Abstracts Book

Thursday 23, September 2021

11:45 - 11:55		**OPENING SESSION** *Henri Lottmann (France)* Emilio Merlini (Italy)
12:00 - 12:22		**RESEARCH COMMITTEE SESSION - Covid-19 and Paediatric Urology: Update on Current Research** *Luke Harper (France)* Introduced by Magdalena Fossum
12:25 - 13:19	**S1:**	**BASIC RESEARCH 1** *Moderators: Martin Kaefer (USA)*

S1-1: Withdrawn (video presentation not uploaded)

S1-2: Withdrawn (video presentation not uploaded)

S1-3 (SO)

CAN PENTRAXIN-3 PREDICT APOPTOSIS IN EXPERIMENTAL TESTICULAR TORSION?

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INTRODUCTION

Rapid diagnosis in testicular torsion provides protecting functions and preventing loss. Experimental study shows diagnosis using serum pentraxin-3(PTX3) and apoptotic pathway in germ cells-specific cell death following acute ischemia.

MATERIAL AND METHODS

16 male Wistar albino rats were divided as control group (non-operated group, n=8) and testicular torsion group(n=8). Testicular torsion group had rotating left testicle with its cord720 degrees clockwise and fixing testicle to scrotum's internal surface. At 3 hours after torsion, both testes were harvested for histopathological,

immunohistochemical and western-blotting (caspase-3, 8, 9) studies, and blood samples were collected for PTX-3 levels, antioxidant status(TAS), oxidant status(TOS) and oxygen saturation index(OSI).

RESULTS

Mean plasma PTX-3 level was higher in testicular torsion group (2.78±0,70 ng/ml vs. 1.89±0,84 ng/ml, p=0,032). Mean plasma TAS, TOS and OSI values were increased in testicular torsion group (0,650±0,073vs0,779±0,075;6,609±3,861vs3,609±1,823;1,037±0,484vs0,458±0,199;p>0.05, respectively). Caspase-3 immune-reactivity level was observed higher in torsion group(p=0,001) and also found correlation with high Caspase-3 immune-reactivity between increased-PTX-3 level(p=0,001). Germ cell desquamation and disorganization were seen in seminiferous tubules in torsion group(p=0,001), and congestion was detected in interstitial capillary space. Johnsen score was found being decreased in torsion group(p=0,001).

CONCLUSIONS

Testicular torsion causes loss of spermatogenesis and significant increase in germ cell apoptosis due to increase in testicular oxidative stress arising with recruitment of neutrophils. Experimental studies might reveal testicular damage pathways. Present study proposed that PTX-3 can be used as early diagnostic marker predicting apoptosis in testicular torsion, and results obtained with apoptosis will help developing new treatment strategies for testicular salvage.

S1-4 (SO)

★ NEXT GENERATION SEQUENCING IN HYPOSPADIAS: A CASE-CONTROL STUDY OF 576 CHILDREN

Nicolas KALFA [1], Anne BERGOUGNOUX [1], Pascal PHILIBERT [1], Alice FAURE [2], Rachel REYNAUD [3], Kathy WAGNER [4], Jean BRÉAUD [5], Eric DOBREMEZ [6], Laura GASPARI [1], Cyril AMOUROUX [1], Nadège FAUCONNET-SERVANT [1], Charles SULTAN [1] and Françoise PARIS [1]
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PURPOSE

The pathophysiology of hypospadias remains undetermined. Next-generation-sequencing offers a major breakthrough for exploring human disease but has yet to be applied to hypospadias. We aimed to explore a large panel of 336 candidate genes from hypospadiac patients and identify new, frequently associated variants.

MATERIAL AND METHODS

Prospective multicenter case-control study with 576 participants. Cases were children with hypospadias without pathogenic variants in the main candidate genes. Controls were matched for ethnicity. After targeted- exome-sequencing of 336 independent loci, variant filtering and calling were performed using validated algorithms. Comparison of distribution of frequent variants (minor allele frequency >0.01) in cases and controls using the PLINK reference software in different transmission model hypotheses.

RESULTS

Nineteen frequent variants on 16 loci showed a p-value below 10^{-2}. Seven of them were previously reported to be associated with other human conditions (cleft palate, myopia, cardiac defects and Hirschsprung disease). In addition to confirming two previously associated DGKK variants, we identified new variants possibly involved in hypospadias, especially in TGFBR3 and other genes implicated in the TGFβ pathway (TGIF1, ZEB1, NTF3 and FGFR2), which regulates testis development and spermatogenesis. Other SNPs showed a significant trend in PPARGC1b, which is

expressed in Leydig cells and germ cells; GLI4 and SUFU, two genes implicated in the Shh pathway in the urethral plate; and IRF6, which has been reported in midline defects.

CONCLUSIONS

Next-generation-sequencing applied to unexplained hypospadias identified at-risk SNPs compared to controls and highlighted original candidate genes and pathways. Future studies should test whether this genetic background indicates a susceptibility to endocrine-disrupting chemicals.

S1-5: Withdrawn (video presentation not uploaded)

S1-6 (SO)

CREATION OF TISSUE ENGINEERED URETHRAL CONSTRUCTS FOR PROXIMAL HYPOSPADIAS REPAIR IN A RABBIT EXPERIMENTAL MODEL

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PURPOSE

Tissue engineering is a potential treatment for urethral defects. Our aim is to create tissue-engineered urethral constructs from cells obtained with a non-invasive method, and test them in a proximal hypospadias rabbit model.

MATERIAL AND METHODS

An experimental study was conducted. Hypospadias model was created in male New-Zealand rabbits resecting the ventral penile urethra. Urethral constructs were created from bladder washing cells, seeded in a decellularized intestinal submucosa matrix (SIS-Cook-Biotech®). Constructs were tested in the model. Twenty-two rabbits were divided into 3 groups. Group-A (n=2) was control group (hypospadias unrepaired). Group-B (n=10) and group-C (n=10) underwent an Onlay urethroplasty, using the matrix unseeded in group-B; and the construct in group-C. Macroscopic, radiological and pathological results were assessed.

RESULTS

The model was successfully created. Stratified urothelial cultures were obtained from bladder washing and matrix cell adhesion was achieved. All group-A rabbits kept the urethral defect unchanged. All group-B rabbits presented urethroplasty dehiscence (median urethral repaired surface=15(5-20)%). In group-C, 5 presented complete urethral correction, and 5 almost total correction with small fistula, (median urethral repaired surface=97.5(70-100)%), demonstrating better results (p=7.85x10-5). Urethrography showed more fistulas in group-B (10/10, versus 5/10 in group-C)(p=0.04). No strictures were identified. Group-B pathology identified absence of ventral urethra in unrepaired areas, with dorsal urethra squamous metaplasia. In repaired areas of group-C, ventral multilayer urothelium was identified.

CONCLUSIONS

Bladder washing is a viable non-invasive cell source to create stratified urothelium. Urethroplasty with urethral constructs is feasible and presents superior results compared to using an isolated matrix in the rabbit model.

S1-7 (SO)

A HISTOLOGICAL AND RNA-SEQ STUDY OF THE DIVERGENT CORPUS SPONGIOSUM IN HYPOSPADIAS

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PURPOSE

To investigate the histological and RNA-seq changes of the divergent corpus spongiosum in hypospadias

MATERIAL AND METHODS

Seventy hypospadias boys from 9 months to 4 years old were included and divided into the distal (n=44) and the proximal (n=26) groups according to the location of the ectopic meatus. Another 7 cases with the urethral rupture were taken as the controls. The histopathological features of the corpus spongiosum were evaluated by HE staining, masson staining and immunohistochemical study of α-SMA, CD34. RNA-seq was conducted for 7 proximal hypospadias and 5 controls.

RESULTS

Histological evaluation suggested an abnormal structure of the cavernous sinus in the hypospadias group, which is characterized by a wider vascular lumen (control 7.20 ± 1.12μm, hypospadias 13.75 ± 8.08μm, $p=0.0068$), a thicker vascular wall (control 5.40 ± 1.28μm, hypospadias 14.11 ± 7.59μm, $p=0.0006$), decreased vascular density (control 7.24 ± 4.19, hypospadias 15.66 ± 1.17, $p<0.0001$), decreased trabecula density (control 3.68 ± 2.87, hypospadias 9.80 ± 1.92, $p<0.0001$). The severity of the structural abnormity was more obvious in the proximal group. The results of RNA-seq suggested there were 334 significantly overexpressing genes and 1233 down-regulated genes in hypospadias group. KEGG analysis showed significant pathway of DEGs were enriched in complement and coagulation cascades, cell adhesion molecules and cytokine−cytokine receptor interactions.

CONCLUSIONS

The histological variation of the structure is positively correlated with the severity of hypospadias. RNA-seq provideds the potential pathways for studying the etiology of hypospadias.

S1-8 (SO)

GENETIC INTERACTIONS CAUSE DIVERSE DEVELOPMENTAL PHENOTYPES OF HYPOSPADIAS

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PURPOSE

Common variants have been identified in hypospadias using genome-wide association studies (GWASs). However, the GWASs of hypospadias cohort only explained 9.5% of the genetic variance. The rare coding variants with larger effects on risk of hypospadias are poorly understood, and the genetic etiology of hypospadias is still unclear.

MATERIAL AND METHODS

To identify rare coding variants with large effects on hypospadias risk, we carried out whole exome sequencing (WES) in five severe patients with the variable outcomes in a large hypospadias family with an X-linked recessive inheritance. SNVs and Indels variants were annotated based on the Variant Effect Predictor (VEP) and Ensembl canonical and APPRIS transcripts. Each variant was classified into groups of LoF (loss of function), missense, synonymous and others using the Sequence Ontology.

RESULTS

Rare damaging variant p.R841H in AR gene was identified in three patient and p.T353M in HSD3B1 gene was found in two patients. Additionally, two rare damaging variants (p.E293* and p.G121C) in one gene SLC25A5, located on the X chromosome, were identified in all patients. All of these two damaging mutants are very rare in the ExAC database and 1000 Genomes Project, with minor allele frequency (MAF) < 0.0001. Patients with different rare damaging variants combinations were observed to have different hypospadias phenotypes.

CONCLUSIONS

In conclusion, previous knowledge of genetic variants that affect hypospadias risk is primarily based on GWASs of common variants. This study indicates that these genetic interactions of rare damaging variants rather single mutation yielded hypospadias with the variable outcomes. These mutations provide new insight into etiology of genetic contribution of hypospadias.

S1-9 (SO)

GENETICS OF HYPOSPADIAS IN CONSANGUINOUS CASES AND FAMILIAL HISTORY: WHOLE EXOME SEQUECNING IS AN INTERESTING TOOL

Hélène MOREL [1], Alexandre ROUEN [1], Nicolas KALFA [2], Valeska BIDAULT [3], Geneviève QUENUM-MIRAILLET [1], Anne BERGOUGNOUX [4], Sandra CHANTOT-BASTARAUD [1], Christine GRAPIN [3], Muriel HOUANG [5], Laetitia MARTINERIE [6], Georges AUDRY [7], Marie LEGENDRE [1], M. Francesca MONN [8], Agathe VEILLET-LAVALLEE [1], Annabel PAYE-JAOUEN [3], Serge AMSELEM [1], Alaa EL GHONEIMI [3], Pascal PHILIBERT [4], Jean-Pierre SIFFROI [9], Matthieu PEYCELON [10], Matthieu PEYCELON [1] and Matthieu PEYCELON [3]
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PURPOSE

Hypospadias is the most common malformation affecting male genitalia and its incidence is increasing. Beside a strong environmental contribution to this phenotype, the heritability has been estimated at 54-77%, with familial clustering in about 10%. Most cases remain undiagnosed at the molecular level. The aim of this study was to identify new genes and new variants involved in hypospadias using Whole Exome Sequencing (WES), on consanguineous patients or with a relevant familial history.

MATERIAL AND METHODS

Genomic DNA was extracted from blood lymphocytes using standard techniques. Constitutional WES using NovaSeq and Hiseq4000 (Illumina) was performed on 30 patients born with hypospadias (57% distal, 43% proximal): 10 patients were consanguineous, and 20 patients had an affected relative that was also included in the cohort. Statistical analysis: Fisher’s exact test.

RESULTS

15 variants were identified in genes previously associated with the phenotype and reported in the literature (SOX8, CYR61, ZFHX3, PDGFC, SAMD9, SCARB1, EXOC3, ATF3, NR5A1, CYP11A1, APOE, NR2F1, NR5A2, RTN4) in these 30 patients: 13 in case of familial history (5/10 families) and 2 in consanguineous patients ($p<0.05$). Moreover, in seven families, we also identified at least one variant in new genes that appeared relevant in hypospadias (steroid or developmental pathways). No significant variant was identified in 3 families (30%) and 8 consanguineous patients (80%) ($p=0.02$).

CONCLUSIONS

Whole exome sequencing is an interesting tool, especially in case of familial history. We identified several variants in genes already described to be implicated in the pathology and some other of unknown significance that will need to be further replicated and investigated with functional studies. According to our results, hypospadias could be associated with a large genetic heterogeneity, and maybe with an oligogenic inheritance.

13:20 - 14:14 **S2:** **BASIC RESEARCH 2**
Moderators: Magdalena Fossum (Sweden)

S2-1 (SO)

★ VASCULAR DYSFUNCTION IN BOYS WITH HYPOSPADIAS

Angela LUCAS-HERALD [1], Rheure ALVES-LOPES [2], Laura HADDOW [2], Stuart O'TOOLE [3], Martyn FLETT [3], Boma LEE [3], Mairi STEVEN [3], Syed Basith AMJAD [4], Syed Faisal AHMED [1] and Rhian TOUYZ [5]
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PURPOSE

Hypospadias in boys may be associated with insufficient androgen exposure during the masculinisation programming window in utero. Testosterone has vasoactive actions and accordingly we tested whether vascular function is altered in boys with hypospadias.

MATERIAL AND METHODS

Peripheral arteries were dissected from excess foreskin tissue from boys undergoing hypospadias repair (cases) and boys undergoing circumcision (controls). Vascular function was assessed in isolated arteries by myography and differences in reactive oxygen species generation were investigated in vascular smooth muscle cells (VSMCs).

RESULTS

27 boys with hypospadias and 37 age-matched controls were enrolled in this study (median age 1.9 (range 1.3, 12.2) years). Of the cases, there were 8 (30%) proximal, 6 (22%) mid and 13 (48%) distal hypospadias. Arteries from cases demonstrated increased vasoconstriction versus controls (Emax:137.9 vs 66.3, $p<0.001$) and reduced endothelium-dependent (Emax:72.4 vs 1.2, $p<0.0001$) and endothelium-independent vasorelaxation (Emax:42.7 vs 11.8, $p<0.0001$). VSMCs from cases demonstrated produced more oxidative stress as measured by increased levels of superoxide anion (5.3 fold, $p<0.01$), hydrogen peroxide (3.3 fold, $p<0.001$) and total antioxidant capacity (34.4 fold, $p<0.0001$). Cases also had increased DNA methyltransferase activity (1.2 fold, $p<0.05$) suggesting epigenetic change. Vascular reactivity was improved when resistance arteries were incubated with N-acetylcysteine, a reactive oxygen species scavenger.

CONCLUSIONS

Small arteries from boys with hypospadias exhibit vascular dysfunction, as measured by increased vascular contractility and decreased vasorelaxation, secondary to increased oxidative stress and possible epigenetic modifications. The implications of these findings on long-term health as well as surgical outcome need further exploration.

13:23 - 13:26
S2-2: Withdrawn (author request)

S2-3 (SO)

ACTIVATION OF CENTRAL IMMUNOSUPPRESSIVE CASCADE PREVENTS ISCHEMIA REPERFUSION INJURY FOLLOWING ACUTE PYELONEPHRITIS

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PURPOSE

Renal dysfunction secondary to scarring and fibrosis of the renal parenchyma is a feared complication of pyelonephritis. The host immune response has been identified as a key mediator of ischemia reperfusion injury (IRI) and renal scar formation. We have previously demonstrated that varenicline, an α7nAChR agonist, activates a central immunosuppressive cascade, limiting IRI following testicular torsion and preventing long-term testicular atrophy. We hypothesized that varenicline would similarly decrease ischemia reperfusion injury and limit renal scar formation in a murine model of pyelonephritis.

MATERIAL AND METHODS

Using a previously-established model, pyelonephritis was induced by inoculating the bladder of C3H/HeOuj mice with uropathogenic E-coli. 5 days following inoculation, the animals were divided into two groups and treated with 5 days of ceftriaxone, or 5 days of ceftriaxone with varenicline in the initial 48 hours. Animals were sacrificed at 14 and 30 days post-inoculation. Quantitative PCR was performed to evaluate expression of mediators of IRI and fibrosis.

RESULTS

14 days following inoculation, central mediators of IRI including Vcam, Serpina, Lyz1, and Lcn2 were downregulated in animals treated with varenicline. 30-day outcomes demonstrated decreased expression of collagen and smooth muscle in animals treated with varenicline.

CONCLUSIONS

The addition of varenicline to antibiotic therapy for acute pyelonephritis reduces ischemia reperfusion injury and renal fibrosis. Further studies are needed to define the optimum dosing and time frame for varenicline administration; however, our initial results suggest that varenicline offers a potentially novel adjunct therapy in the management of pyelonephritis.

S2-4 (SO)

URINE NGAL IS ELEVATED IN MICE WITH URINARY TRACT INFECTION COMPARED TO MICE WITH ASYMPTOMATIC BACTERIURIA

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PURPOSE

Distinguishing urinary tract infections (UTI) from asymptomatic bacteriuria (ABU) in children with neuropathic bladders is difficult. Although urine neutrophil gelatinase-associated lipocalin (uNGAL) is increased in the setting of UTI, it is unknown whether uNGAL levels are elevated in definitive ABU. The objective of this study was to compare uNGAL levels between mice with UTI and ABU. We hypothesized that mice with UTI would have higher uNGAL levels compared to mice with ABU.

MATERIAL AND METHODS

Female C57BL/6 mice were transurethrally inoculated with 1-2 x10^7 colony-forming units of either uropathogenic Escherichia coli strain CFT073 for the UTI model (n=12),e. coli strain 83972 for the ABU model (n=12), or PBS (n=3) for 72hrs. Urine was collected for uNGAL and creatinine measurements before and 72hrs post-inoculation. uNGAL levels were compared using Kruskal Wallis or Mann-Whitney U as appropriate.

RESULTS

The median (interquartile range) uNGAL was 31 (20, 51)ng/ml in the pre-inoculation mice. Median post-inonculation uNGAL levels were 76 (43, 93)ng/ml for the PBS-inoculated mice, 464 (146,1653)ng/ml for the ABU-inoculated mice, and 1780 (1172, 2573)ng/ml for the UTI-inoculated mice, (p-value < 0.01). The median increase in uNGAL from pre- to post-inoculation levels in UTI mice was significantly higher than that of ABU mice (UTI: 1748 (1141, 2501)ng/ml; ABU: 429 (167, 1429)ng/ml) p=0.04). Results were unchanged for uNGAL normalized by urine creatinine.

CONCLUSIONS

Mice with UTI had higher uNGAL levels than mice with ABU. uNGAL may help guide clinical management around antibiotic use in children with neuropathic bladders who present with bacteriuria.

S2-5 (SO)

★ AUTOMATED KIDNEY STONE CLASSIFICATION WITH MICROSCOPIC IMAGES AND MACHINE LEARNING

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PURPOSE

In circumstances where stones are too large to be treated with SWL, minimally invasive procedures are being used to take out kidney stones. Understanding and detecting the formation of specific types of kidney stone is crucial for prescribing treatment to prevent recurrence. Because of the hybrid and complex nature of stones, there is still significant subjectivity and variability across physicians. In this study, we propose an image recognition system to increase the objectivity of kidney stone classification. Specifically, machine learning algorithms are applied to microscopic images taken from a smartphone to differentiate Calcium Oxalate, Struvite, and Cystine kidney stones.

MATERIAL AND METHODS

An image database is created by taking a total of 179 microscopic images of 20 kidney stones from different parts through a smartphone microscope. Each kidney stone was labeled by the gold standard X-Ray Crystallography technique. Then, all the images are fed to our deep learning algorithms that are based on Tensorflow. The output

model was then run on 36 random testing microscopic images. False negative, false positive and accuracy rates are analyzed. As a result, a smartphone application is developed for automated kidney stone classification.

RESULTS

After training with 179 images, our machine learning model outputted a 95% accuracy rate, with only 1% false negative and 0% false positive for each stone type. Additionally, F1 score of our model was 0.88.

CONCLUSIONS

Future applications of this technology can be used as a point of care inexpensive predictive tool for classifying kidney stones in pediatric patients. Our results show that the smartphone application we built can increase the objectivity in kidney stone classification. When combined with the knowledge of a pediatric urologist, this study can increase the effectiveness of kidney stone treatments.

S2-6 (SO)

HOT SPOT GENE MUTATIONS IDENTIFIED IN PRIMARY HYPEROXALURIA IN CHINESE PEDIATRIC PATIENTS WITH URINARY STONES

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PURPOSE

This study was aimed to determine the clinical and mutation spectrum of pediatric patients from mainland China with primary hyperoxaluria(PH).

MATERIAL AND METHODS

The genomes of families of 77 children with calculi were examined via whole-exome sequencing. The results were validated using the Sanger method, and the clinical data and gene reports were analyzed.

RESULTS

Thirty-three PH cases were found, the age of the patients ranged from 7 months to 13 years, with 23 males and 10 females. For PH1 patients, there were three homozygous mutations and 10 compound heterozygous mutations in the AGXT gene. Among them, c.33dupC and c.815_c.816insGA were the most common mutations, accounting for 15.4% of total alleles respectively in the present study. For pH2 patients, the mutation c.864_865delTG accounted for 5/8 of alleles in this study. For type 3 patients, there were four cases of homozygous mutations in the HOGA1 gene and 12 cases of compound heterozygous mutations; the mutations in the c.834_834+1 region, including c.834G>A and c.834_834+1GG>TT, account for 50% of total alleles in this study.

CONCLUSIONS

This is the largest pH cases reported in children from mainland China. PH3 was more common seen in China, followed by PH1 and PH2. The c.33dupC and c.815_c.816insGA were the most common mutations, short repeat of the GA dinucleotide may present a mutation hotspot in Chinese PH1 children. The c.864_865delTG mutation was the hotspot mutation in PH2 patients, and mutation hot spot region (c.834_834+1) in Chinese PH3 pediatric patients was also found.

S2-7 (SO)

DISMEMBERING THE URETEROVESICAL JUNCTION: A COMPUTATIONAL ANALYSIS OF THE 5:1 URETERAL LENGTH-TO-DIAMETER RATIO

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PURPOSE

The primary theory of the ureterovesical junction (UVJ) anti-refluxing mechanism is based on Paquin's 5:1 ureteral tunnel length-to-diameter ratio (L/D). We hypothesized that the current use of this rule as surgical dogma results in an overestimation of needed tunnel length to prevent vesicoureteral reflux (VUR).

MATERIAL AND METHODS

Using COMSOL Multiphysics finite element solver, bladder filing was modeled under non-linear, large deformation conditions. The bladder was modeled as an incompressible, hyperelastic material and assumed to be a sphere expanding uniformly. Broad parametric studies on different L/D ratios were performed as the bladder fills from 10% to 110% capacity. For all considered ratios, the UVJ resistance to flow was calculated and compared.

RESULTS

The modeling results indicate that implementing the 5:1 ratio at 80% capacity (approximate volume during ureteral reimplantation) corresponds to 7:1 at the rest state (used by Paquin). Similarly, the 5:1 ratio being implemented at the rest state corresponds to 3:1 at 80% capacity. Furthermore, as the bladder fills, the tunnel length for UVJs with higher L/Ds increases while the cross sectional area decreases which is an indication of UVJ collapse. For smaller ratios, the tunnel length decreases and cross sectional area increases with filling. Additionally, as the bladder fills from 10% to 110% capacity, flow resistance for L/D=2.5 (UVJ inserted perpendicular to the bladder wall) decreases to almost zero, while it increases by about 200% for L/D=5.0.

CONCLUSIONS

This model indicates that use of Paquin's ratio during ureteral reimplantation may overestimate the requisite tunnel length to prevent reflux. It also implies that UVJ closure is primarily due to bladder wall deformation rather than the differential pressure across the wall. This points to a need for better understanding of the UVJ structure to reliably predict VUR resolution, risk of infection, and direct anti-reflux surgical technique.

S2-8 (SO)

URINARY TREFOIL FAMILY FACTORS (TFF) AND NEUTROPHIL GELATINASE-ASSOCIATED LIPOCALCIN (NGAL) IN CONGENITAL UROPATHIES WITH AND WITHOUT GENETIC POLYMORPHISM

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PURPOSE

To study the relationship between urinary biomarkers (TFF1,TFF3 and NGAL) and renal outcomes in children with congenital uropathies with & without genetic predisposition to renal injury.

MATERIAL AND METHODS

This study includes children (upto 14 years) with common congenital uropathies registered in our urology clinic from January-June 2019. Measurement of TFF1, TFF3 and NGAL was done by ELISA in spot urinary samples. DNA extraction, amplification and gel electrophoresis were sequentially performed in blood to assess genetic polymorphism of four candidate genes (encoding PAX2, BMP4, ACE and AT2R).

RESULTS

Of the fifty children, 20% had ureteropelvic junction obstruction, 44% had posterior urethral valve and 36% had vesicoureteric reflux. The median (IQR) urinary concentrations of TFF1, TFF3 and NGAL were 25.5 (22.2-29.4) ng/ml, 105.9 (89.2-113.3) ng/ml and 171.7 (143.1-177.4) ng/ml respectively. Among the forty children in whom renal nuclear scans (DTPA-GFR and DMSA) were performed, 47% had early CKD (stage 1,2), 53% had late CKD (stage 3 and above) and 20% had cortical scarring. All three biomarkers were significantly elevated in children with late CKD and cortical scarring. TFF3 predicted CKD progression with highest accuracy (AUC=0.978) on the ROC curve. In a multivariate linear regression analysis in children with early CKD, NGAL significantly predicted the outcome (p=0.013). Children exhibiting polymorphisms of genes encoding ACE and AT2R had significantly higher concentrations of urinary biomarkers.

CONCLUSIONS

Urinary TFF (1 and 3) and NGAL are significantly elevated in the children with congenital uropathies. NGAL and TFF3 strongly predict the early and late stages of CKD respectively. Genetic polymorphism in genes encoding ACE and AT2R confer a high-risk of progressive renal injury.

S2-9: Withdrawn (presentation merged with S3-1)

14:20 - 14:47		**RESEARCH COMMITTEE SESSION - The Importance of Patients Registries: Clinicians as Allies in Research** *Darius Bägli (Canada) and Katherine Herbst (USA)* Introduced by Goedele MA Beckers (Netherlands)
14:47 - 15:10		**BREAK**
15:10 - 15:52	**S3:**	**BASIC RESEARCH 3** *Moderators: Nicolas Kalfa (France)*

S3-1 (SO)

ACUTE BLADDER OUTLET OBSTRUCTION INDUCES GENDER-DEPENDENT KIDNEY INJURY

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PURPOSE

Gender-dependent bladder remodelling was found after one day bladder outlet obstruction. In this study we investigated the changes in the kidneys secondary to the acute obstruction with the hypothesis that also in the kidneys we can observe gender-dependent changes.

MATERIAL AND METHODS

Thirty-six male and female mice were randomly divided into Control, Sham and BOO groups. A suture was tied around the proximal urethra to develop a 24-hour total obstruction. In the Sham group, a skin incision was made without dissection, whereas the mice in the Control group did not undergo an initial procedure. Western blots analysis of the kidney cortex samples was performed for fibronectin, α-Smooth Muscle Actin(α-SMA), and Gremlin. Quantitative PCRs for Transforming Growth Factor β (TGF-β), Bone Morphogenetic Protein-7 (BMP-7), Tumour Necrosis Factor-α (TNF-α), Interleukin-1 β (IL-1 β), Monocyte Chemoattractant Protein-1 (MCP-1) were also performed. The blood samples were also collected to determine plasma Na+, K+, Urea, Creatine and Osmolarity level.

RESULTS

In both genders BMP-7 was downregulated, whereas only the female exhibited upregulated TGF-β. BOO resulted in a significant upregulation of Gremlin protein level in male mice. Fibronectin upregulation was detected in both genders, and α-SMA showed no significant changes in both genders. Concerning kidney function, BOO induced significantly elevated plasma K+ and Osmolarity in both genders, while only the males developed an increased plasma creatinine level. Sham-operation induced decreased urea level in male and decreased creatinine level in the female.

CONCLUSIONS

Acute complete bladder outlet obstruction induced kidney injury in both genders. These differences suggest that the gender-dependent bladder remodelling after BOO with clear differences in volume capabilities should be considered as one of the factors besides the sex hormones leading to a different kidney injury response between genders.

3-2 (SO)

★ USING THREE DIMENSIONAL IMAGING TO UNDERSTAND SPATIOTEMPORAL DYNAMICS OF BLADDER LYMPHATIC DEVELOPMENT

Kevin CAO [1], Daniyal JAFREE [2], Dale MOULDING [3], Navroop JOHAL [4], Paul WINYARD [2] and David LONG [2]
1) UCL Great Ormond Street Institute of Child Health, Urology, London, UNITED KINGDOM - 2) UCL Great Ormond Street Institute of Child Health, Nephro-urology, London, UNITED KINGDOM - 3) UCL Great Ormond Street Institute of Child Health, Imaging, London, UNITED KINGDOM - 4) Great Ormond Street Hospital for Children, Urology, London, UNITED KINGDOM

PURPOSE

Lymphatics play a crucial role in the removal of extracellular fluid from organs, however little is known about the bladder lymphatic network forms and matures. Our aim in this research is to visualise the initiation and maturation of the bladder lymphatic network in the mouse at cellular resolution using a novel three-dimensional imaging pipeline coupled with quantitative analysis.

MATERIAL AND METHODS

We optimised the iDISCO method of wholemount imaging for the urinary tract organs (Renier et al. Cell. 2014 6;159(4):896-910), reporting previously on the role of the lymphatic network in kidney development and polycystic disease (Jafree et al. Elife.2019 6;8:e48183). This technique enables three-dimensional imaging of immuno-labelled whole-organs. After labelling with lymphatic markers (Lyve-1, Prox-1) as well as a blood vascular markers (endomucin), we imaged both male and female wild-type (CD1) mice from embryonic day 14.5 to postnatal day 11 using single and two-photon confocal microscopy. Lymphatic network visualisation and analytics performed digitally.

RESULTS

Lymphatic endothelial cells are seen at the earliest stages of bladder formation at e14.5. As the organ grows, these early, discontinuous vessel tracts follow the path of the established blood vasculature, proceeding in a neck-to-dome direction expanding and maturing to become several prominent lymphatic trunks by the end of pregnancy. Interestingly, a Prox-1-only stained cell cluster is also seen at early stages of bladder development and disappears by birth, which we speculated may be progenitor lymphatic cells arising de novo within the bladder.

CONCLUSIONS

We present through images, the first description of the spatiotemporal dynamics of fetal bladder lymphatic formation at cellular resolution.

3-3 (SO)

DEVELOPMENT OF A NEW FETAL CYSTOSCOPE BASED ON AN ANATOMICAL STUDY OF THE FETAL BLADDER FOR LOWER URINARY TRACT OBSTRUCTION.

Nicolas VINIT [1], Jérome SZEWCZYK [2], Jacques BATTAGLIA [2], Thomas BLANC [1] and Yves VILLE [3]
1) Necker-Enfants Malades Hospital, Department of Pediatric General Surgery and Urology, APHP - EA7328, Paris University, Paris, FRANCE - 2) Sorbonne University, Institut des Systèmes Intelligents et de Robotique, Paris, FRANCE - 3) Necker-Enfants Malades Hospital, Department of Obstetrics, Fetal Medicine and Surgery - EA7328, Paris University, Paris, FRANCE

PURPOSE

Fetal cystoscopy (FC) was developed to relieve prenatal bladder outlet obstruction and reduce postnatal morbidity in congenital lower urinary tract obstruction (LUTO). Inadequacy of the current cystoscope with anatomical constraints of the fetal bladder is a limiting factor, responsible for failed procedures and added morbidity. The aim of this project was to develop a new fetal cystoscope based on an anatomical study of the fetal bladder.

MATERIAL AND METHODS

Forty-six Magnetic Resonance Imaging of male fetuses (17 LUTO at 28.1 weeks of gestation (WG) [17.3-35] and 29 controls at 29.9 WG [21.9-35]) were reviewed. Bladder-neck angle (BNA) and bladder volume were measured. Angle values were compared between groups using Mann-Whitney's test. Development of the device was based on the constraints deduced from the anatomical study. An experimental model of LUTO bladder was created using a 3D-printed silicone LUTO bladder.

RESULTS

BNA was higher in LUTO fetuses: 127° [102-162] against 111° [89-157], $p<0.01$. Angulation of the scope was deduced from the BNA and therefore ranged between 18° and 78° (mean 53°). Concentric preformed tubes were deemed the most adequate technology for the cystoscope to adopt the range of angles necessary for obstacle visualization. A rotor motor was added to the device to allow safe positioning in the fetus' bladder. A 1.2-millimeter camera was used as optic system. The experimental model of LUTO bladder was validated and proof of concept was obtained.

CONCLUSIONS

This new fetal cystoscope should help overcome current technical difficulties encountered during FC.

S3-4 (SO)

H-IPSE, A PARASITE-DERIVED CANDIDATE DRUG FOR BLADDER PAIN, LOCALIZES WITHIN UROTHELIAL CELLS THROUGH CLATHRIN-MEDIATED MECHANISMS AND TARGETS CELLS OUTSIDE OF THE UROTHELIUM

Olivia LAMANNA [1], Evaristus MBANEFO [1], Kenji ISHIDA [1], Franco FALCONE [2], Theodore JARDETZKY [3], Luke PENNINGTON [3] and Michael HSIEH [1]
1) Children's National Hospital, Urology, Washington, USA - 2) University of Giessen, Giessen, GERMANY - 3) Stanford University, Stanford, USA

PURPOSE

IPSE (IL-4 Inducing Principle from Schistosoma mansoni Eggs) has significant therapeutic potential. We have shown IPSE alleviates bladder inflammation and pain triggered by ifosfamide and resiniferatoxin (an agonist of the capsaicin receptor). IPSE binds to DC-SIGN and the mannose receptor, suggesting it may have specific cellular receptors. As an infiltrin, IPSE translocates into host cell nuclei to alter transcription. We hypothesized that IPSE mediates its transcriptional effects following uptake by specific cell types. Our objective was to characterize which cell types internalize H-IPSE (the Schistosoma haematobium ortholog of IPSE) and determine if this occurs by clathrin- and/or caveolin-mediated endocytosis.

MATERIAL AND METHODS

H-IPSE variants H03 and H06 were conjugated to Alexa-488 fluorophore and flow cytometry was used to quantify internalization. H03 was incubated with urothelial, endothelial, immature dendritic, hepatocyte, and neuronal cell lines for 24hrs. Urothelial cells were pre-treated with filipin (inhibiting caveolin-mediated endocytosis) and/or chlorpromazine (inhibiting clathrin-mediated endocytosis) before treatment with H03 or H06.

RESULTS

The percentage of cells positive for intracellular H03 was 78, 28, 38, 40, and 7 percent, respectively. When cells were pre-treated with chlorpromazine, the proportion of cells positive for IPSE was similar to that of untreated cells, suggesting IPSE utilizes mainly clathrin-dependent mechanisms.

CONCLUSIONS

Despite our prior findings regarding IPSE's therapeutic effects on capsaicin receptor-mediated pain, our findings indicate that IPSE may be inefficiently taken up by capsaicin receptor expressing neurons and may be inducing its effects despite inefficient uptake, or through an alternative pathway. These observations reveal important principles relevant to understanding the therapeutic properties of IPSE.

3-5: Withdrawn (author request)

S3-5: Withdrawn (video presentation not uploaded)

S3-6 (SO)

★ A GLOMERULUS-ON-A-CHIP TO MODEL RENAL AUTOIMMUNE DISEASES

Astgik PETROSYAN [1], Paolo CRAVEDI [2], Valentina VILLANI [1], Roger DE FILIPPO [1], Laura PERIN [1] and Stefano DA SACCO [1]
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PURPOSE

Primary membranous nephropathy (MN) is a leading cause of nephrotic syndrome in adults worldwide. MN involves the deposition of auto-antibodies against podocyte-expressed antigens in the glomerular subepithelial space, causing podocyte injury and initiating renal damage leading to kidney failure in one third of patients. The study of mechanisms responsible for MN pathogenesis is challenged by the lack of in vitro systems that recapitulate human disease. We have developed a novel glomerulus-on-a-chip system (GOAC) using human primary podocytes human glomerular endothelial cells (GEC) in combination with OrganoPlates and assessed the functional response to human MN serum.

MATERIAL AND METHODS

Human podocytes were seeded on microfluidic chips with hGEC. Immunofluorescence and WB were performed for podocyte, endothelial and GBM markers. Barrier selective-permeability was investigated. Chips were cultured with serum from MN patients or healthy individuals. Functional response was assessed by albumin permeability assay. IgG/IgG4 deposition was assessed by immunofluorescence while mechanisms of action were explored by Western Blotting and immunostaining.

RESULTS

This system recapitulates salient characteristics and functions of the in vivo glomerular filtration barrier (GFB). The GOAC is permeable to inulin and impermeable to albumin. When exposed to the serum of subjects with MN, the chip displayed IgG and complement C3 deposition on the podocytes and loss of permselectivity to albumin to an extent comparable to urinary protein loss in respective patients. Moreover, we have found evidence suggesting that changes in the ILK/MAPK/SNAIL signaling pathway might contribute to podocyte damage during MN pathogenesis.

CONCLUSIONS

We have successfully developed a glomerulus-on-a-chip system that closely mimics the GFB structure and provides a powerful tool for studying renal regenerative and disease mechanisms in proteinuric diseases, toxicity effects and could inform the discovery of new drugs. This system will increase our ability to individualize treatments, thus ultimately benefiting patients affected by renal failure.

S3-6: Withdrawn (video presentation not uploaded)

S3-7 (SO)

★ CYP21A2 EXPRESSION AND CORTISOL PRODUCTION IN A HUMAN ADRENAL CELL LINE

Kiersten CRAIG [1], Jun YAO [2], Dix POPPAS [3] and Yariv HOUVRAS [4]
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PURPOSE

Congenital adrenal hyperplasia (CAH) is an autosomal recessive disorder caused by loss of function mutations or deletions affecting the CYP21A2 gene. Current management requires life-long exogenous steroid treatment, mineralocorticoid replacement, and often surgery. Most patients with CAH harbor loss of function mutations that only partially reduce the 21-hydroxylase activity raising the possibility that medical therapy designed to increase CYP21A2 gene transcription would translate into clinical benefit. We previously performed a chemical genetic screen with zebrafish and found that Forskolin, an adenylyl cyclase analog, increases cyp21a2 transcription in zebrafish. We used a human adrenal cell line, H295R, to determine if similar affects can be seen in human cells.

MATERIAL AND METHODS

H295R cells were treated with Forskolin and DMSO (control). Quantitative Polymerase Chain Reaction (qPCR) was used to detect the fold change in transcription of CYP21A2 after 12 hours of treatment. Cortisol enzyme linked immunosorbent assay was also used to quantify cortisol production in the supernatant of treated cells after 48 hours.

RESULTS

CYP21A2 expression was 1.54 fold higher following Forskolin treatment than DMSO at 12 hours. Cortisol levels in the supernatant of Forskolin treated cells were 1.56 and 1.60 fold higher thanDMSO and baseline cells, respectively.

CONCLUSIONS

Forskolin increases cyp21a2 expression and cortisol production in the H295R cell line. Our studies raise the possibility that it may be possible to repurpose select drugs such as cAMP analogs to improve treatment of patients with CAH.

15:10 - 15:52 **S4:** **CASE REPORT (parallel session, room 2)**
Moderators: Marco Castagnetti (Italy)

S4-1 (CRP)

A UNIQUE CASE OF PENILE PROSTHESIS IMPLANTATION IN A PATIENT WITH CONGENITAL MEGALOURETHRA.

Alfredo BERRETTINI [1], Michele GNECH [1], Dario Guido MINOLI [1], Erika Adalgisa DE MARCO [1], Vincenzo MIRONE [2], Luigi DI LUISE [2], Marco CAPECE [2], Alessandro PALMIERI [2], David RALPH [3], Massimo DI GRAZIA [4] and Gianantonio MANZONI [1]
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PURPOSE

A 20-year-old young man born with congenital megalourethra came back to our department complaining of refractory lifelong erectile dysfunction. Past medical history included urinary retention, recurrence UTI, bilateral VUR and renal impairment. He underwent to a definitive 2 kidney's transplant, a partial urethrectomy for seborrheic emission and a definitive perineal urethrostomy .

MATERIAL AND METHODS

Past medical history included urinary retention, recurrence UTI, bilateral VUR and renal impairment. He underwent to a definitive 2 kidney's transplant, a partial urethrectomy for seborrheic emission and a definitive perineal urethrostomy .

RESULTS

MRI of the penis showed scafoid megalourethra and absence of the distal part of both corpora cavernosa. The patient underwent implantation of an inflatable penile prosthesis (Titan® OTR, Coloplast S.p.A) device after intravenous administration of Gentamicin and Cefazoline. Surgery was carried out through a longitudinal peno-scrotal incision in order to guarantee adequate exposure of the corpora from the crura to the distal tips. After the corporotomies, dilation of both corpora was performed. As expected, distal dilation was possible up to three quarters of the shaft.

CONCLUSIONS

The patient is successfully using the prosthesis with satisfactory erections after two years of follow-up. To our knowledge this is the first successful report of inflatable penile prosthesis in a patient born with a scafoid megalourehra.

S4-2 (CRP)

THE DOUBLE BARREL SHOTGUN TECHNIQUE FOR CONSERVATIVE MANAGEMENT OF COMPLETE DIPHALLIA.

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1) Riley Hospital for Children, Urology, Indianapolis, USA - 2) Roosevelt Hospital, Pediatric Surgery, Guatemala City, GUATEMALA

PURPOSE

Diphallia is an exceedingly rare form of structural DSD that occurs in less than one in 5 million births. Variable degrees of penile and urethral development can be seen with complete duplication of the penis and urethra being the least common. In this era of concern regarding surgery for children with DSD, one option is to postpone surgical decisions until the child reaches the age of assent/consent. However, in cases where surgery is undertaken, it should be the surgeon's primary goal to preserve as much genital tissue as possible. The Double Barrel Shotgun Technique is the most conservative surgical procedure that can be used to achieve a functional and cosmetically acceptable phallus.

MATERIAL AND METHODS

An incision is made from the medial aspect of the coronal margin of one phallus to that of the other. Both penises are degloved, Buck's fascia is reflected and the medial aspects of the two phalluses are brought into apposition with a series of inverted 4-0 polypropylene suturess spaced at 3 mm intervals. A small segment of the medial facing half of each glans is removed and the two glans components are combined. The two functional urethras are left separate. Skin is reconstructed to provide optimal coverage.

RESULTS

Two patients underwent this procedure. The procedure was performed in under two hours. In both cases the penis was documented to be straight postoperatively. In one case the child is old enough to confirm the presence of a completely straight penis with full erections. Both children void simultaneously through both urethras.

CONCLUSIONS

The Double Barrel Shotgun Technique for preservation of both penises in patients with complete diphallia is simple in concept and provides an excellent cosmetic and functional result. By avoiding corporotomies, minimal risk is incurred to the erectile mechanism of either penis. By leaving the urethras separate there is no risk of urethral injury or stricture.

S4-3 (CRP)

PENILE TUMOR IN AN ADOLESCENT BOY - A VERY RARE CASE

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General Teaching Hospital and Charles University 1st Faculty of Medicine, Urology, Prague, CZECH REPUBLIC

PURPOSE

In contrast to the adults, penile tumors are extremely rare in children and adolescents. We present a case of penile myointimoma. Very few cases have been reported in the literature so far.

MATERIAL AND METHODS

A 15- year old boy presented for a 6 months history of a slowly growing, hard, whitish nodule within the glans, around 1 cm in diameter, visible under the unchanged skin, without palpable groin lymphonodes. He referred no history of trauma.

RESULTS

According to the EAU guidelines for penile cancer in adult men we performed the Doppler Ultrasonography (DUS) and Magnetic Resonance Imaging (MRI). DUS revealed hypoechogenic, hypoperfused non well-defined area inside the glans spongiosum. MRI did not confirm any other pathologic mass inside corpora cavernosa. A mass excision with peroperative biopsy was decided. Biopsy and subsequent detailed histopathological study revealed histological changes diagnostic of myointimoma (benign tumor characterized by nodular structures derived from the intima of the cavernous vessels, formed of elongated cells with no atypia or mitoses). Due to the benign nature of the lesion, staging for distant metastases was not necessary and we simply performed an outpatient follow-up. Ten months after the excision, there is no local recurrence, no urethral stricture and the cosmetic appearance is good.

CONCLUSIONS

Both clinician and pathologist must be aware of this rare benign pathology. Organ sparing surgery is a method of choice. Local excision is safe and effective treatment modality.

S4-4 (CRP)

Y-TYPE DUPLICATION OF URETHRA AND MEGALOURETHRA: WHEN THEY APPEAR TOGETHER

Sara LOBO [1], May BISHARAT [2], Jan TRACHTA [3] and Imran MUSHTAQ [4]
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PURPOSE

Y-type urethral duplication is a rare congenital anomaly, commonly associated to other very well established anomalies, including anorectal malformation and hemivertebrae. The concomitant presence of a megalourethra has only been described in a single case in the literature.

MATERIAL AND METHODS

We describe 3 cases of children with this association along with the complex and distinct management required.

RESULTS

Two of the children had a diagnosis of Y-type duplication in neonatal period and the third at 3 years of age. Other congenital malformations were present in 2, including cardiac anomalies, anorectal malformation and distal tracheo-esophageal fistula. On clinical examination, the diagnosis of megalourethra was obvious in 2 patients and the third had the diagnosis by MCUG. All patients had a hypoplastic corpora cavernosa and a similar pattern of voiding through a ventral urethra with small volume leaks from an orthotopic urethra. Since the urethral anatomy was slightly different in each other, the management was performed according to the findings. Two children are undergoing a 2-staged urethroplasty, one performs CIC per perineal fistula.

CONCLUSIONS

Y-type urethral duplication in association with megalourethra is a rare finding. Y-duplication needs to be considered in children presenting with megalourethra. We highlight the importance of early diagnosis to tailor appropriate treatment towards the patient with view to minimising unnecessary procedures, surgical morbididities and improving outcomes.

S4-5 (CRP)

URETEROPELVIC DISRUPTION FOLLOWING BLUNT ABDOMINAL TRAUMA AND RECONSTRUCTION OF THE URETER BY APPENDICEAL INTERPOSITION WITH LOWER POLE CALYCOSTOMY

Marios MARCOU, R. FURTMAIR, B. WULLICH and Karin HIRSCH-KOCH
University Hospital Erlangen, Clinic of Urology and Pediatric Urology, Erlangen, GERMANY

PURPOSE

Trauma is the main cause of morbidity and mortality in the pediatric population.

MATERIAL AND METHODS

We present a 12 year old girl, who had a traffic accident as a cyclist through collision with a car. She had a multitrauma with right-sided flail chest, right-sided iliac wing fracture, contusion of spleen and liver, left sided pneumothorax, right-sided ankle fracture and a commotio cerebri. At day 10 after the accident, she presented with an acute abdomen and a right-sided retroperitoneal urinoma. Diagnosis was an ureteral injury with complete disrupture of the ureter. Therefore a nephrostomy was placed into the right renal pelvis. Until this point, the management was done in an external trauma center. Six weeks later, the patient was referred to our inpatient clinic for evaluation of reconstruction of the right ureter. The following options of reconstruction were discussed: autotransplantation of the right kidney with an anastomosis between the renal pelvis and the distal ureter, or

ureteral substitution using appendix or ileum. Intraoperative findings: the proximal ureter was necrotic, the kidney was decapsulated and the pelvic area was macerated. Autotransplantation was not possible . As the decapsulated kidney was very fragil and the renal pelvis very small, an appendicopyelostomy was not possible and we decided to make a reconstruction of the ureter by appendiceal interposition with a lower pole calycostomy.

RESULTS

6 weeks after the operation the percutaneous nephrostomy and the ureteral stent were removed. Outpatient follow-up and serial abdominal ultrasound showed a stable status. Seven years after surgery we made a complete follow up and scintigraphy revealed a good function of the right kidney with 43% of the total renal function.

CONCLUSIONS

Reconstruction of the ureter by appendicaeal interpositon with lower pole calycostomy is an alternative to autotransplantation in complex cases after injury of the ureter.

S4-6 (CRP)

MANAGEMENT OF UROLOGICAL COMPLICATIONS IN 2 BROTHERS WITH JUNCTIONAL EPIDERMOLYSIS BULLOSA

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1) HFME, Pediatric urology, Bron Cedex, FRANCE - 2) Hfme, Pediatric Nephrology, Bron Cedex, FRANCE

PURPOSE

Epidermolysis bullosa (EB) is a rare and potentially lethal inherited cutaneous-mucosal disorder. Renal and urinary tract complications are found in 15-30% of EB, and are more frequent in junctional sub-type. These complications can lead to end-stage renal disease and death. We report surgical management of 2 brothers with junctional EB and severe urinary tract complications.

MATERIAL AND METHODS

The older brother (A) presented an antenatal diagnosis of hydramnios. He had a chronic bladder dysfunction, with recurrent UTIs, dysuria, painful micturitions since the age of 2. Symptoms gradually increased with hydronephrosis leading to chronic renal disease and hypertension at age 8. Alpha-blocker, oxybutinin and suprapubic catheter provided a partial improvement of renal function.
Younger brother (B) had chronic bladder dysfunction at age 4 followed by severe hypertension, dilated cardiomyopathy and renal failure. He was first treated with an undwelling suprapubic catheter leading to partial renal function and cardiac recovery. Both had major urethral damage making catheterization impossible.

RESULTS

Persistent upper tract dilatation and recurrent UTI led to enterocystoplasty with a Mitrofanoff conduit in both children. With a 24 month post-operative follow-up, no complications were recorded, a stable renal function in A, improved in B, with a better growth in both, less UTIs, improved quality of life after surgery, better school performance.

CONCLUSIONS

Enterocystopasty with Mitrofanoff procedure appeared useful for the management of severe urological complications in junctional epidermolysis bullosa to improve renal function, growth and quality of life.

S4-7 (CRP)

RENAL TUMORS DIAGNOSED PRENATALLY

Gabriela GROCHOWSKA [1], Piotr GASTOL [1], Agnieszka BROŻYNA [2], Bożenna DEMBOWSKA-BAGIŃSKA [2] and Malgorzata BAKA-OSTROWSKA [1]
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PURPOSE

To evaluate the outcome of children with prenatally diagnosed renal tumors.

MATERIAL AND METHODS

We analyzed medical database of 17 newborns with primary renal tumors resected since 2005. There were 4 (23.5%) children in this group (2 boys and 2 girls) with prenatally diagnosed renal mass. Prenatal findings, clinical records, radiological, surgical and pathological reports were reviewed.

RESULTS

Renal mass in all patients was detected on ultrasound examination performed in the third trimester. Tumors were described as hypoechoic heterogeneous solid renal mass. Two of them were confirmed by fetal MRI. Complications during the perinatal period were identified in 1 pregnancy (threatened preterm birth). Median gestational age of the 4 neonates was 35,5 weeks (range 34 to 38), including 1 newborn who was pre-term. All children were born via cesarean section. Hypertension after birth was detected in 2/4 patients. Three children underwent unilateral nephrectomy in the first week of life without intraoperative complications. In one newborn because of nonspecific sonographic image, abdominal CT and urinary VMA level were performed. Finally, prenatal adrenal hemorrhage was suspected. After 3 weeks of observation, because of persistence of tumor, patient received pre-chemotherapy (VCR) and underwent nephrectomy at 5 months of age. Wilms tumor (stage 1) was diagnosed.
Histopathological examination showed congenital mesoblastic nephroma (CMN) in 3/4 patients (2 cellular variant and 1 mixed subtype) and Wilms tumor in 1 patient. All children are alive from 11 to 84 months from diagnosis (median 30.7 mo).

CONCLUSIONS

1. Congenital mesoblastic nephrons is the most common fetal renal neoplasm in our material
2. After prenatal diagnosis of renal mass fetal MRI or at birth is recommended

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S4-8 (CRP)

CYTOPENIA IN GENITAL MALFORMATIONS: WATCH OUT FOR MIRAGE SYNDROME

Arthur LAURIOT DIT PREVOST [1], Dyuti SHARMA [1], Benedicte BRUNO [2], Maryse CARTIGNY-MACIEJEWSKI [3], Sylvie MANOUVRIER [4] and Rémi BESSON [1]
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PURPOSE

MIRAGE syndrome (Myelodysplasia, Infection, Restriction of growth, Adrenal hypoplasia, Genital phenotypes and Enteropathy) is associated with SAMD9 mutation and loss of chromosome 7. In the initial description on 11

patients, 6 out of 7 46XY patients exhibited genital underdevelopment, and all had thrombocytopenia and/or anemia (Narumi et al. Nature Genetics 2016;48(7):792–7).

CASE REPORT

We present the case of a boy, referred at 17 months for a perineal hypospadias with severe chordee. Karyotype and testosterone level at birth were normal. Apart from the genital phenotype, endocrine assessment showed a mild testicular dysgenesis, a normal rate of ACTH, and weight was 9.7kg (-1 standard deviation).

Urethroplasty was performed at the age of 21 months, preoperative hematological assessment showed moderate leukocytopenia (WBC 4940/mm3, Platelets 129000/mm3, Hemoglobin 12.5g/dl), and post-operative control showed anemia (8g/dl, stable over 5 days), leukocytopenia (2350/mm3, decreasing), and improvement of the platelets (140000/mm3).

Five days after hospital discharge, he was admitted for sepsis — with no clinically identifiable cause — associated with pancytopenia. Medullar karyotype showed a loss of chromosome 7, but pancytopenia resolved spontaneously. Because of the poor prognosis of myelofibrosis, bone marrow transplant was planned. But since pre-transplantation medullar karyotype did not found monosomy 7, transplantation was cancelled. After the publication of the MIRAGE syndrome, CGH-array detected a mutation in SAMD9.

CONCLUSIONS

Pediatric urologist care young patients with genital anomaly, and usually request pre- operative hematological assessment. We should be aware of this recently described —and thus possibly under diagnosed— entity in our patients with genital anomaly.

S4-9 (CRP)

LASER FULGURATION OF MULTIPLE VENOUS MALFORMATIONS OF BLADDER IN AN ADOLESCENT WITH KLIPPEL - TRENAUNAY SYNDROME

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PURPOSE

Congenital venous malformations (VM) of the urinary tract are a very rare disorder, representing less than 0.6% of all bladder lesions. We describe endoscopic fulguration of multiple bladder lesions in an adolescent with Klippel - Trenuanay (KT) syndrome.

MATERIAL AND METHODS

A 12 year old boy presented with multiple episodes of painless gross hematuria. He was a known case of KT syndrome and had undergone multiple surgeries for rectal hemangiomas before. Medical treatment for bladder VMs had failed. Contrast enhanced computed tomography of the abdomen showed a partially delineated, heterogeneously enhancing bladder dome lesion of size 2 X 2 cms, along with mild thickening of surrounding walls.

Cystoscopic examination showed multiple bluish sessile VMs of variable sizes, ranging from 0.5 to 1.5cms in the supra-trigonal region of bladder. An endoscopic fulguration with Holmium laser [1 Joule, 10 Hz] was performed for majority of the larger lesions.

RESULTS

The operative duration was 45 mins and the blood loss was 10 ml. The hematuria episodes did not recur after surgery and the patient remains asymptomatic on a one year follow-up, with a good bladder capacity.

CONCLUSIONS

Multiplicity of lesions, along with location, size and severity of symptoms should be accounted for while deciding the management strategies for VMs of bladder. Laser fulguration of multiple VMs of bladder is a safe and successful treatment modality.

4-10 (CRP)

A RARE CASE WITH BOTH ANTERIOR URETHRAL VALVE AND POSTERIOR URETHRAL VALVE

Aykut AKINCI [1], Murat Can KARABURUN [2], Can Utku BAKLACI [2], Perviz HAJIYEV [3], Tarkan SOYGUR [1] and Berk BURGU [1]
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PURPOSE

Posterior urethral valve (PUV)s are the most common cause of lower urinary tract obstruction in pediatric patients.Anterior urethral valve(AUV)is a rare but well-known cause of lower urinary tract obstruction congenital-anomaly.The concomitant both an AUV&PUV is an extremely rare congenital-abnormality. We aimed to demonstrate endoscopic diagnosis and treatment in a patient with both anterior urethral and posterior urethral valve.

MATERIAL AND METHODS

A 26-year-old(gravida 2) mother presented for ultrasonographic examination at 20-weeks gestation and was found bilateral gradeI renal dilatation, bilateral dilated ureters, increased bladder size (30*25 mm) and mild oligohydramnios on antenatal 20.week ultrasonography. The patient was delivered via cesarean-section at 37.weeks.On examination of the newborn, there was no anomaly.The creatinine was 2.49 mg/dl at 3. day.Postnatal ultrasonography was performed and revealed bilateral dilated ureters, bilateral Grade III pelvicaliectasis,diffuse increased bladder thickness and dilated posterior urethra.The urethral catheter was placed. The creatinine was regressed(2.49 mg/dl to 1.53 mg/dl).A voiding cystogram was performed and revealed concomitant both an AUV&PUV at postnatal 1. week.Cystourethroscopy and circumcision were performed and concomitant both AUV&PUV were found and incised at the age of 2weeks.

RESULTS

The creatinine was regressed (1.53 mg/dl to 0.99 mg/dl). No postoperative-complication was observed. The urethral catheter removed at postoperative 3.day. The infant was discharged 4 days later with normal spontaneous-bladder-voiding.

CONCLUSIONS

Congenital concomitant both AUV&PUV an uncommon but important cause of lower urinary tract obstruction.Early-diagnosis and management of this rare condition are very important to prevent further damage, infection and end-stage renal failure.

S4-11 (CRP)

BLADDER AGENESIS, BILATERAL ECTOPIC URETERS DRAINING INTO THE VAGINA, COLIC ATRESIA AND HIRSCHSPRUNG DISEASE IN A FEMALE INFANT.

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PURPOSE

Complete agenesis of the bladder is an extremely rare congenital anomaly that and has been reported in few patients. We report the case of 38 weeks of pregnancy female newborn who presented bladder agenesis with bilateral ectopic ureters draining into the vagina, sigmoid-descending-transverse colic atresia and Hirschsprung disease.

MATERIAL AND METHODS

The patient was transferred on day 1 of life from an outside hospital for delayed passage of meconium and several episodes of bilious vomiting. She had no routine prenatal US controls, parents were no consanguineous and we found a 46 XXFRA(10)(Q25.3) karyotype. We conducted a laparotomy in emergency and we found a sigmoid-descending-transverse colic atresia with a huge dilated right colon. An ascending colostomy was realized, and additionally, colon-rectal biopsies (routinely performed) showed absence of ganglion cells on histological analysis. On the other hand, abdominal US showed bilateral hydroureteronephrosis with no signs of bladder and on the urography we found bilateral ectopic ureters with vaginal implantation. No bladder cavity was visualized, that confirm the US suspect of bladder agenesis.

RESULTS

We performed a transanal pull-through (Soave) at 6 month of life and, at 3 years of life, an ileocystoplasty with bilateral ureteral reimplantation (Lich-Gregoir) and continent ileal catheterizable cystostomy.

CONCLUSIONS

At the last control, patient aged 18 years, we found no hydroureteronephrosis, there was no leakage from the cystostomy and the patient conducted clean intermittent self-catheterization. The renal function was stable.

S4-12 (CRP)

URETEROSCOPIC LASER INFUNDIBULOTOMY FOR SYMPTOMATIC CALYCEAL DIVERTICULUM

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PURPOSE

Calyceal diverticulum is characterized by outpouching of a renal calyx lined by non-secretory transitional epithelium. While many are asymptomatic, some present with intermittent pain, infection or stone formation within the diverticulum due to a stenotic infundibulum. We aimed to describe the operative management of this rare problem.

PATIENTS AND METHODS

The medical, radiological and operative records for a patient referred to a tertiary paediatric hospital with a symptomatic calyceal diverticulum confirmed on intravenous urography and computed tomography. Patient demography, method of identification of the infundibulum, infundibulotomy technique, post-operative drainage/stenting and clinical outcome were all recorded.

RESULTS

One male (aged 14 years) with symptomatic calyceal diverticulum, presenting with flank pain, was identified. The calyceal diverticulum was 24mm x 23mm in maximum dimension. Day-case flexible ureterorenoscopy and laser infundibulotomy was performed. The infundibulum was identified using the Blue Spritz technique (a fluoroscopic-endoscopic technique utilizing contrast and methylene blue). Infundibulotomy was performed using Holmium laser (270µm fibre, 500mJ, 5Hz respectively, short pulse duration). A double-J stent was placed. The patient is currently pain-free at 6 months.

CONCLUSIONS

Flexible ureterorenoscopy offers a minimally invasive means of treating symptomatic calyceal diverticula. Laser infundibulotomy has been a safe and efficaceous means of promoting effective drainage from calyceal diverticula, can be performed as a day case procedure, and can avoid the morbidity of percutaneous access or laparoscopic procedures.

S4-13 (CRP)

LAPAROSCOPIC APPROACH OF VAGINA IN CHILDREN: WHO MAY BE CONCERNED?

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PURPOSE

Laparoscopic approach of vagina (LAV) is poorly developed in children. Our first experience with laparoscopic assisted vaginal pull-through (LAVPT) in case of high vagino-urethral confluence for congenital adrenal hyperplasia (hCAH) showed that this approach appeared safe, and it minimized perineal dissection.
We expanded our experience to other malformations: long gap partial vaginal atresia (pVA), long common channel cloacas (LCC) and high anorectal malformation (hARM).

MATERIAL AND METHODS

Charts of girls operated after 2012 using LAV for hCAH, pVA, LCC and hARM were retrospectively reviewed.
For hCAH, vagina was dissected from posterior wall of bladder, divided from posterior urethra and lowered to perineum. For pVA, vagina pouch was freed from surrounding tissues and pull through with perineal anastomosis. For LCC, rectum, vagina and urinary tract were separated. For hARM recto-vaginal fistula was divided, and rectum separated from vagina.

RESULTS

Seven patients were concerned: 2 hCAH (3.5&5 years), 2 pVA (13&14 years), 2 LCC (5&6 months) and 1 hARM (13 months). For hCAH, confluence of vagina into urethra was less than 15 mm below bladder neck. For pVA, distance between lower extremity of vagina and perineum was 4.5 and 5 cm. For LCC, common channel length was 2.5 and 4 cm. For hARM fistula was 3 cm from perineum. No intraoperative complication was observed but separation of vagina from urinary tract was not possible to achieve in LCC.

CONCLUSIONS

LAV in children appears to be an interesting approach. For hCAH, pVA and hARM it allows minimal dissection of pelvis and perineum. Preliminary experience for LCC shows some limits

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S4-14 (CRP)

A NEW MINI-INVASIVE SURGICAL PROCEDURE FOR TREATING URINARY INCONTINENCE IN MALE DUE TO NEUROGENIC BLADDER OUTLET DEFICIENCY.

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1) Bambino Gesù Pediatric Hospital, Urology, Rome, ITALY - 2) AOU TURIN , Spinal Unit, Neuro-Urology, Turin, ITALY

PURPOSE

Urinary incontinence(UI) due to neurogenic bladder outlet deficiency is quite common to observe in boys and young male adults with spina bifida(SB). Different solutions have been proposed: bulking agents injections, sling, bladder neck surgical procedure, artiphicial urinary sphincter(AUS). We report our preliminary experience with an adjustable hydraulic system in the treatment of UI.

MATERIAL AND METHODS

In two different Neuro-Urology Departments, a same pre-post operative protocol selection and management has been defined in order to treat boys presenting severe neurogenic UI, > 5 pads/day, not responding to standard treatment and failure of previous surgical treatment . All have been selected using diaries, QoL questionnaires, renal ultrasound , videourodynamic. Patients with neurogenic detrusor overactivity((NDO) have been excluded. Patients were operated after a written consent was signed with approval of institutional Committee.

RESULTS

5 patients , 17.6 years mean age (16,5-18,7) have been operated using a a new self anchoring adjustable transobturator hydraulic system (ATOMS) susbstituting urinary sphincter function. Patients were placed in lithotomy position, under endoscopic control, using a perineal access the system was implanted over bulbospongious muscle, compressing indirectly urethra below, increasing urethral resistance. The large cushion was fixed using mesh passing the obturator foramen , anchoring the device on the inferior pubic ramus. Mean operative time 49 minutes (37-61), no postoperative complications have been reported. All patients reported improvement in QoL. 4 are completely dry, 1 reported 80% improvement UI. Not increased Urinary tract infections or post operative hydroneprhosis have been reported. Hydraulic adjustment of reservoir have been done in all without anaesthesia (mean 2 adjustment).

CONCLUSIONS

Our preliminary experience with this device showed a significant improvement in UI and QoL scores. ATOMS seems to be effective in well selected boys with SB, as alternative to other treatment, overcoming sling and AUS concerns.

16:00 - 16:25	**APAPU Lecture: Is it time to stop VUR surgery?** *Stephen Yang (Taiwan)* Introduced by Ram Subramanian (UK)
16:25 - 16:35	**BREAK**

16:35 - 17:11 **S5:** **VESICOURETERAL REFLUX**

Moderators: Pedro-Jose Lopez (Chile)

S5-1 (SO)

★ VOIDING UROSSONOGRAPHY, A COMPARISON WITH VOIDING CYSTOURETHROGRAM IN THE DIAGNOSIS OF VESICOURETERAL REFLUX

Marcelo TAKAHASHI [1], Mauricio Gustavo Ieiri YAMANARI [1], Lisa SUZUKI [1], Taisa Davaus GASPARETTO [2], Roberto Iglesias LOPES [3] and Maria Cristina CHAMMAS [1]

1) Universidade de Sao Paulo, Radiology, Sao Paulo, BRAZIL - 2) DASA, Radiology, Sao Paulo, BRAZIL - 3) Universidade de Sao Paulo, Urology, Sao Paulo, BRAZIL

PURPOSE

Compare the feasibility and effectives of voiding urossonography for the diagnosis of vesicoureteral reflux in a tertiary pediatric hospital in Brazil, when compared with voiding cystourethrography.

MATERIAL AND METHODS

This is an ongoing study that begun January 2016 with ethical review board approval.

Pediatric patients (<18 years) referred for voiding cystourethrogram were included in our study. Any patient with contraindication for the realization of voiding cystography or who did not consent with the study was excluded

All patients underwent first regular B mode ultrasound of the kidneys and bladder. Afterwards bladder catheterization and emptying were performed. The bladder was slowly filled with the contrast solution (Sonovue 1,0 mL diluted in 500 mL of saline). Veiscoureteral reflux was diagnosed whenever microbubbles were visualized in the ureter or renal pelvis. When able patients underwent up to two voiding-filling cycles as to diagnose active reflux.

Afterwards patients were referred to voiding cystourethrography (wiith same bladder catheter still in place) and underwent regular exam.

One radiologist reviewed every urossongoraphy exams and another reviewed all cystourethrography exams, with both being blind to the others results and images.

RESULTS

A total of 41 patients underwent voiding urossonography for a total of 85 kidney-ureter units (2 patients with transplant kidneys and 1 patient with ureteral duplication), with age ranging from 6 months to 16 years)

Results:

	VCUG POSITIVE	VCUG NEGATIVE
US POSITIVE	24	1
US NEGATIVE	2	58

Sensitivy: 92%

Specificity: 98%

Acuracy: 96%

Approximate cost of exams:

- Voiding cystouretrhgoram: aprox 66 dollars

- Voidiing urossonography: between 46 and 99 dollars (one vial of contrast could be used for up to five patients).

CONCLUSIONS

Voiding urossonography a reliable and cost-efficient alternative for voiding cystouretrography in Brazil, specially when considering the relatively low availability of fluoroscopy equipment in the country when compared to ultrasound equipements.

16:38 - 16:41
S5-2: Withdrawn (video presentation not uploaded)

16:41 - 16:44
S5-3: Withdrawn (video presentation not uploaded)

S5-4 (SO)

URETERONEOCYSTOSTOMY (URETERIC REIMPLANTATION) FOR GRADE III-IV VESICOURETERAL REFLUX: HIGH RESOLUTION RATES WITHOUT URETERAL TAPERING OR TAILORING

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1) University of Chicago, Medical School, Chicago, USA - 2) University of Chicago, Department of Urology, Chicago, USA

PURPOSE

Ureteroneocystostomy (ureteric reimplantation) for high-grade vesicoureteral reflux (VUR) is often associated with traditional tapering or tailoring of the dilated ureter despite limited data demonstrating its efficacy in promoting reflux resolution.

MATERIAL AND METHODS

A retrospective analysis identified pediatric patients who underwent open or robotic ureteroneocystostomy (OUN and RAUN, respectively) without ureteral remodeling at a single tertiary care center. The primary endpoint of reflux resolution was defined as no VUR on postoperative voiding cystourethrogram (VCUG). Ureteral dilation was analyzed using the ureteral diameter ratio (UDR), which normalized for image characteristics. Inclusion criteria was as follows: grade III-V reflux, accessible VCUG scans, and RAUN after June 2013 following robotic technique optimization.

RESULTS

A total of 75 ureters were analyzed (OUN=33, RAUN=42). Complete reflux resolution was achieved in 100% (33/33) of OUN cases and 95.2% (40/42) of RAUN cases. The resolution rates did not differ by operative type (Chi-Squared=1.61, p=0.20). The preoperative VUR grade distribution for OUN procedures was 8/33 grade III (UDR=0.26 plus/minus 0.13), 11/33 grade IV (UDR=0.45 plus/minus 0.19), and 14/33 grade V (UDR=0.66 plus/minus 0.24). For RAUN procedures, the grade distribution was 15/42 grade III (UDR=0.24 plus/minus 0.08), 21/42 grade IV (UDR=0.38 plus/minus 0.15), and 6/42 grade V (UDR=0.43 plus/minus 0.13). Of the two RAUN cases that had persistent, though diminished, reflux the pre-operative UDRs were 0.28 and 0.34.

CONCLUSIONS

In this study, traditional ureteral tapering was unnecessary for high rates of reflux resolution for both OUN and RAUN procedures. Additionally, the UDRs of unsuccessful cases were in the second quartile of all ureters operated on, suggesting that ureteral dilatation was not the primary driver of reflux persistence.

S5-5 (SO)

LATE-ONSET URETERAL OBSTRUCTION AFTER USE OF POLYACRYLATE-POLYALCOHOL COPOLYMER (PPC) FOR ENDOSCOPIC TREATMENT OF VESICOURETERAL REFLUX IN CHILDREN

Andrzej GOLEBIEWSKI, Stefan ANZELEWICZ, Leszek KOMASARA and Piotr CZAUDERNA
Medical University of Gdansk, Surgery and Urology for Children and Adolescents, Gdansk, POLAND

PURPOSE

Various balking agents are used for endoscopic correction of all grades of vesicoureteral reflux (VUR) in children. The aim of the study was to evaluate the clinical outcomes after VUR treatment using two bulking agents: PPC and dextranomer/hyaluronic acid copolymer (Dx/HA).

MATERIAL AND METHODS

A total 457 patients (312 girls and 145 boys) aged 1-12 years (mean age 4,6 years) underwent endoscopic correction of VUR (539 refluxing ureters –RU). Patients were divided into two groups; 283 (54,4 %) RUs were treated with Dx/HA and 246 (45,6%) RUs with PPC. VUR grade was II in 191 ureters, III in 307, IV in 28 and V in 13. Success was defined as the complete resolution of reflux in VCUG three months after injection. Ultrasonography was performed after 3, 6 and 12 months.

RESULTS

The success rate was comparable. Mean injection volume was significantly lower in PPC group ($p < 0.05$). Ureteral obstruction was seen in 3 of 283 injected ureters (0,7%) in Dx/HA Group. Obstructions were observed at 1 month after injection. In PPC Group were no early obstruction, but late obstruction (after 1 year) was present in 9 high grade RUs, which is 3,7% of PPC Group, but 64,3% of high grade RUs in that group. All patients required surgery.

CONCLUSIONS

PPC and Dx/HA have equal level of reflux resolution. However, a significantly higher rate of late vesicoureteric obstruction was in PPC Group. Due to the risk of late stenosis, PPC should be avoided in high grade reflux. Long-term follow-up randomized prospective studies are needed to clarify the safety of PPC.

S5-6 (SO)

A SCORING SYSTEM FOR PREDICTIVE ASSESSMENT OF VESICOURETERAL REFLUX RESOLUTION AFTER PEDIATRIC ROBOT-ASSISTED LAPAROSCOPIC EXTRAVESICAL URETERAL REIMPLANTATION

Sang Hoon SONG [1], Il-Hwan KIM [1], Jae Hyun HAN [2], Kun Suk KIM [2], Vinaya BHATIA [1], Jonathan GERBER [1], Minki BAEK [3] and Chester J. KOH [1]
1) Texas Children's Hospital, and Scott Department of Urology, Baylor College of Medicine, Division of Pediatric Urology, Department of Surgery, Houston, USA - 2) Asan Medical Center, University of Ulsan College of Medicine, Department of Urology, Seoul, REPUBLIC OF KOREA - 3) Samsung Medical Center, Sungkyunkwan University College of Medicine, Department of Urology, Seoul, REPUBLIC OF KOREA

PURPOSE

We aimed to develop and validate a scoring system to predict vesicoureteral reflux (VUR) resolution after robot-assisted laparoscopic extravesical ureteral reimplantation (RALUR-EV)

MATERIAL AND METHODS

We retrospectively reviewed data from two tertiary referral hospitals. We included patients who underwent RALUR-EV for primary VUR. Using potential predictive factors for VUR resolution such as age, BBD status, and VUR grade, we developed a prediction model as a regression equation from the larger cohort and a scoring system for easier use in practice. Patients were classified according to their risk score into three categories as listed here with cutoffs of 52 and 71 point. External validation of the scoring system was performed in the smaller cohort.

RESULTS

115 renal units in the development cohort and 46 renal units in the validation cohort were utilized for this study. The success rate of VUR resolution after RALUR-EV was 93.0% and 87.0% in the development and validation cohort, respectively. Perioperative values were assigned to weighted points proportional to their beta-coefficients from a regression analysis in the development cohort. Risk score was calculated as 'age (yr) + BMI + BBD times 10 + VUR grade times 7 + console time (hr) + hospital stay times 6'. The area under the Receiver Operating Characteristic (ROC) curve of our scoring system was 0.859 (p=0.001) and 0.770 (p=0.040) in the development and validation cohorts, respectively. VUR resolution was significantly different among risk groups: 100% (low-risk), 96.7% (intermediate-risk), and 77.8% (high-risk) (p=0.004) in the development cohort and 100% (low-risk), 90.0% (intermediate-risk), and 63.3% (high-risk) in the validation cohort (p=0.205).

CONCLUSIONS

A novel VUR resolution scoring system including patient's age, BMI, BBD, VUR grade, console time, and hospital stay provides a prediction of children at risk for failure of VUR resolution after RALUR-EV.

17:15 - 18:00 **S6:** **OBSTRUCTION & HYDRONEPHROSIS**
Moderators: Doug Clayton (USA)

S6-1 (SO)

★ ACCURATE ESTIMATE OF SPLIT DIFFERENTIAL RENAL FUNCTION USING ULTRASOUND ALONE FOR INFANTS WITH HYDRONEPHROSIS

Mandy RICKARD [1], Lauren ERDMAN [2], Marta SKRETA [2], Daniel T. KEEFE [1], Joana DOS SANTOS [1], Reza VALI [3], Anna GOLDENBERG [1], Michael BRUDNO [2] and Armando J. LORENZO [1]
1) The Hospital for Sick Children, Urology, Toronto, CANADA - 2) The Hospital for Sick Children, Centre for Computational Medicine, Toronto, CANADA - 3) The Hospital for Sick Children, Diagnostic Imaging, Toronto, CANADA

PURPOSE

Estimating differential renal function (DRF) requires imaging with nuclear scans. Obtaining DRF from ultrasound (US) images would be beneficial to institutions (by reducing costs) and patients (by avoidance of radiation). Herein we explore applying our existing deep learning architecture to the task of determining DRF from ultrasound images.

MATERIAL AND METHODS

We used serial imaging from 135 infants with hydronephrosis. Function was classified as "normal" (40-60) or "abnormal" (<40; >60). We trained a convolutional neural network (CNN) with the task of predicting normal or abnormal function from sagittal or transverse renal US images. As input to the model, we took both the left and right kidneys for a given patient and predicted the function for the left kidney, since kidney function is measured in relation to both renal units. To consider information from one view, we tested a CNN with 7 convolutional layers and 2 linear layers. To investigate the predictive gain from using both sagittal and transverse views simultaneously, we used a neural network composed of two identical CNN subnetworks that took in input images from both views to make a prediction.

RESULTS

We were able to predict normal/abnormal renal function in US images with an AUROC 0f 0.776. Including both sagittal and transverse views in the model improved our performance (Table 1). To improve the interpretability of our predictions, we generated heat maps to view areas of interest in US images that our classifier deemed most indicative for predicting function abnormalities.

Model	Training (AUROC)	Test (AUROC)
Sagittal View	0.999	0.668
Transverse View	0.880	0.644
Sag + Trans View	0.992	0.766

CONCLUSIONS

Prediction of normal or abnormal differential function based on US images alone appears to be feasible even without feature-engineering or clinical/patient variables. This technology may allow for closer monitoring and reduce exposure to invasive testing by selecting patients most likely to benefot from a nuclear scan.

S6-2 (SO)

★ RENAL GLOMERULAR AND TUBULAR FUNCTION IN PATIENTS OPERATED FOR POSTERIOR URETHRAL VALVES

Jukkä HEIKKILÄ [1], Timo JAHNUKAINEN [2], Christer HOLMBERG [2] and Seppo TASKINEN [1]
1) Helsinki University Hospital, Paediatric Surgery, Helsinki, FINLAND - 2) Helsinki University Hospital, Paediatric Nephrology, Helsinki, FINLAND

PURPOSE

To evaluate associations between renal glomerular and tubular function and further risk for end stage kidney disease (ESKD) in patients operated for posterior urethral valves (PUV).

MATERIAL AND METHODS

During 1987-1991 63 consecutive patients (median age 11 y (range 2-24)) treated for PUV were enrolled. Glomerular function was estimated by measuring glomerular filtration rate (GFR) and urine albumine excretion. Tubular function was assessed by measuring urine osmolality, electrolyte (Na, K, Ca, Cl, P, Mg) and β-2-microglobulin concentrations. In addition, prevalence of hypertension, serum parathyroid hormone (PTH) and aldosterone values were analyzed. These findings were correlated to GFR and the risk of developing ESKD before November 2018.

RESULTS

Mild, moderate or severe chronic kidney disease (12 (19%), 6 (10%) and 2 (3%) respectively) was observed in 20 (32%) patients. Patients without proteinuria or hypertension had better GFR-values ($p<0.01$ for both). All the measured variables of tubular function had a significant correlation with GFR ($p<0.01$ for all, except 0.03 for dU-K). GFR was significantly lower as well as the concentration of all measured electrolytes in urine ($p<0.01$) in 10 patients developing ESKD during follow-up compared to the others. Urine β-2 - microglobulin and serum PTH and aldosterone values were significantly higher in the patients developing ESKD ($p\leq0.01$). However, only GFR and s-PTH values had a significant association with the speed of developing ESKD (Rho 0.782, $p=0.019$ and Rho -0.804, $p=0.022$ respectively).

CONCLUSIONS

In addition to glomerular function, several parameters measuring tubular function may be applicable when assessing the risk of ESKD in PUV patients.

S6-3 (SO)

A PROSPECTIVE INVESTIGATION OF HYDROURETER: AN ANALYSIS FROM THE SOCIETY FOR FETAL UROLOGY HYDRONEPHROSIS REGISTRY

Sarah HOLZMAN [1], Luis BRAGA [2], C. D. Anthony HERNDON [3], Carol DAVIS-DAO [1], Nora KERN [4], Rebecca ZEE [3], Joshua CHAMBERLIN [5], Melissa MCGRATH [2], Kai-Wen CHUANG [1], Heidi STEPHANY [1], Elias WEHBI [1], Anne DUDLEY [6], Valre WELCH [3], Gina LOCKWOOD [7] and Antoine KHOURY [1]
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PURPOSE

Current guidelines recommend voiding cystourethrogram (VCUG) for prenatal hydronephrosis (PHN) with hydroureter but do not define the minimum ureteral diameter for hydroureter. We evaluated the definition of clinically significant hydroureter, its association with urinary tract infection (UTI) and whether continuous antibiotic prophylaxis (CAP) impacted UTI risk.

MATERIAL AND METHODS

Patients with PHN from six centers were enrolled into the SFU Hydronephrosis Registry from 2008-2019. Subjects with ureter measurement on ultrasound were included. Subjects with ureterocele, ectopic ureter, neurogenic bladder, posterior urethral valve, horseshoe or solitary kidney, known ureteropelvic junction obstruction, or follow-up <1 month were excluded. Primary outcome was UTI. Analyses were performed using Cox regression.

RESULTS

Of 1280 enrollees, 216 were included. Seventy-six percent were male, ureteral diameter ranged from 1-34 mm, and median follow-up was 2.2 years. Hydroureter of 7mm was a significant cutoff to differentiate subjects at high UTI risk. Subjects with ureters 7mm or greater had three times the risk of UTI adjusting for sex, circumcision, CAP, and hydronephrosis grade (HR=3.3, 95% CI:1.2-9.3), p=0.03). Amongst subjects undergoing VCUG (186/216), 7mm or more identified patients at increased UTI risk controlling for sex, circumcision, reflux and hydronephrosis grade (HR=2.9, 95% CI:1.0-8.4, p=0.04). CAP was strongly protective against UTI (HR=0.26, 95% CI: 0.14-0.48, p<0.0001). In subjects with hydroureter <7mm, 0/24 circumcised males, 1/13 (8%) uncircumcised males and 3/13 (23%) females developed UTI.

CONCLUSIONS

This is the first prospectively collected, multi-center study to show that hydroureter 7mm or more identifies a high UTI risk group who would benefit from further imaging and CAP. In contrast, patients with PHN and hydroureter <7mm may be managed more conservatively.

S6-4 (SO)

IDENTIFICATION OF URINARY BIOMARKERS IN NEWBORNS WITH PRENATAL UNILATERAL URINARY TRACT DILATATION USING 1H NMR SPECTROSCOPY AND METABOLOMIC ANALYSIS.

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PURPOSE

The prenatal finding of unilateral Urinary Tract Dilatation (UTD) can be transient or represent a Urinary Flow Impairment (UFI) that would lead to progressive deterioration of renal function. This metabolomic study aims to identify urinary biomarkers that could help to differentiate significant UFI requiring surgical management from transient dilatation at an early stage.

MATERIAL AND METHODS

We prospectively included 70 consecutive newborns prenatally diagnosed with unilateral UTD and 90 healthy newborns as controls. For each one, a urine sample was collected non-invasively within 120 days from birth. Indications for surgery were recurrent febrile urinary tract infections and/or decrease of relative renal function more than 10% on serial isotope studies and/or increasing anteroposterior intrasinus diameter greater than 20% on serial ultrasounds. After a minimum follow-up of 2 years, patients were classified in 3 groups: simple dilatations, surgery and controls. Analysis of urine was carried out by ^{1}H-Nuclear Magnetic Resonance spectroscopy. Sparse partial-least-squares discriminant analysis (sPLS-DA) was undertaken for classification and variable selection.

RESULTS

After a median follow-up of 39.7 months, 33 patients required surgery and 27 were included in the group of simple dilatations.Specific urinary metabolomics profiles were identified in each group. sPLS-DA provided robust classification, yielding high sensitivity and specificity models capable of discriminating urine samples from controls, simple dilatations and patients who required surgery. Metabolites responsible for these differences were identified.

CONCLUSIONS

Postnatal analysis of urinary metabolome appeared to be a powerful tool for predicting the need for surgery in newborns with prenatally diagnosed unilateral UTD.

6-5 (SO)

URINARY EXTRACELLULAR MATRIX PROTEINS AS PREDICTORS OF THE SEVERITY OF URETEROPELVIC JUNCTION OBSTRUCTION IN CHILDREN

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PURPOSE

Extracellular matrix proteins have been found to be associated with tissue fibrosis in the setting of ureteropelvic junction obstruction (UPJO). The ideal management of UPJO remains debatable. This prospective case-control study aimed to investigate whether urinary levels of extracellular matrix proteins are useful to point out in which children UPJO will need surgical correction.

MATERIAL AND METHODS

51 consecutive children with UPJO were enrolled. Surgery was indicated in the following situations: initial differential renal function <40%, renal function decline over follow-up or symptomatic cases. Urinary matrix metalloproteinases (MMP) 1,2,9,10 and TIMP-1 as well as clinical characteristics (hydronephrosis grade, differential renal function and t1/2) were measured in the following age-matched groups: 26 with surgical UPJO, at initial diagnosis (Group A1) and 6 months postoperatively (Group A2); 25 with non-surgical UPJO (Group B); and 30 controls (Group C). Results were assessed statistically using the unpaired nonparametric Kruskal-Wallis or ANOVA.

RESULTS

Comparing the initial samples, MMP-1 and MMP-10 levels were significantly lower (p=0.015; p=0.048), while MMP-2 and TIMP-1 (p=0.015; p=0.033) were significantly higher in surgical UPJO. The MMP-9 levels were lower in the surgical UPJO, but without significance (p=0.8) (Table 1). Follow-up analysis demonstrated increase of MMP-1, MMP-

9 and MMP-10 and decrease of TIMP-1 and MMP-2 (comparison of pre and post pyeloplasty status – group A1 and A2, respectively), but no statistical differences were found.

Table 1

	Group A1	Group B	Group C	p
TIMP-1	822.50(±872.58)	546.23(±606.32)	433.43(±515.58)	0.033**
MMP-9	309.92(±155.37)	437.00(±380.10)	349.70(±302.86)	0.806**
MMP-1	56.77(±6.45)	57.23(±6.19)	53.40(±3.02)	0.015*
MMP-2	459.31(±89.38)	420.65(±38.79)	416.83(±35.36)	0.015**
MMP-10	48.15(±10.40)	54.31(± 17.42)	75.60(±104.20)	0.048**

* ANOVA ** Kruskal-Wallis

CONCLUSIONS

Our results showed that urinary MMP-1, MMP-2, MMP-10 and TIMP-1 are able to distinguish patients with UPJO who are designated for pyeloplasty from those under surveillance.

S6-6 (SO)

PROGNOSIS FACTORS FOR SURVIVAL IN FETUSES WITH PRENATALLY DIAGNOSED MEGACYSTIS.

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PURPOSE

Fetal megacystis may be associated with a range of different pathologies. This study aims to identify prognosis factors.

MATERIAL AND METHODS

201 pregnant women diagnosed with fetal megacystis in two university hospitals between 2000 and 2018 were identified. 29 were excluded because of missing data. Medical terminations of pregnancy were chosen in 75 cases. Newborns who survived longer than 30 days were classified in the survivor group. In utero fetal death (IUFD) and newborns that died within 30 days from birth constituted the fetal/neonatal deaths group. Demographics and ultrasound data were compared between groups.

RESULTS

Amongst 97 identified cases, 76(78.4%) were included in the survivors group and 21(21.6%) in the fetal/neonatal deaths group (18 IUFD and 3 live birth with survival less than 30 days).

The following factors were significantly more frequent in the fetal/neonatal deaths group: Diagnosis during the first trimester of pregnancy (86% vs 34%, p<0.001), bladder diameter > 15mm (73% vs 15%, p=0.001), oligoamnios (20% vs 0%, p=0.002) and associated malformations (60% vs 8%, p=0.009). After a median follow-up of 4.5 years, the final diagnoses in the survivors group were 36(47%) idiopathic megacystis, 16(21%) posterior urethral valves (PUV), 12(16%) transient megacystis and 2(3%) complex uropathies. 10(13%) megacystis resolved spontaneously before birth. Bladder wall >3mm (p=0.002), bilateral renal pelvis dilation (p=0.001), abnormal renal echogenicity (p=0.03) and posterior urethra dilation (p=0.001) were significantly associated with the diagnosis of PUV.

CONCLUSIONS

This study identified prognosis factors in fetal megacystis, which could prove helpful for prenatal counselling.

S6-7: Withdrawn (author request)

S6-8 (SO)

★ DOES BREASTFEEDING REDUCE THE RISK OF UTI IN INFANTS WITH PRENATAL HYDRONEPRHOSIS?

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PURPOSE

The effect of breastfeeding (BF)in preventing urinary tract infections (UTIs)in infants with prenatal hydronephrosis (PHN) has not been properly studied. Herein, we investigate this potential association by reviewing a large PHN database.

MATERIAL AND METHODS

From 2009-20, we prospectively screened 1300 patients with PHN. Infants with BF information missing and other genitourinary anomalies were excluded. Only patients ≤12months old at presentation with grades I-IV SFU HN were included. Demographics, BF history(age BF stopped, % BF), fUTI rates, SFU grades, HN etiology, gender, CAP, and circumcision status were captured. Primary outcome was fUTI rate. Uni and multivariable analyses were conducted.

RESULTS

Of 468 infants, 366 (78%) were male, 213 (58%) were uncircumcised, 251 (54%) had high-grade (III-IV) SFU HN, and 75 (16%) developed fUTI. Overall, 55 (12%) received formula only, 216 (46%) breast milk/formula, and 197 (42%) were breastfed exclusively. 259/413(63%) BF patients were breastfed for ≥6months. BF did not reduce fUTI rates, regardless of the intensity or duration. Lack of CAP (24% vs.6%,$p<0.01$), having either primary non refluxing megaureter POM or VUR vs. UPJO-like (28%, 35% vs. 9%, $p<0.01$) and having grade III/IV HN vs I/II (18% vs.13%, $p=0.04$) were significantly associated with higher fUTI rates. Females and uncircumcised males had a higher risk of fUTI compared to circumcised boys on univariate analysis (17% and 20% vs 10%). On MVA, only lack of CAP, POM and VUR were found to be independent risk factors for fUTI.

CONCLUSIONS

Although a protective effect of BF against infections is widely recognized, such effect was not observed in our PHN cohort. CAP use, POM and VUR were the most important risk factors for fUTI. BF is an intervention with multiple health benefits, however UTI prevention may not be one of them.

Friday 24, September 2021

09:00 - 09:30 **EDUCATIONAL COMMITTEE SESSION - Robot vs Laparoscopy... Just because we have a hammer, should we see every case as a nail?**
Gundela Holmdahl (Sweden)
Mohan Gundeti (USA) and Rafal Chrzan (Poland)

09:35 - 10:23 **S7:** **LOWER URINARY TRACT**
Moderators: Anju Goyal (UK)

S7-1 (SO)

★ EFFECT OF CIRCUMCISION ON RISK OF FEBRILE URINARY TRACT INFECTION IN BOYS WITH POSTERIOR URETHRAL VALVES: RESULT OF THE CIRCUP STUDY

Luke HARPER [1], Thomas BLANCE [2], Matthieu PEYCELON [3], Marc-David LECLAIR [4], Sarah GARNIER [5], Valerie FLAUM [6], Alexis ARNAUD [7], Thierry MERROT [8], Eric DOBREMEZ [9], Alice FAURE [8], Laurent FOURCADE [10], Marie-Laurence POLI-MEROL [11], Yann CHAUSSY [12], Olivier DUNAND [13], Laetitia HUIART [14], Cyril FERDYNUS [15] and Frederique SAUVAT [16]
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PURPOSE

Boys with posterior urethral valves (PUV) have increased risks of febrile urinary tract infection (fUTI) and ongoing renal damage. It has been suggested that circumcision reduces the risk of fUTI in boys with urinary tract malformations, but no randomized trial had confirmed this. We report the result of a prospective randomized trial comparing the risk of fUTI in boys with PUV randomized to neonatal circumcision + antibiotic prophylaxis (group 1) versus antibiotic prophylaxis alone (group 2).

MATERIAL AND METHODS

Boys with PUV were randomized either to neonatal circumcision + antibiotic prophylaxis or antibiotic prophylaxis alone. Circumcision was performed at the time of valve resection. Patients were followed for two years and the number of febrile UTIs in each group was compared. The diagnosis of febrile UTI was defined as fever (>38.5°) with evidence of pyuria and culture-proven infection on urinalysis obtained by urethral catheterization or suprapubic aspiration, and biological signs of inflammation. Episodes of suspected fUTI were validated by a scientific committee blind to the study arm. We estimated we would need 90 patients to identify a difference between both groups. Relative risk of presenting a fUTI was calculated using Cox's model.

RESULTS

There were 49 patients in group1 and 41 in group 2, with a total of 19 patients who presented confirmed fUTI at the end of follow up (1 group 1 and 18 group 2). The relative risk of presenting a fUTI when not circumcised was RR:28.

CONCLUSIONS

Circumcision significantly decreases the risk of presenting a fUTI in boys with PUV even in presence of antibiotic prophylaxis.

S7-2 (SO)

IS THULIUM LASER EFFECTIVE AND SAFE TO TREAT POSTERIOR URETHRAL VALVES IN CHILDREN ?

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PURPOSE

Use of thulium laser (ThL) ablation (ThLa) for posterior urethral valves (PUV) is not reported in literature.Since ThL evaporates tissue continuously without generating pressure waves and creates clean cuts by moving fiber tip across tissue,it could have advantages over holmium laser and electro-fulguration for tissue ablation in young babies.Aim of the present study is to evaluate effectiveness and safety of ThLa in PUV

MATERIAL AND METHODS

From 2014 to 2017, 20 PUV patients were randomly assigned to ThLa (group 1:10 cases) or electro-fulguration (group 2:10 cases).Since 2018, all PUV patients underwent ThLa.In all cases, cystoscopy and voiding cystourethrography (VCUG) were done at 6 and 12 months after treatment,respectively In all patients, operative time, catheterization period, need for re-treatment, immediate (bleeding, infection, retention) and long-term (urethral strictures, incontinence) complications were evaluated. Group 1 and group 2 were statistically compared (Student t test,Fisher exact test)

RESULTS

A total of 26 patients (average age:9.3±19 months;range:1-96 months) underwent ThLa:mean operative time was 25 (range:15-50) minutes;in all cases catheterization period was 1 day;at second look,14/26 patients were re-treated (ThLa) for residual valves; no patients had immediate or long-term complications.Comparing data between groups, group 2 showed longer catheterization period (p<0.002), higher requirement of re-treatment and higher rate of immediate (4 bleeding, 2 infection) and long-term (2 urethral strictures, 2 incontinence) complications (<0.05).Operative time did not significantly differ between the two groups (=0.2)

CONCLUSIONS

PUV ablation with ThL is effective and safe.Since ThL has fewer complication, it seems to be preferable to electro-fulguration, especially in newborns and young babies

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S7-3 (SO)

POSTERIOR URETHRAL VALVES AND THE RISK OF NEURODEVELOPMENTAL DISORDERS

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PURPOSE

Congenital anomalies of the reproductive system have been linked to neurodevelopmental disorders in males (Butwicka A. et al J Child Psychol Psychiatry 2015;56:155-61, Rotem R. et al Am J Epidemiol 2018;187:656-663) . While rare associates, genes related to sex steroids, neural growth and delays in socioemotional development seem to connect with autistic traits and Asperger syndrome (Chakrabarti B et al. Autism Res. 2009;2:157-177). We sought to clarify whether patients with posterior urethral valves (PUV) are susceptible to neurodevelopmental disorders.

MATERIAL AND METHODS

Patients treated for PUV 1992-2013 in our hospital were analyzed in a register-based study. Later visits to neurological or psychiatric clinics were analyzed with regards to neurodevelopmental disorders. Serum creatinine levels at specific timepoints were collected (maximum, 6 months of age, first year nadir, five year). Statistical analyses comparing means between groups were done using standard methods.

RESULTS

Fifteen of 87 patients (17%) had neurodevelopmental disorders. Two (2.3%) fulfilled criteria of intellectual disability (F79.0), six (6.9%) had ADHD/ADD-spectrum diagnoses (F90.0) and two (2.3%) had learning disabilities (F83/D81.3). Problems with social interactions were detected among five patients. These were analyzed with regards to possible associations to gestational age, birth weight or p-creatinine levels. No difference in patients with or without neurodevelopmental disorders with regards to either gestational age, birth weight, highest crea, crea at 6months of age, or crea nadir during first year could be detected (p>0.1).

CONCLUSIONS

While this cohort is limited, it points toward a weak association between posterior urethral valves and neurodevelopmental disorders. Further studies are warranted on a larger scale to verify these findings.

7-4 (SO)

AGE- AND GENDER-SPECIFIC NOMOGRAMS OF POST-VOID RESIDUAL URINE IN HEALTHY CHILDREN AND ADOLESCENTS

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PURPOSE

To expand the previously established age- and gender-specific nomograms of post-void

residual urine (PVR) from children to adolescents.

MATERIAL AND METHODS

Healthy children aged 2 to 16 years were enrolled for two sets of uroflowmetry and PVR. The first two consecutive PVRs of each child or adolescent with a voided volume >50 ml in participants >=6 years and >30mL in participants <=5 years were included for construction of PVR nomograms. Children with possible urinary tract infection or neurognenic lower urinary tract dysfunctions were excluded. All PVRs were assessed within 5 min after voiding with suprapubic ultrasound (Logiq Book1, GE Medical Systems, Milwaukee, WI), and estimated by the equation of height x width x depth x 0.52 ml. Bladder capacity (BC) was defined as voided volume + PVR.

RESULTS

Totally, 1663 children (841 boys and 822 girls) with a mean age of 9.9±3.9 years with 2752 PVRs were eligible for construction of PVR nomograms. The 95th percentile of PVR for all children was 32.6 ml, or 15.0% of bladder capacity (BC). The table showed the age and gender specific percentile of PVR and PVR/bladder capacity (PVR/BC) from age 2 to 16 years. The PVR and PVR/BC decreased as age increased before age of 12 years. The PVR increased after adolescence while PVR/BC remained stable at 10%. PVR was higher in boys than girls before age of 12 years. In adolescent, PVR was higher in girls.

CONCLUSIONS

Age, gender, and BC should be taken into considerations at interpretation of PVR tests in children and adolescents because of gender- and age- differences in bladder function development.

S7-5 (SO)

ACCURATE PREDICTION OF UROFLOW CURVES FROM CELL PHONE AUDIO RECORDING: A PROOF OF CONCEPT

Lauren ERDMAN [1], Slavka ZAHREBELNY [1], Daniel T. KEEFE [2], Marta SKRETA [1], Anna GOLDENBERG [1], Joana DOS SANTOS [2], Niraj MISTRY [3], Armando J. LORENZO [2] and Mandy RICKARD [2]
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PURPOSE

Uroflowmetry is a diagnostic tool in urology employed in the diagnosis and monitoring of many conditions. In pediatrics, it relies on toilet trained children being able to provide on-demand samples in the artificial environment of the clinic in order to assess voiding patterns. Here we present a proof of concept strategy to generate a non-invasive flow curve outside of the clinic setting based on in vivo simulated uroflow from the clinic.

MATERIAL AND METHODS

We obtained samples from 1000 water pours and 20 healthy volunteers(30% male) in the clinic consisting of EMG-free uroflows (Laborie Medical Uroflow v15Rel10) and audio recording of the voiding phase using cell phone. WebPlotDigitizer was used to extract data points from uroflow curves. Curves were converted to spectrograms and concatenated with the time step value. Data was divided into training/validation (n=990 water pours) and held-out test (n=10 water pours, 20 volunteers). Training data was fed into a neural network, built using the pytorch python library. Divergence between predicted and true curve values was calculated using mean squared error (MSE). The final model was selected based on the minimal validation error in the validation set.

RESULTS

Minimal MSE of 22.18 was obtained in held-out test samples. Qualitatively, we see a similar curvature in the predicted versus true uroflow curve in both the human and water test samples. There appears to be a lag in the prediction however this doesn't appear to adversely impact the algorithm's diagnostic applicability.

CONCLUSIONS

Prediction of human uroflow from a model based on simulated water pour data is a feasible and promising option that will allow for more accurate models to be trained for this task. Ultimately, this technology will allow for easier, more efficient, and more frequent assessment of uroflow in a decentralized fashion since an audio recording of this kind can be generated anywhere.

S7-6 (SO)

PRUNE BELLY MANAGEMENT: LESSONS LEARNED FROM THE LARGEST COHORT REPORTED TO DATE

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PURPOSE

To report our experience with comprehensive surgical management of prune belly syndrome (PBS).

MATERIAL AND METHODS

From 1987 to 2019, 74 children with PBS were evaluated: 64 patients were submitted to comprehensive surgical management, 9 are waiting surgery (7 submitted to early diversion) and one patient died of disease in the perinatal

period (severe pulmonary hypoplasia). According to individual needs, treatment aimed to correct the abdominal flaccidity, reconstruct the urinary tract, and perform bilateral orchiopexies and circumcision, which were performed in one procedure. Urinary tract reconstruction was indicated whenever pyelo-ureteral dilatation with evidence of significant stasis and/or vesicoureteral reflux was associated with recurrent urinary tract infections.

RESULTS

Treatment for this cohort included: 59 abdominoplasties, 49 upper urinary tract reconstructions, 53 lower urinary tract reconstruction, 64 bilateral orchiopexies, 64 circumcisions and 5 urethroplasties. Median age at surgery was 20.8 months and median follow-up was 11.8 years. Abdominal appearance and tonus improved in 85% of the children after the primary surgery. Functional stabilization of the upper urinary tract was observed in 90% of the children, with progression to renal failure in 10%. Continence was observed in 80%, while some degree of incontinence was present in 20% and usually associated with polyuria. 88.2% of the testes were normal and topic after bilateral orchiopexies.

CONCLUSIONS

Optimal management should be tailored to each patient. The long-term results for reno-ureteral anatomy and function, bladder function, testicular size and location, as well as abdominal aspect and tonus, show that comprehensive surgery is an adequate method for managing children with PBS.

S7-7 (SO)

REDUCING FOLEY CATHETER USAGE IN A PEDIATRIC HOSPITAL USING A BEHAVIORAL NUDGE

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PURPOSE

Cather-associated urinary tract infections (CAUTI) prolong hospitalizations and increase healthcare costs. The rates of infection are closely monitored. Accordingly, many adult hospitals have instituted policies to reduce their CAUTI rate, but similar efforts have not been well-studied in pediatric hospitals. We sought to investigate whether behavioral modifications including catheter teaching and a daily rounding checklist could reduce unnecessary catheter usage in a tertiary-care pediatric hospital.

MATERIAL AND METHODS

Prospectively collected data of urinary catheter utilization at a single pediatric-only hospital from 2015-2019 were analyzed. In May 2017, hospitalwide mandatory workshops were performed and a nursing-driven daily checklist to assess for catheter necessity was implemented. Pre- and post-intervention catheter utilization rates were compared using the standardized utilization ratio, which is a CDC-developed quality measure of catheter usage defined as total catheter days per total patient days. The intervention was implemented during a seven-month run-in period (May-Dec 2017), which was omitted from analysis.

RESULTS

A total of 365,246 patient-days were available for analysis between January 2015 and August 2019. Catheter-associated UTI rate decreased from 0.13/1000 patient-days to 0.05/1000 patient-days. Hospital-wide urethral catheter utilization decreased from 10.2% (95% CI 9.8% - 10.6%) pre-intervention to 3.9% (3.4% - 4.4%, $p < 0.0001$) post-intervention (Figure 1). These changes were most pronounced in critical care units where utilization dropped from 36.2% (33.6% – 38.8%) to 12.9% (11.8% - 14.0%, $p < 0.0001$). Standardized utilization ratios in the critical care units fell from 2.16 (2.00 – 2.32) to 0.76 (0.69 – 0.83, $p <0.0001$).

CONCLUSIONS

Catheter teaching and institution of a daily rounding checklist successfully reduced urethral catheter utilization as measured by catheter usage rates and standardized utilization ratio in a pediatric hospital. Widespread adoption of these protocols may decrease unnecessary catheter usage and catheter associated morbidity.

S7-8 (SO)

CHARACTERIZATION OF THE URINARY MICROBIOTA OF HEALTHY PREPUBERTAL CHILDREN.

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PURPOSE

In recent years, it has been established that the urine of a healthy adult bladder contains a microbiota, and that dysbiosis of this urinary microbiota may be involved in development of urinary tract diseases including urinary incontinence. The aim of this study is to characterize the urinary microbiota of healthy prepubertal children.

MATERIAL AND METHODS

Clean-catch midstream urine samples of 30 healthy prepubertal children with equal gender distribution were assessed using 16S rRNA gene sequencing of the bacterial region V4. All included children had normal bladder function, and urine samples were negative by standard urine culture test.

RESULTS

Bacterial DNA was detected in all urine samples. The urinary microbiota differed significantly between the prepubertal boys and girls in terms of operational taxonomic unit richness, Shannon Index, and relative abundances of bacterial genera. The urine of girls had a higher number of different bacterial genera with a more even distribution compared to the urine of boys. The urine of boys was dominated by the Porphyromonas genus and to a lesser extent by Ezakiella, Campylobacter, Prevotella, and Dialister. Prevotella was the genus with the highest relative abundance in girls followed by Porphyromonas, Ezakiella, Prevotella 6, and Dialister.

CONCLUSIONS

Clean-catch midstream urine samples of healthy prepubertal children are not sterile, and the composition of the urinary microbiota differs significantly between boys and girls. The most abundant genera of the midstream urine samples from children are different from those reported in similar urine samples from adults.

10:30 - 11:15 **Panel (ESPU-ICCS): Bladder-Bowel Dysfunction**
Piet Hoebeke (Belgium)
Anka Nieuwhof-Leppink (Netherlands), Erik Van Laecke (Belgium) and Kostas Kamperis (Denmark)

11:20 - 12:02 **S8:** **DSD**

Moderators: Katja Wolffenbuttel (Netherlands)

S8-1 (SO)

★ MAJORITY OF FEMALES WITH A LIFE-LONG EXPERIENCE OF CAH AND PARENTS DO NOT CONSIDER FEMALES WITH CAH TO BE INTERSEX

Konrad SZYMANSKI [1], Richard RINK [2] and Benjamin WHITTAM [2]

1) Riley Hospital for Children, Pediatric Urology, Indianapolis, USA - 2) Riley Hospital for Children at IU Health, Pediatric Urology, Indianapolis, USA

PURPOSE

To assess opinions of females with CAH, and their parents, about designating this population "intersex," particularly in legislation about genital surgery during childhood.

MATERIAL AND METHODS

Online survey of females with CAH (46XX,16+ years old) and independently recruited parents of girls with CAH (2019-2020) diagnosed in first year of life, living in the United States. A multidisciplinary medical team involved in CAH care drafted the survey with women with CAH and parents. Fisher's exact test was used to compare female and parent responses.

RESULTS

Of 57 females with CAH participating (median age: 24 years, 71.9% post-secondary degree), 93.0% underwent genital surgery at median 1-2 years old. While 89.5% did not endorse the intersex designation for CAH, 5.3% did (5.3% provided no answer). Most CAH females (63.2%) believed CAH females should be considered separately in "any laws banning or allowing surgery of children's genitals" (19.3% disagreed, 17.5% neutral, 0.0% no answer).

Overall, 125 parents of females with CAH participated (parent/child median ages: 41/8, 80.0% post-secondary degree), 80.0% of their children underwent surgery at median <1 year old. While 96.0% of parents did not endorse the intersex designation for CAH, 1.6% did (2.4% no answer), similar to females (p=0.17). Most parents (79.4%) believed CAH females should be considered separately in legislation (9.5% disagreed, 6.4% neutral, 4.8% no answer), a slightly higher percentage than females (p=0.01).

CONCLUSIONS

The majority of females with CAH and their parents believe CAH should be excluded from the intersex designation and be considered separately in legislation pertaining to genital surgery in childhood.

S8-2 (SO)

SEXUAL FUNCTION IN ADULT FEMALES AFTER FEMINISING GENITOPLASTY FOR CONGENITAL ADRENAL HYPERPLASIA

Jan TRACHTA [1], Imran MUSHTAQ [2], Natalia PETRASOVA [1], Blanka ROUSKOVA [1] and Richard SKABA [1]

1) Motol University Hospital, Paediatric Surgery Department, Prague, CZECH REPUBLIC - 2) Great Ormond Street Hospital, Department of Paediatric Urology, London, UNITED KINGDOM

PURPOSE

To investigate long-term sexual function in adult women after feminising genitoplasty (FGP) for Congenital Adrenal Hyperplasia (CAH).

MATERIAL AND METHODS

We retrospectively reviewed medical files of all patients who underwent FGP from 1996 to 2018. Patients with CAH older than 16 years were asked to answer three standardised questionnaires evaluating their current mental well-

being (WHO-5 Well-Being Index), lower urinary tract symptoms (ICIQ-FLUTS) and sexual function (GRISS). The anonymised answers were compared to a control group of 50 healthy females. Student t-test, Pearson's χ^2 test, Fisher's exact test and Spearman's rank correlation coefficient were performed. p-value less than 0.05 was considered significant.

RESULTS

From 106 patients who underwent FGP, 64 were included and 32, aged 17 to 40 years (mean 25.5), answered the questionnaires (50% response rate). 11 patients underwent clitoridectomy and 21 modern two staged FGP. There were statistically signifiant differences between CAH and control groups as to the proportion living in commited partnerships (28% and 84%, p = 0.0000), having sexual intercourse (13% and 92%, p = 0.0000) and having their own children (13% and 36%, p = 0.0369). The current mental well-being of the groups was not statistically different (p = 0.82). The mean overall GRISS score was 4 (range 1-7) in CAH group compared to 1 (range 1-9) in the controls, with infrequency and vaginismus representing the least favourable subscales (mean 5).

CONCLUSIONS

Partnership, offspring, sexual frequency and function are impaired in the adult CAH females after FGP, however, the overall mean GRISS score is below the pathological level of 5.

S8-3 (SO)

WHAT DO PATIENTS AND PARENTS SAY ABOUT PARENTS' ABILITY TO CHOOSE EARLY GENITAL SURGERY FOR GIRLS WITH CAH?

Konrad SZYMANSKI [1], Luis BRAGA [2], Paul KOKOROWSKI [3], Brian LELAND [4] and On Behalf Of The LIFE WITH CONGENITAL ADRENAL HYPERPLASIA STUDY GROUP [5]
1) Riley Hospital for Children at IU Health, Pediatric Urology, Indianapolis, USA - 2) McMaster Children's Hospital, McMaster University, Division of Pediatric Urology, Hamilton, CANADA - 3) Children's Hospital Los Angeles, Keck School of Medicine, University of Southern California, Pediatric Urology, Los Angeles, USA - 4) Indiana University School of Medicine, Indianapolis, IN; Charles Warren Fairbanks Center for Medical Ethics, Indianap, Department of Pediatrics and Division of Pediatric Critical Care Medicine, Indianapolis, USA - 5) Riley Hospital for Children at IU Health, Indianapolis, USA

PURPOSE

To determine opinions of females with CAH, and parents, about parent's ability to choose early genital surgery for girls with CAH.

MATERIAL AND METHODS

Online survey of CAH females (46XX,16+ years old) and independently recruited parents (2019-2020) diagnosed in first year of life in the United States. A multidisciplinary medical team, CAH women and parents drafted the survey. Fisher's exact test was used.

RESULTS

Of 57 CAH females (median age: 24 years), 93.0% underwent genital surgery (median 1-2years old). Most females (79.0%) believed legislation prohibiting surgery in childhood would cause harm. Most (64.9%) believed a ban "would have been harmful to me" (24.6% not harmful, 10.5% neutral). Most females (70.2%) believed a ban undermined parental rights to make medical decisions in their child's best interest. While 14.0% believed a ban was in the best interest of CAH females, 75.4% did not (10.5% neutral).

For 125 parents of CAH females (parent/child median ages: 41/8), 80.0% of children underwent surgery (median <1year old). Most parents (93.6%) believed legislation prohibiting surgery in childhood would cause harm. Most (76.8%) believed a ban "would have harmed my daughter" (12.8% no harm, 4.8% neutral, 5.6% no answer). Parents were more likely than CAH females to oppose a ban (p<=0.02). Most parents (90.4%) believed a ban undermined parental rights. While 3.2% believed a ban was in the best interest of CAH females, 94.4% did not (2.4% neutral).

CONCLUSIONS

Majority of females with CAH and parents support parents' ability to choose timing of potential genital surgery, opposing a moratorium on surgery in childhood.

S8-4 (SO)

LOWER URINARY TRACT SYMPTOMS IN ADULT FEMALES AFTER FEMINISING GENITOPLASTY FOR CONGENITAL ADRENAL HYPERPLASIA

Jan TRACHTA [1], Imran MUSHTAQ [2], Natalia PETRASOVA [1], Blanka ROUSKOVA [1] and Richard SKABA [1]
1) Motol University Hospital, Paediatric Surgery Department, Prague, CZECH REPUBLIC - 2) Great Ormond Street Hospital, Paediatric Urology Department, London, UNITED KINGDOM

PURPOSE

To investigate long-term lower urinary tract function in adult women after feminising genitoplasty (FGP) performed for Congenital Adrenal Hyperplasia (CAH).

MATERIAL AND METHODS

We retrospectively reviewed medical files of all patients who underwent FGP from 1996 to 2018. Patients with CAH older than 16 years were asked to answer three standardised questionnaires evaluating their current mental well-being (WHO-5 Well-Being Index), lower urinary tract symptoms (ICIQ-FLUTS) and sexual function (GRISS). The anonymised answers were compared to a control group of 50 healthy females. Student t-test, Pearson's χ^2 test, Fisher's exact test and Spearman's rank correlation coefficient were performed. p-value less than 0.05 was considered significant.

RESULTS

From 106 patients who underwent FGP, 64 were included and 32, aged 17 to 40 years (mean 25.5), answered the questionnaires (50% response rate). 11 patients underwent clitoridectomy and 21 modern two staged FGP. There was no significant difference between current mental well-being of operated and control group (WHO-5 mean score 60 and 64 respectively, p-value 0.82). We found no significant difference in the LUTS subscales of filling, voiding and incontinence as well as in the overall LUTS score (ICIQ-FLUTS overall mean score 3.5 and 3 respectively, p-value 0.43).

CONCLUSIONS

There was no higher prevalence of long-term lower urinary tract dysfunction in CAH adult female patients after FGP in our analysed group.

S8-5 (SO)

IMMUNOHISTOCHEMICAL EVALUATION REQUIRED FOR CORRECT DIAGNOSIS OF OVOTESTICULAR DSD AND GONADAL MALIGNANCY RISK ASSESSMENT

Katja WOLFFENBUTTEL [1], Remko HERSMUS [2], Hans STOOP [2], Martine COOLS [3], Katharina BIERMANN [2], J.W. OOSTERHUIS [2] and Leendert LOOIJENGA [4]
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PURPOSE

Ovotesticular DSD (OTDSD) is a rare condition and, despite the clear definition, incorrect diagnoses have been reported. The aim of this study was to evaluate the accuracy of the diagnosis OTDSD and the added value of immunohistochemistry (IHC) in the histological assessment of these gonads by expert pathologists.

MATERIAL AND METHODS

Series A consists of institutional histological data of 15 OTDSD patients treated between 1985-2015. In addition, a search in a national pathology database yielded gonadal material of 13 OTDSD patients treated in other institutes between 1993 and 2015 (series B). Available gonadal material was analyzed with IHC using germ cell specific and gonadal differentiation markers (DDX4, TSPY, OCT3/4, KITLG, SOX9, FOXL2) and slides were reviewed by two expert pathologists.

RESULTS

Series A: karyotype was 46,XX in 10, chimeric in 2 and mosaic in 3 patients. Histology of 29 gonads showed 20 ovotestes (OT), 5 ovaries (O) and 4 testes (T). Review of available slides showed normal germ cell (gc) development in the testicular parts in 3, gc absence in 7 and dysgenetic areas with precursor Germ Cell Neoplasia In Situ (pre-GCNIS) in 2 patients, both with mosaic karyotype. Moreover, combined gonadoblastoma (GB) and invasive GCN was diagnosed in an abdominal OT of a 23 years old 46,XX OTDSD patient.
Series B: the diagnosis OTDSD after review of all slides was confirmed in only 3/13 cases. Pre-GCNIS was present in a case with mosaic karyotype.

CONCLUSIONS

IHC and review of the histology by an expert pathologist are required for correct diagnosis of OTDSD. Series B confirms incorrect diagnosis in 77%. GB with GCN was found in 1/18 and pre-GCNIS in 3/18 patients with confirmed OTDSD. Although GCN prevalence in this series, 1/18 (6%), is consistent with the literature, tumor risk could be higher if these gonads were left in situ, given the pre-GCNIS found in 3/18 (17%) patients.

S8-6 (SO)

OVERVIEW OF THE GENETICS IN DISORDERS OF SEX DEVELOPMENT AT AN ACADEMIC HOSPITAL IN PRETORIA, SOUTH AFRICA: WHAT IS GOING ON?

Nico LOURENS [1], Tanya KEMP [2] and Maria KARSAS [3]
1) Steve Biko Academic Hospital, Department of Urology, Pretoria, SOUTH AFRICA - 2) Steve Biko Academic Hospital, Department of Adult Endocrinology, Pretoria, SOUTH AFRICA - 3) Steve Biko Academic Hospital, Department of Pediatric Endocrinology, Pretoria, SOUTH AFRICA

PURPOSE

The incidence of DSD in the general population is estimated at between 1 in 4500-5000, but the frequency of specific types of DSD presenting at birth is unknown. Klinefelter and Turner Syndromes appear commonly, while 46XX DSD conditions such as CAH are rarer and true Ovotesticular DSD rarest of all. This study evaluated the frequency and genetics of DSDs presenting to an academic hospital in Pretoria, South Africa.

MATERIAL AND METHODS

A retrospective case series analysis was conducted on patient data from databases starting in 2000. Data was obtained anonymously and analysis performed.

RESULTS

A total of 185 patients were identified, 44 adult and 141 pediatric patients. The most common diagnosis in adults was Turner Syndrome (34,09%) followed by 46XX OT-DSD (20,45%) and CAH (13,64%). In the pediatric group 46XX OT-DSD (33,90%) occurred most commonly, followed by CAH (24,58%) and 46XY undervirilized males (15,25%). Moreover, in the pediatric OT-DSD group, 61,36% of patients tested negative for SRY-gene translocation, a finding not typically seen in 46XX males.

CONCLUSIONS

The spectrum of DSDs presenting in this study is different from what is traditionally seen in the Western world. True OT-DSD occurs significantly more frequently, and the underlying genetics also differ from what is usually seen, with

most patients testing negative for SRY-gene translocation. The underlying contributory factors are unknown and need to be explored further.

S8-7: Withdrawn (video presentation not uploaded)

12:05 - 12:22		**SIUP Lecture: Penile Curvature** *Miguel Castellan* Introduced by : Emilio Merlini (Italy)
12:22 - 13:00		**BREAK**
13:00 - 13:55	**S9:**	**ADOLESCENT UROLOGY** *Moderators: Lane Palmer (USA)*

S9-1 (SO)

GONADAL FUNCTION AND REPRODUCTIVE SYSTEM ANATOMY IN POST- PUBERTAL PRUNE-BELLY SYNDROME PATIENTS

Roberto LOPES, Alessandro TAVARES, Francisco DÉNES and Marcello COCUZZA
University of São Paulo Medical School, Urology, São Paulo, BRAZIL

PURPOSE

Prune belly syndrome (PBS) is characterized by abdominal wall flaccidity, variable urinary tract dilatation and bilateral intra-abdominal cryptorchidism. No spontaneous paternity has been reported to date and infertility is usually taken for granted. Our objective was to gain insight into the causes of infertility in PBS by evaluating reproductive system anatomy and gonadal function in a cohort of post pubertal PBS patients.

MATERIAL AND METHODS

We contacted all PBS patients 14 years-old or older treated and followed at our institution. Age at orchiopexy, type of orchiopexy (with or without ligation of gonadal vessels), testicular volumes and positions. Pelvic MRI to evaluate prostate size, seminal vesicles and vas and hormonal profile were ordered. Sperm analysis and analysis of urine after masturbation were performed after informed consent.

RESULTS

Fifteen patients were included in this study. Mean age was 19.2 years. Mean age at orchiopexy was 18 months. Fourteen patients (93.3%) had normal and topic testes. Mean testicular volume was 6.9 cc. Eight patients collected semen, five of them (62.5%) had spermatozoa in the specimen and motile sperm was found in 4 (50%). Mean hormone levels were LH: 5.3 mg/dl, FSH:6.9 mg/dl, testosterone 531 mg/dl. MRI revealed hypoplastic prostates in 66.6% and unilateral seminal vesicle absence in 66.6%. No vasal abnormality was noted.

CONCLUSIONS

Patients with PBS may have normal sexual hormonal levels. Motile spermatozoa were found in half of the patients. Our study highlights a high prevalence of prostate and seminal vesicle abnormalities that may represent an important cause for their infertility.

S9-2 (SO)

OAB PREVALENCE AND RISK FACTORS IN YOUNG ADULTS IN MAINLAND CHINA

Yu LIANG [1], Jian Guo WEN [2], Huijie HU [3], Zhenwei ZHANG [4], Qifeng DOU [5], Cuiping SONG [1], Feng REN [6], Chengbiao LU [6] and Soren RITTING [7]
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PURPOSE

The purpose of this study was to investigate the prevalence of overactive bladder (OAB) and its risk factors in Chinese young adults by surveying junior university

MATERIAL AND METHODS

October 2018 to January 2019, 14,010 anonymous questionnaires were distributed to freshmen in two universities in China. The students were from all over the country. The questionnaire included general items such as sex, date of birth, height, weight, history of urinary tract infection (UTI), bowel symptoms and overactive bladder symptom score (OABSS). The OABSS is used to assess the presence and severity of OAB, which is defined when the score of urgency is ≥ 2, and the total score is ≥ 3. In addition, its relationship with many variables were evaluated.

RESULTS

Data of 13,083 (93.4%) subjects (4192 males and 8891 females) (age 19 ± 1.3 years) were eligible for final statistical analysis. The overall prevalence of OAB was 6.0% (788/13,083); 4.3% reported dry OAB, and 1.7% reported wet OAB. The prevalence of mild OAB was 5.6% and moderate OAB was 0.5%; no severe OAB was reported. The prevalence of OAB was more common in females than in males (6.7% vs. 4.7%, $P < 0.05$), and in subjects with constipation, the rates of anal prolapse, anal fissure, past history of UTI and nocturnal enuresis (NE) were increased ($P<0.05$).

CONCLUSIONS

OAB is common in Chinese young adults. Female sex, constipation, anal prolapse, anal fissure, past history of UTI and NE were risk factors for OAB.

S9-3 (SO)

ENLIGHTENING ACTIVITIES FOR TESTICULAR TORSION: RECOGNITION SURVEY AND SCHOOL LECTURE IN JAPANESE HIGH SCHOOL BOYS

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Keio University, Urology, Tokyo, JAPAN

PURPOSE

Testicular torsion (TT) occurs most commonly during adolescence. Patient recognition of this condition could lead to early presentation and intervention, and salvage of the affected testicle.
The purpose of this study is to assess recognition and knowledge of TT in Japanese high school boys. We also evaluated their response to educational lecture of testicular health.

MATERIAL AND METHODS

We planned educational lecture of testicular health including acute scrotum in an urban boy's high school in Japan. An anonymous questionnaire survey for TT was administered before and after the lecture in 765 boys.

RESULTS

Seventy-six boys (9.9%) experienced a scrotal pain, and 48 boys (6.3%) had multiple episodes. One hundred twenty-one boys (15.8%) had a recognition of TT, however, only 48 boys (6.3%) had the knowledge of TT requiring emergent intervention, and 633 boys (82.7%) did not have a recognition of TT at all. If the boys had developed a scrotal pain or swelling, they would have been happy to tell their father (52.0%), close friends (38.8%), mother (37.4%), siblings (13.2%) or teacher (9.9%), however, 82 boys (10.7%) never would have liked to tell anyone because of their embarrassment for genitalia.
After attending the lecture, 724 boys (94.6%) answered to have a good knowledge of TT requiring emergent intervention. If the boys developed a scrotal pain or swelling, they would be happy to tell their family at home or teacher at school (57.5%), or close friends (16.7%) immediately, otherwise they would check it on a book or the Internet (20.7%).

CONCLUSIONS

Approximately 10% of high school boys experienced a scrotal pain, however, more than 80% of them did not have a recognition of TT at all. Enlightening activities for TT are necessary for not only schoolboys, but also their families and teachers. Educational lecture improved recognition and knowledge of TT in high school boys, and could help avoid possible testicular loss.

9-4 (SO)

LONG TERM FOLLOW-UP ON ADULTS THAT UNDERWENT HYPOSPADIAS REPAIR THROUGH URETHRAL ADVANCEMENT IN CHILDHOOD

Sharmila Devi RAMNARINE SANCHEZ, Alberto PARENTE HERNANDEZ, Alvaro ESCASSI GIL, Veronica VARGAS CRUZ, Maria Rosa IBARRA RODRIGUEZ and Rosa Maria PAREDES ESTEBAN
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PURPOSE

To assess long-term results on voiding, sexual function, cosmetic appearance and psychological impact of adults gone through Urethral Advancement (UA) hypospadias repair in childhood.

MATERIAL AND METHODS

Patients over 14 years, who underwent UA hypospadias repair in our center (2000-2010), were evaluated. All patients presented mid-distal hypospadias with subcoronal-penile meatus and mild-moderate chordee. Penis cosmetic appearance, urinary and sexual function, body perception and overall satisfaction were assessed.

RESULTS

143 children underwent UA hypospadias repair (2000-2010). 36 patients, ages 14-27 years were evaluated. Penis cosmetic appearance was assessed using HOPE scale, with an average of 8.76 (SD +/- 0.98), which indicates a good aesthetic result.
Regarding voiding dysfunction symptoms, it was evaluated by the AUASI: 55.6% had mild symptoms and 19.4% moderate symptoms (nocturia, incomplete bladder emptying, polaquiuria). 75% void standing up and 91.7% void through the tip of the penis.
Only 38.9% of patients are sexually active, according the IIEF-15 scale, 2 had slight erectile dysfunction, and 77.8% had satisfactory relationships. The perception of all patients about their erection, was good-very good on 72.2%, but 5.6% considered it unsatisfactory.
Through the GPS, the body perception was assessed, being 88.9% positive-very positive. However, the perception of their genitals was positive-very positive only 77.8%, with a negative correlation between the perception of genitals/body in 13.9%.

CONCLUSIONS

In our series, results of sexual function, voiding, psychological repercussion, and cosmetic appearance, on mid-distal hypospadias patients gone through UA repair are satisfactory. It indicates that UA technique might be a valid option for mid-distal hypospadias repair when indicated

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9-5 (SO)

ENDOCRINE AND REPRODUCTIVE OUTCOME OF YOUNG ADULTS BORN WITH HYPOSPADIAS

Lloyd TACK [1], Ahmed MAHMOUD [2], Kelly TILLEMAN [2], Alexander SPRINGER [3], Stefan RIEDL [3], Ursula TONNHOFER [3], Manuela HIESS [3], Julia WENINGER [4], Erik VAN LAECKE [5], Piet HOEBEKE [5], Anne-Françoise SPINOIT [6] and Martine COOLS [1]
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PURPOSE

An increased risk for reduced fertility and/or impaired testicular hormone synthesis has been seen in severe forms of hypospadias. However, the extent of this phenomenon and if milder forms are also affected, remains unclear. Aim of this study was to assess long-term endocrine and reproductive outcome after hypospadias repair in childhood.

MATERIAL AND METHODS

Prospective cross-sectional assessment of young adult men (16-21 years old) born with all forms of non-syndromic hypospadias as compared to age-matched cohort of healthy controls.

Blood sampling (taken in hospital 8:00-9:00 AM): total and free testosterone, LH, FSH and inhibin B. Two separate spermiograms, according to the WHO 2010 criteria. Statistical analysis: IBM SPSS© 25.0 as appropriate. Approval from ethics board: B670201835984.

RESULTS

Participants: 193 cases and 50 controls. No differences in testosterone and LH levels were seen between cases born with distal and proximal hypospadias, nor compared to controls. In contrast, FSH levels were higher and inhibin B lower in complex hypospadias as compared to isolated hypospadias and controls (FSH: p=0,004 and p<0,001; Inhibin B p<0,001 and p<0,001, respectively). Reduced semen concentration was found in 32 (18,8%) cases and 2 (4,0%) controls. Semen concentrations were similar in distal and proximal hypospadias (p=0,214). However, only proximal and complex hypospadias cases had lower sperm concentrations as compared to controls (p=0,022 and p<0,001, respectively).

CONCLUSIONS

Almost 20% of men born with hypospadias have a reduced semen quality. In contrast to previous studies, proximal and distal hypospadias cases had similar semen concentrations. No difference in testosterone or LH levels was found between cases and controls.

9-6 (SO)

PSYCHOSEXUAL OUTCOME OF ADULT MEN FOLLOWING CHILDHOOD HYPOSPADIAS REPAIR

Lloyd TACK [1], Eline VAN HOECKE [2], Alexander SPRINGER [3], Stefan RIEDL [3], Ursula TONNHOFER [3], Manuela HIESS [3], Julia WENINGER [4], Erik VAN LAECKE [5], Piet HOEBEKE [5], Anne-Françoise SPINOIT [5] and Martine COOLS [1]
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PURPOSE

Few studies have been performed on the long-term patient satisfaction or psychosexual outcome following hypospadias surgery. The aim of this series was to assess the psychosexual outcome of men who underwent hypospadias repair in childhood.

MATERIAL AND METHODS

Prospective cross-sectional assessment of young adult men (16-21 years old) born with all forms of non-syndromic hypospadias as compared to age-matched healthy controls. Participants filled in five questionnaires: the Decision Regret Scale (DRS), Penile Perception Score, Sexual Quality of Life – Male, International Index of Erectile Function and a custom-made questionnaire. The DRS and custom-made questionnaires were also completed by the participants' parents. Genital examination using the Hypospadias Objective Penile Evaluation (HOPE). Statistical analysis: IBM SPSS© 25.0 as appropriate. Approval from ethics board: B670201835984.

RESULTS

Participants: 193 hypospadias cases and 50 controls. Satisfaction regarding their penile appearance and the number of penile surgeries were significantly associated with the opinion of cases and their parents about hypospadias repair and the psychosexual outcome. No associations with erectile function were found. Based on HOPE, most men are more satisfied about their penile appearance than the physician (p=0,033). Eighty percent of men were satisfied with having had childhood hypospadias repair, even though they had not been able to consent to surgery themselves. Erectile and ejaculation problems were present in approximately 10% of cases.

CONCLUSIONS

Very few patients regret having had hypospadias surgery in childhood. Uncomplicated hypospadias surgery results in equal psychosexual outcome as controls and in high satisfaction rates; multiple surgeries are a risk factor for poorer outcomes. Addressing erectile and sexual function should be considered at the postpubertal follow-up.

S9-7 (SO)

UROLOGICAL OUTCOME OF YOUNG ADULTS FOLLOWING CHILDHOOD HYPOSPADIAS REPAIR

Lloyd TACK [1], Manuela HIESS [2], Alexander SPRINGER [3], Stefan RIEDL [3], Ursula TONNHOFER [3], Julia WENINGER [4], Erik VAN LAECKE [5], Anne-Françoise SPINOIT [6], Martine COOLS [1] and Piet HOEBEKE [5]
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PURPOSE

There is a general paucity of data regarding the long-term outcome of adults who had childhood hypospadias repair. The aim of this study was to evaluate long-term urological outcome of adult men who unerwent hypospadias repair during childhood.

MATERIAL AND METHODS

Prospective Cross-sectional assessment of young adult men (16-21 years old) born with all forms of non-syndromic hypospadias as compared to age-matched healthy controls. Urological examinations: uroflow, postmictional and testicular ultrasound and genital examination using the Hypospadias Objective Penile Evaluation. Statistical analysis: IBM SPSS© 25.0 as appropriate. Approval from ethics board: B670201835984.

RESULTS

Participants: 193 hypospadias cases and 50 controls. Approximately 20% had an abnormal miction curve compared to 4,1% of controls. However, only 2,6% of cases and 2,0% of controls had a clinically relevant postmictional residue. Eleven (5,7%) cases had a fistula, which was correlated with the total number of penile surgeries (ρ=0,209, p<0,001). A quarter of cases had residual hypospadias with no difference between proximal and distal hypospadias (p=0,311). Grade II or higher varicocele was over three times more frequent in cases than controls (p=0,021). Stretched penile length strongly correlated with the number of penile surgeries (ρ=-0,407, p<0,001). Testicular ultrasound revealed similar rates of microlithiasis in HS and controls (p=0,189). Testicular volume was only smaller in complex hypospadias cases (right: p=0,002; left: p<0,001).

CONCLUSIONS

Suboptimal urological outcome is a point of concern in young adults, who underwent hypospadias repair in childhood and warrants routine postpubertal urological revision. Frequent occurrence of high grade varicocele was found, though its cause remains unclear.

S9-8 (SO)

LONG-TERM FOLLOW-UP AFTER TREATMENT OF HYPOSPADIAS: RESULTS ON URINARY FUNCTION, SEXUALITY AND FERTILITY IN ADULTHOOD

Noemie BECQUART [1], Xavier DELFORGE [2], Philippe BUISSON [3] and Elodie HARAUX [3]
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PURPOSE

To evaluate the urinary function, sexuality and fertility of adults operated on for hypospadias in childhood. To compare the results according to the severity of hypospadias

MATERIAL AND METHODS

A single-center study evaluating prospectively men operated on for hypospadias at between January 1, 1980 and December 31, 1995. Clinical and auto-questionnaires data (IPSS, IIEF-15, SEAR) were collected in consultation. Urine flow, hormonal assessment, seminogram were performed.

RESULTS

Thirty-six men (32.7±6.5 years, 80.6% distal) were evaluated. Mean age of surgery was 3,9±3 ans. The complications on the foreskin were frequent (52%). The total rate of uretro-cutaneous fistula was 44.4% and 10 adults had a fistula. Half of the men described a spraying stream with seated urination, 42% had latent drops. Only 5 men (20%) wanted a revision. Three men (9%) had an obstructive profile on the IPSS and /or recurrent urinary tract infections.

None had erectile dysfunction, 48.6% complained of "dribbling" ejaculations. Satisfaction of sexual intercourse was better in distal forms (SEAR score: 81 vs 62 p<0,05). A residual curvature was frequent (55.6%) annoying in 1 case. Half of the men were satisfied with the appearance of their penis and their urination.

Nineteen men (54%) were fathers (1/ICSI). Hormonal assessment (18) were all normal. Minor seminogram abnormalities were found in 59% (0 azoospermia). A transition consultation would have been beneficial (67%).

CONCLUSIONS

Only the satisfaction of sexual intercourse was better for distal forms. The many complications (fistulas, curvature, deviated jet, ejaculation disorder) were often trivialized, and few men wanted care. However, a majority would have liked a transition consultation.

S9-9: Withdrawn (video presentation not uploaded)

13:00 - 13:30 **S10:** **ONCOLOGY (parallel session, room 2)**
Moderators: JC Prieto (USA)

S10-1: Withdrawn (video presentation not uploaded)

S10-2 (SO)

★ FISH: A PROMISING SCREENING TOOL FOR MALIGNANCY AFTER AUGMENTATION CYSTOPLASTY?

Erman CEYHAN [1], Emin MAMMADOV [1], Sevgen Celik ONDER [2], Hasan Serkan DOGAN [3] and Serdar TEKGUL [3]
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PURPOSE

Malignancy after augmentation cystoplasty (AC) in the long term is reported repetitively up to 5.5%. We assessed the use of urine fluorescent in-situ hybridization (FISH) screening for bladder malignancy after AC in comparison with current methods.

MATERIAL AND METHODS

36/98 patients under follow-up who have completed tenth year after ileal AC included to the study prospectively. 24 (%66.7) patients tested with FISH initially and 28 (77.8%) patients with conventional cytology (CC). Blinded from the cytology results, 32 (%88.9) patients who consented were undergone cystoscopy with random biopsy (native bladder, ileal segment, junction). 2 patients tested with FISH did not consented cystoscopy. This study is registered to the Turkish goverment registry (no:71146310).

RESULTS

Mean follow-up time after AC was 15.4±4.8 years. 2/32 (5.6%) patients diagnosed with adenocarcinoma in cyctoscopic biopsy. FISH analysis of 3/24 (12.5%) patients demonstrated malignant signal. 2 FISH malignant patients were patients who had adenocarcinoma. The third patient's biopsy was benign and the third year control cystoscopy was normal. 2/3 patients with malignant CC had adenocarcinoma and 1 patient had benign biopsy. The sensitivity and specificity of FISH in our series were 100% and 95% respectively. Whereas the sensitivity and specificity of CC was 100% and 91.6% respectively. The two main morbidities in patients resumed follow-up were recurrent urinary tract infection 8/36 (22.2%) and recurrent bladder stones 3/36 (8.3%).

CONCLUSIONS

Despite limited number of patients in this study, FISH is found to be superior to CC with regard to specificity. FISH is a promising tool to select patients for cystoscopy earlier than the tumor progresses to invasive nature.

S10-3: Withdrawn (video presentation not uploaded)

S10-4 (SO)

PEDIATRIC UROTHELIAL TUMORS, A MULTICENTER SERIES

Maria GRELLA [1], Mathieu PEYCELON [2], Samia LARAQUI [3], Aurelien SCALABRE [4], Alice FAURE [5], Emmanuel SAPIN [6], Valeska BIDAULT [7], Frederic AUBER [8], Diuty SHARMA [9], Luke HARPER [10], Quentin BALLOUHEY [11], Olivier ABBO [12] and Alexis P ARNAUD [3]

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PURPOSE

Urothelial tumor is a rare entity in the pediatric population. Prognosis criteria and long-term follow-up are not standardized. The aim of our study was to describe the treatment and outcomes of a multicentre series.

MATERIAL AND METHODS

International multicentre retrospective study including patients born between 2000 and 2018, treated for urothelial tumor (Ethic review board approval #19.45). Data included patients' characteristics, clinical data, operative notes, pathology reports and outcomes. Statistics: Kaplan Meier survival analysis.

RESULTS

22 patients were included in 12 centres (sex ratio=1.4). Median (min-max) age at first symptoms was 10.8 years (3-17). The most frequent symptom was gross hematuria (45%), but 9 patients (41%) had incidental findings. Two cases of predisposing genetic mutation (1 Lynch, 1 Costello) and 3 familial medical histories of non-urothelial cancer were found. No history of neurogenic bladder nor bladder augmentation were identified. All patients had an endoscopic resection as for first line treatment. Two postoperative complications Clavien 3b were found (1 urethral stenosis, 1 bladder bleeding). All patients had a solitary tumor, without metastasis. Pathological analysis found 9 standard papillomas, 3 inverted papillomas, 3 PUNLMP, 6 LGPUC and 1 invasive urothelial carcinoma. 3 patients required a secondary line surgery for incomplete resection. No adjuvant treatment was needed. After a median follow-up of 11 months (3-44), one patient (Costello syndrome) recurred locally 5months after surgery. The OSR and 1-year EFS were 100% and 90% respectively.

CONCLUSIONS

This series underlines the low invasiveness of urothelial tumors in the pediatric population, with a favorable prognosis. However, the small number and the short follow-up must weigh the conclusion. Less than 10% of the patients presented with predisposing factor.

S10-5 (SO)

DEVELOPMENT OF ROBUST ARTIFICIAL NEURAL NETWORKS FOR PREDICTION OF 5-YEAR SURVIVAL IN PEDIATRIC UROGENITAL RHABDOMYOSARCOMA

Hriday BHAMBHVANI, Alvaro ZAMORA and Kunj SHETH
Stanford University School of Medicine, Department of Urology, Palo Alto, USA

PURPOSE

Machine learning is a promising technique for synthesizing high-dimensional data to supplement clinical decision-making. Currently, there are no reported survival prediction tools for urogenital rhabdomyosarcoma (UG-RMS). Therefore, we sought to develop artificial neural networks (ANNs), a type of machine learning algorithm, and classical Cox proportional hazards (CPH) models to predict both 5-year disease-specific survival (DSS) and overall survival (OS) in pediatric UG-RMS.

MATERIAL AND METHODS

The National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) 18 program database was queried to identify patients under 20 years diagnosed with UG-RMS between 1998 and 2011. ANNs were trained and tested on an 80/20 split of the dataset in a 5-fold cross-validated fashion. Multivariable CPH models were developed in parallel. Variables used for prediction were age, sex, race, primary site, histology, SEER stage, tumor size, surgical excision, and radiation therapy. Receiver operating characteristic curve analysis was conducted, and ANN models were additionally tested for calibration.

RESULTS

277 patients were included. The area under the curve (AUC) for the ANN models was 0.93 for OS and 0.91 for DSS. AUC for the CPH models was 0.82 for OS and 0.84 for DSS. The ANN models were well-calibrated: OS model (slope = 1.02, intercept = -0.06) and DSS model (slope = 0.79, intercept = 0.21). The ANN OS model was deployed in an open access application (https://uorg.shinyapps.io/UroRhabdoSurv/).

CONCLUSIONS

ANN models performed better than multivariable CPH models for UG-RMS. These models will need external validation, and investigators can assess the deployed OS model in their own cohorts.

14:00 - 14:24 **John Duckett Lecture: Adolescent Varicocele – A Challenge for Paediatric Urologists**
Radim Kočvara (Czech Republic)
Introduced by Henri Lottmann (France)

14:30 - 15:05 **T&T:** **TIPS & TRICKS**
Moderators: Serdar Tekgül (Turkey)

T&T-1 (TTP)

THE SINGLE U-STITCH APPENDICOVESICOSTOMY ANASTOMOSIS

Tiago ROSITO
Hospital Clínicas Porto Alegre - Universidade Federal do Rio, Urology, Porto Alegre, BRAZIL

ABSTRACT

Laparoscopy Mitrofanoff is one extremely complex surgery with a long learning curve. The main difficulty in this procedure is the suture line between the appendix and the bladder wall.Making suture in the pelvis with traditional non articulated laparoscopic instruments is demanding. Using a single U- Stitch fashioned suture on the anterior bladder wall as proposed by Weller et al we can create a long intravesical tunnel with continence rates as high as traditional methods and with a remarkably short time. An incision is made on the anterior bladder wall, a single vicryl 4.0 suture is made in a U Shanfield fashion throughout the incision leaving the wall two centimeters deep

creating an intravesical tunnel long enough to create good results without necessity of a huge reconstructive laparoscopic experience.

T&T-2 (TTP)

ENSURING THAT THE APENDIX HAS AN ADEQUATE LUMEN DURING A ROBOTIC MITROFANOFF-VALUABLE LESSON LEARNT

Venkat SRIPATHI
Apollo Children's Hospital, Department of Pediatric Urology, Chennai, INDIA

ABSTRACT

This video demonstrates how a densely stenosed lumen came as a surprise halfway into a robotic mitrofanoff procedure and the strategy we employed to overcome this problem. A thirteen year old male post Acute Myeloid Leukemia treatment presented with overflow incontinence due to a poorly contractile detrusor. As he was averse to penile catheter drainage, a robotic appendix mitrofanoff procedure was advised. An appendix of 7 cms length was isolated and freed but during anastomosis to the bladder, the distal half of the lumen was found to be severely stenosed and 3 cms had to be discarded. To enable the remaining 4 cms to reach the abdominal wall, the superior vesical pedicle on the left side of the bladder was divided. This enabled a shift of the bladder dome to the right. Following appendicular anastomosis a flap of peritoneum was wrapped and anchored to the abdominal wall to prevent retraction. Three and a half years later the child is using an 8 French Feeding and is catheterizing with ease. Ligating the superior vesical pedicle on the opposite side enabled bladder mobility and salvage of a short appendix during a Mitrofanoff procedure. The video shows how we achieved this

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T&T-3 (TTP)

ROBOT ASSISTED LAPAROSCOPIC - CONTINENT CUTANEOUS CATHETERIZABLE CHANNELS IN PEDIATRIC PATIENTS: TECHNICAL TIPS TO PREVENT COMPLICATIONS

Mohan S. GUNDETI
University of Chicago Medicine & Biological Sciences, Paediatric Urology, Chicago, USA

INTRODUCTION

Continent catheterizable channels (CCCs) are effective alternatives to intermittent self-catheterization and enema administration for neurogenic bladder and bowel management. In recent years with widespread applications of minimal invasive surgery, robotic assistance has been used to perform these procedures. We reviewed our experience with this over last decade in 35 patients and describe some of the technical steps for preventing common complications.

TECHNICAL TIPS

1 If patient has previous VP shunt placement – Laparoscopy first for identification and mobilization of the appendix as these patients have extensive intrabdominal scarring and often the appendix is in difficult location or poor mesenteric blood supply

2 Keep Mesentery to appendix intact with the peritoneum and mobilize as necessary

3 Keep and take part of cecum along with appendix for prevention of stomal stenosis and allows to augment the length by few cm.

4 For dual channel with inadequate length of the appendix, cecum anterior wall tube created for the ACE channel

4 During the Appendix maturation to bladder, first place the anchoring suture at tip of the appendix through full thickness to bladder and then spatulate, this will take away the tension on anastomosis.

5 The detrusor flaps can be closed over the appendix without fenestration of the appendix mesentery

6 No need of tacking the appendix to abdominal wall or bladder

CONCLUSION

Adopting these salient features in our practice the stomal continence was 91% and subfacial stenosis of 2.9 % in total.

T&T-4 (TTP)

SIMPLE TIPS AND TRICKS ON PCLN TO CONVERT THE PUNCTURE SITE INTO A MORE CONVENIENT POSITION

Sajid SULTAN, Bashir AHMED, Sadaf ABA UMER KODAVWALA, Anwar NAQVI and Adeeb Ul Hasan RIZVI
Sindh Institute of Urology & Transplantation, Philip G. Ransley Department Of Paediatric Urology, Karachi, PAKISTAN

BACKGROUND

PCNL is one of the foremost surgical option for renal calculi management in children. Prone position, sub costal and atraumatic posterior superior calyx puncture through the fornix is one of the preferred site. Often, the appropriate puncture site is hidden behind the twelfth rib. We recommend some simple tips and tricks to convert the puncture site into a more convenient position

METHOD

Under General Anesthesia, patient is placed in prone position. The initial needle prick is made into the renal parenchyma near the upper pole. The pediatric kidney is mobile therefore, by angling the kellet/puncture needle, one can push the kidney inferiorly thus bringing the upper pole below the twelfth rib and an appropriate atraumatic puncture can easily be performed with a second needle.

T&T-5 (TTP)

CLITOROPLASTY WITHOUT THE NEED TO DISSECT THE DNVB, THROUGH A VENTRAL CORPOROPLASTY AND EXCISION OF THE CAVERNOUS TISSUE

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ABSTRACT

Clitoroplasty can be performed by several techniques. In all of them, the basic principles are: To preserve the dorsal neurovascular bundle (DNVB) responsible for clitoral innervation and to partially excise the corpora cavernosa.

We will show in photos and videos how to perform the clitoroplasty without the need to dissect the DNVB, through a ventral corporoplasty and excision of the cavernous tissue. The aim of this technique is to preserve the clitoral erection in a simplified way. We will also show how to embed the glans preserving gland tissue and how to mobilize the urogenital sinus en-bloc in a perineal approach.

T&T-6 (TTP)

CORRECTION OF CONGENITAL PREPUTIAL PENILE LYMPHEDEMA

Gianantonio MANZONI
Ospedale Maggiore Policlinico, U.O. Urologia Pediatrica, Milan, ITALY

ABSTRACT

Congenital genital lymphoedema is an extremely rare condition which poses some technical challenges for its correction. The condition is caused by the congenital absence of the superficial lymphatics which results in the classical appearance of the penile and prepucial skin.

A trick is presented in order to facilitate drainage from the skin via the deep lymphatics and to reduce the potential risk of recurrence. After a circumferential coronal incision complete degloving is performed to expose the shaft. Two parallel, longitudinal, para-urethral incisions are made in Buck's fascia which is progressively dissected, laterally and dorsally, from the tunica albuginea of the corpora thereby exposing the deep lymphatics. Once the dissection is completed the two "flaps" are sutured together in the midline above the neuro-vascular bundles. The excess pathological penile and prepucial skin and subcutaneous tissue are excised and a radical circumcision is completed. An adequate compressive dressing is applied.

This procedure provides for exposure of the subcutaneous tissue to the deep lymphatics in order to reduce the risk of recurrence.

T&T-7 (TTP)

PENILE DISSECTION UNDER ARTIFICIAL ERECTION (AE) DURING HYPOSPADIAS REPAIR

Haluk EMIR
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ABSTRACT

Gentel hypospadias surgery needs to follow a correct dissection plane between main tissues, corporeal bodies and spongious tissues of urethra and glans penis. Bleeding and/or oozing blood may change surgical vision and orientation which usually results in loss of the correct dissection plane. Penile tourniquet (PT) is a very well known maneuver to stop bleeding but it makes all spongious tissues empty , including lateral urethral spongious tissues distal to hypospadiac meatus, and therefore definition of dissection plane may become even harder in some cases. Artificial Erection (AE) is a very helpful and tricky maneuver at this point. During AE, all erectile tissues are filled with saline and become visible so it is easy to define the correct dissection plane and progress (fig 1,2). Even spongious tissue penetration happens during dissection, surgical vision will not be effected because of saline leakage. Multiple ventral corporeal incisions for ventral chordee correction can also be done during AE (fig 3). Because penis is already erected and curved, the effectiveness of incisions can be evaluated without repeated tourniquets and AE tests. PT time usually is between 15-20 minutes and rest of operation is completed without PT fig4).

Penile surgery under Artificial Erection is an option which leads to a bloodless surgical field and visible dissection plane between saline filled erectile tissues and avoids repeated tourniquet / artificial erection.

FIGURES

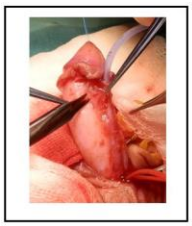

Fig 2: Dissection of UP with spongios tissue and glans wings from the corporeal bodies was done under AE with saline filled erectile tissues and no blood on surgical field.

Fig 3: Following complete dissection of UP, multiple ventral corporeal incisions were also done while AE continues. Straight penis was achieved vetral incisions combined with dorsal midline plication as seen on pictures.

Fig 4: Rest of the operation was completed without PT. Pulsatile bleedings are controlled with bipolar cautery and oozing blood usually stops spontaneously .

15:10 - 16:04 **S11:** **NEUROPATHIC BLADDER 1**
Moderators: Matthieu Peycelon (France)

S11-1 (SO)

★ A PROSPECTIVE, MULTICENTRIC, RANDOMIZED, DOSE-RANGING STUDY ON INTRADETRUSOR INJECTIONS OF BOTULINUM TOXIN TYPE A (IDIBTX-A) IN CHILDREN WITH NEUROGENIC BLADDER.

Juliette WARTELLE [1], Charline BISCHOFF [1], Nadia BOUDAOUD [1], Francesco LACONI [1], Didier AUBERT [2], Florence BASTIANI [3], Stephan GEISS [4], Remi BESSON [5], Catherine JOLLY [1], Maguelonne PONS [6] and Marie-Laurence POLI-MEROL [1]
1) CHU Reims, Pediatric Surgery and Urology, Reims, FRANCE - 2) Centre Hospitalier Universitaire Saint Jacques, Pediatric Surgery and Urology, Besançon, FRANCE - 3) Hôpitaux Pédiatriques de Nice CHU - Lenval, Pediatric Surgery and Urology, Nice, FRANCE - 4) Hopital Louis Pasteur Pasteur, Pediatric Surgery and Urology, Colmar, FRANCE - 5) Centre Hospitalier Universitaire de Lille (CHU) Hôpital Jeanne de Flandre, Pediatric Surgery and Urology, Lille, FRANCE - 6) HOPITAL ESTAING, Pediatric Surgery and Urology, Clermont-Ferrand, FRANCE

PURPOSE

Evaluate the results of IDIBTX-A depending on the dose (full versus half dose) in children with neurogenic bladder.

MATERIAL AND METHODS

After institutional ethics review board approval, patients with confirmed neurogenic bladder were enrolled in the study with the following inclusion criteria: age ≥3 and ≤15 years, urinary incontinence, failure of prolonged oral anticholinergic therapy, and possibility to perform clean intermittent catheterization. The patients were randomized and divided in group 1 and 2, who received full and half dose of botulinum toxin respectively. Maximum detrusor pressure (mDP), Quality of Life, (QoL validated questionnaire) and incontinence (Schulte-Baukhol score) were evaluated before the injections (T0) and 1-4 months after (T1-T2). We performed the Wilcoxon test and we used the NPAR1WAY procedure on SAS/STAT system to compare the results between groups in the different phases of the follow-up.

RESULTS

We collected 29 patients from 5 centers, 14 were included in group 1 and 15 in group 2. No statistically significance in mDP was founded between groups at T0, T1 and T2 (p=0.0632, p=0.0529 and p=0.1048 respectively). Differences in modifications of mDP during the follow-up didn't have statistically significance comparing Group 1 and Group 2 at T1 and T2. (p= 0.7645 and 0.5709). Continence at T1 and T2 improved for all patients (p=0.002, p=0.03) but did not for each group separately (p > 0.05). Finally, all participants declare ameliorations in QoL after the treatment.

CONCLUSIONS

Half and full dose treatment shown same results: it means that risks of side effects and impact on public health cost could be halved.

S11-2 (SO)

SYSTEMATIC SONOGRAPHIC BLADDER VOLUME MEASUREMENTS AT EVALUATION FOR AND DIRECTLY AFTER FETAL MYELOMENINGOCELE REPAIR - IS BLADDER FUNCTION PREDICTABLE?

Ladina VONZUN [1], Luca MAZZONE [2], Ulrich MOEHRLEN [3], Martin MEULI [4], Roland ZIMMERMANN [5], Nicole OCHSENBEIN-KÖLBLE [5] and Maya HORST [6]
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INTRODUCTION

Current data suggest a possible benefit in bladder function after fetal myelomeningocele (fMMC) repair compared to the postnatal intervention. However, it is not known what effect the repair has on fetal bladder function and whether there are predictive factors that could be seen sonographically. The aim of this study was to evaluate predictability of fetal bladder function at evaluation for and directly after fMMC repair.

PATIENTS AND METHODS

We retrospectively analyzed the sonographic bladder volume measurements of 28 fetuses at evaluation for and directly after fMMC repair. Statistical analysis was performed comparing two groups: group 1 (N=11) with neuropathic bladder dysfunction (NBD) and group 2 (N=17) children with normal bladder function postnatally. Data is presented as mean+/-SD. Statistical significance was indicated at p <0.05.

RESULTS

At evaluation for fMMC repair the fetal bladder volume was significantly lower in group 1 compared to group 2: 0.5±0.5 ml vs. 1.0±0.6ml (p =0.03) with comparable fetal weights: 555±134g vs. 620±190g (p=0.34). Directly after surgery the fetal bladder volume was still smaller in group 1 compared to group 2: 2.5±1.9ml vs. 4.5±2.5ml (p=0.05) with comparable fetal weights: 681±126 vs. 709±152g (p=0.6). No patient developed urinary retention.

CONCLUSIONS

The presented data show a predictability of fetal bladder function by ultrasound at evaluation for and directly after fMMC repair thereby adding an extremely valuable information to the counseling of the parents. Nevertheless, this cohort is small and reproducibility has to be proven in bigger cohorts.

S11-3 (SO)

IMPLEMENTING AN ENHANCED RECOVERY PATHWAY IN CHILDREN UNDERGOING BLADDER RECONSTRUCTION

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1) Ann & Robert H. Lurie Children's Hospital of Chicago, Urology, Chicago, USA - 2) University of British Columbia, Urologic Sciences, Vancouver, CANADA - 3) Ann & Robert H. Lurie Children's Hospital of Chicago, Anesthesia, Chicago, USA - 4) Children's Hospital Colorado, Anesthesiology, Aurora, USA - 5) Ann and Robert H. Lurie Children's Hospital of Chicago, Surgery, Chicago, USA - 6) Children's Hospital Colorado, Urology, Aurora, USA - 7) Ann & Robert H. Lurie Children's Hospital of Chicago, Clinical Effectiveness and IMP, Chicago, USA

PURPOSE

Implementation of an enhanced recovery pathway (ERP) is a safe and effective way to improve the recovery of children undergoing bladder reconstruction. However, it has not been widely adopted in pediatric urology. To improve the post-surgical recovery process of children undergoing bladder reconstruction, we implemented an ERP as a quality improvement initiative at a single, free standing children's hospital. Herein we report our approach to implementation and preliminary results.

PATIENTS AND METHODS

We first met with pediatric practitioners with ERP experience to understand potential implementation barriers. We then held stakeholder meetings to engage anesthesiologists, nurses, case managers, and other ancillary staff in drafting our institution-specific pathway. We generated a standardized order set to improve pathway adherence. The pathway has been continuously refined with stakeholder feedback and audit results before and after implementation.

RESULTS

We implemented ERP in seventeen patients undergoing bladder reconstruction (median age 10.6 years, range 4-21). Median LOS was 4 days (range 4-30). A median of 14 (range 11-19) of 20 elements were implemented for each patient. The median LOS is decreased compared to a historical cohort (n=17, median age 10.2 years, range 3.5-25) with median LOS of 9 days after surgery.

CONCLUSIONS

Open communication and early stakeholder involvement were critical to implementation. Integration of resources of the electronic medical record improves ease in implementation. Early pathway adherence is encouraging and has positively impacted LOS. Further follow-up is necessary to evaluate the impact on patient-centered and patient-reported outcomes. Audit results and stakeholder feedback will continue to improve future adherence.

S11-4 (SO)

CAUSES OF DEATH AMONG PEOPLE WITH SPINA BIFIDA DUE TO MYELOMENINGOCELE: A MULTI-INSTITUTIONAL INTERNATIONAL RETROSPECTIVE STUDY

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PURPOSE

To analyze causes of death in people with myelomeningocele (MMC).

MATERIAL AND METHODS

Retrospective review at 16 institutions in Canada and United States of a non-random convenience sample of people with MMC (born >=1972). Data were obtained from medical records, families, obituaries, death certificates. “Unexplained deaths” were defined as unexpected deaths while asleep, without attributable known cause. Non-parametric tests were used.

RESULTS

Over 47 years, 316 deaths were identified at participating institutions (85.1% shunted hydrocephalus/8.2% unshunted/6.6% unknown, 10.4% community ambulators). Deaths occurred in infancy (15.2%), in later childhood (35.8%), adulthood (49.0%). Causes of death were documented in 74.1%.

Leading causes of death for 269 people with shunted MMC were infections (33.1%, including shunt infections: 4.1%), non-infectious shunt malfunction (15.2%), non-infectious pulmonary disease (6.3%). For 26 people with unshunted MMC, deaths were due to infections (23.1%), non-infectious pulmonary disease (15.4%), congenital and non-congenital cardiovascular disease (11.5% each). For 21 people with unknown shunt status, 42.9% of deaths were due to infections.

Deaths from infections were more common among adults than children (40.0% vs. 26.1%, p=0.01). Overall, 4.4% of deaths were unexplained. These were not significantly associated with age, shunt status or epilepsy (p>=0.57). Urology-related deaths (grouping causes: urosepsis, renal failure, hematuria, bladder perforation, bladder cancer) occurred in 9.5%.

CONCLUSIONS

While causes of death varied by shunt status in people with MMC, infections were the leading cause of mortality. About 10% of deaths were urology-related and 26% of deaths had an unknown cause. These findings underline the need for life-long multidisciplinary care and accurate documentation of mortality data.

S11-5: Withdrawn (author request)

S11-6: Withdrawn (video presentation not uploaded)

S11-7 (SO)

RISK FACTORS PREDICTING UPPER URINARY TRACT DETERIORATION IN CHILDREN WITH SPINAL CORD INJURY

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PURPOSE

The aim of this study is to determine the risk factors predicting upper urinary tract (UUT) deterioration in children with spinal cord injury (SCI).

MATERIAL AND METHODS

Medical records of 108 children with SCI who referred to our unit between 1996 and 2018 were retrospectively reviewed. The data included general patient demographics, SCI characteristics, bladder management methods, serum creatinine level, presence of urinary tract infection, indwelling catheter time, radiological findings of the upper and lower urinary tract (LUT), and video-urodynamic (VUD) findings. The univariate and multivariate analyses were used to determine the risk factors predicting UUT deterioration. ROC analysis was done to determine the cutoff values of maximum detrusor pressure during filling and bladder volume ratio (BVR) to predict UUT deterioration.

RESULTS

Complete data were available on 76 children. The median patient age was 15 years (2-17). The leading causes of SCI were motor vehicle accidents (44%) and fall (33%). UUT deterioration was determined in 33 patients (43%). Iatrogenic SCI etiology, abnormal radiological LUT findings, and detrusor pressures greater than 70 cmH_2O were found to be independent risk factors for UUT deterioration in logistic regression analysis. Additionally, ROC analysis revealed that BVR less than 0.7 were cutoff values for UUT deterioration in children with SCI.

CONCLUSIONS

Abnormal radiological LUT findings, iatrogenic SCI etiology, detrusor pressures greater than 70 cmH2O, and BVR less than 0.7 were risk factors predicting UUT deterioration in children with SCI.

S11-8 (SO)

UROLOGICAL COMPLICATIONS IN CHILDREN WITH MENKES DISEASE: A CHALLENGING MANAGEMENT FOR PEDIATRIC UROLOGIST

Giovanni MOSIELLO [1], Diego MARTINELLI [2], Elsa BEVIVINO [2], Maria Luisa CAPITANUCCI [1], Alberto LAIS [1], Antonio ZACCARA [1] and Carlo DIONISI VICI [2]
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PURPOSE

Menkes Disease (MD) is a very rare X-linked recessive disorder of copper (Cu) metabolism, incidence 1:254000 live born babies. The clinical spectrum is wide and complications are related to complications in Cu transports, resulting in progressive neurodegeneration , connective tissue abnormalities.In natural history death occurs mainly from 3 years of age, longer survival is now described reflecting improvements in medical and nutritional management. Because urological complications are commonly reported, aim of our paper is retrospectively review our urological management and outcome in survival.

PATIENTS AND METHODS

15 children with MD have been evaluated in our centre . All patients have been evaluated for age at diagnosis, urological complications, urological surgical procedure, surgical complications, follow-up.

RESULTS

Mean age at diagnosis was 11 months. Bladder diverticula have been described in 11, bladder dysfunction in 9, urinary tract infection in 9, hydronephrosis in 5, vesicoureteral reflux in 4. CIC has been suggested in 9, only. 2 regularly performe. Button cistostomy has been the most common surgical procedure , 5 cases, well effective in 3 (percutaneous access) , 1 patient reported button dislocation and 1 wound dehiscence (open access). 2 patients were operated with surgical cistostomy, 1 with nephrostony. In 2 Diverticula excision have been performed. 4 patients have been lost at follow-up, 2 died for MD, 9 are still alive, mean 7.3years.

CONCLUSIONS

Our series is the largest describing urological complications in MD. Urological complications are very common presenting early in life, 1yrs, always increasing with during time. Bladder diverticulae is the most common finding. Urological imaging is mandatory , including serial renal US control and VCUG, for an adequate urological treatment preserving renal function. Early bladder management using CIC must be the first line treatment, when CIC is no effective button cistostomy or vesicostomy coils be useful in all, while surgical treatment of diverticula is required in very selected cases .

S11-9: Withdrawn (author request)

16:10 - 16:32	**SPU Lecture: SPU's Journey through COVID - a test of resilience, flexibility, and perseverance** *Paul Austin (USA)* Introduced by Tony Herndon (USA)
16:35 - 17:05	**Round Table Discussion** *Moderator: Emilio Merlini (Italy, ESPU)* Post Covid: Definition of "Normal" with Patient Engagement Paul Austin (SPU), PJ Lopez (SIUP), Anka Niewhof-Leppink (ICCS) and Stephen Yang (APAPU)

17:10 - 17:46 **S12: NEUROPATHIC BLADDER 2**

Moderators: Pedro Lopez Pereira (Spain)

S12-1 (SO)

BASELINE URODYNAMIC FINDINGS IN INFANTS WITH MYELOMENINGOCELE FROM THE CENTERS FOR DISEASE CONTROL AND PREVENTION UMPIRE MULTI-CENTER LONGITUDINAL STUDY FROM 0-5 YEARS OF AGE

Stacy TANAKA [1], Jonathan ROUTH [2], Elizabeth YERKES [3], Duong TU [4], Christopher AUSTIN [5], John WIENER [6], Evalynn VASQUEZ [7], David JOSEPH [8], Jennifer AHN [9], M. Chad WALLIS [10], Tonya WILLIAMS [11], Charles ROSE [11], Michelle BAUM [12] and Earl CHENG [3]

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PURPOSE

Urodynamic risk assessment is an indicator for renal deterioration in patients with myelomeningocele. Interrater reliability of urodynamics tests was low; therefore, a process to standardize urodynamics interpretation and reconcile discrepancies was developed.

MATERIAL AND METHODS

The Urologic Management to Preserve Initial Renal Function (UMPIRE) Protocol follows infants with prenatally/postnatally closed myelomeningocele at nine centers. Baseline urodynamics are obtained at ≤3 months and the bladder is classified as low or intermediate risk, or hostile. The multi-step standardization of interpretation of urodynamics included review: 1) by the original site and two of four external reviewers (i.e. three pediatric urologists from three different clinical sites); 2) if discordant, by four external reviewers at an in person meeting; 3) if classification discordance persisted, by the original site again with reviewer feedback; and 4) if discordance still persisted, by all nine sites.

RESULTS

Of 365 children, 158 baseline urodynamic tests from 9 sites have completed the full review process. Baseline urodynamic tests indicated a hostile bladder in 15% (23/157); intermediate risk for 61% (96/157); and low risk for 24% (38/157). All three reviewers initially agreed on 50% of tests (79/157), concurrence was 68% (106/157) after Step 2, 94% (147/157) after Step 3; and 100% after Step 4 of the standardized protocol. Eleven of 34 bladders originally classified as hostile were downgraded after review.

CONCLUSIONS

We found variations in interpretation of baseline urodynamics, which could be contributing to decreased interrater reliability. We implemented a standardized review process that can inform future UMPIRE urodynamics interpretation.

S12-2 (SO)

CAN CONTRAST ENHANCED URODYNAMICS SONOGRAPHY REPLACE VIDEO URODYNAMICS? A STRUCTURED COMPARISON PILOT

Dawn D. SALDANO [1], Ellen C. BENYA [2], Ryan F. WALTON [1], Nicole M. LOWE [2], Ilina ROSOKLIJA [1] and Elizabeth B. YERKES [1]
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PURPOSE

Video urodynamics (VUDS) provides relevant anatomical and functional correlates for medical and surgical decision making in patients with neurogenic bladder dysfunction, however, it requires radiation exposure. We aim to explore contrast-enhanced urodynamics sonography (CEUDS) using intravesical microbubble contrast during urodynamics (UDS) as reliable, non-radiation replacement for VUDS.

PATIENTS AND METHODS

A pilot study to compare VUDS to CEUDS was developed. Patients aged 12 years or less with neurogenic bladder secondary to spina bifida or caudal regression were prospectively enrolled to undergo a CEUDS immediately following a standard of care VUDS. Three UDS runs were performed, of which the last two were used for analysis. Images were obtained at set % Estimated Bladder Capacity (0, 25, 50, 75, 100, and so on) and with any observed urodynamic "events" to assess for open bladder neck or reflux. Each de-identified tracing was classified as safe, intermediate or hostile using the National Spina Bifida Patient Registry criteria. Concordance between VUDS and CEUDS tracings was recorded.

RESULTS

8 patients were enrolled and completed testing. Urodynamic classification matched in 8/8 VUDS-CEUDS pairs. Layering of microbubbles over residual contrast and ruptured bubbles after gentle warming were encountered on one occasion each and rectified. The pump did not interfere with microbubble quality and there was no suggestion of transducer interference by microbubbles.

CONCLUSIONS

Based upon this pilot data, substitution of CEUDS for VUDS appears to provide comparable bladder pressure information and without the use of radiation. Further studies will validate these observations for confident urologic decision making with other diagnoses, ages and body types.

12-3 (SO)

A QUANTITATIVE MODEL TO DEMONSTRATE URODYNAMIC IMPROVEMENT OF DETRUSOR WORK AFTER SPINAL CORD DETETHERING

Ching Man Carmen TONG [1], Israel FRANCO [2] and Stacy TANAKA [1]
1) Monroe Carell Jr. Children's Hospital at Vanderbilt, Pediatric Urology, Nashville, USA - 2) Yale School of Medicine, Pediatric Urology, New Haven, USA

PURPOSE

Tethered cord syndrome encompasses a constellation of symptoms including lower urinary tract dysfunction. Reported urodynamic patterns after tethered cord release (TCR) have been inconsistent. We hypothesize that application of a mathematical model can provide consistent data demonstrating urodynamic differences before and after TCR.

MATERIAL AND METHODS

We retrospectively reviewed records of pediatric patients who underwent TCR between 2015 and 2019, with urodynamic evaluation done prior to and after surgery. Using FIAS© software (MI, USA), detrusor activity (DA) work and vesicoelastic (VE) work were calculated using urodynamic pressure-volume tracings. End volume was standardized between the pre- and post-TCR study for each patient. The quotients of pre-/post-TCR work were calculated for DA work, VE work and total (DA+VE) work. These values were compared between those who had symptom improvement and the remainder of the patients by Mann-Whitney U test.

RESULTS

A total of 22 patients aged 5 months to 15 years (median: 7.65 years) met inclusion criteria. Eight had primary tethered cord. Urodynamic studies were performed at a median time of 1.1 months prior and 5.4 months after TCR. Of the 22 patients, 9 had lower urinary tract symptom improvement. There was a difference in the quotient of pre-/post-TCR work for total work (p=0.0083) and VE work (0.048) but not for DA work (0.133)

CONCLUSIONS

Changes in detrusor work were associated with symptom improvement. Of note, changes in work were discernible even in infants prior to toilet training with small bladder capacity. Detrusor work calculations offer a standardized method to assess bladder function.

17:19 - 17:22
S12-4 (SO)

THE CORRELATION BETWEEN THE BLADDER WALL THICKNESS AND URODYNAMIC FINDINGS IN SPINA BIFIDA CHILDREN WITH OVERACTIVE BLADDER AND DETRUSOR SPHINCTER DYSSYNERGIA.

Sasa MILIVOJEVIC [1], Vladimir RADLOVIC [1], Ivana DASIC [2], Jelena MILIN LAZOVIC [3], Goran DJURICIC [2] and Zoran RADOJICIC [1]
1) University Children's Hospital Belgrade, Urology, Belgrade, SERBIA - 2) University Children's Hospital Belgrade, Radiology, Belgrade, SERBIA - 3) Institute for Medical Statistics and Informatics, Faculty of Medicine, University of Belgrade, Belgrade, Serbia, Belgrade, SERBIA

PURPOSE

To examine the correlation between the bladder wall thickness and urodynamic findings in spina bifida children with overactive bladder (OAB) and detrusor sphincter dyssynergia (DSD).

MATERIAL AND METHODS

Between 2014 and 2019 we prospectively evaluated 61 consecutive spina bifida children with OAB and DSD (30 (49.2%) boys and 31 (50.8%) girls, aged 4 to 16 years; mean age 16.0±9.7 years. During the above period, as part of the assessment of treatment results, all the patients underwent echosonographic measurement of bladder wall thickness and urodynamic studies which were subsequently compared
mutually.

RESULTS

After applying Spearman's correlation coefficient, we ascertained negative strong significant correlation between bladder wall thickness and maximum bladder capacity (r= -0.728, p<0.001) and compliance (r= -0.715, p<0.001). There was strong, positive correlation between bladder wall thickness and maximal detrusor pressure (r= 0.713, p<0.001), leak point reassure (r= 0.760, p<0.001) and post void residual volume PVR (r= 0.753, p<0.001).

CONCLUSIONS

There is an correlation between the bladder wall thickness and urodynamic findings in spina bifida children with OAB and DSD. Therefore, we advise an echosonographic measurement of bladder wall thickness in spina bifida children with OAB and DSD, and it can especially help us while waiting for urodynamic testing.

12-5 (SO)

HOME BLADDER MANOMETRY MEASUREMENTS CORRELATE WITH HIGH-GRADE HYDRONEPHROSIS AMONG PATIENTS WITH NEUROGENIC BLADDER

Joshua CHAMBERLIN [1], Sarah HOLZMAN [2], Carol DAVIS-DAO [2], Amanda MACARAEG [3], Linda BEQAJ [3], Ahmed ABDELHALIM [4], Ranim MAHMOUD [5], Heidi STEPHANY [2], Kai-Wen CHUANG [2], Elias WEHBI [2] and Antoine KHOURY [2]
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PURPOSE

Patients with neurogenic bladder are at risk of developing bladder and renal deterioration secondary to increased intravesical pressures. We have shown previously that home manometry measurements predict urodynamic pressures. We evaluated the ability of home bladder manometry to identify patients at risk for high-grade hydronephrosis.

MATERIAL AND METHODS

Home manometry measurements were prospectively collected on patients with neurogenic bladder secondary to spina bifida performing clean intermittent catheterization. Patients used ruler-based bladder manometry to measure intravesical pressures/volumes at home. Home measurements were compared to hydronephrosis grade on ultrasound. Patients with grade IV/V vesicoureteral reflux were excluded. ROC curves and AUC were calculated to correlate home manometry pressures with high-grade hydronephrosis (SFU Grades 3-4).

RESULTS

Included were 78 patients with a total of 107 home manometry measurements. Fifty six percent were female, median age at follow-up was 10 (range 0-21) years. Home manometry mean bladder pressures greater than 20 cm water predicted the presence of high-grade hydronephrosis (sensitivity 86%, specificity 86%). Maximum bladder pressure on home manometry also predicted high-grade hydronephrosis (sensitivity 86%, specificity 78%). Based on home manometry, maximal bladder pressure and mean bladder pressure were highly predictive of high-grade hydronephrosis (AUC 0.90 and 0.88, respectively).

CONCLUSIONS

Home manometry maximal and mean bladder pressures strongly correlate with presence of high-grade hydronephrosis. Home manometry provides an easy screening tool for patients with neurogenic bladder to identify those requiring more aggressive management, without additional cost or morbidity.

S12-6: Withdrawn (video presentation not uploaded)

Saturday 25, September 2021

10:00 - 10:42 **S13:** **EXSTROPHY-EPISPADIAS COMPLEX**
Moderators: Marc-David Leclair (France)

S13-1 (SO)

DELAYED PRIMARY CLOSURE OF CLASSIC BLADDER EXSTROPHY: WHEN IS IT TOO LATE?

Wayland WU, Mahir MARUF, Rachel DAVIS, Roni MANYEVITCH, Kelly HARRIS, Hiten PATEL, Heather DICARLO and John GEARHART
Johns Hopkins Hospital, Urology, Baltimore, USA

PURPOSE

With current trends delaying the closure of classic bladder exstrophy (CBE) may impact bladder growth rate or ultimate capacity.

MATERIAL AND METHODS

A retrospective review was performed using an institutional exstrophy patient database. Inclusion criteria were: CBE, successful neonatal (i.e. ≤28 days old) or delayed (i.e. >28 days old) primary closure, at least three consecutive bladder capacities or two measures taken 18 months apart, and first bladder capacity measured at least three months after closure. Only capacities measured prior to continence surgery and before 14 years of age were considered. Linear mixed model evaluated the affects of age and length of delay on bladder capacity.

RESULTS

Cohort included 128 patients in the neonatal and 38 patients in the delayed group. Median age at closure for the delayed group was 193 days (IQR 128 – 299). For the first three capacity measurements, the delayed group had significantly lower capacities despite having similar age when the measurements were taken. A linear mixed effects model showed significantly decreased total bladder capacity in delayed closure compared to neonates. The 2nd and 4th quartile groups had the most significant decreases in capacity.

CONCLUSIONS

All patients in the delayed bladder closure group demonstrated a decline in bladder capacity, with significant differences in the 2nd and 4th quartiles. Thus, closing the bladder prior to nine months of age offers the best chance for greatest bladder capacity is recommended.

S13-2 (SO)

DELAYING RECLOSURE OF BLADDER EXSTROPHY LEADS TO GRADUAL DECLINE IN BLADDER CAPACITY

Wayland WU, Mahir MARUF, Kelly HARRIS, Hiten PATEL, Heather DICARLO and John GEARHART
Johns Hopkins Hospital, Urology, Baltimore, USA

PURPOSE

After unsuccessful repair of bladder exstrophy, when to repeat surgical intervention is unclear. The authors aim to study whether a relationship exists between bladder growth/capacity and time till eventual successful closure.

MATERIAL AND METHODS

An institutional database of exstrophy-epispadias complex patients was queried for failed exstrophy closure with successful repeat reconstruction, at least three consecutive bladder capacity measurements, and measurements obtained at least three months following successful closure. Patients closed successfully in the neonatal period were used as a comparative group. Linear mixed effects models were used to study the effect of time and age on bladder capacity.

RESULTS

Forty-seven patients requiring reclosure and 117 who had successful neonatal closures were included. Two models were created. The first linear mixed effects model found that for a given age, the bladder capacity declined approximately 9.6 mL per year (p = 0.016). The second model found that when time to successful closure was grouped by quartiles, compared to neonates, those in the fourth quartile had significantly decreased bladder capacity of 28.8 cc (p = 0.042). An interaction model comparing neonates and those requiring reclosure did not demonstrate a significant change in bladder growth rate (p = 0.098). A model stratified by quartiles similarly did not find any significant impact to bladder growth rate.

CONCLUSIONS

There is a demonstrable significant impact on overall bladder capacity with increasing delay to successful reclosure. One should be cautious when prolonging reconstruction of the bladder as these data demonstrate a time dependent decline in overall capacity.

S13-3 (SO)

INTRAOPERATIVE LASER ANGIOGRAPHY TO EVALUATE PENILE BLOOD FLOW DURING BLADDER EXSTROPHY CLOSURE

Martin KAEFER [1], Kahlil SAAD [2], Patricio GARGOLLO [3], Benjamin WHITTAM [2], Richard RINK [2], Molly FUCHS [4], Diana BOWEN [5] and Rama JAYANTHI FOR THE PEDIATRIC UROLOGY MIDWEST ALLIANCE (PUMA) [4]
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PURPOSE

The decision to proceed with a staged repair vs. complete primary repair of exstrophy (CPRE) is one of the most debated issues in Pediatric Urology. Each approach has its advantages. Proponents of staged repair argue that the CPRE carries a higher chance of penile injury. We hypothesize that quantitative assessment of penile perfusion with indocyanine green at various points in the procedure is a feasible technique and may assist in decision making during the repair of this complex condition.

MATERIAL AND METHODS

Consecutive patients presenting with exstrophy were evaluated at four stages of their operation (following induction of anesthesia, after bladder mobilization, following internal rotation of the pubis and at the end of the procedure) by infusing indocyanine green (IG). Measurements were taken 80 seconds post infusion. The medial thigh served as control. Penile viability was assessed three months postoperatively.

RESULTS

Seven consecutive patients (4 CPRE, 3 Staged) were enrolled in this prospective study. Penile perfusion changed little after bladder dissection. However, penile perfusion decreased by a mean of 67% (range 45-85%) following simple internal rotation and approximation of the symphysis pubis. Patients undergoing CPRE experienced an additional mean 15% drop in blood flow following the penile repair. Overall the CPRE group experienced a significantly greater mean drop in blood flow (CPRE 77% vs Staged 47%, $p<0.05$, Student's t-test). In all 7 cases the penis was symmetric and healthy at three months.

CONCLUSIONS

The measurement of penile perfusion with intraoperative laser angiography is easy to employ. Marked reduction in penile blood flow may occur without any outward clinical signs. Penile perfusion is reduced by 2/3rds after apposition of the pubis and, in the immediate postoperative period, further declines in patients who undergo CPRE. Future correlation with measures of penile viability and function are needed to define the clinical utility of this modality in guiding surgical decision making.

S13-4: Withdrawn (author request)

S13-5 (SO)

MALE PROXIMAL EPISPADIAS: VOIDING OUTCOME

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PURPOSE

To evaluate the voiding outcome of bladder neck reconstruction in (incontinent) male proximal epispadias.

MATERIAL AND METHODS

Records of 29 male patients who underwent proximal epispadias repair and bladder neck reconstruction (BNR) from 2008 to 2018 were retrospectively reviewed for the degree of pubic diastasis, pre and post operative early morning (AM) voided volume, details of cystogram and cystoscopy especially bladder capacity. The epispadias repair was performed by Cantwell Ransley technique and BNR by modified Young's technique. Voiding outcome was evaluated by voided volume, dry intervals, presence of urge, stress incontinence and nocturnal enuresis.

RESULTS

Mean age at epispadias presentation was 7.4 +/- 3.3 years. Of the twenty nine patients, no pubic diastasis (Group A) was found in 5 (17.25%), mild diastasis (Group B) in 11 (38%), moderate (Group C) in 8 (27.5%) and severe diastasis (Group D) in 5 (17.25%). Pre BNR mean early morning voided volume was 225+/-125mls (52% of EBC)in Group A, 210+/-67 mls (60% EBC) in Group B,176+/-82mls (53% EBC)in Group C and 92+/-46mls (25% EBC) in Group D. Pre operative cystoscopic bladder capacity correlated closely with AM volume. Combined single stage epispadias repair and BNR was performed in 9 (31%) whereas 20 (69%) underwent staged procedure for epispadias and BNR. Post bladder neck reconstruction AM volume increased to 90% in group A, 72% in group B, 67% in group C and 39% in group D. Dry interval ranged 3 -5 hours in 25 /29 (86%). Urge incontinence was present in 4/ 29 (13.8%), stress incontinence in 15/29 (51.7%) and nocturnal enuresis in 11/29 (38%).
Follow up period 14 to102 months

CONCLUSIONS

Overall success is satisfactory with 86% having dry interval more than three hours.
This is one of the largest and unique series of a rare abnormality, i.e. voiding outcome of isolated epispadias of late presentation from a developing country.

S13-6 (SO)

IS THE BLADDER EXSTROPHY-EPISPADIAS COMPLEX A RISK FACTOR FOR CONGENITAL HIP DYSPLASIA? : A SURVEY OF THE MULTICENTER GERMAN CURE-NET

Anne-Karoline EBERT [1], Ekkehart JENETZKY [2], Lisa DLASK [3], Kathi THIELE [3], Michael KERTAI [4], Matthias SCHAAL [5], Frank-Mattias SCHÄFER [6], Eberhard SCHMIEDEKE [7], Raimund STEIN [8], Wolfgang H. RÖSCH [9], Heiko REUTTER [10] and Nadine ZWINK [11]

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PURPOSE

In literature, hip dysplasia and coxarthrosis have been described in adolescents and adults with EEC before. Although pelvic abnormality and biomechanical stress might be causative, hip dysplasia might also be congenital in EEC.

MATERIAL AND METHODS

In the German multicenter network for congenital uro-rectal malformations (CURE-Net) database clinical and sonographic hip data of 37 prospectively observed EEC newborn (78% male, 70% exstrophy) were analyzed, derived at 4 weeks of age according the nationwide hip screening program, and compared to two control groups (215 newborn at risk for congenital hip dysplasia (49% male); 2550 newborn according general hip screening).

RESULTS

73% EEC hips were normal (95%-CI: 61%; 83%), 20% were physiologically delayed (95%-CI: 12%; 31%) and 1% dysplastic (95%-CI: 0%; 7%). 5% were unknown (95%-CI: 0%; 13%). Therefore, congenital hip dysplasia in EEC was equally to the screening sample (1% vs 1.4%; p=0.54). Risk factors for congenital hip dysplasia are comparable between EEC and the screening sample (16% vs 19%, p=0.66). However, EEC patients had more delayed hip development compared to the reference sample (20% vs 14.4%, p=0.18), and less delayed hips than a newborn control sample (20% vs 27%, p=0.31) with higher incidence of hip dysplasia risk factors (16% vs 81%, p=0.0001). 10 EEC patients (27%) had "preventive" hip treatment such as wrapping and abduction braces. EEC individuals reached milestones of motor development according to WHO significantly later (p=0.001; except crawling p=0.16)

CONCLUSIONS

There was no evidence for an increased incidence of congenital hip dysplasia in the current EEC CURE-Net cohort. In addition to anatomical pelvic abnormalities delayed motor development due to early surgeries and precautious wrapping techniques may be responsible for increased hip development delay. However, higher sample sizes would be desirable to verify these first confident results.

13-7 (SO)

10-YEAR EXPERIENCE WITH URETERIC REIMPLANTATION AT THE TIME OF EXSTROPHY CLOSURE

Abdulrahman ALSHAFEI [1], Arianna MARIOTTO [1], Salvatore CASCIO [2], David KEENE [1] and Raimondo Maximilian CERVELLIONE [1]
1) Royal Manchester Children's Hospital, Paediatric Urology, Manchester, UNITED KINGDOM - 2) Children's Health Ireland, Paediatric Urology, Dublin, IRELAND

PURPOSE

The timing of ureteric reimplantation in patients with bladder exstrophy is still debated. We report a 10-year 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.

MATERIAL AND METHODS

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.

RESULTS

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 developed bladder trabeculation.

CONCLUSIONS

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 unlikely but bladder trabeculation was seen in 4.5% of the patients.

10:45 - 11:39 **S14:** **GENITALIA**
Moderators: Marcel Drlik (Czech Republic)

S14-1 (SO)

★ ALTERED EXPRESSION OF ADAMTS PROTEOLYTIC ENZYMES IN CRYPTORCHID TESTES FOLLOWING CURRATIVE GNRHA TREATMENT

Faruk HADZISELIMOVIC [1], Gilvydas VERKAUSKAS [2], Beata VINCEL [3] and Michael B. STADLER [4]
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PURPOSE

ADAMTS family members encode extracellular, multidomain proteolytic enzymes, for which known functions include collagen processing, cleavage of matrix proteoglycans, inhibition of angiogenesis and homoeostasis of blood coagulation. Mutant Adamts16 mice display cryptorchidism and sterility. We hypothesize that gonadotropin-regulated ADAMTS genes are involved in testicular development during mini-puberty.

MATERIAL AND METHODS

Testicular biopsies for histological and RNA-Sequencing analysis from bilateral cryptorchid boys were analyzed. RNA samples were processed using a standard RiboMinus Gold/TrueSeq (Illumina) RNA protocol. No Ad spermatogonia identified high infertility risk patients (HIR) who were prospectively randomized for treatment either with surgery in combination with gonadotropin releasing hormone agonist (GnRHa) or surgery only. Four biopsies before and four after six months of GnRHa treatment were compared to three before and three after six months of surgery only. In addition, RNA sequencing
data from our previous study of 8 low infertility risk (Ad positive) cryptorchid patients were included as controls.

RESULTS

All ADAMTS family genes were investigated. Surgery alone did not affect ADAMTS gene expression. Importantly, ADAMTS20 expression, which was decreased in HIR patients in comparison to low infertility risk patients [-1.67 log2; FDR=0.0008], increases after GnRHa treatment [+1.06 log2; FDR=0.001]. ADAMTS4 and ADAMTS18 showed identical expression between HIR and low infertility risk patients and were transcriptionally stimulated by GnRHa. Both genes are implicated in extracellular matrix remodelling and organogenesis.

CONCLUSIONS

We show for the first time that testes from cryptorchid boys with abortive mini-puberty display decreased expression of ADAMTS20 and that the gene's expression is upregulated by hormone treatment. This indicates a novel role for ADAMTS20 in the development of Ad spermatogonia and the establishment of fertility.

S14-2 (SO)

★ THE POSITIVE PREDICTIVE VALUE OF USING FSH AND INHIBIN-B SERUM LEVELS TO DIAGNOSE GONADOTROPIN INSUFFICIENCY IN BILATERAL CRYPTORCHID BOYS IS HIGH

Simone HILDORF [1], Erik CLASEN-LINDE [2], Magdalena FOSSUM [1], Dina CORTES [3] and Jorgen THORUP [4]
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PURPOSE

Despite early surgery a significant part of boys with bilateral cryptorchidism have impaired fertility potential. Insufficient genuine gonadotropin stimulation may be the cause, as maturation of germ cells is impaired in such cases and orchidopexy alone will not cure the endocrinopathy. The aim of study was to investigate whether the boy's hormonal profile could identify patients that might benefit from adjuvant hormonal treatment.

MATERIAL AND METHODS

353 boys had bilateral orchidopexy performed between 0.5 and 7.5 (median: 2) years old. All were evaluated with follicle stimulating hormone (FSH), inhibin-B in serum and number of germ cells per tubule cross-section (G/T) in testicular biopsies. All values of the investigated parameters were compared to age matched normal materials (95% CI boundary).

RESULTS

25 (7%) patients had increased FSH, low G/T and in 9 of the cases also low inhibin-B, indicating hypergonadotropic hypogonadism. 59 (17%) patients between 8 month and 6.5 years old (median: 2 years) had both low G/T (median: 0.3 (range: 0-1.3)) and low inhibin-B (median: 60 pg/ml (range:7-134)) and not the expected gonadotropin feed-back mechanism, but normal FSH (median: 0.6 U/l (range:0.2-1.3)) indicating gonadotropin insufficiency. 3 patients with normal FSH and low inhibin-B had normal G/T.

CONCLUSIONS

Adjuvant hormonal treatment is indicated because of gonadotropin insufficiency in at least 17% of boys with bilateral cryptorchidism and by using FSH and inhibin-B serum values, the positive predictive value of a selection in this respect is high (59/59+3 = 0.95). A possible option for those preferring to avoid testicular biopsies.

S14-3: Withdrawn (author request)

S14-4: Withdrawn (video presentation not uploaded)

S14-5 (SO)

THE EFFECT OF NEOADJUVANT HORMONAL TREATMENT IN CRYPTORCHID BOYS

Vojtěch FIALA [1], Zuzana VALOVÁ [1], Marcel DRLÍK [1], Josef SEDLÁČEK [1], Zdeněk DÍTĚ [1], Radim KOČVARA [1] and Marta KALOUSOVÁ [2]
1) General University Hospital and 1st Faculty of Medicine, Charles University, Urology, Prague, CZECH REPUBLIC - 2) General University Hospital and 1st Faculty of Medicine, Charles University, Institute of Medical Biochemistry and Laboratory Diagnostics, Prague, CZECH REPUBLIC

PURPOSE

Neoadjuvant treatment with gonadorelin(GNRH), administered to improve spermatogonia maturation in cryptorchidism, has been proposed by studies with testicular biopsy. We aimed on early anatomical and hormonal effect of the neoadjuvant stimulation in infant cryptorchid boys randomly compared with the group without stimulation.

MATERIAL AND METHODS

Full term unilateral non-syndromic cryptorchid boys were examined (hormonal levels, physical, ultrasound examination) at age of 2.5 - 3.5 months. At 6 months of age those with persistent palpable undescended testis were randomized to groups with (GNRH) and without (control) intranasal gonadorelin treatment (4 weeks, 3 times daily). Orchidopexy was performed before 12 months of age together with repeated examination. Serum levels of LH, FSH, testosterone, Inhibin B, AMH, penile size and testicular size of both groups were evaluated at age of three months and on the date of surgery.

RESULTS

Criteria fulfilled 36 boys (21 in GNRH, 15 in control group). Within the study period, penile size significantly increased in both GNRH and control groups (by 4.6mm and 3,7mm, resp.), without significant difference between the groups (p=0.62). Between both groups, the growth difference of the descended testis was insignificant (p=0.30), as well as of the undescended testis (p=0.14)
In both groups, significant decrease in hormonal levels was observed between minipuberty and time of surgery. There were no differences in individual hormonal findings between the groups (p= 0.62/LH; p= 1.0/FSH; p= 0.55/Testosterone; p= 0.43/Inhibin B; p= 0.96/AMH).

CONCLUSIONS

The neoadjuvant hormonal stimulation has no effect on resting hormonal levels, on penile and testicular size evaluated at time of surgery for undescended testis.

S14-6 (SO)

AGONY OF CHOICE: CAUDAL BLOCK VS. ILIOINGUINAL BLOCK IN UNILATERAL ORCHIDOPEXY

Franziska VAUTH [1], Bernhard KOLLER [2], Aybike HOFMANN [1] and Wolfgang ROESCH [1]
1) Clinic St. Hedwig, Department of Paediatric Urology, University Medical Center Regensburg, Regensburg, GERMANY - 2) Clinic St. Hedwig, Department of Anaesthesia, Regensburg, GERMANY

PURPOSE

The aim of this prospective study was to compare two types of regional anaesthesia regarding intra- and postoperative effectiveness and all over benefit for the patient.

MATERIAL AND METHODS

From October 2016 to February 2018 72 boys undergoing unilateral orchidopexy were included. 38 boys got caudal block (CB) and 34 ilioinguinalis block (IB). Requirements were ASA classification I/II, no contraindications against regional anaesthesia and age less than 48 month. Boys undergoing bilateral orchidopexy, re-orchidopexy and ASA-classification more/equal to III were excluded.
Intraoperatively additional analgesia was applied when the heart frequency was 10% above initial value. Postoperatively the boys were evaluated via KUSS-pain score of Büttner. Additional analgesia was applied at a pain score more or equal to 4.
We compared the following parameter: intraoperative, early-postoperative and postoperative need of additional analgesia. All boys were monitored up to 24 h after surgery.

RESULTS

The use of CB could significantly reduce necessity of additional intraoperative (p = 0) and early-postoperative (p=0,005) analgesia compared to IIB. Whereas IB was superior regarding the need of additional analgesia (p = 0,036) on the ward.

CONCLUSIONS

Regional anaesthesia in children is a well-established procedure to minimize intra- and postoperative pain. In terms of blocking intra- and early-postoperative pain CB is more beneficial and should be the first choice. But in case of older children or contraindications for CB, the IB is a good alternative and should be performed routinely.

S14-7 (SO)

★ CONCEALED INDEX OF CONCEALED PENIS OF PREPUBERTAL CHILDREN

Jae Min CHUNG [1], Kobiljon ERGASHEV [2] and Sang Don LEE [1]
1) Pusan National University School of Medicine, Urology, Yangsan-Si, REPUBLIC OF KOREA - 2) Pusan Naional University School of Medicine, Urology, Yangsan-Si, REPUBLIC OF KOREA

PURPOSE

To make an objective severity index of concealed penis (CP), we compared the penile parameters of a CP with a normal penis (NP).

MATERIAL AND METHODS

In this retrospective study, 534 boys with ages ranging from 12 months to 10 years who visited our hospital between June 2017 and January 2020 were included. Among these boys, 100 patients had a CP and 434 boys had a normal penis without CP. The stretched penile length (SPL), penile circumference (PC) and penile length above baseline skin level (BPL) were measured using a ruler (cm), and testicular volume was measured using orchidometer (ml). SPL was the distance from under pubic symphysis to the tip of the glans. BPL was the distance from the baseline penile skin level to the tip of the glans. We defined the concealed index with SPL (CIs) as BPL/SPL, and the concealed index with circumference (CIc) as BPL/PC.

RESULTS

There was no difference between CP and NP in age, height, weight, BMI, penile circumference and testis volume. However, CP had significant smaller SPL, BPL, CIs, and CIc than NP (Table). Cutoff values of CIs and CIc were 0.53 and 0.59 (sensitivity 51.9 and 88.3%, specificity 94.8 and 80.6%). After repair of CP, SPL, BPL, and CI were higher than preoperative findings.

	NP (434)	CP (100)	p value
Age (months)	48.4±30.3	54.7±42.3	0.516
SPL (cm)	4.2±0.6	3.2±0.6	0.000
Circumference (cm)	4.1±0.5	4.3±0.6	0.153
BPL (cm)	3.0±0.6	1.6±0.6	0.000
BPL/SPL	0.7±0.1	0.5±0.2	0.000
BPL/Circumference	0.7±0.1	0.4±0.1	0.000
SPL/Circumference	1.0±0.1	0.8±0.1	0.000

CONCLUSIONS

The CIs and CIc are a useful and objective parameter for checking the severity of CP. We newly introduce the cutoff value of CIs (0.53) and CIc (0.59) for diagnosis and indication of repair of CP.

S14-8 (SO)

PHALLOPLASTY IN BIOLOGICAL MEN WITH PENILE INSUFFICIENCY

Céline SINATTI [1], Dylan WOLFF [1], Marlon BUNCAMPER [2], Wesley VERLA [1], Karel CLAES [2], Nicolaas LUMEN [1], Marjan WATERLOOS [1], Stanislas MONSTREY [2], Piet HOEBEKE [1] and Anne-Françoise SPINOIT [1]
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PURPOSE

Phalloplasty for penile insufficiency in biological men differs from phalloplasty in trans-men by incorporating native penile tissue. Different techniques have been suggested but are based on small series. The objective of this study is to describe techniques used in a tertiary referral center with over 30 years of phalloplasty experience and to report surgical and functional outcomes.

MATERIAL AND METHODS

Data of biological men undergoing phalloplasty between 2004-2018 were retrospectively collected. Patients with more than 1 year of follow-up were considered for inclusion. Phalloplasty was performed with a radial free forearm (RFFA) or a pedicled anterolateral thigh (ALT) flap. The tube-within-tube technique was used when urethroplasty was required. Descriptive statistics were used. Complications occuring within 30 days postoperative were categorized according to Clavien-Dindo. Functional outcome was assessed by review of electronic patient files.

RESULTS

30 patients, median (IQR) age of 21 (18-30) year, were included. In 16 patients RFFA was used. 19 patients needed urethroplasty. Median (IQR) follow-up was 33 (14-80) months. Within 30 days postoperative, 3 patients (10%) developed partial flap necrosis (Clavien-Dindo III). One patient (3.3%) had graft failure requiring redo phalloplasty (Clavien-Dindo III). Two patients (6.6%) developed an infected hematoma needing drainage (Clavien-Dindo III). One phalloplasty (3.3%) was complicated with hematuria and clot retention requiring bladder irrigation (Clavien-Dindo II). Long-term complications involved fistulas and strictures. Ten patients (33%) developed fistulas, of whom 6 (20%) needed urethroplasty. Seven patients (23%) had (an) urethral stricture(s), all needing urethroplasty or urethrotomy. All patients but one (97%) had erogenous sensitivity in the neo-phallus. All patients with urethroplasty reported normal, antegrade ejaculation. Sixteen (84%) voided through the urethra.

CONCLUSIONS

RFFA and ALT result in good erogenous sensitivity but fistulas and strictures are frequent.

S14-9 (SO)

IS PENO-DERMOPEXY AFTER PENILE DEGLOVING SUFFICIENT TO CORRECT A CONGENITAL WEBBED PENIS?

Mohamed NEGM [1] and Salah NAGLA [2]
1) SOUTH VALLY UNIVERSITY, PEDIATRIC SURGERY, Qena, EGYPT - 2) Tanta University, Urology, Tanta, EGYPT

PURPOSE

There is no standard operation for correction of all types of webbed penis. We aimed to evaluate the peno-dermopexy after penile degloving in correction of all grades of the primary webbed penis.

MATERIAL AND METHODS

This prospective study conducted on 107 patients from July 2016 to June 2019 at our departments. The patients were presented mainly for circumcision. We included all grades of primary non-circumcised webbed penis. The primary outcome was the absence of any degree of post-operative penile web. Under general anesthesia, all cases had complete penile degloving. Then the dartos attachment at the peno-scrotal junction was released. Thereafter, peno-dermopexy was accomplished using Vicryl 6/0 between the tunica on both sides lateral to the urethra to the nearby penile skin at the new penoscrotal junction without transfixing the penile skin. We did circumcision at the end of the procedure. Patients discharged at the same day. Follow-up visits were scheduled at one week, 2 weeks, 2 months and 6 months thereafter.

RESULTS

The median age was 9 (6-40 months), the median operative time was 40(30-65 minutes) and the median follow-up was 17 (6-36 months). We had 6 (5.6%) cases with self-limited post-operative penile edema, 2 (1.9%) wound infections and 3 (2.8%) cases had self-limited scrotal hematoma. At the 6 months follow-up, we had 3 cases with persistent grade (1) web; 2 were grade 3 and one was grade 2 pre-operatively with success rate 97.2%.

CONCLUSIONS

peno-dermopexy after penile degloving can correct all types of primary webbed penis with acceptable results

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10:00 - 10:36 **S15:** **FUNCTIONAL VOIDING DISORDERS AND ENURESIS 1 (parallel session, room 2)**
Moderators: Yazan Rawashdeh (Denmark)

S15-1 (SO)

★ A PROSPECTIVE AND RANDOMISED TRIAL OF EFFICACY AND SAFETY OF TRANSDERMAL OXYBUTYNIN VERSUS ORAL OXYBUTYNIN IN THE MANAGEMENT OF CHILDREN WITH OVERACTIVE BLADDER

Ahmet SEVINÇ [1], Ahmet ŞAHAN [1], Orkunt ÖZKAPTAN [1], Alkan ÇUBUK [1], Alper KAFKASLI [1], Cengiz ÇANAKÇI [1] and Onur TELLI [2]
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PURPOSE

Gold standard management of pediatric overactive bladder is oral oxybutynin. However, it can have significant side effects andcould be difficult withadministration.
In this study wesought to establish ourexperience with transdermaloxybutynin patches (TOP) as a viable alternative to oral oxybutynin.

MATERIAL AND METHODS

A total of 90 children, diagnosedwith overactive baldder (OAB) with minimum follow-up of 3 months aged 6-16 years oldwere randomly assigned in thisprospective study. Patientsidentified had trialled TOP or oral oxybutynin f or greater than 6 weeks and were followed.
A previously validated symptomscoring was collected to define improvement or resolution of lower urinary tract sym ptomsprevious and after boththeatments.

RESULTS

The mean age of the study groupwas 10.6 (range 6 to 16). %62 of the study group was female.Group 1 consist of children whoreceived oral oxybutinin (n=42) and group 2 consist of ch ildrenreceived TOP (n=41). Seven participants lost follow-up.
The mean age was 9.6 years in group1 and 11.2 years in group 2. There was no significantdifference with age, sex bla dder capacity and Qmax betweengroups. Before treatments, meansymptom score was 15.6 in oral oxybutinin group and 16.4 in group 2. Mean symptom scorewas 6.5 in oral oxybutinin groupand 5.2 in group 2 aftertreatment. There was no significant difference in symptomscore between groups beforeand after the treatments. The main side effect were reported as constipation and gastrointestinaldisturbances 19% and flushing11% in oral medication group. Of those treated with TOP reportedskin irritation 14% and rednessor itch 19%.

CONCLUSIONS

Our data suggest that TOP is a viable alternative for children withoveractive bladder compared tooral formulations of oxybutynin. Both treatment s have minimal side effects. The most significantlimiting factors for TOP is skin irritation These findings highlightthe potential benefit of transdermal drug delivery in the pediatric setting.

S15-2 (SO)

SAFETY AND EFFICACY OF DOXAZOSIN USE IN CHILDREN WITH POOR BLADDER EMPTYING

David KEENE
Royal Manchester Children's Hospital, Paediatric Urology, Manchester, UNITED KINGDOM

PURPOSE

Doxazosin is a selective alpha blocker. Cain et al. (J Urol 2003;170;1514-5) described its use in children to improve bladder emptying. Our aim was to assess a wider group of patients including those currently taking anticholinergic medications and post bladder surgery.

MATERIAL AND METHODS

Children with poor bladder emptying and urinary symptoms (infections, wetting) were started on doxazosin 1mg once daily. Poor bladder emptying was defined as post void residuals (PVR) persistently greater than 10% of pre-void volume on bladder scan without excessive drinking or high pre-void bladder volumes. Blood pressure was taken 30 minutes post dose. Doxazosin dosage was increased to 2mg if PVRs failed to improve after 6 months. Data collected prospectively 2017-2019, median (IQR).

RESULTS

63 patients were included in the study; 53 primary bladder dysfunction, 10 patients had previous bladder surgery. Minor side effects were reported in 7 patients (11%). 30 patients also took anticholinergic medications. The starting PVR was 37.8% (24.4-54.6) in the primary bladder dysfunction group, and 49.0% (27.1-56.7) in the previous bladder surgery group.

Post-treatment the PVR reduced significantly ($p<0.0001$) in the primary bladder dysfunction group to 10.6% (0-23.8)*. No difference in efficacy was seen between patients taking or not taking anticholinergic medications ($p=0.89$).

Underlying conditions	Primary bladder dysfunction	Previous bladder surgery
N of patients	53	10 (6 bladder exstrophy, 4 post ureteric reimplantation)
Age (yrs)	9.0 (7.1-11.0)	6.9 (3.4-10.3)
Symptoms	48 wetting, 5 UTIs	5 wetting, 5 UTI
Side effects	7 (3 headaches, 2 anxious, 1 nausea, 1 lost urinary control)	0
Pre-treatment PVR (%)	37.8 (24.4-54.6)*	52.5 (27.8-63.4)**
Post-treatment PVR (%)	10.6 (0-23.8)*	24.0 (10.0-25.0)**
Anticholinergic medications	26 patients (49%)	4 patients (40%)

$p<0.0001$,$p=0.08$

CONCLUSIONS

Doxazosin significantly improved bladder emptying in children with primary bladder dysfunction. Its efficacy was not limited by co-administration of anticholinergic medications. Previous bladder surgery may not restrict its use.

S15-3 (SO)

BIOFEEDBACK VERSUS METHYLPHENIDATE FOR THE MANAGEMENT OF GIGGLE INCONTINENCE IN CHILDREN. A PROSPECTIVE STUDY FROM TWO CENTERS.

Anthony KALLAS CHEMALY [1], Paul-Henri TORBEY [2], Bassam EID [2], Fouad AOUN [3], Darwich SERHAL [4], Marie-Thérèse MERHEJ [4], Alain KHALAF [5], Ghazi SAKR [5] and Maroun MOUKARZEL [3]
1) Hôtel-Dieu de France University Hospital, Paediatric Urology, Saint-Joseph University, Faculty of Medicine, Beirut, LEBANON - 2) Hôtel-Dieu de France University Hospital, Paediatrics, Saint-Joseph University, Faculty of Medicine, Beirut, LEBANON - 3) Hôtel-Dieu de France University Hospital, Urology, Saint-Joseph University, Faculty of Medicine, Beirut, LEBANON - 4) Mount Lebanon Hospital, Gharios Medical Center, Paediatrics, Hazmieh, LEBANON - 5) Mount Lebanon Hospital, Gharios Medical Center, Urology, Hazmieh, LEBANON

PURPOSE

Giggle incontinence (GI) is an embarrassing problem related to involuntary loss of urine during laughter. Pathophysiology remains unclear. The aim of our study is to evaluate success of biofeedback compared to methylphenidate (MPH) for the treatment of GI in children.

MATERIAL AND METHODS

Between 2015 and 2018, we prospectively enrolled 56 children complaining of GI. Patients with LUTS such as urgency or urge incontinence, UTI, enuresis, genito-urinary anomalies, constipation, treatment during the last three months and abnormal psychological evaluation were excluded. Patients were divided into two groups. Group A received biofeedback sessions once weekly. Group B were treated with MPH at a dose of 0.2 to 0.5 mg/kg daily. Response rate was defined according to the ICCS guidelines and evaluated at two months and at one year from treatment. MPH side effects were reported.

RESULTS

During this 3-year period, 41 patients were included (23 in group A and 18 in group B) with a follow-up of one year. The two groups were homogenous according to age, sex, weight and severity of GI. After two months from treatment, biofeedback showed better response (91% vs 44% as complete responders, p=0.002, 9% vs 50% as partial responders, p=0.005, and 0% vs 6% as non-responders, p=0.4 in group A and B respectively). All patients in group A had continued success after a maximum of 12 sessions. 37% of patients with complete response in group B had recurrence of GI remaining refractory to MPH treatment. Partial and non-responders in group B were switched to biofeedback treatment resulting in continued success after 12 sessions. MPH side effects such as decreased appetite and difficulty in falling asleep were reported in 22% of patients and were a cause of drug withdrawal in one child.

CONCLUSIONS

Treatment of GI is achieved with biofeedback sessions in a short period of time. MPH mostly offers a partial response and is associated with side effects. Biofeedback should be considered first line treatment for GI in children.

S15-4: Withdrawn (author request)

S15-5 (SO)

ARE CHILDREN WITH FOOD ALLERGIES MORE LIKELY TO HAVE IRRITATIVE LOWER URINARY TRACT SYMPTOMS?

Belinda LI [1], Madeleine M. SHERBURN [2], Sunny D. BELL [3], Alice M. ROTHMAN [3], Tara M. HUSS [3], Jill E. STEIGELFEST [3], Mark E. RAWLS [3], Rachel L. MACE [3], Stacy L. DORRIS [3] and Abby S. TAYLOR [1]
1) Vanderbilt University Medical Center, Pediatric Urology, Nashville, USA - 2) Vanderbilt University Medical Center, Nashville, USA - 3) Vanderbilt University Medical Center, Pediatrics, Nashville, USA

PURPOSE

Food allergies are among the most common health problems in children. There are anecdotal reports in the literature on food allergies manifesting as lower urinary tract symptoms (LUTS), inviting the question of whether or not a mast cell-mediated process as seen in interstitial cystitis may exist. Our objective was to investigate the association between food allergies and LUTS. We hypothesized that children with food allergies are more prone to irritative LUTS.

MATERIAL AND METHODS

Children (6-17 years old) presenting for routine visits to university pediatric allergy and general clinics were invited to participate. The food allergy group had documented positive skin prick tests and/or serum IgE tests. A control group without food allergies was recruited for comparison. The Vancouver Symptom Score (VSS), a validated questionnaire for diagnosing dysfunctional elimination syndrome in children, and PinQ questionnaire, a quality of life assessment tool for children with bladder dysfunction, were prospectively administered to participants. Both utilize Likert-based response formats.

RESULTS

A total of 26 children with food allergies and 57 without agreed to participate. There were no significant differences between groups in age, gender, or race. Nuts were the most common allergy. There was no difference in VSS between the allergy group (mean 7.7±2.4, median 8) and the control group (mean 8.3±4.2, median 8) (p=0.828). Using the VSS cut-off score of 11 indicating dysfunctional elimination, 4 children (15%) with food allergies and 15 controls (26%) had a score ≥11 (p=0.339). The two populations showed no differences in responses to any of the 13 questions in the VSS when assessed individually. Finally, there was no difference in PinQ scores, with a median score of 0 (IQR 0-2) in both groups.

CONCLUSIONS

We found no significant association between food allergies and reported LUTS in children. Our future work will extend to include seasonal allergies to further stratify additional patients.

15-6 (SO)

WHAT IF VOIDING DIARY WAS DONE FOR ONLY ONE DAY?

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PURPOSE

Voiding diary (VD) is an important tool in the evaluation of children with voiding symptoms. Recording all voiding and drinking episodes demands a great effort from parents and VD is often not done properly. Recently, ICCS has reduced the period of data recording on VD from 3 to 2 days and only one study has confirmed that both are similar. We hypothesized that one day voiding diary would be enough for evaluating and guiding treatment in children with Lower Urinary Tract Symptoms (LUTS).

MATERIAL AND METHODS

Children aged 5 to 14 years presenting with overactive bladder (OAB) and primary monosymptomatic enuresis (PME) were oriented to fulfill a 3-day VD as part of their evaluation. Data obtained from VD were evaluated for the first day (1dVD), the first two days (2dVD), and all 3 days (3dVD) and compared according to maximum voided volume (MaxVV), mean voided volume (MedVV), frequency, and night volume (NV) which include diaper weight plus first void in PME and first void in OAB children

RESULTS

98 children 8.23 ± 2,26 years old (53% males) were included. Of them, 59 had PME and 30 OAB. MedVV (1dVD: 91.9 ml; 2dVD: 94.8 ml; 3dVD: 93.4 ml) (p=0.13), frequency (1dVD: 6.8/day; 2dVD: 6.6/day; 3dVD: 6.6/day) (p=0.96), and VN (1dVD: 269.0 ml; 2dVD: 280.5 ml; 3dVD: 275.3 ml) (p=0.36) were similar regardless how many days the voiding episodes were recorded. Only MaxVV was higher by a mean of only 23 ml on 2dVD (202.2±73.3 ml) compared to 1dVD (179.2±76.5 ml) (p<0.01). MaxVV was 187.2 in 3dVD.

CONCLUSIONS

Although MaxVV was lower by a small volume in 1dVD we believe that for non-compliant families a 1dVD is enough for evaluating children with LUTS

10:45 - 11:22 **S16: FUNCTIONAL VOIDING DISORDERS AND ENURESIS 2 (parallel session, room 2)**
Moderators: Anne-Françoise Spinoit (Belgium)

S16-1: Withdrawn (video presentation not uploaded)

S16-2 (SO)

BRUXISM IN CHILDREN WITH BLADDER BOWEL DYSFUNCTION

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PURPOSE

Bruxism is a grinding or clenching of the teeth with a rhytmic or sustained contraction of the jaw muscles without patient awareness. Bladder-bowel dysfunction (BBD) symptoms such as enuresis, daytime incontinence, constipation and urinary tract infection are associated with joint hypermobility which is also a joint pathology. We aimed to investigate the relationship between bruxism and BBD in children.

MATERIAL AND METHODS

A total of 110 children with BBD symptoms were included in this study. All patients were evaluated with non-invasive diagnostic tools (Voiding diary, uroflowmetry with pelvic floor EMG, urinalysis, ultrasound and pelvic-floor physical examination). Bruxism was diagnosed by history and comfirmed with physical examination. Patients were divided into 2 groups based on the existence of bruxism (group-1 with bruxism and group-2 without bruxism) and were compared according to the demographic and clinical characteristics.

RESULTS

Bruxism was detected in 37 children (33,6%). Mean age was 8,3±2,9 in group-1 and 8,9±3 in group-2 (p=0,964). Gender distribution (M/F) was 19/18 (51%/49%) in group-1 and 44/29 (60%/40%) in group-2 (p=0,218). Daytime incontinence and urgency were statistically significantly higher in group-1. Dysfunctional voiding and bowel symptoms (constipation, soiling or fecal incontinence) were more common and enuresis was less common in children with bruxism (group-1). Additionally, pelvic floor muscle (PFM) tonus increased in group-1.

Parameters	Group-1, n(%)	Group-2, n(%)	p Value
Daytime incontinence	24(65)	38(52)	0,013
Urgency	32(87)	46(63)	0,0001
Enuresis(MNE)	4(10,8)	19(26)	0,175
Dysfunctional voiding	16(43,2)	18(24,7)	0,035
Bowel dysfunction	23(62,2)	31(42,5)	0,052
Increased pelvic floor muscles tonus	32(87)	26(35,6)	0,0001

CONCLUSIONS

Children with bruxism are more likely to have pelvic floor dysfunctions such as dysfunctional voiding and bowel dysfunction. In addition, they have increased PFM tonus. Therefore, PFM evaluation and pelvic floor rehabilitation are crucial for children with bruxism.

S16-3: Withdrawn (author request)

S16-4 (SO)

ANALYSIS OF FAMILY HISTORY OF 239 PNE IN YOUNG ADULTS IN MAINLAND CHINA

Jian Guo WEN [1], Hui Jie HU [2], Zhen Wei ZHANG [3], Yu LIANG [1], Yan Yan LUO [2], Qi Feng DOU [1], Cui Ping SONG [1] and Soren RITTIG [4]
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PURPOSE

The aims of the present study were to investigate the prevalence of genetic primary nocturnal enuresis (PNE) and its prevalence and genetic pattern of Chinese young adults.

MATERIAL AND METHODS

A total of 22,500 university students (aged 17-21 year 6,583 boys and 13,762 girls) from 23 provinces and 368 cities in mainland China were included. The survey was conducted using an anonymous questionnaire to collect the information.

RESULTS

In total,21,082 questionnaires were collected, and 20,345(89.3%) qualified for statistical analysis. 239 adolescents (88 boys and 151 girls) with PNE were identified. A total of 33.89% cases shown a family history, and the positive rates of male and female were 32.95% and 34.43%, there was no significant difference between them ($P > 0.05$), excluding sex chromosome inheritance. Including 24.69% of fathers, 20.99% of mothers, 4.94% of both parents, 27.16% of the siblings and 22.22% of grandfathers or (and) grandmothers. Among them,41 (17.15%) families were autosomal dominant inheritance, 22 (9.21%) families were autosomal recessive inheritance, and 176 (73.64%) families with PNE were sporadic. The prevalence of UTI, severe PNE and daytime voiding symptoms in patients with

family history of PNE were significantly higher than those without (P < 0.05). However, there was no significant difference in the prevalence of sex, residence and sleep arousal disorder between the two groups (p > 0.05).

CONCLUSIONS

PNE has obvious family aggregation and a variety of genetic patterns coexist. One third of young adults PNE show a family history indicating that more active intervention should be given to those of cases in childhood.

S16-5 (SO)

PREVALENCE, RISK FACTORS AND PSYCHOLOGICAL EFFECTS OF PRIMARY NOCTURNAL ENURESIS IN CHINESE YOUNG ADULTS

Hui Jie HU [1], Jian Guo WEN [2], Zhen Wei ZHANG [3], Yu LIANG [2], Yan Yan LUO [1], Qi Feng DOU [2], Cui Ping SONG [2] and Soren RITTIG [4]
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PURPOSE

The aims of the study were to investigate PNE prevalence, risk factors and effects on mental health and quality of life in young adults in mainland China.

MATERIAL AND METHODS

The survey was conducted using an anonymous questionnaire to collect the information at registration time. A total of 22,500 university students (aged 17-21 years) from 23 provinces and 368 cities in mainland China were included in this study.

RESULTS

In total, 21,082 questionnaires were collected, and 20,345 qualified for statistical analysis. The overall prevalence of PNE was 1.17%. The prevalence was 1.0% and 1.2% in students from urban and rural areas, their difference is not significant. The prevalence of PNE in individuals with genetics, urinary frequency, urgency, UI, a history of UTI and a present UTI increased significantly compared to those without these condition (P<0.001). The prevalence of monosymptomatic nocturnal enuresis (MPNE) and nonmonosymptomatic nocturnal enuresis (NMPNE) was 66.1% and 33.9%. In total, 28% reported bedwetting daily, 31.6% reported one time≦weekly<7 times, and 40.4% reported one time≦monthly<4 times; 80% of PNE patients had not previously sought treatment. PNE was significantly correlated with the PSQI total score (sleep quality) (P=0.011). The self-esteem score was lower and the depression scale score was higher (P<0.001) in the PNE group than in the non-PNE group.

CONCLUSIONS

In mainland China, the PNE prevalence in young adults is high and shows a significant impact on physical and mental health. Its risk factors are genetics, daytime voiding symptoms and lack of treatment.

S16-6 (SO)

PARASACRAL TRANSCUTANEOUS ELECTROSTIMULATION IN TREATMENT OF BOWEL AND BOWELL DYSFUNCTION: A RANDOMIZED CLINICAL TRIAL

Glicia ABREU [1], Leonardo SOUZA [2], Ananda NUNES [3], Maria Luiza VEIGA [3], Eneida DOURADO [1] and Ubirajara BARROSO JR. [4]
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PURPOSE

To test the hypothesis that parasacral transcutaneous ENS (TENS) applied in children/adolescents with BBD is associated with clinical improvement and to analyze the effect of rectal diameter on this response.

MATERIAL AND METHODS

This is a randomized, blinded clinical trial. Inclusion criteria: Children and adolescents diagnosed with BBD. Exclusion criteria: Patients with anatomical or neurological changes in the urinary tract, unable to undergo treatment three times a week, using anticholinergic drugs or laxatives. The sample was divided into two groups: Control group (CG=urotherapy + scapular-sham electrotherapy) and treatment group (TG=urotherapy + parasacral TENS). DVSS and Rome IV criteria was applied for lower urinary tract symptoms and constipation evaluation, respectively. Pelvic ultrasonography measured the rectal diameter.

RESULTS

Forty patients were studied: 20 patients in CG and 20 patients in TG (mean age of 8.4± 2.8years), 52.5% male. The mean rectal diameter was 2.9 ± 0.9 cm. Both groups showed improvement of DVSS after interventions (ΔCG = -7.7 X Δ GT = - 8.9; p = 0.49). In intragroup evaluation, TG showed a marked improvement in enuresis after treatment (p = 0.03). TG showed significant improvement in constipation compared to CG after intervention (80% X 20%, p <0.001). The measurement of rectal diameter before and after treatment did not influence the presence and intensity of LUTS before and after treatment, and it is also not a predictive factor for post-treatment CF maintenance.

CONCLUSIONS

Parasacral TENS is effective as an initial therapeutic approach in children and adolescents with BBD, particularly with regard to CF. Although electrostimulation promotes the improvement of LUTS, this result does not differ from isolated behavioral treatment. Rectal diameter did not influence response to treatment. This is the first randomized clinical trial to test the effect of TENS on BBD.

S16-7 (SO)

A COMPARISON OF TWO SUBJECTIVE INSTRUMENTS USED TO EVALUATE THE OUTCOME OF CHILDREN TREATED FOR OVERACTIVE BLADDER

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PURPOSE

The treatment of overactive (OAB) bladder in children is measured subjectively by different instruments, being the Visual Analogue Scale (VAS) and the Dysfunctional Voiding Symptom Score (DVSS) the most used. The success rate after treatment might varied according to instruments used. The aim of this study is to analyze the correlation between these two instruments used to assess the treatment outcome of children with OAB.

MATERIAL AND METHODS

This study includes children between 4-17 years old with OAB diagnosis who underwent 20 sessions of transcutaneous (TENS) our percutaneous (PENS) eletrical nerve stimulations. The Dysfunctional Voiding Symptom Score (DVSS) was applied before and after treatment and calculated the percentage of improvement. At the end of the last session, the percentage of improvement was assessed using the Visual Analogue Scale (VAS) (0-100%) by physiotherapy and medical students separately.

RESULTS

We evaluated 49 subjects, 28 boys, with an age of 7.12 ± 2.7 years. The Bland-Altman plot showed good agreement between VAS physiotherapists and medical students, showing a variation(bias) of 8.4%. Also we observed a significant correlation between percentage of DVSS improvements and VAS(r = 0,39 p= 0,01). Furthermore VAS showed good discriminatory accuracy in identifying who had a complete response (100%) with the area under the ROC curve of 75% [61-89]CI95%. VAS≥80 had a sensitivity of 89% and a specificity of 55% in this scenario

CONCLUSIONS

Conclusion: VAS is a reproductible instrument and can be used as a tool in the evaluation of the improvement of urinary symptoms after treatment in children with OAB, Although some discordance with the DVSS is expect.

11:45 - 12:21 **MWC: MY WORST COMPLICATION**
Moderators: Ram Subramaniam (UK)

MWC-1 (SO)

RECURRENT UNILATERAL SCROTAL INFECTION IN A 19 MONTHS OLD BOY AFTER STAGED HYPOSPADIAS REPAIR

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Erasmus MC - Sophia Children's Hospital, Paediatric Urology, Rotterdam, NETHERLANDS

ABSTRACT

A full-term neonate with prenatal atypical genitalia was referred to our multidisciplinary DSD center. Postnatal diagnosis was scrotal hypospadias with bifid scrotum containing testes. Karyotyping is 46,XY; steroid hormones and Sertolicell markers were within the normal male range. DNA analysis (WES-DSD-panel) showed an UV (unclassified variant) in GATA4 gene: c.857C>T, p.(Ala286Val).

He underwent a two-staged hypospadias repair at the age of 10 and 17 months, respectively. Cystoscopy prior to stage 2 showed an enlarged utricle with a rudimentary cervix.

Three weeks postop he presented with a red and painful left scrotum with a positive urine culture (E. coli) treated with oral AB (fluoroquinolone). He recovered quickly and completely. Urine culture was positive (E. coli >10e5).

Eight weeks postop, in the middle of the 1st Covid-19 pandemic wave, parents discovered a swelling in the left hemiscrotum, with leakage of urine from the urethral meatus when touched, diagnosed as a urethral diverticulum. Eleven weeks postop he developed a red, painful left hemiscrotum with subfebrile temperature. Ultrasound showed a thickened scrotal wall and left spermatic cord next to the urethral diverticulum. with Urine culture was negative. He was treated with antibiotics on suspicion of a UTI complicated by an epididymitis due to a urethral diverticulum. Urine culture was negative.

Three months after the 2nd hypospadias repair he underwent operative correction of the urethral diverticulum. Remarkable was that there was no meatal stenosis. Postop cystography showed no opacification of the enlarged utricle. However, 4 weeks after diverticulum repair he had a recurrent left scrotal inflammation, on US interpreted as an infected scrotal hematoma. He was treated with AB and scheduled for reoperation.

Four months after the 2nd hypospadias correction cystoscopy, laparoscopy and left inguinal exploration were performed. As for the latter, the local anatomy was completely unrecognizable, necessitating orchidectomy. Pathology showed a dysgenetic testis and epididymis surrounded by connective tissue and cystic structures,

probably Müllerian remnants. it is remarkable that the chronic inflammation is mainly located around these cystic structures. During 3 months follow-up he remained asymptomatic. Parents consented to excise the internal Müllerian structures in case of future recurrences.

Why sharing this complex with colleagues? This case teaches us some of the many diagnostic problems we sometimes encounter in children with DSD.

1. Scrotal inflammation can be difficult to distinguish from a urethral diverticulum.
2. A urethral diverticulum can arise in the absence of a meatal stenosis.
3. A patient with proximal hypospadias and bilateral testes in the scrotum may still have a DSD.
4. A fully descended testis can be dysgenetic gonad.
5. It appears that the GATA4 UV is pathogenic (mutation) in this case, despite normal serum hormone levels.
6. Although the cause of inflammation of the left gonad remains unclear, the abnormal anatomy of the urethra (diverticulum, utricle) has probably contributed to the recurrent inflammation.

WC-2 (SO)

RECONSTRUCTION OF THE MALE URETHRA, FOLLOWING ACCIDENTAL RESECTION OF THE URETHRA DURING A POSTERIOR SAGITTAL ANORECTOPLASTY

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University Hospital Erlangen, Clinic of Urology and Pediatric Urology, Erlangen, GERMANY

INTRODUCTION

Posterior sagittal anorectoplasty (PSARP) is the gold standard for cases of rectourethral fistula and imperforate anus. Injury to the urethra has been described as one of the most common complications.

CASE-REPORT

We report the case of an eight-month-old boy with a congenital rectourethral fistula and imperforate anus that underwent PSARP in the department of pediatric surgery in our hospital. The procedure was conducted without the placement of a urethral catheter in the bladder. Following the surgery, continuous drainage of urine via the intra-abdominal drain was observed. The attempt to place a urethral catheter in the bladder was unsuccessful and cystoscopy revealed occlusion of the bulbar urethra. Repeated sonography showed an empty bladder, making the placement of a suprapubic catheter impossible, so that emergency vesicostomy was performed. Cystography revealed leakage through a lesion of the bulbar urethra. During re-operation an iatrogenic defect of the bulbar urethra of approximately 1 cm was detected. A tension-free end-to-end anastomosis of the urethra was only possible on the ventral circumference of the urethra. The dorsal defect was overbridged by using the remaining stump of the rectourethral fistula. The anastomosis was covered with a pedicle flap of tunica vaginalis harvested from the scrotum and pulled through the pelvic floor. A control-cystoscopy and a urethrography were performed eight-weeks after, showing no sign of leakage or stenosis.

CONCLUSIONS

The correct placement of a urethral catheter in the bladder is obligatory in PSARP and is the best way to avoid injury to the urethra.

MWC-3 (SO)

RESOLVING GLANDULAR VENOUS CONGESTION POST HYPOSPADIAS WITH LEECH THERAPY

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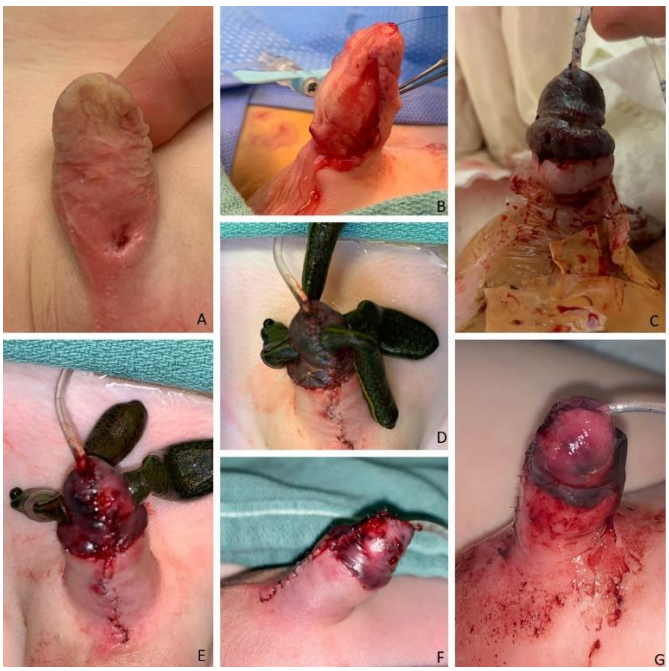
PURPOSE

A two and half year-old boy was taken to the operating room for second stage hypospadias repair 8-months following his first stage hypospadias repair with preputial graft for proximal hypospadias with severe ventral cordee. Graft was supple and initial dissection was uneventful. Intraoperative erection testing demonstrated a distal cordee <30 degrees. A small dorsal plication (DP) was completed using 5-0 PDS along the midline under the neurovascular bundle (NVB). The single DP stich was placed under the intact NVB so as to cause minimal disruption from dissecting the bundle along the midline. The graft was tubularized over an 8-Fr feeding tube with running 7-0 PDS, and additional layer of spongiosum was closed over the neourethra using interrupted 7-0 PDS. A tunica vaginas flap was developed and used as additional covering. Glans was closed in two layers, first a subcutaneous layer was closed using 6-0 PDS, and second the glans skin was closed using interrupted 7-0 PDS. The skin was closed along midline in two layers with the subcutaneous layer closed using 6-0 PDS and the skin proper closed using 7-0 PDS in an interrupted fashion.

Immediately postoperatively venous congestion was noted. Puncture with fine needle demonstrated dark venous blood. A decision was made to take the patient back to the operating room to examine under anesthesia, and release constricting sutures to improve venous drainage. During take-back, no definitive constricting sutures were found. NVB was intact and healthy. However, small clots were found under the glans which confirmed the diagnosis of venous congestion. With diagnosis confirmed, leech therapy was started intraoperatively, and improvement was observed to the quality and color of the glans. Improvement persisted, and venous congestion resolved. Patient was admitted for observation and discharged on post-operative day two.

FIGURES



A) Initial preoperative penis demonstrating graft take. B) Intraoperative erection test to demonstrate distal cordee with simulated correction by dorsal plication by forceps. C) Postoperative assessment of penis with signs of venous congestion with darkened glans penis. D) Intraoperative picture of leeches applied to the glans to relieve venous congestion. E) Leeches engorged and releasing post “feeding” with interval improvement of the venous congestion to the glans. F) Immediate post leech therapy with improvement of venous congestion to the glans. G) Post-operative day one glans shows continued improvement and resolution of venous congestion.

MWC-4 (SO)

URETERIC TRAUMA DURING MINI PCNL

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Sindh Institute of Urology & transplantation, Philip G. Ransley Department of Paediatric Urology, Karachi, PAKISTAN

PURPOSE

Ureteric trauma during PCNL is a possibility. A delay in a diagnosis and inappropriate treatment are the contributing factors for increased morbidity of ureteric injury. Timely recognition and proper management can salvage the kidney and further complications.

METHODS

A case of two-year-old boy with bilateral renal stones and forgotten encrusted JJstent. Under general anaesthesia, encrusted lower end of right JJstent removed from the bladder. Retrograde uretero-pyelogram revealed dilated irregular ureter, encrusted upper end of JJstent and renal stones. In prone position Mini PCNL was performed with 14 Fr. Amplatz sheath and 12 Fr. Nephroscope from posterior superior calyx. During procedure few fragmented stones migrated into the proximal ureter. Nephroscope negotiated into the proximal ureter and fragments removed by grasping forceps. During nephroscope retrieval complete ureteric transection at the level of pelviureteric junction was observed.

RESULTS

The plan was made for immediate exploration. Uretero-pelvic anastomosis with JJ stenting was done. Stent removal and ureterorenoscopy was performed after three weeks which revealed patent PUJ.

CONCLUSION

Negotiation of small size nephroscope through even dilated PUJ is not without risk. Immediate recognition and proper management gives good results and prevent further complications.

MWC-5 (SO)

AORTIC INJURY DURING UMBILICAL PORT PLACEMENT FOR IMPALPABLE TESTIS - MANAGEMENT AND OUTCOME

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ABSTRACT

A two-year old child was taken up for laparoscopy for an impalpable testis. A bladed trocar was inserted in the upper margin of the umbilicus. As the skin was wet, upward traction (on abdomen) was momentarily lost and the trocar plunged in sharply. Shortly thereafter the anesthestist reported that blood pressures were dropping rapidly and the pulse oximeter on the leg was not recording. The abdomen was rapidly opened and pressure applied in the midline till a blood transfusion could be started and a vascular surgeon could be summoned. Thirty minutes later the vascular surgeon arrived and identified a through and through stellate stab wound in the infra-renal segment of the aorta just below the inferior mesenteric artery. After cross clamping this was repaired and flow restored to the pelvis and legs. A stab injury to the small bowel was identified and repaired. Post operatively the child made a complete recovery and returned four years later to complete the laparoscopic repair of the undescended testis. This case is presented to highlight the danger of blind insertion of a bladed trocar (especially at the umbilicus) and to highlight the value of teamwork in salvaging a major vascular catastrophe.

MWC-6 (SO)

FATAL FECAL IMPACTION

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CASE

Female pediatric patient born with a cloacal anomaly and agenesis of right kidney. She was managed neonatally (elsewhere) with a colostomy and later in infancy with PSARP, and an ileal neovagina. Initially presented to our Department at the age of 7 years due to urinary and fecal incontinence. Urological work-up showed an irregular urethra, retracted vaginal opening, left sided grade III reflux, open bladder neck and dysfunctional voiding. MRI showed tethering of the cord but neurosurgical review deemed detethering unnecessary. Initially, managed conservatively, but due to worsening urodynamics and incontinence management with anticholinergics and a Mitrofanoff / MACE channel was suggested to and declined by the family. Urinary incontinence and constipation worsened progressively, hence bowel management with laxatives was intensified. After a long absence the patient re-presented with abdominal pains, urinary tract infection and signs of chronic renal failure 13 years old. Ultrasound showed a dilated left kidney and ureter and creatinine was 305 µmol/L. Following transurethral catheter diversion and institution of anticholinergic therapy there was a slight improvement. However due to a Cr EDTA clearance of 15 % and a weight and hight 4 SD below normal she was put on the renal transplant list and reconstruction of lower urinary tract was planned. At the age of 14 years a laparotomy with an intention to perform ileocystoplasty and continent urinary diversion was performed. Peropertaive findings of a fecally impacted dilated colon from the cecum to the rectum rendered continuation of the procedure too risky. The left ureter was seen to be compressed by the dilated sigmoid colon, so an open insertion of JJ stent through the bladder was performed and reconstruction was aborted with the intention to return after bowel management was complete. Postoperative course was initially smooth, with minimal pain and slowly decreasing serum creatinine, so laxative management was initiated on third postoperative day. The patient started complaining of abdominal pain the following day's evening. The pain waxed and waned but ultimately intensified on fifth postoperative day where after she started vomiting and clinically was found to have signs and symptoms of peritonitis. An emergency CT scan was performed which showed a severely dilated fecally impacted colon (figure 1) with a diameter of 9 cm. This was rapidly followed by loss of consciousness and convulsions. The patient was crash intubated and transferred to the ICU and emergently taken to theatre where colonoscopic desufflation was attempted unsuccessfully. On subsequent urgent laparotomy a necrotic dilated colon (figure 2) was encountered and total colectomy was performed. Second -look procedure on the following day was undertaken revealing small bowel, rectal and duodenal necrosis. Necrotic bowel was resected but unfortunately the patient subsequently developed disseminated intravascular coagulopathy, multiorgan failure and deceased later that day.

CONCLUSIONS

constipation in patients with neuropathic bowel needs to be taken seriously and managed adequately. Toxic megacolon in pediatric patients with neuropathic bowel is an ominous development that can be fatal.

FIGURES

Figure 1

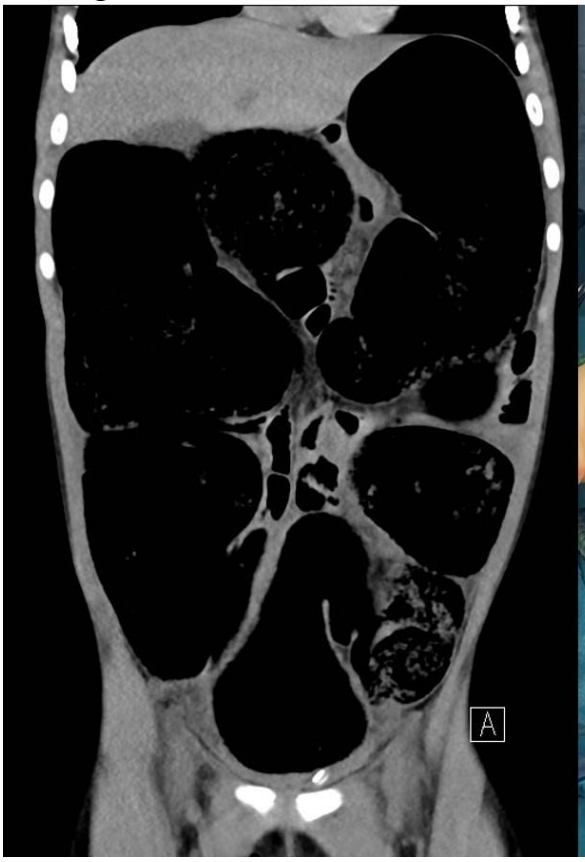
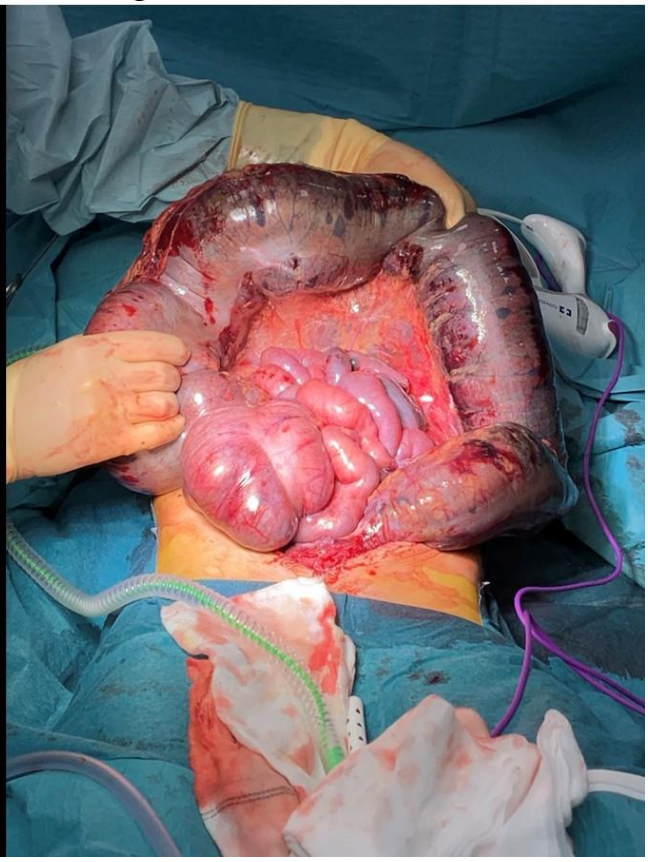


figure 2



12:25 - 13:19 **S17:** **HYPOSPADIAS**
Moderators: Gianantonio Manzoni (Italy)

S17-1 (SO)

THE TWO-STAGE PROXIMAL HYPOSPADIAS REPAIR: AN ANALYSIS OF COMPLICATIONS IN REGARDS TO FINAL MEATAL POSITION AFTER THE URETHROPLASTY.

Antonio MACEDO JR [1], Sergio OTTONI [2], Gilmar GARRONE [2], Ricardo MATTOS [2] and Marcela LEAL DA CRUZ [2]
1) Federal University of São Paulo and NUPEP/CACAU, Urology, São Paulo, BRAZIL - 2) NUPEP/CACAU, Urology, São Paulo, BRAZIL

PURPOSE

Complex hypospadias repairs treated after the division of urethral plate is mostly treated in two-stages. We believe that most patients irrespectively of initial meatus location (penoscrotal, escrotal) can be treated in only two procedures if we do not push to place the neomeatus distally in the glans.

MATERIAL AND METHODS

We reviewed our two-stage repairs based on the Thiersh-Duplay principle done according to the flap-as-a-graft technique or the classic Thiersh-Duplay, where the dorsal foreskin is divided in the midline and transposed to ventral surface. The second stage consisted of U-urethroplasty and creation of a barrier layer with a tunica vaginalis flap. The distal urethra was placed in the proximal glans third or even coronal area without embracing the neourethra completely with the glandular wings. An indwelling silicone catheter was left for 7-10 days.

RESULTS

We treated 48 patients at a median age at the surgery of 9 months at first operation (1 to 184 months). Penoscrotal transposition was corrected at first operation by 28 patients and orchidopexy by 15 patients. We found

complications after urethroplasty in only 5 patients (10.4%) consisting of four fistulas (8.3%) and one distal urethra dehiscence (2%). Mean follow up was 44.5 months (1 to 94 months).

CONCLUSIONS

Based on our results, we believe that in complex proximal hypospadia repair, the final position of urethral meatus not creating flow resistance to stream may contribute to lower complications and 90% of effectiveness of treatment in two stages.

S17-2: Withdrawn (video presentation not uploaded)

S17-3 (SO)

SHOULD A COVER FLAP BE USED SYSTEMATICALLY FOR URETHROPLASTY WHATEVER THE SEVERITY OF HYPOSPADIAS?

Benoit TESSIER [1], Sami SFAR [1], Margot OLIVIER [1], Sarah GARNIER [1], Paula BORREGO [1], Christophe LOPEZ [1], Cyril AMOUROUX [2], Françoise PARIS [3] and Nicolas KALFA [1]
1) CHU Lapeyronie, Service de chirurgie et urologie pédiatrique, Reference center for rare disease Genital Development (south), Montpellier, FRANCE - 2) CHU Arnaud de Villeneuve, Service Pédiatrie, Reference center for rare disease Genital Development (South), Montpellier, FRANCE - 3) CHU Lapeyronie, Service Pédiatrie, Reference center for rare disease Genital Development (South), Montpellier, FRANCE

PURPOSE

Interposition of a well-vascularized tissue between the penile skin and the neourethra has been advocated to prevent urethro-cutaneous fistula in hypospadias repair. Since some previous studies do not include comparable phenotypes and lack control groups, it remains unclear when a cover flap should be used. The aim of this case control study was to evaluate the impact of urethral covering with a vascularized tissue according to the severity of hypospadias and to determine which patients should benefit from this technique.

MATERIAL AND METHODS

A retrospective comparative study on patients with a primary hypospadias repair was performed (2011-2017). Only patients undergoing urethroplasty based on the principle of a tubularization were selected to ensure comparable groups. Patients were assigned in two groups according to the use or not of a cover flap. The cover layer used the deepithelialized foreskin or a vaginal flap according the available tissue.

RESULTS

366 patients were included with anterior (58,2%), midshaft (25,9%) and posterior hypospadias (15,9%). Outcomes with (n=194) and without flap (n=172) were compared. The overall rate of fistula was reduced with flap (p=0,002). Whereas the severity of hypospadias is a risk factor for fistula without flap (p=0.02), it is no longer when uretroplasty is covered (p=0.32). When stratifying the results according to the severity of hypospadias, the flap significantly reduces the risk of fistula in each group but its effectiveness is not homogeneous. The risk of fistula is dramatically reduced in posterior forms (OR:5.85) but midpenile and anterior hypospadias still benefit from this technique (OR 3.69 and 3.37 respectively).

CONCLUSIONS

The more severe the hypospadias is, the more effective the cover flap is. But all forms of hypospadias - included minor forms - benefit from this technique with a significant reduction of the fistula risk. A cover flap should be used systematically in all hypospadias repairs.

S17-4 (SO)

PROSPECTIVE EVALUATION OF INCOMPLETE PENILE DEGLOVING IN THE REPAIR OF REDO DISTAL HYPOSPADIAS USING TWO TECHNIQUES

Salah NAGLA [1], Mohamed NEGM [2], Mahmoud ELREFAEY [1], Mohamed A. OMAR [1], Mohamed GHALWASH [1] and Ayman RASHED [3]
1) Tanta University, Urology, Tanta, EGYPT - 2) SOUTH VALLY UNIVERSITY, PEDIATRIC SURGERY, Qena, EGYPT - 3) 6th October University, Urology, Tanta, EGYPT

PURPOSE

Many surgeons favor the modified Mathieu over the Snodgrass technique because of the shorter operative time and the less degloving. Our aim was to compare the results of the modified Mathieu versus the Snodgrass technique in the redo distal hypospadias using the incomplete penile degloving

MATERIAL AND METHODS

We used the incomplete penile degloving technique in 90 patients from December 2017 to November 2019 at our department to repair the redo distal hypospadias. Patients were randomized into two equal groups each had 45 patients: group (1) Modified Mathieu technique utilizing the sub-epithelial dartos preservation and group (2) Snodgrass technique. Cases with redo distal hypospadias, glans size ≥14 mm, and without penile curvature were included. We excluded the shallow urethral plate, deficient ventral penile skin, cases that needed complete degloving and penile rotation. The primary outcome was the development of fistula. The success meant there was no need to re-operate

RESULTS

Both groups were comparable in regard to Age (median 34&32 months), urethral plate length and width, operative time (median 52 &50 minutes) and follow-up periods (median 15&14 months). in both groups, cases which needed reoperation were 4 &5 respectively.Two fistulae and 2meatal recessions in group (1) and 2 fistulae, 2 urethral strictures and one meatal stenosis in group (2). The success was comparable in both groups (91.8 vs88.9%)

CONCLUSIONS

incomplete penile degloving is affordable in the repair of the redo distal penile hypospadias without penile curvature using the modified Mathieu or Snodgrass technique. Each technique is not superior to the other in regard to operative time and success rate

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17-5: Withdrawn (author request)

S17-6 (SO)

★ NON-INVASIVE ASSESSMENT OF VASCULAR FUNCTION IN ADOLESCENTS WITH HYPOSPADIAS

Angela LUCAS-HERALD [1], Malika ALIMUSSINA [1], Stuart O'TOOLE [2], Martyn FLETT [2], Katriona BROOKSBANK [3], Christian DELLES [3], Syed Faisal AHMED [1] and Rhian TOUYZ [3]
1) University of Glasgow, Developmental Endocrinology Research Group, Glasgow, UNITED KINGDOM - 2) Royal Hospital for Children, Paediatric Urology, Glasgow, UNITED KINGDOM - 3) Institute for Cardiovascular and Medical Sciences, BHF Centre for Research Excellence, Glasgow, UNITED KINGDOM

PURPOSE

Men with hypogonadism exhibit increased cardiovascular risk. Hypospadias is often associated with hypogonadism but it is not clear whether it is associated with adverse cardiovascular outcomes. Non-invasive ultrasound assessments offer the opportunity to assess this in children and adolescents.

MATERIAL AND METHODS

Boys aged 12-18 years were recruited. Cases were boys with proximal hypospadias who had undergone surgical repair for this. Controls were boys who had undergone review for constitutional delay of puberty but had not required intervention or healthy volunteers. Vascular assessment was undertaken for blood pressure, subclinical atherosclerosis (carotid artery intima media thickness (CIMT)) and endothelial function (flow mediated dilatation (FMD)).

RESULTS

14 cases and 14 age and puberty matched controls were recruited (median age (range) 14 (12, 18.5) years). All cases had normal gonadal function at the time of the study. Cases had increased systolic blood pressure standard deviation score (SDS) compared to controls (median (range) 1.4 (-0.7, 2.7) vs 0.2 (-0.7, 0.8), $p<0.01$) but no difference in diastolic blood pressure SDS (median (range) 0.3 (-2.1, 1.6) vs 0.1 (-0.7, 0.8), $p=0.8$). In addition, cases had increased CIMT SDS (median (range) 1.6 (0.7, 2.0) vs 1.2 (-1.2, 2.0), $p<0.05$). There was no difference in FMD score (median (range) 5.7 (2.4, 11.1) % vs 4.1 (2.1, 11.7), $p=0.4$).

CONCLUSIONS

The novel finding of increased CIMT and systolic blood pressure in boys with a history of proximal hypospadias and normal gonadal function raises questions about the aetiological link between hypospadias and cardiovascular disease and highlights the need for longitudinal studies.

17-7 (SO)

HYPOSPADIAS IS A PREDICTOR OF ADVERSE CARDIOMETABOLIC RISK IN ADULTHOOD - A CASE-CONTROL STUDY

Angela LUCAS-HERALD [1], Sandosh PADMANABHAN [2], Katriona BROOKSBANK [2], Linsay MCCALLUM [2], Augusto MONTEZANO [2], Rhian TOUYZ [2] and Syed Faisal AHMED [1]
1) University of Glasgow, Developmental Endocrinology Research Group, Glasgow, UNITED KINGDOM - 2) Institute for Cardiovascular and Medical Sciences, BHF Centre for Research Excellence, Glasgow, UNITED KINGDOM

PURPOSE

Abnormal development of the genital tract during the first trimester can lead to hypospadias. Since poor fetal development may also be associated with long-term effects on cardiometabolic outcome, we questioned whether adults with a history of hypospadias are at increased risk of long-term cardiovascular and metabolic disease. This retrospective study determined if hypospadias is associated with increased risk of cardiometabolic disease later in life.

MATERIAL AND METHODS

Cardiovascular and diabetes admissions data were extracted through record linkage for all males with a history of hypospadias (ICD10 Q54) from 1981 to 2019 through the NHS Scotland Information Services Division. Men were excluded from analysis if there was a previous history of congenital heart disease. Multivariate analysis was performed adjusting for birthweight, gestation, antenatal steroids, maternal diabetes, maternal smoking and deprivation index using SPSS v22.

RESULTS

Admission data on 1,728 men with hypospadias and 8,073 matched controls were reviewed. Men with hypospadias had a 3- fold higher risk of arrhythmia (OR [95% CI] 2.8[1.4-5.6], $p<0.001$); 3-fold higher risk of hypertension (OR [95% CI] 4.2[1.5-11.9], $p<0.05$) and 2-fold higher risk of heart failure (OR [95% CI] 1.9 [1.7-114.3], $p<0.05$). There were no statistically significant differences in admission rates for angina, diabetes, ischaemic heart disease, myocardial infarction, peripheral arterial disease, renal failure or stroke.

CONCLUSIONS

Men with a history of hypospadias are at significantly increased risk of admission for treatment for hypertension, arrhythmia and heart failure. The mechanisms underlying this observed increase are unclear and merit further evaluation.

17-8 (SO)

TOPICAL TESTOSTERONE IN PROXIMAL HYPOSPADIAS, DOES IT WORTH ?

Islam WALI [1], Mohamed ABDEL SATTAR [2], Wael GHANEM [2], Amr ABOU ZEID [2], Nehal RADWAN [3], Mamdouh AHMED [4] and Osama AL NAJJAR [2]
1) BENHA CHILDREN HOSPITALEGYPT, PEDIATRIC SURGERY, Kalyobia, EGYPT - 2) AIN SHAMS UNIVERSITY, CAIRO, EGYPT, PEDIATRIC SURGERY, Cairo, EGYPT - 3) AIN SHAMS UNIVERSITY, CAIRO, EGYPT, PATHOLOGY, Cairo, EGYPT - 4) IBN SINA HOSPITAL / AIN SHAMS UNIVERSITY, PEDIATRIC SURGERY AND UROLOGY, Kuwait, KUWAIT

PURPOSE

To evaluate the effect of preoperative application of testosterone transdermal gel on the outcome of hypospadias surgery in children with proximal hypospadias, with clarifying the possible histopathological difference.

MATERIAL AND METHODS

This a prospective study included 40 patients with proximal hypospadias with small glans(glanular width < 14mm). Patients were divided in to two equal groups randomly; Group (A) patients who received topical testosterone 1% before surgery, Penile parameters were measured before and after hormonal therapy ; Group (B) patients who didn't receive hormonal therapy. Genital skin biopsies were taken from inner foreskin during repair from all patients. Surgical repair was done in single or two stages. Paraffin blocks were prepared, Morphometric studies were done by Olympus Soft Pro Software. Additional sections were cut from paraffin blocks and were immunostained for commercially available ready to use mouse monoclonal antibody against four types of antigens: Estrogen receptor α, Estrogen Receptor β1, androgen, and vascular marker CD31.

RESULTS

There was a significant increase in all penile parameter in group A. The ventral penile length proximal to meatus was significantly respond to hormonal stimulation compared to ventral length distal to meatus , denoting a significant disproportional penile growth (p-value = 0.003). Immunohistochemical evaluation revealed that expression of ERβ1 was much more in the treated group. Whereas expression of ERα, androgen and CD31 in both groups were not significantly different. There were no statistically significant difference between both groups as regard the early and late surgical complications and HOPE score comparison except edema rate which was more in treated group than the control one.

CONCLUSIONS

Although topical testosterone application increased penile parameters size, but this did not reflect on the improvement in the surgical outcome which was found comparable to the non treated group.

S17-9 (SO)

DOUBLE VS SINGLE DIAPER TECHNIQUE AFTER HYPOSPADIAS REPAIR, DOES IT REALLY MATTER?

Osama AL-OMAR and Khaled ALDABEK
West Virginia University, Department of Urology, Division of Pediatric Urology, Morgantown, USA

PURPOSE

Hypospadias repair at infancy carries stressful event for the families, adding to it the postoperative care for the dressing and the urethral catheter. Double diaper technique is a common practice after hypospadias repair to separate stool from urine, which is believed to have fewer complications and better surgical outcomes. However, this practice is not evidence-based, and families get very stressed about this particular step of wound care. This study hypothesizes that the single diaper technique offers similar surgical outcomes compared to the double diaper technique

MATERIAL AND METHODS

A total of 215 patients were retrospectively reviewed between January 2013 and September 2019. 155 patients met the inclusion criteria. We excluded 20 patients who are older than 3 years, and 40 patients for no show. Patients in single diaper technique received the same type of dressing and discharge instructions, as the double diaper group, except for leaving the catheter free inside the single diaper. We divided patients into 2 groups, group 1 (double diaper, 72 patients) and group 2 (single diaper, 83 patients).

RESULTS

The mean for patients' age, weight, height, duration of follow up and type of hypospadias between both groups were statistically insignificant. Surgical technique was statistically significant between the two groups (p=0.01). There was no statistical difference between double diaper and single diaper groups in terms of complications and outcomes [Urinary tract infection (UTIs), surgical site infection (SSI), dehiscence, fistula and meatal stenosis].

CONCLUSIONS

Single diaper technique is simple and easy to perform by families and have no more complications compared to double diaper technique.

13:19 - 13:40		**BREAK**
13:35 - 13:55		**Thesis Award Presentations** *Anka Nieuwhof-Lepping (Netherlands), Caroline Mary Macdonald (UK)* Introduced by Henning Olsen (Denmark)
14:00 - 14:42	**S18:**	**LAPAROSCOPY / ROBOTICS** *Moderators: Alaa El-Ghoneimi (France)*

S18-1 (SO)

SYNCHRONOUS BILATERAL ADRENALECTOMY FOR RARE CAUSE OF HYPERCORTISOLISM IN CHILDREN: FROM OPEN TO ROBOTIC SURGERY. A SINGLE-CENTER EXPERIENCE OF 27 YEARS

Berenice TULELLI [1], Alix BESANÇON [2], Michel POLAK [2], Sabine SARNACKI [1] and Thomas BLANC [1]
1) Necker Enfants-Malades University Hospital, Université de Paris, Paris, France, Department of Pediatric Surgery and Urology, Paris, FRANCE - 2) Necker Enfants-Malades University Hospital, Université de Paris, Paris, France, Department of Pediatric Endocrinology, Paris, FRANCE

PURPOSE

Autonomous secretion of cortisol from the adrenal glands represents approximately 15% of all cases of Cushing's syndrome (CS) in childhood. Particularly rare causes of CS are McCune-Albright syndrome (MAS) and Carney complex

(CNC). Surgical strategy is the definitive treatment to correct hypercortisolism and its complications. Synchronous bilateral adrenalectomy (SBA) represents an exceptional indication. Our aim is to analyze our medical and surgical management of this rare condition.

MATERIAL AND METHODS

Patients who underwent SBA between 1992-2019, were identified. Gender, age, diagnosis, surgical indication, operative time, bleeding, post-operative complications, hospital stay, and outcome were retrospectively analyzed. Bilateral adrenal tumors were excluded.

RESULTS

Nine children were included: 5 MAS, 3 CNC, 1 congenital adrenal hyperplasia. Indications for SBA were non-responsiveness to medical treatment, medical contra-indication, neonatal Cushing's severity and poor control of hyperandrogenism. Mean age at surgery was 3.4 years (1.5 month-9.3 years). SBA was performed by robotic-assisted laparoscopy (n=4), laparotomy (n=2), laparoscopy (n=1), retroperitoneoscopic approach (n=1), and bilateral lombotomy (n=1). Mean length of hospital stay was 25 days. One post-operative complication occurred: a retroperitoneal collection in the adrenal bed, needing percutaneous drainage. At last follow up (mean 6,8 years) all patients were compliant with treatment, no acute adrenal crisis occurred, but seven patients (77%) had CS-related complications

CONCLUSIONS

SBA is a very rare procedure in children and has to be performed in advanced pediatric surgery center. Robotic SBA is a safe and feasible procedure, even in infants. Oral supplementation is life-long therapy that needs strict observance, endocrinology periodic monitoring and education of parents

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S18-2 (SO)

THE EFFECTIVENESS AND SAFETY OF VESICOSCOPIC ACCESS IN INFANTS

Alexander PIROGOV [1], Vladimir SIZONOV [2], Vladimir ORLOV [1] and Mikhail KOGAN [3]
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PURPOSE

Vesicoscopic access (VA) has not become a frequent practice for 1-year-old children. Low volume of surgical space complicates manipulations inside the bladder making such operations a real challenge in terms of quality and effectiveness.

MATERIAL AND METHODS

VA was used in 217 cases. Group I - 31 children under one year (8.5±2.5 months), 24 (77.4%) operations for vesicoureteral reflux (VUR), 7 (22.6%) - for ureterovesical junction obstruction (UVJO). Group II - 186 patients, mean age: 75.7±49.4 months, 159 (85.5%) VUR, 23 (12.4%) UVJO, and 4 (2.1%) bladder diverticulum cases. In a year, a follow-up VCUG and renal ultrasound examination were performed to check the surgical results. We analysed the duration of operations, conversion frequency, the frequency and severity of complications (graded acc. to Clavien-Dindo).

RESULTS

In group I, conversion was carried out in 1 (3.2%) case, in group II - in 2 (1.0%) cases ($p>0.05$). Surgery duration in group I was 134.2 minutes, in group II - 131.2 minutes ($p>0.05$). VUR and UVJO in group I were corrected in 27 (90%), and in group II - in 76 (95.6%) patients ($p>0.05$). Complications in group I - 13 in 12 (40%) patients, in group II - 24 in 23 (12.4%) patients ($p<0.01$). Grade 1 complications (acc. to Clavien-Dindo) in group I - 7 (23.3%), in group II - 10 (5.4%) ($p<0.01$). Grade IIIa complications in group II - 1 (0.5%) patient; IIIb in group I - 3 (10%) patients, in group II -

13 (7%) (p>0.05). Grade IVa complications in group I - 3 (10%). III-IV grade complications among the patients of group I - 6 (20%), in group II - 14 (7.6%) (p<0.05).

CONCLUSIONS

VA in infants is connected with increased frequency and severity of complications limiting its application, particularly during the learning period.

S18-3 (SO)

THE PATH TO PROFICIENCY FOR ROBOT-ASSISTED LAPAROSCOPIC PYELOPLASTY IN CHILDREN.

Ciro ANDOLFI [1], Tiffany TONI [2], Alyssa LOMBARDO [2] and Mohan GUNDETI [2]
1) The University of Chicago, Surgery, Chicago, USA - 2) University of Chicago, Surgery, Chicago, USA

PURPOSE

To report our institutional experience with a robotic approach to pyeloplasty in children, since its adoption.

MATERIAL AND METHODS

We performed a retrospective review of EMR of children with uretero-pelvic junction obstruction (UPJO) undergoing primary RAL-P. We collected data on demographics, skin-to-skin operative time (OT), estimated blood loss (EBL), length of stay (LOS), perioperative complications, and re-intervention due to persistent UPJO. A proficiency jointpoint analysis was performed to group surgical cases into four learning phases.

RESULTS

We identified 133 RAL-P, 102 males and 31 females. Median age at surgery was 57 months (IQR, 6-132). Forty-five patients were infants with a median age of 4 months (IQR, 2.7-6). Mean operative time was 172 minutes (±57). At a median follow up of 13 months (IQR, 3-29), post-operative complications and success rates were 15.8% and 95%, respectively. A jointpoint analysis revealed four learning phases representing progressive improvements in OT, Clavien-Dindo Grade (CDG) III and UPJO re-operation rates (table 1). Accordingly, a decrease of patients age at surgery was noted with increasing surgical experience.

CONCLUSIONS

This study reveals that the steeper portion of the learning curve can be overcome after about 34 cases (phase 1), with a 75% drop in CDG-III complications, a 50% drop in UPJO re-operation rate, and 63-minute reduction in OT (table 1).

Patients		133
Male gender		102(77%)
Median age at surgery months(IQR)		57(6–132)
Mean operative time minutes(SD)		172(±57)
Median follow up months(IQR)		13(3–29)
Complications		21(16.5%)
CDG	I	4(3%) Ileus

	II	10(7.5%) UTI
	III	8(6%) Urine leak Port-site hernia JJ-stent displacement
Success		126(95%)

Learning Phases	Patients	Median age at surgery	Mean OT	CDG-III	Re-Do
Phase1	34	92 (45-152)	224(±69)	4 (12%)	4 (12%)
Phase2	33	67 (6-129)	161(±28)	2 (6%)	2 (6%)
Phase3	33	33 (6-112)	149(±40)	1 (3%)	1 (3%)
Phase4	33	10 (3-167)	139(±26)	1 (3%)	0

S18-4 (SO)

COMPARISON BETWEEN DOUBLE J STENT AND NEPHROSTOMY IN ROBOTIC PEDIATRIC PYELOPLASTY. A PROSPECTIVE STUDY.

Alexis P ARNAUD [1], Melodie JURICIC [2], Samia LARAQUI [1], Thomas BLANC [3], Marc CHALOUB [2], Coralie DEFERT [1] and Olivier ABBO [2]

1) Univ Rennes, CHU Rennes, General Paediatric Surgery and Paediatric Urology department, Rennes, FRANCE - 2) CHU Toulouse, General Paediatric Surgery and Paediatric Urology department, Toulouse, FRANCE - 3) APHP, Université de Paris, General Paediatric Surgery and Paediatric Urology department, Paris, FRANCE

PURPOSE

Robotic approach for pediatric PUJ obstruction is now widely used. However, the type of pelvic drainage is still a matter of debate. We compared the results between JJ stenting and nephrostomy in this indication.

MATERIAL AND METHODS

Patients below 18years prospectively included since 2015. Group JJ: center A, antegrade JJ insertion, removal under GA. Group nephrostomy: center B, nephrostomy insertion, removal in outpatient clinic. In both centers, 1 surgeon using similar transperitoneal approach. Statistical analysis: Student test.

RESULTS

72 patients were included, 36 in each group. Mean age at surgery was 106 ±38 months and 115 ±47 months (p=0.4) in the JJ and nephrostomy groups respectively. Mean duration of JJ stent and nephrostomy insertion was 6min and 11min respectively (p=0.001). No per operative complication. Mean hospital stay was 5 and 2 days respectively (p=0.07). JJ stent was left 32 days vs 13 days for nephrostomy (p<0.001). All but 3 patients (magnetic JJ stent) in the JJ group required GA for stent removal. In the nephrostomy group, 10 complications were noted vs 9 in the JJ group (Table). The success rates (symptoms free and at least same dilatation) was 98,5% (mean follow-up=13months).

		Nephrostomy group	JJ group

Clavien 1	pain	6 lumbar pain at clamping requiring unclamping	2 bladder painful spasms
	Healing delay	1 nephrostomy wound healing delay	0
Clavien 2	UTI	2	4
	Urinary retention	0	1
Clavien 3b	Stent problem	1 nephrostomy dislodgement requiring JJ insertion	1 stent blockage requiring ureteroscopy (magnetic JJ) 1 anastomotic leakage (magnetic JJ)
Secondary GA		1 (3%)	34 (94%)

CONCLUSIONS

In our experience, nephrostomy have been associated with lower Clavien grade complications than JJ stents, with the main advantage to avoid second GA for the removal. Magnetic JJ stents might certainly represent the future but to date led to severe complications in children.

S18-5 (SO)

CONTINENT CUTANEOUS CATHETERIZABLE CHANNELS IN PEDIATRIC PATIENTS: A SINGLE CENTER DECADE OF EXPERIENCE WITH OPEN AND ROBOTIC APPROACHES.

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1) The University of Chicago, Surgery, Chicago, USA - 2) University of Chicago, Chicago, Chicago, USA - 3) University of Chicago, Surgery, Chicago, USA

PURPOSE

To describe our progressive advancement from open to robotic performance of CCCs, reporting and comparing outcomes between the two approaches.

MATERIAL AND METHODS

We retrospectively reviewed electronic medical records of pediatric patients who underwent construction of CCCs between 2008 and 2019. The types of channel performed were appendicovesicostomy (APV), Monti with tapered ileum, and/or antegrade colonic enema (ACE) without cecum imbrication. We compared open versus robotic approaches for patient demographics, comorbidities, intraoperative data, and postoperative outcomes, such as continence and complications.

RESULTS

A total of 69 patients were included in this analysis, with 35 and 34 patients in the open and robotic group, respectively. The robotic approach showed a significant decrease in days required to return to regular diet (6.8 vs 12.6 days, P=0.0084) and almost 50% reduction in LOS as compared to the open approach (6.8 vs 12.6 days, P=0.0097). Operative time (OT) was longer for robotic procedures (444 vs 307 min, P=0.0006). When excluding patients undergoing bladder augmentation, OTs were similar between the two groups, regardless of the channel type [292 (±59) vs 294 (±154), P=0.9652]. At a median follow-up of 75 months (43-104), 28 patients (40.6%) presented with postoperative complications-15(42.9%) open and 13(38.2%) robotic. Continence rates were 91.4% and 91.2% for open and robotic approaches (P=0.7724), respectively.

CONCLUSIONS

Robotic surgery for CCCs showed acceptable postoperative outcomes and complication rates, which are comparable to the traditional open approach. Additionally, due to its minimally invasive nature, it offers advantages such as decreased postoperative pain, LOS, time to full diet, and better cosmesis. As more surgeons implement the use of a robotic platform into their practice, the optimization of surgical steps for CCCs will further reduce operative times, making this already safe and effective approach a more sustainable operative modality.

S18-6 (SO)

ROBOTIC ASSISTED LAPAROSCOPIC PYELOPLASTY FOR URETEROPELVIC JUNCTION OBSTRUCTION IN CHILDREN: A MULTICENTER PROSPECTIVE STUDY COMPARING THE TRANSPERITONEAL APPROACH AND RETROPERITONEOSCOPY.

Thomas BLANC [1], Olivier ABBO [2], Caroline ELIE [3], Mélodie JURICIC [2], Samia LARAQUI [4], Fabrizio VATTA [1] and Alexis ARNAUD [4]
1) Hopital Necker- Enfants Malades, Service de Chirurgie Viscérale et Urologie Pédiatriques, Paris, FRANCE - 2) CHU de Toulouse, Service de Chirurgie Viscérale et Urologie Pédiatriques, Toulouse, FRANCE - 3) Centre d'investigation Clinique Paris Descartes - Necker - Cochin, Unité de Recherche Clinique, Paris, FRANCE - 4) CHU de Rennes - Université de Rennes, Service de Chirurgie Viscérale et Urologie Pédiatriques, Rennes, FRANCE

PURPOSE

Robot-assisted laparoscopic pyeloplasty (RALP) has been gaining acceptance among pediatric urologists. Our aim was to compare the results and complications of RALP using transperitoneal (TRALP) and retroperitoneal approaches (RRALP).

MATERIAL AND METHODS

A 3-year prospective study (NCT03274050) was performed in 3 centers (2 for transperitoneal approach and one for retroperitoneoscopy) from 11/2016 to 11/2019. Dismembered pyeloplasty and anastomosis were performed using running monofilament 6-0 absorbable suture. All were drained by double-J stent or external transanastomotic stent. Data were analysed comparatively.

RESULTS

103 children were operated (RRALP n=53; TRALP n=50). The preoperative data of both groups were comparable. Median age and weight were 9 years (2-19) and 26 kg (13-124) respectively.
Set up time, anastomotic time and console time were significantly longer in the retroperitoneoscopic group (31 min vs 10 min; 73 min vs 50 min; 153 min vs 98 min respectively; p<0,001). None of the patient parameters apart from the approach had a significant impact on operative time. No conversion to an open operation was necessary. Median hospital stay was shorter in the retroperitoneoscopic group (1 day vs 2 days; p<0,001). Complication rates were similar (RRALP, 11% vs TRALP, 20%) but Clavien IIIb were more common in TRALP (p<0.008). No failure occurred at mean follow up of one year (2-29 months).

CONCLUSIONS

RALP is as safe and effective procedure in children with transperitoneal approach or retroperitoneoscopy. Even if the procedure is longer with retroperitoneoscopy, hospital stay and complications seems to be reduced with this approach. A longer term follow-up is awaited.

S18-7: Withdrawn (video presentation not uploaded)

14:45 - 15:09 **S19: AUGMENTATION / DIVERSION**
Moderators: Tiago Rosito (Brasil)

S19-1 (SO)

DO PEOPLE WITH SPINA BIFIDA USE THEIR MACE ON LONG-TERM FOLLOW-UP?

Konrad SZYMANSKI, Joshua ROTH, Arthur SZYMANSKI, Shelly KING, Benjamin WHITTAM, Martin KAEFER, Richard RINK, Mark CAIN and Rosalia MISSERI
Riley Hospital for Children at Indiana University Health, Pediatric Urology, Indianapolis, USA

PURPOSE

To assess long-term MACE use and potential risk factors for abandoning use.

MATERIAL AND METHODS

Patients with SB who underwent MACE surgery (1994-2017) at our intuition were retrospectively reviewed. Main outcome: abandoning MACE use (no longer catheterizing for antegrade enemas) based on self-report (clinic questionnaire), or medical record (if seen before questionnaire introduced). Survival analysis was used.

RESULTS

Overall, 413 patients (54.5% female, 77.5% shunted, 65.4% augmented) underwent MACE surgery at median 7.9years old (median follow-up: 8.5years). After correcting for differential follow-up, 90.9% used their MACE at 10 years, 86.2% at 15 years and 80.1% at 20 years. Most common causes of abandoning use were channel stenosis (72.7%) and excision at colostomy or unrelated surgery (9.1%). Bowel management afterwards included oral agents+/-enemas (57.6%), Chait tube (27.1%), colostomy (12.1%) or Monti MACE (3.0%).

Gender, lesion type, shunt status, mobility status, having bladder augmentation or urinary catheterizable channel were not associated with stopping use (p>=0.32). Compared to younger children, surgery at 10years or older was associated with 2.27x the risk of MACE abandonment (p=0.02). At 15 years after MACE surgery, 89.4% of children who had a MACE made before age 10 were still using it, compared to 80.3% who had surgery at 10 years old or later.

CONCLUSIONS

On long-term follow-up, most patients with SB continue using their MACE and 1% abandon use annually, strongly suggesting its effectiveness. Patients undergoing surgery after age 10 are more likely to abandon use (20% vs. 10% at 15 years). Transitioning to self-care plays a role in maintaining long-term MACE use.

S19-2 (SO)

BURDEN OF CLEAN INTERMITTENT CATHETERIZATION ON CHILDREN AND THEIR CAREGIVERS

Roberto LOPES, Valeria ALENCAR, Cristiano GOMES, Eduardo MIRANDA, Maria Alice SANTOS, Patricia FERA, Jose BESSA JR, Francisco DÉNES, Miguel SROUGI and Homero BRUSCHINI
University of São Paulo Medical School, Urology, São Paulo, BRAZIL

PURPOSE

Clean intermittent catheterization (CIC) is one of the main alternatives in the management of neurogenic bladder. This study is to evaluate the challenges of CIC and its implications on quality of life.

MATERIAL AND METHODS

A cross-sectional study was conducted in children with neurogenic bladder dysfunction on CIC and their caregivers. Medical records were reviewed and questionnaires applied to identify the burden of CIC on this population. Statistical analysis were applied to four instruments: a specifically structured questionnaire, the World Health Organization - Quality of Life questionnaire (WHOQOL-bref), the Caregiver Burden Scale (CBS) and the PedsQLTM4.0 inventory.

RESULTS

Seventy children (5-18 years) and their caregivers (25-76 years) were evaluated. Majority of caregivers (n=67) were mothers (58.6% ≤ 40 years), with basic education. Caregivers were the CIC performers in 45 cases (64.3%). Medical conditions of the children on CIC were neurospinal dysraphism (72.8%), complex congenital malformations (18.6%) and others (8.6%). In the PedsQL™ analysis, it was observed that children have better quality of life perception, in all domains, when compared to caregivers. Caregivers results yielded statistical difference on "school functioning" domain in patients performing CIC through a stoma when compared with patients performing urethral CIC. Also, according to WHOQOL-bref results, patients who could perform self-catheterization had lesser impact on caregiver's quality of life. Concerning age, older caregivers (>40 years) suffered more impact from CIC on the Caregiver Burden Scale.

CONCLUSIONS

Severe illnesses could drastically alter life and cause family dysfunction. Self-catheterization could contribute to social acceptance of the child and decrease the burden of caregivers.

19-3 (SO)

FEASIBILITY STUDY OF VASCULARIZED COMPOSITE URINARY BLADDER ALLOGRAFT TRANSPLANTATION IN A CADAVER MODEL

Patricio GARGOLLO [1], Mohamed AHMED [2], Mohit BUTANEY [2] and Candace GRANBERG [1]
1) Mayo Clinic, Pediatric Urology, Rochester, USA - 2) Mayo Clinic, Urology, Rochester, USA

PURPOSE

Inadequate urinary bladder function may lead to secondary renal injury either from increased pressures, urine reflux or recurrent urinary tract infections. This is particularly true in patients with neurogenic bladders or a history of posterior urethral valves. Previous attempts at generating bladder tissue substitutes have failed and the use of intestinal segments for urinary reconstruction is not physiologically ideal. The purpose of this study was to establish the feasibility of performing a urinary bladder vascularized composite allograft (VCA) transplant.

MATERIAL AND METHODS

Six adult fresh frozen cadavers were studied (3 M 3 F). Cadavers were excluded for any previous pelvic surgery, vascular surgery, history of pelvic malignancy, or history of pelvic radiation. Contrast enhanced CT imaging with 3-D reconstructions was used to delineate urinary bladder vascular anatomy variability. Bladders were explanted en bloc from two cadavers with bilateral vascular pedicles based on the external iliac vessels and "transplanted" to replicate a bladder transplant.

RESULTS

Contrast enhanced 3D-CT reconstructions and cadaver dissections revealed distal vascular variability with proximal blood supply based primarily on the internal iliac artery. Urinary bladder VCA was successfully performed during 2 mock transplants with the vascular anastomosis done at the recipient external iliac artery and vein.

CONCLUSIONS

Urinary bladder VCA is technically and anatomically feasible. This procedure may obviate the use of intestinal segments for bladder reconstruction in some patients especially if they undergo a concommitant renal transplant or have a history of renal transplantation. We have a prospective clinical trial currently open as a phase 1 study.

S19-4 (SO)

RISK FACTORS FOR THE FIRST EPISODE OF BLADDER CALCULI IN A COHORT OF PATIENTS WITH SPINA BIFIDA AND BLADDER AUGMENTATION

Matthieu PEYCELON [1], Konrad M. SZYMANSKI [2], M. Francesca MONN [2], Joshua D. ROTH [2], Cyrus M. ADAMS [2], Mark P. CAIN [2], Richard C. RINK [2], Benjamin WHITTAM [2] and Rosalia MISSERI [2]
1) Indiana University School of Medicine, Department of Pediatric Urology of Riley Children Hospital; French Reference Centre for Rare Urinary Tract Malformations (MARVU), Indianapolis, USA - 2) Indiana University School of Medicine, Department of Pediatric Urology of Riley Children Hospital, Indianapolis, USA

PURPOSE

Few studies have reported bladder calculi risk factors in spina bifida (SB) with bladder augmentation (BA). We sought to identify risk factors for bladder calculi in a large homogeneous cohort of SB with BA.

MATERIAL AND METHODS

Patients with SB using clean intermittent catheterization (CIC) after BA were retrospectively identified (1981-2019). We abstracted: gender, ethnicity, ambulatory status, type of BA, age at BA, catheterizable channel, bladder neck surgery, renal stone and bone fractures before and after BA. Statistics: univariate (Fisher's, Student's, Mann-Whitney), Kaplan-Meier survival, Cox proportional hazards analysis.

RESULTS

421 patients were included. Median (IQR) age at BA was 8.3 years (5.9-11.6) and follow-up of 11.3 years (5.7-15.8). Of 117 patients with a first episode of bladder calculi, 60 (51.3%) were female, and 70 (59.8%) were non-ambulatory. The first bladder calculi occurred at a median (IQR) of 5.4 years (2.2-9.7) after BA. On multivariate analysis, both presence of a catheterizable channel and renal stone after BA were independent risk factors for bladder calculi (86.3% vs. 70.1% (HR 2.5 (1.3-4.8)) and 27.4% vs. 6.3% (HR 2.2 (1.5-3.4)) respectively, $p<0.001$). Type of bowel segment, bladder neck surgery or any bone fracture after BA did not reach the significance ($p>0.05$). On survival analysis, 37.2% of patients had a first episode of bladder calculi by 10 years after BA. In SB patients with both a catheterizable channel and a renal stone after BA, 73.1% developed a bladder stone by 10 years.

CONCLUSIONS

In a cohort of patients with spina bifida and bladder augmentation, a first episode of bladder calculi occurred in 37.2% at 10 years after bladder augmentation. Catheterizable channel and renal stones after BA are risk factors for bladder calculi. In these high-risk groups, we particularly recommend annual imaging of the kidneys, ureters and bladder.

15:15 - 16:03 **S20: RENAL TRANSPLANTATION**

Moderators: Antonio Macedo (Brasil)

S20-1 (SO)

THE IMPACT OF DONOR AND RECIPIENT GENDER ON PEDIATRIC LIVING-DONOR KIDNEY TRANSPLANT OUTCOME

Maria Virginia AMESTY [1], Aitor ARRIEN [2], Pedro LOPEZ PEREIRA [1], Marta MELGOSA [3] and Maria Jose MARTINEZ URRUTIA [1]

1) Hospital Universitario La Paz, Pediatric Urology, Madrid, SPAIN - 2) Hospital Universitario La Paz, Madrid, SPAIN - 3) Hospital Universitario La Paz, Pediatric Nephrology, Madrid, SPAIN

PURPOSE

Gender is a factor that may influence kidney transplant outcome, which has not been studied in children. Our aim is to analyze the impact of recipient and donor gender in pediatric living-donor kidney transplant (LDKT).

MATERIAL AND METHODS

A retrospective review of children who received a LDKT with ≥4 years of follow-up was performed. Patients were divided according to recipient-donor gender into 4 groups: male to male (M-M), male to female (M-F), female to male (F-M) and female to female (F-F). Variables analyzed were age, ESRD cause, graft size, cold ischemia time, rejection episodes, GFR and serum creatinine at end of follow-up, graft and patient survival.

RESULTS

From a total of 149 LDKT, 85 were included. The number of recipient-donor pairs of each group were: F-M 35(41%), F-F 27(32%), M-M 15(18%), M-F 8(9%). There were no significant differences between groups in recipients and donors ages, graft size, cold ischemia time, rejection and follow-up. At the end of follow-up, the best GFR, the least decrease of GFR and lowest serum creatinine levels were found in pairs M-F and F-F ($p<0.05$). The worst outcome corresponded to pairs M-M and F-M, in terms of GFR, GFR decrease and serum creatinine levels ($p<0.05$). The were not significant differences in graft and patient's survival between groups, but there was a tendency to worse long-term graft survival in M-M and F-M groups.

CONCLUSIONS

LKDT outcome was better when recipients were female, and worse outcome was found in male recipients. More studies are needed to confirm these findings.

S20-2 (SO)

NATIVE NEPHRECTOMY PRIOR TO KIDNEY TRANSPLANT: A 16-YEAR INSTITUTIONAL EXPERIENCE

Jin Kyu (Justin) KIM [1], Lucshman RAVEENDRAN [2], Michael CHUA [2], Armando LORENZO [2], Walid FARHAT [3], Jessica MING [4] and Martin KOYLE [2]

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PURPOSE

The associated risks of pre-transplant native nephrectomies in pediatric renal transplant patients remain unclear. This investigation aims to assess the clinical outcomes for pediatric renal transplant patients who underwent pre-transplant native nephrectomy.

MATERIAL AND METHODS

A retrospective review of renal transplants performed at our institution between 2000-2015 was performed. Transplant recipients were divided into those who underwent native nephrectomy and those who did not. Clinical

outcomes (eGFR, Clavien-Dindo classification ≥3 complications, graft loss, and number of readmissions) were compared. Subgroup analyses were performed for unilateral/concurrent bilateral/staged bilateral nephrectomies.

RESULTS

324 patients were identified. 57 patients underwent native nephrectomy (18 unilateral, 27 concurrent bilateral, 12 staged bilateral). The nephrectomy group was more likely to be younger, receiving living donor kidneys, and to have ≥2 donor kidney arteries (Table 1),while also having more patients with nephrotic syndrome, nephritis, and focal sclerosing glomerulosclerosis (p=0.002). The majority of nephrectomy indications were hypertension (42.7%) and proteinuria (28.1%). In multivariate analyses (controlling for significant baseline characteristics and nephrectomy specific factors - laparoscopic, nephrectomy at time of transplant, nephrectomy prior to transplant, previous transplant nephrectomy), bilateral nephrectomy (OR 5.254, 95%CI 1.711-16.119, p=0.004) was associated with higher readmission rates. Patients with nephrectomies were more likely to be readmitted with bacterial infections (29.8% vs. 15.4%, p=0.013).

CONCLUSIONS

While limited by the differences in the nature of disease that may subject patients for decision to undergo native nephrectomy, undergoing native nephrectomies, particularly bilateral native nephrectomies, may subject patients to worse clinical outcomes. Native nephrectomy should be reserved for select patients who will significantly benefit from them such as those with refractory proteinuria or hypertension.

S20-3 (SO)

ASSESSING THE TRENDS AND UTILITY OF PRE-TRANSPLANT VOIDING CYSTOURETHROGRAMS IN PEDIATRIC RENAL TRANSPLANT POPULATION

Jin Kyu (Justin) KIM [1], Armando LORENZO [2], Walid FARHAT [3], Michael CHUA [2], Jessica MING [4], Lucshman RAVEENDRAN [2] and Martin KOYLE [2]
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PURPOSE

The role of pre-renal transplant (RT) lower urinary investigation (voiding cystourethrogram/VCUG, urodynamics studies/UDS, uroflowmetry) is unclear in the pediatric population. This study aims to investigate the clinical utility of pre-RT urologic investigations this population in relation to etiology.

MATERIAL AND METHODS

A retrospective review of RTs performed at our institution between 2000-2015 was performed. Transplant recipients were stratified by those with primary non-urologic end-stage renal disease (ESRD) etiology and primary urologic ESRD etiology. Baseline characteristics, pre-transplant investigations (VCUG, UDS, Uroflowmetry), pre-transplant urologic interventions, and 1-year post-transplant outcomes (Clavien-Dindo classification ≥3 complications, graft loss) were assessed by time period of transplant (2000-2005, 2006-2010, 2011-2015). For patients with posterior urethral valves, only investigations after initial diagnosis and treatment were considered.

RESULTS

227 patients with primary non-urologic ESRD etiology (group 1) and 97 patients with primary urologic ESRD etiology (group 2) were identified. Over three periods (2000-2005, 2006-2010, 2011-2015), less pre-transplant VCUG was being ordered in group 1: 19.4%, 37.7%, and 7.45%, respectively (p<0.001). For VCUG and UDS ordered ≤1 year prior to transplant, the majority of indications were for routine transplant assessment without specific concerns. These had low yields for clinical findings leading to intervention (Group 1 – VCUG 0%, UDS 0%; Group 2 – VCUG 0%, UDS 8%). Overall, urologic investigations had minimal predictive value for patients requiring post-transplant urologic interventions (group 1 - 0.0 to 1.1%, group 2 0.0 to 7.7%). For both groups, multivariate analysis adjusting for

differences in baseline characteristics did not show any difference with regards to graft loss or Clavien-Dindo ≥3 complications.

CONCLUSIONS

For pediatric RT recipients, ordering a routine pre-transplant lower urinary tract investigation without specific urologic concerns, especially in setting of previously available urologic investigations, has minimal clinical value.

S20-4 (SO)

KIDNEY TRANSPLANT (KT) IN ANORECTAL MALFORMATION (ARM) PATIENTS: RISK FACTORS AND OUTCOME

Miriam DUCI [1], Francesco FASCETTI-LEON [1], Davide MENEGHESSO [2], Elisa BENETTI [2], Piergiorgio GAMBA [1], Federica DE CORTI [1] and Marco CASTAGNETTI [3]
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PURPOSE

End stage renal disease requiring KT remains an important cause of morbidity in ARM patients.

This study aimed to identify risk factors for KT in ARM patients and compare the outcome of KT in ARM patients vs. patients with urological anomalies but no ARM.

MATERIAL AND METHODS

Data of ARM patients treated at our center between 2000-2016 were retrospectively reviewed. Variables in ARM patients undergoing KT (ARM-KT) were compared to those in ARM patients who did not required KT to identify risk factors for KT, and to those in patients with urological anomalies, but no ARM undergoing KT (Uro-KT) to compare outcomes.

RESULTS

Out of 117 (62 high, 55 low) ARM patients treated during the study period, 8 (7%) underwent KT. In all, the malformation was high, including 3 cloaca, 2 bladder fistula, 2 bulbar urethra fistula, and 1 no fistula. Associated urological anomalies were significantly more common in ARM-KT compared to other ARM patients, 100% vs. 52%, p=0.001. The urological malformation was clearly severe from the outset (bilateral dyspalsia, uropathy in single kidney, or lower urinary tract malformation).

The Uro-KT group included 23 patients with urological conditions (mainly primary vesico-ureteral reflux and posterior urethral valves), but no ARM who underwent KT during the same period. Comparing ARM-KT with Uro-KT, there was no difference in the age at KT and type of donor (P=1 and 0.6, respectively). ARM-KT patients required more often hemodialysis before KT (50%vs.8.7%, p=0.05), required more often an aorto-caval anastomosis at KT (75%vs.30%, p=0.04), and, despite a significantly shorter follow-up (median 3vs.6.3 years, p=0.02), required more frequently a second KT (50%vs.8.6%, p=0.02).

CONCLUSIONS

In our experience, patients with high ARM and associated urological anomalies were at increased risk of KT compared to other ARM patients. The KT was generally more complex and the outcome poorer compared to patients with urological anomalies but no ARM.

S20-5 (SO)

EN BLOC KIDNEY TRANSPLATATION "PEDIATRIC TO PEDIATRIC": A SYSTEMATIC REVIEW

Fabrizio VATTA [1], Thomas BLANC [2], Olivia BOYER [3], Christophe CHARDOT [2], Sabine SARNACKI [2] and Yves HÉLOURY [2]
1) Hopital Necker - Enfants Malades, Service de Chirurgie Viscérale et Urologie Pédiatriques, Paris, FRANCE - 2) Hôpital Necker - Enfants Malades, Service de Chirurgie Viscérale et Urologie Pédiatriques, Paris, FRANCE - 3) Hôpital Necker - Enfants Malades, Service de néphrologie pédiatrique, Paris, FRANCE

PURPOSE

To evaluate the results of en-bloc kidney transplantation (EBKT) from small children to pediatric recipients.

MATERIAL AND METHODS

Systematic review from 2005 to 2020 on PubMed. Exclusion criteria were case-reports or adult recipients.

RESULTS

Ten papers were selected (390 patients). Mean donor weight was 11.3Kg range(3.7-13.7), age 1.2years(0.1-2.3). Mean recipient weight was 35.7Kg(25-41), age 12.6years(8.5-13.2). Mean follow-up was 7.8years. Mean 1-year graft survival (GS) was 82.9% (70%-100%), 5-year GS 67.7% (63.5-100), 10-year GS 51.7% (51.6-52.4), and 25-year GS 25.4%. Eight papers found 29 (15.7%) immediate post-operative complications causing graft loss: 16 thrombosis, 4 non-primary function, 3 acute rejection, 2 hemorrhages, and 4 others. Two paper compared EBKT with standard-criteria donor transplantation (SCT): GS resulted inferior in the short and intermediate post-operative time, but the difference was not statistically different. One paper compared GS in the long period, confirming the higher immediate complication rate. EBKT performed in the latest decade did not have an increased risk of 1-year graft loss. Intermediate and long-term GS and renal function were found higher in EBKT. Furthermore, one paper stratified success of GS compared to SCT for volume of EBKT performed, finding a lower risk of graft loss in higher-volume center.

CONCLUSIONS

EBKT represents a viable option to expand the number of donors for pediatric recipients. Intermediate and long-term function is comparable, or even higher, to SCT. Nevertheless, due to a higher rate of immediate post-operative complications, EBKT should be reserved for specific patients and performed in high-volume centers.

S20-6 (SO)

ARTERIAL INFLOW AFTER RENAL TRANSPLANTATION: DOES ARTERIOTOMY TECHNIQUE IMPACT EARLY ALLOGRAFT PERFUSION AND FUNCTION?

Daniel T. KEEFE [1], Mandy RICKARD [1], Karthikeyan MANICKAVACHAGAM [1], Jessica HANNICK [2], Nicolas FERNANDEZ [3], Keara DE COTIIS [1], Chia Wei TEOH [4], Martin A. KOYLE [1] and Armando J. LORENZO [1]
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PURPOSE

There are two main techniques for arterial reconstruction in renal transplantation(RT): Traditional arteriotomy (TA) using a stab longitudinal incision which creates an elliptical opening, and arterial punch (AP) which fashions a circular defect. We hypothesized that AP creates a natural anastomosis lumen, similar to the donor renal artery, which optimizes RT perfusion.

MATERIAL AND METHODS

A retrospective review of a single institution database was performed between 2000-2018. Twenty patients who underwent AP arteriotomy were compared to 40 TA matched controls. Data were collected on creatinine

(preoperative, nadir and time to nadir), and Doppler ultrasound (DUS) resistive indices (RI) and peak systolic velocities (PSV) at 1 week, 3 months and 6-12 months post-RT.

RESULTS

Time to nadir creatinine (ttNC) was shorter in the AP group (5+/-4 vs. 12+/-13 days; p=0.03). PSV at 1 week were lower in the AP group (186+/-65 cm/s vs. 232+/-89 cm/s; p=0.04). There was no difference in nadir creatinine value(p=0.26), preoperative creatinine(p=0.66), and initial postoperative creatinine(p=0.80). RI at week 1 were not different between groups(p=0.37). Follow-up DUS showed the difference in PSV between groups became non-significant (one month p=0.50, and 6-12 months (p=0.53)(Table1).

	Arterial Punch(n=20)	Traditional(n=40)	pvalue
Sex - Males (%)	10 (50)	19 (48)	0.86
Age (years)	8+5	8+5	0.91
Weight (kg)	28+16	27+16	0.89
Warm ischemia time (mins)	50+31*	36+11	0.02
Site - Aorta (%) - Common Iliac (%) - External Iliac (%)	 10 (50) 9 (45) 1 (5)	 20 (50) 19 (48) 1 (2)	 0.88
PSV 1 week (cm/s)	186+65	232+89	0.04
TTnc	5+/4	12+/-13	0.03

CONCLUSIONS

AP arteriotomy in RT improves early perfusion and function parameters (ttNC and initial PSV) as compared to TA. AP arteriotomy optimizes early allograft reperfusion, which may have important long-term implications and deserves further evaluation.

20-7 (SO)

COMBINED LIVER-KIDNEY TRANSPLANTATION IN CHILDREN. LONG-TERM OUTCOMES.

Carlos DELGADO-MIGUEL [1], Antonio MUÑOZ-SERRANO [2], Virginia AMESTY [3], Susana RIVAS [3], Roberto LOBATO [3], Pedro LÓPEZ-PEREIRA [3], Francisco HERNÁNDEZ [2], Laura ESPINOSA [4], Manuel LÓPEZ-SANTAMARÍA [2] and María José MARTÍNEZ URRUTIA [3]
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PURPOSE

Combined liver-kidney transplantation (CLKT) is the treatment of choice in end-stage chronic kidney disease with associated liver disease. However, the experience with CLKT in children is limited due to the low incidence of these pathologies. Our aim is to describe our experience in CLKT and its long-term outcomes.

MATERIAL AND METHODS

An analytical retrospective study was carried out in patients who underwent CLKT between 1997-2019. We analyzed demographic, clinical and laboratory variables collected pre-transplantation, intraoperatively and postoperatively.

RESULTS

Fifteen patients (8 males, 7 females) were included, with median age at transplantation of 11.2 years (3-17). Underlying diseases were: primary hyperoxaluria (6 patients), polycystic kidney disease (4 patients), Alagille syndrome (2 patients), nephronoptisis (2 patients) and atypical hemolytic-uremic syndrome (1 patient). Nine patients required pre-transplantation hemodialysis (median of 13 months until CLKT).

In all patients both grafts were obtained from the same cadaver donor (median donor age 13.8 years; 3-51). Liver ischemia mean time was 6.7±1.7hours, anhepatic phase 50.4±4.5minutes and cold renal ischemia 11.2±2.8 hours. Mean hospital stay was 38.9±17.6 days.
Fourteen patients (93.3%) presented normal renal and hepatic graft function, with a long-term follow-up of 116 months (7-276). One patient required a liver re-transplantation 48 hours after CLKT due to hepatic artery thrombosis. A single episode of acute renal rejection was observed, occurring 1 month after transplantation. One patient died 5years after CLKT due to failure to comply with immunosuppressive treatment.

CONCLUSIONS

Our series of CLKT presents encouraging outcomes, with adequate graft function and high long-term survival. The most frequent indication in our environment is primary hyperoxaluria followed by polycystic disease.

S20-8 (SO)

PEDIATRIC KIDNEY RETRANSPLANTATION: WERE ARE WE AND WHAT ARE THE RESULTS

Romy GANDER [1], Marino ASENSIO [2], Jose Andrés MOLINO [2], Gloria Fatou ROYO [2], Mercedes LÓPEZ-GONZALEZ [3], Marina MUÑOZ [2], Victor PEREZ-BELTRAN [3], Manuel LÓPEZ [2] and Gema ARICETA [3]
1) University Hospital Vall d'Hebron, Paediatric Surgery, Barcelona, SPAIN - 2) University Hospital Vall d'Hebron, Barcelona, Pediatric Surgery, Barcelona, SPAIN - 3) University Hospital Vall d'Hebron, Barcelona, Pediatric Nephrology, Barcelona, SPAIN

PURPOSE

Despite survival rates after pediatric kidney transplantation (KT) are on the rise it is still likely that most pediatric recipients will require more than one retransplant in their lifetime. The aim of this study was to analyze the outcomes of repeated pediatric kidney transplantation (RPKT) in our center.

MATERIAL AND METHODS

Retrospective study of RPKT (<18 years)undertaken between January 2000-2020. We analyzed primary etiology of renal disease, time to graft loss (GL) , etiology of initial graft failure, history of acute rejection, previous delayed graft function, HLA missmatches at the initial transplant, panel reactive antibodies (PRA) in the first and subsequent transplants, surgical and medical complications and outcomes.

RESULTS

Out of 229 KT, 59 patients underwent RPKT (26 females/33 males). Median age was 11.37 years (SD:5.7). The most frequent primary renal disease was congenital nephrotic syndrome in 11 (18.6%). 54 (91.5%) were on renal replacement therapy at the time of transplant.41 patients received their second KT (69.5%), 14 (23.7%) the third, 3 (5.1%) the fourth and 1 (1.7%) the fifth. 54 (91.5%) received a cadaveric graft and 5 (8.5%) a living-related graft. Acute rejection (15) and chronic graft nephropathy (10) were the main causes of GL. In 18 (30.5%) patients previous GL occurred during the first year post-KT,remarkably, main causes were 9 graft thrombosis and 4 acute humoral rejections due to anti-MICA and anti-angiotensin II antibodies in 2 patients.

Graft survival at 1,3 and 5 years was 91%, 84% and 73% respectively. The most frequent cause of GL was chronic graft nephropathy in 15 (25.4%). After a mean follow-up of 8.40 years (SD: 4.7) only 2 patients died (3.4%),both with functioning grafts.

CONCLUSIONS

Pediatric KRT is challenging but can yield good results and aceptable graft survival rates. In our series overall mortality was low and unrelated to KT.

16:05 - 16:45 **S21:** **OTHER CATEGORY**
Moderators: Luis Braga (Canada)

S21-1 (SO)

★ GOVERNMENT MANDATED CONSENT DRAMATICALLY REDUCES PEDIATRIC UROLOGIST POSTOPERATIVE OPIOID UTILIZATION

Valentina GRAJALES, Jeffrey VILLANUEVA, Marc COLACO, Omar AYYASH, Rajeev CHAUDHRY, Francis SCHNECK, Glenn CANNON and Janelle FOX
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PURPOSE

Post-surgical opioids are overprescribed in the United States. On November 2016, our state mandated that an opioid consent is completed for all outpatient prescriptions to minors. Our hypothesis is that this mandate decreased the frequency of post-surgical opioid prescriptions in our department.

MATERIAL AND METHODS

All patients who underwent urologic outpatient surgery from May 2015 to August 2019 at our institution were identified. Perioperative data including case type was retrospectively extracted by a clinical datawarehouse from preexisting fields within the health record. The frequencies of post-surgical prescriptions, delayed prescriptions, and readmission were assessed. A multivariable logistic regression to identify predictors of opioid prescription at discharge was performed. No other intervention to affect opioid prescription rates was implemented after the state mandate.

RESULTS

4,394 patients were analyzed. Six months after mandate implementation, the frequency of postsurgical opioid prescriptions decreased from 37.2% to 2% (p less than 0.001). The average outpatient morphine equivalents decreased by 21 milligrams among children prescribed an opioid (p less than 0.05). Rates of readmission (3.5% vs 3.5%) or delayed prescriptions (1.1% vs 0.8%) within 30 days from discharge were unchanged (p greater than 0.05). Female patients were less likely (OR = 0.7,0.51-0.95, p less than 0.01) and patients with a personal or family mental health diagnosis were more likely (OR = 1.6,1.29-1.96,p less than 0.001) to be prescribed opioids at discharge. Insurance, ethnicity, and prior opioid prescriptions were not significant.

CONCLUSIONS

Our state mandate for outpatient opioid consent for minors has reduced post urologic surgery opioid prescription rates, without increasing rates of readmission or delayed prescriptions.

S21-2 (SO)

SAMPLE SIZE, POWER, AND RISK OF TYPE I/II ERROR IN US NEWS & WORLD REPORT RANKING METHODOLOGY FOR PEDIATRIC UROLOGY

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PURPOSE

US News & World Report (USNWR) rankings influence the public's perception of a hospital's quality. Our purpose was to investigate current USNWR methodology to determine the power and misclassification risks.

MATERIAL AND METHODS

Average annual distal hypospadias and pyeloplasty procedure volumes by hospital from 2016-2018 were calculated using the Pediatric Health Information Systems database. Median volume was used to calculate power to detect differences, and avoid type II error, in complication rates between USNWR categories (<1%, 1-3%, 3-5%, and >5%). Risk of type I, or false positive, error was investigated using the Wilson score interval and Fisher's exact tests.

RESULTS

Median (IQR) annual hospital procedure volume was 68 cases (40-96) for hypospadias surgeries and 18 (9-32) for pyeloplasty. In order to achieve 80% power, 768 cases/hospital are required to detect a 1% vs. 3% complication rate, 1506 cases/hospital are required to detect a 3% vs. 5% complication rate, and 284 cases/hospital are required to detect a 1% vs. 5% complication rate. Comparing two median-volume hospitals, the power to detect a difference in complication rates of 1% vs. 3%, 3% vs. 5%, and 1% vs. 5% was 13%, 9%, and 27% for hypospadias procedures and 6%, 5%, and 10% for pyeloplasty procedures.

For median-volume hospitals, complication rate 95% confidence intervals for hypospadias and pyeloplasty procedures were 1% (0.1-7.1%), 3% (0.8-10.2%), 5% (1.8-13.0%) and 1% (0.004-19.2%), 3% (0.03-22.2%), 5% (0.1-25.0%) respectively. Statistical testing comparing these complication rates were not significant (p>0.05).

CONCLUSIONS

Current USNWR methodology has insufficient power and high risks of type I and type II error.

S21-3 (SO)

★ A SECOND-LOOK AT REPORTED STATISTICS: CHALLENGES IN REPLICATING REPORTED P-VALUES IN PEDIATRIC UROLOGY LITERATURE

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PURPOSE

P-values are the most commonly employed metric for reporting statistically significant findings in science. Ensuring that p-values are robust, reproducible, and generated from the proper tests is essential for ensuring accurate scientific inference. It is assumed that omissions or mistakes in the analyses are detected during the peer review process. We explored this issue by attempting to verify reported p-values from binary outcome tests and assessing the reproducibility of p-value reporting in the hydronephrosis (HN) and bowel and bladder dysfunction (BBD) literature.

MATERIAL AND METHODS

We analyzed 254 papers that were included in previously-reported projects regarding HN (n=129) and BBD (n=125). All studies reviewed had at least 2 comparison groups and reported a significant difference between them. We extracted group counts from the sampled papers and recalculated the statistics employing Fisher's exact test.

RESULTS

We found that 38 of the 254 (BBD=15, HN=23, 15%) papers sampled had insignificant p-values using our approach, but were reported as significant at <0.05. Of these 38 papers, 16 had results that could not be reproduced through any attempted approach, including chi-squared statistics (even in not adequate for the analysis). Twelve could achieve significance through a chi-squared test without a Yates continuity correction, and the remaining 10 could be accounted for by differing methodologies (e.g. more than two groups or different test procedures).

CONCLUSIONS

An important number of studies from the pediatric urology literature appear to report p-values that are difficult to reproduce. A combination of reproducible code, sensitivity analyses, as well as arms-length reproduction attempts can help to reduce non-robust results. There is opportunity for addressing these potential problems during the peer-review process, before publication.

S21-4 (SO)

VIRTUAL REALITY AS PROCEDURAL SUPPORT FOR URODYNAMIC STUDIES

Julia FINKELSTEIN [1], Ian MCCARTHY [1], Katherine SEXTON [1], Dylan CAHILL [1], Kelsey TULLEY [2], Brianna O'CONNELL [3], Lauren MEDNICK [4], James ROSOFF [5], Peter WEINSTOCK [6] and Carlos ESTRADA [1]
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PURPOSE

Children need improved ways to experience urodynamic studies (UDS). We sought to investigate the use of immersive virtual reality (iVR) as an active distraction tool for children undergoing UDS.

MATERIAL AND METHODS

A prospective randomized study involving children aged 5 years or older undergoing UDS over a three-month period. Children were randomized to receive iVR or the standard of care (SoC), which includes passive distraction with a video monitor. Upon arrival, patients completed a visual analog scale for anxiety (VAS-A, 0-10) about the upcoming procedure. Patient's behavior during UDS was assessed using a validated brief behavioral distress scale. Immediately after UDS, each child completed a survey about the experience, including the helpfulness of iVR and how it felt to wear VR goggles (5-point Likert scale) if applicable.

RESULTS

Overall baseline patient characteristics (N=20) are listed in the below table. 10 children were randomized to SoC and 10 to iVR. Mean VAS-A scores were 4.9 and 3.1 prior to UDS for SoC and iVR patients, respectively. Two SoC patients were unable to complete testing. 30% of SoC patients, compared to 10% of iVR patients, exhibited at least one interfering or potentially interfering behavior during UDS. 90% of iVR patients reported the technology was helpful, rating it as feeling "very good" or "excellent" to wear the goggles. One iVR child, who had previously undergone 7 UDS, noted the experience was "the best ever."

Patient Characteristics	Number
Median Age (years, range)	8.2 (5.9-25.0)
Female Sex	13 (65%)
Perineal Sensation Present	16 (80%)
History of Prior UDS	18 (90%)
Median # of Prior Studies (range)	2.5 (0-9)
History of Urologic Surgery	9 (45%)

CONCLUSIONS

Active distraction with iVR is a feasible technique that may improve the pediatric UDS experience. While limited numbers precluded statistical analysis, ongoing enrollment will allow for future determination of significant outcomes.

S21-5 (SO)

FERTILITY PRESERVATION IN THE TRANSGENDER POPULATION

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PURPOSE

The transgender population has largely been marginalized by society, causing inequities in health care delivery. The dearth of provider knowledge on transgender health issues further exacerbates these disparities. A survey of the transgender population was conducted to help call attention to the often-overlooked aspect of care: fertility preservation prior to hormone therapy or gender affirmation surgery.

MATERIAL AND METHODS

A survey of 65 transgender individuals was conducted, with participants recruited through Reddit transgender groups and local transgender associations, to assess their knowledge regarding fertility preservation and their experience with healthcare providers. Results were compiled and analysis was performed.

RESULTS

Out of the 65 individuals who responded to the survey, approximately 88% were between the ages of 18 and 39. Seventy-four percent were assigned male gender at birth and 26% female. Sixty-two percent of individuals identified as female, 20% as male, and 18% as gender non-conforming. Only 35% of individuals had ever been cared for in a multidisciplinary transgender clinic. Interestingly, while 100% of surveyed individuals were aware that fertility would be irreversibly lost after hormonal or surgical affirmation surgery and 43% believed this to be an important issue, only 46% had any health care providers discuss fertility preservation options with them.

CONCLUSIONS

Hormonal therapy and gender affirming procedures affect the long-term reproductive potential of transgender individuals. While oncofertility is a prominent area of discussion, transgender care is still lagging. With an increase in medical and surgical therapy in younger individuals, health care providers must discuss fertility preservation options prior to affirmation therapy.

S21-6 (SO)

TRAUMATIC RENAL INJURY COLLABORATION FOR KIDS (TRICK): NATURAL HISTORY AND DEMOGRAPHICS OF HIGH GRADE RENAL TRAUMA FROM A MULTI-INSTITUTIONAL CONSORTIUM

Ching Man Carmen TONG [1], Vinaya BHATIA [2], Gabriella CRANE [3], Jonathan GERBER [2], Christopher LONG [4], Harold LOVVORN [5], Jacob LUCAS [6], Kirstin SIMMONS [1], Ming-Hsien WANG [2], Dana WEISS [4], Xiaoyi ZHUO [2], Madhushree ZOPE [7] and Douglass CLAYTON [1]
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PURPOSE

Pediatric genitourinary trauma most commonly affects the kidney. While most pediatric renal trauma literature consists of smaller, single-center series, TRICK is a new multi-institutional effort between three high-volume pediatric trauma centers. In this report, we characterize injury mechanisms, surgical intervention rates and hospital outcomes.

MATERIAL AND METHODS

We reviewed retrospective data from three American College of Surgeons designated level 1 pediatric trauma centers between 2007 and 2018. We included patients <18 years old with high grade renal trauma, defined as grade III or higher using the American Association for the Surgery of Trauma grading system. We collected demographics, injury characteristics, outcomes and complications data.

RESULTS

253 children sustained high-grade renal trauma. 73% were male and 74% were Caucasian, with a mean age of 13.36 years. 96% were blunt injuries and the most common mechanism was motor vehicle collision (39.5%). Almost 48% sustained concomitant intra-abdominal injuries. 56% arrived from a referring community hospital; 35% arrived directly from the scene. Over 80% needed only conservative management. The remaining patients required either endoscopic ureteral stent placement (30/253, or 12%) or nephrectomy (6/253, or 2.3%). 5% (13/253) underwent angiographic intervention. Average length of hospital stay was 7.8 days. Readmission within 30 days for urologic issues occurred in 22 patients (8.9%), for which intractable flank pain (50%) was the most common indication.

CONCLUSIONS

The current study introduces TRICK, a new large, multi-institutional consortium of renal trauma characteristics and hospital outcomes. We found that high grade renal trauma overwhelmingly resulted from blunt mechanisms and could be successfully managed with conservative measures in over 80% of cases.

15:15 - 15:57 **S22:** **STONES 1 (parallel session, room 2)**
Moderators: Berk Burgu (Turkey)

S22-1 (SO)

INFANTILE NEPHROLITHIASIS-WHAT ARE THE PREDICTORS OF SURGICAL INTERVENTION?

Seha SAYGILI [1], Elif Altınay KIRLI [2], Emre TASDEMIR [3], Nur CANPOLAT [3], Salim CALISKAN [3], Lale SEVER [4], Zubeyr TALAT [2] and Bulent ONAL [2]
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PURPOSE

We evaluated the risk factors for the requirement of surgical intervention in infants (≤ 12 months) with nephrolithiasis.

MATERIAL AND METHODS

Medical records of 122 infants (156 renal units (RUs)) were retrospectively reviewed. Demographic and clinical features, stone characteristics; metabolic and radiological evaluation, changes of stone status and treatment protocols were noted. The stone status of the RU was categorized into 3 groups according to change of size between first and last ultrasound as resolution, unchanged and growth.

RESULTS

Median age was 8 months (range:2-12). Median length of follow-up was 12 months (range:6-36). Majority of the patients (n=68,56%) were diagnosed incidentally. The resolution was detected in 94 RUs (60%). The stone growth was detected in 39 (25%) and stone size was unchanged in 23 RUs (15%). Surgical intervention required in 26 patients (17%). The history of ICU follow-up and stone size >5 mm at the time of diagnosis defined as independent risk factors for stone growth (p=0.012,0.002,respectively). The surgical intervention rate is higher in stones >5 mm

and stones with pelvic localization (p=0.018, 0.021,respectively). Resolution is higher in patients with a stone size ≤5 mm (p=0.018). Regular use of medical treatment strongly related with resolution (p=0.006).

CONCLUSIONS

Medical treatment of metabolic disorder is remarkable factor associated with resolution. Stone size > 5mm at the time of diagnosis and history of ICU follow-up are the independed risk factors for stone growth. Pelvis localization of stone and stones > 5mm are associated with the increased risk of surgical intervention.

S22-2 (SO)

INCIDENCE OF PAEDIATRIC URINARY TRACT CALCULI IN ENGLAND FROM 1999 - 2019

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INTRODUCTION

Our stone centre has seen a 63% increase in the number of new patients over two decades. In order to understand whether this reflects a change in the referral pattern or a true increase in the incidence of urolithiasis in childhood in England, we reviewed NHS England coding data: Hospital Episode Statistics(HES).

METHODS

NHS England prospectively collects all admission data; HES data on diagnoses(ICD-10) and operations(OPCS-4) from 1999/2000-2018/2019 were summarised and analysed using linear regression. 'Paediatric' was defined as <15 years by HES. Any trend was corrected against aged-matched population change as recorded by Office for National Statistics(ONS).

RESULTS

There were 326 diagnoses in 1999/2000 rising to 459 in 2018/2019; a 13.7% increase by linear regression, predominantly due to increase in upper urinary tract calculi. Paediatric population growth was only 7% over the study period.

In terms of stone procedures, open operations have declined 98% by linear regression. The use of ESWL has declined 27%. PCNL was first recorded in 2000/2001 and increased steadily after 2005/2006, endoscopic procedures increased 45% with the biggest change in the last three years representing Retrograde Intra-Renal Surgery(RIRS).

In the last year, kidney stones were treated by open nephrolithotomy 0%, PCNL 22%, RIRS 39%, ESWL 39%. This compares to open nephrolithotomy 28%, PCNL 0%, RIRS 25%, ESWL 47% at the start of the century.

CONCLUSIONS

This study suggests a 7% increase in urolithiasis diagnoses in England for children aged <15yrs.

S22-3: Withdrawn (video presentation not uploaded)

S22-4 (SO)

URINARY STONE IN INFANTS; SHOULD VITAMIN D PROPHYLAXIS BE STOPPED IN ENDEMIC COUNTRIES?

Aykut AKINCI [1], Murat Can KARABURUN [2], Eralp KUBILAY [2], Vahid Talha SOLAK [2], Adem SANCI [2], Tarkan SOYGUR [1] and Berk BURGU [1]
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PURPOSE

Even in some endemic-urolithiasis-countries,routine vitaminD-prophylaxis is a health-policy.Effect of vitaminD-prophylaxis in terms of stone-recurrence in infants is'nt clearly known.In clinical practice,despite recommendations;there is a significant group of caregivers who discontinue vitaminD with concern for stone-recurrence.Aim of study is to evaluate,effect of vitaminD-prophylaxis in terms of stone-recurrence/growth in infants treated for urinary-tract-stones.

MATERIAL AND METHODS

Records between2010-19were retrospectively evaluated for urolithiasis patients-under-2 years;under VitaminD-prophylaxis before admission were retrospectively evaluated in 2seperate groups.First-group who required intervention;second-group who were conservatively followed-up.
Between2010-2019and who used routine vitaminD-prophylaxis before the application were included in study. Patients known to have organic stones such as cystine struvite uric acid were excluded from the study.

In group1 89patients who were stone-free,after-treatment were included.37of these stopped prophylaxis.

Group2 consisted,192patients with conservative follow-up where 81of stopped-vitaminD.
Patients;age/gender/family-history/previous-treatment/largest-stone-size were noted.
All patients;were evaluated by US/CT-scan at the 6th&12th-months follow-up for recurrence/growth.

RESULTS

ForGroup1 characteristics of subgroups regarding vitaminD continuation such as
age(12,30±4,10months;11,04±4,71/(p 0,288)),
gender(28m,9f;34m,18f),
family-history(18.9%;15.4%(p 0.66)))
preoperative-stone-size(11.19±4,16mm;11.81±4,20mm(p0.29))
surgical-technique(p0.75)no statistical-difference was found.

In group continuing-vitamind-prophylaxis on the 6thmonth-ultrasound;17,3%microlithiasis;9,6% Stones(Larger-than-3mm)were seen.In group that doesn't continue;16,2%microlithiasis 8,1%stone was seen.(p0.95)

In group continuing-vitamind-prophylaxis on the 12thmonth-ultrasound;25%microlithiasis;11.5% stones were seen.(Larger-than-3mm).In group that doesn't continue;18.9% microlithiasis;10.8%stone was seen.(p 0.77)

Forgroup2;
Between the group that stops vitaminD-prophylaxis&ongoing-group in terms of
age(9,69 months±4,57; 10,26±4,67 months (p 0,37)),
gender(44m,37f;70m,41f (p 0.22)),
in terms of family-history(16%; 19,8% (P 0.50))
in terms of the largest-stone-size(5,94±2,02mm;6,17mm± 2,32 (p 0.59))
no statistical-difference was found.

While19.8%of patients required surgery in group who left vitaminD-prophylaxis;In ongoing-group,22.5%of surgery was required.There is no statistical-difference.(p0.64)

When evaluated in terms of stone-size change at the end of the 6thmonth,there was no difference between groups(stopped-vitaminD-prophylaxis;ongoing-group)(1,88mm;1,75mm/(p0,61)

When evaluated in terms of stone-size change at the end of the 12thmonth,there was no difference between groups(stopped-vitaminD-prophylaxis;ongoing-group)(2,36mm;2,55mm/(p0,60)

CONCLUSIONS

An important group of patients quit vitamind-prophylaxis,with concerns about kidney-stones.However vitamind-prophylaxis,didn't increase stone-recurrence,stone burden and need for surgery regardless of previously intervention/follow-up.

S22-5 (SO)

ASYMPTOMATIC NEPHROLITHIASIS IN CHILDREN: HOW OFTEN SHOULD PATIENTS RECEIVE FOLLOW-UP ULTRASOUND IMAGING?

John JAYMAN [1], Hannah PROCK [1], Sweta CHALISE [2], Monica EPELMAN [3] and Pamela ELLSWORTH [4]
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PURPOSE

The natural history of asymptomatic nephrolithiasis (AN) in children is not well defined and frequency of ultrasound evaluation not well established. Renal ultrasound studies are often obtained at 6-month intervals. The goal of this study is to evaluate the rate of stone progression and associated risk factors to determine optimal ultrasound interval.

MATERIAL AND METHODS

A retrospective IRB approved chart review was performed for patients seen for AN between 2012-2019. Patients with stone passage or stone procedure were excluded. Descriptive statistics were used for demographic information. A multivariable linear model was used to analyze risk factors. Statistical significance was set to $p<0.05$ a priori.

RESULTS

Thirty-three patients had 102 ultrasounds performed. The average age of diagnosis of AN was 11.8 years (SD±5.1). The average number of ultrasounds studies per patient was 3.1 (SD±1.5). The median time between follow-up ultrasounds was 7.2 months [IQR 0-19.1].

For the entire cohort, the change in largest stone size occurred at a rate of 0.084 mm/month or 0.504 mm/6 months. Patients with a renal anomaly had a three-fold increase in stone size compared to those without an anomaly (2.96 [CI 1.9-9.7], p=0.0046). Of those with a renal anomaly, 6 (54.5%) had hydronephrosis.

CONCLUSIONS

The small change in stone size over time favors a longer than 6-month interval for many children with AN. Our results suggest those with a renal anomaly, especially hydronephrosis, require more frequent follow-up.

22-6: Withdrawn (video presentation not uploaded)

S22-7: Withdrawn (video presentation not uploaded)

16:05 - 16:45 **S23:** **STONES 2 (parallel session, room 2)**
Moderators: Ana Bujons (Spain)

S23-1 (SO)

IS RETRORENAL COLON A FACTOR TO CONSIDER FOR THE SUPINE PCNL APPROACH IN THE PEDIATRIC POPULATION?

Yesica QUIROZ MADARRIAGA [1], Esteban EMILIANI [2], Erika LLORENS DE KNECHT [1], Daniela VILLADA FLOREZ [1], Guilherme MOTTA LANG [1], Claudia QUINTIAN SCHWIETERS [3] and Anna BUJONS [1]
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PURPOSE

PCNL has become one of the main approaches in complex stones, but the most severe complication is colonic perforation. The aim of this study is to evaluate the incidence of retrorenal colon (RRC) in CT scans of pediatric patients, regarding their position to evaluate which may be safest way to puncture the kidney.

MATERIAL AND METHODS

Prospective review of 50 CT scans in 44 patients aged under 18-years-old was performed: 25 in supine and 25 in prone position. The mean age was 12.6 years and 71.4% were male. All scans were performed in the same center and the measurements were made in the axial plane with the guidance of the sagittal and coronal planes. The ideal theoretical path for percutaneous puncture was traced through the posterior calyx of upper/mid/lower poles of both kidneys in prone and supine decubitus, the contact with kidney and/or adjacent organs was evaluated.

RESULTS

The retrorenal colon (RRC) incidence for the inferior calix of left kidney (LK) was significantly higher in prone position compared to supine position: 28 vs 4% respectively ($p = 0.049$), while in the right kidney (RK) it only appeared in prone (4%). The RRC in the upper and mid left calyces puncture have a tendency, not statistically significant, of being higher in prone than in supine. The liver was the most frequent retrorenal organ (97.7%) for the RK with a non-significant difference by position and the spleen was the most common (61.1%) for the LK. The maximum access angle in the RK was greater in the prone position, but in the LK was in supine, without significant difference.

CONCLUSIONS

The incidence of RRC seems to be lower in the supine position, demonstrating that this position is safer for the percutaneous approach of stones in children.

S23-2 (SO)

PERCUTANEOUS NEPHROLITHOTOMY (PCNL) FOR INFANT VERSUS ADOLESCENT STAGHORN CALCULI: A COMPARATIVE STUDY

May BISHARAT [1], Alex CHO [2], Wesley HAYES [3], William VAN'T HOFF [4], Simon CHOONG [5], Alex BARNACLE [6] and Naima SMEULDERS [2]
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PURPOSE

PCNL is the gold standard procedure for Staghorn calculi. We hypothesize that infant kidneys are more malleable, requiring less tracts for stone clearance. We compare PCNL for Staghorn stones in children aged 0-3yrs and 13-16yrs.

MATERIAL AND METHODS

With institutional approval, data of children aged 0-3yrs and 13-16yrs undergoing PCNL at our institution between November 2009 and October 2019 were reviewed from our prospective procedural database. Statistical analysis was performed using chi-squared test.

RESULTS

The infant (19 renal units) and adolescent (16 renal units) groups underwent 22 PCNL procedures each for Staghorn calculi of similar complexity (partial:1vs2; complete:17vs15; complicated 4vs5), although cumulative diameter was greater in adolescents. Infants all had a single tract, while adolescents had 18-single, 2-double, 1-triple and 1-quadruple tracts(p=0.031). Stone free rate(SFR) after first PCNL was 86.3% and 81.8% for infants and adolescents, respectively(p=0.6). Operative time was significantly longer in adolescents(p=0.003),as was the need for further PCNL(p=0.028). See Table 1 for further details.

Range(median)	Infants (n=19)	Adolescents (n=16)	Chi-squared
Age	0.9-2.8yrs(1.7yrs)	13.0-15.8yrs(14.3yrs)	
M:F	15:4	7:9	
Weight	8.0-14.2kg(11.7kg)	34.4-101kg(60.2kg)	
PCNL: Staged-PCNL Recurrent stones Total multiple-PCNL	22 in 19 2 in 2 1 in 1 3/19(15.7%)	22 in 16 5 in 3 1 in 1 6/16(31.25%)	 p=0.028
Staghorn: partial complete complicated	 1 17 4	 2 15 5	
Stone-burden	14-49mm(24.9mm)	16-88mm(41.7mm)	p=0.005
Multiple-tracts	0/22(0%)	4/22(18%)	p=0.031
Operative-time	90-180min(132min)	135-350min(192min)	p=0.003
Complications	2/22(9%)	4/22(18%)	p=0.37
SFR after PCNL	19/22(86.3%)	18/22(81.8%)	p=0.6
Ancillary ESWL	4/22(18.1%)	8/22(36.4%)	p=0.18
Overall SFR	22/22(100%)	20/22(90.9%)	p=0.15

Table 1

CONCLUSIONS

This study confirms that PCNL for Staghorn stones is more straight-forward in infants as compared to adolescents despite similar complexity of calculi.

S23-3: Withdrawn (video presentation not uploaded)

S23-4 (SO)

PREDICTION OF STONE-FREE STATUS AFTER SINGLE-SESSION RETROGRADE INTRARENAL SURGERY IN PEDIATRIC POPULATION

Lucia MOSQUERA [1], Yesica Yasmin QUIROZ MADARRIAGA [2], Alejandra BRAVO BALADO [1], Erika LLORENS DE KNECHT [1], Laia SABIOTE [1] and Anna BUJONS TUR [1]
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INTRODUCTION

Retrograde intrarenal surgery (RIRS) is the elective treatment in multiple stones scenarios in adults, however in children is not so widely used. Our aim is determine the possible factors affecting stone-free status (SFS) after single-session retrograde intrarenal surgery (RIRS) for renal stones.

MATERIAL AND METHODS

We analyzed prospectively data of 55 RIRS in 39 children (51,3% female, main age 12 years) in a period of 5 years. Patient demographics, BMI, urological malformations, recurrent UTIs hydronephrosis, urine pH, location, number and size of stones, presurgical double J stent (JJ), surgical time, ureteral sheet, SFR and complications were analyzed and reported. We performed multivariate logistic regression.

RESULTS

Median BMI was 18,9 and 36,4% of the patients had urological malformations, 58,2% had previous stone treatment y 41,8% had JJ, but either of these factors presented significant association with SFR. Median stone diameter was 9mm(IQR7-13), the most frequent location was in the renal calyces (49,1%) and 64% were multiple. The median surgical time was 111 minutes and the median hospital stay was 2 days. Regarding the composition of the stones, 36,4% were made of calcium oxalate, followed by calcium phosphate (20%), but did not have significant association with SFR. The SFR of the single-session of RIRS was 82,7% and in the bivariate analysis surgical time, multiple (>3) and complex stones were statistically significant, but in the multivariate analysis only the number of stone was significant (OR11,26 IC95%1,11-112,9, p=0,04).

CONCLUSIONS

The factor more reliable in predicting single-session RIRS success is the number of stones and the characteristics of the stone, like their complexity maybe can be used in future nomograms. This is the first study of predicting factor in pediatric RIRS.

S23-5 (SO)

FACTORS AFFECTING SUCCESS RATES OF RETROGRADE INTRARENAL SURGERY IN CHILDREN: RESULTS OF A MULTI-INSTITUTIONAL RETROSPECTIVE ANALYSIS BY THE TURKISH PEDIATRIC UROLOGY SOCIETY.

Onur KAYGISIZ [1], Tarkan SOYGUR [2], Mehmet Mesut PIŞKIN [3], Hasan Serkan DOĞAN [4], Yıloren TANIDIR [5], Serhat GÜROCAK [6], Bülent ÖNAL [7], Murat Can KIREMIT [8], Hakan KILIÇARSLAN [1], Berk BURGU [2], Yunus Emre GÖGER [3], Cem AKBAL [9], Eda TOKAT [6], Elif ALTINAY KIRLI [7], Yakup KORDAN [8] and Serdar TEKGÜL [4]
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PURPOSE

Pediatric retrograde intrarenal surgery (RIRS) has been increasingly applied to the upper urinary system stones in recent years. However, the number of studies on the pediatric RIRS is very limited. The aim of the study was to assess the predictive factors of the stone free (SF) status after pediatric RIRS.

MATERIAL AND METHODS

We retrospectively evaluated 369 renal units in 354 children treated with RIRS at eight referral centers. Stones were divided into three groups according to their size. (GroupI: <10mm; II: 10-20mm; III: >20mm) Renal stone index was calculated by dividing the length of the stone along its longest axis by the length of the kidney along its longest axis. Univariate and multivariate analyses were done to determine predictive factors affecting SF status.

RESULTS

Mean age was 7,1± 4,9 (0,5-17) years. Mean stone size was 11,77± 6,9 (3-43) mm. SF rate after one session of RIRS was 71.4%. When stone-free renal units were compared with other renal units, there were significant differences in the stone location, stone size, and renal stone index (p<0.001, p<0.001, p=0.015; respectively). In multivariate analysis, factors that predicted failure were the stone size, stone location and power of holmium:yttrium-aluminium-garnet (Ho:YAG) laser lithotripsy machine. The risks of failure after RIRS were found 2,9 times higher for multiple locations (comparing to solitary location, p=0,014); 4,7 times higher for stones> 2 cm (comparing to stones <1 cm; p=0,029); 2,64 times higher for the use of low-power Ho:YAG laser lithotripsy machine (15/20 to 30 W, p=0,049).

CONCLUSIONS

Stones larger than 2 cm and multiple locations are the risk factors for failure in pediatric RIRS. High power lasers should be used during pediatric RIRS.

S23-6: Withdrawn (author request)

S23-7: Withdrawn (video presentation not uploaded)

16:45 - 16:50 **CLOSING**
Ram Subramaniam (UK)

VIDEO DISPLAY (no presentation)

VD-1 (VS without presentation)

★ SINGLE INSTITUTION EXPERIENCE WITH COMPLETE PRIMARY REPAIR OF BLADDER EXSTROPHY IN THE GIRL AND CURRENT COLLABORATIVE TECHNIQUE

Joseph BORER [1], Alyssia VENNA [1], Dana WEISS [2], Travis GROTH [3], Aseem SHUKLA [2], Elizabeth ROTH [3], John KRYGER [3], Lauren CULLEN [1], Jen FRAZIER [2], Melissa LINGONGO [3], Douglas CANNING [2] and Michael MITCHELL [3]
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PURPOSE

We review our experience with Complete Primary Repair (CPRE) in girls with bladder exstrophy (BE), identify potential risks for retention and detail current CPRE technique.

MATERIAL AND METHODS

All girls with BE post-CPRE at our institution since 1998 were reviewed and grouped by CPRE timing; before (newborn) or after (delayed) 72 hours of age. We recorded operative age, anatomic dimensions, osteotomy, pelvic immobilization and clinical course. Urinary retention was defined as requiring relieving procedure(s) and/or clean intermittent catheterization (CIC).

RESULTS

Twenty-four girls underwent CPRE. In 2012, we changed to performing CPRE at approximately 6-8 weeks of age. Eight (33%) had newborn and sixteen (67%) delayed CPRE (Table). Three (delayed group) experienced retention; 1 required bladder rupture repair/temporary CIC, another required long-term CIC, and 2 of the 3 required bladder neck (BN) incision. Urethral plate length in 3 with retention was 5mm, 16mm and 18mm. Delayed girls had a significantly narrower BN compared to newborns. Continence outcomes >14 years for 6 girls in the newborn group; 1 of 6 (17%) required BN reconstruction. For those with >5 years follow-up in the delayed group 1 of 8 (13%) required BN closure.

CPRE Characteristics and Outcomes		
	Newborn CPRE	Delayed CPRE
Number of Girls (%)	8 (33)	16 (67)
Age at CPRE: days (range)*	1.75 (1-3)	282 (26-1988)
Osteotomies: number (%)***	0 (0)	14 (88)
Bladder Neck Width: mm; mean (range)*	20 (18-20)	17 (15-20)
Urethral Plate Length: mm; mean (range)	11 (8-16)	12 (5-18)
Pelvic Immobilization**		
Modified Bryant's Traction	8	4
Spica Cast	0	12
Urinary Retention post-CPRE: number (%)	0 (0)	3 (19)
*p<0.05, **p<0.001, ***p<0.0001		

CONCLUSIONS

Extremes of urethral plate/urethral length and narrower BN potentially increased retention risk. Timing of CPRE and immobilization technique may not impact retention risk. Current CPRE technique includes shorter urethra and wider BN.

VD-2 (VS without presentation)

★ SYNCHRONOUS BILATERAL ROBOTIC ADRENALECTOMY FOR RARE CAUSE OF HYPERCORISOLISM IN CHILDREN

Pauline LOPEZ [1], Alix BESANCON [2], Berenice TULELLI [1], Michel POLAK [2], Sabine SARNACKI [1] and Thomas BLANC [1]
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PURPOSE

Autonomous secretion of cortisol from the adrenal glands - or ACTH-independent Cushing syndrome - is a rare but challenging condition in children. Because of bilateral micronodular or macronodular adrenal disease, surgical strategy is the definitive treatment to correct hypercortisolism and its complications. Robotic assisted transperitoneal laparoscopic synchronous bilateral adrenalectomy (SBA) has never been reported in children.

MATERIAL AND METHODS

Patients who underwent synchronous bilateral robotic adrenalectomy between 2016 and 2018 were identified. The children were operated in supine position with only one set up working for both sides. Four 8-mm robotic ports were inserted along the abdominal midline with one assistant port. The 30-degree laparoscope was placed through the umbilicus, and the operating trocars were inserted below the xiphoid process, midway between the xiphoid process and the umbilicus and between the umbilicus and symphysis pubis. The procedure was started on the left side. The adrenal veins were dissected and controlled with the vessel sealer without bleeding. After booming the robot, the procedure was done on the right side.

RESULTS

Four children underwent SBA with a robotic assisted transperitoneal laparoscopic approach, two Carney complex in prepubertal girls (9 year-old; 26 and 39 kgs) and two Mac Cune Albright syndrome in infants (7 month-old, 4.6 kgs and 1 year-old, 7 kgs). Neither intra-operative complication nor bleeding occurred. Mean operating time was 300 minutes. One post-operative complication occurred: a retroperitoneal collection in the adrenal bed, needing percutaneous drainage.

CONCLUSIONS

Robotic assisted transperitoneal laparoscopic SBA is a safe and feasible procedure, in children, including infants.

VD-3 (VS without presentation)

★ ROBOTIC-ASSISTED LAPAROSCOPIC REPAIR OF A CONGENITAL RECTOURETHRAL FISTULA WITH DUPLICATED URETHRA

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PURPOSE

Congenital rectourethral fistulas are a form of anorectal malformations occurring in less than 1/5000 births. This finding associated with a duplicated urethra is uncommon, with very few reported in the literature. While various techniques are described for this complex repair, the optimal approach remains unclear. We report our experience with a robotic-assisted laparoscopic repair of a congenital rectourethral fistula in an infant with a duplicated urethra.

MATERIAL AND METHODS

The patient is a 2 year old boy who developed a febrile urinary tract infection during an early hospitalization for Tetralogy of Fallot. A renal and bladder ultrasound was normal, but a voiding cystourethrogram (VCUG) revealed several findings. He was noted to have bilateral bladder diverticula, a duplicated urethra, and a rectourethral fistula.

A cystoscopy and proctoscopy were performed at 16-months-old which did not identify the fistula tract endoscopically. He was subsequently scheduled for definitive surgical repair using a robotic approach.

RESULTS

The total operative time was 229 minutes with an estimated blood loss of 15 mL. The fistula was identified using a posterior approach by developing the plane between the prostate and rectum. The fistula was divided and the posterior urethra and rectum were closed using multiple layers. The Foley catheter was kept for two weeks and the patient was able to void normally with normal bowel movements.

CONCLUSIONS

Robotic-assisted laparoscopic repair of a congenital rectourethral fistula in an infant is a safe and technically feasible procedure. This approach allows for excellent visualization and fine dissection of the fistula in an otherwise narrow field.

VD-4 (VS without presentation)

★ MINI ENDOSCOPIC COMBINED INTRA-RENAL SURGERY WITH ENDOVIEW PUNCTURE IN A 12 MONTH BOY - A SAFE BUT CHALLENGING PROCEDURE

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INTRODUCTION

Associating minipercutaneous nephrolithotomy and retrograde flexible ureteroscopy (fURS) is called Mini Endoscopic Combined Intra-Renal Surgery (miniECIRS). It's a safe and efficient technique, also in children.

PATIENT AND METHODS

After a second febrile UTI and spontaneous expulsion of stones, a 12 month old boy was diagnosed of an infectious pelvic left stone (16mm) and multiple caliceal stones. He underwent preoperative non-contrast CT scan to establish the morphologic features of the kidney and stone. He was treated with the miniECIRS technique. In Galdakao-modified supine Valdivia position and under general anesthesia a left semi-rigid ureteroscope (4,5F) was performed. Two guidewires and a ureteral access sheet (10.5F) were introduced, and the URSf (Storz Flex-X^c) was ascended. Keeping the same position, puncture of the inferior calix was carried out using a 0º-90º degree fluoroscopy-guided technique. With endovision-control, the percutaneous tract was established. Dilation was achieved using progressive dilators (8-10F) to accommodate a 14F access sheath (semi-closed-circuit vacuum-assisted system). To achieve the stone fragmentation a 275micras Holmium: YAG laser fiber (0,8J-10Hz) was used. Simultaneously, lasertripsy through the URSf was performed. To complete the extraction of the stones a nitinol basket was used. A nephrostomy tube (8,5F) and double J (4,8F) were placed.

RESULTS

The operative time was 180 minutes and blood losses were virtually absent. There were no intra- or post-operative complications and the patient was discharged at the 5th day. After 1 month, double J was removed having a stone free status

CONCLUSIONS

MiniECIRS with endoview puncture is a safe and efficient technique when performed by experienced hands. Therefore, it is an alternative to consider for the treatment of lithiasis in the pediatric population

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VD-5 (VS without presentation)

MODIFIED SECOND STAGE OF FOWLER-STEPHENS ORCHIOPEXY IN THE PRESENCE OF A LOOPING VAS DEFERENS.

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PURPOSE

Testicular rerouting in second stage of the Fowler-Stephens orchiopexy (FSO) makes the ductal artery (DA) the last source of arterial blood supply to the testicle. Testicular mobilization in the area of the internal inguinal ring (IIR) in the presence of a looping vas (LV) is associated with a high risk of damage of DA. The proposed maneuver allows saving the blood supply of the testicle and to facilitate its mobilization.

MATERIAL AND METHODS

The manuever consists of laparoscopically forming a triangular parietal flap: after dissection of the peritoneum at the site of the previous vessels electrocoagulation, incision continues laterally in the direction of the IIR then goes along the anterior semicircle of IIR (the Nuck's diverticulum entrance). Ipsilateral scrototomy is performed, visualizing the Nuck's diverticulum and mobilize it to the level of IIR. Invert the Nuck's diverticulum into the abdominal cavity together with the adjacent LV. Laparoscopically complete mobilization of the testis. Trocar is introduced into the ipsilateral medial fossa through the formed scrotal access. Placement of the testicle into the scrotum (using a clamp introduced through the trocar). Revert the Nuck's diverticulum, immerse the testicle in it. Orchiopexy.

Between 2009-2019, 123 FSO were performed. In 85 cases a LV was discovered or an accurate verification of its pressence could not be performed. 37 patients underwent conventional FSO (group 1) and 48 underwent modified FSO (group 2). Follow up >9 month.

RESULTS

Testicular atrophy rate in the first group (conventional FSO) was 18.9% and 4.2% in the second group (modified FSO) ($p<0.05$).

CONCLUSIONS

Performing transcrotal mobilization of the Nuck's diverticulum minimizes the risks of ductal artery damage, especially in patients with LV and in cases when accurate verification of its presence is complicated. This maneuver does not require additional incisions and is easily reproducible.

VD-6 (VS without presentation)

STAGED LAPAROSCOPIC TRACTION ORCHIDOPEXY FOR IMPALPABLE TESTES: PRELIMINARY OUTCOMES

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PURPOSE

Intra-abdominal testes commonly have short vascular pedicles which mandate a staged technique. Shehata et al. (J Pediatr Surg 2016;51:211-5) described staged laparoscopic traction orchidopexy (SLTO) to elongate the testicular vessels without division. We report the first UK experience using this principle and modification to enable the mobilisation of the testis to be performed entirely laparoscopically at the 2nd stage.

MATERIAL AND METHODS

Prospective sequential study of all boys operated by 2 surgeons in a single centre (2017-2019) with intra-abdominal testes and a short vascular pedicle.

1st stage procedure was division of the gubernaculum and lateral peritoneal attachments, stretching and securement of the intra-abdominal testis to the contralateral anterior abdominal wall with 2/0 Ticron stitch. The 2nd stage procedure was performed 3 months later with laparoscopic cutting of securing stitch, introduction of an 11mm STEP port trans-scrotally to retrieve the testis and secure testis in a sub-dartos pouch.

Outcomes were the presence of a palpable testis in the scrotum, ultrasound measurement of testicular volume and peri-operative complications. Data is presented as median (IQR).

RESULTS

16 boys were included in the study with 19 impalpable testes; 3/16 (18%) were bilateral. The median age was 2.7 years (2.2-7.9) at 1st stage. Clinical assessment 6 months after 2nd stage has been done in 14/19 testes; 13/14 (93%) patients had a palpable testes in the scrotum, 1/14 (7%) patient required a further inguinal procedure for a high testicular position.

Ultrasound assessment was done in 10/19 testes; median testicular volume was 0.5ml (0.4-1.2). 1 diathermy injury to the bladder necessitated laparoscopic repair. 3/19 testes had a "slipped suture" at the time of the 2nd stage, requiring a repeat 1st stage procedure.

CONCLUSIONS

Staged laparoscopic traction orchidopexy is as a feasible alternative to Fowler-Steven's procedure, with potentially improved testicular outcomes. The complications described should be preventable as the technique evolves.

VD-7 (VS without presentation)

ONE STAGE FOWLER STEPHENS ORCHIDOPEXY FOR PEEPING INTRA-ABDOMINAL TESTIS: A STEP BY STEP VIDEO WITH DETAILS AIMING TO AVOID COMPLICATIONS

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PURPOSE

The surgical treatment for intra-abdominal testis can be challenging and, in many cases, it requires the ligation of the spermatic vessels in order to achieve adequate length to bring the testis to scrotal position. Fowler and Stephens proposed an original one-stage technique that has been later modified and staged in order to improve outcomes.

The objective of this video is to present a didactic description of a single stage open orchidopexy with technical tips and tricks that can potentially avoid testicular atrophy.

MATERIAL AND METHODS

The authors present a 5-min video of a single stage open Fowler- Stephens orchidopexy in an 18-month-old boy with a right peeping intra-abdominal testis. Surgical details are illustrated in didactic steps aiming to facilitate learning and optimize outcomes.

RESULTS

The patient had an uneventful post-operative course. The right testis was palpable in scrotal position and an ultrasound confirmed its viability and normal volume 6 months after the orchidopexy.

CONCLUSIONS

This video provides detailed and informative steps for performing the open Single-Stage Fowler-Stephens orchidopexy for the treatment of a peeping intra-abdominal testis.

VD-8 (VS without presentation)

PER-MITROFANOFF CYSTOLITHOTOMY (PMCL) FOR BLADDER CALCULUS

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PURPOSE

We describe the use of the Super-Mini (SMP) system via a pre-existing Mitrofanoff channel for the management of a bladder stone in an augmented bladder. The Hawk SMP System was developed primarily for PCNL access. It consists of a miniaturised 8F nephroscope with a working channel that allows for a laser fibre or stone basket. This nephroscope passes through a unique 14F sheath that allows for continuous irrigation and suction.

MATERIAL AND METHODS

Operative Steps:
Under general anaesthesia, with the patient supine and intravenous antibiotics on induction, a diagnostic mitrofanoscopy is undertaken with a 9.5F cystoscope. A 0.035" PTFE-Nitinol Guidewire
with Hydrophilic Tip is then passed via the mitrofanoff channel as a safety wire. The mitrofanoff tract is then gently dilated serially to 16F before the 14F SMP system is introduced. A holmium-YAG laser is used under direct vision on a "dusting" setting to break the stone into fine fragments without the need for basket retrieval.

Tips:
1) As the stone gets smaller and more mobile or for any larger fragments, the stone can be immobilised by the tip of the SMP sheath to allow accurate delivery of laser energy
2) Fragments can be suctioned under direct vision assisted by the vortex created by the SMP sheath.

RESULTS

The patient was discharged home the following day and CIC via the Mitrofanoff channel was re-started 3 days later. The patient then began an increased regime of bladder washouts to prevent stone recurrence.

CONCLUSIONS

This PMCL procedure utilities the pre-existing Mitrofanoff to access the bladder and avoids the need to create any incisions. The 14F Hawk SMP System will be feasible to be passed through most Mitrofanoff channels and the continuous suction aids stone fragment extraction.

VD-9 (VS without presentation)

TRANSPERITONEAL ROBOTIC-ASSISTED LAPAROSCOPIC TRANSPLANT-TO-NATIVE URETEROURETEROSTOMY AS SECONDARY PROCEDURE AFTER FAILED URETEROVESICAL REIMPLANTATION FOR RENAL TRANSPLANTATION

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PURPOSE

Ureteral complications of renal transplantation, such as vesicoureteral reflux, can dramatically impact renal outcomes in the pediatric transplant population. Our aim was to describe a robotic-assisted laparoscopic transplant-to-native ureteroureterostomy (RALTNUU) as secondary procedure after failed ureterovesical reimplantation for renal transplantation.

MATERIAL AND METHODS

We performed a RALTNUU in a 7-year-old girl (21kg). She had had a deceased donor kidney transplantation 3 years ago for nephronophthisis with extravesical ureteroneocystostomy with stenting. Because of urinary tract infection, voiding cystourethrography was performed and demonstrated the presence of VUR into the transplant ureter. Two years after endoscopic antireflux surgery, rising creatinine and increasing hydronephrosis led to the diagnosis of delayed obstruction.
At the beginning of the procedure, a ureteral stent was inserted in the transplant ureter (blue) and in the native ureter (yellow). The child was operated in supine position. Four 8-mm robotic ports were inserted with one assistant port. When the transplant and native ureters were identified, a dependent portion of the transplant ureter near the renal pelvis was opened longitudinally, at a location permitting enough mobility of the native ureter to avoid tension. An opposing incision was made in the native ureter and side-to-side anastomosis was performed using 6-0 PDS suture.

RESULTS

Console time was 95 min with minimal blood loss. Postoperative course was unremarkable. Serum creatinine decreased from 163 µmol/L to 56 µmol/L and follow-up imaging showed an improvement in hydronephrosis at 6 months follow-up.

CONCLUSIONS

RALTNUU is a feasible approach for the treatment of transplant ureteral obstruction.

VD-10 (VS without presentation)

AN UNUSUAL FLEXIBLE URETEROSCOPY FOR URETERAL STONE IN TRANSPLANTED KIDNEY

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PURPOSE

Urolithiasis is observed rarely in renal graft and has an incidence of 0,2 to 3 %. To assess the safety and efficacy of minimally invasive procedure for urolithiasis in transplanted kidney.

MATERIAL AND METHODS

We report the case of an 11 year old boy which presents with a 8 mm ureteric stone in a transplanted kidney. Transplantation was performed with a living donor 1 year before for nephronophthisis. There was no urolithiasis in the father pre-transplant assessment. The ureteral stone was found on ultrasound scan 1 year after the transplantation. The ureter was reimplanted into the bladder using the Lich-Gregoir procedure, forbidding any access using standard ureteroscopy.

RESULTS

A double J stent was first placed as the upper tract was dilated. A 5 mm port was placed through the lateral bladder wall, facing the ureteral meatus in order to introduce a guide in the renal cavities. After introducing a 6Fr sheath into the bladder a flexible ureteroscope was introduced into the ureter. A Dormia basket allowed to remove the stone. A trans-urethral catheter was left in the bladder for 4 days after the surgery. No intraoperative complications occurred.

CONCLUSIONS

Minimally invasive procedures (monotherapy or combination one) for urolithiasis in transplanted kidneys are safe and effective, with a high overall stone-free results.

VD-11 (VS without presentation)

CIRCUMCISION IN BURIED PENIS: PRESERVING THE SHAFT SKIN INTACT

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PURPOSE

Buried penis is a condition in which the penis is partially or completely hidden .Different surgical techniques have been described where the removal of the abnormal Dartos attachments and fixation of penile skin to Bucks Fascia are the key steps in the repair. The aim of this video is to illustrate the technical details of an approach already published by one of the authors

MATERIAL AND METHODS

A case of a toddler with congenital buried penis is presented. Circumcision was requested by the family.The correction was started with coronal incision and complete degloving of the shaft. The dissection of the abnormal dartos at the penoscrotal and the penopubic angles was completed by exteriorizing the shaft through an additional midline scrotal incision leaving the cylinder of penile skin intact. This maneuver avoids any incision of the shaft skin. In addition, it makes easier and precise the fixation sutures of the penopubic and penoscrotal angles. Differently from the original publication, the penopubic fixation was performed without additional skin incisions .

RESULTS

The patient had stable exteriorization of the shaft after 1 year follow up .

CONCLUSIONS

The present approach allows anatomical restoration of the penopubic and penoscrotal angles preserving the penile skin intact .

VD-12 (VS without presentation)

RETROPERITONEAL PRONE ROBOTIC ASSISTED LAPAROSCOPIC NEPHRECTOMY OF THE LOWER POLE NONFUNCTIONING PELVI-URETERIC JUNCTION OBSTRUCTION IN INCOMPLETE DUPLICATED SYSTEM

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PURPOSE

Ureteropelvic junction obstruction (UPJO) in a duplicated collecting system, either incomplete or complete, usually affects the lower renal moiety.
Our aim was to describe prone retroperitoneal approach for robotic lower-pole heminephrectomy

MATERIAL AND METHODS

The procedure was performed in a 16-year-old girl (53kg). She was diagnosed with incomplete duplicated system and UPJO. MRI demonstrated a massively dilated lower pole and the renal scan confirmed its nonfunction.
The child was operated in prone position.
The first 8-mm robotic Hasson trocar was inserted under direct visual control along the edge of the sacro-lumbar muscles, at the level of the tip of the 12th rib. The working space was created by blunt dissection
Two additional robotic working ports were placed more lateral on a line below the tip of the 12th rib. One assistant port was inserted
After docking, when the instruments are inserted, the Gerota's fascia was widely opened in a caudo-cranial manner. The kidney was approached posteriorly. The lower pole renal pelvis was highly dilated with major inflammation. The duplex polar vascular anatomy was clearly defined.
After clear identification of the ureters of both moieties, the lower pole ureter was transected taking care not to damage the upper pole ureter
Careful dissection of the affected moiety allowed identification of polar vessels. These vessels were divided using Harmonic scalpel. Parenchymal section was performed using the same sealing system. No drainage tube was left in situ

RESULTS

Console time was 240 min with minimal blood loss. Postoperative course was unremarkable. Postoperative doppler ultrasound showed healthy upper pole at 2 months follow-up.

CONCLUSIONS

The prone robotic retroperitoneal approach is feasible and may be interesting for kidney and adrenal surgery

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VD-13 (VS without presentation)

ROBOTIC PROXIMAL URETEROURETEROSTOMY FOR FAILED OPEN DISTAL URETEROURETEROSTOMY IN AN INFANT WITH AN ECTOPIC DUPLICATED URETER

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PURPOSE

The aim of this study is to describe robotic proximal ureteroureterostomy (UU) for a failed open distal UU in an infant with an ectopic ureter

MATERIAL AND METHODS

A 1 year old female had complete duplication of her right collecting system. The right upper moiety ureter was draining ectopically and appeared obstructed. She underwent an open upper to lower distal UU at another institution, and then had two postoperative pyelonephritis episodes. Her right lower pole hydronephrosis increased on serial ultrasounds. She was referred for a re-do surgical intervention. Right retrograde pyelogram showed a severely dilated distal lower moiety ureter. We proceeded with a robotic proximal UU with robotic distal ureteroplasty to close the distal lower pole ureter at the site of the previous low uretero-ureterostomy procedure. The ureteral closure was performed using 5-0 Monocryl in a running fashion in 2 layers. After undocking the robot, we removed the specimens using a 5 mm scope and 5 mm laparoscopic Bag.

RESULTS

Total operation time was 302 minutes and the console time was 197 minutes. The estimated blood loss was minimal. There were no complications during the procedure. The patient was discharged on postoperative day 1. At

2 months postoperatively, the retrograde pyelogram showed no signs of extravasation or stricture, so the DJ stent was removed. The patient is symptom-free after DJ stent removal and will be followed up with serial ultrasounds.

CONCLUSIONS

Robot-assisted laparoscopic proximal UU after failed open distal UU is a safe and effective alternative to open UU in infant patients with duplication anomalies.

VD-14 (VS without presentation)

ROBOTIC DISMEMBERED TUBULARIZED FLAP PYELOPLASTY FOR LONG SEGMENTAL URETERAL OBSTRUCTION

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PURPOSE

The aim of this study is to describe Robotic dismembered flap pyeloplasty of the ureteropelvic junction obstruction.

MATERIAL AND METHODS

A 22 years old male without previous medical history was diagnosed with ureteropelvic junction obstruction after acute left flank pain. Preoperative Tc-99m MAG3 kidney scans showed delayed T1/2 more than 20min. Abdominal CT showed severe left renal hydronephrosis with anteroposterior pelvic diameter of 38mm. The operation was performed using Da Vinci Si robot system. An obstructed segment of the left ureter at the ureteropelvic junction was found through the transmesenteric approach. Dismembered pyeloplasty was not feasible due to severe tension for the length of an appropriate anastomosis. Further mobilization of upper pole kidney did not yield enough lengths. We planned flap pyeloplasty and manipulate a useful flap by dissecting the anterior pelvis with Potts scissors. The defected site of the posterior wall of ureter was covered widely with a rotational flap after further spatulation. A 4.7Fr ureteral stent was inserted via the assistant port, and the pelvic flap was tubularized and anastomosed to the end of the ureter.

RESULTS

The total operation time was 6 hours and 5 minutes, and the robot console time was 4 hours and 6 minutes. The time taken for ureteral anastomosis was 42 minutes. There was no complication during the operation of the patient with an estimated blood loss less than 50ml. The patient discharged at postoperative day 9. The ureteral stent was removed 8weeks postoperatively. Six months after the operation, hydronephrosis disappeared on ultrasonography and completely resolved obstruction of urinary tract was found on Tc-99m MAG3 with T1/2 of 6.8 min.

CONCLUSIONS

Robotic Dismembered Tubularized Flap Pyeloplasty is a time consuming and difficult procedure. However, this procedure can be successfully performed robotically to bridge a long upper ureteral defect.

VD-15 (VS without presentation)

ORIGINAL TECHNIQUE OF LAPAROSCOPIC VASCULAR HITCHING IN CHILDREN WITH URETEROPELVIC JUNCTION OBSTRUCTION

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PURPOSE

Chapman and Hellstrom techniques are typically employed for transposition of renal lower pole crossing vessels (CV). Both procedures have their limitations related to anatomic specifics of the pelvis, CV and perivascular tissues.

MATERIAL AND METHODS

514 patients suffering from ureteropelvic junction (UPJ) obstruction underwent surgery in our clinic during the period from 2009 through 2019. A CV was found in 125 (24.3%) patients. CV transposition was considered possible in cases where the diuretic loading test revealed a decrease in the pelvic volume following the correction of vascular compression, absence of structural changes in the UPJ area or hemodynamic abnormalities in the lower renal pole area. 17 (13.6%) of the patients matched the mentioned criteria and underwent the transposition performed according to an original method. After mobilization of the renal pelvis, UPJ and CV, an inverted U-shaped flap was formed from the fascia covering the anterior wall of the pelvis. The fascia of the anterior wall was dissected horizontally on the UPJ level. From the initial and final points of the section, two parallel 15-20 mm incisions were made to the level of the major renal vessels. The fascia was mobilized from the anterior wall of the renal pelvis, then the fascial flap was passed below the CV to form a "hammock". The free edge of the flap was sutured with individual stitches to its base.

RESULTS

During follow-up observation (from 12 to 24 months), absence of symptoms was noted in all 17 patients as well as decreasing hydronephrosis and normalization of diuretic renography findings.

CONCLUSIONS

The method is highly effective, easy to reproduce, and has no limitations typical of the Chapman and Hellstrom techniques.

VD-16 (VS without presentation)

LAPAROSCOPIC AUTOAUGMENTATION

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PURPOSE

In this video, we present a laparoscopic autoaugmentation procedure in a patient with neuropathic bladder.

CASE

A 9-year-old girl with spina bifida was under follow-up with a low-compliant neuropathic bladder and unilateral vesicoureteric reflux. She was incontinent despite regular clean intermittent catheterizations and anticholinergic medication. She also had ongoing urinary infections despite prophylaxis. The video-urodynamic study revealed low capacity, high detrusor leak point pressure, low compliance, and right grade 3 vesicoureteric reflux. She was scheduled for laparoscopic autoaugmentation and cystoscopic subureteric injection.

METHOD

The procedure started with visualization of the urethra and bladder with a 9.5 F cystoscope in the dorsolitotomy position. The bladder was severely trabeculated with multiple diverticula. Subureteric injection of 0.3 ml DxHA was performed. Then, the patient was turned to supine position. A 5 mm port was introduced via umbilicus with two additional working ports under vision. The bladder was distended with saline. The peritoneum was dissected off the bladder, starting with sharp dissection from the anterior abdominal wall. Detrusor was incised vertically at the midline with hook cautery from the lower anterior wall to the trigon level posteriorly. Particular attention was given to preserve bladder mucosa intact. In the early postoperative period, the urinary catheter was kept 20-30 cm above the bladder level to keep it distended. Bladder capacity increased to 300 ml, and the patient was free of urinary infections and dry between CIC intervals at 3 months of postoperative follow-up.

CONCLUSIONS

Laparoscopic autoaugmentation is a practical and effective method for the treatment of poor compliance and volume in selected cases with neuropathic bladder.

VD-17 (VS without presentation)

"Y"/"Λ" DUPLICATION OF THE URETHRA (EFFMAN TYPE II A2)

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PURPOSE

The commonest urethral duplication is the so called "Y"/ "λ" type. This video demonstrates one approach utilising the P.A.D.U.A technique, the perineal approach for dorsal limb transposition and a 2nd stage BMG onlay to complete the urethroplasty.

MATERIAL AND METHODS

5 months old boy with typical "Y"/ "λ"- duplication. Patient was voiding through anal opening with good caliber stream. The orthotopic urethra was patent in the penile segment but atretic in the bulbar segment.
Under general anesthesia we performed repeated P.A.D.U.A procedure to identify and dilate the atretic bulbar urethra, starting with a glide wire (0.025) and increasing up to 10FG silicone catheter. The posterior urethral limb was transposed to the perineum. The hidden atretic urethra could be identified between the corpora as a consequence of P.A.D.U.A and was splayed open. Thus the posterior wall of perineal urethrostomy was created by joining the transposed posterior urethra and proximal end of the healthy penile urethra. Patient had protective colostomy for few months. A second stage BMG onlay was performed to close the perineal urethra and successfully allow the patient to void through the terminal meatus.

RESULTS

Follow-up 22m, not potty trained, No post void residual. No voiding symptoms.

CONCLUSIONS

We could successfully restore normal voiding through penile tip with the help of P.A.D.U.A technique by reconstructing the urethra as a staged procedure.

VD-18 (VS without presentation)

RETROPERITONEOSCOPIC HORSESHOE NEPHRECTOMY FOR DILATED NON-FUNCTIONING RIGHT MOIETY

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PURPOSE

We present a video of Retroperitoneoscopic horseshoe nephrectomy for dilated non-functioning right moiety in a child.

MATERIAL AND METHODS

A 20 month-old boy weighing 12kg with horseshoe kidney and grossly dilated non-functioning right moiety. Serial ultrasound showed worsening dilatation and a DMSA confirmed absence of function. Patient was asymptomatic with no raised blood pressure, pain or history of infection.

The procedure has been performed with the patient in prone position. Transverse 10mm incision was made half-way between 12th rib and iliac crest, lateral to sacrospinal muscles. A dissecting balloon was used to develop the retroperitoneal space and a Hassan port was inserted with insufflation of 12mmHg. A Single 5mm working port was inserted laterally. Vessels have been ligated with 5mm clip applicator. Specific attention was paid to close proximity of IVC to renal vein insertion. Isthmus divided with Harmonic scalpel. Minimal blood loss.

RESULTS

Discharged day 1 post procedure. Follow up ultrasound demonstrated empty right renal bed and normal left moiety.

CONCLUSIONS

Retroperitoneoscopic horseshoe nephrectomy with single working port is a safe and feasible procedure with good cosmetic and functional outcome.

VD-19 (VS without presentation)

PNEUMOVESICOSCOPIC REIMPLANTATION WITH INTRAVESICAL TAILOING OF THE OBSTRUCTIVE MEGAURETER IN CHILDREN

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PURPOSE

Propose a method for intravesical tailoring of the wided ureter during pneumovesicoscopic reimplantation

MATERIAL AND METHODS

During the period from 2014 to 2019, 44 Cohen pneumovesicoscopic cross-trigonal ureteral reimplantations were performed in 39 children (5bilateral) aged 1-12 years.(mean 3.1) PMR 3-4st (14). Obstructive megaureter(24). Ureterocele (3), diverticulum of the bladder (3). Under cystoscopic control, midline 5-mm trocar was introduced for telescope at the dome of the bladder, and 2 - 3 mm trocars were inserted through the anterolateral wall. Intravesical tailoring of the ureter was performed in 9 children. The ureter was fixed to the front wall of the bladder with loop using a Tahuoka's needle. The ureter was tailored with interrupted vicril 4\0 suture for 6cm distance. Ureteroneocystomy was performed using 5\0 interrupted absorbable sutures. Ureter drainage was performed with an external J-stent for 1 month period . The urethral catheter 10 Ch was removed 3-4 days after the procedure and the patients were discharged on day 5.

RESULTS

Mean operating time was 142 min (range 83-235 min). 1 patient required conversion to the open technique. Renal US were obtained in all patients between 3-6-12 months postoperatively, the size of the pelvis and ureter were decreased, VCUG was detected reflux in 3 out of 39 patients (7.6%), endoscopic correction was successful.

CONCLUSIONS

Our experience seems to confirm that pneumovesicoscopic cross-trigonal ureteral reimplantationcan be performed safely and effectively. And the method of fixing wide ureter to the bladder wall with loop in a Tahuoka's needle helps speed up narrowing of the ureter

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VD-20 (VS without presentation)

SINGLE-PORT ROBOTIC MITROFANOFF IN A PEDIATRIC PATIENT

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PURPOSE

Pediatric surgery began with single-incision flank surgery and has evolved to standard multi-port laparoscopic and robotic approaches. To decrease visibility of incisions, hidden incision endoscopic surgery was developed. Recent technological advances with the single-port (SP) robot have allowed for transition back to single-incision surgery.

MATERIAL AND METHODS

A 14-year-old paraplegic male with neurogenic bowel and bladder presented with difficulty performing clean intermittent catheterization. The decision was made to perform the first SP robotic Mitrofanoff procedure in a pediatric patient. The SP platform has one 2.5 cm, 4-channel port, a 12X10 mm articulating camera, and 6mm multi-wristed instruments, including the Maryland dissecting forceps, Cadiere forceps, wristed needle driver, and curved scissors.

RESULTS

The port was placed in the patient's previous gastrostomy tube site, and SP robotic Mitrofanoff was completed successfully without issues with space, triangulation or articulation. There is loss of insufflation with use of laparoscopic instruments through an SP channel, as the seal on the port does not maintain a closed working system. Postoperatively, the patient did not require opioid pain medications and was discharged in <24h without complications.

CONCLUSIONS

Single-port robotic surgery is feasible in pediatric patients, but patient selection is fundamental to success. To optimize use, a 10-cm working distance must be maintained, limiting use to older children and teenagers. To help improve working space a Gel-Port can be utilized, and needles can be placed into the abdomen after incision and prior to port placement to prevent loss of insufflation. Future development of the platform is needed to widen application to smaller patients.

VD-21 (VS without presentation)

SINGLE-PORT ROBOTIC PYELOPLASTY IN A PEDIATRIC PATIENT

Niki PARIKH, Timothy BOSWELL, Bridget FINDLAY, Patricio GARGOLLO and Candace GRANBERG
Mayo Clinic- Rochester, Urology, Rochester, USA

PURPOSE

Pediatric surgery began with single-incision flank surgery and has evolved to standard multi-port laparoscopic and robotic approaches. To decrease visibility of incisions, hidden incision endoscopic surgery was developed. Recent technological advances with the single-port (SP) robot have allowed for the transition back to single-incision surgery.

MATERIAL AND METHODS

A 10-year-old female presented with symptomatic right ureteropelvic junction obstruction and worsening hydronephrosis. The decision was made to perform the first SP robotic pyeloplasty procedure in a pediatric patient. The SP platform has one 2.5 cm, 4-channel port, a 12X10 mm articulating camera, and 6mm multi-wristed instruments, including the Maryland dissecting forceps, Cadiere forceps, wristed needle driver, and curved scissors.

RESULTS

The port was placed in the Pfannenstiel line, and SP robotic pyeloplasty was completed successfully without issues with space, triangulation or articulation. There is loss of insufflation with use of laparoscopic instruments through an SP channel, as the seal on the port does not maintain a closed working system. Postoperatively, the patient did not require opioid pain medications and was discharged in <24h without complications.

CONCLUSIONS

Single-port robotic surgery is feasible in pediatric patients, but patient selection is fundamental to success. To optimize use, a 10-cm working distance must be maintained, limiting use to older children and teenagers. To help improve working space a Gel-Port can be utilized, and needles can be placed into the abdomen after incision and prior to port placement to prevent loss of insufflation. Future development of the platform is needed to widen application to smaller patients.

VD-22 (VS without presentation)

LAPAROSCOPIC LOW URETERO-URETEROSTOMY: INITIAL EXPERIENCE IN ECTOPIC URETER

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PURPOSE

In cases with duplication anomalies of the urinary tract and functional ectopic ureter several conservative treatment could be proposed: upper pyelopyelic anastomosis, reimplantation of the two ureters of the same kidney, and lower ureteroureterostomy. We describe our initial experience in laparoscopic low ureteroureterostomy to treat them.

MATERIAL AND METHODS

We performed a laparoscopic low ureteroureterostomy with end- to- side anastomosis in 3 cases with ectopic ureter, without reflux and with a functioning upper pole. Cystoscopy and stent placement in the recipient ureter were performed at the beginning of each case. Demographic data, indication, laterality and intraoperative and postoperative complications, length of hospitalization and outcome were recorded.

RESULTS

All patients were female and the mean patient age was 3, 4 and 5 years respectively. The ectopic ureter were on the left side in two cases and on the right side in one and the mean of distal ureter diameter were 0,7- 0,8 and 2 cm

respectively. Ureteral catheters were left for 72 h and the hospital stay were 3 days in one patient and 5 days in two. Mean operative time including cystoscopy was 110 minutes and there were no intra- and no postoperative complications. The ureterohydronephrosis decreased in all cases and parenchyma function of the upper poles were considered as normal. Actually all the patients are asymptomatic.

CONCLUSIONS

Ureteroureterostomy is a safe and effective technique for the reconstruction of functional ectopic ureter and duplication anomaly of the urinary tract, even when there is a size discrepancy between the donor and recipient ureter.

VD-23 (VS without presentation)

VESICOSCOPIC KROPP BLADDER NECK PROCEDURE IN A CASE OF REFRACTORY URINARY STRESS INCONTINENCE

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PURPOSE

To report a vesicoscopic Kropp bladder neck procedure in a female with refractory stress urinary incontinence.

MATERIAL AND METHODS

We present a 15 year old female with refractory stress urinary incontinence. She had previously received standard urotherapy and biofeedback, anticholinergic (solifenacin 10 mg) treatment and percutaneous tibial-nerve stimulation (PTNS) with no improvement of continence. Two endoscopic bladder neck injection of bulking agent (Deflux ™ and Macroplastique®) were done years before with no long-term success. Preoperative urodynamic study revealed bladder volume of 560 ml, with adequate compliance and no uninhibited contractions. VCUG and lumbosacral Rx were normal. With the patient in supine position, bladder fixation to the anterior abdominal wall is done by percutaneous suture to facilitate the placement of three 5-mm ports under cystoscopic vision. The bladder is insufflated with CO2, then an anterior bladder neck (2 cm long) flap is dissected and sutured on both sides of the bladder catheter (16 Ch) to the posterior bladder neck wall. Bladder catheter is percutaneously fixed through one port.

RESULTS

Operating time was 225 minutes, with hospital stay of 72h. Postoperative period was uneventful and bladder catheter was removed on the 14th postoperative day. Two years after the procedure the patient maintains dry with no UTIs, performing micturition every 4h and with no medication.

CONCLUSIONS

The vesicoscopic approach allows optimal access to the bladder neck. Kropp bladder neck procedure by this route is a feasible, safe and non-invasive technique that may be considered in selected patients.

VD-24 (VS without presentation)

ROBOT-ASSISTED LAPAROSCOPIC (RAL) EXTRAVESICAL URETERAL TAPERING AND REIMPLANTATION FOR OBSTRUCTED MEGAURETER IN CHILDREN.

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PURPOSE

In this video we demonstrate our technique of Robot-assisted Laparoscopic (RAL) extravesical ureteral Tapering and reimplantation for obstructed megaureter in children step by step highlighting its feasibility.

MATERIAL AND METHODS

An 8 years old female child suffering left loin pain was diagnosed with left obstructed megaureter. In complete supine position and after side docking of the Da Vinci Si Robot, three ports were established. The bladder was hitched and the megaureter was identified. The narrow distal segment is dissected down to bladder followed by detrusorotomy. The dilated proximal segment chosen for tailoring is hitched to the abdominal wall, trimmed, tailored using running 5/0 PDS then stented percutaneously. The stenotic distal ureter was divided from the bladder and the neo-ureterovesical anastomosis was fashioned using 5/0 PDS interrupted sutures after passing the lower coil of the stent into the bladder. Detrusorrhaphy was done using interrupted 5/0 Vicryl starting proximally to bury the tailored ureter within the tunnel with a length: width ratio of at least of 3:1.

RESULTS

The total console time was 126 minutes. No blood loss. Oral NSAIDs were sufficient for control of postoperative pain. The child was fully active in the following morning. Foley was removed in the 1st PO day and the DJ stent after 8 weeks. Ultrasonography 3 months later showed receding hydroureteronephrosis and the MAG3 study showed resolution of obstruction.

CONCLUSIONS

Robot-Assisted Laparoscopic extravesical ureteral tapering and reimplantation for obstructed megaureter in children is feasible if a standardized technique is followed.

VD-25 (VS without presentation)

ROBOTIC ASSISTED TRANS-VESICOSCOPIC URETERIC REIMPLANTATION IN CHILDREN: A VIDEO ATLAS

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PURPOSE

The authors here in present the technique and the feasibility of trans- vesicoscopic ureteric re- implantation (TVUR) in children.

MATERIAL AND METHODS

Three children between 2 and 14 years of age with bilateral primary vesicoureteric reflux (VUR) underwent TVUR at a tertiary referral center in Northern India. The grade of VUR ranged between II - IV, all 3 bilateral. da Vinci Xi surgical system was used. All surgeries were performed by a single surgeon. The patient was placed in a dorsal lithotomy position. Four ports [Two 8-mm working ports were placed in a straight line drawn along the anterior superior iliac spine and one endoscopic (middle) 12 mm (Intuitive Surgical, Sunnyvale, CA), was placed 2 cm

above the same line and the fourth assistant port of 3 mm was placed 2 cm below the line. Success was defined as the absence of VUR on direct radionuclide cystogram at 12 weeks.

RESULTS

A total of 3 patients underwent robotic TVUR. The age was 2, 7 and 14 years with urinary bladder capacity of 150, 280 and 400 cc respectively. The first case done was that of 14 then 7 and the last of 2 years. The operative time ranged between 190-300 minutes (Median 250).

The procedure could be accomplished in all the cases without any slippage of robotic ports or clashing of arms except in 2-year-old that without any conversion. The 2-yr-old child with bladder capacity of 150 cc posed little difficulty due to space restriction and slight clashing of arms that lengthened the procedure but could be completed successfully. The cystogram done at 12 weeks showed grade I VUR in one of the child and is on follow up.

CONCLUSIONS

Robotic assisted laparoscopic ureteral reimplantation is feasible and offers good success rate. More number of cases are required to determine further the costs and benefits of robotic assisted laparoscopic ureteral reimplantation.

VD-26 (VS without presentation)

LAPAROSCOPIC ROBOT ASSISTED HYSTERECTOMY AND VAGINAL RESECTION IN A MALE ADOLESCENT WITH DSD DIAGNOSIS

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PURPOSE

To present a laparoscopic robot assisted hysterectomy in a 17-year-old male with mixed gonadal dysgenesis

MATERIAL AND METHODS

Now 17-year-old male born with ambiguous genitalia and diagnosed with mixed gonadal dysgenesis with chromosomes X0/XY. Hypospadias repair with a Duckett tube, scrotal fixation of a right sided testis and extirpation of left streak gonad and fallopian tube was done early. Reoperation of the hypospadias was done at 7 years of age due to a dilated tube with strictures.
He was followed by the local DSD team and went into spontaneous male puberty with a male identity. Normal sexual function. GH treatment was given due to short stature.
During puberty he developed dribbling of urine, recurrent cystitis and suprapubic pain. Urinary flow and residual results acceptable, but earlier VCUG had shown reflux of urine into the vagina entering posterior urethra and repeated ultrasound showed increasing dilatation of the vagina and uterus.
At MDC and after patient consent, decision was taken to remove uterus and vagina.

RESULTS

Procedure started with endoscopy revealing a grossly dilated uterus and vagina entering with a wide opening into the posterior urethra. Laparoscopic robot assisted hysterectomy and removal of the upper part of vagina, leaving a small residual adjacent to the urethra, was done.
Hospital stay was 2 days and follow up was done 2 months and 1 year postoperatively.
No complications has evolved and the patient is free from symptoms. Uro-flow after 2 months shows normal flow and no residuals.

CONCLUSIONS

For this young man it was relatively easy and feasible to remove uterus and vagina with the laparoscopic robot assisted technique.
Short postoperative stay and good results.

VD-27 (VS without presentation)

LAPAROSCOPIC URETEROPELVIC ANASTOMOSIS BETWEEN MOIETIES, ANOTHER TREATMENT OPTION FOR OBSTRUCTIVE ECTOPIC MEGAURETER

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PURPOSE

The aim of this video is to present an effective option for the treatment of a complete duplex kidney with an ectopic, obstructive, functional upper moiety ureter in a horseshoe kidney.

PATIENT AND METHODS

21 Months old girl with a horseshoe kidney associating a complete right duplex kidney with a dilated upper moiety. She also presented a polimalformative syndrome (Biventricular hypertrophy, agenesis of the corpum callosum) and hyperlactatemia.

During follow up, patient presented 3 urinary tract infections (one of them febrile) and an increase of the ureteral size in the successive ultrasounds (2 cm). A MAG-3 scyntigraphy was carried out, showing a 42.47% function of the upper moiety (from a 42.9% right kidney function).

RESULTS

Firstly, a cystoscopy was performed, showing an ectopic right ureter. A JJ catheter was placed. Then, an ureteropelvic laparoscopic anastomosis was carried out between the upper moiety's ureter and the lower moiety's pelvis. The JJ catheter was advanced to the pelvis. Removal of the ureter of the upper moiety was then performed. In post operatory exams the dilatation decreased and patient was asymptomatic.

The anastomosis between systems of the upper and lower moieties is an effective option when both of them work. Given the discordance of size between ureters, we decided to perform an ureteropelvic anastomosis with a satisfactory outcome.

CONCLUSIONS

This procedure is a valid treatment option in a duplex kidney where both moieties work and there is an obstructive ectopic ureter, avoiding ureteral re-implant in an unaltered bladder.

VD-28 (VS without presentation)

APPLICATION OF INDOCYANINE GREEN FOR LYMPHATIC PRESERVATION IN THE TREATMENT OF VARICOCELE

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PURPOSE

The development of new minimally invasive techniques in pediatric surgery has allowed the recent introduction of indocyanine green making easier anatomic dissection.

The aim of the study is to present the use of indocyanine green by intratesticular injection in laparoscopic Palomo surgery with preservation of lymphatic vessels in two patients with varicocele.

MATERIAL AND METHODS

We present two patients (15 and 13 years old) with left varicocele who underwent surgery using a laparoscopic Palomo technique.

A 5 mm umbilical trocar and two accessory trocars are introduced on both flanks in order to dissect spermatic vessels. Once the vessels have been dissected, the injection of 2 ml intratesticular indocyanine green (25 mg solution in 8 ml of bidistilled water) is performed. A few seconds later, the lymphatics appear fluorescent by infrared light. Therefore, the ligation of the spermatic vessels is performed making preservation of the lymphatic vessels much easier.

RESULTS

In both cases hospital stay was less than 24 hours. There were no local complications (hematoma, skin staining, increased scrotal volume).
One year later, no lymphocele or recurrence of varicocele occurred.

CONCLUSIONS

The use of fluorescence with indocyanine green in minimally invasive laparoscopic surgery has proven to be a safe technique that improves the intraoperative localization of anatomical structures.
We present its use in varicocele to prevent lymphatic vessel ligation and reduce some of its long-term complications.

VD-29 (VS without presentation)

ROBOTIC-ASSISTED URETEROCALICOSTOMY : STEP BY STEP TRANSMESOCOLIC APPROACH

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PURPOSE

Laparoscopic ureterocalicostomy (LUC) is efficient to treat pediatric ureteropelvic junction obstruction (UPJO), primarily in particular anatomic cases (exaggerated intrarenal pelvis, lower pole calicectasis, kidney malrotations) or after failed pyeloplasty. Robotic-assisted laparoscopy has recently spread through pediatric surgical teams, and can be applied to LUC. This video shows step by step robotic-assisted ureterocalicostomy.

MATERIAL AND METHODS

Among 8 LUC at our center, six patients were done by standard laparoscopic approach, and the last two were done by robotic-assisted procedure (DaVinci© Xi System). The submitted video shows a 14-year old boy who had dismembered open pyeloplasty for left UPJO during early childhood, but 13 years later he had recurrent left renal

colic revealing persistant UPJO on MRI, with extreme parenchymal thining (3mm) of inferior calyx. The patient was positionned supine with a lumbar padding under the left flank. We have used three 8mm robotic ports, one AirSeal© 5mm assistant port, and one transparietal 2mm laparoscopic grasper for exposure. Transmesocolic approach of the UPJ was performed. LUC was done between lower calyx and spatulated proximal ureter using a 5/0 absorbable running suture over a JJ stent.

RESULTS

Operative time was 215 minutes. No per-operative complication occurred. The patient was discharged 18 hours after surgery with oral paracetamol, his JJ stent removed after one month, and displayed improvement of pelvic diameter on abdominal ultrasound 2 months later.

CONCLUSIONS

Robotic-assisted ureterocalicostomy is feasible and safe for recurrent UPJO in children.

VD-30 (VS without presentation)

LAPAROSCOPIC URETERO-CALICOSTOMY WITHOUT RESECTION OF URETERO-PELVIC JUNCTION(UPJ) FOR MEGACALICOSIS

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PURPOSE

Megacalicosis is often challenging to manage. When surgery is indicated, main reported procedures consist in open uretro-calicostmy after division of UPJ. In this video, we describe a laparoscopic approach for uretero-caliceal anastomosis without resection of UPJ.

MATERIAL AND METHODS

A 7 years old boy presented with left pyelonephritis. Renal ultrasound and MRI showed major calyceal dilatation (between 40 to 50 mm) and pelvic dilatation 20 mm. The pre-operative MAG 3 showed a loss of left side renal function (40 %).

Surgical technique: the patient was positioned in 45°lateral decubitus. Five mm scope and 3.5 mm instruments were used. After exposure of the renal pelvis, drainage through the junction appeared normal. Proximal ureter and inferior calyx were dissected, opened and approximated. Latero- lateral end uretero-calicostomy was then performed. Double J stent was inserted before the end of the anastomosis.

RESULTS

Post-operative course was event free. During follow up (16 month), renal ultrasound showed disappearance of calyceal dilatation and left side renal function was 44% on Mag3 isotopic study.

CONCLUSIONS

Laparoscopic latero- lateral end uretero-calicostomy without resection of UPJ appeared to be a valuable alternative technique to manage megacalicosis in children. This preliminary experience needs to be strengthened by other cases.

VD-31 (VS without presentation)

ROBOTIC BLADDER NECK PLICATION FOR INCONTINENCE TREATMENT

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PURPOSE

The robotic approach allows to easily perform reconstructive procedures in the pelvis. In this video we describe bladder neck plication, robotically assisted, to achieve continence in an adolescent girl.

MATERIAL AND METHODS

A 12 year-old-girl has been evaluated in our Center for persistent total urinary incontinence.

She was initally treated elsewhere for a vaginal ectopic left megaureter with uretero-vescical reimplant and subsequently with multiple bulking agent endosocopic injections.

Cisto-colposcopy revealed a short urethra and a patulous bladder neck. Ectopic ureteric stump was visibile between urethral and vaginal openings. MCU and urodynamic evaluation showed a bladder with incontinence starting from 60ml with a capacity of 200 ml without developing high voiding pressures. A laparoscopic robotic-assisted bladder neck plication was electively selected as already described for incontinence both in epispadias repair and after robotic prostatectomy.

RESULTS

The patient was discharged on 4th post-operative day without complications. After 2 months a MCUG confirmed spontaneous voiding (bladder volume 300cc) without post-void residuals and renal US showed normal upper urinary tracts. After 6 months, she remains completely dry.

CONCLUSIONS

Anatomical access to the bladder neck region is extremely difficult in open surgery especially in adolescent patients. Robotic access is an excellent alternative with optimal anatomical exposure.

Bladder neck plication, compared to full reconstruction ("keel" bladder neck) is a less invasive procedure and ideal to obtain adequate voiding continence in selected patients.

VD-32 (VS without presentation)

ROBOTIC-ASSISTED LAPAROSCOPIC MANAGEMENT OF MULLERIAN DUCT REMNANTS

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PURPOSE

The robotic approach allows to easily perform reconstructive procedures in the pelvis. In this video we describe the management of a mullerian remnant and its robotic removal in a patient with DSD.

MATERIAL AND METHODS

A 17 year-old-boy with mixed gonadal dysgenesis (45X/46XY) was initially treated elsewhere for severe hypospadias with multiple procedures. In 2011 an MRI revealed a cystic mass between rectum and bladder, defined as a persistent mullerian remnant. In 2017 he was evaluated in our hospital for urethral diverticulum and persistent

severe ventral curvature. Despite a successful two-stage Bracka procedure and curvature correction he subsequently complained of urinary incontinence and recurrent UTI related to the large Mullerian remnant. A robotic assisted removal of the vaginal remnant was electively planned.

RESULTS

No postoperative complications were reported. After 1 month a MCUG showed no leak and a spontaneous and complete voiding. Urethro-cistoscopy confirmed complete closure of the vaginal ostium.

CONCLUSIONS

Robotic access to the bladder neck and urethro-prostatic region is an excellent option with ideal anatomical exposure compared to conventional open surgery. The combined endoscopic/robotic identification of the mullerian remnants allowed its complete definition and removal.

VD-33 (VS without presentation)

MULTICYSTIC RENAL DYSPLASIA IN A CROSSED FUSED RENAL ECTOPIA PRESENTED AS ABDOMINAL MASS IN A NEWBORN

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PURPOSE

We report an exceptional case of a crossed fused renal ectopia with multicystic dysplasia of the ectopic renal unit that presented as a palpable abdominal mass in a male newborn.

MATERIAL AND METHODS

A two month-old infant was referred to our institution with prenatal diagnosis of right kidney agenesis and abdominal cystic lesion. A palpable mass was identified in the midline meso-hypogastrium, and right testis was non palpable. Ultrasound scan revealed no visualization of the right kidney and a big multicystic abdominal lesion at the place of the palpable mass. Imaging study was completed with MNR that described a multycistic retroperitoneal mass of 8 x 6 x 2 cm that extended from the bladder dome to the lower left renal pole, imprinting on the renal cortex. No other anomalies were seen on left kidney. Right testis was located in the pelvis. Renal scintigraphy-DMSA scan confirmed solitary left kidney with a rounded imprinting on its lower pole, and no vesicoureteral-reflux was seen at the VCUG.
A laparoscopy was indicated at the age of 18 months confirming right to left crossed fused multicystic renal ectopia and right intraabdominal cryptorchidism. Right nephroureterectomy and first-stage orchiopexy were done uneventfully.

RESULTS

Operating time was 120 minutes and the patient was discharged at 24h with oral analgesia. No complications occurred in the postoperative period. The histological study of the nephrectomy revealed multicystic renal dysplasia.

CONCLUSIONS

Multicystic dysplasia in a crossed fused renal ectopia is a very rare entity that may produce unusual imaging findings and abdominal mass at birth. The laparoscopic approach allowed a feasible, safe and definitive diagnosis and treatment.

VD-34 (VS without presentation)

THE GUD (GLANDAR URETHRAL DISASSEMBLY) TECHNIQUE FOR DISTAL HYPOSPADIAS: A STEP-BY-STEP VIDEO PRESENTATION.

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PURPOSE

We present an alternative procedure for distal hypospadias consisting of urethral mobilization and partial glandar disassembly, named GUD technique (glandar urethral disassembly). We would like to illustrate in this video all the details of the technique in a step-by-step presentation.

MATERIAL AND METHODS

A subcoronal circumcision exposes distal dysplastic urethra. We incise the Buck´s fascia on both sides of distal urethra releasing it partially from the corpora. We keep a thin bridge of urethral plate to the glans and disassembly almost completely the glans from the corpora, except for the tissue connecting the urethra to the tip of the glans. The glans is incised creating two wide wings that are extremely mobile and allow a thorough refurbishment of the glans. The urethra is mobilized and advanced and the urethral plate is folded and sutured to the tip of the glans. The glans wings embrace the distal urethra producing a conical and better cosmetic glans. We leave a urethral silicone catheter for 5-7 days.

RESULTS

Patient had a favorable clinical outcome and voids comfortably. No complication was seen, the reconfigured glans healed nicely.

CONCLUSIONS

We are convinced that this operation can be regarded as a genuine alternative to distal hypospadias (coronal and subcoronal) but should not be addressed to midshaft forms.

VD-35 (VS without presentation)

AVOIDING PENILE CURVATURE AFTER KOFF URETHRAL MOBILISATION FOR ANTERIOR HYPOSPADIAS

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PURPOSE

The Koff-Beck urethral mobilization is an elegant way to repair anterior hypospadias without urethroplasty and with minimal complications. One criticism of this technique is the risk of creating a iatrogenic curvature. This video shows how to avoid iatrogenic curvature by anchoring the stretched urethra to the anterior surface of the corpora cavernosa.

MATERIAL AND METHODS

After degloving the penis, the whole penile urethra is detached from anterior face of the corpora cavernosa and then moved forward to bring its opening to the tip of the glans. The urethra is lifted with the corpus spongiosum down to the base of the penis and then stretched in order to gain urethral length. The distal hypoplastic urethra is excised and a the stretched urethra is reattached onto the surface of the corpora cavernosa from the base to the tip of the penis with 7/0 PDS sutures. The last stage of the procedure is the meatoplasty, glans plasty and skin cover with or without reconstruction of the foreskin.

RESULTS

Of 368 Koff procedures performed during early life between 1998 and 2020, 81 are now adolescents or adults. Todate, only one required a subsequent surgery for a symptomatic curvature.

CONCLUSIONS

Koff technique does not use any non-urethral tissues and is a valid procedure for distal hypospadias. Iatrogenic curvature seems to be rare. Further studies in adults are needed.

VD-36 (VS without presentation)

PHALLOPLASTY IN BIOLOGICAL MEN WITH PENILE INSUFFICIENCY.

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PURPOSE

Phalloplasty for penile insufficiency in biological men differs from phalloplasty in trans-men by incorporating native penile tissue. Different techniques have been suggested but are based on small series. The objective of this study is to describe techniques used in a tertiary referral center with over 30 years of phalloplasty experience and to report surgical and functional outcomes.

MATERIAL AND METHODS

Data of biological men undergoing phalloplasty between 2004-2018 were retrospectively collected. Patients with more than 1 year of follow-up were considered for inclusion. Phalloplasty was performed with a radial free forearm (RFFA) or a pedicled anterolateral thigh (ALT) flap. The tube-within-tube technique was used when urethroplasty was required. Descriptive statistics were used. Complications occuring within 30 days postoperative were categorized according to Clavien-Dindo. Functional outcome was assessed by review of electronic patient files.

RESULTS

30 patients, median (IQR) age of 21 (18-30) year, were included. In 16 patients RFFA was used. 19 patients needed urethroplasty. Median (IQR) follow-up was 33 (14-80) months. Within 30 days postoperative, 3 patients (10%) developed partial flap necrosis (Clavien-Dindo III). One patient (3.3%) had graft failure requiring redo phalloplasty (Clavien-Dindo III). Two patients (6.6%) developed an infected hematoma needing drainage (Clavien-Dindo III). One phalloplasty (3.3%) was complicated with hematuria and clot retention requiring bladder irrigation (Clavien-Dindo II). Long-term complications involved fistulas and strictures. Ten patients (33%) developed fistulas, of whom 6 (20%) needed urethroplasty. Seven patients (23%) had (an) urethral stricture(s), all needing urethroplasty or urethrotomy. All patients but one (97%) had erogenous sensitivity in the neo-phallus. All patients with urethroplasty reported normal, antegrade ejaculation. Sixteen (84%) voided through the urethra.

CONCLUSIONS

RFFA and ALT result in good erogenous sensitivity but fistulas and strictures are frequent.

VD-37 (VS without presentation)

ONE-STAGE RECONSTRUCTION OF COMPLETE PENOSCROTAL TRANPOSITION

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PURPOSE

Complete penoscrotal transposition with intact scrotum is a rare congenital malformation in which the scrotum is located cephalad to the penis. Concomitant malformations are frequently seen. We seek to describe the surgical reconstruction in a single stage.

MATERIAL AND METHODS

A 2.7-kg boy, born at 37-weeks gestation with prenatal diagnosis of unilateral right dysplastic kidney, had acomplete transposition of the external genitalia. A 45mm hypoplastic penis arose beneath the scrotum. The scrotum and testes were well developed. The penile shaft had a 90° counterclockwise torsion with redundancy of skin on the dorsum. Complex curvature with rotation of the corpus cavernosa was noted. Renal and bladder ultrasound identified a right dysplastic kidney and pelvic MRI revealed an utricule and hypoplastic corpus cavernosa and spongiosum tissue. Sex hormonal assays were normal, and no gross chromosomal anomalies was detected.

RESULTS

A one-stage surgery was performed at 18 months. The procedure included cystoscopy revealing an abnormal veru montanum, penile degloving, and mobilization of the phallus to cephalad of the scrotum with a scrotoplasty. The complex curvature with rotation of the corpus cavernosa was untreated given the hypoplastic corpus cavernosa. A suprapubic tube remained for 10 days. Postoperative cystoscopy and examination under general anesthesia 15 months after the surgery showed a 15mm prostatic utricle and a normal bladder. The urine stream was weak due to absence of spongiosum tissue around the urethra. Glans diameter was 10mm, and urethral meatus was 1cm under the glans. At 3 years follow-up, the child is continent without stricture or urinary tract infections.

CONCLUSIONS

A patient with a severe form of penoscrotal transposition was successfully managed with a one-stage repair with satisfactory penile position and excellent cosmesis.

VD-38 (VS without presentation)

URETHRO-URETHROSTOMY FOR DUPLICATED URETHRA (TYPE IIA1)

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PURPOSE

To introduce a case of duplicated urethra (Type IIA1) who underwent urethro-urethrostomy.

MATERIAL AND METHODS

The boy was 3 years-old. He was admitted to our hospital due to the anomaly of the penis which presents as dorsal curvature and double apical + epispadiac meatus. The continence was good. In the voiding phase, the stream comes from the ventral meatus with some dribbling from the dorsal one. The VCUG shows Type IIA1 duplicated urethra. The cystoscopy (9.5Fr) shows normal structure such as verumontanum and contracting sphincter from the ventral

urethra. The dorsal urethra seems to have contracting sphincter mechanism near the bladder neck as well. Both of the urethrae were wide enough to put a 9.5Fr cystoscope.

RESULTS

The urethro-urethrostomy procedure (the dorsal to the ventral anastomosis) was conducted for him. The dorsal curvature was corrected by releasing the dorsal tension and external rotation of the bilateral corpus cavernosa. He was followed up for 2 years. The continence was good. The penis was straight. The uroflow was 11.2ml/s after 1 year of the surgery.

CONCLUSIONS

The urethral duplication can be very difficult and need to be managed individually. Important factors for this decision are continence, position of the ventral urethra and presence of ventral or dorsal curvature. The urethro-urethrostomy procedure could be conducted for Type IIA1 duplicated urethra with continent and well developed urethrae.

VD-39 (VS without presentation)

ANATOMICAL REPAIR OF EPISPADIAS: TECHNIQUE AND SHORT-TERM OUTCOMES

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PURPOSE

This study aims to report the short-term outcomes of a novel technique for epispadias repair.

MATERIAL AND METHODS

All patients with primary epispadias and classic bladder exstrophy (CBE) who underwent an anatomical repair of epispadias from 2008 to 2019 were included. The following outcomes were recorded in a prospectively maintained database: type of epispadias, age at surgery, surgical technique and complications. The surgical technique included: 1-degloving of the penis deeply into the scrotum and pubic bones; 2-dissection of corpora cavernosa off the urethra/spongiosum from the prostate to the distal glans without complete dissasembly; 3-urethroplasty in two layers; 4-anatomical glanuloplasty; 5-external corpora rotation; 6-reconstruction of penile skin with preputioplasty, staged preputioplasty or circumcision. An indwelling catheter was routinely kept for three weeks post-operatively.

RESULTS

Eighty-four patients (43 primary epispadias, 41 CBE) underwent epispadias repair. The median age at repair was 1.6 years (1.2-2.5) for primary epispadias and 1.7 years (1.2-2.2) for CBE patients. Median follow-up from surgery was 38 months (20-70). In the primary epispadias group, 20 patients underwent preputioplasty (16 single stage, 4 two stage) and 23 underwent circumcision. In the exstrophy group, 36 patients underwent preputioplasty (17 single stage, 19 two stage) and 5 underwent circumcision. Satisfactory correction of penile chordee was achieved in all patients. Complications included: preputial dehiscence (7%), urethrocutaneous fistulas (6%), and glans dehiscence (4%).

CONCLUSIONS

Anatomical epispadias repair with partial penile disassembly and external corporal rotation is a versatile surgical technique used to reconstruct the penis in primary epispadias and as a component of staged bladder exstrophy repair.

VD-40 (VS without presentation)

INTRAVESICAL PHALLUS IN CLOACAL EXSTROPHY PATIENT TREATED BY THE KELLY PROCEDURE

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PURPOSE

Cloacal exstrophy is a rare form of the exstrophy-epispadias complex. Intravesical phallus in such cases is very uncommon, with few cases described in literature, and just one of surgical treatment.
We report a case of intravesical phallus with cloacal exstrophy that was successfully treated by phallic and radical soft tissue mobilization (Kelly procedure).

MATERIAL AND METHODS

GC, RH: 161213, male cloacal exstrophy with apparent aphallia. Initial surgical procedure was intestinal reconstruction, vesical plate and abdominal wall closure. At this time, a small polypoid midline structure on caudal vesical covered plate was identified and maintained untouched. At one year of age, MRI and cystoscopy confirmed that such intravesical structure suggested to be a phallus. Surgical correction of intravesical phallus was done at 2 years of age, revealed phallus positioned on the bladder floor, and completely covered by bladder urothelium. Phallus was surgically splited from the bladder wall by radical soft tissue mobilization and brought to an external normal position. Skin coverage was done using perineal skin flaps to cover the penile shaft, bladder urothelium covering the tip of the phallus being left intact to provide the appearance of a glans penis. The patient was maintained with vesicostomy.

RESULTS

Phallic appearance and position on the lower abdominal surface are very acceptable with good plastic result, after 2 years follow-up.

CONCLUSIONS

The radical soft tissue mobilization (Kelly procedure) of phallic structures in cases of intravesical phallus cloacal exstrophy, may be a suitable surgical alternative to bring penis outside the bladder and abdominal wall.

VD-41 (VS without presentation)

COMPLETE PRIMARY REPAIR OF BLADDER EXSTROPHY IN THE BOY

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PURPOSE

Optimal outcome in bladder exstrophy (BE) mandates meticulous surgical reconstruction. Complete Primary Repair of BE (CPRE) in the boy is detailed with specific considerations for safety, careful tissue handling and optimization of outcomes.

MATERIAL AND METHODS

Boys with BE underwent CPRE with bilateral iliac osteotomy (BIO). Skin hooks, sharp dissection, bipolar electrocautery and hemostatic topical dilute epinephrine were featured where applicable. Urethral tubularization

and bladder closure were performed using simple interrupted technique with absorbable sutures incorporating serosa with little or no mucosa-inverting mucosa to decrease fistula risk. Existing fat planes were exploited to facilitate dissection. Urethral plate dissection began ventrally allowing reflection of corpora cavernosa laterally, while employing scissor and bipolar electrocautery to separate spongiosum from cavernosa. Urethral width was maintained proximally to the level of the anatomic bladder neck to promote continence. Glans color/perfusion pre- and post-pubis approximation was carefully assessed. Immobilization via spica cast was preferred.

RESULTS

From February 2013 to February 2020, 44 consecutive boys underwent CPRE, 1 without BIO. Mean age at CPRE was 3 months (0 – 28 months). Ten had hypospadias. No bladder dehiscence occurred. Penopubic skin loss, incisional skin breakdown and wound/fascial separation occurred in 1 boy each. Urethrocutaneous fistula occurred in 6 boys, including 2 with a large penopubic fistula requiring reoperation. 28 boys are 3 or more years post-CPRE. Of 22 queried; 17 have commenced or completed toilet training. Dry intervals (DI) for the 22 boys included; DI <1 hour (8), DI >1-2 hours (7), DI >3 hours (2), unknown (5). Cystometrogram documented normal compliance and detrusor activity.

CONCLUSIONS

In our experience, the principles and techniques discussed promote safety, limit tissue injury, optimize functional and cosmetic outcomes, and facilitate ongoing refinement of the CPRE technique. At early follow-up, normal bladder function is possible post-CPRE in boys with bladder exstrophy.

VD-42 (VS without presentation)

THE SEARCH FOR CONTINENCE IN BLADDER EXSTROPHY: BLADDER NECK TRANSECTION AND A MACEDO CATHETERIZABLE RESERVOIR TO AUGMENT THE NATIVE BLADDER.

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PURPOSE

Bladder exstrophy remains one of the most challenging congenital abnormalities in pediatric urology practise. Anatomy repair is not always followed by successful bladder function in regards to storage function and urinary continence. We propose bladder neck transection and bladder augmentation with a catheterizable reservoir technique we described almost two decades ago. We want to describe in this video how we approach these patients.

MATERIAL AND METHODS

We treat bladder exstrophy in stages aiming to restore bladder and penile anatomy in the first two procedures. We tubularize the bladder neck as a way to produce some resistance and increase bladder capacity. At the age of 5-6 years we offer patients the transection of bladder neck and enterocystoplasty to achieve continence. We report on a 6 years old boy that underwent this procedure. We perform the reservoir from 35cm of ileum according to Macedo technique that constructs a catheterizable channel from the same bowel segment from a 3cm width flap from anterior and posterior wall of ileum in the mid part of it. The continence mechanism of the efferent tube is based on angulation and a serous lined tunnel created with 3-4 3.0 prolene sutures. The stoma is placed in the midline, we left ureteral stents, the stoma Foley tube and an additional cystostomy tube to avoid bladder distension.

RESULTS

Patient had an uneventful evolution and is continent performing CIC every 4 hours with 9 months of follow up.

CONCLUSIONS

In spite of continuous development of bladder exstrophy surgery, the urethral continence and voluntary micturition is still not possible in the majority of patients. We discuss with our patients honesty and offer this method as a viable alternative to achieve continence in one more surgery. In our experience, most patients accept urethral transection and suprapubic CIC when educated about results with other alternatives of bladder neck plasty.

VD-43 (VS without presentation)

A MODIFIED BLADDER NECK RECONSTRUCTION TECHNIQUE TO ADDRESS INCONTINENCE IN CHILDREN WITH PRIOR BLADDER EXSTROPHY CLOSURE

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PURPOSE

The goal of bladder neck reconstruction for BE patients is to create the perfect balance between bladder outlet resistance and volitional voiding. We demonstrate our modified bladder neck reconstruction (mBNR) technique and early continence outcomes following mBNR.

MATERIAL AND METHODS

In June 2014, we transitioned from Young Dees Leadbetter (YDL) technique to mBNR. The technique involves moving the BN approximately 1.5-2.0 cm cephalad to the native BN. The BN is then gradually tapered to the distal verumontanum resulting in a width of approximately 14-16mm at the verumontanum, 18-20mm at the native BN and 22-24mm at the new BN. Full-thickness midline approximation of tissues incorporates serosa with little mucosa. Midline approximation of redundant detrusor reinforces the closure. Unlike YDL, there is no complete muscle wrap of the BN.

Baseline characteristics were recorded. Change in the rate of continuous incontinence was calculated and dry intervals (DI) reported.

RESULTS

10 mBNRs were performed. Median age at BNR was 8 years (2–10 years). A majority were male (90%). 56% had an expected bladder capacity (EBC) <50%. 8 patients had complications/surgeries after initial BE closure. Preoperatively, 100% had continuous incontinence and a dry interval

Median follow up was 1.5 years (5 months–5 years). Postoperatively, the rate of continuous incontinence decreased by 60% (100% to 40%). A third reported DI ≥2 hours (30%), 20% a 1-2 hour DI, and 50% with DI <1 hour. Only males with EBC <50% (without augment) had continuous incontinence postoperatively. The number of complications/procedures following initial closure was not related to postoperative continence.

CONCLUSIONS

A majority of BE patients had improvement in degree of incontinence after mBNR; recalcitrant incontinence occurred in males with very small capacity bladders.

VD-44 (VS without presentation)

PRENATAL ANHYDRAMNIOS IN A GIRL: AN EXCEPTIONAL CASE OF BILATERAL ECTOPIC URETER OBSTRUCTION

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PURPOSE

Aim: Prenatal oligoamnios is usually found in male fetuses, mainly due to posterior urethral valves. An exceptional case of anhydramnios in a female fetus with bilateral ectopic ureter obstruction and impaired renal function is presented.

MATERIAL AND METHODS

Patients and method: Preterm newborn (33+6 weeks) with prenatal diagnosis of bilateral ureterohydronephrosis and double left system. Labor was induced at 33 weeks due to anhydramnios. Despite bladder catheterization, cystoscopy was performed after 9 days of life due to progressive clinical, laboratory and radiological worsening. Findings were a right ectopic ureter draining in the uretro-vaginal wall, a left upper pole ureter draining into the urethra and a left lower pole ureter bulging behind the bladder. Both dilated systems were drained by cystoscopy creating a transurethral neo-orifice (TUNO) into the bladder.

RESULTS

Results
During the first 24 postoperative hours the patient experienced spontaneous diuresis and progressive lower serum creatinine level that drop into normal range within a month of surgery. She was discharged one week after surgery and short-term postoperative ultrasound showed significant improvement in bilateral ureterohydronephrosis,
A year later, the patient remains asymptomatic, without UTI and normal renal function.

CONCLUSIONS

Conclusion
Endoscopic urinary diversion (TUNO) allowed the resolution of acute urinary obstruction in this patient with bilateral complex uropathy. Minimally invasive approach is a valid choice in the diagnostic and management of these patients.

Keywords: ectopic ureter, bilateral obstruction, endoscopic drainage, congenital malformation, female fetus

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VD-45 (VS without presentation)

ENDOUROLOGICAL TREATMENT IN TWO CASES OF URETERAL VALVES

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PURPOSE

Congenital ureteral valves are a rare cause of ureteral obstruction that may lead to renal function deterioration. We present two clinical cases treated endoscopically by monopolar electrocautery and laser fibre ablation.

MATERIAL AND METHODS

The first case is a 13-year old male with several episodes of abdominal pain and severe left hydronephrosis. The ultrasound showed a dilated ureter and pelvicalyceal system with an obstructive renogram curve. We performed a retrograde pyelogram, finding a dilated ureter 5 cm up from the vesicoureteral junction with ureteral valves at that location. Ablation of the valves was conducted using monopolar electrocautery.

The second case is a 2-year-old male whose ultrasound proved left ureterohydronephrosis, with renal parenchyma thinning and a 3.3 cm left ureter. Diuretic renogram was obstructive and function was impaired.
A cystoscopy was performed, observing the presence of valves in the ureter at 3 cm form the vesicoureteral junction, conditioning the obstruction.
Complete section of the valves was achieved by a 270-micron holmium laser fibre.

RESULTS

Our patients made an uneventful postoperative recovery and continue to remain completely asymptomatic.
A significant decrease in renal dilatation was observed and renal function recovered in both cases.

CONCLUSIONS

Ureteral valves are an uncommon cause of ureteral obstruction. Advances in endourological techniques allow us to give a minimally invasive approach to these uropathies, obtaining good long-term results in our small series of patients.

VD-46 (VS without presentation)

NEPHROGENIC BLADDER ADENOMA IN CHILDHOOD: A CASE REPORT

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PURPOSE

Nephrogenic adenoma is a metaplastic urinary tract lesion that can be located anywhere in the urinary tract, although its most frequent location is the bladder (80% of cases) followed by the urethra, ureter and renal pelvis.

The objective is to present the clinical case of a bladder nephrogenic adenoma as a cause of bladder tumor and hematuria in a child with a history of intervention in the urinary tract.

MATERIAL AND METHODS

A 7-year-old boy with a history of left megaureter intervened endoscopically at birth, with subsequent inyection of anti-reflux material for vesicoureteral reflux and finally with ureteral reimplantation due to recurrence (Politano-Leadbetter technique).
Five years later, he presented a hematuria clinic, with ultrasound imaging of a 15x15x32 mm wide-based polypoid lesion in the bladder, with a discrete increase in vascularization.
We performed a cystoscopy where we observed a papillary lesion near to left meatus, bleeding to the contact, and the complete resection was performed with holmium laser.

RESULTS

The pathological anatomy was compatible with nephrogenic adenoma of papillary morphology.
The patient presented a good evolution, with disappearance of symptoms and ultrasound resolution of the lesion after a year of follow-up.

CONCLUSIONS

Nephrogenic bladder adenoma is a rare tumor, especially in children, which is related to chronic irritation or previous urinary tract surgery.
The accepted treatment is cystoscopic resection with fulguration of the implant base to prevent growth and even malignant degeneration.

VD-47 (VS without presentation)

MICROSCOPIC TECHNIQUE FOR ADOLESCENTS WITH KLINEFELTER SYNDROME. A HOPE FOR FERTILITY.

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PURPOSE

Klinefelter Syndrome (KS) is the most common sex chromosome disorder in males, classically they have been considered infertile, however, assisted reproductive techniques may provide fertilization through sperm search in testicular biopsy. Early recognition of patients during puberty and handling them as soon as possible is important because the possibility of testosterone replacement terapy and introduction of fertility preservation. The objective of this study is to show Micro-Tese technique step by step for adolescents with SK.

MATERIAL AND METHODS

We present a 13-year-old patient with 47 XXY karyotype who was refered for fertility assessment. Presents a thickened penis of pubertal size Tanner IV but small size of the testis. Analytically FSH of 25.9 mU/mL, LH 10.3 mU/mL and T 4.4 ng/mL. Azoospermia was found in the spermiogram. Testicular biopsy Micro-TESE is proposed.

RESULTS

Bilateral micro-TESE was performed under general anesthesia and antibiotic prophylaxis. Middle raphe incision of the scrotum and access by planes until both testicles are exteriorized. Use of 25x 'optical microscope Carl Zeiss Opmi Vario S88. The albuginea layer is incised transversely in the most avascular region. Observe under the microscope those thicker and opaque colored tubules that will be selected as a sample. The surgical time was 60 min.
The biology laboratory reports 6 immobile sperm in the total sample and 2 cryotubes are frozen. Bilateral histology diagnosis was mature arrest. The postoperative course was uncomplicated.

CONCLUSIONS

Micro-TESE for fertility in SK adolescents requires optical magnification to select those seminiferous tubules larger and more opaque that contain germ cells with active spermatogenesis, improving success rates.

VD-48 (VS without presentation)

HIDDEN INCISION URETEROCYSTOPLASTY: STEP-BY-STEP DESCRIPTION OF A NOVEL TECHNIQUE

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PURPOSE

20 to 30% of neurogenic bladder patients might need a bladder augmentation, with enterocystoplasty being the gold standard. Ureterocystoplasty ia a good alternative when a large dilated ureter is available. Hidden incision endoscopic surgery (HIDES) has emerged as an alternative approach with better cosmetics. All port sites are hidden at the level of a Pfannenstiel incision, thus renders them nonvisible. This is the first case of HIDES for an ureterocystoplasty.

MATERIAL AND METHODS

A 15 year-old girl with with a lumbosacral MMC corrected at birth and a previous VP shunt had a clinical history of recurrent UTIs in early childhood. She was using a prophylatic antibiotic and performing clean intermittent catheterization (CIC) every 3 hours with low volumes, being incontinent during intervals. She was under oxybutinin 5 mg 3x/day. Ultrasonography demonstrated a right ureterohydronephrosis with severe parenchymal thinning. Voiding cystourethrogram demonstrated vesicoureteral reflux grade V and a Christmas' tree bladder. DMSA scan depicted a non-functioning right kidney. Urodynamics demonstrated a low compliance bladder,

continuous leakage at maximum bladder capacity and inability to void. At presentation she was initially constipated but great improvement was observed after PEG.

RESULTS

Ureterocystoplasty was performed using HIDES technique, operative time was 130 min and the patient was discharged at 2nd postoperative day. Patient is completely dry performing CIC every 4 hours with normal volumes (400 cc).

CONCLUSIONS

HIDES ureterocystoplasty should be considered for selected cases. This approach combines the advantages of open and laparoscopic approaches described for augmentation.