17th Congress of Hungarian Association of Pediatric Surgeons

HAPS

With International Participation

9–11 September, 2021
Pécs, Hungary

Dear Colleagues and Friends,

On behalf of the Hungarian Association of Pediatric Surgeons (HAPS), we are honored to great you to our 17th Congress of HAPS – Including International Participation, which is planned for 9–11 September, 2021, Pécs, Hungary.

The Congress of HAPS including international participation offers attendees a unique opportunity to meet our distinguished guests, several of which are coming from various countries throughout Europe and elsewhere. Another reason to see to Pécs, Hungary, is the well-known saying attributed to Andrew Pinter, *"The Hungarian meetings are not better or worse than any other meetings, but they are different…"* We are determined to continue this honorable tradition while celebrating our intense heritage!

Despite of the pandemic we were constantly optimistic, and finally nearly 70 papers were accepted for oral or poster presentation along 7 oral sections and in 2 poster walks. This fact will promise an interesting and meaningful scientific congress in itself. Fortunately, nearly the all invited faculty members were able to accept our invitation. We are really appreciated and honoured, to enjoy these well-known faculty in our 17th HAPS Congress.

Admirably, Pécs is a multicultural city with a special mixture of both Mediterranean and European flavors, colors and impressions. This lovely and friendly city elicits a genuinely warm atmosphere, the ideally sublime venue in which to host our Congress while offering attendees ample time and opportunity to relax, rekindle old friendships and make new friends following our fast-paced scientific program.

We look forward to meet you in Pécs, live and in person!

Péter Vajda
Congress chairman / President of HAPS

Attila M. Vástyán
Past president of HAPS

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Prof. **Tamás Decsi** – Clinical director of Department of Pediatric

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Prof. **Piotr Czauderna,** Gdansk, Poland
Prof. **Kay Grosser,** Erfurt, Germany
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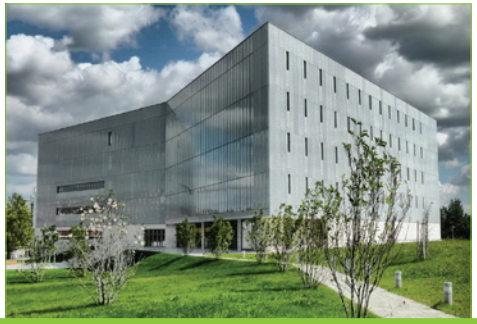

CONGRESS OFFICE

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TIMETABLE

Thursday, 9th of September 2021

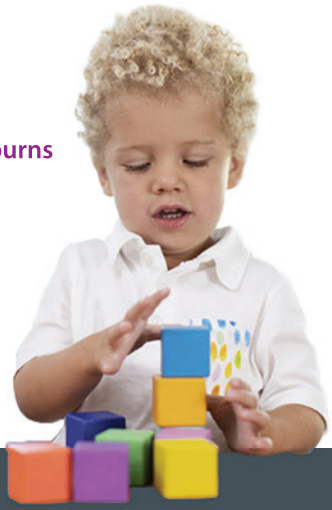
14:00–14:30	Opening ceremony
14:30–15:30	Program – Section 1. / **General + Oncology**
15:30–16:00	Coffee Break / Commercial exhibition
16:00–16:15	Honorary Membership Award Ceremony of HAPS
16:15–17:15	Program – Section 2. / **Clinical research + New techniques**
17:15–18:45	HAPS Executive Board Meeting
19:00–21:00	Welcome Reception *(Tudásközpont Aula)*

Friday, 10th of September 2021

09:00–10:30	Program – Section 3. / **Pediatric urology**
10:30–11:00	Coffee Break / Commercial exhibition
11:00–11:30	Award Ceremony of Aurél Koós Medal
11:30–13:00	Program – Section 4. / **Minimal invasive surgery**
13:00–14:00	Lunch Break
14:00–15:00	Poster walk
15:00–15:30	Coffee Break / Commercial exhibition
15:30–16:00	Award Ceremony of Gopal Krishna Saxena Award
16:00–17:30	Program – Section 5. / **Varia**
20:00–23:00	Gala Dinner *(Pezsgőház)*

Saturday, 11th of September 2021

09:00–10:30	Program – Section 6. / **Dedicated section for pediatric trauma surgery**
10:30–11:00	Coffee Break / Commercial exhibition
11:00–12:30	Program – Section 7. / **Pedietric trauma + burns**
12:30–13:00	Congress Closure



CONGRESS VENUE

Tudásközpont (Pécs, Universitas u. 2/A)

REGISTRATION, INFORMATION DESK

Thursday, 9th September **12:00–19:00**
Friday, 10th September **08:00–18:00**
Saturday, 11th September **08:00–13:00**

INSURANCE

The conference registration fee does not include accident, luggage, liability and health insurance. The organizers will not be liable in the event of any accident, illness or incident.

PRESENTATIONS

If you have not submitted your lecture in advance, please hand over all of your lecture materials to the technical team working in the lecture hall, either in the morning or during breaks between sections. The duration of the lectures is 7 minutes, followed by a 3-minute discussion. Due to the serried schedule of the scientific program, we respectfully ask for the exact observance of the duration of the presentations.

POSTERS

The posters can be viewed throughout the conference on the ground floor of Tudásközpont, or on the conference website. The posters will be presented on Friday, 10th September, from 2 p.m. to 3 p.m. The duration of the poster presentation is 3 minutes, followed by a 2-minute discussion.

COFFEE BREAKS

During the breaks between the sections, coffee, soft drinks, mineral water as well as savory snacks will be served to the congress' participants.

LUNCH

The pre-registered lunches on the 10th of September can be taken with the lunch tickets included in the registration package.

SOCIAL EVENTS

10th of September (Friday) **Gala dinner in "Littke Palace"** (Pécs, Szent István tér 12.)
Attendance at the gala dinner had to be announced at the time of registration prior to the conference date. Please remember to bring your tickets with you.

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DAY 1 – THURSDAY, 9TH SEPTEMBER

12:00 – 19:00 **Registration**

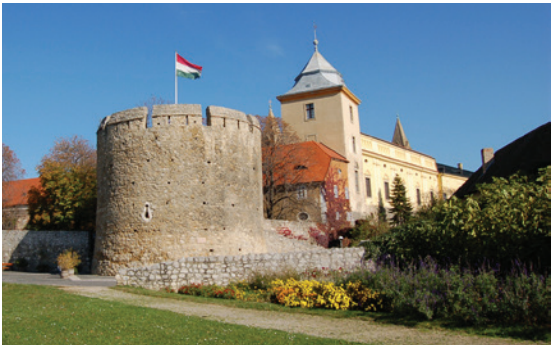
14:00 – 14:30 **Opening ceremony**
Péter Vajda, Prof. Miklós Nyitrai, Prof. Tamás Decsi

14:30 – 15:30 Program – **Section 1. / General + Oncology**
Chairmen: ***Prof. Piotr Czauderna – Attila M. Vástyán***

1. Vivien Stercel: **Esophageal atresia management and ERNICA consensus statements: is there a difference?**
2. Claire Davies: **Outcomes of patients undergoing oesophageal atresia and tracheo-oesophageal fistula surgery in South Wales** *(Zoom)*
3. Zsuzsa Tallós: **The treatment of patients with biliary atresia in Hungary – outcomes of the last 11 years**
4. Lilla Duma: **Life's always better in pairs, or is it? – Duplicated appendicitis in childhood** (Case report prize – 2021)
5. Zita Sükösd: **What about the bilateral cases of Wilms' tumor?**
6. Zoltán Jenővári: **Central hepatectomy: senseful or silly?**

15:30 – 16:00 *Coffee Break / Commercial exhibition*

16:00 – 16:15 Honorary Membership Award Ceremony of HAPS
Prof. Piotr Czauderna *(laudatio Péter Vajda)*



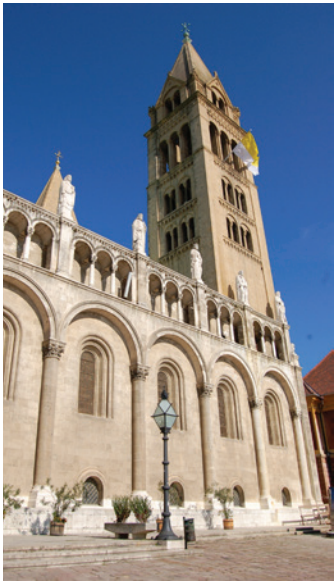
16:15 – 17:35 Program – **Section 2. / Clinical research + New techniques**
Chairmen: ***Prof. Amulya Saxena – Péter Vajda***

16:15 – 16:35 Prof. Amulya Saxena: **The "little big" things in pediatric endoscopic surgery**

1. Péter Etlinger: **Characterization of technical skill progress in a standardized rabbit model for training in laparoscopic duodenal atresia repair** *(Dan Young Prize - 2021)*
2. Zita Hornok: **Magnamosis for oesophageal atresia with trachea-oesophageal fistula is it a foolish idea?**
3. Tamás Cserni: **Benefits of the pyeloureteral magnetic anastomosis (PUMA) device in laparoscopic pyeloplasty, creation of an ileal conduit and fallopian tube reconstruction**
4. Edit Kecskés: **DJ catheter removal without anesthesia?**
5. Ariana Mariotto: **JJ stent home-removal after laparoscopic pyeloplasty**
6. Ádám Radványi: **Histopathologic changes in ureteropelvic junction obstruction**

17:45 – 18:45 HAPS Executive Board Meeting
(Zoom alternative)

19:00 – 21:00 **Welcome Reception**
(Tudásközpont Aula)



DAY 2 – FRIDAY, 10TH SEPTEMBER

08:00 – 18:00 **Registration**

09:00 – 10:30 Program – **Section 3. / Pediatric urology**
Chairmen: ***Prof. Ibrahim Ulman – Tamás Cserni***

09:00 – 09:20 Prof. Ibrahim Ulman: **Which approach is less invasive in pyeloplasty?**

1. Verity Haffenden: **Does it worth to switch from retroperitoneal to transperitoneal approach with laparoscopic pyeloplasty?**
2. Attila Kálmán: **Initial results with modified vascular hitch for laparoscopic transposition of lower pole crossing vessels in children with pelviureteric junction obstruction**
3. Máté Tóth: **UPJ obstruction with polar vessel: vascular-hitch or pyeloplasty?**
4. Ádám Radványi: **Laparoscopic pyeloplasty in infants**
5. Zsuzsanna Antal: **Posterior urethral valve – Is one ablation enough? A single centre study for long term outcome**
6. Raimondo M. Cervellione: **10-years experience with ureteric reimplantation at the time of extrophy closure** *(Zoom)*
7. Zsolt Juhász: **Long-term urodynamic findings following CCP, GCP and ICP**

10:30 – 11:00 *Coffee Break / Commercial exhibition*

11:00 – 11:30 Award Ceremony of Aurél Koós Medal
István Csízy *(laudatio Lászlo Sasi Szabó)*
József Schäfer *(laudatio András Farkas)*

11:30 – 13:00 Program – **Section 4. / Minimal invasive surgery**
Chairmen: ***Prof. Juan C. de Agustin – Attila Kálmán***

11:30 – 11:50 Prof. Juan C. de Agustin: **Cryoanalgesia for pectus excavatum**

1. Péter Juhász: **Laparoscopic treatment of congenital duodenal obstruction – our initial experience**
2. Márk Langer: **Comparison of different pilonidal sinus treatment techniques: a retrospective study**
3. Klára Nagy-Erdei: **Percutaneous internal ring suturing (PIRS): factor(s) of recurrence?**
4. Zoltán Jenővári: **Bent or straight? PIRS**
5. László Sasi Szabó: **Leiomyoma of the cardia: laparo-endoscopic transgastric enucleation**
6. Péter Etlinger: **Laparoscopic resolution of complicated Amyand's hernia: case report and review of the literature**
7. Alexandra Varga: **Outcomes of staged laparoscopic traction orchiopexy for intra-abdominal testes: a multicenter analysis**

13:00 – 14:00 *Lunch Break*

14:00 – 15:00 *Paralel On site Poster Presentation in the Aula*

Poster walk 1. (Oncology+Varia)
Chairmen: ***Andrzej Zajac – Zoltán Jenővári***

1. Dorottya Balogh: **Cystic lesions of the testis in infancy – case series of four patients**
2. Máté Tóth: **Rare complication of port-a-cath removal**
3. Félix Omoregbee: **Ovarian mucinous cystadenoma: a rare presentation in adolescence – case report**
4. Gábor Varga: **Multiple intestinal necrosis due to invasive aspergillosis in a pediatric patient with acute lymphoid leukemia: a case report**
5. Franciska Torma: **Twin-to-twin metastasis – case report and literature review**

6. Zoltán Kispál: **Raceme abdominal haemangioma causing ileus**
7. Dóra Bodnár: **Sclerotherapy and sirolimus: novel treatment for cystic lymphangiomas case report**
8. Anna Zsigmond: **Median facial cleft and the background. Report of two cases**
9. Kata Dávidovics: **Dirofilariasis in childhood: a presentation of two cases**
10. László Farkas: **Splenic torsion in children – report of three cases**
11. Darius Rahimi: **Diagnostic problem in double cavity kidney**

Poster walk 2. (Trauma+Varia)
Chairmen: ***Yuriy Demyan (Sen.) – László Sasi Szabó***

1. Márk Langer: **Treatment of a Morel-Lavallée lesion following a train accident in a 15 years old male patient**
2. Aba Lőrincz: **Pediatric deep burn management after split-thickness autologous skin transplantation – a comparative study**
3. Aba Lőrincz: **Case reports of pediatric electrical finger burn injuries – management and late-onset complications**
4. Bence Hajnal: **Serious consequences of minor neck injuries as a result of the instability of the cervical spine in Down syndrome**
5. Krisztina Tiborcz: **Blunt abdominal injury in children: a case report of pancreatic and duodenal injury**
6. Krisztina Tiborcz: **Case report of traumatic navicular body fracture in a child: a rare entity with significant morbidity**
7. Dávid Rajki: **Diagnostic challenges of infective sacroiliitis**
8. Dominika Réka Becze: **Effects of COVID-19 pandemic the treatment of appendicitis in our department**
9. Huba Gazdus: **Demonstrating therapeutic challenges of two children with complicated ulcerative colitis**
10. Henrietta Klósz: **Multiple bowel obstructions (small and large intestine) in an immature neonate**
11. Henrietta Klósz: **Intrauterine jejuno-jejunal intussusception**

15:00 – 15:30 *Coffee Break / Commercial exhibition*

15:30 – 16:00 Award Ceremony of Gopal Krishna Saxena Award
Prof. Amulya Saxena and HAPS Executive

16:00 – 17:30 Program – **Section 5. / Varia**
Chairmen: ***Mircea Ardelean – Tamás Kovács***

1. Andrzej Zajac: **Component separation technique for repair of giant abdominal hernias in children after omphalocoele**
2. Zsófia Piri: **Continence and quality of life of patients with HD after transanal Soave procedure**
3. Péter Bársony: **Experience with the Surgical Treatment of Patent Ductus Arteriosus**
4. Abigail Barnes: **Long term outcome of feminising genitoplasty for 46XX congenital adrenal hyperplasia with up to 40 years follow up**
5. Zoltán Jenővári: **Unconceived consensus in the treatment of DSD patients**
6. Mahmoud Marei: **A proposed descriptive classification for Müllerian duct remnants to facilitate selection of the laparoscopic technique: excision versus division** *(Zoom)*
7. Mahmoud Marei: **Vas deferens-sparing cystoscopic-assisted laparoscopic resection of a large prostatic utricle in a four-year old child** *(Zoom)*
8. Zsófia Pálinkás: **Review of our surgical therapy to patients with ovarian torsion**
9. Alexandra Gedei: **Pediatric surgical aspects of childhood and adolescent obesity**
10. Tamás Bűdi: **New strategies on treating complicated vascular malformations**

20:00 – 23:00 **Gala Dinner**
(Littke Palace)

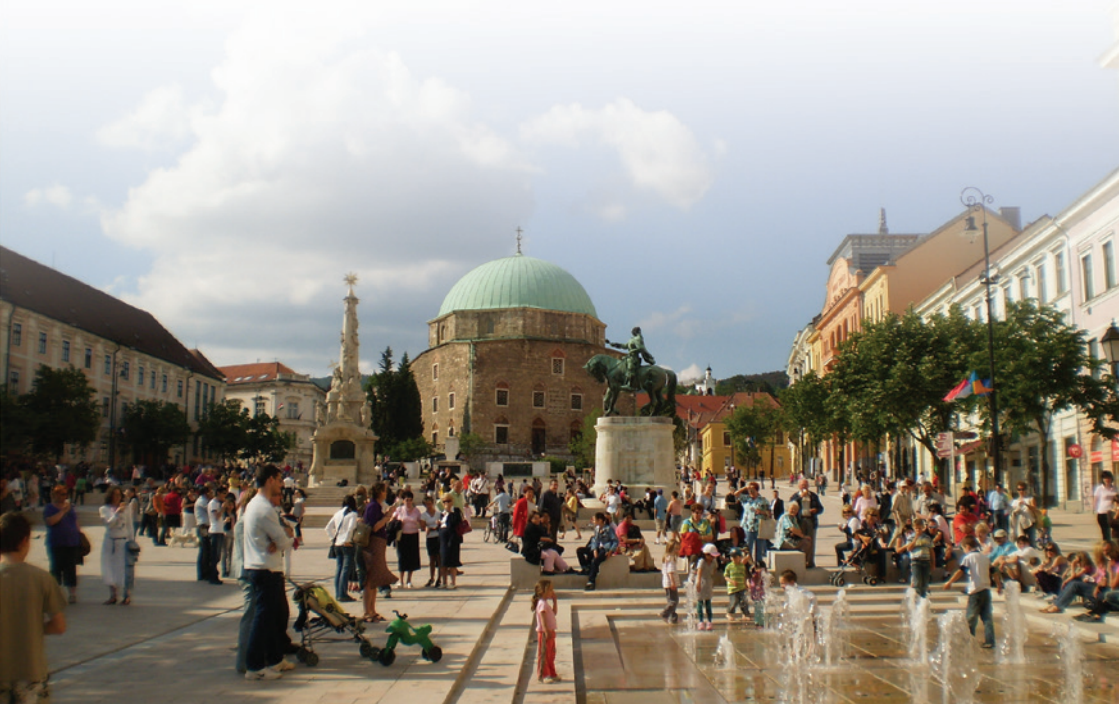
DAY 3 – SATURDAY, 11TH SEPTEMBER

08:00 – 13:00 **Registration**

09:00 – 10:30 Program – **Section 6. / Dedicated section for pediatric trauma surgery (Biodegradable implants in pediatric trauma – Present & Future)**
Chairmen: ***Prof. Pierre Lascombes – Tamás Kassai***

1. Prof. Pierre Lascombes: **Evolution of bioabsorbable implants. Indication and limitation of the technique**
2. Tamás Kassai: **Elbow and knee joint fractures treated by bioabsorbable implants. New techniques illustration**
3. Marcell Varga: **Forearm, distal forearm fractures treatment. What changed the IM nail?**
4. Gergő Józsa: **Complications of the new technique**
5. Annelie Weinberg: **What should be the future? Next generation of the bioabsorbable implants (magnesium implants)**

10:30 – 11:00 *Coffee Break / Commercial exhibition*



11:00 – 12:30 Program – **Section 7. / Pediatric trauma + burns**
Chairmen: ***Prof. Kay Grosser – Gergő Józsa***

11:00 – 11:20 Prof. Kay Grosser: **Avulsion fractures of the pelvis – what should we do but what not in case of lesions of the apophysis?**

1. Anna Lamberti: **Biomechanical comparison regarding different K-wire fixation methods in support of the treatment of pediatric radius fractures on 3D printed bone models**
2. Gergő Józsa: **SCHF in children: prospective, multicentre, nationwide clinical data from cases**
3. Mátyás Vajda: **Analysis by fracture type of 214 pediatric cases from the prospective, multicentre, nationwide Hungarian supracondylaer humerus fracture registry**
4. Demyan Yuriy (Jr.): **Our experience of surgical treatment pediatric femur shaft fracture**
5. Edina Török: **Slipped capital femoral epiphysis in adolescents review of 7 years at our department of pediatric surgery and traumatology**
6. Aba Lőrincz: **Pediatric partial thickness burn therapy: a meta-analysis and systematic review of randomised controlled trials**
7. Alexandra Csenkey: **Examination of the effectiveness of different treatment methods on animal combustion models**

12:30 – 13:00 **Congress Closure**

ABSTRACTS

(in order of the scientific programme)

Esophageal atresia management and ERNICA consensus statements: is there a difference?

Vivien Stercel, László Sasi Szabó
Pediatric Surgical Unit, Department of Pediatrics, Clinical Centre, University of Debrecen, Debrecen, Hungary

Background/Aim(s): The ERNICA group published a consensus statement guideline for management of esophageal atresia and tracheoesophageal fistula (EA/TEF) in 2019. Our aim was to investigate our Gross „C" type EA/TEF cases according to selected ERNICA statements and to analyze the effect of this protocol on clinical outcomes.
Method(s): We selected all distal TEF cases operated in our institute with thoracoscopy (TR) or thoracotomy (OR) between 01.01.2005 and 29.02.2020 with at least 1 year of follow-up. Data analysis focused on surgical time of reconstruction, anastomotic leakage, esophageal stricture, refistula formation, need of reoperation, timing of extubation, length of parental feeding, length of stay (LOS). Effect of ERNICA statements Nr: 19,25,26,34,39,41 was analyzed on the investigated factors. Data were analyzed by linear, binomial and multi-nominal regression analyses, depending on target variable. Correlation-analysis was also conducted in some cases.
Result(s): The study population included 59 newborns: 18 were in TR and 41 in OR group. Preoperative bronchoscopy resulted in significantly lower rate of severe complications ($p<0.001$) and anastomotic leakages ($p<0.05$). Preserving the azygos vein reduced severe complications significantly ($p<0.01$). Transfixing the TEF did not affect any aspects of our study. LOS was shortened in TR patients, but the difference was not significant (TR: 41.8 days, OR: 47.6 days, $p>0.05$). We found significantly less severe complications in TR group ($p<0.01$), but operating time was significantly longer in those cases ($p<0.05$). We have not found any significant effect of other ERNICA statements on the investigated aspects.
Conclusion(s): Despite of low evidence level, ERNICA offers a good strategy for EA/TEF management. In case of appropriate using of ERNICA guideline, an optimized clinical outcome of EA/TEF is achievable and sustainable. Complication rate in our center is lower in case of thoracoscopic treatment.

Outcomes of patients undergoing oesophageal atresia and tracheo-oesophageal fistula surgery in South Wales

Claire Davies, Kristy Smith, Prabhu Sekaran, Semiu Eniola Folaranmi
Department of Pediatric Surgery, University Hospital of Wales, Cardiff, Wales

Background/Aim(s): To determine the outcomes of patients undergoing surgery for oesophageal atresia and trachea-oesophageal fistula (OA-TOF) in South Wales.
Method(s): Retrospective and prospective data collection was conducted for newborns undergoing repair of OA-TOF in South Wales between 2015 and 2021. Patient demographics and comorbidities were reviewed, as well as surgical outcomes. Outcome data analysed were (i) anastomotic leak, (ii) anastomotic stricture, (iii) trachea-oesophageal fistula (TOF) recurrence, (iv) need for oesophageal replacement, (v) need for other procedures notably fundoplication, aortopexy, and tracheostomy, and (vii) mortality.
Result(s): 49 patients underwent OA-TOF operations between 2015 and 2021. 5/49 had oesophageal atresia alone (Gross type A), the remaining patients had a TOF that co-occurred, with distal TOF (Gross type C) being by far the most prevalent at 37/49. 1/49 patients had Gross type B, 3/49 type D and another 3/49 type E. 12% of patients had OA-TOF as part of the VACTERL association, and a further 10% as part of a syndrome. Post-operative outcomes included a 0% mortality rate, 0% anastomotic leak rate, 49.0% stricture rate, 2.0% TOF recurrence rate and 2.0% of patients requiring oesophageal replacement. Gastro-oesophageal reflux disease (GORD) and tracheomalacia were common complications, but relatively few cases were severe enough to warrant fundoplication (8.2%) and aortopexy (4.1%) respectively. 4.1% of patients required a tracheostomy. Length of stay in the neonatal unit averaged 32 days, the main determinant being whether the OA was long gap (mean stay = 152 days) or not (mean stay = 13 days).
Conclusion(s): Patients undergoing surgery for oesophageal atresia with or without trachea-oesophageal fistula in South Wales have an excellent outcome with 0% leak rate and 0% mortality.

The treatment of patients with biliary atresia in Hungary – outcomes of the last 11 years

Zsuzsa Tallós, Antal Dezsőfi-Gottl, Dolóresz Ildikó Szabó, Tibor Verebély, Péter Vörös, Attila Kálmán
Pediatric Surgical Unit, 1st Department of Pediatrics, Semmelweis University, Budapest, Hungary

Background/Aim(s): Biliary atresia (BA) is one of the few diseases in pediatric surgery where centralization of care already took place in Hungary, after reports on better outcome in larger centres. It is known from other studies that the prognosis of patients with BA depends on an early diagnosis, a technically well performed operation and may be on the subtype of the disease, which is to be explored further. As the Hungarian centre for the treatment of patients with BA we reviewed our data from the past 11 years, and hereby we present the changes of perioperative care, as well as our difficulties, and the latest outcome results with special emphasis on the timing of the operation, and native liver survival.
Method(s): We retrospectively reviewed the medical records of 60 patients who underwent Kasai portoenterostomy (KPE) at our Institution from January 2010 until December 2020. 3 patient were later excluded from our study, two were postoperatively diagnosed with Alagille syndrome, and one had also Alpha-1antitrypsin deficiency; (Gr.BA=57). During these 11 years 4 patients had the subtype of Biliary Atresia Splenic Malformation Syndrome (BASM), 5 of our 57 patients were premature and 5 had Cytomegalovirus IgM positivity. In October 2017 we introduced a technical change by excorporating the liver during the Kasai procedure for better visualisation of the porta hepatis and a safer anastomosis, as well as standardized the postoperative treatment algorithm by reintroducing steroids after the operation. We also present our data according to the 2 distinct periods: before October 2017 (GrI.BA; n=35), from October 2017 – till December 2020 (GrII.BA; n=22).
Result(s): Out of the 57 BA patients operated in the examined period 48 are alive (84%, min. follow up 7 months). The median age at the time of the KPE was 61 days in Gr.BA: (min: 19 days, max: 133 days), 71 days in GrI.BA; and 41 days in GrII.BA ; p(I-II)<0,001. The time between admission and KPE was median 10 days in Gr.BA (min: 4; max 66); 12 days in GrI. BA; and 9 days in GrII.BA (p(I-II)=0,84). The occurrence of coloured stool post KPE before discharge was 67% (Gr.BA), total clearance of jaundice on the 6th week follow up in Gr.BA was 13% (GrI.BA: 9% GrII.BA: 23% p(I-II)=0,24). Among patients who had minimum 5 year follow up (n=28), 5 year survival with native liver was 25%. 54% of our patients needed liver transplantation within 1 year after KPE, 62% in GrI.BA and 39% in GrII.BA; (p(I-II)=0,15). 2 of our premature patients died before transplantation (40%), but 3/5 are living with their native liver since (follow up: 9-77 months). 50% of the BASM patients needed transplantation before 1 year post KPE (min. follow up: 32 months). 80% of our patients with CMV IgM positivity had liver transplantation before 1 year post KPE (min. follow up: 22 months).
Conclusion(s): In our Centre the time spent prior to surgery altogether improved in last years, but is still not in the advised 30-45 days. The short term outcomes for BASM patients were comparable to patients with isolated BA. CMV IgM positivity is associated with poor prognosis. In our study premature patients with BA had a high mortality rate. Our results with 5 year native liver survival are behind the international data (50-55%), but we hope it will improve with the changes we implemented.

Life's always better in pairs, or is it? – Duplicated appendicitis in childhood – Case report

Lilla Duma, Balázs Bóta, Gyula Nagy
Pediatric Surgical Unit, Bethesda Children's Hospital, Budapest, Hungary

Background/Aim(s): Duplicated appendix is a very rare anatomic variant which is mostly discovered during appendectomies. It's incidence is 0,004-0,009% amongst acute appendectomies. If it is not discovered it can cause later differential diagnostic problems with severe consequences. It can be part of complex urogenital or intestinal developmental disorders. To the best of our knowledge this is the first case report amongst children in the literature.
Case(s): A 10-year-old boy was sent to our hospital with 2 days old abdominal pain that had not been improving to parenteral fluid therapy. He was in a septic state when he presented at our ward. The abdominal ultrasound showed a periappendicular abscess with 45 mm diameter. The diameter of the appendix was 14,5 mm. He had elevated inflammatory parameters in his laboratory test (WBC: 19,6 G/l, CRP: 284,7 mg/l). Due to suspected complicated acute appendicitis he was prepared for a laparoscopic appendectomy. During the surgery we found extensive ileocecal inflammation, diffuse adhesions and an abscess adhered to the terminal ileum and the pelvic wall of the abdominal cavity. After draining the abscess and a lengthy preparation we found 2 appendices that were inflamed and branching from the cecum 10 mm far from each other. After ligatures we excised both. Later the histological examination reassured the diagnosis of duplicated appendicitis with perforation on both appendices. We did not notice any other intra-abdominal developmental disorder. We drained the abdominal cavity. Due to the lengthy procedure and the septic state of the child in the first 24 postoperative hours we observed him in our intensive care unit. He got a triple combination antibiotic therapy (metronidazole, cefotaxime, gentamicin). His recovery occurred without any complication and he was emitted in good health from the pediatric surgery ward after 10 days of observation.
Conclusion(s): Although duplication of the appendix is a extremely rare anatomical variant, if the appendix is not typically located or the macroscopic presentation does not correlate with the severe symptoms during appendectomy then it is recommended to thoroughly explore the area of cecum and the retrocecal space to exclude duplicated appendix or other intestinal abnormalities besides Meckel's diverticulum.

What about the bilateral cases of Wilms' tumor

Zita Süköst, Franciska Torma, Tamás Prokopp, Tamas Bűdi, Mónika Csóka, Zoltán Jenővári
Pediatric Surgical Unit, 2nd Department of Pediatrics, Semmelweis University, Budapest, Hungary

Background/Aim(s): The goal of the treatment of bilateral multiplex Wilms tumor is to achieve tumor control and preserve the kidney function. Recently several progressions have been introduced by Umbrella protocol. We would like to present our experience in the treatment of bilateral Wilms' tumor. We will discuss the treatment strategies, including chemotherapy, and the surgical methods. We list the recent literature focusing on the uniform treatment.
Method(s): This is a retrospective review of all children who were treated at the Semmelweis University 2nd Pediatric Department with bilateral Wilms' tumor from 2007 to 2021, using patient reports from the hospital informatic system. Altogether 7 children were treated, 5 girls and 2 boys. In their initial diagnosis, 4 times CT scans and 3 times MRIs were used to identify the disease. 3 were conceived by in vitro fertilization and in one case the patient had Beckwith- Wiedemann syndrome, and another one had esophagus atresia, congenital heart defect and hypospadiasis in the history. At the time of the diagnosis 1 patient had distant metastatic disease. Synchronous Wilms' tumor was in 6 cases, metachronous in 1 case. In 2 cases, unilateral nephrectomy was performed quite early in the treatment, in all the other cases staged nephron-sparing surgeries have been performed. In 2 cases, surgery was the first choice of treatment, in all other cases surgery followed the preoperative chemotherapy. Postoperative chemotherapy was always chosen individually based on the exact hystological type of the tumor.
Result(s): Out of the 7 patients, 3 patients are in complete remission after their third and fifth years final report. Of the remaining 4, 1 patient will have their first-year final report soon; 1 patient is on regular dialysis and waiting for renal transplantation; 1 patient already had a cadaver renal transplantation, and 1 patient just finished her postoperative chemotherapy.
Conclusion(s): In the treatment of bilateral Wilms' tumor the renal tissue preservation is achievable. The chance of preserving the renal tissue has increased in the last few years due to the developing chemotherapy protocols, exact radiology and surgical skills. The question is obvious: Why not to do the same in unilateral cases?

Central hepatectomy: senseful or silly?

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Background/Aim(s): The liver regeneration in childhood after extended hepatectomy is excellent, 30% of residual liver tissue grows to the normal size within 3 months. Based on this, the central hetapectomy rarely indicated. The recent development of hepatic surgery with safe controll of liver surface and thin negative margin let some changes in the indication of central hepatectomy.
Case(s): We present our recent experience of central hepatectomy and collect data available in Pubmed. We list the patients underwent central hepatectomy in our unit in 2020. 3 patients found. All had extended tumor in the segment 4-5 or 4-8. All the resection were done by US guided Ultrascision after dissected hepatic vessels, ligeted portal and arterial branch to the central liver area and suturing the central hepatic vein at the end of the resection. The liver surface controlled by fibrin spray. Hepatic circulation maintened on both side during operation. Patient no 1: 11 y girl with embrional sarcoma. No 2: 15 months boy with hepatoblastoma and No 3: 14 y girl with painful FNH. All the patients with malignant tumors received protocol guided preoperative chemotherapy. All the resection margin were tumorfree. All the residual liver are almost normal size right after the operation, just limited enzyme elevation observed postoperatively. No bile leakege observed. All the patients are donig well, no sign of early recurrency. 1 out 3 patients needed blood transfusion (3 units), due to direct bleeding from caval vein from direct venous acces were from tumor, cava suture needed. No excessive bleeding from liver surface.
Discussion: Researche in Pubmed shows low number of patients, only 1 percent of liver resection are central hepatectomy. In childhood even less found, 17 patients listed in 5 article in the last 2 decades. 15 hepatoblastoma, 1 mesenchymal hamartoma and one epithelial malignancy listed. 4 of them bile leakage observed. One hepatoblastoma patient died in the observed period due to distant metastasis. No local recurreny, no intraoperative mortality observed. The operating time, where it was signed was definitely long. (4 hours approx)
Conclusion(s): By the help of new surgicel technic and more skill in liver resection the central hepatectomy seems faesible and safe method, preserves more liver tissue preventing liver failure. We offer to use this method in all the central tumor (affected 4-5-8 segment) cases if any chance to do it instead of major resections.

Characterization of technical skill progress in a standardized rabbit model for training in laparoscopic duodenal atresia repair

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Background/Aim(s): Laboratory skills training is an essential step before conducting minimally invasive surgery in the clinical practice. Our main aim was to develop an animal model for training in the clinically highly challenging laparoscopic duodenal atresia repair that could be useful to establish a minimum number of repetitions to indicate safe performance of similar interventions on humans.
Method(s): A rabbit model of laparoscopic duodenum atresia surgery involving a diamond-shaped duodeno-duodenostomy was designed. This approach was tested in two groups of surgeons: in a beginner group without any previous clinical laparoscopic experience (but having undergone previous standardized dry lab training, n=8) and in an advanced group comprising pediatric surgery fellows with previous clinical experience of laparoscopy (n=7). Each participant performed eight interventions. Surgical time, expert assessment using the Global Operative Assessment of Laparoscopic Skills (GOALS) score, anastomosis quality (leakage) and results from participant feedback questionnaires were analyzed.

Result(s): Participants in both groups successfully completed all eight surgeries. The surgical time gradually improved in both groups, but it was typically shorter in the advanced group than in the beginner group. The leakage rate was significantly lower in the advanced group in the first two interventions and it reached its optimal level after five operations in both groups. The GOALS and participant feedback scores showed gradual increases, evident even after the fifth surgery.

Conclusion(s): Our data confirm the feasibility of this advanced pediatric laparoscopic model. Surgical time, anastomosis quality, GOALS score and self-assessment parameters adequately quantify the technical improvement of the participants. The anastomosis quality reaches its optimal value after the fifth operation even in novice, but uniformly trained surgeons. The minimum number of a wet-lab operation can be defined before its safe conduction in the clinical setting, where the development of further non-technical skills is also required.

Magnamosis for oesophageal atresia with trachea-oesophageal fistula is it a foolish idea?

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Background/Aim(s): Anastomotic insufficiency is still a significant complication after oesophageal atresia (OA) repair. Magnamosis was originally developed to reduce the risk of anastomotic leak by providing equal and continuous tissue compression i.e. better seal compared to conventional suture. A minimal invasive procedure with a magnetic device (Flourish device) has been reported to eliminate anastomotic leak after repair of long-gap OA without trachea-oesophageal fistula (TOF). However, it is not offering significant advantages in the most common type of OA with TOF as the ligation of the fistula (i.e. thoracotomy) is still required. Our team showed the pyelo-ureteral magnetic anastomosis (PUMA) device can significantly simplify laparoscopic pyeloplasty in experimental settings. We hypothesised that a device based on the PUMA concept could also be applied for OA-TOF repair as it would combine the benefits of a non-leaking magnetic anastomosis (MA) with simplified and shortened thoracoscopic repair.
Method(s): A PUMA device with 8 mm diameter magnetic cylinder was used to create end-to-side anastomosis in ex-vivo pig (45kg) oesophagus (n=5) and the bursting pressure of the anastomosis was measured and compared to a conventional single layer hand sutured end-to end anastomosis (CA). Spheric and tubular shape birthday balloons and a term infant size plastic toy infant were used to build OA-TOF simulator. The authors (n=3) with significant laparoscopic experience performed oesophageal anastomosis with the PUMA device. Time (t) was recorded and compared to the classic anastomosis.
Result(s): Bursting pressure of the MA was significantly higher (96±8,94 H2Ocm) vs. the CA (30,4±7,44) $p<0.001$. The tMA was significantly shorter (10,67±3,2 min) vs. tCA(20,56±2,3 min) $p<0.001$. The device eliminated the need of hand-held suturing and intracorporeal knot tying in the thoracoscopic repair of OA-TOF.
Conclusion(s): Magnetic anastomotic devices based on the PUMA concept may simplify and improve outcome of thoracoscopic repair of OA-TEF in the future.
Limitations: This is a simulation study, only based on models. The MA procedure is resulting in a side-to-end anastomosis however, this has been already reported and may not represent a problem due to tissue remodelling.

Benefits of the pyeloureteral magnetic anastomosis (puma) device in laparoscopic pyeloplasty, creation of an ileal conduit and fallopian tube reconstruction

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Background/Aim(s): Suturing of the ureter to the renal pelvis in laparoscopic pyeloplasty or to an ileal conduit after laparoscopic radical cystectomy as well as the laparoscopic Fallopian tube reconstruction is challenging and time consuming. Staplers are not available, and robotics remains expensive. Our team already has proven the Pyelo-Ureteral Magnetic Anastomosis (PUMA) is feasible in experimental settings. Our aim was to prove the benefits of a PUMA device in laparoscopic pyeloplasty, creation of ileal conduit and Fallopian tube reconstruction.
Method(s): A model of PUJO, ileal conduit and Fallopian tube was made from a spherical birthday balloon (40 mm diameter, representing the dilated pelvis, the ileum and the uterus) and a sausage balloon (5 mm diameter, representing the ureter and the Fallopian tube) was placed on a laparoscopic simulator (Eosurgical ltd., Edinburgh, U.K). Eleven surgeons experienced in laparoscopy were asked to perform a standard laparoscopic ureteropelvic anastomosis followed by using the PUMA device. The time required for the procedures was recorded. The quality of the performance was assessed by the instructor (TC) as well as the candidates and rated ranging from 1 (poor) to 5 (excellent). Subsequently, a time-quality score (TQ) was calculated using the formula TQ = Time X 5/quality score.
Result(s): All tree procedures were feasible. The mean time required for the pelvico-ureteral anastomosis dropped from 39.91±14.08 to 8.18±2.75 minutes ($p<0.0001$) and the quality increased from a median of 3 (range, 2-5) to 5 (range, 3-5) with the PUMA device ($p=0.0156$). The mean time-quality score (TQ) was significantly higher (i.e. less favorable) with the standard technique (67.79±34.42) compared with the PUMA method (9.45±5.14) ($p=0.0003$). Of note, in each case the time taken for the procedure was less and the estimated quality either better or equivalent with the PUMA device.
Conclusion(s): A PUMA device may simplify laparoscopic pyeloplasty, creation of ileal conduit and Fallopian tube reconstruction in the future.

DJ cathether removal without anesthesia?

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Background/Aim(s): The use of a double J (DJ) catheter is a widely accepted method. It is less invasive than percutaneous nephrostomy. For its removal, anesthesia and cystoscopy is required, which is its disadvantage in the pediatric population. This is why many doctors do not choose this method of urinary diversion (e.g., during laparoscopic pyelonoplasty), especially in younger children. An alternative solution could be the non-anesthetic and non-cystoscopy procedure, published by Shao and his/her working group in 2018. In our study, we sought to answer whether this method can be safely applied in our own practice as well.
Method(s): The essence of Shao's method: to remove the DJ catheter, create an open loop with a monofilament suture sewed on the end of an Fr5 feeding tube with minimal nitrous oxide inhalational anesthesia. We analyzed the data of all patients (0-18 years) who underwent laparoscopic pyelonplasty and were treated with this technique in our Pediatric Surgery Department between January 2021- June 2021. We compared our results with cystoscopic interventions in the previous year. Furthermore, a bladder model and video illustration were prepared to represent and describe this method. We examined the success and complication rate of the in vivo intervention, its cost-effectiveness, the success rate of DJ removal in full / empty bladder model, and the role of the position of the monofilament suture attached to the feeding tube (fixed 1 cm before the end of the tube vs. fixed in the end of the tube). All data were analyzed statistically using Fisher's exact and Mann-Whitney tests.
Result(s): Between January 2021 and June 2021, we performed DJ removal in 10 patients after laproscopic pyelonplasty, all without cystoscopy (NCS). Removal of the double J catheter was successful after an average of 2.2 trials (1-5 experiments). In the previous year, 10 patients underwent double-J removal after laparoscopic pyelonplasty by cystoscopy (CS). Perioperative complication did not occur in any patient. The mean age of the children in the NCS group was 29.82 months (2 months to 8.5 years) and in the CS group was 67.6 months (3 months to 14.5 years). In the NCS group, the intervention time was found to be significantly shorter than in the CS group (5.9 min vs. 14 min, $p<0.005$). During the experiments, 400 attempts were made to remove the DJ catheter on our infant-sized bladder model (200 cases full – 60 ml volume, 200 times 10 ml bladder model). The success rate of DJ catheter removal (38.5%) was higher in the empty bladder model than in the full bladder model (32%), but the result was not significant ($p=0.21$). The localization of the yarn attached to the feeding tube did not significantly affect the success rate of removal (37% vs. 33.5%, $p=0.53$). Non-cystoscopic DJ removal is more cost-effective solution than the traditional method (~ 35,000 HUF vs. ~ 3000 HUF).
Conclusion(s): The application of the innovative technique has proven to be an effective and safe method both under experimental conditions and in vivo. Using NCS removal significantly shortens the time of the intervention, it is less burdensome for the patient, reduces hospital length of stay and hospital costs. By avoiding intubation, this method also reduces the risk of infection for care personnel during the COVID-19 pandemic.

JJ stent home-removal after laparoscopic pyeloplasty

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Background/Aim(s): Using internal JJ stent after pyeloplasty is common practice to eliminate urine leak around the anastomosis to prevent scar formation, however JJ stent removal requires second anaesthesia. Salle stent can be removed without anaesthesia, however it needs to be brought trough the renal parenchyma or the renal pelvis and this may come with higher risk of bleeding and urine leak. The use of a string attached to the JJ stent for self-removal without anaesthesia following ureteroscopy (retrograde) is a safe, however during laparoscopic pyeloplasty JJ stents are usually inserted anterograde fashion therefore the strings are cut off. Our aim was to find the way to make the antegrade placed JJ stents self/home removable without second anaesthesia.
Method(s): The method was trialled in 18 laparoscopic pyeloplasty. Strings were left attached to JJ stents and were introduced anterograde fashion (as usual) during laparoscopic pyeloplasty. Shortened double loop string was used in 7 patients, single loop string was used in 8 patients and single loop with the end tied to the guide-wire was used in 3 patients. Foley catheter was left in the bladder. Patients were asked to cut the valve of the balloon catheter 7 days postop and to pull stent out once string appears in the genitalia if they feel comfortable, otherwise visit the department.
Result(s): All together 12/18 patients (66.6%) passed the string (4 days-4 weeks) after home self-removal of Foley's catheter. Three out of 7 (42%) shortened double loop string came out, 6 out of the 8 (75%) single loop string came out and 3 of the 3 (100%) single loop with end tied to the guide-wire came out. All together in 6 patients (33.3%) the string did not appear at the urethral meatus after 8 weeks. These stents were removed via cystoscopy without any difficulty.
Conclusion(s): Strings of JJ stents may be left attached during anterograde stenting at laparoscopic pyeloplasty, this may reduce the need of second hospital visit for cystoscopy and stent removal. Results are better with single loop, especially when strings tied to the guidewire.

Histopathologic changes in ureteropelvic junction obstruction

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Background/Aim(s): Confirmed ureteropelvic junction obstruction (UPJO) requires surgical correction. Eighty percent of the cases are caused by intrinsic fibromuscular hyperplasia, where the gold standard is the dismembered pyeloplasty. In the rest of the cases, the underlying pathology is an extrinsic cause (polar vessel), where the surgical treatment does not necessarily contain the resection of the pyeloureteral junction. The chosen type of surgery is based on surgical preference.
Our aim was to determine histopathologic changes in the ureteropelvic junction in children with UPJO regardless of etiology and create a semi-quantitative score system to compare the intrinsic and extrinsic groups.
Method(s): A single-center retrospective data collection was conducted among all children operated with UPJO from January 2011 to March 2021. In our practice, dismembered pyeloplasty is the choice of surgery in all cases of UPJO. We have divided the patients into intrinsic and extrinsic groups based of the intraoperative findings. One experienced pathologist, without having any information of the ethiology, re-evaluated the available histological specimens. The examined aspects were connective tissue ratio, the degree of inflammation, the segmentation of muscle components, the presence of muscular hyperplasia and deviations in the epithelium. Data were analyzed with Mann-Whitney and Fischer's exact test. Finally, we have created a 0 to 4 points score system to quantify histological changes: in each of the four examined aspects, 1 point was given if pathologic alterations were detected.
Result(s): We have performed 101 dismembered pyeloplasty between 2011 and early 2021. More than one third of the cases (n=36) were associated with crossing vessel (CV). 72 histological specimens were eligible for repeated pathological evaluation (CV n=23, intrinsic n=49). Comparing the groups, histological analysis revealed a significant difference in the connective tissue ratio (p= 0,03), in the degree of inflammation (p=0.0495), in the segmentation of the muscle components (p=0,0006) and the presence of epithelial dysplasia (0.0423). There was no significant difference in the amount of muscular hyperplasia (0.0676). In four categories, we have found statistically significant difference. We have subjectively scored the severity of the pathological findings (0=less likely expressed, 1=rather expressed). Based on this semi-quantitative score system (0-4 points), we have found that patients with a crossing vessel were less likely to have intrinsic histologic pathologic findings (p=0.0005).
Conclusion(s): Pathological findings are present in almost every specimen. We have only found 4 cases where the histopathological evaluation resulted 0 points. We have also found serious fibrosis (n=5), expressed muscle segmentation (n=7) and muscular hyperplasia (n=11) in cases caused by crossing vessel. We are not able to predict the reversibility or the progression, but we also cannot predict the success rate of the vascular hitch technique, based on our findings.

Does it worth to switch from retroperitoneal to transperitoneal approach with laparoscopic pyeloplasty?

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Background/Aim(s): The transperitoneal approach (TP) offers larger working space, anastomosis in front of the lower pole vessels compared to retroperitoneal procedure (RP). The peritoneum can be easily reconstructed and there is no difference in recovery and cosmesis.
Method(s): Data of 156 pyeloplasties were reviewed. TP: 40 consecutive cases (27 over 5, 13 under 5 and 3 under 1 year, youngest 5 months old) including 3 redo cases. RP: 56 consecutive primary cases over 5 years of age. OP: 60 primary cases (41 over 5,19 under 5 and 9 under 1 year, the youngest 3 months old). Operation time, conversion rate, postoperative complications were assessed. Unpaired t test was used to compare means and SD and Chi-squared test to compare proportions (%), $p<0.005$.
Result(s): TP was shorter than RP (230.4 +/-29 vs. 249.8 +/- 46, $p =0.0036$). Conversion rate was lower in TP than RP (1/40 (2.5%) vs. 3/56 (5%) $p=0.380$). There was no difference in early postop complications TP: 3/40 (7.5 %) vs. RP: 7/56 (12.5%) $p= 0.4316$ and vs. OP: 5/60 (8.3%) $p=0.4596$. There was no difference in hospital stay (3 days) and long term complications requiring second intervention like JJ stenting, balloon dilatation and redo (TP: 4/40 (10%) vs. RP: 4/ 56 (7%) $p= 0.6003$ and vs. OP 5/60 (8%) $p= 0.7308$).
Conclusion(s): TP is safe, effective, slightly shorter than RP and suitable for much younger patient and for redo cases as well. It may worth to switch from RP to TP.

Initial results with modified vascular hitch for laparoscopic transposition of lower pole crossing vessels in children with pelviureteric junction obstruction

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Background/Aim(s): Vascular hitch procedure for the treatment of lower pole crossing vessels was described originally by Hellström in 1949. He fixed the vessels in a higher position on the pelvis with vascular adventitial stiches. Chapman modified the technique placing the vessels within a wrap of the anterior pelvic wall (1959).
We describe a new, very simple laparoscopic method for fixing the lower pole vessels in a higher position. We present our preliminary results in 6 consecutive children.
Method(s): From 01/01/2020 to 30/06/2021 34 children were operated with pelviureteric junction (PUJ) obstruction. Transperitoneal laparoscopy was performed in all cases. We have identified lower pole crossing vessels without intrinsic obstruction in 6 cases (5 left, 1 right sided). In these cases the PUJ and the aberrant vessels were dissected through an avascular part of the mesocolon. The vessels were fixed in a higher position by suturing the cranial edge of the mesocolon's window to the pelvic wall below the vessels. Follow-up was done with ultrasound, measuring the anteroposterior pelvic diameter and assessing the circulation of the lower pole.
Result(s): Age of the patients was 5.7 yrs (1.6-13.1). Follow up was 16 months (5-34). Pelvic diameter decreased in all cases (65% on average; 31-100%). Circulation of the lower pole was similar to the circulation of the central part of the kidney in all cases (4/4).
Conclusion(s): In cases of PUJ obstruction caused by lower pole vessels our modified vascular hitch technique seems to be a good alternative to other, previously described methods.

UPJ obstruction with polar vessel: vascular-hitch or pyeloplasty?

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Background/Aim(s): Uretero-pelvic junction (UPJ) stenosis is one of the most common congenital urinary tract anomalies. Its rare cause is compression of the UPJ by an aberrant lower pole vessel. This vessel can cause per se compression, or secondary intramural stenosis, but can be present independently from a primary stenosis. Our aim was to examine our group of patients operated with this anomaly.
Method(s): Data of patients were analysed retrospectively, who were operated on UPJ obstruction and in whom polar vessel was also found in our tertiary centre between 2014-2020. Age, symptoms, preoperative examinations, surgical procedures and long term results were examined.
Result(s): Mean age of the 23 operated cases was 9.8 (1 month - 18 years) years, with 14 boys and 9 girls. First symptoms were lumbar pain (n=4), urinary tract infection (n=3), and accidental finding in n=16 cases. All 23 patients had ultrasound imaging, in n=21 cases renography, n=8 cases renal scintigraphy, n=5 cases MR uro-angiography was also performed. The aberrant vessel was revealed preoperatively in n=7 cases, with MR uro-angiography in n=4, and Doppler ultrasound in n=3. The obstruction was solved by laparoscopic (n=11), or open (n=1) vascular-hitch (VH) operation, and by laparoscopic (n=8), and open (n=3) Anderson-Hynes pyeloplasty. The decision whether resection of the UPJ is necessary was made intraoperatively in all cases. There was no recurrence after VH surgery during the average 2.3 year follow-up. After pyeloplasties redo-pyeloplasty was performed due to restenosis in 1 occasion, while in another case nephrectomy was necessary due to renal failure of a complex renal malformation. All other patients are free of symptoms. The average age in VH surgery was 10.4 years (between 0.4-18.1), while in pyeloplasties 8.9 years (0.1-16.9). Transanastomotic stent was used in all 11 cases of pyeloplasty and in 1 case of VH surgery. There were no intra or perioperative complications. The average length of hospitalization after VH surgery was 3.5 days (2-7 days), while after pyeloplasty 7.6 days (4-8 days). Postoperative ultrasound examinations showed reduction of hydronephrosis in all cases, except for the 2 reoperated children.
Conclusion(s): Among our patients UPJ obstruction caused by polar vessel compression were revealed mainly in later childhood and caused symptoms only in 1/3rd of cases. Although the presence of aberrant vessel is diagnosed more frequently preoperatively, choosing the most suitable treatment is possible only intraoperatively. The results of minimally invasive methods solving UPJ obstruction are excellent.

Laparoscopic pyeloplasty in infants

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Background/Aim(s): Confirmed UPJ obstruction requires surgical correction using a pyeloplasty. In experienced hands, MIS techniques have the same success rate as standard open procedures, however laparoscopic correction under the age of 1 year is not generally accepted and most of the pediatric surgeons prefer open surgery in this age group.
Our aim was to investigate the safety, efficacy and feasibility of laporoscopic transperitoneal pyeloplasty under 1 year of age.
Method(s): In our department from 2011 to early 2021, 101 children were treated for UPJO. We included all the pediatric patients, who underwent laparoscopic or open pyeloplasty. We have evaluated and compared the demographic, operative and follow-up data.
Result(s): From the 101 patients, 37 were under the age of 1 year (21 MIS, 16 open) and 64 were older than 1 year (47 MIS, 17 open). The mean age of the infants was 121 ± 71.0 days (MIS) and 163 ± 87.7 days (open). There was no conversion in the MIS group. The only intraoperative complication was the technical difficulty with the JJ catheter insertion (n=5). Mean operative time was significantly longer (55 minutes in average) in those cases where we couldn't instert the DJ stent easily. Operative weight and age does not correlate with skin-to-skin time. There is no statistically significant connection between in utero detected pyelectasis and intra/postoperative complications. Regardless of age, postoperative LOS is significantly lower in MIS group. Operative age shows negative correlation with postoperative complications regardless of operative approach. There is no connection between preoperative and postoperative UTI.
Conclusion(s): Laparoscopic transperitoneal pyeloplasty is feasible and safe in infants.

Posterior urethral valve – Is one ablation enough? A single centre study for long term outcome

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Background/Aim(s): Posterior urethral valve (PUV) is the most common cause of bladder outlet obstruction in children leading to chronic kidney disease in some cases. The recommended management is the ablation of the valves using a special resectoscope. These patients need lifelong monitoring of renal- and bladder function. It is very important to detect the residual bladder outlet obstruction and to differentiate remnant valve from bladder dysfunction. At our institution the management protocol of PUV patients is repeated cystoscopic or uroflowmetric (in toilet trained age) control of remnant valve/outlet obstruction till negative findings. The aim was to examine whether our strict protocol is necessary or not.
Method(s): We retrospectively reviewed the medical records of our PUV patients having their first ablation between 2008 January and 2019 December.
Result(s): We examined 46 patients, of whom 32 was detected in the newborn age, 3 till one year old and 11 at older age. The average follow up period was 70 months (2-196). 26 of them got suprapubic catheter before ablation, and 9 patients needed upper diversion – 8 of them on both sides. Seven nephrectomies/heminephrectomies were performed and one patient underwent renal transplantation during the follow up period. Till June 2021 in 35/46 cases the successful ablation have been proven by cystoscopy or uroflowmetry. These patients needed 1-9 ablations (average 3,14). The second cystoscopy was negative in only 6/35 patients, meaning that more than 80% of the control cystoscopies were necessary. From the 35 toilet trained children 30 had uroflowmetric study. In 15/30 (50%) cases bladder dysfunction have been proven. Because of known bladder capacity evolution among PUV patients (from spastic, low capacity bladder to a large, myogenic bladder) we analysed the bladder capacities in the 131 uroflowmetric results of the 30 children done in the study period (1-13 studies per child). At the last uroflowmetric study of each child we found low capacity in 1 (3,3%) and high in 11 cases (36,7%). During the uroflowmetric follow up the capacity finally normalized in 3 cases from the low capacity group and in 2 in the high capacity group.
Conclusion(s): Reexamining our patients after the first PUV ablation seemed to be useful in more than 4/5 of patients. We found a high rate of bladder dysfunction among our patients which is congruent with the literature data. As the correlation between bladder dysfunction and the development of chronic renal disease is well known, the regular, long term follow up with urodynamic studies is essential. We hypothesize that with meticulous controls the frequency of bladder capacity disorders can be reduced nourishing a better renal survival and patient quality of life.

10-years experience with ureteric reimplantation at the time of exstrophy closure

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Background/Aim(s): The timing of ureteric reimplantation in patients with bladder exstrophy is still debated. We report a 10-years experience with primary bilateral ureteric reimplantation at the time of exstrophy closure focusing on its ability to prevent vesico-ureteric reflux (VUR), preserving kidney function and related complications.
Method(s): A prospectively maintained database for exstrophy was used to select patients with classic bladder exstrophy who underwent closure with ureteric reimplantation between 2009 and 2019. The following outcomes were measured: age at closure, length of follow-up, upper urinary tract dilatation on ultrasound, VUR on cystogram, renal scarring on DMSA at the age of 5 years, estimated GFR and complications.
Result(s): Sixty-six patients (46 males) were included. The median age at operation was 6 months (4-7). The median follow-up is 56 months (34-76). 7% had a renal pelvis measuring 10-15mm. VUR was found in 21% of renal units, equally split into dilating and non-dilating reflux. Twenty patients were > 5 years and had a DMSA, of which 15% showed scarring in one renal pole. Estimated GFR was normal in all. One required lithotripsy for a unilateral ureteric stone. Three patients were found to have bladder trabeculation.
Conclusion(s): Primary bilateral ureteric reimplantation at the time of exstrophy closure can prevent reflux in 4/5 of the patients. It is associated with minimal risk of mild hydronephrosis and protects the upper urinary tracts from renal scarring in 85% of the patients at the age of 5 years. Complications are unlucky but bladder trabeculation has been seen in 4.5% of the patients.

Long-term urodynamic findings following colo-, gastro- and ileocystoplasty

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Background/Aim(s): Authors examined the urodynamic changes in patients with colo- (CCP), gastro- (GCP) and ileocystoplasty (ICP) in a prospective study. To determine whether the changes influence patients' continence, the incidence of pathologic contractions before and after augmentation cystoplasty in a prospective study.
Method(s): Eighty-four patients who underwent augmentation between 1987 and 2017 were included. Group I: 35 patients with CCP whereas 34 were incontinent before CCP. Group II: 18 patients with GCP, whereas 9 patients were incontinent before GCP. Group III: 31 patients with ICP, wherein 30 patients were incontinent preoperatively. Cystometry was performed at 3, 6 months and then yearly after augmentation. Pre- and postoperative urodynamic changes were analyzed statistically.
Result(s): In Group I 2 patients, in Group III 1 patient remained incontinent after CCP and ICP. Bladder capacity increased significantly, maximal intravesical pres-sure decreased and compliance improved in all three groups ($p<0.001$). Postoperative studies showed pathologic contractions in the augmented bladder in half of the patients with GCP, in 43% of patients after CCP and 26% of patients with ICP.
Conclusion(s): Different alimentary tract segments used for augmentation (stomach, ileum, colon) did not influence the effectiveness of the augmentation or cessation of incontinence. Contractions after successful augmentation might be caused by the remaining peristalsis of the detubularized segment, which was most favorable after ICP. Further studies are needed to investigate the "mass contractions" remained after detubularization.

Laparoscopic treatment of congenital duodenal obstruction – our initial experience

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Background/Aim(s): Congenital duodenal obstruction (CDO) is traditionally managed by laparotomy, but laparoscopic repair is also feasible and gaining increased popularity. The aim of this report was to critically analyze our experience with the recently introduced technique and compare with conventional treatment of CDO.
Method(s): A single-center retrospective data collection was conducted among all children operated with CDO from January 2011 to March 2021. Demographical data, intra- and early postoperative complications, operation time, time to achieve full enteral feeding and length of stay were analyzed. T test, Mann-Whitney test and Fisher's exact tests were used for statistical analysis.
Result(s): In the study period 20 children were operated with CDO. Laparoscopy was introduced in 2014, but was ceased for few years because of frequent conversions. With modification of our technique [abandoning the trans-anastomotic tube (TAT)], the first successful total laparoscopic repair was achieved in 2017. From this date all CDO patients were managed by minimally invasive surgery. Therefore, the open (Group A, n=8) and the laparoscopic (Group B, n=6) group were compered. There was no significant difference in birth weight, gestational age and age at surgery between the two groups. The mean operation time in Group A was 110,6±29,57 minutes and 150,0±36,19 minutes in Group B (P=0,0445). In either group, there were no intraoperative complications. In Group A, enteral feeding was started via the TAT, while in Group B enteral feeding was initiated orally. There was no significant difference in time to initiation and time to full enteral feeding between the groups. However, in the laparoscopic group the time to full feeds was less than the open group (13,00±3,347 vs. 22,50±12,91 days respectively). Length of stay was 51,50±34,00 days in Group A and 18,17±6,56 days in Group B (P=0,0278). There was no mortality, anastomosis leakage, or stenosis in either group. There was no significant difference in early and late complication between the groups.
Conclusion(s): In experienced hands, minimally invasive surgery is a good option for CDO repair in neonates. Comparing MIS to open surgery, the only disadvantage is the currently longer operative time. Enteral feedings can be started at a similar time as in open repair with TAT, the time to full enteral feeding is reduced and length of stay is decreased with laparoscopic repair.

Comparison of different pilonidal sinus treatment techniques: a retrospective study

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Background/Aim(s): Sacral pilonidal disease (PD) in adolescents is a relatively common morbidity. Its multiple management options are a testimony to the difficulty of eradication. We aimed to compare the pediatric endoscopic pilonidal sinus treatment (PEPSIT) to other treatment methods in our practice.
Method(s): The authors assessed pediatric patients treated with PD between January 1st, 2008 and January 1st, 2021. Out of 276 patients, 255 met with the inclusion criteria. The total amount of surgical interventions and hospitalization of the 255 patients was 340. Surgical treatment options were incision (90), excision and direct closure with or without drainage (164 and 18 respectively), PEPSIT (37), flap advancement by Karidakys (9) and open wound treatment (22). Patients were grouped according to the surgical interventions and analysed by age, sex, length of hospital stay (LOS), wound healing, wound complications, use of antibiotics and need for repeated hospitalization.
Result(s): Wound healing was the slowest in openly treated patients. Antibiotic use was highest in flap advancement and in directly closed groups. Wound healing complications was the same in all patient groups. Repeated hospitalization rate was the highest among the incised patients. LOS was lowest after PEPSIT procedure and following the incision only and highest in openly treated patients. Drainage time was shortest after incisions, but roughly the same following the other drained techniques.
Conclusion(s): Multiple techniques are known in the treatment of PD. Neither technique proved to be significantly better than others were. However, the authors recommend the endoscopic technique because of shortest hospital stay and minimal patient discomfort because of the rapid recovery following the PEPSIT.

Percutaneous internal ring suturing (PIRS): factor(s) of recurrence?

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Background/Aim(s): The PIRS technique has been used for 15 years for pediatric inguinal hernia/hydrocele repair. Despite its advantages, the recurrence rate is still higher compared to open inguinal hernia closure. Our aim was to analyse the factors affecting recurrence rate of the technique in our practice.
Method(s): A retrospective cohort study was performed on all the patients treated with PIRS in a single institute, between 2016 and 2021. Inclusion criteria was completed PIRS procedure, there were no exclusion criteria. Factors analysed were patient gender, age, body weight, prematurity status, laterality of the hernia, duration of surgery, additional laparoscopic instrument usage, the surgeon's personal experience and recurrence rate. The average follow-up was 2.5 years. Statistical analysis was performed with Fisher's exact and Mann-Whitney tests.
Result(s): 587 PIRS procedures on 438 children were performed. Mean age and body weight was 43.32 months and 14.62 kg at surgery. There was male dominance (311/438). The affected side was the right in 269, left in 119 cases and 50 cases were bilateral. 49 patients had hydrocele as preoperative diagnosis. 103 contralateral patent vaginal processes were closed as incidental findings. Average operative time was 27.8 minutes (one-sided: 24.8, bilateral: 34.8 minutes). 153 patients were younger than 1 year, 162 patients were under 10 kg, 71 patients were premature (corrected age was under 6 months). In 116 operations an additional forceps was inserted to help suturing. 9 surgeons with 8-98 procedures personal experience performed the operations. 16 patients had recurrence (2.7%).
Gender, preoperative diagnosis, operational time, use of additional instrument, surgeon's experience and patient's age younger than 1 year did not influence recurrence rate. We found 2 significant predisposing factors for recurrence: prematurity (p=0.0033) and left-sided inguinal ring opening (p=0.0278).
Conclusion(s): PIRS technique is a safe, effective and feasible method for inguinal repair, but prematurity and left sided defect are associated with higher recurrence rate.

Bent or straight? PIRS

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Background/Aim(s): The laparoscopically assisted hernia repair getting more and more popular. There are several different methods, maybe the most frequently used is the PIRS. By the time of introducing it we had experience of iliac artery or vein injury due to puncture the vessels with the parallel introduced needle. Based on this we started to use bended needle, what theoretically helps to avoid the vessel injury and with the full circularly introduced line around the the hernial sac may decrases the rate of recurrency. This technique was introduced in April 2011 in our unit. Our aim is to present our results, to evaluate safety and feasibility.
Method(s): We reviewed data retrospectively between April 2011 and December 2016 and prospectively examined the surgical outcomes using US a week, and 3 months after operation.
Result(s): We listed 201 patients, 204 operations, and 267 hernia closure. M/F ratio: 132/72. The average age 59 month (1 month -17 years), the average weight 19,41 (4-70) kg, 22,11% premature. The intraoperative diagnoses 36,45% right side, 22,17% left side, 38,42% bilateral hernia, and in 2,96% of the cases no open sac were found. Mean operating time was 23 minutes (6-80 min). Conversion to open needed in 9 cases, 2 because of iliac haematoma. Patients required on the average 1,27 (0-4) doses of NSAID. 153 children appeared on the first follow-up, 8 inguinal swellings, 8 hydroceles, 1 scrotal haematoma, 1 painful urination, and 2 testicular retractions were documented. On the 3 month appointment 82 patients showed up. 3 umbilical hernias, 1 omphalitis, 4 recurrences out of which 2 were operated with LAHHR, 3 testicular retractions, 7 hydroceles, and 2 elevated testes were seen. Testicular atrophy, calcification was not recorded. 24 out of 204 operations were performed in LMA anaesthesia without muscle relaxation. By the available data from Pubmed of the ratio of iliac haematoma of PIRS is from 5% up 12%.
Conclusion(s): Laparoscopis hernia repair with bent needle is a simple, feasible and safe method. Provides solid diagnosis, bilateral treatment, and leaves the testicular blood supply intact and the cosmetic result is superb. The use of bent needle causes less iliac haematoma during the operation than the straight needle.

Leiomyoma of the cardia: laparo-endoscopic transgastric enucleation

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Background/Aim(s): Gastric submucosal tumors are rare in children. In benign cases, wedge resection is accepted to avoid extended surgery, but even limited resection of the esophagogastric (EG) junction carries an increased chance of complications. Limited series exist about laparo-endoscopic transgastric resections of gastric submucosal tumors in adult patients, but there is no published case regarding pediatric population so far.
Case(s): A 17-year-old boy was admitted to hospital due to massive haematemesis requiring transfusion. Oesophagogastroscopy revealed a 3 cm large mass in the cardia. Biopsy was performed which revealed the tumor to be a benign leiomyoma. Endoscopic ultrasonography showed a capsule around the lesion and no transmural infiltration; on abdominal MRI the disease was localized to the gastric wall. A combined endoscopic-laparoscopic operation was performed: under endoscopic visualization, following trans-illumination and percutaneous transgastric stay-sutures, 3 cuffed trocars (one for the camera and two working ports) were inserted directly into the gastric cavity. With 10 Hgmm pressure, CO2 insufflation started; an endoscopic loop was encircled around the neck of the lesion, and with gentle traction the tumor was lifted. The mucosa was incised around the lesion and with a monopolar hook and Ligasure dissector it was totally enucleated from the submocosa. The specimen was removed through the esophagus with the endoscope. The trocar wounds of the stomach were closed with laparoscopic sutures using the same port locations. The patient started oral feeding on the 2nd postoperative day. Histology revealed negative resection margins. 6 weeks later a control esophago-gastroscopy showed intact EG junction with no sign of recurrence.
Conclusion(s): Laparo-endoscopic transgastric enucleation is a safe alternative to resect gastric benign tumors, especially in the EG junction. It has the advantage to avoid mutilating surgery, permits fast recovery, without any compromise in effectivity.

Laparoscopic resolution of complicated Amyand's hernia: case report and review of the literature

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Background/Aim(s): Amyand's hernia accounts for 1% of inguinal hernias and is rarely associated with appendicitis (0.1%); complications are even less common. Its management is not uniform and laparoscopic resolution is not a widespread technique.
Case(s): Case 1: 5-year-old girl was referred to our department with symptoms of right inguinal and abdominal inflammation. Ultrasound suspected perforated appendicitis in the inguinal hernia sac with the presence of extensive peritonitis. After release of the adhesions, laparoscopic appendectomy and thorough intraabdominal irrigation were performed, leaving the right inguinal ring open. She was discharged after 1 week of broad-spectrum antibiotic treatment. SHe was asymptomatic after 1 year without signs of hernia recurrence. Ultrasound examination confirmed a closed inguinal canal.
Case 2: In a 10-year-old boy, after 3 days of complaints, ultrasound confirmed an inflamed appendix in the right inguinal canal, which was found to be perforated during laparoscopic surgery. Physical and control ultrasound examinations did not confirm any manifest inguinal hernia in the right inguinal canal. No further surgery was performed in either case.
Discussion: A PubMed review using the keywords "inguinal" "hernia" "appendicitis" "pediatric" yielded 53 articles, of which 22 publications, presenting 44 cases, met the criteria. Perforated appendicitis was present in n=14 cases (32.5%). Mean age of these patients was 451 days and the median age was 40 days (4 days-12 years). Laparoscopic resolution was reported only in 1 case, but appendectomy was performed open in this case. Ultrasound was the most commonly used diagnostic tool (n=5; 35.7%) along with X-ray (n=3; 21.4%) and CT (n=2; 14.2%). In perforated cases, hernia repair was performed in n=13 (92.8%) cases. Abdominal lavage was performed in n=3 (6.8%) cases. There were no hernia recurrences or deaths.
Conclusion(s): Laparoscopy seems to be a safe and reliable option even for complicated Amyand's hernia, although only few cases have been reported in the literature. Even spontaneous closure of the hernia can be expected, which may prevent subsequent surgery.

Outcomes of staged laparoscopic traction orchiopexy for intra-abdominal testes: a multicenter analysis

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Background/Aim(s): Two-stage laparoscopic traction orchiopexy (SLTO) is a novel technique for the intra-abdominal testis (IAT) based on elongation of the testicular vessels without dividing them. This multicentre study evaluated the midterm results of this technique.
Method(s): Data of SLTO operated in three Hungarian pediatric surgical centres between 2013 and 2020 were analysed retrospectively. In 2021 physical and Doppler ultrasound examinations were performed to determine position, size, and structure of the testes. Success was defined as an intra-scrotal testicle without atrophy. Descriptive analysis was used to summarize the outcomes.
Result(s): Forty-eight patients (55 testes with 7 bilateral cases) underwent SLTO in the study period. Mean age at first stage was 2.9 (0.8-12.6) years; only 47.9 % of the patients were younger than 18 months. High intra-abdominal testes were found in 16.4 % of the cases and in 60 % morphological abnormalities were observed. To fix the testes to the abdominal wall monofilament suture was used in 67.3 %, braided in 29.1 %, in 3.6 % unknown. Mean time between the two stages was 14.8 weeks; three cases required redo traction. Scrotal testes were achieved in 51 (92.7 %) cases. Perioperative complications occurred in 38.2 % of the operations including fixation suture insufficiency (11), adhesion of the spermatic cords (1), testicular atrophy (4), wound healing disorders (4) and hydrocele (1). In 90.9 % the insufficient fixing stitches were monofilament sutures. Thirty-five patients (39 testes) had US examinations. Mean follow-up period was 2.6 (0.34-7.9) years. One further atrophy was identified, and three testicular ascents occurred requiring open surgery for correction. The overall success rate was 81.4 %.
Conclusion(s): According to the first multicentre, retrospective study SLTO may be a feasible alternative to conventional treatments of IATs. Additionally, braided suture seems to be a better option to fix the testicle to the abdominal wall. Further long-term studies can provide more information to determine the success of the operation.

Cystic lesions of the testis in infancy – case series of four patients

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Background/Aim(s): Cystic lesions of the testis are rare in infancy. Only few similar case-series has been published in the English literature. Orchiectomy reported in one-third of the cases until the early 2000s. Histology mostly confirms teratomas, rarely simple cysts. Both are benign and detected commonly under the age of one. Our aim is to draw attention to the importance of testicular sparing surgery (enucleation), in case of testicular cyst, whenever possible.

Case(s): Between 2015 and 2018, four cystic testicular lesions were treated in infancy at the authors' institutes. Retrospective analysis of these cases and review of the relevant literature were performed. Patients were aged under six months. Lumps were presented as a unilateral, painless scrotal enlargement. Ultrasound described cystic lesion in the testis in three cases. In one case a septated, echogenic, liquid-filled cystic lesion was detected, with no significant amount of testicular tissue. MRI scan of this patient predicted the diagnosis of teratoma. During the surgeries cystic lesions were found in all cases. Enucleation was performed in three patients. Orchiectomy was carried out once due to the suspicion of teratoma with lack of any salvageable testicular tissue. Histopathology confirmed simple cysts in two cases and pre-pubertal teratomas in the others.

Conclusion(s): Testicular cystic lesions are predominantly benign in infancy. Simple cysts and pre-pubertal teratomas are benign lesions, do not prone to malignant transformation. Ultrasound is reliable for preoperative investigation. Testicular tissue sparing surgery must be considered and without histopathology, orchiectomy to be avoided.

Rare complication of port-a-cath removal

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Background/Aim(s): Complication of port-a-cath removal is low. Our main goal with this case report is to draw attention to a rare, but serious possible complication.
Case(s): After finishing active chemotherapy of ALL in a 4.5-year-old boy in the Haematologic Unit of our tertiary pediatric centre, we have removed his port-a-cath. During the procedure the patient had a sudden, but transient, rapidly solving hypotension without any sign of haemorrhage at the surgical site. During the postoperative period the patient was stable in vital signs. Next day, during an elective cardiac ultrasound examination the boy was already pale and felt weak. The ultrasound image showed a great amount of fluid in the thorax. After draining his haemothorax, there was no additional bleeding detected. The patient received transfusion and made a full recovery. Most likely during the port-a-cath insertion the catheter was driven through the parietal pleura into the left subclavian vein. At port removal blood was drained into the thorax from the vein through a scar sheath formed around the catheter. After this complication, we have changed our protocol of port removal by performing a postoperative chest ultrasound to exclude haemothorax or pneumothorax.
Discussion: According to the literature, the complications after central venous catheter removal are rare (2-3%). The most common ones are catheter fractures, implantation, thrombo- and air embolism. Pneumo- and haemothorax are extremely rare, and they occur mainly after multiple puncture attempts of the central line catheter. In these cases the injury of the parietal pleura is more likely to happen. The treatment of these complications is mainly conservative, although after catheter migration, interventional radiological removal is needed.
Conclusion(s): At port-a-cath removal this possible complication has to be considered too, especially if the insertion was complicated and performed with several punctures. With the help of postoperative ultrasound imaging this complication can be diagnosed in time, and treated conservatively.

Ovarian mucinous cystadenoma: a rare presentation in adolescence – case report

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Background/Aim(s): Ovarian masses are uncommon in the pediatric age group; the estimated annual incidence is 2.2/100 000 in females younger than 16 years. We present a case of a rare entity in adolescence.
Case(s): A 14-year-old previously healthy girl presented to our hospital with a 2-month history of intermittent abdominal distension with pain and a palpable mass. A magnetic resonance imaging scan of the abdomen and pelvis revealed a cystic abdominal mass occupying almost the entire pelvis. The lesion, measuring 20 x 15 x 13 cm, had some internal septations, with a minimal solid component. Laboratory testing showed a mildly elevated CA 125 protein, whereas other markers were normal. We decided to proceed with an open approach. During the operation, we found the mass arising from the right ovary. Because it was firmly adherent to the right adnexa, the patient underwent salpingo-oophorectomy. The final histology diagnosis was mucinous cystadenoma, intestinal type. After an uneventful hospital course, the patient was discharged and followed up regularly with ultrasonography and at the pediatric endocrinology clinic.
Conclusion(s): Albeit a rare entity, the possibility of an ovarian mucinous cystadenoma should be considered in pre- or perimenarcheal teenage girls who present with a large, cystic abdominal mass. They present a challenging opportunity for the application of minimally invasive and ovary-sparing techniques, but they should be utilised only in selected cases when a benign diagnosis is strongly suspected.

Multiple intestinal necrosis due to invasive aspergillosis in a pediatric patient with acute lymphoid leukemia: a case report

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Background/Aim(s): In immunocompromised children invasive aspergillosis (IA) is an important cause of infectious morbidity and mortality. In our presentation, we would like to present a rare manifestation of IA: intestinal aspergillosis with intestinal necrosis.
Case(s): A 16-year-old male patient was diagnosed with T-cell acute lymphoblastic leukaemia. He received an allogeneic stem cell transplantation as part of the treatment according to the ALL IC-BFM 2009 protocol. 4 years later a histologically proven relapse occurred in the prostate, and additional treatment was initiated according to the ALL-IC-2016-1 relapse protocol. Due to the consequent severe neutropenic fever, broad-spectrum antibiotic therapy was initiated, and a few days later oral voriconazole therapy was added due to aspergillus seropositivity. Chest CT examination for nodular patterns on chest X-ray was consistent with invasive pulmonary aspergillosis. Despite of adequate antifungal and bacterial treatment, an acute abdomen developed with pneumoperitoneum on plain abdominal X-ray. Emergent laparotomy was performed and the operative finding was a jejunoileal necrosis with multiple perforations affecting a 90-centimeter long segment of the small bowel. Focal necrosis and perforation was also observed on the appendix and the coecum, with fibrinopurulent peritonitis with interintestinal abscesses. Small bowel resection with primary anastomosis, appendectomy and closure of the coecum was perfomed. Histology confirmed the diagnosis of invasive intestinal aspergillosis. With intravenous maximum-dose voriconazole treatment, the patient was fully recovered from aspergillosis; the surgical course was uneventful. After a follow-up of few months the patient is well and is in remission.
Conclusion(s): Neutropenic (entero)colitis is a life-threatening complication of immunocompromised patients. The underlying condition can be intestinal aspergillosis, and it may cause a rare, rapidly progressive, potentially fatal intestinal necrosis. In the pediatric population there are only 11 published cases in the current literature with a mortality rate of 36.44%. When an associated fungal infection is suspected, we should pay close attention to general abdominal complaints and always consider the possibility of invasive aspergillosis, whose timely, primary treatment is conservative, but surgical observation of patients is essential.

Twin-to-twin metastasis – case report and literature review

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Background/Aim(s): Concordance for neuroblastoma in monozygotic twins has rarely been described in the literature, only a few reviews and case reports can be found. The pathomechanism of simultaneous presentation of congenital neuroblastoma can be either genetically inherited with the same genetic background or twin-to-twin metastasization in monochorial pregnancy where one twin develops a primary adrenal tumour and the second twin manifests the disease without an identifiable primary site using the fetoplacental circulation.
Appointing the adequate treatment for concordant neuroblastoma in monozygotic twins is based on the prognostic factors, but the simultaneous presentation can alter the decision. Our goal is to determine the prognostic value of twin-to-twin metastatic neuroblastomas.
With literature review we found 10 case reports and reviews, having relevant information and data of twin-to-twin metastatic neuroblastoma cases. Majority of the cases, after the histology results came back, went under chemotherapy and radical surgical procedures. Mortality of the patients was 47.36%(19/9). In the literature we haven't found a documented case, where they chose observation instead of active treatment.
Case(s): Two months old twin girls were admitted to our hospital after a screening ultrasound discovered malignant abdominal masses in both. In Twin A MRI showed the primary tumor localized in the left adrenal region with several liver metastases, in Twin B only multiplex liver metastasis were found, in her case a primary tumor was not detected. Metaiodobenzylguanidine scintigraphy showed no positive findings in other localizations. Laparoscopic- assisted biopsies for the liver tumours. All specimens of liver tumor from Twin A and B exhibited favourable IVS neuroblastoma regarding the Shimada classification, and the FISH tests showed no MYCN amplification. According to the favourable histology and the absence of MYCN amplification and other advantageous prognostic factors, oncologists suggested observation. In our case observation as course of treatment and classification as low risk proved legitimate, as in both patients the one year follow-up MRI showed regression exceeding 90%.
Conclusion(s): Based on our case, the presentation of twin-to-twin metastasis should not be considered ultimately an unfavourable prognostic factor. The histology and the cytogenetic test results as the most significant prognostic factors should decide the staging and the treatment of the patients.

Raceme abdominal haemangioma causing ileus

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The authors reported a 17-year-old male patient, who was presented with no history of previous abdominal surgery. Upon presentation he had abdominal pain, tenderness on the left side, emesis and severe exsiccation. Plain abdominal X-ray confirmed mechanical ileus and laparotomy was performed. A chord, causing strangulation of the terminal ileum and the valve of Bauchin was found in the abdomen. This ran from the abdominal wall to the terminal ileum and it was resected. The patient improved gradually till the 4th post operative day, when his abdomen became distended again and had symptoms of ileus. Repeated laparotomy was performed where a longitudinal, chord like structure lateral to the previous strangulational area was found, which ran subserosally parallel to the intestine to the mesenterial root. This structure was removed. Histologic examination proved the structure to be a raceme haemangioma.
Gastrointestinal haemangiomas are rare entities in childhood. They present usually in young people. The main clinical manifestation is gastrointestinal bleeding, but obstruction, intussusception, intramural haematoma, platelet sequestration can also occur. The therapy is usually surgical.

Sclerotherapy and sirolimus: novel treatment for cystic lymphangiomas case report

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Background/Aim(s): Lymphangioma in neonates is a rare congenital malformation (1:12000 live births). Its etiology is unknown. 95% of them are found in the neck, head, or axilla. Initial diagnosis is based on physical examination. It has to be confirmed by MRI or CT imaging. It is histologically benign, but the lesion can spread deep into the neighbouring tissue, so surgical excision is often difficult. The authors present a case report, diagnosis and treatment, of a child with congenital cystic lymphangioma of neck.
The novelty of the treatment is based on a combination of two already known drugs: bleomycin and sirolimus. Bleomycin is an established antineoplastic drug, but recently some attempts were made with injecting it locally as a sclerosing agent in cases of congenital lymphatic malformations. Increasing data suggests the role of oral sirolimus as a treatment option for complex lymphatic anomalies. The wellknown impact of bleomycin helps to reduce the size of the lymphangioma, then using the potential immunosuppressive and antiproliferative effect of sirolimus to decrease the chances of recurrence.
Case(s): Female baby, naturally delivered on the 39th gestation week, had a congenital cervical swelling. It was localised mainly on the right side of the neck, involving the central portion as well. After physical examination, ultrasound examination and an MRI study was performed. Results confirmed the diagnosis of lymphangioma. The patient required intubation as her breathing difficulties intensified. Ultrasound guided fluid aspiration with simultaneous bleomycin sclerotization was performed several times. Serial treatments resulted regression of the swelling. Following the repeated sclerotization, sirolimus therapy started. During this part of therapy the regression of swelling continued. Last visit showed no cyst at a size to aspirate. Patient still followed up.
Conclusion(s): Lymphangiomas bring difficulties for the patients to live with. Lot of them can result even life threatening situations. Our group is in a search for a therapy which could provide faster and safer healing and would offer better quality of life, than surgical protocols do. Neither bleomycin, nor sirolimus is established treatment option for lymphangioma. The aim of our group was to examine how this protocol could improve expected life quality of our patients. As the results are promising, we plan to investigate further treatment options with the combination of these two drugs. We also make efforts to advance this therapy officially accepted in Hungary.

Median facial cleft and the background. Report of two cases

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Background/Aim(s): Frontonasal dysplasia (median cleft face sydrome) is a rare developmental anomaly. A report of two cases – encountered by the authors recently – is presented.
Case(s): Case I.: The first child was born at 36th weeks of gestation by caesarean section with a birth weight of 2700 g. There were no problems with his adaptation in the perinatal period. Intrauterin diagnosis of cleft lip, cleft palate and corpus callosum dysgenesis was inspected at 25th gestational weeks. At birth median cleft of the lip and palate (Tessier 0) and dysmorphic features of Down-syndrome were noted. He also showed muscle hypotony and nystagmus. Chromosome analysis showed 21 trisomy. He was followed by our Cleft Team and cleft lip and palate repair was performed. At 2 years of age brain MRI confirmed corpus callosum agenesis and a large nasopharyngeal encephalocystocele was also discovered. The median cleft together with median brain malformation raised the possibility of frontonasal dysplasia associated with 21 trisomy.
Case II.: This patient was a term baby born with median cleft of the lip and palate (Tessier 0). He had no intrauterine diagnosis. At birth frontonasal dysplasia was suspected. In this case early brain MRI also confirmed a small encephalo-cystocele and corpus callosum dysgenesis.
Conclusion(s): In case of median cleft syndrome, thorough diagnostic work up and multidisciplinary approach is mandatory to avoid complications of underlying, undiagnosed conditions.

Dirofilariasis in childhood: A presentation of two cases

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Background/Aim(s): Dirofilariasis is a zoonosis affecting dogs and cats, mostly caused by Dirofilaria repens in Europe. It can be transmitted by mosquito bites and might cause local inflammation, presenting as a lump in the soft tissues. The authors would like to present two cases of cystic lumps, where dirofilariasis had been developed.

Case(s): In 2016, a 13-years-old male went under investigation because of a cyst located on the extensor surface of the middle phalanx of the middle finger of the right hand. In 2021, a 1-year-old boy presented with a cyst in the left scrotum, next to the left epididymis. During a physical examination, a well-marked, cystic, mobile lump was found without any inflammatory signs on the skin in both cases. Soft tissue ultrasound was performed, which indicated the presence of a worm in the cysts. There were no increased inflammatory markers during laboratory tests. The cysts were surgically removed in both cases, and with parasitology tests Dirofilaria repens infection was confirmed. The children did not have any complaints during recovery and follow-up.

Conclusion(s): Subcutaneous dirofilariasis is a rare condition. It mostly appears on the upper parts of the body, but limbs can also be affected. While it is a rare condition, in the case of a growing subcutaneous cystic lump, with an anamnestic finding of mosquito bites, dirofilariasis has to be considered as a differential diagnostic possibility. Ultrasound can be helpful in preoperative diagnosis. Surgical removal is a successful treatment in most cases.

Splenic torsion in children – report of three cases

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Background/Aim(s): The spleen is fixed anatomically with strong ligaments under the left diaphragma. In childhood the main cause of wandering spleen is the ligamental agenesia. Secunder injury of ligaments is rare. The location of the „freely hanging" spleens may anywhere from the left hypochondrium of the right ileocecal region. Splenic torsion has no specific clinical signs and symptoms. In general the abdominal ultrasound can provide the diagnosis.

Case(s): Three healthy children with splenic torsion were treated by the authors. Abdominal ultrasound and surgical referral were within 24-45 hours followinng the first symptoms. On US torsion of the ectopic spleens were found with absent or decreased circulation. Explorative laparotomy, detrosion and fixation of the spleen were performed in each case, regards of the circulatory status. There were not postoperative complications. The viability of the spleens were controlled.

Conclusion(s): A spleen with uncertain circulation should be preserved if possible in childhood, especially under 5 years old of age. The conservative approach gives a chance to avoid the septic conditions. Nevertheless, patients shold be treated as splenectomized and antibiotic prophylaxis and protocol vaccinations are recommended. During the care, the structure, circulation and function of the preserved spleen can be checked by ultrasound, laboratory controll, as well as by scintigraphy.

Diagnostic problem in double cavity kidney

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Background/Aim(s): One of the most common developmental disorders of the urinary tract is the various forms of ureter and renal system duplicates. Anatomical abnormalities predispose to some diseases, the diagnosis of which is sometimes challenging. We report a diagnostic problem with urinary tract inflammation in the bilateral renal system.
We retrospectively analyzed the medical history of an 8-year-old girl treated at the Children's Health Center of Borsod-Abaúj-Zemplén County Hospital and University Teaching Hospital based on the database of the MedWorks system.
Case(s): An 8-year-old girl reported abdominal pain with fever in our institute. The ultrasound examination detected a formula suspicious of space constriction in both upper poles of the kidneys. The MRI examination seemed to support this, although images could be evaluated to a limited extent due to motion artifacts. We were forced to perform a CT scan, which confirmed a dual renal cavity system on both sides, with dilation of the lower cavity systems and ureters. Parenchymal dilation in the cranial part of the kidneys has been described as a consequence of an inflammatory process. The suspicion of the tumor was not confirmed by CT. The child was diagnosed with pyelonephritis confirmed by laboratory findings. Later cystography verified III. stage VUR in both lower systems, so we carried out Cohen's neoimplantation.
Conclusion(s): Most urinary duplicates remain asymptomatic for the rest of the patient's lives. The pathological abnormalities they predispose to are sometimes recognized as intrauterine, but most often in infancy. One of the most common complications is reflux of the lower cavity system and consequent inflammation of the urinary tract. In our atypical, late-onset case, unusual findings from primary imaging studies made recognition difficult, and we considered it worth presenting.

Treatment of a Morel-Lavallée lesion following a train accident in a 15-year-old male patient

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Background/Aim(s): Morel-Lavallée lesions are closed degloving laesions mostly following severe trauma, and present as haematomas or sero-lymphatic fluctuating masses. The most common injury site is the femoral area.
Case(s): Here we report a 15 year old male patient, who was hospitalized following collision with a train while riding a bicycle. He was admitted with bilateral pulmonary laesions, left parietal cerebral contusion, a frontal wound which was sutured, and an extensive abrasion on the right thigh and both gluteals, which were treated conservatively. During a 48 hour hospitalisation no adverse events were observed and the patient was discharged in a good general condition. Four days later the patient was readmitted with fever, and an extensive purulent skin necrosis of the gluteals and right thigh. Extensive necrectomy and suction drain treatment was applied three times. The patient was septic throughout the treatment due to a Pseudomonas superinfection, which was treated successfully with antibiotics. A fourth operative procedure was also required due to wound dehiscence. The patient was discharged after a month in a good general condition. Because of a persisting sacral wound dehiscence and an extensive right thigh seroma, after six months the patient was electively reoperated with gluteal flap advancement and drainage. The patient healed rapidly by secondary intention and was able to return to sports and unobstructed everyday function two weeks postoperatively.
Conclusion(s): Extensive skin abrasions following a high impact trauma may point toward degloving injuries, which if left unrecognized may progress to subcutaneous necroses and superinfections. A multidisciplinary approach is advised in the treatment of such lesions. Early ultrasound imaging may contribute to a faster diagnosis.

Pediatric deep burn management after split-thickness autologous skin transplantation – a comparative study

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Background/Aim(s): Treatment of pediatric deep burns remains a challenge for health-care personnel. After skin grafting, several treatment options are available, but comparative studies of the different options are scarce. Here, we compared the effectiveness of two post-operative dressings used to treat deep pediatric burns after split-thickness skin grafting.

Method(s): At the Department of Pediatrics, University of Pécs, 16 children received skin transplantation after deep second and third-degree injuries between January 1, 2012, and December 31, 2020, whose results have been analysed in this cohort study. We compared the traditionally used Grassolind® or Mepitel® net and Betadine® solution (comparison group) with Aquacel Ag foam® and Curiosa® gel (intervention group).

Result(s): Seven children were included in the comparison group, while nine children in the intervention group. In the control group, the average number of anaesthesia was 6.29, while the number of dressing changes was 4.29. After complete wound closure, the dressing's final removal was on the 13th day, while the mean length of hospitalisation was 21.89 days. On average, in the intervention group, 3.56 anaesthesia was induced, and 0.66 dressing changes were needed after transplantation. Complete healing (dressing removal) was on the 10th day, and the mean length of hospitalisation was 12.38 days.

Conclusion(s): In the intervention group, the need for anaesthesia significantly decreased by 43% (p=0.004), and they required 84% fewer dressing changes after transplantation (p=0.001). Moreover, the dressing could be removed three days earlier, and the length of hospitalisation was reduced by 45% on average.

Case reports of pediatric electrical finger burn injuries? Management and late-onset complications

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Background/Aim(s): Pediatric electrical injuries are rare; they only constitute 2-10% of all burn causes. Determination of their actual severity may pose hardship, due to their small entry and exit wounds.
The presentation is dealing with the pediatric electrical finger injuries' management and late-onset complications.
Case(s): A 15-year-old boy touched a wire while changing a lightbulb, which caused a burn injury on his right index finger. During the physical examination, a 25x14 mm, third-degree burn was identified volarly, above the distal interphalangeal joint as an entry wound, and an 8x7 mm exit site appeared dorsally at the nailbed's lateral edge. Eight days after the injury, necrectomy and cross finger flap surgery were performed due to necrosis's demarcation. The cross flap was separated three weeks after the primary reconstruction. Throughout the follow-up examinations, the ulnar deviation of the distal digit was observed. X-ray confirmed the distal phalanx base's bone atrophy. A two-year-old girl inserted a nail into the power outlet, causing third-degree burns on her thumb around the interphalangeal joint and hypothenar region. After necrectomy, the thumb's skin defect was reconstructed with a rotated flap, while the donor site received full-thickness skin graft transplantation. The follow-up of the child is still ongoing.
Conclusion(s): Deep necrosis develops during electrical burns in most cases. These injuries can damage the skin, soft and bone tissues, and in children, the growth plate, that may cause secondary deformities. Long term follow-up of these patients is necessary to identify and treat late-onset complications.

Serious consequences of minor neck injuries as a result of the instability of the cervical spine in Down syndrome

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In February of 2020, a child with Down syndrome was brought to our department after he suffered a minor accident at home, and as a result - as the parents reported - he experienced a loss of consciousness for seconds, and they saw clonus in his upper extremities, which he wasn't able to move for a while. By the time he arrived at our ambulatory care unit, there weren't any pathological neurological signs present. The findings of the x-rays, CT scan and MRI showed that he has an abnormality (a developmental disorder) present in the cervical part of his spine, which is characteristic in Down's. This abnormality causes the instability of the cervical spine, and as a result, makes the region in question prone to injuries - as this case showed us, even minor forces can cause serious neurological injuries to the spinal cord when such abnormalities are present. In addition to this, in case of an injury of higher force, or if the the affected spine remains untreated, the consequences could be more serious - even fatal in some cases.
In the literature, the instability of the cervical spine of the children with Down syndrome was mentioned many times. As this syndrome is both the most frequently diagnosed, and the most well-known syndrome linked to an abnormality of chromosomes, finding a way to recognise these abnormalities of the cervical spine would be very important. In addition to the classic cases of traumatology, other, seemingly harmless procedures, such as a basic treatment at a dentist's, or even general anaesthesia can be very dangerous for the individuals with Down syndrome - who are often treated surgically due to other disorders usually present linked to the syndrome.
In my presentation, in addition to the case report, I would also like to show the options available to make a diagnosis - maybe even before tragedy happens -, and precautions we can take when treating the individuals in question. I hope that with the help of these, we can avoid all the avoidable fatal iatrogenic injuries in the future.

Blunt abdominal injury in children: a case report of pancreatic and duodenal injury

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Background/Aim(s): Trauma remains a main cause of morbidity and mortality in the pediatric population. Although uncommon, pancreatic injury can be a complication of blunt abdominal trauma. Unlike other solid organ injuries, pancreatic trauma may be subtle and difficult to diagnose. Thus, its management remains a challenge.
Case(s): We report the case of a 6 year-old boy, whom sustained bunt abdominal trauma by falling off his bicycle. He presented one day after the accident with abdominal pain. His examination revealed excoriation in the epigastrium and mostly right upper quadrant tenderness. Ultrasonography raised the possibility of pancreatic head contusion. He was admitted to traumatology ward for further examination and conservative treatment. He was hemodynamically stable and his labs revealed only an increased level of serum amylase. On the next day, he started feeling unwell, with increasing abdominal pain. His controlled labs showed decreasing level of serum amylase. However, his hemoglobin level decreased significantly. At night, he started vomiting profusely. We maintained conservative management with iv fluids and anti-emetics. On his third day of admission, as he was not getting better, we performed a native abdominal x-ray, that suggested the possibility of bowel injury. Next, his control US revealed a ruptured proximal pancreas, thus we opted for further imaging as we ordered an abdominal CT scan. The CT scan showed pancreatic head contusion and rupture between the head and the pancreatic body, compressing the duodenum and inferior vena cava. Moreover, it exposed the duodenum sustained injury with intraluminal hematoma. Coincidentally, on his third day of admission, his SARS-Covid PCR results came back positive. He was transferred to the Covid isolated Pediatric Intensive Care Unit (PICU) with the possibility of operative management. He remained hemodynamically stable throughout his 3-day observation in the PICU and with conservative management he started getting clinically better although his labs results demonstrated stagnant tendency. He was then transferred to our Covid pediatric ward for further observation and slowly build up his parental feeding. Control imaging were promising but with slow regression of the duodenal hematoma and pancreatic damage. At the end of his Covid quarantine, he was transferred back to our traumatology ward. With decreasing serum amylase and improving US imaging of his pancreas and duodenum, he was discharged home on day 19. Out-patient follow-ups and serial labs, abdominal US and MRI showed resolution of his injuries.
Conclusion(s): Pancreatic injury is a rare complication of blunt abdominal trauma in pediatric populations. Non-operative management is increasingly common in pediatric pancreatic injury. In our case, it showed to be an effective and safe method in a hemodynamically stable patient with AAST grade II pancreatic injury and grade I duodenal injury.

Case report of traumatic navicular body fracture in a child: a rare entity with significant morbidity

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Background/Aim(s): Fractures of the navicular bone are not common in adults, even less in the pediatric population. However, they are known to have significant associated long-term morbidity. Navicular fractures are part of the Chopart fracture-dislocation group affecting the hind and midfoot.
Case(s): We report the case of a 14-year-old boy who suffered a right sided multifragmentary navicular body fracture due to trauma. After initial management with cast and immobilization, our patient has been referred to a trauma Centre with access to foot specialist. As he suffered a displaced comminuted type III navicular body fracture endangering the talonavicular (Chopart) joint, surgical management was opted. He underwent open reduction and internal fixation (ORIF) using plate fixation in order to restore both his lateral and medial foot columns length and prevent eventual post-traumatic arthritis.
Discussion: Displaced navicular body fractures are nowadays best treated with open reduction and internal fixation with the goal of treatment being preservation of function by maintaining foot columns length. These types of fractures, that were previously treated conservatively in the adult population, are today managed operatively. In the pediatric population, Chopart fracture-dislocations are in our experience best treated surgically to prevent early onset of post-traumatic pes planus or pes cavovarus and arthritis, thus decreasing the incidence of chronic pain.
Conclusion(s): We recommend treating navicular fracture in centres with more experience and technical readiness in order to decrease morbidity.

Diagnostic challenges of infective sacroiliitis

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Background/Aim(s): The sacroiliac joint has the largest surface among the joints of the axial skeleton. The whole weight of the upper body is put to the lower limbs through its complex ligamentary system, so it has a key role in the basic movements of human life like standing and walking. There are numerous causes which can lead to the inflammation of this essential joint, in my presentation I would like to demonstrate an inflammation with a rare origin, the infective sacroiliitis.
The purulent sacroiliitis is an uncommon disease, it makes up 1-2 % of all the infectious arthritises, and it mainly affects the children and the young adults. The bacteria usually reach the joint through haematogenous dissemination. At the beginning local symptoms present: tenderness in the lower back and pain radiating to the buttock and groin, limping at the affected side or total inability to walk. With the progression of the illness fever and septic symptoms appear, and the inflammatory levels in the laboratory tests are highly increased. The radiographs rarely show any discrepancies. Making a diagnosis is really a challenge with these aspecific symptoms and test results. The MRI and haemoculture can lead us to the exact diagnosis, however they only get positive at the later phases of the illness. As a result, in most of the cases the infective sacroiliitis is usually misdiagnosed, the children are treated as if they had more common diseases, like transient coxitis or limb injury, and the real problem is recognized when it already has serious complications, like psoas abscesses or septic shock.
Case(s): In our department we treated 3 children with infective sacroiliitis. The first and the second patients came from other institutions and from the beginning of the symptoms it took 22 and 8 days to set the diagnosis. These children had severe complications: septicaemia, iliac vein thrombosis, psoas abscesses. In these cases, surgical exploration and drainage of the abscesses were necessary because of the condition of the children and the extensivity of the abscesses. At the third patient -learning from the previous ones- we recognized the sacroiliitis in 5 days, and there was no need for surgical intervention. All the patients were treated with intravenous and then oral antibiotics for longer period. The rehabilitation took time, but currently all the three children live without complaints.
Conclusion(s): There are very few cases published in the literature so unfortunately there are no correct guidelines for setting up the diagnosis or how to lead the therapy, that is why I consider infective sacroiliitis as an important topic to discuss.

Effects of COVID-19 pandemic the treatment of appendicitis in our department

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Background/Aim(s): We wanted to explore the effects of the pandemic situation on the incidence and treatment of pediatric appendicitis in our institution. We compared the first and the second wave with pre-COVID times.

Method(s): Data were collected retrospectively. We created 3 groups. Group „A" was from the pre-COVID era (March-May and September-December of 2019), group „B" was from the first wave (March-May of 2020), group „C" was from the second wave (September-December of 2020). Data of patients treated with appendicitis during the previously determined periods were collected in Excel spreadsheets and were performed statistical analysis. Collection included demographic data, hospital stay, frequency of conservative treatment, complicated versus non complicated appendicitis and postoperative complications in the 3 groups.

Result(s): Our appendicitis cases were decreased by 30%. Incubation time was significantly extended in the two COVID groups. Conservative treatment wasn't increased in the first wave compared to pre-COVID times but we chose non operative treatment in the second wave more. However, in some of these children we had to perform the appendectomy in a short time because of recurring complaints. Hospital stay was not extended during the pandemic, but in general recovery time was shorter when we did surgery. In group „A" we found mild complications mostly like wound discharge or abscessus or a need to change antibiotics. In group „B" we had mild complications: postoperative bloating and vomiting which ceased by themselves. In group „C" we had some mild complications like antibiotics changing, but on the other hand we had more severe postoperative complications which needed intensive care. There were more conservative cases that we had to operate on within 6 months.

Conclusion(s): Social distancing during the pandemic can cause lower incidence of appendicitis. We performed more conservative treatment during the second wave, but some of them had surgery within 6 months because of recurring complaints. Despite the longer incubation time, the hospital stay and the rate of complicated versus non complicated appendicitis did not increase. Postoperative complications were more severe and often during the second wave of the pandemic. Although we used new guidelines because of the coronavirus, we did not get a significant advantage choosing conservative treatment.

Demonstrating therapeutic challenges of two children with complicated ulcerative colitis

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This year two teenagers, treated with ulcerative colitis, undergone subtotal colectomy because of complication due to their disease. In the first case the indication was toxic megacolon and bloody stools, in the second case the indication was bloody stool and viral infection. In both cases we tried to keep on with all the available conservative therapies to avoide this procedure. In our institute many children are traeted with inflammatory bowel disease in the Gastroenterology Department. The fact, that onset of the disease begin in earlier ages then in the last decades, means also that pediatric surgeons must make decisions in these cases. It is difficult to determine the line between the end of the conservativ and surgical therapy. In our presentation we are trying to demonstrate our difficulties using the guidelines about treatment of ulcerative colitis.

Multiple bowel obstructions (small and large intestine) in an immature neonate

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Background/Aim(s): Interruption of the intestinal lumen patency forms passage obstruction causing complete mechanical ileus. Depending on the affected part of gastrointestinal tract we can differentiate esophageal-, duodenal-, jejunal-, ileal-, colonic- or rectal atresia. Duodenal atresia is a result of early fetal germplate damage, while occlusions of other intestinal segments are caused by a late fetal vascular event. Intestinal atresia often leads to polyhydramnios, while symptoms of ileus evolve after birth.
Case(s): Prenatal US raised the suspicion of duodenal atresia showing polyhydramnios and dilated stomach. The immature male neonate had repeated vomitings after birth so upright abdominal X-ray and US examination were performed. We saw „double-bubble" sign and gas-free intestines. Laparotomy was performed. It revealed duodenal atresia plus multiple atresias in the proximal jejunum. A 15cm-long intestinal segment was resected and duodeno-jejunal anastomosis was sutured. Few days after the operation bowel obstruction symptoms recurred. During relaparotomy we found and excised a membrane occluding the sigma colon. After this surgery, the oral feeding was built up successfully, the boy recovered and was discharged.
Discussion: The different types of intestinal atresias (membrane, single occlusion with or without a cord of fibrous tissue connecting the blind ends, multiple occlusions like „string-of-sausages") except „apple-peel" were present in our patient. In addition, due to early fetal germplate damage besides duodenal atresia he also had clubfoot and hypospadias.
Conclusion(s): Multiple small bowel obstructions occur sporadically, develop due to a late fetal vascular event. Efforts must be made to restore the continuity of the digestive tract as soon as possibble and to preserve all potentially recovering intestine to build up enteral feeding, providing good prognosis not only to survive but to gain weight and thrive.

Intrauterine jejuno-jejunal intussusception

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Background/Aim(s): Intussusception is a condition where a segment of bowel invaginates into the next one distal to it. Since the adherent mesentery is involved not only narrowing or obstruction of the passage occurs but intestinal necrosis menaces. Intrauterine intussusception is very rare. Its etiology is unknown. It is suspected that local vascular damage, hypoperfusion and hypoxia may play a role in its formation. These affect small intestine most frequently. Postnatally, symptoms often overlap with other, more common surgical entities, so diagnosis can often be obtained intraoperatively.
Case(s): Prenatal US showed polyhydramnios which suggested digestive tract malformation. Soon after birth of the immature female, atresia of the esophagus and anus were excluded. Recurrent burps, multiple, large amount of bilious vomitings, abdominal distension and bloody stools followed the introduction of oral feeding. US examination in the referring institute declared small bowel obstruction due to intussusception or volvulus. On admission to our institute upright X-ray showed ileus and the US revealed target sign. Laparotomy was performed and jejuno-jejunal invagination was confirmed. Manual desinvagination was performed but we had to resect a 10 cm long segment. Primary anastomosis was sutured. The baby recovered well and was discharged with steady weight gain.
Discussion: Ileo-colic invagination occurs most frequently between the ages of 3-36 months. The prevalence of small bowel intussusception is the highest in the same period. Small bowel invaginations are mostly asymptomatic and rarely require surgery. The incidence of this pathology is rare in newborns and extremely low in immature neonates. Intestinal obstruction caused by intussusception counts only 3% of the cases and among them only 0.3-0.6% develop in intrauterine conditions.
Conclusion(s): We did not find any report on this topic in Hungarian literature and read only a few articles in international. We present our case, because the prognosis is good, (mortality can be significantly reduced), if this pathology is recognized and treated in time.

Component separation technique for repair of giant abdominal hernias in children after omphalocoele

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Background/Aim(s): Operative repair of large abdominal wall defects can be challenging. Although the utility of component separation technique (CST) in adult has been well documented, its application in pediatric patients is still not common.
The aim of this study is to describe our experience in the treatment of large post Omphalocoele hernias using CST.
Method(s): Between 2012 and 2019 seven children with a giant abdominal hernia after Omphalocoele were operated using anterior CST. In 2 patients extended-CST was needed. Patients records were reviewed for age, size of the defect, other anomalies, need for postoperative ventilatory support, length of stay, postoperative complications and follow-up.
Result(s): All patients were successfully treated with CST at median (range) 4 years 1 month (15 months to 7 years 2 months). The smallest defect was 6 x 5 cm and biggest 14 x 10 cm. Only one patient needed postoperative ventilatory support for 3 days. Median hospital stay (range) was 6.1 days (2-12 days). There were no wound complications and no recurrences after a median (range) follow-up of 50.6 months (13-136 month).
Conclusion(s): The CST is a safe procedure for complete closure of giant abdominal wall defects in children. It can be applied with good long-lasting results, as a one-staged procedure without the need for use additional prosthetic materials.

Continence and quality of life of patients with Hirschpsrung's disease after transanal Soave procedure

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Background/Aim(s): Patients with Hirschsprung's disease (HD) can suffer from postoperative continence problems affecting their quality of life (QOL). Endorectal pull-trough procedure (Soave) was introduced at our institution in 2001. The aim of this study was to assess the long-term outcome of our patients.
Method(s): In a previous study we measured the QOL and bowel function of patients with HD operated between 2001-2012 at the Ist Dept. of Pediatrics, Semmelweis University using an internationally accepted questionnaire modified by us. 25 queries are included about quality of stool, continence, physical symptoms, emotional and social function. Scoring was between 1-4 according to the frequency of symptoms (4 - best). In the present study we examined our HD patients operated between 2001-2019, applying the same questionnaire. Beside assessing 59% more cases it also provided an opportunity to obtain data about the same patients after an 8-year period.
Result(s): 136 patients had Soave procedure during the investigated period. Somatomental retardation (14 patients) was an exclusion criteria. From the remaining 122 patients 103 had recto-sigmoid disease (RS), 12 had long segment HD (LS) and 7 had total colon aganglionosis (TCA). Each group contained some patients who needed transient stoma before Soave procedure (8, 5, and 6 respectively). From the 122 patients 78 (63.9%) filled in the questionnaire at least once, 27 (22.1%) patients on both occasions. Average age at the time of the survey was 13.8 (1-22 years), average time since surgery was 8.2 (1-16.5 years). Only stool quality score was available of patients who are not toilet trained. Most patients from the RS group had excellent or good results in each question categories. The score was ≥3.5 in stool quality questions in 46/63 (73%), in fecal continence questions in 47/55 (85.5%), in physical symptoms in 44/55 (80%) and in emotional function in 43/53 (81.1%) patients. In the LS and TCA groups stool quality seemed to be lower, but there was no significant difference. We found a significant, moderately positive correlation between fecal continence problems (incontinence, soiling) and emotional distress (R=0.45; p=0.0008). There was no correlation between the scores and age or time after surgery in any of the question categories. Regarding patients filling in the questionnaire two times, there was no significant development in any results.
Conclusion(s): Soave procedure is a safe method. However the lack of reservoir and rectal nodes afterwards can cause functional problems, which are clearly shown in the survey. Although it causes only minimal functional alterations in most cases, it can affect the children's QOL and their emotional well-being. The conduction of a second survey after 8 years did not show significant change in bowel movements nor in QOL. It is important to thoroughly inform parents about the possible consequences and to offer early psychological support to the children if needed.

Experience with the surgical treatment of patent ductus arteriosus

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Background/Aim(s): Patent ductus arteriosus (PDA) is rare, yet the most common cardiac anomaly among neonates with the incidence inversely related to maturity (gestational age and weight). Frequency is estimated 0,02-0,006% in full term neonates, increasing to 20% in babies >32weeks, 40% in those >28weeks and reaches up to 60% in ones <20weeks of gestation.
Method(s): This report is about a single institute experience. We retrospectively analysed our cases of the period 2012- 2021 from our institute's MedWorks System database.
Result(s): Our NICU III+ treated 650-700 babies per year. Around 100 of them were <1500g, while about 40 even <1000g. Most PDA closed spontaneously or due to conservative treatment but every year 3-5 babies required invasive therapies. Those who had complicated heart defects or were prone to transcatheter closure were referred to National Pediatric Cardiology Center. During 2012-2021 we have operated 8 cases. We performed PDA ligations via left lateral thoracotomies through axillary crease incisions. They were born at 24-30 weeks gestation and weighed 420-1490g. They were operated on 3rd-36th day of life. We had no mortality in the perioperative period. We had no rupture of the duct while dissecting circumferentially. We had no reopening of the duct or postoperative bleeding. We found no recurrent nerve injury. We had pneumothorax in one case requiring drainage for 3 days.
Conclusion(s): We have operated urgent PDA cases to avoid transportation trauma of the babies. We have had only limited cases, though we assume the results suggest that our team prepared well for the challenge, still we are determined to improve.

Long term outcome of feminising genitoplasty for 46XX congenital adrenal hyperplasia with up to 40 years follow up

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Background/Aim(s): Recent call of the government to delay gender altering genitoplasty until the child can give consent sparked tense debate among physician and decision makers. Our aim was to review the surgical outcome of 46XX CAH patients operated in our institution from 1980 to 2021.
Method(s): Lists of patients, peri-operative and follow up details were obtained from the prospectively maintained Microsoft Access database and from paper and electronic patient records of the institution. Age at presentation, pathology, indications for surgery, details of the procedure, extent of surgery, pubertal assessment, need for surgical revision or vaginal dilatation and data on fertility were obtained. One patient who was reared as a male and continued as such after a late diagnosis at 8 years old, 5 patients who were referred from elsewhere for revisional surgery and 18 patients whose details in the database were considered inadequate with lost or destroyed hospital records were excluded from analysis.
Result(s): There were 96 patients satisfying inclusion criteria, with a mean age of 23.2 years. Genital ambiguity was noted at birth in the majority. Median age at surgery of early presenters was 16 months and late presenters was 7 years. 75 had all three components of the procedure together at a median age of 14.5 months. 8 patients had clitoral reduction and vulvoplasty component at a median age of 32 months, with vaginoplasty done later in 2 patients at a mean of 18 years old. The confluence was reached and the vagina mobilised satisfactory by opening the bulbo-spongiosal muscle and spongiosal fusion in all. No perineal flap was used. Surgery was well tolerated with no early post-operative complications. The clitoris wasre-enlarged due to inadequate hormonal suppression in 2 patients who had successful re-reduction at a mean age of 16 years. 2 patients had wetting from vaginal reflux due to retrusion of the vagina and required re-do vaginoplasty at a mean age of 9 years. There were concerns regarding vaginal adequacy in 17 patients, with 14 using self-dilatation and 5 having re-do vaginoplasty at a median age of 17 years. A further 6 patients had a minor revision of the labia minora due to aesthetics. None expressed dissatisfaction about surgery or had concerns about vulval sensations. 70 patients are older than 16 years, 3 have been trying to conceive and 5 have children. Altogether only 16% required further minor superficial surgery, with 7% requiring simple vaginal opening re-do surgery.
Conclusion(s): Feminising genitoplasty could be performed at a young age with excellent recovery and low rate of minor complications. Early surgery with such an excellent outcome allows the child to grow with no discordance between gender identity and appearance of genitalia and allows the family to wholly accept the child with no lingering doubts about the future. There does not seem to be any logic in discussing delaying surgery until the child is able to make decisions.

Unconceived consensus in the treatment of DSD patients

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Background/Aim(s): The controversy of the results of previous treatment of DSD patients led to establish a consensus statement in the US in 2005. This consensus has been applied in several countries; recently number of countries have changed the legal position of the DSD patients introducing the 3rd gender even in childhood. These changes dramatically influenced the surgical indications and procedures. Despite the above, there are no evidences yet about the way of rising up a child in a new environment and there are no guidelines in those countries where the 3rd gender is not recognized at all.
Our aim is to present our results of feminizing genitoplasty, evaluate the indications, the age of the patients and the postoperative results focused on surgical outcomes.
Method(s): We reviewed data retrospectively between 2008 and 2017, examining the surgical outcomes using clinical findings after 1 month, 3 year postoperatively and the results of long term follow up.
Result(s): We listed 27 patients. The average age 23 month,(1 month -15 years). Diagnoses were CAH in 15, PAIS 5, Gonaddysgenesis 4, other enzyme defect in 3. All but 1 patient underwent corporal sparing clitoroplasty, all the patients underwent urethrovaginoscopy prior the genitoplasty to prove the existence of vagina. 4 patients requested further cosmetic correction at the time of puberty but the cosmetic results were excellent with full acceptance and satisfaction of outlooking by both parents and patients. Those patients reached the puberty reports sensitive clitoral sensation. None of the patients had urinary incontinency, some complained with UTI. 2 of the patient reached to puberty are lesbians but none of them complained of missing their penis.
Conclusion(s): The complex treatment of DSD still contents surgical interventions in childhood. The improved cosmetic and functional results of corporal sparing clitoroplasty proves that the feminizing genitoplasty is still in the instrumentarium of the complex treatment of DSD patients. The existing vagina is essential to perform feminizing clitoroplasty. Despite the evidences of postponing until puberty, the timing of operation mostly depends on the family yet.

A proposed descriptive classification for Müllerian duct remnants to facilitate selection of the laparoscopic technique: excision versus division

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Background/Aim(s): Müllerian duct remnants (MDRs) in male DSD range from a small utricle to a complete female system and have variable relations with the male duct system. We analysed these variations to facilitate operative decision making.

Method(s): We prospectively reviewed a series of 18 patients with MDRs (raised as males), over 2 years, all managed laparoscopically, following one of two approaches, either longitudinal splitting/division or near-total excision. We generated a classification of MDRs based on their relation to the vas (V0: absent relation bilaterally; V1: unilateral relation; V2: bilateral relation) and gonadal status and histology (G0: absent; G1: unfavourable [ovary or dysgenetic]; G2: ovotestis; G3: normal testis – subdivided into right/left).

Result(s): Bilateral complex connections between MDRs and vasa deferentia (V2) e.g. PMDS (with a uterus and bilateral fallopian tubes), rendered excision difficult, thus received a laparoscopic longitudinal division and debulking (6 cases), to permit orchidopexy (G3). Cases that allowed safe laparoscopic excision of the MDR without jeopardizing the male duct system, had either no relation with the Vas (V0); unilateral relation (V1) e.g. MGD; or bilateral relation (V2) with one side connected to an absent (G0) or undesired gonad (G1). The latter group (12 cases) were less virilized and the MDR-vas connection was distal and less extensive. The vasa deferentia were preserved in all cases, with no inadvertent visceral or ureteric injuries.

Conclusion(s): This novel classification addresses the feasibility of excision or division of MDRs. The MDR and vas deferens are more separable/dissectable in unilateral involvement with the male duct system.

Relationship between the MDRs and the Male Duct System **Chi-Square Test Value = 14.25**	**Excision** **N = 12**	**Division** **N = 6**
Unilateral undescended gonad with unilaterally present relation between its vas and the MDR, and absent relation of the MDR with the vas of the scrotal gonad.	1 (8.3%)	None
Unilateral undescended gonad with unilaterally present relation between the MDR and the vas of the scrotal gonad only.	2 (16.6%)	None
Unilateral undescended gonad with bilaterally present relation between the MDR and the vas of both the undescended and the scrotal gonads.	None	1 (16.66%)
Unilateral undescended gonad with bilaterally absent relation between the MDR and the vas of either the undescended or the scrotal gonads.	3 (25.0%)	None
Bilateral undescended gonads with bilaterally present relation between the MDR and the vas of both undescended gonads.	1 (8.3%)*	5 (83.33%)*
Bilateral undescended gonads with unilaterally present relation between the MDR and the vas of only one of the undescended gonads.	2 (16.6%)	None
Bilateral undescended gonads with bilaterally absent relation between the MDR and the vas of either undescended gonads.	3 (25%)	None

Vas deferens-sparing cystoscopic-assisted laparoscopic resection of a large prostatic utricle in a four-year old child

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Background/Aim(s): Removal of a symptomatic large prostatic utricle (PU) is challenging due to the close proximity of the vas deferens and the possibility of its ectopic opening into the PU. Vasectomy resulting irreversible infertility was inevitable in most of the cases reported in the literature. We report a vas deferens-sparing cystoscopic-assisted laparoscopic resection of a large prostatic utricle in a young child.

Case(s): We report a case of a four years-old boy with a large PU associated with peno-scrotal hypospadias who developed recurrent urinary tract infections (UTIs) after staged repair. The repair was deemed successful by cystoscopic examination, which also diagnosed the PU. During subsequent laparoscopic exploration we found both vasa deferentia entering high into the utricle at its fundus and running along its wall and within it. We created two tubular structures from the lateral edge on either side of the PU as a continuation of the vas reaching the urethra leaving the vas connected to the urethra and excised the redundant medial tissue of the cyst. Recovery was uneventful and the patient was discharged the next morning and remained asymptomatic (free of UTIs) for 3 months after the procedure, to date.

Conclusion(s): Creating a tubular structure from the wall of the PU cyst allows the vas to remain connected to the urethra and the redundant cyst wall still could be excised. This achieves the primary goal of discarding the PU as a predisposing factor to UTIs and may preserve sperm delivery, however as spermatogram at this age is still not possible.

Review of our surgical therapy to patients with ovarian torsion

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Background/Aim(s): Ovarian torsion counts approximately 3% of acute abdominal cases in childhood. Rapid diagnosis and urgent sugical intervention is required. The goal of treatment is to save ovarian tissue by early detorsion. Oophorectomy is only performed in case of extensive definite necrosis.
Method(s): We retrospectively analyzed our cases in the period 01.01.2004.-01. 11. 2021. from our institute's MedWorks System database.
Result(s): During 17 years (2004-2021), we have performed 90 surgical interventions in 74 patients due to ovarian torsion. The mean age was 8.24 years. 44% of patients were 10-15 years old and 22% were younger than 1 year of age. The ratio of sides was similar to that in the literature: right side was involved in 40, and left ovary in 30 patients. Underlying pathology was found in 40 patients: ovarian or parovarian cysts in 36, while teratoma in 4 cases. In 34 patients the adnexes were otherwise normal, so the torsion could be classified idiopathic. We found no malignancy associated. 8 patients had second torsion: 5 on the same and 3 on the opposite ovary. 72.2% of operations were performed via laparoscopy and 27.8% with open surgery (we had to convert in 11 cases). 52% of open surgeries were in patients under the age of 1 year. In 41 patients we had to remove the affected organ: 37 primarily and 4 at second look operations. The affected ovaries were fixed in 9 patients, yet 2 of them suffered repeated torsion later on.
Conclusion(s): We found a large number of idiopathic cases. Fortunately, our patients had no underlying malignancy. We had to perform oophorectomies at a lower rate compared to literature, but still it was a rather high number. The possibility of repeated torsion could not be eliminated by fixation.

Pediatric surgical aspects of childhood and adolescent obesity

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Background/Aim(s): Childhood and adolescent obesity is one of the most significant public health problems of the 21st century. Its short and long term effects significantly reduce life expectancy as well as the quality of life. According to the World Health Organization, in 2020 an estimated 38.2 million children under the age of 5 were overweight or obese, hinting at the severity of the problem. We currently only have few effective solutions for the treatment of severe obesity. As a surgical solution, Roux-en-Y gastric bypass and vertical sleeve gastrectomy techniques have been used more widely.
Case(s): A 17-year-old girl presented with abdominal excess skin due to rapid weight loss. We performed a midiabdominoplasty, during which we removed the excess skin and reconstructed the acquired umbilical hernia. After an uneventful postoperative period, the patient was discharged, with drains and an abdominal binder in addition to LMWH therapy. A histological examination was performed on the specimen, which did not confirm any abnormalities. The patient was absolutely satisfied with the achieved aesthetic result, and no postoperative complications occured.
Conclusion(s): The vast majority of overweight and obese children also struggles with weight problems in adulthood, increasing their risk of developing chronic diseases at an earlier age. Therefore, careful examination and multidisciplinary approach in the care of overweight children is highly important.

New strategies on treating complicated vascular malformations

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The most common developmental disorders in infancy are vascular lesions. 10-12% of one year old infants have some form of vascular developmental abnormality. In addition to hemangiomas, this group includes a number of diseases (eg. lymphangioma, venous malformation, arteriovenous malformation). Complex hemangiomas have been very well treated since the introduction of propranolol, but no drug treatment has been available to this day for many vascular malformations.
Thanks to intensive research in recent years, genetic mutations in most diseases in the malformation group have been identified. Abnormal angiogenesis caused by these mutations allows targeted drug treatment in many cases. In addition to introducing these drugs in our department, we also introduced a new sclerotherapy method. The introduction of new procedures causes a number of challenges for pediatricians, anesthesiologists and surgeons, as illustrated in our presentation with case reports.

Biomechanical comparison regarding different K-wire fixation methods in support of the treatment of pediatric radius fractures on 3D printed bone models

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Background/Aim(s): Distal forearm and wrist fractures are the most common pediatric fractures, in which K-wire fixation is the most widely used operative method. However, there is still lingering controversy regarding the number of wires and site of insertion throughout published literature. The study aims to critically compare the biomechanical stability of different K-wire fixation techniques.

Method(s): Different osteosyntheses were reconstructed on 189 bone models under novel, standardized conditions. The model was created using 3D printing and molding techniques. The simulated fracture was fixed using two K-wires inserted from radial and dorsal directions (crossed wire fixation) or both from the radial direction, in parallel (parallel wire fixation). Single wire fixations with shifted exit points were also included. Additionally, 3-point bending tests with dorsal and radial load were performed including torsion tests.

Result(s): We measured the maximum force required for a 5 mm displacement of the probe under dorsal and radial loads (crossed wire fixation.: 249.49 N and 355.89 N; parallel wire fixation.: 246.36 N and 308.27 N; single wire fixation: 115.86 N and 166.46 N; on average; n=27 in all cases). We also measured the torque required for 5° and 10° torsion, which varied between 0.15 Nm and 0.36 Nm; on average; n=27 in all cases).

Conclusion(s): The crossed wire fixation provided the most stability during the 3-point bending tests. Against torsion, both the crossed and parallel wire fixation were superior to the single wire fixations. Proximal shift of the K-wire's exit point resulted in greater stability under radial load and torsion, yet lesser stability under dorsal load.

Clinical relevance: The presented novel method is suitable for the standardized evaluation of different fracture fixing methods and can serve as a basis for further pre-clinical (cadaver and animal) investigations. According to the findings, crossed wire fixation potentially withstands greater bending and tilting forces following the operation. Against torque forces, single wire fixation exhibited far less resistance. These observations both support clinical decision-making and preoperative planning.

Supracondylaer humerus facture in children: prospective, multicentre, nationwide clinical data from cases

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Background/Aim(s): Fracture of supracondylaer humerus (SCH) is one of the most frequent childhood fractures. Due to high-energy injuries, more severe fractures with greater displacement are formed today. Part of the fractures without displacement and with small displacement can be treated in a conservative way with plaster, collar and cuff attachment. Fractures with greater displacement and rotational deviation are clearly operative.
In view of the lack of Hungarian and European epidemiology data on the above injuries, we would like to classify it based on the classification, the nature of the injury and the therapy used, by the data obtained through the collection of data and by the variety of its treatment.
Method(s): The authors evaluated in a prospective study in the therapeutic operative options in three Hungarian pediatric trauma center and results of operatively treated pediatric SCH fractures of patients treated between 1st September 2018 and 1st December 2020. Gender distribution, age specifics, BMI, fracture mechanism, operative treatment method, and final results after metal removal were inspected. In the above period altogether 217 patients were treated because of the fracture of SCH.
Result(s): In Budapest (three centres) 175, in Miskolc 7, in Pécs 29 and in Szeged and in Szekszárd 3-3. Others patients were treated because of SCH fracture. The main age at the time of surgery was 6,08 years in female and 7,03 years in male. The average BMI was 16,3. Nineteen patients suffered flexion type and One hundred and ninety five patient's extension SCH fracture. Prophylactic antibiotic was administer to 190 patients. We didn't find any correlation between septic complication and prophylactic antibiotic. Cefazolin was the most commonly used antibiotic. Closed reduction was performed in 150 cases and percutan or open reduction was done is 64 patients. Radial crossing K-wire fixation was the most commonly used technique. patients. Half of the cases local anesthesia (Bupivacain) was injected to the fracture hematoma. In most SCH injured patients the external retention (cast, orthesis) was removed at the 3rd week, whereas the K wires were removed on the 3th-8th week. Frequency of the ulnar nerve lesion after the operation was significantly higher in case of distal crossing fixation method.
Conclusion(s): Based on the results of our prospective registry, a suitable treatment algorithm of the childhood SCH fracture can be developed and national and European acceptance of the least complicated surgical technique can be achieved.

Analysis by fracture type of 214 pediatric cases from the prospective, multicentre, nationwide Hungarian supracondylaer humerus fracture registry

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Background/Aim(s): The Supracondylaer Humerus Fracture (SCHF) is one of the most common pediatric fractures requiring surgery. The literature is lacking a detailed demographic and prognostic description based on fracture type; therefore, our objective was to evaluate and compare the characteristics of operative SCHF grouped by fracture type.
Method(s): Prospectively collected data were retrospectively analyzed using the Hungarian SCHF Registry, which at the time of the beginning of our study contained data about surgically treated pediatric patients with SCHF, operated on between September 5, 2018, and March 25, 2021, in one of the seven institutes involved in the Registry. We decided to analyze and compare the characteristics of different groups, which were created based on fracture type (displacement is only in One Plane (OP)/there is Rotational Displacement also (RD)/there is No Connection between the bones (NC)). Surgeons grouped the fractures based on anteroposterior and lateral radiographs. Differences between the groups were analyzed using the Chi-Squared test or Fisher's Exact test for categorical variables. The Kruskal-Wallis rank sum test was performed for continuous variables. If there was significant difference between the groups Dunn's post-hoc analysis was conducted. $P<0.05$ was determined as statistically significant, except for Dunn's post-hoc test, where $p<0.025$ was considered statistically significant. We analyzed the following outcomes: sex, BMI, type of injury (flexion vs. extension), radial pulse and oxygen saturation at the first inspection, pre/postoperative antibiotic use, competence level of the surgeon, type of fracture reduction, type of open reduction, type of intraoperative fixation, number and diameter of pins, intra- and postoperative analgesic usage, pain killer prescribed for home use, operative time and early complications.
Result(s): The registry contained 217 patients, for 214 the fracture type was available (the OP group contained 31, the RD group 121, and the NC group 62 patients). The difference was significant between the groups regarding sex ($p=0.001$) (female (F):male (M) ratio: 25.8/74.2; 62.8/37.2; 51.6/48.4 in OP, RD and NC groups respectively), oxygen saturation [between RD ($n=83$) and NC ($n=36$) $p_{posthoc}=0.0037$; between OP ($n=17$) and NC there was a trend suggesting a difference, but it did not reach a statistically significant level ($p_{posthoc}=0.027$)], competence level of the surgeon ($p=0.0273$), type of fracture reduction ($p=0.01$), and operative time in minutes ($p<0.01$). The difference was not significant in the other examined outcomes.
Conclusion(s): From this analysis we conclude that oxygen saturation differs among the groups, as does the distribution of male and female patients. For more severe fractures surgeons needed to use percutaneous or open reduction more often, and the operation took more time. These findings might be used to establish a prognostic score system.

Our experience of surgical treatment pediatric femur shaft fracture

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Background/Aim(s): Pediatric femoral fractures is a topical issue of modern pediatric traumatology. They are among the most common fractures of long bones and are the most common orthopaedic injury requiring hospitalization. Non-operative management plays a role in some cases but operative fixation as it allows early mobilisation and shorter hospital stays.
Method(s): For the period from 2014 to 2020, 145 children with femur shaft fractures were treated in the traumatology department of the regional children's hospital in Mukachevo. Comparisons were made between 2 groups: FIN with rigid intramedullary nailing, closed and open reduction, of which 86 male and 59 female aged of 6-14 were the material for the study: up to 6 years old - 8 (5 boys, 3 girls), 6-10 years old - 86 (48 boys, 38 girls), after 10 years - 51 (34 boys, 17 girls). 128 fractures was closed, 17 - open. Muller AO classification were use. For children up to 12 years of age not more than 50 kg we use flexible intramedullary nailing, for older children a rigid rod with trochanteric entry point. In our study were included patients only with acute injury, pathological fractures were exclude.
Result(s): A total of 145 children with femur shaft fractures were treated at our institution by trained pediatric orthopaedic surgeons during the study period. Flexible intramedullary nailing was used in 118 (81%) patients accomplished under general anaesthesia. Before surgery we performed AP and lateral radiographs of the femur. Surgery was performed on a radiolucent table or on the fracture table by standard retrograde technique closed reduction was done in 86 (72%) patients with using x-ray monitoring on C-arm in the operating room. In 32 (28%) cases when closed reduction was not able we made small incision (open reduction) in order to reduction the bone fragment, majority of cases with high-energetic trauma. Cast immobilization was used after nailing during first 4 weeks. Rigid intramedullary nailing was performed in older children 27 (19%) though a lateral trochanteric entry point, we did not use piriformis fossa entry point because possible occurrence of AVN. We did not use cast or brace after surgery. The child will be able to walk on the affected leg in most cases. According to the criteria by Flynn no patient had poor result. Most common complication was soft tissue irritation at the nail entry site (32 patients - 18 boys, 14 girls). In 15 children (8 boys, 7 girls) we observed postoperative varus deformation, in 9 children (5 boys, 4 girls) we observed valgus deformation of shaft femur. As for our opinion it was related with early started of weight bearing. In 30% cases of open fractures was noticed also delayed union (average to 4 weeks). Nonunion not once observed. Clinically, lengthening or shortening was not noticed. Follow-up radiographs obtained showed satisfactory restoration of length, rotation and alignment
Conclusion(s): Titanium elastic nails are a relatively easy to use, minimally invasive with high rate of good and excellent outcomes in children aged 6-14 years. It is the treatment of first choice for transverse and oblique femoral fractures (32-D/4.1 und 32-D/5.1). Fractures with several fragments (32-D/5.2) as well as fractures of the metaphyseal region in older patients (31-M/3.1 und 33-M/3.1) may be difficult to stabilize with ESIN and might alternatively be treated with rigid rods.

Slipped capital femoral epiphysis in adolescents – review of 7 years at our department of pediatric surgery and traumatology

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Background/Aim(s): Pathomechanism of the disorder is when the femoral head slips off the femoral neck at the growth plate. This can happen gradually (lenta/chronic type) or suddenly (acute type). The disease is two times more common in boys, especially between 13-15 years of age. In girls it is more frequent between 11-13 years of age. Incidence is between 0,5-1% and in 1/3 of cases it appears bilaterally. Main symptoms are limping that starts a few weeks earlier, hip or knee pain and lack of infectious symptoms or severe trauma. In other forms symptoms start with an acute trauma. After physical examination, a hip X-ray from two directions is necessary.
Method(s): In the past 7 years, 6 children were admitted with slipped capital femoral head epiphysis. The purpose of my work is to introduce these cases and review our experiences.
Result(s): Among above mentioned 6 children, there were 2 girls and 4 boys, their average age was 12 years. In 2 cases, symptoms started on the day of their admission, other children suffered from above mentioned symptoms for a few weeks. In their anamneses, there was no direct trauma, the pain started after a "bad movement". All children required surgical intervention after diagnosis. Under general anesthesia children are put on an extension table where reposition is performed. After reposition, a small incision is made and osteosynthesis is performed. We used spongiosa screws in 5 cases and Kirschner wire in case. The aim of the surgery is to prevent further dislocation and to accelerate closing of the physis. The duration of the surgery was 90 minutes on average. Mobilization of the children started on the 2nd postoperative day and average hospital stay was 1 week at our department. It is worth considering bilateral prophylactic fixation of the femoral head. Reviewing international literature, no exact recommendation is given as, every case requires individual consideration. Another unanswered question is whether to remove the screws or not.
Conclusion(s): Even though this is a rare disease, it is important to reconsider femoral head epiphyseolysis, when examining a child with long onset of pain in lower extremities or limping. After diagnosis, the only therapeutic solution is surgery. The invasiveness of the surgery is low, rehabilitation of children starts rapidly. One or two months after surgery, children can return to their routine.

Pediatric partial thickness burn therapy: a meta-analysis and systematic review of randomised controlled trials

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Background/Aim(s): Pediatric second-degree burn injuries are a significant source of impairment to the population that may cause severe, lifelong complications. Currently, there are hundreds of therapeutic modalities to treat this condition. Yet, the lack of clear, evidence-based guidelines leaves practitioners with the option to aid their patients, mainly from data published in individual studies and experience.
Summarising the reported outcomes in pediatric burn medicine to determine the effectiveness of the available interventions compared to the current gold standard silver-sulphadiazine (SSD).
Method(s): A meta-analysis and systematic review were performed of all randomised controlled trials (RCTs) collected in October 2020, from four databases, evaluating dressings on children with acute partial-thickness burns. The evaluated endpoints were time until wound closure, grafting need, infection rate, number of dressing changes, and length of hospital stay.
Result(s): 29 RCTs were included in the qualitative and 25 in the quantitative synthesis, but only three trials compared directly the same control (SSD) and intervention (Biobrane). Data analysis showed a tendency for faster healing times and reduced complication rate linked to biosynthetic, silver-foam and amnion membrane dressings. The most substantial difference was found between the number of dressing changes associated with less pain, narcosis and time required to treat a child.
Conclusion(s): Due to the groups' high heterogeneity (I2:96-99) caused by the unequal depth subcategory ratios and surface areas of the injuries, no significant difference was found in the investigated main outcomes. Further research is necessary to establish the most effective treatment for pediatric second-degree burns.

Examination of the effectiveness of different treatment methods on animal combustion models

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Background/Aim(s): One of the most common type of injuries sustained during childhood is burn. There are several bandages available for conservative treatment of second degree burns. There isn't extensive medical literature available about animal testing results regarding the comparison of different treatment methods.
The aim of the study was to develop an adequate testing model, and to compare the four treatment methods of second degree burns.
Method(s): The authors were examining the healing progress of 74 adult male Wistar rats's second degree burns developed in their interscapular region. The second degree burns were created by 30 second sustained pressure of a special iron rod, heated up to 130 Celsius. After the development and standardization of the model, the success level of the combination of four different bandages were examined as treatment methods. Biopsy was performed on the 5th, 10th and 22nd day after the burn injuries were developed to assess the depth and range of the burn, the level of epithelialization, and the thickness of scarring. On the 5th day, the % of residually burned surface was determined based on the size ratio of the not epithelialized surface and the burn wound. On the 10th day, the level of wound epithelialization was assessed using a point system (0-open wound, 1-partially closed, 2-closed on multiple levels). On the 22nd day, the scar thickness was measured. The biopsy was performed after hematoxylin eosin was applied. The placement and care of animals was in accordance of ethical regulations and the university's protocol.
Result(s): Based on the examination of the burn injuries's depth and morphology, it can be concluded that an appropriate, standardized experiment model was developed. On the 5th day, compared to the control animals (71%) the size of the remaining burned area was not decreasing with the use of Dermazin (69%), while with the use of other treatments it was improving (47-54%). On the 10th day, the use of combined treatment resulted in wounds closed on multiple levels (2 points), while in the case of the control treatment and other treatments we only found open or partially open wounds (0-1 point). By the 22nd day, the thickness of the scarring was least prominent using the combined treatment (0,5 mm).
Conclusion(s): Based on the results of animal testing it can be concluded that the most rapid healing occurred with the combined and same-time use of Curiosa gel and Aquacel Ag foam, making it the most effective treatment.

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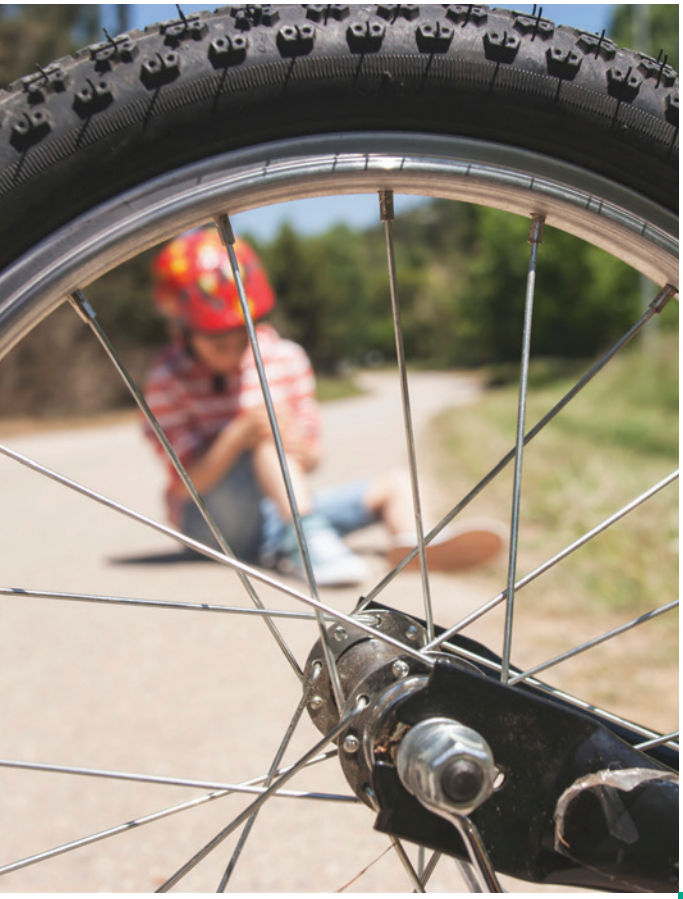

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