
<td>46</td>
</tr>
<tr>
<td>Dokumcu Zafer</td>
<td>175</td>
</tr>
<tr>
<td>Dokumcu Zafer</td>
<td>31</td>
</tr>
<tr>
<td>Draghici Isabela Magdalena</td>
<td>191</td>
</tr>
<tr>
<td>Dubskova Petra</td>
<td>126</td>
</tr>
<tr>
<td>El Debeiky Mohamed</td>
<td>121</td>
</tr>
<tr>
<td>El Debeiky Mohamed</td>
<td>103</td>
</tr>
</tbody>
</table>
El sadat Ahmad M. .......................253
Elekberova Vusale .....................231
Eltagy Gamal ............................97
Embleton Didem Baskin ..........219
Erginel Basak ...........................58
Erginel Basak ...........................34
Erginel Basak .........................217
Erginel Basak .........................127
Erginel Basak .........................229
Escolino Maria ......................132
Escolino Maria ...................... 96
Espíñeira Clara Rico ............70
Esposito Ciro .........................83
Fernández Beatriz ....................52
Figueira Rebeca .......................41
Filipeva Natalia .....................220
Filipeva Natalia ....................176
Filisetti Claudia .....................252
Folaranmi Eniola ....................120
Folaranmi Semiu ....................239
Fouad Dina .............................216
Fratric Ivana .........................128
Frybova Barbora ....................242
Furlan Dubravko .....................212
Galea Julie .............................244
Geslin Dorothée ......................54
Giuliani Stefano ......................50
Godzinski Jan .........................84
Golubovic Zoran ....................14
Gómez Javier Jiménez .............282
Gómez-Cervantes J Manuel ......85
Granéli Christina .................142
Graneli, Christina .................145
Gunaydin Mithat ...................227
Gundapaneni Sreekar ..............5
Guvenc Bekir Haluk ...............204
Guvenc Bekir Haluk ...............276
Hagelsteen Kristine ..........278
Hameury Frédéric ................171
Hascoet Juliette ....................92
Hassan Ahmed .....................255
Hatata Tomoko .....................141
Hattori Kengo .......................59
Hechenleitner Paul ...............234
Hernandez-Martin Sara ..........195
Hisham Soliman Mohamed ......230
Højer Hansen Nina ...............23
Hosseinpour Mehrdad ..........164
Houas Yasmine ...................168
Houas Yasmine ....................93
Hung Judy WS ......................111
Hurme Timo .........................187
Ichino Martina ......................155
Iglesias Patricia Rodríguez ....124
Iglesias Patricia Rodríguez ....71
Inserra Alessandro .............139
Irtan Sabine .........................113
Junga Anna ..........................154
Kaiser Margarita ..................257
Keijzer Richard ....................39
Keyzer-Dekker Claudia .......149
Keyzer-Dekker Claudia .......228
Kim Hyun-Young ....................218
Kirgizov Igor ......................162
Knatten Charlotte K ...........20
Kokesova Alena ....................51
Korecka Claudia .................256
Korlacki Wojciech ..........167
Korlacki Wojciech ..........173
Korlacki Wojciech ..........72
Kostic Ana ..........................174
Kostic Ana ..........................56
Kouji Nagata ....................... 2
Kowalewski Grzegorz ..........89
Kvello Morten ......................16
Kyrklund Kristiina ..........148
Kyrklund Kristiina ..........215
La Pergola Enrico ..........32
<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laín Ana</td>
<td>271</td>
</tr>
<tr>
<td>Lauriti Giuseppe</td>
<td>26</td>
</tr>
<tr>
<td>Leung Michael</td>
<td>275</td>
</tr>
<tr>
<td>Leung Michael</td>
<td>110</td>
</tr>
<tr>
<td>Lisi Gabriele</td>
<td>210</td>
</tr>
<tr>
<td>Luczak Justyna</td>
<td>226</td>
</tr>
<tr>
<td>Lutterodt Christopher G.</td>
<td>196</td>
</tr>
<tr>
<td>Lutterodt Christopher G.</td>
<td>233</td>
</tr>
<tr>
<td>Maillot Betty</td>
<td>115</td>
</tr>
<tr>
<td>Mariani Aurora</td>
<td>18</td>
</tr>
<tr>
<td>Mariani Aurora</td>
<td>281</td>
</tr>
<tr>
<td>Mattioli Girolamo</td>
<td>213</td>
</tr>
<tr>
<td>Maučec Joze</td>
<td>45</td>
</tr>
<tr>
<td>Mears Alice</td>
<td>138</td>
</tr>
<tr>
<td>Metzsch Stefan</td>
<td>131</td>
</tr>
<tr>
<td>Mille Eva</td>
<td>100</td>
</tr>
<tr>
<td>Minaev Sergey</td>
<td>119</td>
</tr>
<tr>
<td>Minaev Sergey</td>
<td>63</td>
</tr>
<tr>
<td>Minaev Sergey</td>
<td>151</td>
</tr>
<tr>
<td>Minaev Sergey</td>
<td>158</td>
</tr>
<tr>
<td>Miura da Costa Karina</td>
<td>7</td>
</tr>
<tr>
<td>Mochizuki Kyoko</td>
<td>152</td>
</tr>
<tr>
<td>Montemezzo Genni</td>
<td>112</td>
</tr>
<tr>
<td>Morozov Dmitry</td>
<td>222</td>
</tr>
<tr>
<td>Mouravas Vassilios</td>
<td>99</td>
</tr>
<tr>
<td>Muntean Ancuta</td>
<td>3</td>
</tr>
<tr>
<td>Nellihela Leel</td>
<td>78</td>
</tr>
<tr>
<td>Noda Takuo</td>
<td>202</td>
</tr>
<tr>
<td>Nouri Abdellatif</td>
<td>22</td>
</tr>
<tr>
<td>Nusso Hiroshi</td>
<td>55</td>
</tr>
<tr>
<td>O’Donnell Anne Marie</td>
<td>143</td>
</tr>
<tr>
<td>Obayashi Juma</td>
<td>160</td>
</tr>
<tr>
<td>Oetzmann von Sochaczewski Christina</td>
<td>177</td>
</tr>
<tr>
<td>Ohno Yasuharu</td>
<td>221</td>
</tr>
<tr>
<td>Ohno Yasuharu</td>
<td>193</td>
</tr>
<tr>
<td>Okata Yuichi</td>
<td>53</td>
</tr>
<tr>
<td>Okur Hamit</td>
<td>241</td>
</tr>
<tr>
<td>Okur Hamit</td>
<td>247</td>
</tr>
<tr>
<td>Okur Hamit</td>
<td>203</td>
</tr>
<tr>
<td>Okur Hamit</td>
<td>203</td>
</tr>
<tr>
<td>Özden Önder</td>
<td>165</td>
</tr>
<tr>
<td>Özden Önder</td>
<td>188</td>
</tr>
<tr>
<td>Ozel S. Kerem</td>
<td>130</td>
</tr>
<tr>
<td>Ozel S. Kerem</td>
<td>199</td>
</tr>
<tr>
<td>Ozel S. Kerem</td>
<td>102</td>
</tr>
<tr>
<td>Pasqua Noemi</td>
<td>15</td>
</tr>
<tr>
<td>Peiro Jose L.</td>
<td>153</td>
</tr>
<tr>
<td>Pemartín Beatriz</td>
<td>98</td>
</tr>
<tr>
<td>Planka Ladislav</td>
<td>122</td>
</tr>
<tr>
<td>Plataras Christos</td>
<td>105</td>
</tr>
<tr>
<td>Podevin Guillaume</td>
<td>25</td>
</tr>
<tr>
<td>Pogorelic Zenon</td>
<td>235</td>
</tr>
<tr>
<td>Raicevic Maja</td>
<td>116</td>
</tr>
<tr>
<td>Raicevic Maja</td>
<td>190</td>
</tr>
<tr>
<td>Renz Oliver</td>
<td>205</td>
</tr>
<tr>
<td>Retrosi Giuseppe</td>
<td>38</td>
</tr>
<tr>
<td>Rolle Udo</td>
<td>28</td>
</tr>
<tr>
<td>Russo Tiziana</td>
<td>134</td>
</tr>
<tr>
<td>Rygl Michal</td>
<td>117</td>
</tr>
<tr>
<td>Salö Martin</td>
<td>47</td>
</tr>
<tr>
<td>Salö Martin</td>
<td>194</td>
</tr>
<tr>
<td>Sánchez-Galán Alba</td>
<td>114</td>
</tr>
<tr>
<td>Sánchez-Galán Alba</td>
<td>88</td>
</tr>
<tr>
<td>Sánchez-Galán Alba</td>
<td>87</td>
</tr>
<tr>
<td>Santiago Saioa</td>
<td>65</td>
</tr>
<tr>
<td>Santiago Saioa</td>
<td>108</td>
</tr>
<tr>
<td>Sarsu Sevgi Buyukbese</td>
<td>223</td>
</tr>
<tr>
<td>Sarsu Sevgi Buyukbese</td>
<td>266</td>
</tr>
<tr>
<td>Sato Hideaki</td>
<td>250</td>
</tr>
<tr>
<td>Sbragia Lourenço</td>
<td>36</td>
</tr>
<tr>
<td>Scarpa Alberto Attilio</td>
<td>260</td>
</tr>
<tr>
<td>Schmitt Françoise</td>
<td>274</td>
</tr>
<tr>
<td>Scuglia Marianna</td>
<td>166</td>
</tr>
<tr>
<td>Senica Verbic Milena</td>
<td>137</td>
</tr>
<tr>
<td>Shibuya Soichi</td>
<td>249</td>
</tr>
<tr>
<td>Shinkai Masato</td>
<td>264</td>
</tr>
<tr>
<td>Siles Hinojosa Alexander</td>
<td>95</td>
</tr>
</tbody>
</table>
Silvaroli Sara ..................................113
Silveri Massimiliano ..........................139
Simal-Badiola Isabel ..........................86
Singer Georg .................................161
Slijper Nadav ................................. 79
Soliman Mohamed Hisham .................240
Sosnowska Patrycja ..........................224
Soyer Tutku ..................................60
Soyer Tutku ..................................262
Soyer Tutku .................................. 13
Spataru Radu-Iulian .........................232
Spitzer Peter ..................................125
Stefanova Penka ..............................267
Stefanowicz Marek ...........................147
Stojanovic Borko .............................101
Sulkowski Jason ..............................272
Taguchi Tomoaki ............................ 144
Toker Bade ..................................251
Tomassi Monica ...............................44
Trachta Jan ................................. 80
Triana Junco Paloma Elena ...............61
Triana Junco Paloma Elena .............. 75
Triana Junco Paloma Elena ..............109
Tröbs Ralf-Bodo .............................263
Tröbs Ralf-Bodo .............................279
Tröbs Ralf-Bodo .............................172
Turrà Francesco ............................. 69
Tzantzaroudi Aikaterini .................237
Uhina Luiza ..................................248
Uskova Natalia ...............................206
Uygun Ibrahim ............................... 73
Uygun Ibrahim ...............................225
Valfre Laura ................................. 8
Vastyan Attila .................................43
Vella Claudio .................................192
Verena Verena ...............................182
Visuri Sofia ..................................104
Wright Naomi .................................178
Yam FSD ................................... 118
Yam FSD ...................................261
Yaroslav Isaev .................................183
Zanatta Cinzia ...............................243
Zanini Andrea ............................... 81
Zgraj Oskar ..................................208
Zivanovic Dragoljub .........................68
PW01-01
THE RISK FACTOR FOR THE SURVIVAL AT DISCHARGE AFTER INTRODUCING THE STANDARDIZED PROTOCOL FOR THE CDH NEONATES – A HIGH VOLUME CENTRE EXPERIENCE
Nagata Kouji, Miyoshi Kina, Iwanaka Tsuyoshi, Esumi Genshiro, Taguchi Tomoaki ................................. 2

PW01-02
PIGEON CHEST: COMPARATIVE ANALYSIS OF SURGICAL TECHNIQUES IN MINIMAL ACCESS REPAIR OF PECTUS CARINATUM (MARPC)
Ancuta Muntean, Amulya K. Saxena .......................................................... 3

PW01-03
FIRST YEAR FOLLOWING DISCHARGE AFTER SURGERY FOR ESOPHAGEAL ATRESIA (EA)
Santosh Dey, Sreekar Gundapaneni, Sandeep Agarwala, M Srinivas, Veereshwar Bhatnagar ........................ 5

PW01-04
LATE PRESENTING CONGENITAL DIAPHRAGMATIC HERNIA IN CHILDREN: REVIEW OF THE LITERATURE
Valentina Cascini, Vittorio Guerriero, Giuseppe Lauriti, Luciana Tarallo, Gabriele Lisi, Pierluigi Lelli Chiesa .......................................................... 6

PW01-05
THORACOSCOPIC MANAGEMENT OF THYMIC DISORDERS - WHAT IS EFFICACY OF THE THORACOSCOPIC APPROACH IN THE PRESENT ERA?
Amulya Kumar Saxena, Karina Miura da Costa .............................................. 7

PW01-06
FETAL ENDOSCOPIC TRACHEAL OCCLUSION FOR CONGENITAL DIAPHRAGMATIC HERNIA: A SINGLE-CENTER FIVE YEARS EXPERIENCE
Laura Valfre, Andrea Conforti, Anita Romiti, Irma Capolupo, Lucia Aite, Leonardo Caforio, Pietro Bagolan .......................................................... 8

PW01-07
WHAT DOES THE NEED FOR A PATCH TELL US ABOUT THE PROGNOSIS IN CONGENITAL DIAPHRAGMATIC HERNIA?
Sanne Botden, Kim Heiwegen, Stan Janssen, Iris van Rooij, Arno van Heijst, Ivo de Blaauw ........................ 9

PW01-08
DIAGNOSTIC PITFALLS AND OUTCOME OF LATE PRESENTING CONGENITAL DIAPHRAGMATIC HERNIA: A SINGLE CENTRE EXPERIENCE.
Valentina Cascini, Vittorio Guerriero, Giuseppe Lauriti, Dacia Di Renzo, Gabriele Lisi, Pierluigi Lelli Chiesa .......................................................... 10

PW01-09
THE INDICATIONS OF RIGID BRONCHOSCOPY IN SUSPECTED FOREIGN BODY ASPIRATION IN CHILDREN
Emre Divarci, Bade Toker, Zafer Dokumcu, Coskun Ozcan, Ata Erdener ................................................ 11

PW01-10
CONGENITAL PULMONARY MALFORMATIONS: INCIDENCE OF ASSOCIATED CONDITIONS. A SINGLE CENTER STUDY
Sara Costanzo, Claudio Vella, Paola Fontana, Mariangela Rustico, Andrea Farolfi, Salvatore Zirpoli, Giovanna Riccipetitoni ........................................... 12
<table>
<thead>
<tr>
<th>Poster Index</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AFTER HELLER ESOPHAGOMYOTOMY WITH/WITHOUT FUNDOPLICATION IN CHILDREN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WITH ACHALASIA</td>
<td></td>
</tr>
<tr>
<td>PW01-12</td>
<td>TRANSSTERNAL THYMECTOMY VS THORACOSCOPIC THYMECTOMY: SURGICAL</td>
<td>Zoran Golubovic, Aleksandar Sretenovic, Branislav Jovanovic, Zoran Krstic, Jelena Pejanovic.</td>
</tr>
<tr>
<td></td>
<td>CONTRIBUTION IN THE TREATMENT OF GENERALIZED FORM OF JUVENILE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MYASTHENIA GRAVIS</td>
<td></td>
</tr>
<tr>
<td>PW02-01</td>
<td>THE IMPACT OF UNDERNUTRITION ON PEDIATRIC SURGICAL MANAGEMENT</td>
<td>Noemi Pasqua, Veronica Carlini, Mario Fusillo, Marco Brunero, Valeria Calcacerra, Gloria Pelizzo.</td>
</tr>
<tr>
<td></td>
<td>OF NEUROLOGICALLY IMPAIRED CHILDREN</td>
<td></td>
</tr>
<tr>
<td>PW02-03</td>
<td>EARLY COMPLICATIONS FOLLOWING LAPAROSCOPY-ASSISTED GASTROSTOMY</td>
<td>Morten Kvello, Kjetil Ertresvåg, Ragnhild Emblem, Kristin Bjørnland.</td>
</tr>
<tr>
<td></td>
<td>PLACEMENT</td>
<td></td>
</tr>
<tr>
<td>PW02-04</td>
<td>TOPICAL MITOMYCIN-C IN THE TREATMENT OF ESOPHAGEAL STRICURES IN CHILDREN</td>
<td>Emre Divarci, Ozge Kilic, Zafer Dokumcu, Coskun Ozcan, Ata Erdener.</td>
</tr>
<tr>
<td>PW02-05</td>
<td>POSTOPERATIVE UPPER GASTROINTESTINAL STUDY IN THE EARLY DIAGNOSIS OF</td>
<td>Aurora Mariani, Hubert Ducou le Pointe, Eleonore Blondiaux, Michele Larroquet, Maud Chabaud,</td>
</tr>
<tr>
<td></td>
<td>STENOSIS AFTER TREATMENT OF OESOPHAGICAL ATRESIA: A BETTER RESOLUTION</td>
<td>Georges Audry, Sabine Irtan.</td>
</tr>
<tr>
<td></td>
<td>OF COMPLICATIONS?</td>
<td></td>
</tr>
<tr>
<td>PW02-07</td>
<td>PROLONGED USE OF PROTON PUMP INHIBITORS AS STRICTURE PROPHYLAXIS IN INFANTS</td>
<td>Pernilla Stenström, Magnus Anderberg, Anna Börjesson, Einar Arnbjörnsson.</td>
</tr>
<tr>
<td></td>
<td>WITH RECONSTRUCTED ESOPHAGEAL ATRESIA</td>
<td></td>
</tr>
<tr>
<td>PW02-09</td>
<td>PREOPERATIVE GASTRIC EMPTYING RATE AND OUTCOME AFTER FUNDOPLICATION</td>
<td>Charlotte K Knatten, Jan Gunnar Fjeld, Asle W Medhus, Are H Pripp, Ragnhild Emblem, Kristin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bjørnland.</td>
</tr>
<tr>
<td>PW02-11</td>
<td>THE INCIDENCE OF ASSOCIATED AIRWAY ABNORMALITIES IN OESOPHAGEAL</td>
<td>Peter Beale.</td>
</tr>
<tr>
<td></td>
<td>ATRESIA AND TRACHEOESOPHAGEAL FISTULA CASES. DOES THIS WARRANT ROUTINE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BRONCHOSCOPY?</td>
<td></td>
</tr>
<tr>
<td>PW02-12</td>
<td>A NOVEL APPROACH IN LONG GAP ESOPHAGEAL ATRESIA</td>
<td>Abdellatif Nouri, Amine Ksia, Saida Hidouri, Lassaad Sahnoun, Jamila Chahed, Mongi Mekki</td>
</tr>
</tbody>
</table>
PW03-01
SPECT DEFECOGRAPHY - A FUTURE EVALUATION TOOL FOR STOOLING PATTERNS IN HIRSCHSPRUNG’S DISEASE?
Nina Højer Hansen, Niels Qvist, Rasmus Gaardskær Nielsen, Svend Hvidsten, Jane Simonsen

PW03-02
EFFECTIVENESS OF ACTIVE OBSERVATION IN DIAGNOSING PEDIATRIC ACUTE APPENDICITIS
Gonca Gercel, Cigdem Ulukaya Durakbas, Erdem Ozatman, Ali Yikilmaz, Huseyin Murat Mutus, Hamit Okur

PW03-03
FUNCTIONAL RESULT OF CHILDREN AND ADULT PATIENTS FOLLOWED FOR ANORECTAL MALFORMATION. RESULTS FROM THE MARQOL NATIONAL STUDY
Guillaume Podevin, Corinne Baayen, Jean Benoit Hardouin, Paul Antoine Lehur, Sabine Sanarcki, Célia Cretolles

PW03-04
RISK FACTORS FOR AMYAND’S HERNIA IN CHILDREN: A SINGLE CENTER EXPERIENCE AND REVIEW OF THE LITERATURE
Giuseppe Lauriti, Valentina Cascini, Dacia Di Renzo, Luciana Tarallo, Vittorio Guerriero, Gabriele Lisi, Pierluigi Lelli Chiesa

PW03-05
DO WE PREFER NON-OPERATIVE TREATMENT FOR APPENDICITIS? A SURVEY OF PORTUGUESE PEDIATRIC SURGEONS AND PEDIATRICIANS
Joana Barbosa Sequeira, Ana Sofia Marinho, Ana Coelho, Catarina Sousa, Berta Bonet, João Moreira-Pinto, Fátima Carvalho

PW03-06
INTESTINAL GANGLIONEUROMATOSIS IN PATIENTS WITH MEN2B: ROLE OF EARLY RECTAL BIOPSY
Till-Martin Theilen, Stefan Gfroerer, Henning Fiegel, Patrick Harter, Michel Mittelbronn, Udo Rolle

PW03-07
BEST PRACTICE OF TRANSANAL IRRIGATION IN PEDIATRIC PATIENTS WITH BOWEL DysFUNCTION: LESSON LEARNED BY A MULTICENTRIC ITALIAN STUDY
Giulia Brisighelli, Barbara Daniela Iacobelli, Emanuele Ausili, Ernesto Leva, Giovanni Mosiello, Piergiorgio Gamba, Antonio Marte, Laura Lombardi, Enrica Caponcelli, Saverio Marrello, Milena Meroni, Claudia Rendeli, Paola Midrio

PW03-08
REDO PULL-THROUGH SURGERY IN HIRSCHSPRUNG’S DISEASE: SHORT TERM CLINICAL OUTCOME
Lex Dingemans, Roxana Rassouli, Herjan Van der Steeg, Iris Van Rooij, Manon Linsen, Ivo De Blauuw

PW03-09
EVALUATION OF LONG TERM CONTINENCE STATUS OF PATIENTS WITH STRAIGHT ILEOANAL ANASTOMOSIS
Zafer Dokumcu, Vusale Elekberova, Emre Divarci, Orkan Ergun, Geylani Ozok, Ahmet Celik
<table>
<thead>
<tr>
<th>Poster Index</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW03-10</td>
<td>LAPAROSCOPY AND LAPAROTOMY IN HIGH ANORECTAL MALFORMATION: SINGLE CENTER EXPERIENCE</td>
<td>Enrico La Pergola, Francesco Fascetti Leon, Paola Midrio, Genni Montemezzo, Andrea Volpe, Piergiorgio Gamba</td>
<td>32</td>
</tr>
<tr>
<td>PW03-11</td>
<td>SURGICAL MANAGEMENT OF ANORECTAL MALFORMATIONS IN PATIENTS WITH LUMBAR SYNDROME</td>
<td>Fabiana De Girolamo, Philippe Buisson, Jannick Ricard, Celia Cretolle, Sabine Sarnacki, Elodie Haraux</td>
<td>33</td>
</tr>
<tr>
<td>PW03-12</td>
<td>SMALL BOWEL OBSTRUCTION DUE TO ANOMALOUS CONGENITAL BANDS IN CHILDREN</td>
<td>Basak Erginel, Feryal Gun Soysal, Huseyin Ozbey, Erbug Keskin, Alaaddin Celik, Aslihan Karadag, Tansu Salman</td>
<td>34</td>
</tr>
<tr>
<td>PW04-01</td>
<td>EARLY RESULTS WITH THE MILLARD-MOHLER-FISHER MODIFICATION OF PRIMARY UNILATERAL CLEFT LIP REPAIR</td>
<td>Balazs Bota, Krisztian Nagy</td>
<td>35</td>
</tr>
<tr>
<td>PW04-02</td>
<td>ANATOMIC AND STRUCTURAL CARDIAC CHANGES IN CONGENITAL DIAPHRAGMATIC HERNIA IN THE RABBIT MODEL</td>
<td>Lourenco Sbragia, Rebeca Figueira, Federico Scorletti, Mehmet Arslan, Marc Oria, Jose L. Peiro</td>
<td>36</td>
</tr>
<tr>
<td>PW04-04</td>
<td>IMPACT ON THE EPITHELIAL BARRIER OF AN INDUCED RECTAL AGANGLIONNOSIS IN A LARGE ANIMAL MODEL</td>
<td>Alexis Arnaud, Juliette Hascoet, Francis Le Gouevec, Julien Georges, Gwenaelle Randuineau, Gaelle Boudry</td>
<td>37</td>
</tr>
<tr>
<td>PW04-05</td>
<td>PAEDIATRIC LAPAROSCOPIC SURGEONS: BORN OR MADE? PRELIMINARY RESULTS OF A LEARNING CURVE STUDY</td>
<td>Giuseppe Retrosi, Simon Clarke, Thomas Cundy, Camilla Fedele, Erika Adalgisa De Marco, Laura Merli, Munther Haddad, Lorenzo Nanni</td>
<td>38</td>
</tr>
<tr>
<td>PW04-06</td>
<td>THE LIPOFIBROBLAST CELL LAYER SURROUNDING THE LARGE AIRWAYS IS AFFECTED BY REDUCED MIR-200B EXPRESSION IN NITROFEN-INDUCED ABNORMAL LUNG DEVELOPMENT AND CDH</td>
<td>Drew Mulhall, Ramin Kholdebarin, Fuqin Zhu, Barb Iwasiow, Richard Keijzer</td>
<td>39</td>
</tr>
<tr>
<td>PW04-07</td>
<td>INHIBITION OF NETOSIS SIGNIFICANTLY REDUCES INTESTINAL DAMAGE AFTER MIDGUT VOLVULUS IN RATS</td>
<td>Michael Boettcher, Stefan Mietzsch, Georg Eschenburg, Robert Bergholz, Tobias Fuchs, Konrad Reinshagen</td>
<td>40</td>
</tr>
</tbody>
</table>
PW04-08
CARDIAC TROPONINS AS A POTENTIAL EARLY MARKER OF PULMONARY HYPERTENSION IN CONGENITAL DIAPHRAGMATIC HERNIA IN RABBIT MODEL
Rebeca Figueira, Lourenço Sbragia, Federico Scorletti, Mehmet Arslan, Marc Oria, Jose L. Peiro .................................................................41

PW04-09
POSTNATAL DISORDERS AFTER CONGENITAL INTESTINAL ATRESIA: IS ENTERIC NERVOUS SYSTEM THE ONLY ONE GUILTY?
Quentin Ballouhey, Laurent Fourcade, Laurence Richard, Franck Sturtz, Sylvie Bourthoumieu 42

PW04-10
THE COMPLEX TREATMENT OF CLEFT LIP AND PALATE IN CHILDREN WITH GENETIC SYNDROMES
Teodor Maros, Kinga Hadzsiev, Andras Pinter, Attila Vastyan .........................................................43

PW04-11
IMPACT OF A DEDICATED PRENATAL DIAGNOSIS AND COUNSELLING SERVICE ON THE SURGICAL ACTIVITY OF A DEPARTMENT OF NEONATOLOGY
Monica Tomassi, Laura Valfré, Francesco Morini, Andrea Conforti, Leonardo Caforio, Pietro Bagolan .........................................................44

PW04-12
TREATMENT OF HIRSCHPRUNG’S DISEASE IN SLOVENIA IN YEARS 2010 - 2015
Joze Maučec, Diana Gvardijančič ........................................................................................................45

PW05-01
CAN EARLY POSTOPERATIVE DOPPLER ULTRASOUND PREDICT THE LONG-TERM STATUS OF DETORSIONED TESTIS?
Zafer Dokumcu, Emre Divarci, Vusale Elekberova, Orkan Ergun, Geylani Ozok, Ahmet Celik ... 46

PW05-02
URINARY BIOMARKERS FOR PEDIATRIC APPENDICITIS
Martin Salò, Bodil Roth, Pernilla Stenström, Einar Arnbjörnsson, Bodil Ohlsson ..........................47

PW05-03
THE ROLE OF LAPAROSCOPIC SLEEVE GASTRECTOMY IN PEDIATRIC PATIENTS WITH SECONDARY OBESITY
Ottavio Adoriso, Romina Caccamo, Emanuela Ceriati, Paola Marchetti, Antonino Crinò, Danilo Fintini, Meri De Lorenzis, Francesco De Peppo .........................................................48

PW05-04
EARLY POSTOPERATIVE PARENTERAL NUTRITION IN APPENDICULAR PERITONITIS
Ada Yessenia Molina Caballero, Alberto Pérez Martínez, Sara Hernández Martín, Lidia Ayuso González, Javier Písón Chacón, Miguel Angel Martínez Bermejo .........................................................49

PW05-05
THE ASSOCIATION BETWEEN EARLY LACTATE CLEARANCE AND MORTALITY IN SURGICAL AND MEDICAL NEONATES. A RETROSPECTIVE COHORT STUDY
Stefano Giuliani, Justin Richards, Shabana Habib, Elizabeth Evans, Sarah Bradley, Nigel Kennea, Maurizio Cecconi ........................................................................................................50
PW05-06
EARLY DETECTION OF NECROTIZING ENTEROCOLITIS FOLLOWING OPERATION FOR CONGENITAL INTESTINAL MALFORMATIONS BY INTESTINAL FATTY ACID BINDING PROTEIN: A PROSPECTIVE OBSERVATIONAL STUDY
Alena Kokesova, Stepan Coufal, Miloslav Kverka, Helena Tlaskalova-Hogenova, Jitka Styblova, Marianna Durilova, Jiri Nahlovsky, Michal Rygl, Jiri Snajdauf ....................................................... 51

PW05-07
ADVANTAGES OF OPERATING ON A NEWBORN WITH NECROTIZING ENTEROCOLITIS BEFORE AN INTESTINAL PERFORATION: NONE
Beatriz Fernández, Julio Cerdá, Isabel Simal, Laura Pérez, Maria Fanjul, Maria Antonia García-Casillas, David Peláez, Esther Molina, Alberto Parente, Rubén Ortiz, Juan Carlos De Agustín ... 52

PW05-08
IMPACT OF SURGICAL INTERVENTION FOR SURVIVAL RATE AND HOSPITAL DISCHARGE RATE OF INFANT WITH TRISOMY 18
Yuichi Okata, Takuya Yoshida, Shoko Tamaki, Yoko Bitoh, Tomomi Hasegawa, Yasuhiro Mishima, Akihiko Tamaki, Keiichi Morita, Kosuke Endo, Chieko Hisamatsu, Hiroaki Fukuzawa, Akiko Yokoi, Seiji Yoshimoto, Hitoko Nakao, Kosaku Maeda .......................................................... 53

PW05-09
WHAT PRENATAL ULTRASOUND FACTORS ARE PREDICTABLE OF COMPLEX OR VANISHING GASTROCHISIS?
Dorothée GESLIN, Pauline CLERMIDI, Marie-Eve GATIBELZA, Françoise BOUSSION, Anne-Hélène SALIU, Gaëlle LE MANAC’H DOVE, Marc MARGARYAN, Philine DE VRIES, Loïc SENTILHES, Guillaume LEVARD, Hubert LARDY, Alexis ARNAUD, Marc-David LECLAIR, Guillaume PODEVIN, Françoise SCHMITT .......................................................... 54

PW05-10
THE ROLE OF FDG-PET/CT FOR THE ASSESSMENT OF TREATMENT EFFICACY IN PEDIATRIC MALIGNANCIES
Hiroshi NOUSO, Takuo NODA, Takanori OYAMA, Terutaka TANIMOTO ........................................ 55

PW05-11
A NEW SIMPLIFIED SCORING SYSTEM FOR ACUTE APPENDICITIS IN CHILDREN
Ana Kostić, Zoran Marjanović, Nikola Vacić, Zorica Jovanović, Maja Raicević ................................ 56

PW05-12
LAPAROSCOPY-INDUCED RENAL INJURY
Adnan ASLAN, Bahar AKKAYA, Hicran OZBUDAK .......................................................... 57

PW06-01
LONG-TERM OUTCOMES OF SIX PATIENTS AFTER PARTIAL EXTERNAL BILIARY DIVERSION FOR PROGRESSIVE FAMILIAL INTRAHEPATIC CHOLESTASIS
Basak Erginel, Feryal Gun Soysal, Ozlem Durmaz, Alaaddin Celik, Tansu Salman ............................. 58

PW06-02
ANTENATAL DIAGNOSIS OF BILIARY ATRESIA VERSUS CHOLEDOCHAL CYST IN PATIENTS WITH BILIARY CYSTIC MALFORMATIONS
Kengo Hattori, Yoshinori Hamada, Yoshiro Araki, Masahito Sato ........................................ 59
PW06-03
CLINICAL PRESENTATION AND MANAGEMENT OF CHRONIC PANCREATITIS IN CHILDREN
Sule Yalcin, Tutku Soyer, Ibrahim Karnak, Arbay Ozden Ciftci, Feridun Cahit Tanyel

PW06-04
HEPATOCARCINOMA: EXPERIENCE AT A TRANSPLANTATION UNIT
Paloma Elena Triana Junco, Mariela Cristina Dore Reyes, Martha Romo Muñoz, Javier Jiménez Gómez, Alba Sánchez Galán, Francisco Hernández Oliveros, Ane Andrés Moreno, José Luis Encinas Hernández, Manuel López Santamaría

PW06-05
ECHINOCOCCOSIS SURGICAL MANAGEMENT IN A NON-ENDEMIC CENTER: EVALUATION AND ANALYSIS OF OUTCOMES
Zoran Marjanovic, Andjelka Slavkovic, Dragoljub Zivanovic, Ivona Djordjevic, Zorica Jovanovic, Maja Raicevic, Nado Bukvic, Milan Petrovic

PW06-06
LAPAROSCOPY OF HEPATIC HYDATID CYSTS
Igor Gerasimenko, Sergey Minaev, Nikolay Bykov, Igor Kirgizov, Alina Mashchenko, Igor Anisimov, Alesya Isaeva, Natalia Filipeva

PW06-07
A SIMPE NEW TECHNIQUE FOR SAFE REMOVAL OF PERCUTANEOUS ENDOSCOPIC GASTROSTOMY DEVICES (PEG), AN ALTERNATIVE FOR CUT-AND-PUSH METHOD
Ede Biró, András Tárnok, Gabriella Mohay, András Farkas

PW06-08
IATROGENIC GASTRIC PERFORATIONS IN VERY LOW WEIGHT NEONATES (<1200G)
Saioa Santiago, José Andrés Molino, Gabriela Guillén, Sergio López, César Ruiz, Fátima Camba, Josep Lloret

PW06-09
CLINICAL SPECTRUM OF THE INTESTINAL TRACT DUPLICATIONS - RETROSPECTIVE ANALYSIS AND ETIOLOGICAL CONSIDERATIONS
Ognyan Brankov

PW06-10
LONG TERM RESULTS OF CHOLEDOCHAL CYSTS IN CHILDREN: AN 18-YEAR EXPERIENCE OF A SINGLE CENTER
Emre Divarci, Ulgen Celtik, Zafer Dokumcu, Geylani Ozok, Ahmet Celik, Orkan Ergun

PW06-11
VACUUM ASSISTED CLOUSERE (VAC) OF SEVERE FOOT INJURIES – REPORT OF TWO CASES
Dragoljub Zivanovic, Andjelka Slavkovic, Zoran Marjanovic, Ivona Djordjevic, Danijela Djerić, Zorica Jovanovic, Maja Raicevic

PW06-12
LAPAROSCOPIC CHOLECYSTECTOMY IN OBESE CHILDREN: OUR EXPERIENCE ABOUT MANAGEMENT AND OUTCOME
Ciro Esposito, Maria Escolino, Marianna De Marco, Francesco Turrà, Agnese Roberti, Alessandra Farina, Alessandro Settimi
PW07-01
ACUTE GASTRIC DILATATION IN PATIENTS WITH EATING DISORDERS
Clara Rico Espiñeira, Rocío Espinosa Góngora, Henar Souto Romero, Manuel Espinoza Vega,
Marta De Lucio Rodríguez, Ana Luis Huertas, Cristina Ríñón Pastor,
Juan Carlos Ollero Fresno ................................................................. 70

PW07-02
SHOULD THE LAPAROSCOPIC APPROACH BE AVOIDED IN A NISSEN FUNDOPLICATION
PROCEDURE?
Patricia Rodríguez Iglesias, Vicente Ibáñez Pradas, Miguel Couselo Jerez, Javier María Lluna
González ........................................................................................... 71

PW07-03
LAPAROSCOPIC REDO FUNDOPLICATIONS IN CHILDREN
Wojciech Korłacki, Andrzej Grabowski, Michał Pasierbek, Roksana Pultorak ..................... 72

PW07-04
FLUOROSCOPIC BALLOON DILATATION FOR ESOPHAGEAL ACHALASIA IN CHILDREN: A 7-YEAR
EXPERIENCE
Ibrahim UYGUN, Selcuk OTCU .................................................................. 73

PW07-05
TRANSITION OF PATIENTS WITH ESOPHAGEAL ATRESIA TO ADULT CARE: RESULTS OF A
TRANSITION-SPECIFIC EDUCATIONAL PROGRAM
Jens Dingemann, Rüdiger Szczepanski, Gundula Ernst, Ute Thyen, Melanie Goll, Benno Ure,
Ingo Menrath ..................................................................................... 74

PW07-06
SURGICAL ROLE IN EOSINOPHILIC GASTROENTERITIS
Paloma Elena Triana Junco, Mariela Cristina Dore Reyes, Martha Romo Muñoz, Javier
Jiménez Gómez, Alba Sánchez Galán, Gerardo Prieto Bozano, Esther Ramos Boluda, Ane
Andrés Moreno, José Luis Encinas Hernández, Francisco Hernández Oliveros, Manuel López
Santamaría .................................................................................... 75

PW07-07
WHICH TECHNIQUE SHOULD BE PREFERRED PRIMARILY FOR ESOPHAGEAL REPLACEMENT IN
CHILDREN: GASTRIC TRANSPOSITION OR ESOPHAGOCOLOPLASTY?
Emre Divarci, Zafer Dokumcu, Bade Toker, Coskun Ozcan, Ata Erdener ............................. 76

PW07-08
IATROGENIC PHARYNGOESOPHAGEAL PERFORATION IN THE NEONATAL PERIOD – CLUES FOR
CONSERVATIVE TREATMENT
o b ........................................................................................................ 77

PW07-09
DOES UPPER GASTROINTESTINAL TRACT CONTRAST STUDY IN SUSPECTED MALROTATION
TELL THE WHOLE STORY?
Leel Nellihaela, Chinaka Fungayi, Haran Jogeesvaran, Kufeji Dorothy ............................ 78

PW07-10
THORACOSCOPIC APPROACH FOR REOPERATION AFTER ESOPHAGEAL ATRESIA REPAIR
Nadav Sliper, Arcady Vachyan, Anat Illivizki, Amit Lehavi, Igor Shaikis, Ran Steinberg ....... 79
<table>
<thead>
<tr>
<th>Poster Number</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW07-11</td>
<td>BALANITIS XEROTICA OBLITERANS IN BOYS: MISSED DIAGNOSIS</td>
<td>Jan Trachta, Jan Kriz</td>
<td>80</td>
</tr>
<tr>
<td>PW07-12</td>
<td>SINGLE CENTRE EXPERIENCE WITH PERCUTANEOUS ENDOSCOPIC GASTROSTOMY (PEG) IN INFANTS: A FEASIBLE AND SAFE TECHNIQUE</td>
<td>Andrea Zanini, Giorgio Farris, Giulia Brisighelli, Anna Morandi, Francesco Macchini, Ernesto  Leva</td>
<td>81</td>
</tr>
<tr>
<td>PW08-01</td>
<td>CURRENT ANESTHETIC RISK OF ANTERIOR MEDIASTINAL MASSES</td>
<td>Montserrat Aguiler Pujabet, Gabriela Guillén Burrieza, Núria Montferrer Estruch, Sergio López Fernández, Jose Andrés Molino Gahe</td>
<td>82</td>
</tr>
<tr>
<td>PW08-02</td>
<td>LAPAROSCOPIC RESECTION OF PANCREATIC TUMORS IN CHILDREN</td>
<td>Ciro Esposito, Pascal De Lagausie, Maria Escolino, Amulya Saxena, George W Holcomb III,</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alessandro Settimi, Francesco Turrà, Francois Becmeur, David van der Zee</td>
<td></td>
</tr>
<tr>
<td>PW08-03</td>
<td>OVARY SPARING RESECTIONS FOR MATURE TERATOMA IN CHILDREN</td>
<td>Jan Godzinski, Maciej Krzeszewski, Michal Dycio, Bernarda Kazanowska, Ewa Barg, Lidia Hirnle, Malgorzata Rapala</td>
<td>84</td>
</tr>
<tr>
<td>PW08-04</td>
<td>MULTICENTRIC INFATILE MYOFIBROMATOSIS VERSUS METASTATIC INFANTILE FIBROSARCOMA: A CHALLENGING DIAGNOSIS</td>
<td>J. Manuel Gómez-Cervantes, Javier Jimenez Gómez, Miriam Miguel Ferrero, Mariela Dore Reyes, Martha Romo Muñoz,</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alba Sanchez Galan, Javier Serradilla Rodriguez, M Elena López-Ruiz, Vanesa Nuñez Cerrezo,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manuel López-Santamaría, J Carlos Lopez-Gutierrez</td>
<td></td>
</tr>
<tr>
<td>PW08-05</td>
<td>TREATMENT OF SLOW-FLOW VASCULAR ANOMALIES BY BLEOMYCIN SCLEROSIS: OUR EXPERIENCE</td>
<td>Isabel Simal-Badiola, Concepción Lorca-García, Ángel Lancharro-Zapata, Elena De Tomás-Palacios, Beatriz Berenguerr-Fröhner, Carmen Marín</td>
<td>86</td>
</tr>
<tr>
<td>PW08-06</td>
<td>IMPACT OF RADIOLOGICAL TUMOR REDUCTION AFTER CHEMOTHERAPY INDUCTION IN SURGICAL TREATMENT OF HIGH-RISK NEUROBLASTOMA (HRNB)</td>
<td>Alba Sánchez-Galán, Saturnino Barrena Delfa, Gabriela Guillén Burrieza, Sergio López-</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fernández, Manuel Parrón Pajares, Ana Pérez Vigara, Alejandra Vilanova Sánchez, Pedro Rubio Aparicio,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leopoldo Martínez Martínez, Manuel López-Santamaría</td>
<td></td>
</tr>
<tr>
<td>PW08-07</td>
<td>DOES RADICAL SURGERY WORTH IN HIGH-RISK NEUROBLASTOMA (HRNB)? EXPERIENCE FROM 2 TERTIARY HOSPITALS</td>
<td>Alba Sánchez-Galán, Saturnino Barrena Delfa, Gabriela Guillén Burrieza, Sergio López-</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fernández, Alejandra Vilanova Sánchez, Pedro Rubio Aparicio, Leopoldo Martínez Martínez,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manuel López-Santamaría</td>
<td></td>
</tr>
</tbody>
</table>
PW08-08
EPITHELIAL OVARIAN TUMORS IN CHILDREN – AN 11 YEARS RETROSPECTIVE ANALYSIS
Grzegorz Kowalewski, Agata Mikolajczyk, Mateusz Ciopinski, Marek Stefanowicz, Piotr
Kalicinski, Anna Ostoj-Chyżyńska ................................................................. 89

PW08-09
PULMONARY METASTASECTOMY IN CHILDREN: A SINGLE CENTER 10 YEAR EXPERIENCE
Emre Divarci, Serkan Arslan, Zafer Dokumcu, Mehmet Kantar, Bengu Demirag, Haldun Oniz,
Yesim Ertaa, Hudaver Alper, Ata Erdener, Coskun Ozcan ........................................... 90

PW08-10
RADICAL PANCREATIC RESECTION IS NOT NECESSARY IN THE SURGICAL MANAGEMENT OF
SOLID PSEUDOPAPILLARY TUMOR OF THE PANCREAS IN CHILDREN
Emre Divarci, Zafer Dokumcu, Orkan Ergun, Nazan Cetingul, Deniz Nart, Funda Yilmaz Barbet,
Ahmet Celik ................................................................. 91

PW08-11
FOETAL TUMOURS IN A SINGLE TERTIARY CENTRE. A REVIEW OF 33 CASES
Juliette Hascoet, Edouard Habonimana, Philippe Loget, Celine Rozel, Maia Proisy, Gwenaelle Le
Bouar, Alexis Pierre Arnaud ................................................................. 92

PW08-12
PEDIATRIC CLEAR CELL RENAL SARCOMA
Yasmine Houas, Sondes Sahli, Zohra Rahal, Fatma Fitouri, Mourad Hamzaoui ............... 93

PW09-01
EVIDENCE IN OUTCOMES OF INTRAABDOMINAL TESTIS TORSIONS (ITT)
Brigitta Balogh, Ágnes Varga, Tamás Kovács, Amulya K. Saxena ............................... 94

PW09-02
STEP MANAGEMENT FOR VUR: A NEW STRATEGY SUITABLE FOR EVERYONE?
Natalia Alvarez Garcia, Alexander Siles Hinojosa, Paolo Bragagnini Rodriguez, Rafael Fernandez
Atuan, Yurema Gonzalez-Ruiz, Reyes Delgado Alvia, Miguel Angel Ruhuete Heras, Marisa Justa
Roldan, Jesus Garcia Romero ................................................................. 95

PW09-03
DIAGNOSIS AND LONG-TERM OUTCOME OF RENAL CYSTS AFTER LAPAROSCOPIC PARTIAL
NEPHRECTOMY IN CHILDREN
Maria Escolino, Bernardita Troncoso Solar, Roberta Iacona, Agnese Roberti, Alessandra Farina,
Alessandro Settimi, Imran Mushtaq, Ciro Esposito .................................................. 96

PW09-04
TIMING OF FEMINIZING GENITOPLASTY FROM THE VIEWPOINT OF EGYPTIAN CLINICIANS AND
FAMILIES OF GIRLS WITH VIRILIZED EXTERNAL GENITALIA
Mahmoud Marei, Gamal Eltagy ................................................................. 97

PW09-05
INDICATION OF IPSILATERAL AND CONTRALATERAL ORCHIDOPEXY IN TESTICULAR TORSION
Beatriz Pemartín, Agustin Serrano, Carlos Dominguez, Juan José Vila .......................... 98
PW09-06
LYMPHATIC SPARING LAPAROSCOPIC LIGATION OF INTERNAL SPERMATIC AND DILATED DEFERENTIAL VEINS FOR PEDIATRIC VARICOCELE
Vassilios Mouravas, Chrysostomos Kepertis, Vassilios Lambropoulos, Andreas Neofytou, Ioannis Spyridakis

PW09-07
URETEROPELVIC JUNCTION OBSTRUCTION IN THE SOLITARY KIDNEY IN CHILDREN: FUTURE OF THE RENAL FUNCTION AFTER PYELOPLASTY
Eva Mille, Olivia Boyer, Anna Kadar, Frank Bienaimé, Laurence Heidet, Nathalie Biebuck, Henri Lottman, Stephen Lortat-Jacob, Yves Aigrain, Remi Salomon, Thomas Blanc

PW09-08
LONG-TERM EVALUATION OF CONGENITAL VENTRAL PENILE CURVATURE REPAIR USING DORSAL APPROACH
Borko Stojanovic, Marta Bizic, Vojkan Vukadinovic, Zoran Radojicic, Zoran Krstic, Miroslav Djordjevic

PW09-09
PROTEOMIC ANALYSIS OF URETEROPELVIC JUNCTION OBSTRUCTION SEGMENTS IN CHILDREN
Uzay GORMUS, S. Kerem Ozel, Halil TUGTEPE, Murat KASAP, Gurler AKPINAR, Aylin OZON KANLI

PW09-10
BLADDER NECK P LICATION; CURRENT EXPERIENCE IN SELECTED CAUSES OF INCONTINENCE
Mohamed El Debeiky, Wael Ghanem, Sameh Abdel Hay

PW09-11
INCIDENCE OF URINARY TRACT INFECTIONS IN INFANTS WITH ANTENATALLY DIAGNOSED HYDRONEPHROSIS
Sofia Visuri, Timo Jahnukainen, Seppo Taskinen

PW09-12
COMPLETE NON FUSION OF THE TESTIS AND EPIDYDIMIS. DIAGNOSTIC PITFALLS AND LESSONS LEARNED
Christos Plataras, Efstratios Christianakis, Ioannis Alexandrou, Konstantinos Velaoras, Dimitrios Bourikas, Chalil Eirekat

PW10-01
J.H. LOUW ADAPTATION OF DISCONGRUENT SEGMENTS OF INTERINTESTINAL ANASTOMOSIS CONSTRUCTING A MATHEMATICAL MODEL
Dmitriy Morozov, Maxim Ajrapetjan, Sergey Gorodkov, Evgenia Pimenova, Liyana Haidarova, Egor Petrochenkov

PW10-02
NEONATAL OUTCOME IN 50 CONSECUTIVE CASES OF ISOLATED FETAL ASCITES, OBSERVED IN A TERTIARY REFERRAL CENTER
Vincenzo Davide Catania, Alessia Muru, Marcella Pellegrino, Erika Adalgisa De Marco, Filomena Valentina Paradiso, Lorenzo Nanni, Lucia Masini, Carlo Manzoni
PW10-03
URGENT LAPAROTOMIES IN NEONATES: THE NEONATAL INTENSIVE CARE UNIT COMPARED WITH THE OPERATING ROOM
Saioa Santiago, José Andrés Molino, Gabriela Guillén, Sergio López, Yolanda Castilla, César Ruiz, Josep Lloret ................................................................. 108

PW10-04
SIROLIMUS IN THE TREATMENT OF VASCULAR ANOMALIES
Paloma Elena Triana Junco, Mariela Cristina Dore Reyes, Vanessa Nuñez Cerezo, Manuel Gómez Cervantes, Alejandra Vilanova, Miriam Miguel Ferrero, Mercedes Díaz González, Juan Carlos López Gutiérrez. .................................................. 109

PW10-05
SCLEROTHERAPY OF VENOUS MALFORMATION USING SODIUM TETRADECYL SULPHATE (STS) AND ETHANOL: A RETROSPECTIVE STUDY
Vicky Wong, Michael Leung, Clarence Liu, Judy Hung, Felix Yam, Yvonne Leung, Kenneth Chung, Paula Tang, Nicholas Chao, Kelvin Liu, Dickson Fung, W L Poon ......................... 110

PW10-06
PERIOPERATIVE D-DIMER LEVEL IN CHILDREN WITH VENOUS MALFORMATIONS
Judy WS Hung, Michael WY Leung, Clarence SW Liu, Felix SD Yam, Yvonne CL Leung, Kenneth LY Chung, Paula MY Tang, Nicholas SY Chao, Kelvin KW Liu. ........................................ 111

PW10-08
PRE OPERATIVE MANAGEMENT IN PYLORIC STENOSIS: TWO EUROPEAN CENTERS COMPARATIVE STUDY
Genni Montemezzo, Iram Cockar, Kathrine O. Eriksen, Amulya K. Saxena, Simon Clarke, Piergiorgio Gamba, Francesco Fascetti Leon......................................................... 112

PW10-09
IS HYPERHYDRATION STILL NEEDED IN THE POST OPERATIVE MANAGEMENT OF LAPAROSCOPIC SPLENECTOMY FOR SICKLE CELL DISEASE?
Sabine Irtan, Sara Silvaroli, Marianne De Montalembert, Frédérique Sauvat, Sabine Sarnacki, Valentine Brousse, ................................................................. 113

PW10-10
PRENATAL DIAGNOSIS OF INTESTINAL COMPLICATIONS IN TWIN-TO-TWIN TRANSFUSION SYNDROME (TTTS)
Alba Sánchez-Galán, José Luis Encinas Hernández, Eugenia Antolín Alvarado, Alejandra Vilanova Sánchez, Vanesa Núñez Cerezo, Martha Romo Muñoz, Manuel López-Santamaría. 114

PW10-11
DAY CASE SURGERY FOR CLEFT LIP: IT’S WORTH IT!
Betty Maillot, Marie-Eve Gatibelza, Olivier Azzis, Nicolas Nardi, Benjamin Frémond, Alexis Pierre Arnaud ................................................................. 115

PW10-12
ASYNCHRONOUS BILATERAL OVARIAN TORSION IN GIRLS- ANALYSIS OF APPROACH AND OUTCOMES WITH SURGICAL OPTIONS?
Maia Raicevic, Amulya Saxena................................................................. 116
<table>
<thead>
<tr>
<th>Poster Number</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW11-01</td>
<td>SURGERY FOR MAJOR HEPATIC AND BILIARY TRAUMA IN CHILDREN</td>
<td>Michal Rygl, Barbora Frybova, Radan Keil, Jiri Snajdauf</td>
<td>117</td>
</tr>
<tr>
<td>PW11-02</td>
<td>PEDIATRIC MAJOR TRAUMA: A 5-YEAR EXPERIENCE OF A LEVEL 1 TRAUMA CENTRE</td>
<td>FSD Yam, F Yeung, JWS Hung, CSW Liu, KLY Chung, PMY Tang, NSY Chao, MWY Leung, KKW Liu</td>
<td>118</td>
</tr>
<tr>
<td>PW11-03</td>
<td>APPLICATION OF SYSTEMIC ENZYME THERAPY IN BONE FRACTURES TREATMENT IN CHILDREN</td>
<td>Alesya Isaeva, Sergey Minaev, Vyacheslav Vasukov, Igor Anisimov, Natalia Filipieva, Eldar Shamadaev, Luiza Ukhina</td>
<td>119</td>
</tr>
<tr>
<td>PW11-04</td>
<td>MANAGEMENT OF HIGH GRADE BLUNT RENAL TRAUMA - A 10-YEAR SINGLE PEDIATRIC CENTER EXPERIENCE</td>
<td>Kee Wong, Ramanand Jeeneea, Andrew Healey, Laurence Abernethy, Simon Kenny, Harriet Corbett, Helen Fiona McAndrew, Paul Losty, Eniola Folaranmi</td>
<td>120</td>
</tr>
<tr>
<td>PW11-06</td>
<td>MANAGEMENT OF SEVERE PENILE SHAFT INJURIES</td>
<td>Mohamed El Debeiky, Hesham Soliman</td>
<td>121</td>
</tr>
<tr>
<td>PW11-07</td>
<td>SYSTEMATIC ANALYSIS OF CHILD INJURIES IN THE CZECH REPUBLIC</td>
<td>Ladislav Planka, David Stary, Ladislav Dušek, Daniel Klimeš</td>
<td>122</td>
</tr>
<tr>
<td>PW11-08</td>
<td>RADIATION EXPOSURE IN PEDIATRIC MINOR HEAD TRAUMA – CAN LESS BE MORE?</td>
<td>Christoph Arneitz, Maria Sinzig, Eveline Achatz, Günter Fasching</td>
<td>123</td>
</tr>
<tr>
<td>PW11-09</td>
<td>ULTRASOUND AS FIRST IMAGING STUDY IN THE ABDOMINAL TRAUMA</td>
<td>Patricia Rodríguez Iglesias, Vicente Ibáñez Pradas, Miguel Couselo Jerez, Desamparados Picó Aliaga, María Javier Lluna González</td>
<td>124</td>
</tr>
<tr>
<td>PW11-10</td>
<td>THE SUCCESS OF A SYSTEMATIC, MULTIDIMENSIONAL INJURY PREVENTION SYSTEM IN AUSTRIA OVER 30 YEARS</td>
<td>Peter Spitzer, Holger Till</td>
<td>125</td>
</tr>
<tr>
<td>PW11-11</td>
<td>FOREIGN BODIES INGESTION IN CHILDREN</td>
<td>Petra Dubska, Tomas Pesl, Petr Havranek</td>
<td>126</td>
</tr>
<tr>
<td>PW11-12</td>
<td>FOREIGN BODY INGESTION IN PEDIATRIC PATIENTS</td>
<td>Basak Erginel, Gokce Karli, Feryal Gun Soysal, Huseyin Ozbey, Erbug Keskin, Alaaddin Celik, Tansu Salman</td>
<td>127</td>
</tr>
<tr>
<td>PW12-01</td>
<td>CRYPTORCHIDISM AND PESTICIDES: IS THERE A CONNECTION?</td>
<td>Ivana Fratric, Jan Varga, Saša Vukmirovic, Jan Sudji, Dragana Živkovic</td>
<td>128</td>
</tr>
<tr>
<td>Poster Index</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PW12-02</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HYPOSPADIAS REPAIR: DOES THE GLANS SIZE MATTER?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ahmed Hadidi ................................................................. 129</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **PW12-03**  |
| URODYNAMIC RISK FACTORS FOR UPPER URINARY TRACT DETERIORATION IN CHILDREN WITH SPINA BIFIDA |
| S. Kerem OZEL, Ibrahim ALATAS, Altan ALIM, Huseyin CANAZ ........................................ 130 |

| **PW12-04**  |
| INHIBITION OF NETOSIS SIGNIFICANTLY REDUCES TESTICULAR DAMAGE AFTER TESTICULAR TORSION IN RATS |
| Stefan Mietzsch, Tobias Fuchs, George Eschenburg, Robert Bergholz, Konrad Reinshagen, Michael Boettcher ................................................................. 131 |

| **PW12-05**  |
| ZAONTZ URETHRAL STENT VS NELATON BLADDER CATHETER FOR URINE DRAINAGE AFTER HYPOSPADIAS REPAIR |
| Ciro Esposito, Maria Escolino, Francesco Turrà, Rosanna Esposito, Alessandra Farina, Marianna De Marco, Agnese Roberti, Mariapina Cerulo, Alessandro Settimi .................................................. 132 |

| **PW12-06**  |
| DOES MORPHOLOGICAL CHANGE OF THE PATENT PROCESSUS VAGINALIS OCCUR BASED ON AGE? |
| Yoon-Jung Boo, Ji-Sung Lee ................................................................. 133 |

| **PW12-07**  |
| EXPRESSION OF TRANSGLUTAMINASE IN FORESKIN OF CHILDREN WITH BALANITIS XEROTICA OBLITERANS |
| Tiziana Russo, Monica Curro’, Pietro Impellizzeri, Anna Barbera, Salvatore Arena, Pietro Antonuccio, Riccardo Ientile, Carmelo Romeo ................................................................. 134 |

| **PW12-08**  |
| NATURAL HISTORY AND CONSERVATIVE TREATMENT OUTCOMES FOR HYDROCELES: A RETROSPECTIVE REVIEW OF ONE CENTER’S EXPERIENCE |
| Tuqba Acer, Berk Yasin Ekenci, Dogancan Ozer, Mehmet Ali Turanoğlu, Kadem Cem Haberal, Elif Bengisu Bilgin, Akgün Hiçsönmez ................................................................. 135 |

| **PW12-09**  |
| AN INCIDENTAL FINDING OF ECTOPIC ADRENOCORTICAL TISSUE DURING INGUINAL SURGERY IN CHILDREN |
| Milena Senica Verbic, Julija Pavcnik, Ivica Nikolov ................................................................. 137 |

| **PW12-10**  |
| LAPAROSCOPIC FOWLER- STEPHENS: INDICATORS FOR OUTCOMES IN THE LAST DECADE? |
| Alice Mears, Amulya Saxena ................................................................. 138 |

| **PW12-11**  |
| ISOLATED FALLOPIAN TUBE TORSION IN PEDIATRIC AGE. IS THERE A ROLE FOR A CONSERVATIVE MANAGEMENT? |
| Alessandro Inserra, Massimiliano Silveri, Maria Chiara Lucchetti, Romina Caccamo, Cinzia Orazi, Paola Marchetti ................................................................. 139 |
PW12-12
CAN FIBRIN GLUE BE A USEFUL ADJUNCT TO SURGICAL MANAGEMENT OF RECURRENT FISTULA POST HYPOSPADIAS SURGERY?
Ahmed Hassan .................................................................................................................. 140

PW13-01
ARTIFICIAL REFEEDING INTO THE DISTAL ILEUM PRIOR TO THE ILEOSTOMY CLOSURE FACILITATES THE BOWEL ADAPTATION IN INFANTS
Tomoko Hatata, Shigeru Takamizawa, Katsumi Yoshizawa, Tamaki Iwade, Kazuki Yoshizawa .141

PW13-02
APPENDICOSTOMY FOR BOWEL CONTROL IN CHILDREN AFTER TRANSANAL ENDORECTAL PULL-THROUGH FOR HIRSCHSPRUNG DISEASE
Christina Granéli, Pernilla Stenström, Anna Börjesson, Einar Ambjörnsson ....................... 142

PW13-03
DEFICIENCY OF T-TYPE CALCIUM CHANNELS IN HIRSCHSPRUNG’S DISEASE
Anne Marie O’Donnell, Prem Puri ....................................................................................... 143

PW13-04
EFFICACY OF HUC/D AND CD56 IMMUNOSTAINING AS STANDARD HISTOLOGICAL DIAGNOSTIC TOOL FOR CONGENITAL AND ACQUIRED HYPOGANGLIONOSIS
Tomoaki Taguchi, Koichiro Yoshimaru, Kina Miyoshi, Yoshiaki Takahashi, Junkichi Takemoto, Tsuyoshi Iwanaka, Satoshi Obata, Yusuke Yanagi, Takahiro Jimbo, Masaaki Kuda, Yoshiaki Kinoshita, Takako Yoshioka, Atsuko Nakazawa, Yoshinao Oda ........................................... 144

PW13-05
PATIENT CHARACTERISTICS AND OUTCOME AFTER TRANSANAL ENDORECTAL PULL THROUGH IN PATIENTS WITH HIRSCHSPRUNG DISEASE – A GENDER STUDY
Christina Granéli, Eero Dahlin, Einar Ambjörnsson, Pernilla Stenström .............................. 145

PW13-06
A SINGLE CENTER EXPERIENCE WITH VLBW INFANTS AND SPONTANEOUS INTESTINAL PERFORATION: COMPARISON OF PRIMARY ANASTOMOSIS VS STOMA OPENING
Giulia Brisighelli, Andrea Zanini, Francesco Macchini, Anna Morandi, Giorgio Farris, Lorena Canazza, Lorenza Pugni, Maria Teresa Ambrosini, Fabio Mosca, Ernesto Leva .......................... 146

PW13-07
COMPARING LAPAROSCOPIC AND OPEN SURGERY FOR CROHN’S DISEASE
Marek Stefanowicz, Grzegorz Kowalewski, Adam Kowalski, Hor Ismail, Jaroslaw Kierkus, Piotr Kalicinski ....................................................................................................................... 147

PW13-08
PREVALENCE OF VACTERL ASSOCIATION AND OTHER CONGENITAL ANOMALIES IN A COMPLETE POPULATION OF PATIENTS WITH RECTOURETHRAL AND VESTIBULAR FISTULA
Kristiina Kyrklund, Seppo Taskinen, Reetta Kivisaari, Risto Rintala, Mikko Pakarinen .......... 148

PW13-09
ACCURACY OF FROZEN-SECTION BIOPSIES DURING PULL-THROUGH PROCEDURE FOR HIRSCHSPRUNG’S DISEASE.
Claudia Keyzer-Dekker, Irene Schokker-van Linschoten, Conny Meeussen, Katherina Biermann, Michael Doukas, Cornelius Sloots ................................................................................. 149
PW13-10
PREDICTIVE VALUE OF MEAN PLATELET VOLUME AND RED BLOOD CELL DISTRIBUTION WIDTH IN CHILDREN WITH ACUTE APPENDICITIS
Jelena Antic, Radoica Jokic, Svetlana Bukarica, Dragan Sarac, Nenad Zakula, Velicko Trajkovic ................................................................. 150

PW13-11
STOMA COMPLICATIONS IN CHILDREN
Sergey Minaev, Igor Kirgizov, Nikolay Bykov, Alesya Isaeva, Elena Tovkan, Natalia Filipova, Igor Gerasimenko ....................................................... 151

PW13-12
CONTINUOUS DECOMPRESSION USING AN INDWELLING TRANSANAL TUBE FOR INFANTS WITH LONG AND TOTAL TYPE HIRSCHSPRUNG’S DISEASE AS A BRIDGE TO CURATIVE SURGERY
Kyoko Mochizuki, Masato Shinkai, Norihiko Kitagawa, Hiroshi Take, Hidehito Usui, Kaori Nakamura, Takashi Hosokawa .................................................. 152

PW14-01
BIOMECHANICAL ASSESSMENT OF DIFFERENT TRACTION METHODS FOR ESOPHAGEAL ELONGATION IN EX-VIVO RABBIT ESOPHAGEAL POUCH
Jose L. Peiro, Hsiao-Chien Cheng, Lourenço Sbragia, Federico Scorletti, Marc Oria, Chia-Yin Lin ......................................................................................... 153

PW14-02
INTERLEUKIN-1, 4, 6, 7, 8, 10 (IL-1, 4, 6, 7, 8, 10) APPEARANCE IN CONGENITAL INTRA-ABDOMINAL ADHESIONS IN CHILDREN UNDER ONE YEAR OF AGE
Anna Junga, Mara Pilmane, Zane Abola, Olafs Volrats ........................................ 154

PW14-03
EVALUATION OF SPLENIC HISTOLOGICAL ALTERATIONS TO ASSESS THE WORTHINESS OF PARTIAL SPLENECTOMY IN SICKLE CELL DISEASE
Martina Ichino, Rita Alaggio, Anna Chiara Frigo, Laura Sainati, Luisa Santoro, Piergiorgio Gamba ................................................................. 155

PW14-04
VEGF AS A MARKER OF KIDNEY INJURY IN EXPERIMENTAL INTRA-ABDOMINAL HYPERTENSION
Olga Morozova, Dmitriy Morozov, Ivan Budnik, Alexey Tsyplov, Natalya Zacharova, Ylia Melnikova, Maxim Ajrapetjan ........................................ 157

PW14-05
TREATMENT OF FAST-GROWING MAXILLOFACIAL AREA HEMANGIOMAS IN INFANTS
Sergey Minaev, Anna Ivchenko, Oleg Aliyev, Gleb Ivchenko, Natalia Filipova, Luiza Ukhina, Anastasiya Tertyshnikova ........................................... 158

PW14-06
INNERVATION OF THE CLITORAL GLANS IN VIRILIZATION OF THE EXTERNAL GENITALIA
Dmitriy Morozov, Eduard Ayryan, Elena Tcmokaluk, Maxim Ajrapetjan, Evgenia Pimenova ................................................................. 159

PW14-07
WHAT CAUSES SCOLIOSIS IN THE BODY STALK ANOMALY?
Juma Obayashi, Kunihide Tanaka, Junki Koike, Yasuji Seki, Hideki Nagae, Shutaro Manabe, Kei Ohyama, Jane Zuccollo, Masayuki Takagi, Kevin C. Pringle, Hiroaki Kitagawa ........................................ 160
PW14-08
THE ASSOCIATION BETWEEN BONE MINERAL DENSITY, NUTRITION AND PHYSICAL ACTIVITY IN CHILDREN
Georg Singer, Christin Schmoelzer, Verena Stangl, Holger Till, Tanja Kraus .................................161

PW14-09
ENZYME ACTIVITY IN PERIPHERAL BLOOD FOR CHILDREN WITH CHRONIC COLONIC STASIS
Vadim Dudarev, Igor Kirgizov, Philip Kirgizov, Sergey Minaev .................................162

PW14-10
EFFECT OF CHELERYTHRINE ON INTESTINAL CELL TURNOVER FOLLOWING INTESTINAL ISCHEMIA-REPERFUSION INJURY IN A RAT MODEL
Igor Sukhotnik, Sivan Bitterman, Yohav Ben Shahar, Yulia Pollak, Nir Bitterman,
Tatiana Dorfman, Arnold G Coran, Arie Bitterman .................................163

PW14-11
EVALUATION OF PREDICTING FACTORS OF REDUCIBILITY OF INTUSSUSCEPTIONS WITH BARIUM ENEMA IN CHILDREN
Mehrdad Hosseinpour, Masood Nazem, Pejman Farshidmehr .................................164

PW14-12
ATYPICAL PLACEMENT OF HYDATID DISEASE IN A CHILD
Kamuran Tutus, Seref Selcuk Kilic, Önder Özden, Murat Alkan .................................165

PW15-01
EARLY APPROACHES AND OUTCOMES OF LIFE THREATENING LYMPHATIC MALFORMATIONS
Mariana Scuglia, Andrea Conforti, Laura Valfrè, Barbara Iacobelli, Fabio Fusaro,
Pietro Bagolan .................................166

PW15-02
SPONTANEOUS PNEUMOTHORAX - WHEN THERE ARE INDICATIONS FOR THORACOSCOPIC INTERVENTIONS?
Wojciech Korlacki, Andrzej Grabowski, Michał Pasierbek, Filip Achtelik .................................167

PW15-03
CONGENITAL BILobar EMPHYSEMA
Yasmine Houas, Sondes Sahli, Nizar Sassi, Nada Sghairoun, Slim Akrout, Manef Gasmii,
Mourad Hamzaoui .................................168

PW15-04
PAEDIATRIC THORACOSCOPIC SURGERY PRACTICES AND OUTCOMES IN EUROPEAN CENTRES
Elisa Cerchia, Giampiero Soccorso, Fabio Chiarenza, Francesco Molinaro, Mario Messina,
Francois Becmeur, Mike Singh, Dakshesh Parikh .................................169

PW15-05
THE SURGICAL OPTIONS IN CONGENITAL PULMONARY AIRWAY MALFORMATION (CPAM):
ACCORDING TO THE LOCALIZATION OF THE PULMONARY INVOLVEMENT
Emre Divarci, Bade Toker, Zafer Dokumcu, Coskun Ozcan, Ata Erdener .................................170

PW15-06
ANATOMIC SEGMENTAL RESECTIONS FOR PULMONARY MALFORMATION: FEASIBILITY AND INDICATIONS
Frédéric Hameury, Rémi Dubois, Thomas Gelas, Loren Deslandes, Dorothée Geslin,
Magdelonne Pons, Pierre-Yves Mure .................................171
PW15-07
THYMIC CYSTS IN CHILDREN – IS SURGERY JUSTIFIED?
Ralf-Bodo Tröbs, Volker Sander, Matthias Neid, Jan Wald ................. 172

PW15-08
CORRECTION OF FUNNEL CHEST WITH NUSS TECHNIQUE - OWN EXPERIENCE BASED ON 789 CASES
Wojciech Korlacki, Andrzej Grabowski, Michał Pasierbek, Maciej Ilewicz ................. 173

PW15-09
CONGENITAL DIAPHRAGMATIC HERNIA WITH LATE ONSET: SINGLE CENTRE EXPERIENCE
Ana Kostic, Zoran Marjanovic, Marijana Krstic, Nikola Vacic ...................... 174

PW15-10
IS ROUTINE THORACOSCOPIC APPROACH JUSTIFIED IN PEDIATRIC PULMONARY HYDATID CYST TREATMENT?
Zafer Dokumcu, Serkan Arslan, Emre Divarci, Ata Erdener, Coskun Ozcan ................. 175

PW15-11
CLINICAL EXPERIENCE OF TREATMENT OF ACUTE HEMATOGENOUS OSTEOMYELITIS IN CHILDREN
Sergey Minaev, Natalia Filipeva, Vitaliy Leskin, Sergey Timofeev, Alexander Kachanov, Alesya Isaeva, Eldar Shamadaev, Igor Anisimov ........................................ 176

PW15-12
A SYSTEMATIC REVIEW OF NECROTIZING FASCIITIS IN CHILDREN
Derek Harrison, Greg B. Firth, Kelly Hoffmann, Andrew Grieve, Christina Oetzmann von Sochaczewski .................................................. 177

PW16-01
FORESKIN RECONSTRUCTION FOR PATIENTS WITH HYPOSPADIAS: OPTIMISING PRE-OPERATIVE COUNSELLING AND PARENTAL CHOICE
Naomi Wright, Arash Taghizadeh, Kalpana Patil, Massimo Garriboli ...................... 178

PW16-02
PREDICTIVE VALUE OF ULTRASOUND WITH JJ-STENT ON POST PYELOPLASTY OUTCOME
Giorgio Selvaggio, Giovanni Di Iorio, Andrea Pansini, Federica Marinoni, Sara Costanzo, Claudia Filisetti, Giovanna Riccipetitoni ................................................. 179

PW16-03
SECOND LAYER FLAPS IN THE DISTAL HYPOSPADIAS REPAIR
Adnan ASLAN ........................................................... 180

PW16-04
ENDOSCOPIC MANAGEMENT OF UTRICLE CYST IN CHILDREN: AN ALTERNATIVE TO BE CONSIDERED
Marta De Lucio, Henar Souto, Jorge Rodríguez de Alarcón, Cristina Riñón, Manuel Espinoza, Clara Rico, Pilar Guillén, Rocio Espinosa, Ana Luis, Rafael Arteaga ...................... 181

PW16-05
CURRENT DEVELOPMENTS IN THE TREATMENT OF CHILDREN WITH DISORDERS OF SEXUAL DEVELOPMENT: ASPECTS OF SURGERY BASED ON A CASE SERIES
Verena Verena, Joerg Fuchs .................................................. 182
**PW17-04**
SUPERB MICRO-VASCULAR IMAGING: A NEW ERA IN DIAGNOSTIC ULTRASOUND FOR PEDIATRIC HEPATO-GASTROINTESTINAL DISORDERS  
Yasuhiro Ohno, Yukari Shibata ................................................................. 193

**PW17-05**
TWO-TROCAR APPENDECTOMY IN CHILDREN - DESCRIPTION OF TECHNIQUE AND COMPARISON WITH CONVENTIONAL LAPAROSCOPIC APPENDECTOMY  
Martin Salö, Emil Järbur, Mette Hambraeus, Bodil Ohiisson, Pernilla Stenström, Einar Arnbjörnsson ............................................................. 194

**PW17-06**
SINGLE INCISION LAPAROSCOPIC-ASSISTED APPENDECTOMY: IS IT WORTH IT?  

**PW17-07**
PAEDIATRIC NEEDLE INGESTION: LOCATING THE MORBIDITY BOTTLENECKS  
Christopher G. Lutterodt, Amulya K. Saxena ........................................... 196

**PW17-08**
CROSSED TESTICULAR ECTOPIA: THE ROLE OF VARIOUS DIAGNOSTIC MODALITIES  
Mohammed Abdel-Latif, Ehab El-Shafei, Mohamed Hisham Soliman .............................. 197

**PW17-09**
DISTANT AND LONG-TERM OUTCOME OF ESOPHAGEAL REPLACEMENT IN PATIENTS WHO UNDERWENT SURGERY AT EARLY AGE  
Ognyan Brankov ................................................................. 198

**PW17-10**
PREOPERATIVE AND POSTOPERATIVE URODYNAMIC DIFFERENCES OF CHILDREN WITH SPINA BIFIDA APERTA  
S. Kerem OZEL, Ibrahim ALATAS, Ezgi Tuna ERDOGAN, Tuba TUNC, Altan ALIM, Nursu KARA, Huseyin CANAZ ................................................................. 199

**PW17-11**
POST-DISCHARGE READMISSION IN PATIENTS WITH GASTROSCHISIS  
Vincenzo Davide Catania, Francesco Morini, Giorgia Totonelli, Barbara Daniela Iacobelli, Fabrizio Gennari, Pietro Bagolan ....................................................... 200

**PW17-12**
TESTICULAR TORSION IN UNDESCENDED TESTIS: A MISLEADING DIAGNOSIS  
Hamza Boussaffa, Sahbi Naouar, Nidhal Ati, Yassine Ayari, Khaled Ben Hlel, Wael Majdoub, Salem Braiek, Rafik El Kamel ................................................................. 201

**PW18-01**
SAFETY APPROACH TO TUNNELED CENTRAL VENOUS CATHETERS PLACEMENT IN PEDIATRIC ONCOLOGIC PATIENTS  
Takuo Noda, Hiroshi Nouso, Terutaka Tanimoto, Takanori Oyama .................................... 202

**PW18-02**
NEUROENDOCRINE TUMORS OF THE APPENDIX  
Cigdem Ulukaya Durakbasa, Erdem Ozatman, Asim Yoruk, Ebru Zemheri, Ali İhsan Anadolu, Hamit Okur ................................................................. 203
PW18-03
MINIMAL INVASIVE APPROACH IN PEDIATRIC AND ADOLESCENT OVARIAN CYSTIC MASSES
Bekir Haluk Guvenc, Elmas Reyhan Alim, Selma Fettahoglu, Ahmet Alptekin. ................. 204

PW18-04
TREATING PERITONEAL SEEDING OF AN PERFORATED FRANTZ TUMOR WITH HYPERThERMIC INTRAPERITONEAL CHEMOTHERAPY (HIPEC)
Oliver Renz, Paul Hechenleitner, Bettina Härter, Beatrice Häussler, Matthias Zitt,
Murat Sanal. ............................................................................................................. 205

PW18-05
URGENT SURGERY PROCEDURES IN PEDIATRIC ONCOLOGY PATIENTS.
Natalia Uskova, Sergey Talypov, Evgeny Andreev, Raisa Oganesyan, Nikolay Merkulov, Natalia Ivanova, Konstantin Tsilenko, Maxim Sukhov, Nikolay Grachev. ........................................ 206

PW18-06
BREAST MASS IN GIRLS - IS THERE ANY REASON TO WORRY?
Maciej Baglaj, Justyna Luczak ................................................................. 207

PW18-07
PREVENTIVE EXCISION OF MELANOCYTIC NAEVI - HOW ARE WE DOING?
Oskar Zgraj, Anna Taczanowska-Niemczuk, Wojciech Górecki ................................ 208

PW18-08
TESTICULAR TORSION – THE EMERGENCY DELAYED BY SHAME
Ana Alvarenga, Sofia Castro, Miguel Campos, José Estevão-Costa ......................... 209

PW18-09
ANORECTAL MALFORMATION AND VACTERL ASSOCIATION: WHICH ARE THE CATEGORIES AT MAJOR RISK?
Gabriele Lisi, Luciana Tarallo, Maria Enrica Miscia, Giuseppe Lauriti, Pierluigi Lelli Chiesa.... 210

PW18-10
PRIMARY ANASTOMOSIS: A SAFE AND FEASIBLE OPTION FOR NECROTIZING ENTEROCOLITIS
C de Vos, D Sidler, B Banieghbal ........................................................................ 211

PW18-11
OSTEOCHONDRAL INJURY OF THE KNEE IN CHILDREN AND ADOLESCENTS – OUR EXPERIENCES
Dubravko Furlan, Ivo Jurić, Dražen Budimir, Tomislav Šušnjar, Jakov Todorić, Davor Todorić, Jakov Meštrović, Zenon Pogorelić, Klaudio Pjer Milunović, Marko Furlan. ....................... 212

PW19-01
ROBOTIC SOAVE ENDORECTAL PULL-THROUGH IN HIRSCHSPRUNG DISEASE
Alessio Pini Prato, Lorenzo Leonelli, Luca Pio, Giovanni Montobbio, Paolo Petralia,
Vincenzo Jasonni, Girolamo Mattioli. ................................................................. 213

PW19-02
USE OF SIMPLIFIED LAPAROSCOPIC ACE (L-ACE) AND A NEW ACE-STOPPER DEVICE IN THE MANAGEMENT OF SEVERE CONSTIPATION AND FAECAL INCONTINENCE IN YOUNG CHILDREN
Alberto Attilio Scarpa, Ingo Jester ................................................................. 214
<table>
<thead>
<tr>
<th>Poster ID</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW19-03</td>
<td>DOES MILD SACRAL DYSPLASIA HAVE ANY EFFECT ON LONG-TERM BOWEL FUNCTIONAL OUTCOME OR PREVALENCE OF LOWER URINARY TRACT SYMPTOMS IN PATIENTS WITH ARMS?</td>
<td>Kristiina Kyrklund, Seppo Taskinen, Risto Rintala, Mikko Pakarinen</td>
<td>215</td>
</tr>
<tr>
<td>PW19-04</td>
<td>REVIEW OF ENTEROCOLITIS RATE AND OUTCOMES IN HIRSCHSPRUNG’S DISEASE</td>
<td>Dina Fouad, Joanna Lettin, Milind Kulkarni</td>
<td>216</td>
</tr>
<tr>
<td>PW19-06</td>
<td>A PROSPECTIVE STUDY OF BOTULINUM TOXIN FOR PERSISTENT CONSTIPATION AFTER PULL-THROUGH IN HIRSCHSPRUNG’S DISEASE</td>
<td>Hyun-Young Kim, Chaeyoun Oh, Su-Zi Back, Ji-Yeun Jung, So-Young Kim, Sung-Eun Jung</td>
<td>218</td>
</tr>
<tr>
<td>PW19-07</td>
<td>MALROTATION AND/OR VOLVULUS IN NEUROLOGICALLY IMPAIRED CHILDREN</td>
<td>Didem Baskin Embleton, Afra Karavelioglu, Resit Koken, Ahmet Ali Tuncer, Salih Cetinkursun</td>
<td>219</td>
</tr>
<tr>
<td>PW19-08</td>
<td>THE USE OF NEW MODEL OF BIPOLAR MYOSTIMULATOR IN LAPAROSCOPIC-ASSISTED ANORECTAL PULL-THROUGH IN CHILDREN</td>
<td>Igor Kirgizov, Sergey Minaev, Natalia Filipeva, Ilya Shishkin, Svetlana Aprosimova, Igor Gerasimenko, Luiza Uhina, Anastasia Tertyshnikova, Elena Tovkan</td>
<td>220</td>
</tr>
<tr>
<td>PW19-09</td>
<td>DYNAMIC DEFCOGRAPHY IN THE DIAGNOSIS AND MANAGEMENT OF PEDIATRIC RECTAL MUCOSAL PROLAPSE SYNDROME AND RELATED DISORDERS</td>
<td>Yasuharu Ohno</td>
<td>221</td>
</tr>
<tr>
<td>PW19-10</td>
<td>THE ANALYSIS OF SURGERY FOR HIRSCHSPRUNG’S DISEASE IN RUSSIA</td>
<td>Dmitriy Morozov, Evgeniya Pimenova, Maksim Ajrapetjan, Eduard Ajrjan</td>
<td>222</td>
</tr>
<tr>
<td>PW19-11</td>
<td>IL-6 -174G/C PROMOTER POLYMORPHISM IS A GENETIC RISK FACTOR FOR SEVERITY OF ACUTE APPENDICITIS IN PEDIATRIC POPULATION</td>
<td>Sevgi Buyukbese Sarsu, Senay Gorucu Yilmaz, Mehmet Ali Sungur</td>
<td>223</td>
</tr>
<tr>
<td>PW19-12</td>
<td>ANALYSIS OF OUTCOMES AFTER SURGICAL CORRECTION FOR HIRSCHSPRUNG’S DISEASE. ARE THE LONG-TERM OUTCOMES OF THE TRANSANAL PULL-THROUGH AND TRANSABDOMINAL PULL-THROUGH EQUALLY SATISFYING FOR CHILDREN AND THEIR PARENTS?</td>
<td>Patrycja Sosnowska, Michal Blaszczyński, Przemysław Mankowski</td>
<td>224</td>
</tr>
<tr>
<td>PW20-01</td>
<td>DELAYED PRIMARY ANASTOMOSIS FOR PURE ESOPHAGEAL ATRESIA: IS IT AN URBAN LEGEND?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ibrahim UYGUN, Selcuk OTCU</td>
<td>225</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW20-02</td>
<td>HYPERTROPHIC PYLORIC STENOSIS IN CHILDREN – COMPLICATIONS OF TREATMENT – A SINGLE CENTRE EXPERIENCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Justyna Luczak, Maciej Baglaj, Dariusz Patkowski, Agata Dzieledziak, Sylwester Gerus, Maciej Glowczak</td>
<td>226</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW20-03</td>
<td>PERCUTANEOUS ENDOSCOPIC GASTROSTOMY AND FACTORS AFFECTING COMPLICATIONS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mithat Gunaydin, Burak Tander, Unal Bicakci, Sertac Hancioglu, Ferit Bernay</td>
<td>227</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW20-04</td>
<td>EVALUATION OF THE IMPLEMENTATION OF A QUALITY CONTROL SYSTEM FOR LAPAROSCOPIC PYLOROMYOTOMY IN HYPERTROPHIC PYLORIC STENOSIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mirjam Ploeg, Claudia Keyzer-Dekker, Cornelius Sloots, Cornelis van de Ven, Conny Meeussen, John Vlot, Rene Wijnen</td>
<td>228</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW20-05</td>
<td>RIGID BRONCHOSCOPY IN THE TREATMENT OF FOREIGN BODY ASPIRATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basak Erginel, Gokce Karli, Feryal Gun Soysal, Huseyin Ozbey, Erbug Keskin, Alaaddin Celik, Tansu Salman</td>
<td>229</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW20-06</td>
<td>POST OPERATIVE PARENTERAL GLUTAMINE IN HIRSCHSPRUNG’S DISEASE: A PILOT STUDY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mohamed Hisham Soliman, Mohammed Abdel-Latif, Yasmin Gamal EL Gendy</td>
<td>230</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW20-07</td>
<td>DECISION-MAKING FOR GASTROSTOMY AND FUNDOPLICATION IN NEUROLOGICALLY IMPAIRED CHILDREN: RETROSPECTIVE EVALUATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vusale Elekberova, Zafer Dokumcu, Emre Divarci, Ata Erdener, Coskun Ozcan</td>
<td>231</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW20-08</td>
<td>ALIMENTARY TRACT DUPLICATIONS: A SURVEY OF 24 CASES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radu-Iulian Spataru, Niculina Bratu, Monica Ivanov, Dan-Alexandru Iozsa</td>
<td>232</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW20-10</td>
<td>TECHNIQUE FOR SAFE PLACEMENT AND SECURING OF WORK PORTS IN NEONATAL LAPAROSCOPIC PROCEDURES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christopher G. Lutterodt, Amulya K. Saxena</td>
<td>233</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW20-11</td>
<td>SURGICAL MANAGEMENT OF THE VERY LOW BIRTH WEIGHT(VLBW) AND EXTREMELY LOW BIRTH WEIGHT(ELBW) PREMATU'RE INFANTS WITH INGUINAL HERNIA; TIMING OF THE REPAIR, TYPE OF THE ANESTHESIA AND POSTOPERATIVE OUTCOME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paul Hechenleitner, Oliver Renz, Beatrice Häussler, Bettina Härter, Murat Sanal</td>
<td>234</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PW20-12
LATERAL THERMAL DAMAGE OF MESOAPPENDIX AND APPENDICEAL BASE DURING LAPAROSCOPIC APPENDECTOMY IN CHILDREN: COMPARISON OF THE HARMONIC SCALPEL (ULTRACISION™), BIPOLAR COAGULATION (LIGASURE™), AND THERMAL FUSION TECHNOLOGY (MISEAL™)
Zenon Pogorelic, Josip Katic, Ivana Mrklic, Tomislav Šušnjar, Ana Jeroncic, Miro Jukic, Dubravko Furlan, Zdravko Perko ................................................................. 235

PW21-01
THE INCIDENCE OF HYPOSPLENISM IN CHILDREN AFTER DIFFERENT METHODS OF SPLEEN INJURY TREATMENT
Sergey Klyuev, Dmitriy Morozov, Maxim Ajrapetjan ................................................................. 236

PW21-02
PAEDIATRIC TRAUMA AMID EUROPEAN REFUGEE CRISIS
Christos Chaidos, Aikaterini Tzantzaroudi, Eleftheria Georgiou, Eleftherios Smaropoulos, Georgios Tsikopoulos ................................................................. 237

PW21-03
RAPID RESPONSE TEAM ACTIVATIONS IN PEDIATRIC SURGICAL PATIENTS
Shannon Acker, Beth Wathen, Genie Roosevelt, Lauren Hill, Anna Schubert, Jenny Reese, Denis Bensard, Ann Kulungowski ................................................................. 238

PW21-04
DOES APPLICATION OF TOPICAL STEROIDS FOR BALANITIS XEROTICA OBLITERANS AFFECT THE RATE OF CIRCUMCISION? - A SYSTEMATIC REVIEW
Semiu Folaranmi, Harriet Corbett, Paul Losty ................................................................. 239

PW21-05
HAIR Tourniquet Syndrome, Not Just A Repair
Amr Abdelhamid AbouZeid, Mohamed Hisham Soliman ................................................................. 240

PW21-06
EVALUATION OF CLINICAL RESULTS AND QUALITY OF LIFE IN CHILDREN AFTER BLADDER AUGMENTATION
Ahu Bayar, Hamit Okur, Huseyin Murat Mutus, Burhan Aksu, Neslihan Gulcin, Gonca Gercel, Erdem Ozatman, Cigdem Ulukaya Durakbasa ................................................................. 241

PW21-07
PATIENTS WITH GASTROSCHISIS HAVE A GOOD QUALITY OF LIFE WITHOUT LIMITATION IN COMPARISON WITH THE GENERAL POPULATION: A QUESTIONNAIRE SURVEY
Barbora Frybova, Alena Kokesova, Daniela Zemkova, Vladimir Mixa, Radovan Vlk, Michal Rygl ................................................................. 242

PW21-08
INTESTINAL MOTILITY DISORDERS: FROM CHILDHOOD TO ADULT AGE
Cinzia Zanatta, Carla Baruffi, Fabrizio Farneti, Carla Trevisan, Mara Cananzi, Piergiorgio Gamba, Paola Midrio ................................................................. 243

PW21-09
PNEUMOTOSIS INTESTINALIS AND PNEUMOPERITONEUM IN CHILDREN; IS SURGERY ALWAYS INDICATED?
Julie Galea, Katherine Burnand, Dean Rex, Bruce Okoye, Chandrasen Sinha ................................................................. 244
PW21-10
LINKING NEONATAL SURGICAL OUTCOMES DATA AT A NATIONAL LEVEL: ANALYSIS OF METHODS AND COSTS
Fraser Cohen, Chandrasen Sinha, Stefano Giuliani ........................................... 245

PW21-12
ANORECTAL MANOMETRY IN CHILDREN WITH COLORECTAL PROBLEMS
Evgeniya Pimenova, Oksana Fomenko, Maksim Ayrapetyan, Dmitry Morozov ..........246

PW22-01
ASSESSMENT OF GASTROINTESTINAL FUNCTIONS IF CHILDREN WITH FAMILIAL MEDITERRANEAN FEVER
Ali ihsan Anadolu, Cigdem Ulukaya Durakbas, Muferret Erguven, Itir Ebru Zemheri,
Neslihan Gulcin, Hamit Okur .............................................................. 247

PW22-02
LAPAROSCOPIC SURGERY OF SPLENIC CYSTS IN CHILDREN
Sergey Minaev, Igor Gerasimenko, Igor Kirgizov, Nikolay Bykov, Alesya Isaeva, Igor Anisimov,
Natalia Filipeva, Alina Mashchenko, Luiza Uhina ........................................... 248

PW22-03
EVALUATION OF THE LEARNING CURVE IN LAPAROSCOPIC PERCUTANEOUS EXTRAPERITONEAL CLOSURE FOR INGUINAL HERNIA
Soichi Shibuya, Naho Fujiwara, Takanori Ochi, Momoko Wada, Toshiaki Takahashi,
Kyeong Deok Lee*, Eiji Miyazaki ........................................................... 249

PW22-04
THE UTILITIES OF LAPAROSCOPIC APPROACH FOR INGUINAL HERNIA IN CHILDREN
Hideaki Sato, Shigeyuki Furuta, Shutaro Manabe, Hiroaki Kitagawa ......................... 250

PW22-05
DIAGNOSTIC FINDINGS AND TREATMENT RESULTS OF INTRAUTERINE OVARIAN TORSIONS
Bade Toker, Zafer Dokumcu, Emre Divarci, Orkan Ergun, Geylani Ozok, Ahmet Celik ........251

PW22-06
EFFECTIVENESS OF BIOLOGICAL PROSTHESIS IN PEDIATRIC SURGERY: SINGLE CENTER EXPERIENCE AND META-ANALYSIS OF THE LITERATURE
Claudia Filisetti, Claudio Vella, Sara Costanzo, Federica Marinoni, Giovanni Di Iorio,
Giorgio Selvaggio, Giovanna Riccipetitoni ................................................ 252

PW22-07
IS TUBULARIZED INCISED PLATE URETHROPLASTY (SNODGRASS) A VERSATILE TECHNIQUE THAT CAN BE USED IN CASES OF PROXIMAL HYPOSPADIAS?
Ahmad M. El sadat, Ahmed B. Hassan ................................................ 253

PW22-08
CLINICAL AND IMMUNOHISTOCHEMICAL CORRELATION OF BALANITIS XEROTICA OBLITERANS
Josue Eduardo Betancourth-Alvarenga, Ariadna Siu Uribe, Fernando Vázquez Rueda, Rafael Sánchez Sánchez, Rosa Ortega Salas, Rosa María Paredes Esteban 254
IS IT WORTHY DOING PRIMARY REPAIR OF UNILATERAL CLEFT LIP NASAL DEFORMITY SIMULTANEOUSLY WITH LIP REPAIR
Ahmed Hassan, Ahmed El Sadat .......................................................... 255

THE USEFULNESS OF LAPAROSCOPY IN OF UNI- AND BILATERAL NONPALPABLE TESTIS
Klaudia Korecka, Grzegorz Kudela, Piotr Paleń, Mateusz Porębski, Agnieszka Pastuszka, Dariusz Basek, Maciej Kajor, Tomasz Koszutski. .......................................................... 256

RECURRENT PATELLA DISLOCATION IN ADOLESCENT PATIENTS WITH PATELLA-FEMORAL DYSPLASIA – LONG-TERM OUTCOME OF MPFL RECONSTRUCTION COMBINED WITH A MODIFIED GRAMMONT TECHNIQUE
Margarita Kaiser, Helmut Wegmann, Tanja Kraus, Georg Singer, Holger Till, Matthias Sperl. 257

FIVE-YEARS EXPERIENCE WITH OUTPATIENT THYROGLOSSAL DUCT CYST SURGERY
Ana Coelho, Catarina Sousa, Ana Sofia Marinho, Joana Barbosa Sequeira, João Moreira Pinto, Fátima Carvalho. ........................................................................ 258

EPIDURAL CATHETER-ASSISTED DEFLUXR TREATMENT OF VESICOURETERAL REFLUX IN CHILDREN WITH DUPLEX URETERS
Takashi Doi, Shiho Yoshida, Manabu Okawada, Go Miyano, Hiroyuki Koga, Atsuyuki Yamataka. .......................................................... 259

ACUTE APPENDICITIS WITH SPONTANEOUS INTRA-VESICAL MIGRATION OF COPROLITH
Alberto Mantovani, Chelsy Lasso-Betancor, Alex Sylvan, Simon Blackburn, Naima Smeulders. .......................................................... 260

PRIMARY EWING’S SARCOMA OF SMALL BOWEL, PRESENTING WITH INTUSSUSCEPTION IN A 14 YEAR-OLD
FSD Yam, VHY Wong, JWS Hung, CSW Liu, KLY Chung, PMY Tang, NSY Chao, MWY Leung, KKW Liu. ........................................................................ 261

UNREPORTED COMPLICATION OF COLONIC INTERPOSITION: COLONIC PERFORATION
Tutku Soyer, Ibrahim Karnak. .......................................................... 262

IF YOU FIND THE BLADDER IN SPITE OF THE SAC …
Ralf-Bodo Tröbs. .......................................................... 263

RESOLUTION OF PORTOPULMONARY HYPERTENSION BY MESO-REX BYPASS SURGERY IN A CHILD WITH EXTRAHEPATIC PORTAL VEIN OBSTRUCTION
Masato Shinkai, Kyoko Mochizuki, Norihiko Kitagawa, Hidehito Usui, Kaori Nakamura Yamoto, Takashi Hosokawa, Hiroshi Take, Junko Shiono, Toshihiro Muraji, Youkatsu Ohhama. 264
PW23-07
URETHRAL DUPLICATION WITH TWO HYPOSPADIC MEATI – AN UNUSUAL VARIANT
Joseph Davidson, Naomi Wright, Massimo Garriboli ................................. 265

PW23-08
UNUSUAL SIDE-EFFECT OF CANNABIS USE: ACUTE ABDOMEN DUE TO DUODENAL PERFORATION
Sevgi Buyukbese Sarsu, Ali Karapur ......................................................... 266

PW23-09
A RARE CASE REPORT OF CONGENITAL SIGMOID STENOSIS COMBINED WITH LADD’S BANDS
Evgeni Moshekov, Penka Stefanova, Martin Simeonov, Ivan Kirev .......................... 267

PW23-10
PERITONITIS CAUSED BY CANDIDA ALBICANS, CAN A URETERAL STUMP CAUSE THIS CATASTROPHE?
Ada Yessenia Molina Caballero, Sara Hernández Martín, Lidia Ayuso González, Javier Pisón Chacón, Miguel Angel Martínez Bermejo, Alberto Pérez Martínez ....................... 268

PW23-11
LUDWIG’S ANGINA: A MAJOR COMPLICATION AFTER MINOR SURGERY
Marta de Lucio, Mercedes Ávarez, Manuel Espinoza, Clara Rico, Pilar Guillén, Sara Sirvent, Henar Souto, Ana L. Luis, Juan C. Ollero ............................................................... 269

PW23-12
CONGENITAL INFANTILE FIBROSARCOMA OF THE CHEST WALL: AN ANATOMICAL SITE OF BAD PROGNOSIS
Montserrat Aguilera Pujabet, Gabriela Guillén Burrieza, Jose Andrés Molino Gahete, Sergio López Fernández, Paula Jiménez Arribas, Soledad Gallego Melcon, Josep Lloret Roca ........................................ 270

PW24-01
SOLITARY CYSTIC PULMONARY LESION IN A 5 YEAR OLD GIRL: AN UNUSUAL CASE OF SPONTANEOUS PERSISTENT INTERSTITIAL PULMONARY EMPHYSEMA
Ana Lain, Carlos Giné, Mireia Fernández, Antonio Moreno, Josep Lloret ........................................ 271

PW24-02
CONGENITAL MESOBLASTIC NEPHROMA IN A PREMATURE TWIN GESTATION: A CASE REPORT
Jason Sulkowski 1, Douglas James 1, Joan Graziano 2, Anthony Barone 2, Francisca Velcek 0 ........................................ 272

PW24-03
A GIANT MEDISTINAL MASS PRENATALLY DIAGNOSED
Giulia Brisighelli, Anna Morandi, Antonio Di Cesare, Simona Elia, Fabrizio Ciralli, Fabio Mosca, Nicola Persico, Giuseppe Pomè, Ernesto Leva ........................................ 273

PW24-04
EARLY POST-PARTUM GASTRIC BAND SLIPPAGE AFTER BARIATRIC SURGERY IN AN ADOLESCENT OBESE GIRL
Françoise SCHMITT, Philippe TOPART, Agnes SALLE, Loic SENTILHES, Natacha BOUHOURS-NOUET, Dominique WEIL, Guillaume PODEVIN ........................................ 274

PW24-05
A CASE REPORT OF THE PERINATAL MANAGEMENT OF AN ANTENATALLY DIAGNOSED MORGAGNI HERNIA
Paula Tang, Michael Leung, Yam Felix, Hung Judy, Chao Nicholas ........................................ 275