28th Congress of the ESPU
INVITED SOCIETY SIUP

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Introduction

Dear Colleagues and Friends;

It is with great pleasure that we provide you the digital abstracts book of the 28th Congress of the European Society for Paediatric Urology. The scientific program of this 28th ESPU is rich and promising thanks to your usual contribution by submitting valuable abstracts. We have received from 52 countries a total of 725 abstracts (604 clinical abstracts, 53 Basic research and 68 videos).

To continue the ESPU policy to extend our collaboration with other societies, this year we are honored to host the prestigious SIUP as a guest society. The SIUP members will give us their rich experience by giving lectures, sharing panels, and moderating sessions.

In order to keep objectivity and criteria for abstracts selection, we have kept our reviewing process respecting as usual the anonymous principle. Reviewers online were divided in 6 groups of 6, and each group reviewed only 100 abstracts in average. Each abstract was scored according to seven major criteria. Our first challenge was to choose 52 reviewers for clinical abstracts, 10 for basic research (coordinated by Christian Radmayr) and 6 for video scoring. It was so great to have the chance to work with such enthusiastic group coming from 22 European and none-European countries. Finally, scores came back on time! We are thankful to the exceptional work of our Webmaster in the management of this process.

The Scientific Committee, composed this year of 6 members, had an intensive work to finalize the scientific programme (please refer to the list of the reviewers online and members of the scientific committee).

This year program includes 16 hours of standard presentations sessions, more than 200 selected clinical and basic research abstracts and videos. The program is also rich of lectures, panels, educational session run by the Educational Committee, History session, and Workshops. Case reports, Tips and Tricks and Complications sessions have given large satisfaction last year and you will find them again this year with more time for discussions. The new Research Committee will put a significant input by workshops and special sessions. Group of Young Pediatric Urologist has also special activities in the programme and will give us the programme highlights every day. The ESPU-Nurses group have their usual interesting meeting running on a three day programme this year.

Thank you again for your contribution to the success of the ESPU, and I hope that the program will be up to your expectations. Please pay attention to the detailed evaluation questionnaire and answer on time. Your comments and evaluations are very valuable for us to keep improving.

Looking forward to meeting you in Barcelona.

On behalf of the Scientific Committee;

Professor Alaa El Ghoneimi, MD, PhD, FEAPU

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4 28th CONGRESS OF THE ESPU
ARE GATA4 GENE VARIANTS ASSOCIATED WITH HYPOSPADIAS?

Matthieu PEYCELAN1, Lea CARLIER2, Muriel HOUANG3, Georges AUDRY4, Serge AMSELEM2, Alaa EL GHONEIMI5, Jean-Pierre SIFFROI2 and Capucine HYON2

1) Robert-Debré Hospital, AP-HP; Université Paris Diderot, Sorbonne Paris Cité; Inserm UMR_S933, Pediatric Surgery and Urology, Paris Cedex 19, FRANCE - 2) Trousseau Hospital, AP-HP; Université Pierre et Marie Curie; Inserm UMR_S933, Genetics, Paris Cedex 12, FRANCE - 3) Trousseau Hospital, AP-HP, Endocrinology Laboratory, Paris Cedex 12, FRANCE - 4) Trousseau Hospital, AP-HP; Université Pierre et Marie Curie, Pediatric Surgery, Paris Cedex 12, FRANCE - 5) Robert-Debré Hospital, AP-HP; Université Paris Diderot, Sorbonne Paris Cité, Pediatric Surgery and Urology, Paris Cedex 19, FRANCE

PURPOSE

Hypospadias is the most common malformation affecting male genitalia and its incidence is increasing. Although the causes remain often unknown, endocrine, vascular, genetic and environmental factors have been implicated. The genetic basis is probably underestimated. Human Chorionic Gonadotrophin (hCG) secretion in first trimester of pregnancy stimulates fetal testosterone production through GATA4 transcription and phosphorylation. The aim of this study was to investigate the role of variations in GATA4 gene in patients with hypospadias.

MATERIAL AND METHODS

Sequencing of GATA4 gene was performed on DNA extracted from blood lymphocytes. Analyses included 68 patients treated for hypospadias between 2010 and 2013. Statistical analysis: chi-squared test.

RESULTS

Eleven known exonic and intronic variations were identified but no novel variant was found. Two exonic SNPs lead to missense base substitution: c.1129A>G, p.Ser377Gly (rs3729856) and c.1138G>A, p.Val380Met (rs114868912). Allele frequencies of six SNPSs (c.462C>T (rs56348550), c.669G>A (rs55788387), c.723C>T (rs1062215), c.1056C>T (rs3729855), c.1129A>G (rs3729856) and c.1146+45G>A (rs776215655)) were 0.73%, 0.73%, 0.73%, 1.47%, 16.2% and 0.73% respectively in the hypospadias patients, significantly higher than 0.04%, 0.1%, 0.1%, 0.0008%, 4.3% and 0.0025% in the normal controls (p<0.05).

CONCLUSIONS

Mutations in GATA4 gene is unlikely responsible for hypospadias in French children. However, polymorphisms in GATA4 gene may be associated with hypospadias. Given the small number of cases analyzed, further study of a larger number of patients is needed to allow a more thorough investigation of GATA4 variability and to delineate the mechanism by which GATA4 contributes to hypospadias.
TWO NEW VARIANTS IN BMP7 PRODOMAIN IN TWO PAIRS OF MONOZYGOTIC CONCORDANT TWINS WITH HYPOSPADIAS

Aurore Bouty1, Katie Ayers2, Ardy Santosa3, Yves Heoury4, Sultana Faradz5 and Andrew Sinclair2

1) Royal Children’s Hospital, *Urology, Parkville, AUSTRALIA - 2) MCRI, Molecular Development, Parkville, AUSTRALIA - 3) Doctor Kariadi Hospital, Urology, Semarang, INDONESIA - 4) RCH, Urology, Parkville, AUSTRALIA - 5) Faculty of Medicine Diponegoro University (FMDU), Centre for Biomedical Research, Semarang, INDONESIA

PURPOSE
Hypospadias is thought to be caused by a combination of genetic and environmental factors. Variants in Bone Morphogenetic Protein 7 (BMP7) have been reported in patients with hypospadias. Here we report two new variants in BMP7 in two pairs of twins from Indonesia.

MATERIAL AND METHODS
Patients with hypospadias were prospectively recruited in local and international clinics. After informed consent DNA was extracted from blood. The coding regions of 1034 genes (including 64 known diagnostic and suspected candidate genes for DSD) were sequenced using a targeted capture approach (Haloplex, Agilent), combined with massively parallel sequencing (MPS). The resulting variants were filtered for rarity in the general population (<1%), and in our screen. Quality, depth of the reads and predicted pathogenicity were also considered.

RESULTS
We have currently analysed sequencing from 46 hypospadias patients. Two previously unreported variants in BMP7 were identified in two pairs of monozygotic concordant twins exhibiting proximal hypospadias. Both variants (c.G6344, p.D212N and c.G265T, p.A89S) are heterozygous, non-synonymous coding and affect highly conserved amino-acids in the prodomain of BMP7, a region known to be important for the excretion of the protein in the extracellular matrix.

CONCLUSIONS
Through our targeted DSD panel we have identified two new variants in the prodomain of BMP7 in hypospadias. This region has been associated with other diseases in humans but never with hypospadias.

Further analysis of patients with hypospadias, especially trios (patients and parents), may uncover more novel variants that cause this DSD.
ANDROGEN RECEPTOR DISTRIBUTION ON VENTRAL VERSUS DORSAL ASPECT OF CORPORAL BODIES OF CHILDREN WITH CAH: COULD IT BE USED AS A MODEL EXPLAINING RE-CURVATURE IN HYPOSPADIAS CHILDREN?

Ashraf SAAD¹, Haytham BADAURY², Dina ABDALLAH³, Shaymaa ELSAYED⁴, Doaa KHATER⁴ and Magdy OMAR⁴

¹) University of Alexandria, Urology, Alexandria, EGYPT - 2) University of Alexandria, Ped-urology, Alexandria, EGYPT - 3) University of Alexandria, Pathology department, Alexandria, EGYPT - 4) University of Alexandria, Endocrinology department, Alexandria, EGYPT

PURPOSE
In this study we evaluated the distribution of the androgen receptors on the ventral and dorsal aspects of the pathological corpora cavernosa to evaluate its role in the development and the possible redevelopment of penile curvature.

MATERIAL AND METHODS
Six patients with congenital adrenal hyperplasia, who were admitted for reduction clitorioplasty between January 2014 and December 2015. The cases were considered as a model for the pathological corpora cavernosa of severe hypospadias. The study protocol was approved by the Human Ethics Review Committee of the hospital and assigned consent form was obtained from parents. Whole surgically removed clitoris was processed. Immunohistological staining procedures and evaluation of Androgen receptors was done. The immunoreactivity of androgen receptors was evaluated according to the intensity and percentage of positively stained cells.

RESULTS
Androgen receptor expression was significantly more evident on the dorsal than the ventral surface of the corpora cavernosa in the nuclei of vascular endothelia cells and stromal fibroblasts.

CONCLUSIONS
Unequal distribution of androgen receptors between the ventral and dorsal aspects of the corporal tissues can be a cause of the development of penile curvature. Under-correction of these cases during hypospadias repair can be a cause of the development of re-curvature with re-stimulation of these receptors after puberty.
THE ROLE OF FGFS IN THE EARLY DEVELOPMENT OF THE URETHRA: RARE INSIGHTS FROM HUMAN FETAL SPECIMENS

Felix NÄGELE¹, Bernhard HAID², Jozsef DUDAS³, Alexander HAIM⁴, Michael BLUMER¹, Josef OSWALD⁵ and Elisabeth PECHRIGGL¹

¹) Medical University Innsbruck, Clinical and Functional Anatomy, Innsbruck, AUSTRIA - ²) Hospital of the Sisters of Charity, Department of Pediatric Urology, Innsbruck, AUSTRIA - ³) Medical University Innsbruck, Department of Otolaryngology, Innsbruck, AUSTRIA - ⁴) Medical University Innsbruck, Department of Plastic, Reconstructive and Aesthetic Surgery, Innsbruck, AUSTRIA - ⁵) Hospital of the Sisters of Charity, Department of Plastic, Reconstructive and Aesthetic Surgery, Linz, AUSTRIA

PURPOSE
Fibroblast growth factors (FGFs), especially FGF8 and FGF10, are required for the development of the anlagen of the external genitalia and also act as regulatory components in the urethral formation. Lack of these molecules or their associated receptor FGFR2, as shown in murine knock-out models, leads to congenital malformations of the external genitalia and in particular to hypospadias. Currently, there are no studies describing the localization and distribution of FGF8/10/R2 in human fetal specimens.

MATERIAL AND METHODS
25 human fetal specimens, representing an uninterrupted series of 5 specimens for each gestational week 8-12 were studied. The distribution of FGF8/10/R2 was assessed by means of standardized immunohistochemistry (Ventana®, Roche) using specific anti-FGF8/10/R2 antibodies. The future urethra could be definitely identified in all specimens, resulting in meaningful readouts.

RESULTS
FGF 8 and FGF10 were consistently present in both the epithelium of the urogenital sinus, in the urethral plate and in the surrounding mesenchyme, especially in the anlage of the corpora spongiosa in all specimens. Conversely, FGFR2 occurred in the urethral epithelium and showed accentuated staining at the contact site between urogenital sinus and mesonephric duct pointing at its particular role as promotor of the mesothelial-epithelial interaction.

CONCLUSIONS
The findings from murine models could be replicated in our human fetal series. A well-orchestrated FGF-signaling in the early human fetal period seems to be crucial in the development of the external genitalia and the urethra in particular. These findings will be further endorsed by in-situ hybridization assays.
FGF8/10/2R IN HUMAN HYPOSPADIAS FORESKIN: DOES THEIR EXPRESSION PATTERN DIFFER FROM NORMAL FORESKIN?

Bernhard HAID¹, Felix NÄGELE², Elisabeth PECHRIGGL² and Josef OSWALD³

¹) Hospital of the Sisters of Charity, Pediatric Urology, Linz, AUSTRIA - ²) Medical University Innsbruck, Clinical and Functional Anatomy, Innsbruck, AUSTRIA - ³) Hospital of the Sisters of Charity, Department of Pediatric Urology, Linz, AUSTRIA

PURPOSE

The fibroblast growth factor (FGF) pathway plays a major role in the development of the urethra and the penis, affecting the urethra as well as developing penile epithelia by mesenchymal signaling. In murine models, the lack of involved signal molecules or receptors has repeatedly been shown to lead to the development of hypospadias. We aimed at investigating whether in human tissue samples aberrant expression of FGF8/10/R2 in skin is present and corresponds to hypospadias severity as compared to normal foreskin.

MATERIAL AND METHODS

Foreskin samples from 21 patients with hypospadias (11 distal and 10 proximal) and 10 patients with normally developed genitalia were harvested during surgery. Immunohistochemistry (IHC) using antibodies against FGF8, FGF10 and FGFR2 was performed under standardized conditions (Ventana®, Roche). Staining localization and distribution of positive cells in the epithelial layer (basal, partly, full) and the stroma (no stromal positive cells, few, aggregates) were categorized.

RESULTS

Patients with hypospadias consistently showed an aberrant expression pattern for FGF8/10/2R (p<0.0001 for all markers). Stromal positive cells were present more often (p<0.0001) in hypospadias samples compared to normal skin, partly aggregating (57.14% of hypospadias, never in normal skin). The epithelial expression patterns correlated with meatal localization, showing a significant difference between distal and proximal hypospadias (p=0.047). Conversely, the distribution of stromal positive cells or their aggregation was not related to meatal localization (p=0.405).

CONCLUSIONS

We noted important differences between localization and distribution of FGF8, FGF10 and FGF2R comparing normal foreskin to foreskin of hypospadias patients. This finding supports the hypothesis of mesothelial-epithelial interaction and corresponds probably with the clinical estimation of “dysplastic” skin.
MATERNAL EXPOSURE TO DOMESTIC HAIR COSMETICS AND OCCUPATIONAL ENDOCRINE DISRUPTORS IS ASSOCIATED WITH A HIGHER RISK OF HYPOSPADIAS IN THE OFFSPRING

Elodie HARAUX1, Karine BRAUN2, Philippe BUISSON3, Xavier DELFORGE3, Camille DEVAUCHELLE4, Mounia HAMZY3, Jannick RICARD3, Bernard BOUDAILLIEZ5, Pierre TOURNEUX6 and Karen CHARDON7

1) NCHU Amiens, Department of Paediatric surgery and PériTox-INERIS Laboratory, Jules Verne University of Picardy, Amiens, FRANCE - 2) NCHU Amiens, Department of Paediatrics, Amiens, FRANCE - 3) NCHU Amiens, Department of Paediatric surgery, Amiens, FRANCE - 4) Creil hospital, Department of Paediatrics, Creil, FRANCE - 5) NCHU Amiens, Amiens, FRANCE - 6) NCHU Amiens, Department of Paediatric Intensive Care Unit, Amiens, FRANCE - 7) Jules Verne University of Picardy, PériTox-INERIS Laboratory, Amiens, FRANCE

PURPOSE
Pregnant women are exposed to various chemical products at home and at work. Some of these products contain endocrine disrupting chemicals (EDCs) such as cosmetics, pesticides, industrial chemicals, heavy metals, plastics or medications and could alter sexual differentiation and increase the risk of hypospadias. We evaluated maternal occupational and household exposures that could constitute risk factors for hypospadias.

MATERIAL AND METHODS
From 2011 to 2014, we enrolled 57 full-term newborns with hypospadias and 3 randomly selected controls per case (162) matched on gestational age from 11 maternity units in Picardy, France. Neonatal and parental data were collected at birth (personal characteristics, maternal lifestyle and medical history). Maternal occupational exposure was assessed by a job-exposure matrix for EDCs from a job history questionnaire completed by mothers. Odds ratios (OR) and 95% confidence intervals were calculated with univariate and multivariable logistic regression, and adjusted for relevant covariates.

RESULTS
Multivariate analysis showed a strong association between hypospadias and potential maternal occupational exposure to EDCs and maternal household use of hair cosmetics (OR 3.6 (1.4-9.3); OR 5.5 (1.0-30.4), respectively).

CONCLUSIONS
This study suggests that maternal occupational exposure to EDCs is a risk factor for hypospadias and suggests a possible influence of household use of hair cosmetics during early pregnancy on the incidence of hypospadias in the offspring. A larger study with more accurate exposure assessment should evaluate the impact of EDCs in hair cosmetics on the incidence of hypospadias.
MALE INFANTS WITH HYPOSPADIAS OR CRYPTORCHIDISM DO NOT SHOW A DIFFERENT INDEX FINGER/RING FINGER RATIO THAN NORMAL BOYS

Ursula TONNHOFER¹, Doris HEBENSTREIT², Martin METZELDER³ and Alexander SPRINGER¹

¹) Medical University Vienna, Paediatric Urology, Vienna, AUSTRIA - ²) Wilhelminenspital der Stadt Wien, Department of Urology, Vienna, AUSTRIA - ³) Medical University Vienna, Department of Pediatric Surgery, Vienna, AUSTRIA

PURPOSE

Studies have shown that the index finger/ring finger ratio (2/4DR) is sexually dimorphic (smaller in male than female). It is believed that this represents different exposure to androgens in utero. Pathogenesis of hypospadias and undescended testis (UDT) is also closely linked to androgen action during pregnancy. In this study, we sought to determine if there are any differences in infants with hypospadias and UDT and controls.

MATERIAL AND METHODS

Patients were enrolled prospectively. Prior to surgery (under anesthesia) the length of the index finger and ring finger on both hands were measured using a standard caliper (from proximal crease to the tip of the finger). The method of measurement has been proven for inter-observer reproducibility before (Abbo et al., 2015). The groups were chosen to be homogeneous in age and children above 5 years of age were excluded. Hypospadias were classified according to the SIU classification.

RESULTS

There were 208 participants: 102 controls (mean 1.37, +/- 1.41 years), 41 mild hypospadias (mean 1.75, +/- 1.31 years), 20 severe hypospadias (mean 1.22, +/- 0.78 years), and 45 UDT (mean 1.54, +/- 1.16 years). Right hand: 2/4DR controls: 0.950 +/-0.062, mild hypospadias: 0.964 +/-0.050, severe hypospadias 0.950 +/-0.050, UDT 0.952 +/-0.040. Left hand: 2/4DR controls: 0.952 +/-0.060, mild hypospadias: 0.928 +/-0.155, severe hypospadias 0.948 +/-0.044, UDT 0.955 +/-0.049. There were no significant differences in any of the sub groups.

CONCLUSIONS

In our study (infants under the age of 5 years) we could not show any differences in the 2/4 digit ratio for children with mild hypospadias, severe hypospadias, UDT, and controls. These findings are in contrast to the literature which has shown significant differences in male/female, hypospadias, UDT, male social behavior, testosterone levels and other items. One explanation could be that the 2/4 digit ratio dimorphism is not well developed in infants.

Discussion
IMMUNOHISTOCHEMICAL PROFILE OF NORMAL PREPUBERTAL TESTES

Kolja KVIST¹, Erik CLASEN-LINDE², Dina CORTES³ and Jørgen THORUP¹
1) Rigshospitalet, Pediatric Surgery, Copenhagen, DENMARK - 2) Rigshospitalet, Pathology, Copenhagen, DENMARK - 3) Hvidovre Hospital, Pediatrics, Hvidovre, DENMARK

PURPOSE
We recently showed that normal infantile testes stain positive for PLAP, C-kit, D2-40 and Oct ¾ up till 2 years of age, thereby stretching the time for completion of their maturation, a finding contrary to previous studies.
This naturally begot the question as to when they become negative. This study aims to answer part of that.

MATERIAL AND METHODS
Biopsies were taken from 11 boys, ages 11.5 to 16 years (mean 13,5, median 13), operated either on suspicion of torsion of the testes or intermittent torsion.
The biopsies were processed for histology, cut into 4μm sections and mounted on coated slides. One slide was processed for H-E, and the others incubated with primary antibody for PLAP, C-Kit, D2-40 and Oct3/4.

RESULTS

<table>
<thead>
<tr>
<th>Age years</th>
<th>Diagnosis</th>
<th>PLAP dxt/sin</th>
<th>C-Kit dxt/sin</th>
<th>D2-40 dxt/sin</th>
<th>Oct ¾ dxt/sin</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,5</td>
<td>intermittent</td>
<td>pos/pos</td>
<td>pos/pos</td>
<td>neg/neg</td>
<td>neg/neg</td>
</tr>
<tr>
<td>12,5</td>
<td>torsio dxt</td>
<td>pos/-</td>
<td>pos/-</td>
<td>neg/-</td>
<td>neg/-</td>
</tr>
<tr>
<td>14</td>
<td>torsio dxt</td>
<td>pos/-</td>
<td>pos/-</td>
<td>neg/-</td>
<td>neg/-</td>
</tr>
<tr>
<td>15</td>
<td>torsio dxt</td>
<td>-/pos</td>
<td>-/pos</td>
<td>-/neg</td>
<td>-/neg</td>
</tr>
<tr>
<td>15</td>
<td>torsio dxt</td>
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<td>neg/ neg</td>
<td>neg/ neg</td>
</tr>
<tr>
<td>13</td>
<td>torsio sin</td>
<td>neg/ neg</td>
<td>neg/ neg</td>
<td>neg/ neg</td>
<td>neg/ neg</td>
</tr>
<tr>
<td>16</td>
<td>torsio sin</td>
<td>neg/ -</td>
<td>neg/ -</td>
<td>neg/ -</td>
<td>neg/ -</td>
</tr>
<tr>
<td>13</td>
<td>intermittent</td>
<td>pos/ neg</td>
<td>pos/ neg</td>
<td>neg/ neg</td>
<td>neg/ neg</td>
</tr>
<tr>
<td>12</td>
<td>intermittent</td>
<td>pos/ pos</td>
<td>pos/ pos</td>
<td>neg/ neg</td>
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</tr>
<tr>
<td>15,5</td>
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<td>pos/ pos</td>
<td>neg/ neg</td>
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</tr>
<tr>
<td>11,5</td>
<td>intermittent</td>
<td>pos/ pos</td>
<td>pos/ pos</td>
<td>neg/ neg</td>
<td>neg/ neg</td>
</tr>
</tbody>
</table>

CONCLUSIONS
To our knowledge, this is the first presentation of positive staining for PLAP and C-Kit in normal pre-pubertal testes.
It attenuates that the maturation of germ cells is an ongoing process that apparently is not complete before puberty.
EVALUATION THE EFFECT OF THE TESTIS FIXATION IS PERFORMED THROUGH THE EPIDIDYMO-TESTICULAR JUNCTION ON ENFLAMATION, OXIDATIVE STRESS AND SPERMATOGENESIS PARAMETERS IN RATS

Fatih ELBIR¹ and M.Selcuk SILAY²

¹) Midyat State Hospital, Urology, Mardin, TURKEY - 2) Medeniyet University, Pediatric Urology, Istanbul, TURKEY

PURPOSE
Undescended testis and testicular torsion operations are frequently being performed in pediatric urology. We hypothesized that if the fixation suture is performed through the epididymotesticular junction, we may cause less trauma to the testis.

MATERIAL AND METHODS
28 rats were assigned into 4 groups. First group was sham, the second group, fixation was performed by passing the suture through the parenchyma, the third group through the ETJ and the last group, testis was placed into the dartos pouch without fixation. Testicular tissues were examined histologically and biochemically. Inflammation, spermatogenesis, microlithiasis were criteria of histopathological examination. The biochemical markers of inflammation and oxidative stress parameters were evaluated.

RESULTS
The evaluation of spermatogenesis revealed that sham group was better than DPO and TETF groups. When assessing inflammation parameters, in sham group, no inflammation was detected, TPF group 1 testis had moderate inflammation, TETF group 1 testis had moderate inflammation and 1 testis had severe inflammation, the DPO group 1 testis had moderate inflammation. The rate of microlithiasis was significantly higher in TPF group when compared to the other groups. In the sham group no microlithiasis was detected, the TPF group, at 6 testicles microlithiasis was detected whereas in the TETF group, 2 testicles demonstrated microlithiasis, the DPO group only at 1 testis microlithiazis was detected. The assessment of the inflammation markers revealed that IL-1β values for TPF and TETF groups were significantly higher than sham group. For IL-6, TPF group values were significantly higher than sham and DPO groups. For TNF-α, TPF and DPO groups values were significantly higher than sham group. In the testis tissues, TAS, TOS and OSI values were calculated. TOS and TAS values found similar among all groups. However, for OSI, sham group value was significantly lower than TPF and TETF groups.

CONCLUSIONS
Transparenchymal fixation leads histopathological and biochemical deterioration. Dartos pouch was determinated the most reliable method. TETF method’s biochemical results were better than TPF method so this shows that also reliable.
★ ESTABLISHMENT OF COLONIC DIALYSIS MODEL IN UREMIC RATS BY RIGHT NEPHRECTOMY AND LEFT PARTIAL NEPHRECTOMY

Nastaran SABETKISH1, Shabnam SABETKISH2 and Abdol-Mohammad KAJBAFZADEH3

1) Pediatric Urology Research Center, Section of Tissue Engineering and Stem Cells Therapy, Tehran Univ, Pediatric Center of Excellence, Tehran, ISLAMIC REPUBLIC OF IRAN - 2) Tehran University of Medical Sciences, Pediatric Urology and Regenerative Medicine Research Center, Pediatric Center of Excellence, Tehran, ISLAMIC REPUBLIC OF IRAN - 3) Tehran University of Medical Sciences, Pediatric Urology and Regenerative Medicine Research Center, Pediatric Center of Excellence, Tehran, ISLAMIC REPUBLIC OF IRAN

PURPOSE
To establish colonic dialysis (CD) model in uremic rats and to evaluate the effect of two different peritoneal dialysis (PD) solutions.

MATERIAL AND METHODS
Twenty four male wistar rats were randomly divided into 3 groups. After applying right nephrectomy and left partial nephrectomy, Malone antegrade continence enema (MACE) was created. Rats of group I (N=8) received no postoperative intervention as control group. Seven days after the procedure, blood sampling was performed and CD was started through the MACE stoma by a low-osmolar PD solution in group II (N=8). Rats of group III (N=8), underwent the same procedure with a high-osmolar PD solution. Mannitol and activated charcoal were also added to both PD solutions. Weekly blood sampling was performed in order to evaluate the plasma creatinine and blood urea nitrogen (BUN) level.

RESULTS
The respective mean±SD creatinine and BUN level was 1.5±0.04 and 49.5±5.6 mg/dl 7 days after surgical procedure. While these values were in the steady low states after applying regular CD in group III (0.6±0.02 and 24.1±2.8 mg/dl), they remained in higher levels in control group (1.7±0.08 and 58.2±6.1 mg/dl, respectively) two weeks postoperatively. In the same time-point, BUN and creatinine levels of rats in group II was 1±0.05 and 41.8±5.3 mg/dl. The mean±SD survival period was 11±2, 20±3, and 33±2 days in the animals of group I, II, and III, respectively.

CONCLUSIONS
CD with an efficient PD solution through a MACE stoma may be a valuable option when conventional methods are not available.
CHARACTERIZATION OF RENAL PARENCHYMA IMPAIRMENT IN PARTIAL UNILATERAL URETERAL OBSTRUCTION IN MICE WITH INTRAVOXEL INCOHERENT MOTION MR IMAGING

Maguelonne PONS¹, Benjamin LEPORQ², Liza ALI³, Marianne ALISON⁴, Miguel ALBUQUERQUE⁵, Michel PEUCHMAUR⁶, Marie-Laurence POLI MÉROL⁷, Ulrich BLANK¹, Simon Auguste LAMBERT² and Alaa EL GHONEIMI³

1) INSERM UMR 1149, Université Paris Diderot, Sorbonne Paris Cité, Laboratoire d’excellence INFLAMEX, Paris, FRANCE - 2) Univ Lyon, INSA-Lyon, Université Claude Bernard Lyon 1, UJM-Saint Étienne, CNRS, Inserm, CREAT, Villeurbanne, FRANCE - 3) Department of Pediatric Surgery and Urology, Hôpital Robert Debré, APHP, Université Paris Diderot, S, Paris, FRANCE - 4) Department of Pediatric Radiology, Hôpital Robert Debré, APHP, Université Paris Diderot, PRES Sorbon, Paris, FRANCE - 5) Pathology Department, Hôpital Beaujon, APHP, Clichy, FRANCE - 6) Department of Pathology, Hôpital Robert Debré, APHP, Université Paris Diderot, Sorbonne Paris Cité, Paris, FRANCE - 7) Pediatric Surgery Unit, American Memorial Hospital, Université Reims Champagne Ardennes, Reims, FRANCE

PURPOSE
Obstructive nephropathy constitutes a major cause of progressive pediatric renal disease. We propose to use intravoxel incoherent motion (IVIM) diffusion sequence to characterize kidney parenchyma impairment on a clinically relevant mouse model of partial unilateral ureteral obstruction (pUUO).

MATERIAL AND METHODS
The diffusion coefficient (Dslow), the perfusion coefficient (Dfast) and the perfusion fraction (f) were extracted from IVIM data acquired on a 7T MRI. The imaging method was validated on 10 sham wild type (WT) mice. Then 10 WT mice were subjected to UUOp at day 3 of life. At day 75, mice underwent MRI examinations. Histological analysis was performed on both kidneys.

RESULTS
Diffusion parameters extracted from IVIM imaging were similar in both kidneys of sham WT mice. Mean values of Dslow, Dfast and f were respectively 1.17±0.22mm².s⁻¹, 84.9±73.8mm².s⁻¹ and 29.7±6.19% in the right kidney and 1.07±0.16mm².s⁻¹, 87.6±71.7mm².s⁻¹, and 30.6±7.0% in the left kidney. For pUUO mice a significant decrease of f (24.9±4.7 %) in the right operated kidney compared to the sham right kidney was measured (p=0.04). Strong correlation between f and the volume of the right kidney was observed (spearman coefficient=0.94, p=0.01) in severe pUUO mice.

CONCLUSIONS
The IVIM sequence has been validated for the first time on mouse kidneys. According to the literature, our study suggests that a f reduction associated with a decrease volume parenchyma could be related to a decrease of renal vascularization, appearing before fibrosis impairment. Perfusion fraction is a good candidate as a MRI biomarker to follow quantitatively the early changes of kidney pathophysiology in pUUO.
URINARY IP-10, MCP-1, NGAL, CA19-9 AND KIM-1 LEVELS IN SUPRANORMAL RENAL FUNCTION WITH UNILATERAL HYDRONEPHROSIS

Omer Baris YÜCEL¹, Canan KÜÇÜKGERGIN², Haluk ANDER¹, Muhammet Irfan DÖNMEZ¹, Unsal OZKUVANCI¹, Orhan ZIYLAN¹ and Tayfun OKTAR¹

¹) Istanbul University Istanbul Faculty of Medicine, Urology, Istanbul, TURKEY - 2) Istanbul University Istanbul Faculty of Medicine, Biochemistry, Istanbul, TURKEY

PURPOSE

The aim of this study is to investigate the urinary interferon gamma-induced protein 10(IP-10), monocyte chemotactic protein-1(MCP-1), neutrophil gelatinase-associated lipocalin(NGAL), cystatin-C and kidney injury molecule-1(KIM-1) levels in children with antenatally diagnosed unilateral hydronephrosis(ANH) and supranormal renal function(SnDRF) and to evaluate the clinical significance.

MATERIAL AND METHODS

A total of 53 children with unilateral ANH were enrolled into the study. They were divided into 2 groups as 20 children with SnDRF and 33 children with reduced DRF. On follow up, pyeloplasty was performed to 6 of the 20 children with SnDRF (mean DRF:54.7%±3.1) and 19 of 33 children with reduced DRF. The remaining children were classified as having non-obstructive dilation(NOD) in both SnDRF(14 children) and reduced DRF(14 children) groups. 19 children were enrolled in the control group. The urinary biomarker levels of these 72 children were measured.

RESULTS

The urinary levels of all biomarkers were significantly higher in children who underwent pyeloplasty compared to controls (p<0.001). There was no significant difference between the obstructive and SnDRF/obstructive groups or between the NOD and SnDRF/NOD groups regarding of all biomarker levels (p<0.001). Urinary NGAL and CA19-9 levels in obstructive/SnDRF group were significantly higher than the children with SnDRF and NOD (p=0.033; p=0.005). Urinary NGAL (cut-off value: 13.9 ng/mg creatinine) and CA19-9 (cut-off value: 113.85 U/mg creatinine) can determine the need of surgery in SnDRF group with 83% and 100% sensitivity, 86% and 79% specificity, respectively. Urinary MCP-1 showed 80% sensitivity, 79% specificity to identify 25 children who required surgery. Urinary IP-10 and KIM-1 can differentiate between obstructive and non-obstructive dilatation in SnDRF group with 83% sensitivity, 57% and 71% specificity, respectively.

CONCLUSIONS

We demonstrated that the unilateral hydronephrosis of children with SnDRF could be obstructive or non-obstructive for the first time using biomarkers. The need of pyeloplasty for a child with or without SnDRF could be predicted with 90% sensitivity and 80% specificity using the combination of these biomarkers.
APPLICATION OF WHOLE ORGAN DECELLULARIZATION PROTOCOLS FOR HUMAN-SIZED KIDNEY; IN VIVO IMPLANTATION AND SHORT-TERM FOLLOW-UP IN A SHEEP MODEL

Behnam NABAVIZADEH, Abdol-Mohammad KAJBAFZADEH, Reza KHORRAMIROUZ and Aram AKBARZADEH

Tehran University of Medical Sciences, Pediatric Urology and Regenerative Medicine Research Center, Pediatric Center of Excellence, Tehran, ISLAMIC REPUBLIC OF IRAN

PURPOSE

There have been increased efforts to develop alternative management methods instead of dialysis and homograft renal transplantation. One of the recent methods includes tissue engineering to produce a natural scaffold that could help with solving allograft rejection and obviating the need for immunosuppressive therapy. Complete decellularization of kidney with intact extracellular matrix (ECM) is the most important factor for further in vivo compatibility and success of transplantation. Herein, we evaluate the efficacy of two different decellularization protocols in this regard.

MATERIAL AND METHODS

Ten whole sheep kidneys were decellularized by perfusion based method utilizing two different protocols (Protocol 1: SDS 1% only Vs. Protocol 2: triton 1% and SDS 0.5%). The samples were evaluated by histopathology in the terms of decellularization and ECM preservation. CT angiography was performed to evaluate vasculature. Subsequently, both methods were transplanted and evaluated in four sheep and monitored for vascular integrity and extravasations in short-term. The explanted kidneys were evaluated by histopathology.

RESULTS

Both samples were decellularized completely but the ECM showed different patterns. After transplantation, the samples treated with protocol 1 showed extravasation of fluid in the interstitial space while the samples treated with protocol 2 showed intact ECM and vasculature. Both sheep in protocol 1 expired in first postoperative day due to massive extravasation, but in protocol 2 all sheep were monitored for evidence of extravasation for 3 days and then explanted with no notable fluid accumulation.

CONCLUSIONS

Our study demonstrated the efficacy of well-preserved ECM in better structure formation and success rate in in-vivo decellularized kidney transplantation.
URINE PROTEOMICS IN CHILDREN WITH VESICOURETERAL REFLUX

Anja WEINHANDL¹, Suzann BAUMANN¹, Dagmar CSAICSICH², Karin SCHLANGEN³, Martin METZELDER⁴, Goran MITULOVIC⁵ and Alexander SPRINGER⁶

1) Medical University Vienna, Pediatric Urology, Vienna, AUSTRIA - 2) Medical University Vienna, Department of Pediatrics, Vienna, AUSTRIA - 3) Medical University Vienna, Center for Medical Statistics, Vienna, AUSTRIA - 4) Medical University Vienna, Department of Pediatric Surgery, Vienna, AUSTRIA - 5) Medical University Vienna, Head of Proteomics Core Facility, Vienna, AUSTRIA - 6) Medical University Vienna, Paediatric Urology, Vienna, AUSTRIA

PURPOSE
Children with vesicoureteral reflux (VUR) are at risk for renal damage. Currently, the detection of VUR and associated renal scaring in children is invasive, expensive and associated with radiation burden. Noninvasive methods such as urinary protein analysis would greatly facilitate management of VUR.

MATERIAL AND METHODS
Between 2012 and 2014 urinary samples from 16 VUR patients (5 low grade VUR, 5 with renal dysplasia/reflux nephropathy, 7 girls, 7 children < 12 months) and 10 controls (non-urologic hospital admittance) were collected. Samples were centrifuged at 3500rpm for 15min and supernatants were collected and frozen at -80°C for further processing. Urine proteomics was performed using a standard protocol (Data Analysis 4.1, Mascot 2.4.1, ProteinScape 3.1). In order to identify differentially expressed proteins the t-test was used (significance set at p <0.05). Biostatistical techniques were used to describe distinct protein expression profiles for VUR. Protein-protein interaction information was extracted from publicly available repositories (Gene ontology, PANTHER, Process networks).

RESULTS
For VUR vs. controls 61 proteins were significantly expressed, amongst them several key proteins could be identified (Cadherin-15, IGFBP2, Uroplakin-2, Aquaporin-2 and Metalloproteinase 16). For low grade vs. severe VUR there were 42 proteins significantly expressed, but no well-known key proteins. In dysplastic kidneys/nephropathy vs. controls 56 proteins were significantly expressed including classical stress response proteins (Heat shock 70 (HSP-70-1, HSP90-a, HSPb-1, HSC71, HSP70-2). Distinct VUR proteome expression could be allocated to biological processes and pathways (cell cycle, apoptosis, biological regulation, cell adhesion, etc.).

CONCLUSIONS
Using an exploratory, proteome-wide approach and bioinformatics analysis, we could identify a distinct VUR typical expression profile. The nature of VUR is diverse, therefore we observed inter-individual variance. Further prospective studies are warranted to test if proteomic findings will have an impact as non-invasive prognostic marker in the management of VUR.

14:33 – 14:55 Discussion
INTRODUCTION
Bladder exstrophy is a congenital closure defect of the urinary bladder with profound impact on morbidity. Although the malformation is usually sporadic, a genetic background is supported by an increased recurrence risk in offspring and siblings, higher concordance rates in monozygotic twins and several associated chromosomal aberrations. Recently, ISL1 was presented as a candidate gene in a genome wide association study for bladder exstrophy.

In this study we assessed the ISL1 mutation frequency in DNA from patients with bladder exstrophy and evaluated the ISL1 expression in human fetal bladder during the critical time frame for the development of bladder exstrophy and epispadias complex.

MATERIAL AND METHODS
DNA was isolated from either blood or skin from 125 patients with bladder extrophy that were recruited nationally by the Pediatric Surgery Departments. We sequenced coding exons in ISL1. In the control group we used DNA from two different sources, peripheral blood from anonymous blood donors and placenta tissue acquired after normal delivery of healthy newborns of European origin and without any obvious malformations. RNA sequencing of human fetal bladder tissue during fetal weeks 5-10 was compared to lung tissue from week 9 as a control.

RESULTS
In total 17 genetic variants in ISL1 were identified including a novel missense variant, c.137C>G p.(Ala46Gly), substituting a conserved amino acid. This variant is inherited from the healthy mother, observation in healthy females may not exclude causation. We also detected ISL1 mRNA expression in fetal bladders during the whole period examined.

CONCLUSIONS
Our results support that mutations in ISL1 may be a rare mechanism for the development of bladder extrophy.
AUTOPHAGY, APOPTOSIS AND CELL PROLIFERATION IN EXTROPHY-EPISPADIAS COMPLEX

Mahsa SHABANINIA, Ali TOURCHI, Heather DI CARLO and John GEARHART

The James Buchanan Brady Urological Institute, The Johns Hopkins School of Medicine, Department of Urology, Baltimore, USA

PURPOSE
Very few pathophysiological mechanisms have been proposed as the etiology of bladder exstrophy (BE). Autophagy, or type II programmed cell death pathway, is an evolutionary conserved process involving intracellular degradation and recycling of cytoplasmic organelles. A basal level of autophagy is detected in most tissues, maintaining cellular homeostasis and viability through development and differentiation of eukaryotic organisms. Herein, the authors investigated the state of autophagy and its interactions with cells apoptosis and proliferation in patients with BE.

MATERIAL AND METHODS
Primary cultures of bladder smooth muscle cells were established from patients with successful neonatal bladder closure (group 1, N=5), delayed closure due to small bladder template (group 2, N=5) and vesicoureteral reflux as control (group3, N=5). The myogenicity of the cultures was determined using anti-desmin antibody. Immunofluorescence staining for LC3 was used to detect autophagy. Cells apoptosis was assessed using TUNEL assay, 4’, 6-diamidino-2-phenylindole staining. Cellular proliferation was assessed by image analysis of immunofluorescence staining for Ki-67.

RESULTS
Immunohistochemical staining revealed consistent positivity (greater than 95%) for Desmin in all cultures that confirms the myogenicity of them. Apoptosis was significantly higher in delayed closure group compared to other groups. Autophagy marker (LC3) was more expressed in delayed closure group compared to the other groups. Cellular proliferation was significantly lower in delayed closure group compared with control and successful neonatal closure groups.

CONCLUSIONS
Our results confirm that there are distinct differences in bladder smooth muscle cell function between control, successful neonatal closure and delayed closure cases due to small bladder template which persist in culture. Children with slower bladder growth and small bladder templates showed up-regulated autophagic process and increased apoptotic indices while experiencing a dramatic decrease in their bladder smooth muscle cells proliferation.
IDENTIFICATION OF DIFFERENTIALLY EXPRESSED GENES IN BIOPSIES FROM NEUROGENIC BLADDERS USING RNASEQ

Luise BORCH1, Søren HAGSTRØM2, Anne-Francoise SPINOIT3, Ulrik BAANDRUP4 and Jane H CHRISTENSEN5
1) Aarhus University Hospital, Pediatrics, Aarhus N, DENMARK - 2) Aalborg University Hospital, Pediatrics, Aalborg, DENMARK - 3) Gent University Hospital, Urology, Gent, DENMARK - 4) North Denmark Reginal Hospital, Aalborg University, Hjørring, Center for Clinical Research, Hjørring, DENMARK - 5) Aarhus University Hospital, Biomedicine, Aarhus N, DENMARK

PURPOSE
The aim of this study was to analyze differentially expressed genes (DEGs) in bladder biopsies from patients with a neurogenic bladder compared to controls.

MATERIAL AND METHODS
The study included two groups. Group 1 (controls): 13 adults with healthy bladders (6 males). Group 2: 11 adults with neurogenic bladders (5 males). One biopsy was retrieved from the bladder wall of each subject. The biopsy was snap frozen in liquid nitrogen, followed by RNA extraction. RNA sequencing data was obtained by next generation sequencing, and statistically significant DEGs between the two groups were estimated. Enrichment of specific biological properties and biochemical pathways among the DEGs were identified.

RESULTS
Differential gene expression analysis identified 115 significant up-regulated DEGs, and 2 down-regulated. SLURP1, keratins and UPK3A are among the top significantly regulated genes together with their potential common regulator, KLF4. The DEGs are enriched in genes encoding secreted protein and/or peptides and in genes with molecular functions in: 1) Serine-type endopeptidase inhibitor activity, 2) Haptoglobin binding, and 3) RAGE receptor binding. The most significantly enriched biological process among the DEGs is epidermis development. KEGG Pathway analysis revealed 7 significantly enriched pathways (Q-value < 0.05). These pathways are predominantly immune response pathways (including DEGs as IL6, IL8, CD20, CD21, CD22, CD36, CD42, and API).

CONCLUSIONS
DEGs identified in biopsies from neurogenic bladder were predominantly enriched in immune response pathways and the most regulated DEGs are likely involved in keratinocyte cell differentiation, keratinization, signaling within non-neuronal cells through the α7 nicotinic acetylcholine receptor as well as the barrier function of the urothelium.
ALTERED URINARY ANTIMICROBIAL PEPTIDES IN THE NEUROGENIC BLADDER POPULATION

Janae PREECE¹, Sudipti GUPTA², Joshua WATSON³, Cheryl BAXTER⁴, Stephanie RIESENBERG², Andria HAYNES⁴, Brian BECKNELL⁵ and Christina CHING⁴

1) Children’s Hospital of Michigan, Urology, Detroit, USA - 2) Nationwide Children’s Hospital, Columbus, USA - 3) Nationwide Children’s Hospital, Infectious Disease, Columbus, USA - 4) Nationwide Children’s Hospital, Urology, Columbus, USA - 5) Nationwide Children’s Hospital, Nephrology, Columbus, USA

PURPOSE
Bacteriuria is common in the neurogenic bladder population; thus differentiating between colonization and infection is challenging. Overtreatment of colonization has led to resistant bacteria complicating eradication of true infections. We evaluated urinary antimicrobial peptides (AMPs) expression in neurogenic bladders in order to differentiate between colonization and infection.

MATERIAL AND METHODS
Urine was prospectively collected by void or catheterization from patients with known spinal cord abnormalities (myelomeningocele or spinal cord injury) at time of renal ultrasound or urodynamics (UDS) with IRB approval. Patients with augmentation cystoplasty were excluded. Control urine was obtained from patients without spinal cord abnormality, urinary tract obstruction, or infection. Samples were classified as infected, colonized, or sterile based on urinalysis, urine culture, and symptomatology. AMP levels were measured by ELISA and normalized to urine creatinine. A p-value of <0.05 was considered significant.

RESULTS
We evaluated 38 neurogenic samples and 17 controls. There was no difference in mean age between the neurogenic and control groups (11.0 vs. 12.9 years old, respectively, p=0.31) or gender (14 males vs. 11 males, respectively, p=0.08). 11 neurogenic samples were sterile, 19 colonized, and 8 infected. The antimicrobial peptides HIP/PAP, NGAL, and BD-1 were elevated in cases of UTI when compared to colonization in neurogenic samples, though not significantly so. Interestingly, HIP/PAP and LL-37 in sterile neurogenic samples were significantly higher than in sterile non-neurogenic control samples (p=0.016 and 0.001, respectively).

CONCLUSIONS
Sterile urine from neurogenic bladders have significantly elevated urinary AMP levels compared to controls and may suggest a broader role for AMPs in this patient population. Urinary AMPs may aid in differentiating true infection from colonization in neurogenic patients.
CONSTIPATION WOULD INDUCE A SENSITIZATION IN BLADDER NERVES: AN ANIMAL STUDY

Nao IGUCHI¹, Irfan DÖNMEZ¹, Anna MALYKHINA¹ and Duncan WILCOX²

¹) University Of Colorado Denver, Surgery, Aurora, USA - 2) Children’s Hospital Colorado, Urology, Aurora, USA

PURPOSE
It has been reported that lower urinary tract symptoms are more frequent in children with constipation and encopresis. The presence of inflammation and muscular hypertrophy in bladders of constipated children has also been reported. Although the impact of constipation on voiding function is undisputable, the etiology remains to be elucidated. We hypothesized that in a murine model that constipation would lead to a change in bladder function through neuronal cross talk.

MATERIAL AND METHODS
Male mice (C57BL/6J, 4-week old) underwent surgery to introduce either reduction of external anal sphincter opening or sham operation. Sham operated mice were used as controls. Urination and defecation habits were evaluated at 4, 7, 10, and 14 days post-op. Bladders were subjected to histological evaluation and in vitro assessment of detrusor contractility following 2 weeks of constipation.

RESULTS
Numbers of urine spots were significantly increased (19 in the constipation group vs. 5 in controls) while the volume of each void was significantly lower in the constipation group compared to those in controls (0.17 ml vs. 0.32 ml in controls) at 4 day post-surgery. These parameters were statistically insignificant between groups on 7, 10 and 14 days. Detrusor strips from constipation group demonstrated a significantly enhanced contractility in response to electric field stimulation (EFS) compared to control group by 15%, while no significant difference was observed in response to high concentration of KCl, or carbachol. This result suggests that the bladder innervating neurons became sensitized following constipation, which in turn developed the symptoms related to bladder over activity observed in micturition pattern assessments.

CONCLUSIONS
Our results indicate that constipation caused bladder over activity, which seemed to be induced by sensitization of innervating neurons.
ADIPOSE STEM CELLS IN COMBINATION WITH PLATELET-RICH PLASMA RESTORE MORPHORLOGY AND FUNCTION OF URINARY SPHINCTER IN A NERVE-TRANSECTED RAT MODEL OF STRESS URINARY INCONTINENCE

Gustavo VILLOLDO1, Romina ALBITE1, Jorge JAUNARENA1, Federico PEREYRA BONNET1, Andrea SORDELLI1, Andrea SORDELLI1, Monica LORESI1, Maximiliano DADAMO1, Walter GONZALEZ1, Marcelo IELPI1, Juan MOLDES2 and Francisco DE BADIOLA2

1) Hospital Italiano de Buenos Aires, Experimental Medicine, Ciudad De Buenos Aires, ARGENTINA - 2) Hospital Italiano de Buenos Aires, Pediatric Urology, Ciudad De Buenos Aires, ARGENTINA

PURPOSE

Adipose derived stem cells (ADSC) are nonimmunogenic and have the ability to self-renew and to differentiate into multiple cell types. They have been used to restore urinary sphincter function in animal models. But there is not strong evidence regarding the role of the vehicle that must be used in combination with ADSC to improve effectiveness at the injection site.

To assess whether adipose stem cell (ADSC) plus platelet rich plasma (PRP) could promote urethral sphincter restoration in a stress urinary incontinence (SUI) rat model.

MATERIAL AND METHODS

Thirty five female inbred Wistar rats were used in our study. Animals were divided into seven groups (five animals per group): continent (C), sham (S), PNT (D), PNT+PBS injection (P), PNT+PBS+ADSC injection (PA), PNT+PRP injection (R) and PNT+PRP+ADSC injection (RA). Twenty five females rats underwent bilateral pudendal nerve section (PNT) to induce SUI. ADSCs were purified from fat tissue of a 4-week-old inbred male Wistar rat, labeled CM-Dil and injected into the urinary sphincter in twelve o’clock position with 70 microliltres of PBS or PRP. Four weeks after injection, cystometry was undertaken in all animals and leak point pressure (LPP) measured to assess urethral resistance function. All groups were sacrificed after cystometry, urethra sections were submitted for histology, immunohistochemistry assessment.

RESULTS

LPP was increased significantly in R, RA and PA animals after implantation (P < 0.01), but was not different from group C and S. Histological and immunohistochemical examination demonstrated increased numbers of surviving ADSCs increased muscle/collagen ratio as well as increased nerve fibers density surrounding ADSC at the injection sites in RA compared to PA animals (CM-Dil +).

CONCLUSIONS

PRP may potentially improve the action of transplanted ADSC to restore the histology and function of the urethral sphincter in a SUI rat model.
MACROPHAGE DEPLETION PRESERVES BLADDER PHYSIOLOGY IN PARTIAL BLADDER OUTLET OBSTRUCTION

Martin SIDLER¹, Darius J BAGLI² and Karen J. AITKEN³

¹) The Hospital for Sick Children, Division of Pediatric Urology, Toronto, CANADA - 2) The Hospital for Sick Children, Division of Pediatric Urology, Toronto, CANADA - 3) Research Institute, Hospital for Sick Children, Toronto, Developmental and stem cell biology, Toronto, CANADA

PURPOSE

Macrophage play a pivotal role in tissue remodeling. We aimed to describe their practically unknown role in obstruction-induced bladder remodeling.

MATERIAL AND METHODS

First, 12 female mice underwent partial bladder outlet obstruction (pBOO), half of them received Clodronate liposome (CL) injections to deplete macrophages, 5 additional mice remained unoperated; bladder-macrophages were quantitated using CyTOF after 2 weeks. Second, two groups of 16 female mice underwent pBOO, half of each group received CL treatment. After two weeks, micturition pattern was analysed before bladder harvest.

RESULTS

3.5% of cells from lysed bladders of unoperated mice were macrophages, while obstructed bladders showed 17% macrophages, CL-treatment successfully reduced that ratio to 7% (pooled samples of 5 bladders each). CL-treatment in obstructed mice significantly increased mean voided volume by almost 3-fold, similar to sham levels; CL-treatment also prevented obstruction-induced over-active voiding pattern. In obstructed mice, we also observed a significantly increased bladder capacity by CL-treatment by 50% compared to normal saline treated mice. qPCR and histologic workup is pending.

CONCLUSIONS

We successfully established CL-treatment as method to reduce the number of bladder-macrophages. CL treatment preserved voiding efficiency and prevented obstruction-induced deterioration of bladder physiology.

Discussion
IMPROVED BLADDER DYSFUNCTION FOLLOWING PARTIAL BLADDER OUTLET OBSTRUCTION: IN VITRO AND IN VIVO EFFECTS OF A HIF INHIBITOR

Nao IGUCHI¹, Irfan DÖNMEZ¹, Anna MALYKHINA¹ and Duncan WILCOX²

1) University of Colorado Denver, Surgery, Aurora, USA - 2) Children’s Hospital Colorado, Urology, Aurora, USA

PURPOSE

Posterior urethral valves are the most common cause of partial bladder outlet obstruction (PBOO) in pediatric population. Pathological changes in the bladder developed during PBOO are responsible for long-lasting bladder dysfunction in this population despite early surgical interventions. We previously showed that Hypoxia-inducible factors (HIFs) play roles in PBOO-induced bladder pathology, and a HIF inhibitor, 17-DMAG abated pathological changes. This study aimed to examine our hypothesis that blocking HIFs would improve bladder function following 2 weeks of PBOO.

MATERIAL AND METHODS

PBOO was surgically created by ligation of the bladder neck in young male mice. Sham operated animals served as controls. PBOO mice received intraperitoneal injection of saline (placebo) or 17-DMAG, every other day from day 1 post-surgery. Bladder function was examined in vitro by physiological tests, and in vivo by void spot assays that evaluates micturition patterns as well as urodynamic tests in freely moving mice.

RESULTS

PBOO caused significant decreases in detrusor contractility in response to electric field stimulation, carbachol, and KCl, which was partially restored by 17-DMAG treatment (60 percent in PBOO+P vs. 80 percent in PBOO+T, controls as 100 percent). Spontaneous detrusor contractions were significantly increased by PBOO, suggesting detrusor overactivity; while the level of increase was smaller in PBOO+T mice (mean frequency in Hz; 3.1 in PBOO+P, 1.7 in PBOO+T, vs 1.0 in controls). PBOO mice tended to void small volume compared to controls, while the change was less prominent in PBOO+T group. PBOO+P mice showed marked increases in bladder pressure by 2-fold, residual urine by 8%, and non-void contractions. 17-DMAG treatment improved these urodynamic parameters, suggesting that 17-DMAG had preventative effects on overall bladder function following PBOO.

CONCLUSIONS

This study provided the direct evidences that 17-DMAG significantly alleviated PBOO-induced bladder dysfunction. Blocking HIF pathways can be a potential target for novel pharmacological therapies to treat PBOO-associated bladder dysfunction.
**DEVELOPMENT OF CONTRACTILE PROPERTIES IN THE FOETAL PORCINE URINARY BLADDER**

Lotte Kaasgaard JAKOBSEN¹, Karina TRELBORG², Ulf SIMONSEN³, Karl-Erik ANDERSSON⁴ and L. Henning OLSEN²

¹) Aarhus University, Department of Clinical Medicine, Aarhus N, DENMARK - ²) Aarhus University Hospital, Department of Urology, Aarhus N, DENMARK - ³) Aarhus University, Department of Biomedicine, Aarhus C, DENMARK - ⁴) Aarhus University Hospital, Department of Gynaecology and Obstetrics, Aarhus N, DENMARK

**INTRODUCTION**
In early foetal life the bladder is a conduit, allowing urine to pass from the upper urinary tract into the amniotic cavity. During gestation it obtains a reservoir function. Little is known about the timing and pathways involved in this development. We aimed to characterize the functional development of the normal foetal porcine bladder from midterm until close to full term.

**MATERIAL AND METHODS**
Contractile responses were measured in bladder strips from foetuses at 60 (N=23) and 100 days (N=21) of gestation (full term is 114 days). Force-tension curves, spontaneous activity, and responses to KCl, electrical field stimulation (EFS), carbachol and alpha-beta-methylene-ATP (ABMA) were evaluated.

**RESULTS**
Optimal basal tension was 6mN (60 days) and 8mN (100 days). The spontaneous activity pattern changed from homogenous contractions at 60 days towards an irregular pattern at 100 days. Contractile force elicited by KCl and carbachol increased significantly with increasing gestational age, whereas the response to ABMA did not. EFS showed almost no atropine resistant responses in either group.

**CONCLUSIONS**
Dysfunction of the urinary tract can occur already during foetal life and can warrant early intervention. This emphasizes the need for understanding normal bladder development. We demonstrate that the quantitative contractility of the bladder increases during gestation. Spontaneous contractions are less coordinated later in gestation, and responses to carbachol are greater, as the bladder gains its reservoir function. Purinergic pathways seem to be fully developed already halfway through gestation, as judged by the contractile responses to ABMA. However, ATP seems to contribute little to the neurogenic mediated contractions as atropine almost abolished these responses. Disruption of these functional pathways may lead to dysfunctional voiding later in life.
DETTRUSOR BIOENGINEERING USING COMPRESSED COLLAGEN, ADIPOSE-DERIVED STEM CELLS AND SMOOTH MUSCLE CELLS

Jakub SMOLAR1, Daniel EBERLI1, Rita GOBET2 and Maya HORST2

1) University Hospital Zurich, Urology, Schlieren, SWITZERLAND - 2) University Children’s Hospital, Division of Pediatric Urology, Zürich, SWITZERLAND

PURPOSE
The gold standard therapy of end-stage bladder disease refractory to conservative management is enterocystoplasty, which despite providing functional improvement leads to severe long-term complications. Therefore, there is a strong clinical need for alternative therapies. The aim of this study is to develop functional detrusor muscle tissue combining primary and stem cells in hydrogel scaffolds.

MATERIAL AND METHODS
Rat bladder smooth muscle (SMC) and adipose-derived stem cells (ADSC) were isolated, ADSC were pre-differentiated into SMC-like cells (pADSC) and characterized. Cells were combined in ratios 1:1, 1:2 and 1:3 (SMC:pADSC) and embedded in compressed collagen (CC). After 1, 2 and 3 weeks, cells in scaffolds and 2D in-/direct co-cultures were analyzed for viability, proliferation, morphology, SMC-marker expression and functionality.

RESULTS
Cell grown in CC showed high viability and proliferation rate. Interconnected microtissues have developed after 1 week. After 2 weeks, cells in CC showed strong expression of the SMC-markers calponin, MyH11 and smoothelin. Direct co-culture resulted in significantly increased cellular proliferation. Microtissues consisted of SMC-core surrounded by pADSC. Indirect co-culture resulted in an increased pADSC survival and ratio-dependent increase in SMC proliferation rate. pADSC proliferation rate also improved, but remained unaffected by the cell ratio, with 1:1 showing the most consistent results. SMC-marker expression normalized between the different ratios after 2 weeks of co-culture and reached almost the SMC monoculture expression levels. 1:1 co-culture contracted similarly to the control and significantly better than other ratios.

CONCLUSIONS
We have shown that a SMC–pADSC co-culture results in an improved cell survival, proliferation, microtissue formation without any significant changes in phenotype and functionality. The combination of SMC and pADSC with CC may help to engineer functional detrusor muscle tissue by solving the major issues of tissue engineering, namely poor cell survival, proliferation, functionality and phenotype instability.
IMPACT OF REPEATED EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY ON PREPUBERTAL RAT KIDNEY

Jae Min CHUNG¹, Won Yeol CHO² and Sang Don LEE¹

¹) Pusan National University Yangsan Hospital, Urology, Yangsan-Si, REPUBLIC OF KOREA - 2) Dong-A University Hospital, Urology, Pusan, REPUBLIC OF KOREA

PURPOSE
The study was aimed to investigate the effects of repeated extracorporeal shock wave lithotripsy (ESWL) on the kidney of child and adult rats.

MATERIAL AND METHODS
Thirty rats were used; 15 were child rats (3 weeks of age) with an average body weight of 72.3 ± 3.3 g (range, 65-75 g) and 15 were adults with an average body weight of 265 ± 11.3 g (range, 250-280 g). The child and adult rats were separately and randomly allocated to three groups, each consisting of five rats. Following anesthetization, the left kidney of each rat in each group received 3000 15 kV shock waves in one (group 1), two (group 2), or three (group 3) sessions. Sessions were interspersed by 72 hours. The rats in each group were killed 72 hours after the last ESWL session and both kidneys were harvested. The right kidney was used as the control. Renal injury was examined with histological analysis, immunohistochemistry and Western blot to detecting the expression of heat shock protein (HSP)-70, tumor necrosis factor (TNF)-α, intercellular adhesion molecule (ICAM)-1, and monocyte chemoattractant protein (MCP)-1 as markers of renal damage.

RESULTS
HSP-70, ICAM-1, MCP-1, and TNF-α were similarly increased with increased ESWL sessions in both age groups. Histological analysis revealed more serious fibrosis and inflammation in the ESWL-treated kidneys in both groups compared to both age controls, with the damage increasing with increasing numbers of sessions.

CONCLUSIONS
Kidney ESWL increased renal damage according to the number of sessions in both age groups of rats. The effect of ESWL on renal injury was similar in both groups.

STEREOTACTIC TWO ACCESS MICRO PERCUTANEOUS NEPHROLITHOTOMY: IN VIVO PIG MODEL EXPERIENCE

Onur TELLI¹, Perviz HAJIYEV¹, Uygar BAGCI², Baris ESEN², Tarkan SOYGUR¹ and Berk BURGU¹

¹) Ankara University, Pediatric Urology, Ankara, TURKEY - 2) Ankara University, Urology, Ankara, TURKEY

PURPOSE
Micropercutaneous nephrolithotomy (micrPCNL) is one of the finest and most deliberate approaches for stone surgery. Despite having the advantage of using the finest single access possible, thus causing less parenchymal damage, it has specific limitations like incapability of extracting stone fragments and increased intrarenal pressure because of working in a closed system. If the
stone is mobile in the collecting system the fixation prior to fragmentation can be challenging. We aimed to define a new “Stereotactic Two Access Percutaneous Nephrolithotomy” technique which is basically intersecting two-micro access sheets by using a 3-dimensional coordinating system without additional radiation exposure and minimal parenchymal damage.

MATERIAL AND METHODS
14 female pigs with previously placed renal 10mm stones (plaster of Paris) were randomized in two groups: classical micropcnl and stereotactic two access system. Catheter placed for perform radiopaque injection and manometric recording during procedure. All access were performed by one experienced surgeon for each group, after first access of PNL, in the second group the 3-di- mensional coordinating system for the second access.

RESULTS
Stereotactic Two Access Percutaneous Nephrolithotomy was same focus without extra radiation. This technique has the benefits of higher stone fragment extraction, less intrapelvic pressure during the procedure, thus potentially causing less pyelonephritis.

CONCLUSIONS
In the second group for all (except one case) the second access was successfully achieved during the first attempt by the device without any complication. The extracted stone fragment volume was significantly higher in the stereotactic method, the mean pelvic-pressure was significantly lower and the radiation exposure were similar between two groups.

16:32–16:35
S2-13 (PP)
THE URINARY BLADDER MICROBIOME FOLLOWING AUGMENTATION IN CHILDREN
Zoltan Farkas KISPAL1, Peter VAJDA2, Daniel KARDOS2, Ingeborg KLYMIUK3, Christine MOSSL-EICHINGER4, Georg SINGER5 and Holger TILL6
1) Medical University of Graz, Austria, Department of Paediatric and Adolescent Surgery, Graz, AUSTRIA - 2) University of Pecs, Surgical Division, Department of Paediatrics, Pecs, HUNGARY - 3) Medical University of Graz, Core Facility Molecular Biology, Graz, AUSTRIA - 4) Medical University of Graz, Department of Internal Medicine, Joint Facilities, Graz, AUSTRIA - 5) Medical University of Graz, Department of Paediatric and Adolescent Surgery, Graz, AUSTRIA - 6) Medical University of Graz, Department of Paediatric and Adolescent Surgery, Graz, AUSTRIA

INTRODUCTION
16s-rDNA-gene sequencing techniques provide novel insights into the microbiome of the urinary bladder. The aim of the study was to individually compare the local microbiome of the native urinary bladder (UB) with the different intestinal segments (IS) used for augmentation.

PATIENTS AND METHODS
Six patients with ileocystoplasty and 7 patients with colocystoplasty were included. Mean age at the operation was 10 years. Histological samples were taken from the native UB and from the IS used for augmentation during biannual postoperative follow-up (mean 8 (4-13) years). For microbial analysis hypervariable regions V1-V2 were PCR amplified from total DNA isolates. Libraries were analyzed using next-generation-sequencing on a MiSeq desktop sequencer (Illumina MiSeq). For each patient microbial diversity and specific microbial genera of the UB were compared to the IS.
RESULTS
Generally there were no significant differences in the composition of the microbiome between UB and IS (p=0.528, Adonis). Both groups overlapped in principal component analyses. Shannon and estimated Richness Indices were increased in UB samples, but did not reach statistical significance (p=0.418; p=0.09). In detail, the microbial genera Pedobacter and Propionibacterium were significantly increased and Leucobacter was significantly decreased in native UB compared to IS (p<0.05).

CONCLUSIONS
Following bladder augmentation, the native UB and IS (ileum or colon) host similar microbiota despite the distinct differences of their mucosal barriers. Larger studies seem mandatory to investigate whether the urinary microbiome contributes to the development of long-term histological and mucin alterations in the neobladder mucosa following bladder augmentation.

16:35 – 16:38
S2-14 (PP)
ANALYSIS OF MICA AND ULBP-2 EXPRESSION AND STABLISHMENT OF PATIENT DERIVED XENOGRAFTS IN WILMS TUMOUR

Cristina RIÑON PASTOR1, Lucia FERNANDEZ CASANOVA2, Daniel AZORIN CUADRILLERO3, Jaime VALENTIN QUIROGA4, Inmaculada DE PRADA VICENTE3 and Antonio PEREZ MARTINEZ5

1) Hospital Infantil Universitario Niño Jesús, Pediatric Surgery / Pediatric Urology, Madrid, SPAIN - 2) Cnio (National Centre of Oncological Investigatios), Clinical Investigation Unit., Madrid, SPAIN - 3) Hospital Infantil Niño Jesús, Pathology, Madrid, SPAIN - 4) Hospital Universitario La Paz, Laboratorio De La Inmunidad Innata. Idipaz, Madrid, SPAIN - 5) Hospital Universitario La Paz, Oncohaematology Unit, Madrid, SPAIN

PURPOSE
High risk renal tumours have a dismal prognosis. New approaches and treatments are needed. Our aim is to identify in primary Wilms Tumour (WT) samples the expression of Major histocompatibility complex class I-related chains A (MICA) and UL16 binding protein-2 (ULBP2), which are recognized by the Natural Killer group 2 member D activating receptor (NKG2D), expressed on Natural Killer (NK) cells, and to establish a WT xenograft model for the development of an NK cell based immunotherapy.

MATERIAL AND METHODS
Between 2002 and 2014, we treated in our institution 42 patients with WT. We analyzed 28 primary tumour samples, for MICA and ULBP2 expression. Intensity of cytoplasma staining and percentage of positive cells were used to assess the levels of MICA and ULBP2. Matrigel coated tumour pieces collected by surgical procedures were subcutaneously implanted on the dorsal region of NOD/scid IL2rgnull (NSG) mice. SPSS was used for statistical analyses.

RESULTS
The percentage of MICA and ULBP2 positive cells was higher than 25% in 85.7% and 35.7% respectively. Moderate-high intensity of stain was observed in 54.3% for MICA and 7.2% for ULBP2. No correlation between MICA/ULBP2 expression and outcome was found. Only one sample from a WT, not receiving preoperative chemotherapy, engrafted in NSG mice.
CONCLUSIONS
MICA and ULBP2 are highly expressed in WT. Therefore, we may consider NKG2D/MICA-ULBP2 interactions have an important role in WT immune control. Primary xenograft model could be an important tool to evaluate new treatments. However, chemotherapy preoperative treatment could be a limitation.

16:38–17:00
Discussion
THE FATE OF CONJOINED PARAPAGUS TWINS: 16 YEARS AFTER SUCCESSFUL SEPARATION

Paloma TRIANA¹, Mariela DORE¹, Javier JIMENEZ¹, Virginia AMESTY², Roberto LOBATO², Susana RIVAS², Pedro LOPEZ PEREIRA² and Maria Jose MARTINEZ URRUTIA²

¹) Children’s Hospital La Paz, Pediatric Surgery, Madrid, SPAIN - 2) Children’s Hospital La Paz, Pediatric Urology, Madrid, SPAIN

PURPOSE
Birth of conjoined twins is unique and a successful separation is a challenge. Evolution of these patients and long-term follow-up is hardly ever mentioned. We present the evolution of conjoined parapagus twins, successfully separated in year 2000.

MATERIAL AND METHODS
Retrospective and prospective review of surgical and medical treatment of conjoined parapagus twins and long-term follow-up.

RESULTS
Conjoined twins Fátima(F) and Amina(A) shared two lower limbs, lumbosacral spine, rectum, anus and genitourinary system, offering an only perineum. They had left prevertebral kidney and A had an annular pancreas. Separation was performed by a multidisciplinary team at 16 months of age, remaining both of them with terminal sigmoidostomy, ipsilateral kidney draining to the hemibladder enlarged with hemirectum, hemivagina with correspondent ovary and tube, complete uterus in A, two upper limbs and only lower limb. Coverage was fulfilled with previous expanded skin. Both have neurogenic bladder due to separation of lumbosacral spine. A was incontinent and maintained good renal function, while F needed anticholinergics and intermittent catheterization. F lead into end-stage renal disease 13 years later after numerous episodes of acute pyelonephritis and lithiasis, requiring haemodyalisis, urinary diversion Hendren type and renal transplantation, which became complicated with acute cholecystitis and pancreatitis. Both walk with the help of a crutch and attend school regularly.

CONCLUSIONS
Surgical separation of conjoined twins is always reason to be proud by the surgical team. Despite initial success, we shall not forget that they are chronic patients who need individualized and multidisciplinary approach considering their anatomical variations.
VAGINAL MALFORMATION, CLINICAL CASES REPORT

Guillermo CONCHA GROSSI¹, Mario VARELA GANA¹, Mario VARELA GUZMAN¹, Jorge VARELA ² and Vadir RIADY³

¹) Hospital San Camilo, San Felipe, Pediatric surgery, San Felipe, CHILE - 2) Hospital San Camilo, San Felipe, Radiology Service, San Felipe, CHILE - 3) Hospital San Camilo, San Felipe, Pathology Service, San Felipe, CHILE

PURPOSE DESCRIBE CLINICAL MANAGEMENT OF CONGENITAL VAGINAL MALFORMATIONS

In gynecologic congenital malformations, transverse septum vaginal malformations are infrequent. They occur because fusion defect in embryological development of vagina. The etiology is unknown, prevalence 1 in 3000 to 84000 women, it can be in proximal third (46%), medial (40%) and distal (14%).

Clinically, it can manifest in the antenatal or neonatal time, as a severe hematocolpos, but is more frequent in the pubertal age, with primary amenorrhea, abdominal pain and pelvic mass.

The image study include, abdominal and pelvic ultrasound, CT or MRI, for study the thickness and location of the vaginal septum.

The surgical approach, can be, Laparotomy, genital endoscopy, genital or sagittal prerectal perineal, for resect the vaginal septum; and could be necessary more surgical procedures in the time, perhaps the clinical evolution, as scar and vaginal stenosis.

MATERIAL AND METHODS

For the study we have done a retrospective review of the clinical records with vaginal malformation in the pediatric surgery unit, from 2010 to 2016, previously accepted the hospital ethics clinical committee.

We describe the clinical presentation, imaging study, age of surgery, surgical access, thickness of septum, biopsy and clinical follow up.

RESULTS

The are five clinical cases of vaginal congenital malformations, with transverse septum, 4 distal and 1 medium, with age between 4 and 13 years. All have been studied with ultrasound and surgical resolved by vaginal perineal access in 4, and sagittal prerectal 1; In all cases biopsy confirm the diagnosis of vaginal septum with 4 mm average thickness.

The follow up have been 47 month, two of them are with vaginal dilatation.

CONCLUSIONS

The vaginal congenital malformations are a spectrum, her clinical pesquisa must be suspected and surgical management should be individualized, and is important the long time follow up.
PARTIAL DEHISCENCE OF APPENDICOSVESICOSTOMY ASSOCIATED WITH THE USE OF FOLEY CATHETER REPORT OF PATIENTS WITH NEW ONSET URINARY LEAKAGE

Juan Luis SOTO
Hospital Civil Nuevo de Guadalajara, Pediatric Surgery, Guadalajara, MEXICO

PURPOSE
Appendicovesicostomy (APV) is commonly done to facilitate intermittent catheterization. Some patients use indwelling catheters overnight or during illnesses, travel, etc.
We report partial APV dehiscence from indwelling catheters with inflated balloons.

MATERIAL AND METHODS
We reviewed records of patients with new urinary incontinence from the APV following indwelling catheter use through the APV.

RESULTS
3 patients with spina bifida and APV developed new incontinence after indwelling catheter use. 2 used overnight catheterization with the balloon inflated. The 3rd had the indwelling catheter placed by another physician evaluating recurrent UTIs. In each, cystoscopy demonstrated dehiscence of the intravesical segment of the APV, presumably resulting from pressure necrosis by the inflated balloon. In 2 cases the dehisced segment was re-tubularized, while the 3rd had the APV reimplanted because of concomitant occasional difficulties with catheterization. All were subsequently dry.
We have not observed this complication in patients using indwelling catheters without an inflated balloon.

CONCLUSIONS
To our knowledge this APV complication has not been previously reported. The potential for disruption of the intravesical segment by an inflated balloon suggests these should be avoided.

TEMPORARY INFANTILE PENILE PROTHESIS: PRELIMINARY RESULT ON CASE OF TOTAL PENILE LOSS AFTER TOTAL BLADDER EXSTROPHY RECONSTRUCTION

Matthieu PEYCELO1, Delphine HADDAD1, Jonathan RUSKY2, Liza ALI1, Enaam RABOEI1, Marc-David LECLAIR3, Annabel PAYE-JAOUEN1 and Alaa EL-GHONEIMI2
1) Robert-Debré University Hospital, AP-HP; Université Paris Diderot, Sorbonne Paris Cité, Paediatric Urology, Paris, FRANCE - 2) University Hospital Robert Debre, APHP, University Paris Diderot , Sorbonne Paris Cite, Paediatric Urology, Paris, FRANCE - 3) Hopital Mere-Enfant, CHU Nantes, Paediatric Surgery and Urology, Nantes, FRANCE

PURPOSE
Total necrosis of the genitalia is a rare complication of bladder exstrophy surgery. The paucity of healthy skin makes challenging penile reconstruction surgery. We describe a new idea of using temporary infantile non-functioning prosthesis phaloplasty.
MATERIAL AND METHODS
Four years old boy was referred to our center for management of total necrosis (Phallus, penile skin, and urethra) after neonatal total reconstruction of bladder exstrophy. Clinically he had opened incontinent bladder without bladder neck, normal scrotum. He had only part of his crura left attached to the pelvic ring. We have scheduled multi-staged reconstruction. First surgery was bladder augmentation, bladder neck closure and Mitrofanoff, and mobilization of the corpus cavernosa crura to bring them to the perineum. After full healing, and on the demand of the child to have any penile structure. At 6 years old, We started a multi staged penile reconstruction. Parascrotal flaps were prepared after insertion of expanders. The flaps were used to reconstruct a new phallus around the 2 cm residual of the crura. After early satisfying results, the empty flaps shrunken and the crura retracted with bad cosmetic aspect. We have used a personalized tailored, semi-rigid prosthesis and inserted this prosthesis inside the flaps.

RESULTS
One year follow up, the skin of the phaloplasty remains well vascularized without erosion, the 7 years old child express very clearly his satisfaction on having a “penile” structure. He is using CIC through the neo umbilicus.

CONCLUSIONS
We describe a preliminary result of new strategy to temporary manage the total penile loss after bladder exstrophy surgery. Certainly this temporary prosthesis will need to be replaced by functional adult-type prosthesis later on.

15:43 – 15:45
S3-5 (CP)

RECONSTRUCTION OF IATROGENIC TRAPPED PENIS AFTER RADICAL CIRCUMCISION

Miroslav DJORDJEVIC1, Vladimir KOJOVIC2, Marta BIZIC1 and Borko STOJANOVIC1

1) University Children’s Hospital Belgrade, Paediatric Surgery/Urology, Belgrade, SERBIA - 2) School of Medicine, University of Belgrade, Serbia, Pediatric Urology, Belgrade, SERBIA

PURPOSE
Trapped penis after radical circumcision is associated with severe functional, esthetic and psychological consequences. Severe lack of penile skin makes this condition very challenging for reconstruction. We have analyzed outcomes of trapped penis repair using genital skin flaps.

MATERIAL AND METHODS
From January 2006 to March 2016, 22 patients, aged 15 to 21 years, underwent genital reconstruction after previously performed radical circumcision. Artificial erection was used for intraoperative assessment of skin defect and creation of properly fashioned genital flaps. After releasing of penile shaft, vascularized flaps are designed and harvested from scrotal skin to cover the defect. Proximal part of cavernosal bodies is fixed to the skin by U-shape suture in order to prevent postoperative retraction of the penis. Vacuum device is used for six months, starting four weeks after surgery.

RESULTS
Follow up ranged from 6 to 130 months (mean 62 months). Size of the skin defect was from 2 to 10 cm in erect state. Good cosmetic and functional outcome was achieved in 19 patients, while in remaining three cases additional corrections were needed.

CONCLUSIONS
Radical circumcision, especially in cases with associated anomalies of penile skin (concealed penis, webbed penis), leads to iatrogenic trapped penis. Versatile vascularized scrotal skin flaps can be successfully used for the reconstruction of the penile shaft.
CT UROGRAPHY COMBINED WITH CLOACOGRAPHY IN DIAGNOSIS OF COMPLICATED UROGENITAL MALFORMATIONS

Karina FELBERG¹, Małgorzata BAKA-OSTROWSKA¹ and Andrzej KOSCIESZA²

¹) Children’s Memorial Health Institute, Department of Pediatric Urology, Warsaw, POLAND - 2) Children’s Memorial Health Institute, Department of Radiology, Warsaw, POLAND

PURPOSE
To show the use of CT urography combined with cloacography in diagnosis of complicated urogenital malformations.

MATERIAL AND METHODS
We performed CT urography with CT cloacography in two patients with persistent cloaca and one with atypical malformation - urogenital sinus with sino-rectal fistula.

First patient presented with a 5 cm long and thin cloacal channel which did not allow to perform cloacoscopy. CT performed together with infusion of contrast medium to the cloacal channel allowed to show exact anatomy of the malformation. Cloacal channel was entering the bladder, close to the bladder neck on the 12 hour was the opening of the incompletely duplicated vagina and the intestine was connected to the top of the vagina between duplicated uteruses.

Second patient had prenatal shunting of the bladder. Postnatally there was no visible cloacal opening on the perineum. CT urography and cloacography showed atypical malformation: central cystern, connected to duplicated bladders, duplicated vaginas and intestine were also opening to the central cystern.

Third patient was also shunted prenatally. Postnatal evaluation showed ambiguous genitalia with megalourethra and normal anus. CT urography with infusion of the contrast medium to the urogenital sinus showed duplication of the vagina and a fistula to the rectum.

RESULTS
In the first patient cloacal channel was left as a urethra, to connect the vagina with the perineum ileal segment was used and vesicostomy was done in the same procedure.

In the second patient two bladders were connected and vesicostomy was done. The central cystern was remodelled and formed in a tube to connect the vaginas with the perineum.

In the third patient reconstruction of the urogenital sinus was done with the closure of the fistula.

CONCLUSIONS
CT urography combined with CT cloacography allows to show exact anatomy of atypical urogenital malformations and better planning of the reconstructive surgery.
USE OF METALLIC DOUBLE J STENT IN A CHILD WITH RETROPERITONEAL FIBROSIS: FIRST CASE REPORT

Simona GEROCARNI NAPPO¹, Michele INNOCENZI¹, Paolo CAIONE², Laura DEL PRETE¹ and Nicola CAPOZZA¹

¹) BAMBINO GESU’ CHILDREN’S HOSPITAL, DIVISION OF PAEDIATRIC UROLOGY, Rome, ITALY - 2) Bambino Gesu Hospital, Paediatric Urology, Rome, ITALY

PURPOSE
Ureteric stenting is required in selected cases of abdominal or pelvic masses and hydronephrosis. In some patients long term stenting may become necessary, with repeated stent substitutions. Metallic double J stents is a innovative therapeutic option. Resonance™ (Cook medical, Ireland) is a new stent made of a strict metallic spiral, not compressable, which has shown improved urinary drainage compared with polymeric stents. To our knowledge, metallic stents have not been used in children so far.

MATERIAL AND METHODS
A child of 12 year was seen for retroperitoneal fibrosis and bilateral grade 4 hydronephrosis. The mass was regarded as not respondent to any therapy. Double J stent was placed 3 years in advance and changed yearly. Parents looked for a more definitive solution but refused nephrostomy.

RESULTS
At cystoscopy the ureteric orifices were hard to find due to the posterior bulking mass. On bot sides a guidewire was inserted up the renal pelvis, and the Resonance™ 6 fr 22 cm (right side) and 24 cm (left side) stents were inserted after placement of the appropriate outer sheat of 8 fr diameter. Placement of the metallic stent is described step by step. The procedure was bilaterally successful. At 12 month follow-up the metallic stents are well tolerated and creatinine is normal.

CONCLUSIONS
Metallic stents are a new endourological device and can be used successfully in very selected children requiring long lasting ureteric stenting, thus obviating the need of nephrostomy.

COMPLEX OBSTRUCTIVE UROPATHY WITH EARLY END STAGE RENAL FAILURE – A SUCCESSFUL OUTCOME

Anupam LALL¹, Sally JOHNSON² and David TALBOT³

¹) Great North Childrens Hospital, Department of Paediatric Urology, Newcastle, UNITED KINGDOM - 2) Great North Childrens Hospital, Deparatment of Paediatric Nephrology, Newcastle, UNITED KINGDOM - 3) Freeman Hospital, Department of Transplantation, Newcastle, UNITED KINGDOM

PURPOSE
We describe successful bladder rehabilitation of baby born with complex obstructive uropathy, bilateral dysplastic kidneys needing renal replacement therapy from birth.
MATERIAL AND METHODS
The baby was diagnosed antenatally with three intra-abdominal cysts and oligohydraminos. He underwent laparotomy on day 1 of life and was found to have urethral atresia, right duplex kidney, very small bladder with a diverticulum and extra-vesical dilated right lower ureter. He had a vesicostomy and large catheter placed in his right dilated ureter. His peak creatinine was 260 micromols/L in first week of life. However, his urine output tailed off, needing haemodialysis from the age of 6 months. His other problems were hypertension and conjugated hyperbilirubinaemia.

RESULTS
The main concern regarding renal transplantation was inadequate capacity of his bladder. It was planned that an ileal conduit will be done with an aim to reverse it when he is older. On the day of surgery on exploring his lower urinary tract the three cystic structure which were all lined by transitional epithelium were successfully connected together to form a single large reservoir (bladder). Bilateral native nephrectomy was performed. The live-donor renal transplant went well and the ureter was reimplanted in the neo-bladder and a new vesicostomy was fashioned. The child creatinine has now stabilised at 10-15 micromols/L.

CONCLUSIONS
Children born with complex obstructive uropathy and early onset chronic renal failure should be treated aggressively as successful outcome can be achieved.

15:51 – 16:07
Discussion

16:07 – 16:09
S3-9 (CP)
A NEW OVERGROWTH SYNDROME ASSOCIATED WITH WILMS TUMORS: 9Q22.3 MICRO DELETION SYNDROME
Aurore BOUTY1, Julie CAYROL2, Michael SULLIVAN2, Michael NIGHTINGALE3 and Yves HELOURY4
1) Royal Children’s Hospital, Urology, Parkville, AUSTRALIA - 2) Royal Children’s Hospital, Oncology, Parkville, AUSTRALIA - 3) Royal Children’s Hospital, Pediatric Surgery, Parkville, AUSTRALIA - 4) Royal children’s hospital, Pediatric urology, Parkville, AUSTRALIA

PURPOSE
9q22.3 syndrome is an autosomal dominant syndrome which includes deletion of PTCH1, gene responsible for the Gorlin syndrome.
In addition to the clinical findings of the Gorlin syndrome, the 9q22.3 syndrome is associated to developmental delay, metopic craniosynostosis, obstructive hydrocephalus, pre and postnatal macrosomia and seizures.
Wilms tumors (WT) have been described in association with 9q22.3 syndrome.
The goal of this study was to report the incidence and the presentation of WT in 9q22.3 syndrome.

MATERIAL AND METHODS
A review of the literature (Pubmed, Embased) has been conducted. The key words were: Wilms; Gorlin; 9q22.3 syndrome.
Two personal cases have been added to the previously described patients.
RESULTS
Among 44 patients with 9q22.3 syndrome, 7 developed a WT (16%) at a mean age of 45 months (range: 5-84).
One patient had a synchronous bilateral WT. This patient was treated by bilateral nephron sparing surgery (NSS). Another patient with a unilateral WT had a NSS (upper pole nephrectomy) via laparoscopy.
The 5 other patients had unilateral radical nephrectomy (1 laparoscopy) with simultaneous resection of a pelvic rhabdomyosarcoma in 1 case.
All the patients had a standard histology.
Five tumors were stage I, 1 stage II and 1 stage III.
All the patients are in complete remission.

CONCLUSIONS
9q22.3 syndrome has to be considered as a new predisposing syndrome to WT.
The patients should be followed as the patients with Beckwith-Wiedemann syndrome.
As in other predisposing syndromes, nephron sparing surgery should be done whenever possible.

16:09–16:11
S3-10 (CP)
★ CAN METANEPHRIC TUMORS OF KIDNEY BE PREDICTED PREOPERATIVELY?

Gozde SAKUL1, Sibel TIRYAKI2, Ali TEKIN3, Ismail YAGMUR4, Banu SARSİK5, Nevra ELMAS6, Hudaver ALPER6, Ibrahim ULMAN7 and Ali AVANOGLU1

1) Ege University, Pediatric Surgery, Izmir, TURKEY - 2) Ege University-Faculty of Medicine, Department of Pediatric Surgery, Division of Pediatric Urology, Izmir, TURKEY - 3) Cigli State Hospital, Pediatric Urology, Izmir, TURKEY - 4) Harran University, Urology, Division of Pediatric Urology, Izmir, TURKEY - 5) Ege University, Pathology, Izmir, TURKEY - 6) Ege University, Radiology, Izmir, TURKEY - 7) Ege University, Pediatric Surgery Division of Pediatric Urology, Izmir, TURKEY

PURPOSE
Metanephric tumors of kidney are rare benign kidney tumors of childhood. Some authors accept them as a well differentiated variant of Wilms’ tumor; however, tumor behaviour is totally different. The aim of this study is to evaluate the diagnostic features and treatment options of these rare tumors.

PATIENTS
We report four children with metanephric kidney tumors diagnosed incidentally. Three of them were considered as malignant preoperatively and underwent total nephrectomy. The fourth patient underwent partial nephrectomy for a strong suspicion of a benign tumor. When the former patients were evaluated retrospectively, their magnetic resonance images were considered to have some differing features from Wilms’ tumor. All tumors were well circumscribed, have a solid component, less heterogenous and had lower contrast enhancement when compared to Wilms’ tumor.

RESULTS

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<tr>
<th>Age</th>
<th>Gender</th>
<th>Imaging-MR</th>
<th>Surgery</th>
<th>Pathology</th>
<th>Immuno-histochemical Staining</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>5y</td>
<td>F</td>
<td>34x30mm solid mass on the lower pole of left kidney</td>
<td>Left nephrectomy</td>
<td>Metanephric adenoma</td>
</tr>
</tbody>
</table>
CONCLUSIONS
Wilms’ tumor constitutes the majority of renal tumors in children. As other renal tumors are very rare, clinicians may opt to radical surgery for not taking them into consideration. Benign kidney tumors should be kept in mind for nephron sparing surgery options especially in the presence of atypical findings.

16:11 – 16:13
S3-11 (CP)
★ PRUNE PERINEUM SYNDROME: RARITY AND COMPLEXITY. REPORT OF TWO CASES
Min Jeong BAG¹, Marcos MELLO², Bruno N CEZARINO¹, Roberto I LOPES¹, Marcos G MACHADO¹, Amilcar M GIRON¹ and Francisco T DÉNES¹
1) Hospital das Clínicas - FMUSP, Urology, São Paulo, BRAZIL - 2) Hospital das Clínicas - FMUSP, U, São Paulo, BRAZIL

INTRODUCTION
Prune Perineum syndrome is characterized by a perineal mass with wrinkled skin - as in Prune Belly syndrome -, imperforated anus, abnormal genitalia and pelvic abnormalities. We report 2 cases of this rare syndrome.

CASES
Case 1: male patient born elsewhere was sent to our department aged 46 months with a colostomy performed neonatally. He presented flaccid perineum, hypoplastic penis, impalpable testes, imperforated anus and the buttocks were substituted by a mass of wrinkled skin with an orifice draining urine. Image studies revealed single right kidney, intestinal malrotation, pubic diastasis and distorted lumbo-sacro-coccygeal spine. Endoscopy of the posterior cavity did not visualize ureteral meatus and urethra was identified with a guidewire.
An ileal neobladder with appendical conduit and orchiopexy were successfully performed at 52 months of age. Reconstruction of the spine and buttocks was planned for a second stage. The patient had excellent recovery and was discharged after 2 weeks. Five months later he died from complications of a misdiagnosed intestinal obstruction.
Case 2: male patient born elsewhere with flaccid inferior abdomen and perineum, anal imperforation, impalpable testes and hypoplastic penis, was sent to our institution aged 8 months, with colostomy and vesicostomy performed neonatally. Image evaluation showed poor abdominal and pelvic musculature, pubic diastasis, two normal kidneys with slight left ureterohydronephrosis and colovesical fistula. Both ostomies are functional. A continent urinary diversion with reconstruction of the pelvic floor with a muscular flap is planned.
CONCLUSIONS
Early colostomy was performed in both cases due to imperforate anus. Urinary tract reconstruction is individually tailored, while the cosmetic and functional repair of the perineum represents a major challenge.

16:13–16:15
S3-12 (CP)
★ COMPLETE PENILE GLANS NECROSIS: GLANULOPLASTY WITH OCCLUSIVE DRESSINGS AND BUCCAL MUCOSA RESURFACING
Luca MAZZONE and Daniel Max WEBER
University Children’s Hospital Zurich, Division of Pediatric Urology, Department of Pediatric Surgery, Zurich, SWITZERLAND
PURPOSE
Glans ischemia is an uncommon complication after circumcision. Several reports describe successful management using agents that promote revascularization, typically by the mean of vasodilatation. Here we present a case with complete glans necrosis that required its amputation and reconstruction.
MATERIAL AND METHODS
An eight-year old patient presented with mummification of the glans, urinary retention and superinfection two weeks after having undergone circumcision abroad. Initial treatment consisted of iv antibiotics and insertion of a suprapubic catheter. The entire necrotic glans was debrided, the short shaft skin was pexed to the shaft and the urethra to the corpus spongiosum at the level of the coronal sulcus. The urethra was stented with a Zaontz catheter to allow an occlusive hydrocolloid dressing of the exposed corpora cavernosa. Dressing changes occurred weekly under anesthesia. After 4 weeks, a buccal mucosa transplant was used to cover the well-shaped “neo-glans” composed of granulation tissue.
RESULTS
Occlusive hydrocolloid wound dressings over four weeks allowed the formation of glans-shaped granulation tissue. Grafting with a free mucosa transplant was successful and led to a scar-free resurfacing of the “neo-glans”. The neo-meatus, located at the level of the coronal sulcus, remained wide and permitted normal bladder voiding.
CONCLUSIONS
Glanuloplasty with occlusive dressings and buccal mucosa resurfacing may result in satisfactory cosmesis in prepubertal boys.
OVERTREATMENT OR BEST CHANCE FOR KIDNEY SALVAGE? MANAGEMENT OF TRAUMATIC RENAL ARTERY OCCLUSION IN AN 11 YEAR-OLD-BOY

Mazen ZEINO1, Milan MILOSEVIC2, Cordula SCHERER2, Corinne GEPPERT3 and Jürg SCHMIDLI4
1) Inselspital Universitätspital Bern, Department of paediatric urology, Bern, SWITZERLAND - 2) University of Bern; Inselspital Bern, Pediatric Urology, Department of Pediatric Surgery, Bern, SWITZERLAND - 3) University of Bern; Inselspital Bern, Vascular Surgery, Department of Cardiovascular Surgery, Bern, SWITZERLAND - 4) University of Bern; Inselspital Bern, Switzerland, Vascular Surgery, Department of Cardiovascular Surgery, Bern, SWITZERLAND

PURPOSE
The management of high-grade renal injury (IV-V; American Association for the Surgery of Trauma) remains controversial, with a shift towards conservative treatment. Renal artery injury is a very rare complication of blunt abdominal trauma in children.

MATERIAL AND METHODS
We present a case of an 11 year-old boy, who was admitted to the Pediatric Emergency Unit after skiing accident. He was hemodynamically stable. Initial FAST ultrasound showed laceration of the spleen (grade II) only. Further diagnostic revealed solitary rib fracture. Conservative treatment was initiated. On the 2nd day routine follow-up with ultrasound showed retroperitoneal fluid. MR-Urography was performed which revealed an occlusion of the left renal artery with diminished perfusion of the kidney without urinary extravasation. As duplex sonography of the kidney showed some perfusion, exploration and revascularisation of the vital kidney by aortorenal bypass with reversed great saphenous vein was performed.

RESULTS
The left kidney showed immediate improvement of its perfusion. One week later the boy was discharged with a patent bypass and well-perfused kidney. However after 4 months the left kidney showed singes of atrophy with significant reduction of function, despite bypass with good perfusion

CONCLUSIONS
The management of this case remains controversial. Even with a successful surgical repair, the best salvage rate for kidneys with pedicle injuries in ideal circumstances is reported with only 30%.
MATERIAL AND METHODS
We present a case of a 7-year-old boy with an unusual clinical course after isolated blunt renal trauma, which initially was treated conservatively. Imaging showed grade IV injury without urinoma but diminished perfusion of the lower part of the kidney. Slight hematuria stopped after 5 days and the child remained hemodynamically stable. 12 days after trauma ultrasound showed some liquefaction of the hematoma, MR-Urography excluded urinoma and no stent was necessary. 2 days later sudden gross hematuria with flank pain occurred, accompanied by hemodynamic instability, an active bleeding in the kidney with large bladder tamponade was found in FAST ultrasound. Immediate exposure of the kidney was performed and kidney sparing surgery by heminephrectomy and reconstruction of renal pelvis was possible.

RESULTS
A follow up by Imaging and renal DMSA scan showed a successful outcome with good function of the residual kidney.

CONCLUSIONS
Most children with grade IV renal injury are treated using a conservative approach with a high success rate. However delayed renal bleeding with hemodynamic instability is rare but can cause a life threatening condition which requires an emergency exposure that mostly ends in nephrectomy.

16:19–16:21
S3-15 (CP)
BILATERAL PERINATAL TESTICULAR TORSION – A CASE REPORT
Martina FRECH, Vivienne SOMMER and Frank-Martin HÄCKER
University Children’s Hospital Basel, Pediatric Surgery, Basel, SWITZERLAND

PURPOSE
Perinatal testicular torsion is a rare condition, especially if both testicles are affected.

MATERIAL AND METHODS
We present a newborn boy, who was transferred to our Department at an age of 6 hours. He was delivered at 40 weeks of gestation out of breech presentation.

RESULTS
Shortly after birth, a painful swelling and discoloration of the scrotum was noticed. Clinical examination as well as immediately performed ultrasound was highly suspicious for testicular torsion of the right side. We decided for emergency surgery and took the boy to the operating theatre. During operation, we found a bilateral testicular torsion with dark coloration of both testicles. After packing for about 15 minutes, the right side seemed to recover slightly. The testicles were left in situ and bilateral orchidopexy was performed. After 2 days, ultrasound examination showed reperfusion of both testicles and the boy was discharged from hospital. Follow-up was done after 2 months, where we had normal clinical examination and sonographically persistent perfusion of both testicles. Endocrinological investigation during minipuberty showed normal hormonal values. Further follow-up after 6 months is scheduled.

CONCLUSIONS
We would like to present this rare case in regard to the current literature and encourage surgeons to consider carefully leaving the testicles in situ.
SELF-INSERTION OF MULTIPLE CHEWING-GUMS THROUGH URETHRA

Alberto MANTOVANI, Chelsy LASSO BETANCOR, Naima SMEULDERS and Pankaj MISHRA
Great Ormond Street Hospital for Children, Paediatric Urology, London, UNITED KINGDOM

PURPOSE
This video shows the endoscopic retrieval of a large bladder mass after self-insertion of multiple chewing-gums through urethra for sexual pleasure.

MATERIAL AND METHODS
A 14-year-old boy, with high-functioning autism, presented with dysuria, frequency and macroscopic haematuria. He had put in around 40 chewing-gum pieces through the urethra 3 days before, passing out some of them with micturition. Physical examination revealed non-palpable bladder and normal penis with glanular hypospadias. Ultrasound scan reveal a 5x4x4 cm spherical, mobile mass lying at the level of the bladder neck. A cystoscopy was planned.

RESULTS
A white spherical mass of chewing-gums clumped together was found, with features of cystitis. A 20Fr cystoscope sheath was used. Cold irrigation fluid made the mass firm and easier to remove in piece-meal using the biopsy forceps. The patient was discharged the day after the procedure. He was asymptomatic at 3-month follow up.

CONCLUSIONS
FB into the bladder during adolescence usually underlie an on-going psychological problem. Clinical presentation and the type of FB help to decide the appropriate approach. In case of chewing-gum, if symptoms are well controlled, a planned semi-urgent endoscopic approach seems to be a reasonable option. The piece-meal removal of the mass can be time-consuming and an alternative approach should be planned and discussed pre-operatively with the patient. The cystoscopic approach alone was successful in our case.

16:26–16:45
Discussion
SH: HISTORY SESSION
Moderator: S. N. Cenk Büyükünal (Turkey)

ESPU Meeting on Wednesday 19, April 2017, 17:30–19:00

17:30–17:35
Opening Remarks
Guy Bogaert (President of ESPU), S.N. Cenk Buyukunal

17:35–17:55
SH-1
HISTORY OF MEDICINE IN SPAIN
Enrique de la Peña
Hospital de Alcorcón Madrid, Spain

17:55–18:15
SH-2
HISTORY OF PEDIATRIC UROLOGY IN SPAIN
José María Garat
Pediatric Urology Department Fundació Puigvert Barcelona, Spain

18:15–18:30
SH-3
HOWARD ATWOOD KELLY AND THE DIAGNOSIS OF RENAL CALCULI IN THE 19th CENTURY
Anthony Caldamone
USA

18:30–18:45
SH-4
EGYPTIAN HISTORY OF PEDIATRIC UROLOGY
Ashraf Hafez
Egypt

18:45–19:00
SH-5
HISTORY OF CONTINENT ANAL DIVERSION
Raimund Stein and Margit Fisch
Germany
A REEVALUATION OF THE RIVUR TRIAL WITH A VALIDATED RISK STRATIFICATION MODEL
Zhan Tao (peter) WANG¹, Yasaman ALAM¹, Guy HIDAS², Irene MCALEER¹ and Antoine KHOURY¹
¹) Children’s Hospital of Orange County, Urology, Orange, USA - 2) Hadassah and Hebrew University Medical Center, Urology, Jerusalem, ISRAEL

**PURPOSE**
The Randomized Intervention for Children with Vesicoureteral Reflux (RIVUR) trial showed a 50% reduction in the risk for recurrent urinary tract infection (UTI) in children who received prophylaxis compared to placebo. This conclusion is heavily debated. We reevaluated the RIVUR data using a validated risk stratification model.

**MATERIAL AND METHODS**
Data from all 607 children were used. We stratified the children into low, intermediate and high risk categories based on gender, circumcision status, VUR grade and bladder bowel dysfunction. Febrile or symptomatic UTI recurrence in our stratified placebo and prophylaxis groups were compared using Fisher’s exact test. Kaplan-Meier curves and a log-rank test was used for time-to-event analysis.

**RESULTS**
There were 389 (64.6%), 132 (21.9%) and 50 (8.3%) children stratified into low, intermediate and high risk categories. The rate of recurrent UTI was not significantly different in low risk children receiving either placebo or prophylaxis (Table 1). Whereas intermediate risk children receiving prophylaxis had a 20% absolute reduction in recurrence compared to placebo. Similarly, there were twice as many recurrent UTIs in high risk children on placebo; however this difference was not significant due to the small sample size. Time-to-event analysis showed no difference in recurrence between the stratified categories with placebo or prophylaxis (p=0.045).

<table>
<thead>
<tr>
<th>Risk Group</th>
<th>Placebo (%)</th>
<th>Prophylaxis (%)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>37/193 (19.4)</td>
<td>27/196 (13.9)</td>
<td>0.172</td>
</tr>
<tr>
<td>Intermediate</td>
<td>24/80 (28.2)</td>
<td>7/83 (8.5)</td>
<td>0.001</td>
</tr>
<tr>
<td>High</td>
<td>10/25 (40)</td>
<td>5/25 (20)</td>
<td>0.217</td>
</tr>
</tbody>
</table>

**CONCLUSIONS**
The majority (64.6%) of the children in the RIVUR trial fell into the low risk category and do not benefit from prophylaxis, while intermediate risk children receiving prophylaxis showed a 20% absolute reduction in recurrence. Therefore an individualized approach is required for the optimal management of vesicoureteral reflux.
CAN ULTRASOUNIC ELASTOGRAPY MEASUREMENT BE AN ALTERNATIVE TO RENAL SINTIGRAPHY IN PEDIATRIC VESICOURETHERAL REFLUX?

Bilge KARABULUT1, Gulsah BAYRAM2, Can OZTORUN3, Burak OZCIFT4 and H. Tugrul TIRYAKI4

1) Ankara Children’s Health and Diseases Hematology Oncology Training and Research Hospital, Pediatric Urology, Ankara, TURKEY - 2) Ankara Children’s Health and Diseases Hematology Oncology Training and Research Hospital, Clinic of Radiology, Ankara, TURKEY - 3) Ankara Children’s Health and Diseases Hematology Oncology Training and Research Hospital, Clinic of Pediatric Surgery, Ankara, TURKEY - 4) Ankara Children’s Health and Diseases Hematology Oncology Training and Research Hospital, Clinic of Pediatric Urology, Ankara, TURKEY

PURPOSE
Since 2011, AUA pediatric urology guidelines recommends risk based approach for the management of pediatric patients with vesicoureteral reflux. For this approach kidney condition must be known. Detecting renal scar on DMSA scan is important in risk classification. In this study our aim is to detect if renal parenchymal elasticity measurement by elastosonography technique could be an alternative to DMSA scan in determining renal function and scar formation.

MATERIAL AND METHODS
Between November 2015 to April 2016, 25 vesicouretheral reflux patient, age ranging from 3 to 17 years admitted to our pediatric urology clinic, had urinary ultrasound and elastosonography and data about 140 renal region were recorded. Data were upper, middle, lower pole renal parenchymal thickness and echogenicity obtained by ultrasound and renal upper, middle and lower pole tissue tension values (ST, SR, R) obtained by static elastosonography. DMSA scan data (differentiated function, upper, middle and lower pole parenchymal scar formation) were recorded.

RESULTS
Scar formation and more than 10% reduction in differentiated function in renal scan was statistically higher in renal units in which parenchymal thinning and echogenicity increase was detected by ultrasound.

There was no sonoelastografic data difference between renal units with and without differentiated function decrease. Also there was no sonoelastographic data difference between renal units with and without scar formation.

CONCLUSIONS
In this study we couldn’t find any statistical significant difference in term of tissue tension values (ST, SR, R) measured by static elastosonography between renal units with and without scar formation in renal scan.
SURVEY OF HLA DISTRIBUTION IN PATIENTS WITH END STAGE RENAL DISEASE SECONDARY TO REFLUX NEPHROPATHY

Rahsan OZCAN1, Elif Altinay KIRLI EGEMEN2, EIlif KOTAN3, Salih PEKMEZCI3, Nurhan SEYYAHI4, Erkan YILMAZ5, Nur CANPOLAT6, Mehmet Riza ALTIPARMAK4 and Mehmet ELİÇEVIK2

1) Istanbul University Cerrahpasa Medical Faculty, Pediatric Surgery, Pediatric Urology, Istanbul, TURKEY - 2) Istanbul University Cerrahpasa Faculty of Medicine, Pediatric Surgery, Pediatric Urology, Istanbul, TURKEY - 3) Istanbul University Cerrahpasa Faculty of Medicine, General Surgery, Istanbul, TURKEY - 4) Istanbul University Cerrahpasa Faculty of Medicine, Internal Medicine, Division Of Nephrology, Istanbul, TURKEY - 5) Istanbul University Cerrahpasa Faculty of Medicine, Transplantation, Istanbul, TURKEY - 6) Istanbul University Cerrahpasa Faculty of Medicine, Pediatrics, Nephrology, Istanbul, TURKEY

PURPOSE
Vesicoureteral reflux (VUR) is a reason of chronic kidney disease. The factors that affecting the development of end stage renal disease (ESRD) in reflux nephropathy (RN) are renal dysplasia/hypoplasia/obstruction, recurrent urinary tract infections, bladder dysfunction and treatment modalities. Association of certain human leukocyte antigen (HLA) types with certain type of disease is well known. The aim of this study is to evaluate the HLA types of patients who underwent renal transplantation secondary to RN, in order to investigate for a significant association.

MATERIAL AND METHODS
This is a retrospective study. The VUR group consists of 26 patients (male: 15, female: 11) who underwent renal transplantation for RN. Thirty-eight (male: 14 female: 24) healthy donors were randomized in the control group. The HLA types were abstracted from the records. Chi-square test was performed for statistical analysis and Odds ratio (OR) was calculated.

RESULTS
The median age was 25, 2 years (range 10-41) in VUR group and 43,9 years (range 20-76) in the Control group. A statistically significant difference for HLA A and B types were not encountered. HLA-DRB1*01 was significantly higher in the VUR group than the control group (p=0,024). The Odds Ratio for HLA-DRB1*01 was 2,727. The risk of developing ESRD secondary to RN was 2,272 times higher in the presence of HLA-DRB1*01.

CONCLUSIONS
The association of HLA-DRB1*01 and end stage renal disease secondary to reflux nephropathy was established in a limited number of patients.

Discussion
IMPACT OF PROPHYLACTIC ANTIBIOTICS SUSCEPTIBILITY OF INITIAL UTI IN CHILDREN WITH VESICOURETERAL REFLUX RECEIVING CONTINUOUS ANTIBIOTIC PROPHYLAXIS

Jae-Wook CHUNG, Jun Nyung LEE, Yun-Sok HA and Sung Kwang CHUNG

Kyungpook National University School of Medicine, Urology, Daegu, REPUBLIC OF KOREA

PURPOSE

Recent several studies have demonstrated that effectiveness of continuous antibiotic prophylaxis (CAP) for vesicoureteral reflux (VUR). However there were few studies for clinical outcome associated with antibiotic resistance of initial urinary tract infection (UTI) in children VUR receiving CAP. We assessed the effect of antibiotic resistance of initial UTI on the clinical outcome after CAP for VUR.

MATERIAL AND METHODS

We retrospectively reviewed the medical records of 81 primary VUR children who diagnosed after fUTI between January 2010 and December 2013. All children received trimethoprim-sulfamethoxazole (TMP-SMX) as CAP. Base on TMP-SMX susceptibility of initial UTI, we allocated the VUR children to a susceptible group or a resistant group and evaluated the patients’ demographics and outcomes after CAP according to TMP-SMX susceptibility of initial UTI. Multivariate analysis was used to assess breakthrough fUTI recurrence after CAP for VUR.

RESULTS

Of the 81 children, 42 were classified as the susceptible group and 39 were placed in the resistant group. The breakthrough fUTI was observed 53.8% (21/39) in the resistant group and 31.0% (13/42) in susceptible group (p = 0.037). Progression of renal scarring was observed in 0% of children in the susceptible group and 15% in the resistance group (p = 0.053). TMP-SMX resistance (HR=2.947, 95% CI=1.137-7.636) and renal scarring at diagnosis (HR=3.263, 95% CI=1.133-9.402) were significant predictors of breakthrough fUTI on multivariate analysis.

CONCLUSIONS

Prophylactic antibiotics susceptibility of initial UTI is a risk factor of breakthrough fUTI and associated with poor clinical outcome in children with VUR receiving CAP.
HOW DID OUR TREATMENTS BEFORE AND AFTER EAU/ESPU VUR RISK GROUPING SYSTEM AFFECT OUR EARLY SUCCESS RATES?

Eda TOKAT¹, Serhat GUROCAK¹, Iyimser URE², Cenk ACAR³, Zafer SINIK⁴ and Ozgur TAN¹

¹) Gazi University School of Medicine, Department of Urology, Section of Paediatric Urology, Ankara, TURKEY - ²) Eskisehir Osmangazi University School Of Medicine, Department of Urology, Section of Paediatric Urology, Eskisehir, TURKEY - ³) ERYAMAN HOSPITAL, Department of Urology, Ankara, TURKEY - ⁴) ODAK HOSPITAL, Department of Urology, Denizli, TURKEY

PURPOSE
To compare the early clinical results of treatments performed before and after EAU/ESPU VUR classification due to vesicoureteral reflux.

MATERIAL AND METHODS
296 out of 346 renal units with regular clinical follow-up data who were treated due to VUR between 2009-2016 were retrospectively reviewed by dividing our patients into two groups as before and after 2013. Preoperative clinical parameters as grade and laterality of reflux, presence of renal scar, initial and follow-up treatments, findings of medical treatment and surgical procedures were analysed. Clinical failure was identified as; surgery for nonresponsive cases to medication, symptomatic urinary tract infection after surgery and new renal scar in postoperative DMSA.

RESULTS
Mean age and follow-up length were 75(6-132)months and 27,2(6-78)months respectively. In the low risk group, clinical success rates of medical and surgical treatments before the risk classification were %38.5 and %87.9 respectively. (Table). We determined that VUR risk grouping does not change clinical success significantly in all groups (p:0.062; p:0.063; p:0.459, respectively)

<table>
<thead>
<tr>
<th>EAU/ESPU VUR classification</th>
<th>Medical treatment (%)</th>
<th>Surgical treatment (%)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low risk Before 2013</td>
<td>Successful 5(38.5)</td>
<td>29(87.9)</td>
<td>0.062</td>
</tr>
<tr>
<td></td>
<td>Unsuccessful 8(61.5)</td>
<td>4(12.1)</td>
<td></td>
</tr>
<tr>
<td>After 2013</td>
<td>Successful 7 (36.8)</td>
<td>6 (100)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unsuccessful 12 (63.2)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Moderate risk Before 2013</td>
<td>Successful 16(30.8)</td>
<td>83(90.2)</td>
<td>0.063</td>
</tr>
<tr>
<td></td>
<td>Unsuccessful 36(69.2)</td>
<td>9(9.8)</td>
<td></td>
</tr>
<tr>
<td>After 2013</td>
<td>Successful 2(16.7)</td>
<td>18(69.2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unsuccessful 10(83.3)</td>
<td>8(30.8)</td>
<td></td>
</tr>
<tr>
<td>High risk Before 2013</td>
<td>Successful 1(10)</td>
<td>14(56)</td>
<td>0.459</td>
</tr>
<tr>
<td></td>
<td>Unsuccessful 16(94.1)</td>
<td>11(44)</td>
<td></td>
</tr>
<tr>
<td>After 2013</td>
<td>Successful 0</td>
<td>1 (100)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unsuccessful 0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>113(38.2)</td>
<td>183(61.8)</td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSIONS
Despite the fact that EAU/ESPU VUR risk classification changed our current practice in terms of initial treatment method, this different approach did not seem to affect early clinical success positively. There is still an absolute need for studies with larger sample size and long-term follow-up to reach more reliable results.
DUPLEX SYSTEMS: TOP-DOWN OR BOTTOM-UP APPROACH?

David KEENE¹ and Ramnath SUBRAMANIAM²

¹) Royal Manchester Children’s Hospital, Department of Paediatric Urology, Manchester, UNITED KINGDOM - ²) Leeds Teaching Hospitals NHS Trust, Department of Paediatric Urology, Leeds, UNITED KINGDOM

PURPOSE
To compare whether a top-down or bottom-up approach results in different likelihoods for further surgery.

MATERIAL AND METHODS
A prospectively database was maintained for patients undergoing surgery for duplex systems by a single surgeon between 2003 and 2015. Patients were classified into 2 groups; Group 1 initial intention for upper approach (heminephroureterectomy-HN) or Group 2 lower approach (bladder reconstructive surgery-BRS). The requirement for further surgery was recorded; endoscopic incision (EI), bladder reconstructive surgery (BRS), endoscopic correction of reflux (ECR), heminephroureterectomy (HN). Indications for initial and subsequent surgery included urinary tract infection, VUJ obstruction and incontinence. Endoscopic incision was not performed for patients with an asymptomatic ureterocele. Fisher’s exact test with a 2-tail p value <0.05 was used.

RESULTS
79 patients underwent surgery for duplex systems. 39 patients had HN initially (Group 1) and 40 patients had BRS initially (Group 2).

Further surgery was performed in 28% of patients from Group 1 (8 BRS, 5 EI) vs 5% of patients from Group 2 (1 redo BRS, 1 ECR). Significantly less additional surgical procedures were performed after BRS compared to HN (p=0.006). The presence of either reflux or ureterocele increases the chances of further surgery in those patients who had HN initially compared to BRS (p=0.02, p=0.002).

<table>
<thead>
<tr>
<th>Group</th>
<th>1-Heminephroureterectomy</th>
<th>2-Bladder reconstructive surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>Mean age at surgery (years)</td>
<td>3.8(0.8-17.4)</td>
<td>4.7(0.7-16.6)</td>
</tr>
<tr>
<td>Mean duration follow-up (years)</td>
<td>9.6(1-13)</td>
<td>3.4(1-7.3)</td>
</tr>
<tr>
<td>Further Surgery</td>
<td>11(28%)*</td>
<td>2(5%)*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk groups</th>
<th>Dilating reflux grade 3-5</th>
<th>Ureterocele</th>
<th>Both reflux+ ureterocele</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9/15 patients (40%)**</td>
<td>1/18 patients (6%)**</td>
<td>10/22 patients (45%)**</td>
</tr>
<tr>
<td></td>
<td>22/22 patients (100%)***</td>
<td>2/20 patients (10%)**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5/7 patients (71%)</td>
<td>1/2 patients (50%)</td>
<td></td>
</tr>
</tbody>
</table>

* p=0.006, **p=0.002, ***p=0.02

CONCLUSIONS
Bladder reconstructive surgery (BRS) reduces the requirement for further surgery compared to heminephroureterectomy (HN) in symptomatic patients with a duplex kidney and either dilating vesicoureteric reflux or ureterocele.
S5: VESICOURETERAL REFLUX 2
Moderators: Francisco Reed (Chile), Abraham Cherian (UK)

ESPU Meeting on Thursday 20, April 2017, 08:56–09:32

08:56–08:59
S5-1 (PP)
★ COMPARING THE OUTCOMES OF ANTIREFLUX SURGERY WITH SUBMUCOSAL INJECTION IN CHILDREN WITH VESICOURETERAL REFLUX

Fahimeh KAZEMI RASHED¹, Mohammadreza ROSHANDEL² and Tannaz AGAYI²
¹) Tabriz University of Medical Sciences, Urology, Tabriz, ISLAMIC REPUBLIC OF IRAN - ²) Tabriz University of Medical Sciences, Urology, Tabriz, ISLAMIC REPUBLIC OF IRAN

PURPOSE
The treatment goal of vesicoureteral reflux is to preserve renal function by reducing the risk of infection and renal scarring. In this study we compare two kind of anti reflux treatment: Open antireflux surgery and endoscopic injection of vantris.

MATERIAL AND METHODS
In a clinical trial, 61 patients (100 renal units) with Vesicoureteral reflux based on pre-determined inclusion and exclusion criteria, divided into two groups of Gil Vernet open surgery Vantris injection and the results were compared.

RESULTS
Demographic characteristics, Clinical symptoms, laboratory examination results of both groups were same. The duration of follow-up in Vantris group was 8.81±1.65 months (1 to 22) and in the surgical group was 7.57±0.89 months (3 to 26)(P=0.47).
Recovery and non-recovery after treatment in the Vantris group, was 48(98%) and 1(2%), respectively, and in the surgical group was 47(96%) and 3 cases(4%)(P=0.62).
Full recovery after treatment in the Vantris group was in 40(81.6%) and in the surgical group, in 43(86%)(P=0.56).
After treatment, VUR occurred in the opposite side in the Vantris group in one case (3.2%) and in the surgical group in two cases (6.7%)(P=0.61).

CONCLUSIONS
In the current study, the success rate of endoscopic treatment of VUR after the first injection of Vantris in patients with II to IV reflux were compared with those treated with Gil-Vernet open surgery methods. Accordingly, complete remission and overall recovery was observed in 81.6% and 98% in the Vantris group and in 86% and 94% in the open surgery group, respectively (with no significant difference).
COMPARATIVE EVALUATION OF EFFICIENCY OF SINGLE AND DOUBLE INJECTION TECHNIQUES FOR ENDOSCOPIC TREATMENT OF VESICOURETERAL REFLUX IN CHILDREN

Svetlana BORISOVA, Sergei ZORKIN, Dmitry SHAKHNOVSKIIY and Eranui BARSEGYAN

Scientific Center of Children’s Health, Urology, Moscow, RUSSIAN FEDERATION

PURPOSE
Vesicoureteral reflux (VUR) endoscopic correction becomes a widespread first line procedure for all grade reflux due to its undoubted advantages. To date two tissue-augmenting substances most commonly employed: hyaluronic acid copolymer (Urodex) and polyacrylate/polyalcohol copolymer (Vantris). The goal of this study was to evaluate the success rates of single and double injection techniques for insufflation of these bulking agents.

MATERIAL AND METHODS
From 2012 to 2015, 540 children (227 boys and 313 girls) with a mean age of 2.8 years (range 4 months-12 years) were treated endoscopically with single (STING/HIT1) and double injection (HIT2) techniques. Single injection we used in 386 patients (571 renal refluxing units (RRU)) and double injection in 154 patients (236 RRU) with all grades of VUR. We employed both Urodex and Vantris bulking agents. Positive outcome we considered to be a complete elimination of reflux after a single injection. The effectiveness of injection was evaluated with voiding cystourethrography in 6 months.

RESULTS
For single injection VUR resolution rate was 73.9% and for double injection VUR resolution rate was 86.4%. Double injection technique was more effective than single injection for both Urodex (Pearson χ-squared 67.6, p=95%) and Vantris (Pearson χ-squared 10.17, p=95%). There was no statistically significant difference in Urodex and Vantris effectiveness with double injection technique (Pearson χ-squared 0.77, p=95%). Vesicoureteral junction obstruction, requiring ureteral reimplantation, developed in 4 ureters, treated with Vantris (0.6%). Six patients (0.95%) developed febrile urinary tract infection.

CONCLUSIONS
Our results confirm that double injection technique is more effective then single injection for endoscopic treatment of VUR. Urodex and Vantris injection effectiveness is the same in double injection technique. There is a necessity for long-term follow-up of patients, treated with Vantris, due to a possible late onset ureteral obstruction.
SURETERAL OBSTRUCTION AS A LATE AND SIGNIFICANT COMPLICATION AFTER ENDOSCOPIC CORRECTION OF VESICOURETERIC REFLUX IN CHILDREN USING POLYACRYLATE-POLYALCOHOL COPOLYMER (VANTRIS)

Stanislaw WARCHOL¹, Grazyna KRZEMIEN², Agnieszka SZMIGIELSKA², Przemyslaw BOMBINSKI³, Michal BRZEWSKI³, Krzysztof TOTH⁴ and Teresa DUDEK-WARCHOL¹

¹) Medical University of Warsaw, Department of Pediatric Surgery and Urology, Warsaw, POLAND - ²) Medical University of Warsaw, Department of Pediatrics and Nephrology, Warsaw, POLAND - ³) Medical University of Warsaw, Department of Pediatric Radiology, Warsaw, POLAND - ⁴) Nuclear Medicine Laboratory Nukleomed, Warsaw, POLAND

PURPOSE
Postoperative obstruction after endoscopic treatment of VUR using various bulking substances is reported phenomenon. The aim of the study was to present late ureteral obstruction after Vantris injection requiring operative treatment.

MATERIAL AND METHODS
During the last 4 years 110 children with 173 renal refluxing units (RRUs) grades: II in 69, III in 42, IV in 30 V in 32, underwent successful endoscopic correction of VUR using Vantris. VCUG was done 3 months after procedure, then patients were followed up by ultrasonography (US) and radionuclide scan every 6 months. In 9 children with 11 RRUs (pretreatment grades IV and V) late ureteral obstruction was recognized.

RESULTS
Progressive dilatation of renal collecting system and megaureter (US study) as well as deterioration of renal function with delayed excretion (radionuclide study) was found 1.1-2.9 years (mean 2 ± 0.7) after Vantris injection in 8 children, in the 9th child after 0.9 yrs. All nine were qualified for operative treatment. Politano-Leadbetter antireflux procedure after excision of stenotic intravesical part of ureter was performed in 7 children: unilaterally in 5, bilaterally in 2. Two children did not show up for the planned surgery. Postoperative US and dynamic scintigraphy (mran follow-up 1 year) showed gradually decrease of dilatation of the upper urinary tract and permanent improvement of drainage and renal function.

CONCLUSIONS
Late ureteral obstruction, even years after endoscopic treatment with VANTRIS presents serious complication. Long term follow-up is therefore obligatory despite the fact that reflux resolved after injection.

Discussion
WHAT ARE THE PREDICTIVE FACTORS LEADING TO THE URETERIC OBSTRUCTION FOLLOWING ENDOSCOPIC CORRECTION OF VUR?

Boris CHERTIN¹, Stanislav KOCHEROV², Sonia ZILBER³, Ermelinda MELE⁴, Simona GEROCARNI NAPPO⁵ and Nicola CAPOZZA⁵

1) Shaare Zedek Medical Centre, Paediatric Urology, Jerusalem, ISRAEL - 2) Shaare Zedek Medical Center, Jerusalem, ISRAEL - 3) Shaare Zedek Medical Center, Pathology, Jerusalem, ISRAEL - 4) Bambino Gesù Children’s Hospital, Pediatric Urology unit, Rome, ITALY - 5) Bambino Gesù Children’s Hospital, Rome, ITALY

PURPOSE

We have retrospectively evaluated all cases of obstruction following endoscopic treatment of VUR with two different tissue augmenting substances. A statistical analysis of the predictive factors that might lead to the increased incidence of obstruction was performed.

MATERIAL AND METHODS

2495 patients underwent endoscopic correction of VUR utilizing Deflux (1790) and Vantris (705). 9(0.5%) children (3 F and 6 M) in Deflux group and 9(1.3%) (5 F and 4 M) in Vantris group developed UVJ obstruction. Obstruction developed during the period ranging from 2 to 49 months (average 16 months) following endoscopic correction. The primary reflux grade was III in 7, IV in 6 and V in 6 children respectively. The mean volume of the injected material in all obstructed patients was 0.9 + 0.6 cc (mean+ SD).

RESULTS

The statistical analysis of nonhomogeneous population demonstrated higher obstruction rate in patients from the Vantris group. However, no statistical difference was demonstrated regarding the obstruction rate in the homogenous group with relation to gender, age and reflux grade group of patients. Moreover, univariate analysis revealed that type of injected material, gender and number of injections are not significant predictive factors for obstruction. However, Grade V Reflux, the presence of beak sign on the reviewed pretreatment VCUG (12(66.7%) out of 18 obstructive ureters) and inflamed bladder mucosa upon injection were significant independent risk factors leading to obstruction.

CONCLUSIONS

High reflux grade, presence of obstructive/refluxing megaureter and inflamed bladder mucosa are only statistically significant and independent predictive factors for UVJ obstruction following endoscopic correction of VUR.
PEDIATRIC VESICOURERETAL REFLUX: A COMPARATIVE STUDY AMONG STING PROCEDURE, LAPAROSCOPIC LICH-GREGOIR PROCEDURE AND COHEN TECHNIQUE USING OPEN SURGERY

Francesco TURRA1, Ciro ESPOSITO2, Maria ESCOLINO3, Manuel LOPEZ4, Antonio SAVANELLI2, Alessandra FARINA2, Alessandro SETTIMI2 and Francois VARLET4

1) Federico II University of Naples, Pediatric Surgery, Naples, ITALY - 2) Federico II University of Naples, Translational Medical Sciences, Naples, ITALY - 3) Federico II University of Naples, Translational Medical Sciences, Naples, ITALY - 4) Centre Hospitalier Universitaire, Hopital Nord, Saint-Etienne, France, Pediatric Urology, Saint-Etienne, FRANCE

PURPOSE

This retrospective trial compared the results and drawbacks of 3 surgical procedures currently adopted for treatment of VUR: intravesical open Cohen, laparoscopic extravesical ureteral reimplantation according to Lich Gregoir (LEVUR) and endoscopic (STING) procedure.

MATERIAL AND METHODS

We analyzed 90 consecutive patients (mean age 4.86 years) operated in 2 pediatric surgical centers for VUR. Exclusion criteria were I or V degree VUR, associated with megaureter or patients already operated for VUR. Thirty patients underwent Cohen, 30 underwent LEVUR and 30 underwent STING procedure. The groups were compared in regard to operative time, hospitalization, postoperative pain, analgesic requirements, reflux persistence and complications. Statistical analysis was carried out using χ2 test and t-student test.

RESULTS

Operative time was shorter using STING compared to the other techniques (28.17 min [STING] vs 125.50 min [LEVUR] vs 135.68 min [Cohen]; p < 0.001). Hospitalization was statistically shorter using STING and LEVUR compared to Cohen (3.10 vs 12.71 days ; p < 0.003). The VAS pain score were worse after Cohen (p < 0.001). Hematuria occurred only after Cohen (p < 0.001). Analgesic requirements were higher after Cohen compared to STING and LEVUR (4.91 vs 1.21 days ; p < 0.001). Reflux persistence was higher after STING (13 cases vs 11 Cohen and 4 LEVUR). Cohen presented more complications compared to LEVUR and STING (p=0.021).

CONCLUSIONS

Comparing the 3 techniques it seems that LEVUR presents a high success rate as Cohen procedure, but also all the advantages of STING with a short and painless post-operative period, without hematuria.
★ PROSPECTIVE MULTICENTER RESULTS FROM THE ROBOTIC VERSUS OPEN URETERAL REIMPLANTATION (ROVOUR) STUDY GROUP: COMPLICATIONS AND OUTCOMES FROM ROBOT-ASSISTED LAPAROSCOPIC EXTRAVERTEBRAL URETERAL REIMPLANTATION (RALUR-EV), 2015 TO 2016

William R BOYSEN¹, Lauren BELLEVILLE², Jonathan S ELLISON³, Thomas S LENDVAY³, Joan KO⁴, Ardavan AKHAVAN⁵, Michael GARCIA-ROIG⁵, Jonathan HUANG⁶, Andrew KIRSCH⁶, Chester KOH⁷, Marion SCHULTE⁸, Paul NOH⁹, Trudy KAWAL⁹, Arun SRINIVASAN⁹, Aseem SHUKLA⁹, Christine KIM¹⁰, Francesca MONN¹¹, Benjamin WHITTAM¹¹ and Mohan S GUNDETI¹

¹) University of Chicago Medicine, Section of Urology, Chicago, USA - 2) University of Chicago, Section of Urology, Chicago, USA - 3) Seattle Children’s Hospital, Pediatric Urology, Seattle, USA - 4) Johns Hopkins University, Department of Urology, Baltimore, USA - 5) Emory University, Department of Urology, Atlanta, USA - 6) Children’s Healthcare of Atlanta, Pediatric Urology, Atlanta, USA - 7) Texas Children’s Hospital, Pediatric Urology, Houston, USA - 8) Cincinnati Children’s Hospital, Pediatric Urology, Cincinnati, USA - 9) Children’s Hospital of Philadelphia, Pediatric Urology, Philadelphia, USA - 10) Connecticut Children’s Hospital, Pediatric Urology, Hartford, USA - 11) IU Health Riley Children’s Hospital, Department of Urology, Indianapolis, USA

PURPOSE
The use of RALUR-EV is increasing nationally, despite conflicting data on the safety and efficacy of the procedure. We reviewed outcomes and complications from our multicenter cohort from 2015-2016, hypothesizing that complications would be unchanged and outcomes improved with greater surgeon experience.

MATERIAL AND METHODS
We reviewed our prospective database of children who underwent RALUR-EV performed by experienced pediatric urologists (mean RALUR-EV case volume 28 prior to study period) at 9 centers from 2015 to 2016. Radiographic failure was defined as persistent VUR on postoperative imaging. Complications were graded using the Clavien scale. Statistical analysis was performed with univariate regression.

RESULTS
A total of 142 patients (205 ureters) underwent RALUR-EV for primary VUR, with mean preoperative VUR grade of 3.0 (SD 1.0). Of the 149 ureters studied with postoperative VCUG or RNC, radiographic resolution was seen in 138 (92.6%). Transient urinary retention occurred in 4 of 63 bilateral cases (6.3%). There were 8 grade 3 complications (5.6%) and no grade 4 or 5 complications.

On univariate regression analysis, detrusor tunnel length greater than 2.5cm was associated with decreased odds of radiographic failure (OR 0.08, p=0.01). No other technical factors (tunnel closure technique, apical suture, distal U-stitch) or patient factors (age, gender, weight, prior endoscopic injection) were associated with radiographic failure (p>0.05).

CONCLUSIONS
Radiographic success has improved to 92.6% with increased surgeon experience, and is on par with the open approach for treatment of high grade VUR. RALUR-EV has a low complication rate consistent with published series of open ureteral reimplantation. Tunnel length over 2.5cm is associated with decreased odds of radiographic failure, highlighting the importance of this technical factor.
DID OUR CURRENT INITIAL TREATMENT PRACTICE CHANGE AFTER EAU/ESPU VESICOURETERAL REFLUX RISK GROUPING?

Eda TOKAT¹, Serhat GUROCAK¹, Iyimser URE², Cenk ACAR³, Zafer SİNİK⁴ and Ozgur TAN¹

¹) Gazi University School of Medicine, Department of Urology, Section of Paediatric Urology, Ankara, TURKEY - 2) Eskisehir Osmangazi University School Of Medicine, Department of Urology, Eskişehir, TURKEY - 3) ERYAMAN HOSPITAL, Department of Urology, Ankara, TURKEY - 4) ODAK HOSPITAL, Department of Urology, Denizli, TURKEY

PURPOSE
To investigate how our initial treatment procedures were affected by EAU/ESPU guideline reflux risk grouping in our patients with VUR.

MATERIAL AND METHODS
296 out of 346 renal units with regular clinical follow-up data who were treated due to VUR between 2009-2016 were retrospectively reviewed by dividing our patients into two groups as before and after 2013. Preoperative clinical parameters as grade and laterality of reflux, presence of renal scar, initial and follow-up treatments, findings of medical treatment and surgical procedures were analysed. The initial medical and surgical methods were compared by categorizing patients according to risk groups before and after 2013.

RESULTS
Mean age and follow-up length were 75(6-132) months and 27,2(6-78) months, respectively. VUR gradings of the preoperative voiding cystourethrography were determined as grade 1 in 13(4,4%), grade 2 in 43(14,5%), grade 3 in 141(47,6%), grade 4 in 73(24,7%) and grade 5 in 26(8,8%) patients. We have noticed significant decrease of surgical treatment rates in low risk group after 2013. No significant alteration in medical and surgical treatment rates is observed after risk grouping system in moderate risk group and healthful evaluation could not been concluded in high risk group after 2013 due to very low number of patients (Table).

<table>
<thead>
<tr>
<th>EAU/ESPU VUR grouping</th>
<th>Medical Treatment(%)</th>
<th>Surgical Treatment(%)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>Before 2013</td>
<td>After 2013</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13(28,3)</td>
<td>19(76)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>33(71,7)</td>
<td>6(24)</td>
<td>&lt;0,001</td>
</tr>
<tr>
<td>Moderate Risk</td>
<td>Before 2013</td>
<td>After 2013</td>
<td></td>
</tr>
<tr>
<td></td>
<td>52(36,1)</td>
<td>12(31,6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>92(63,9)</td>
<td>26(68,4)</td>
<td>0,603</td>
</tr>
<tr>
<td>High Risk</td>
<td>Before 2013</td>
<td>After 2013</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17(40,5)</td>
<td>1(100)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25(59,5)</td>
<td>0</td>
<td>0,233</td>
</tr>
<tr>
<td>Total</td>
<td>114(39)</td>
<td>182(61)</td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSIONS
VUR risk grouping system have changed our current practice. As this difference caused us to prefer more conservative treatments in specially low risk group, our attitude in moderate and high risk group had not changed.
IS IT POSSIBLE THAT PREOPERATIVE VESICOURETERAL REFUX INDEX PREDICT SUCCESS AFTER ENDOSCOPIC INJECTION SURGERY IN VUR PATIENTS?

Jae Min CHUNG¹, Won Yeol CHO² and Sang Don LEE¹

1) Pusan National University Yangsan Hospital, Urology, Yangsan-Si, REPUBLIC OF KOREA - 2) Dong-A University Hospital, Urology, Pusan, REPUBLIC OF KOREA

PURPOSE
Vesicoureteral reflux (VUR) index was introduced to predict the natural resolution of VUR. In this study, we performed study to evaluate the association between preoperative VUR index and outcome after endoscopic injection surgery in VUR patients.

MATERIAL AND METHODS
Children with primary VUR who performed endoscopic injection surgery and followed more than six months in our hospital from 2009 to 2016 were enrolled. Patient demographics, voiding cystourethrogram (VCUG) findings and clinical outcomes over time were assessed. The preoperative VUR index of all children was confirmed by scoring, respectively. The success was determined the disappearance of VUR on VCUG after injection therapy.

RESULTS
Seventy six children with VUR (111 ureters) were performed endoscopic injection surgery. The mean age was 19.8 ± 17.8 months and male to female ratio was 53:23. The grade of VUR was grade 2 in 9 ureters, grade 3 in 38 ureters, grade 4 in 46 ureters and grade 5 in 18 ureters. After the endoscopic injection VUR was disappeared in 74 (66.7%). The success rates were all 9 ureters of one point children (100%), 24 ureters in 28 ureters of two points children (85.7%), 24 ureters in 39 ureters of three points children (61.5%), 15 ureters in 30 ureters of four points children (50%), and 3 ureters in 5 ureters of five points children (60%). Depending on VUR index score the success of VUR was significantly reduced (P = 0.005). Postoperative hydronephrosis is occurred 1 ureter in 9 ureter of one point children (11.1%), 4 ureters in 28 ureters of two points children (14.3%), 4 ureters in 39 ureters three point children (10.3%), 2 ureters in 30 ureters of four point children (6.7%), and no one of five point children (P = 0.745).

CONCLUSIONS
Preoperative VUR index was significantly associated with success after endoscopic injection surgery and may be useful in clinical trials.

DOES PREVIOUS ENDOSCOPIC TREATMENT OF VESICOURETHERAL REFUX, EFFECT IN THE NEXT TREATMENT?

Burhan OZDEMIR, Burak CITAMAK, Ali Cansu BOZACI, Mesut ALTAN, Taner CEYLAN, Hasan Serkan DOGAN and Serdar TEKGUL

Hacettepe University, Urology, Ankara, TURKEY

PURPOSE
To investigate the effect of the preoperative endoscopic procedures in patients which undergoing surgery for the vesicoureteral reflux (VUR).
MATERIAL AND METHODS
The data of 686 patients who were operated for VUR between 1997-2016 was analyzed retrospectively. The results were analyzed with SPSS 17.0 software.

RESULTS
The mean age was 69.6±44 months (3-204), male to female ratio was 250/436. STING was performed 42% of patients and ureteroneocystostomy(UNC) was performed 58% of patients. Success of STING was 75%, success of UNC was 93% (p<0.0001). Patients with previous STING history which performed STING or UNC; both of procedure have lower succes rate (STING (%63 vs %77, p=0.025; UNC %87 vs %94, p=0.024) . VD and VUR grade do not affect the success rate for the each surgery groups. In patient with voiding dysfunction have low grade VUR, higher female and STING ratio.

Table 1:

<table>
<thead>
<tr>
<th>Operation</th>
<th>Preoperative STING history</th>
<th>Voiding dysfunction</th>
<th>Successful</th>
<th>Unsuccessful</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>STING</td>
<td>No</td>
<td>No</td>
<td>58 (84%)</td>
<td>11</td>
<td>0.375</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>42 (78%)</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>10 (71%)</td>
<td>4</td>
<td>0.383</td>
</tr>
<tr>
<td>UNC</td>
<td>No</td>
<td>No</td>
<td>120 (94.5%)</td>
<td>7</td>
<td>0.220</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>41 (89%)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>25 (83%)</td>
<td>5</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Table 2:

<table>
<thead>
<tr>
<th>Operation</th>
<th>Previous STING history</th>
<th>Success</th>
<th>Unsuccessful</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>STING</td>
<td>No</td>
<td>189 (77%)</td>
<td>54</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>30 (63%)</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>UNC</td>
<td>No</td>
<td>296 (94%)</td>
<td>18</td>
<td>0.024</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>66 (87%)</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSIONS
The success rate of patient with previous STING history is decreasing. VD and VUR grade do not affect operation success.

S5-10 (P without presentation)

IS EAU/ESPU VUR RISK CLASSIFICATION COMPATIBLE WITH CLINICAL PRACTICE?
Ali Cansu BOZACI, Burak CITAMAK, Mesut ALTAN, Burhan OZDEMIR, Hakan Bahadır HABERAL, Hasan Serkan DOGAN and Serdar TEKGUL
Hacettepe University, Urology, Ankara, TURKEY

PURPOSE
To investigate whether the risk groups for patient selection in the surgical treatment of vesicoureteral reflux (VUR) is compatible with clinical practice.
MATERIAL AND METHODS
The data of 686 patients who were operated for vur between 1997-2016 was analyzed retrospectively. Patients were classified into three groups as low, medium and high risk according to the criteria in european urology guidelines. Gender, operation type, success rates, postoperative urinary tissue infection rates (UTI), laterality, degree of VUR, renal scar, intervening urinary infections (IUI) and voiding dysfunction (VD) were compared between groups. The results were analyzed with SPSS 17.0 software.

RESULTS
Patient numbers for low, medium and high risk were 92 (13.4%), 483 (70.7%) and 109 (15.9%), respectively. Overall success rate was found 85.3%. Success rates for STING and UNC were found 75% and 93%, respectively. Bilateral high grade reflux, scarred kidney, voiding dysfunction was found higher percent in high-risk group. UNC (82.6%) was more preffered in high-risk group while sting (76.1%) was more preffered in low-risk group. There is not any statistically significant difference between risk groups for patients treated with STING and UNC. Female patients had more voiding dysfunction than male patients. Patients with voiding dysfunction had more ratio of low-grade VUR and endoscopic treatment was more preffered for these patients.

CONCLUSIONS
It is understood that when the patients are classified according to the EAU/ESPU risk classification endoscopic surgery is more preferred for low-risk group while open surgery is more preffered for high-risk group. From this point of view open surgery, which seems to have higher success rate, is more preffered treatment method for high-risk group and the risk classification overlaps the daily practice.

S5-11 (P without presentation)

WHO IS AT RISK OF RENAL SCAR AND INTERVENING URINARY INFECTIONS FOR PATIENTS WITH VESICOURETERAL REFLUX?
Burak CITAMAK, Ali Cansu BOZACI, Mesut ALTAN, Burhan OZDEMIR, Oguzhan KAHRAMAN, Hasan Serkan DOGAN and Serdar TEKGUL
Hacettepe University, Urology, Ankara, TURKEY

PURPOSE
To determine preoperative factors provide predicting renal scar and preoperative intervening urinary infections (IUI) for patients operated due to vesicoureteral reflux (VUR).

MATERIAL AND METHODS
The data of 686 patients who were operated for vur between 1997-2016 was analyzed retrospectively. Preoperative parameters were analyzed in terms of renal scar and preoperative IUI separately (Parameters are listed in table 1).

RESULTS
The mean age was 69.6±44 months (3-204) and the male to female ratio was founded 250/436. VUR grade and bilateral disease were found as predictors for renal scar presence. In multivariate analysis VUR grade was founded to be the most significant factor for renal scar presence (p<0.0001). Female gender was founded as the only factor for predicting preoperative IUI (p<0.0001).
Table 1:

<table>
<thead>
<tr>
<th></th>
<th>Scar (-)</th>
<th>Scar (+)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful</td>
<td>204</td>
<td>361</td>
<td>0.064</td>
</tr>
<tr>
<td>Failure</td>
<td>45</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>Postop UTI (+)</td>
<td>195</td>
<td>314</td>
<td>0.614</td>
</tr>
<tr>
<td>Postop UTI (-)</td>
<td>50</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>77</td>
<td>153</td>
<td>0.114</td>
</tr>
<tr>
<td>Female</td>
<td>172</td>
<td>261</td>
<td></td>
</tr>
<tr>
<td>Grade 1-2-3</td>
<td>153</td>
<td>151 (%49)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Grade 4-5</td>
<td>95</td>
<td>258 (%73)</td>
<td></td>
</tr>
<tr>
<td>IUI (-)</td>
<td>127</td>
<td>230</td>
<td>0.284</td>
</tr>
<tr>
<td>IUI (+)</td>
<td>100</td>
<td>151</td>
<td></td>
</tr>
<tr>
<td>History Of Sting (-)</td>
<td>198</td>
<td>339</td>
<td>0.280</td>
</tr>
<tr>
<td>History Of STING (+)</td>
<td>51</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>STING</td>
<td>137</td>
<td>138</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>UNC</td>
<td>112</td>
<td>276</td>
<td></td>
</tr>
<tr>
<td>Low Risk</td>
<td>92</td>
<td>0</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Medium Risk</td>
<td>156</td>
<td>313</td>
<td></td>
</tr>
<tr>
<td>High Risk</td>
<td>1</td>
<td>101</td>
<td>0.255</td>
</tr>
<tr>
<td>Voiding Dysfunction (-)</td>
<td>93</td>
<td>147</td>
<td></td>
</tr>
<tr>
<td>Voiding dysfunction (+)</td>
<td>51</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Unilateral</td>
<td>120</td>
<td>161 (%57)</td>
<td>0.019</td>
</tr>
<tr>
<td>Bilateral</td>
<td>129</td>
<td>253 (%66)</td>
<td></td>
</tr>
</tbody>
</table>

**CONCLUSIONS**

Renal scar and IUI affect the decision of surgery in patients treated for VUR. Renal scar rates increases with high grade vur and bilateral disease while IUI increases with female gender. These risks should be considered while planning the treatment for VUR.

**OUTCOME OF URETERIC REIMPLANTATION AFTER ENDOSCOPIC TREATMENT FAILURE FOR HIGH GRADE VESICOURETERIC REFLUX COMPARED WITH DE NOVO URETERIC REIMPLANTATION**

Muhammad HOWEITI¹ and Ahmad AL SHAMMARI²

¹) King Abdullah specialized children hospital, Urology, Riyadh, SAUDI ARABIA - ²) King Abdullah specialized children hospital - King Abdulaziz medical city - Riyadh, Surgery-Urology Division, Riyadh, SAUDI ARABIA

**PURPOSE**

to compare the outcome of salvage ureteral re-implantation after failed endoscopic therapy with de-novo ureteric re-implantation in patients with high grade reflux.

**MATERIAL AND METHODS**

chart review between 2004-2014 of all children <14 years old with primary grade 4-5 VUR who underwent salvage ureteric re-implantation after failed initial endoscopic treatment. We recorded presentation, reflux severity, scar on DMSA, age at endoscopic injection, total amount of (Dx/Ha) injected, operative time, post op stay, complications, any further UTIs and persistent VUR. We
reviewed the outcome of de novo ureteric re-implantation for patient between 1998-2000. All patients underwent cross-trigonal re-implantation. Post op all children had MCUg and history of further UTI was recorded. Results were calculated as median, range and percentages. Fisher extract test was used to calculate P value with a value of <0.05 regarded as significant.

RESULTS
26 patients included, 19 salvage. 14 had bilateral VUR and 5 had unilateral VUR.7 de novo group, 4 had bilateral and 3 had unilateral VUR.In salvage group, 13 were injected once and 6 injected twice. Median injected amount of in each ureter was 0.5 mls (0.5-2mls). Bilateral ureteric re-implantation was done in 14 children in salvage group and 4 in de novo group. surgery time in salvage group was 120 minutes (74-360) while in de novo 140 (90-180) with a P value of 0.703. Blood loss was minimal (less than 10 ml) in both groups. No major complications in either group. hospital stay in salvage group was 5 days (4-7), and in de novo was 6 days (5-10) P value 0.061 follow up was 1 year (1-5) in both groups. Only one patient in salvage group had persistent unilateral grade 3 VUR on one year follow up. None of the patients in both groups developed symptomatic UTIs.

CONCLUSIONS
Salvage ureteric re-implantation after failed endoscopic injection has same success rate with no significant complication rates as compared to de novo ureteric re-implantation for high grade primary VUR.

IS THE RENAL SCINTIGRAPHY MANDATORY IN ALL PATIENTS WITH VESICOURETERAL REFLUX?
Oriol MARTIN-SOLE1, Andrea SORIA-GONDEK2, Sonia PÉREZ-BERTÓLEZ2 and Luis GARCÍA-APARICIO2

1) Hospital Sant Joan de Déu, Universitat de Barcelona, Barcelona, Spain, Pediatric Urology Division, Pediatric Surgery Department, Esplugues De Llobregat, SPAIN - 2) Hospital Sant Joan de Déu, University of Barcelona, Barcelona, Spain, Pediatric Urology Division, Pediatric Surgery Department, Esplugues De Llobregat, SPAIN

PURPOSE
Renal scintigraphy is routinely used to study renal impairment in patients with vesicoureteral reflux (VUR), but it is invasive and requires radiation exposure. The aim of our study was to analyze if renal ultrasound (US) is a good predictor of relative renal function (RRF), measured on renal DMSA scan.

MATERIAL AND METHODS
A retrospective review of all patients with VUR controlled in our division between 2008 and 2016 was performed. We registered the following variables: sex, reflux grade, laterality, comorbidities, US renal volume (measured as an ellipsoid volume), US relative renal volume (US-RRV) and DMSA-RRF. We excluded patients with bilateral or secondary reflux or those with comorbidities. US-RRV and DMSA-RRF were compared, correlation was studied and the predictability of US to assess relative renal function was measured.

RESULTS
We reviewed 387 patients, 82 of which had a unilateral primary VUR and no comorbidities. We registered 41 males and 41 females, with 46 left and 36 right reflux; 39 were low graded (I-III) and 43 high graded (IV-V). US-RRV strongly correlates with DMSA-RRF (R2=0.849, p<0.001), following the linear function: RRF=0.966*RRV-0.338. US-RRV overestimated DMSA-RRF by 4.4% (p<0.001). The efficacy of US-RRV in predicting a DMSA-RRF<40% had an 87.5% sensitivity for RRV<40%, and the area under the ROC curve was 0.82 (0.73-0.91, p<0.001).
CONCLUSIONS
In patients with unilateral primary VUR, US-RRV seems to be a good predictor of DMSA-RRF, with a high correlation coefficient, a good sensitivity and a good accuracy on ROC curve. In this group of patients a pathological US-RRV could be enough to predict RRF, saving DMSA scan for doubtful cases.
S6: NEPHROLOGY & RENAL TRANSPLANTATION

Moderators: Marino Asensio (Spain), Yazan Rawashdeh (Denmark)

ESPU Meeting on Thursday 20, April 2017, 09:32 – 10:20

09:32 – 09:35
S6-1 (PP)

PROGNOSTIC FACTORS FOR IMPROVEMENT IN DRF AFTER PYELOPLASTY FOR PUJO IN INFANTS AND CHILDREN

Josefin NORDENSTRÖM1, Gundela HOLMDAHL1, Kate ABRAHAMSSON1, Giaseemi KHOUTOZI2, Rune SIXT3 and Sofia SJOSTROM1

1) The Queen Silvia Children’s Hospital, Dpt of Pediatric Surgery/Urology, Gothenburg, SWEDEN - 2) The Sahlgrenska University Hospital, Dpt of Radiology, Gothenburg, SWEDEN - 3) The Queen Silvia Children’s Hospital, Dpt of Physiology, Gothenburg, SWEDEN

PURPOSE
The main indications for surgery for pelviureteric junction obstruction (PUJO) are to preserve or even improve renal function. We studied differences in differential renal function (DRF) in children who had surgery for PUJO and looked for prognostic factors predicting improvement after pyeloplasty.

MATERIAL AND METHODS
83 children (61 boys, 22 girls) 0-16 years, who had open surgery for PUJO were followed according to a structured local protocol including ultrasounds and renal scans (MAG3) pre and postoperatively. Study data was collected retrospectively. The patients were divided into prenatally (Group 1, n=24) and postnatally diagnosed (Group 2, n=59). Uni- and multivariable logistic regression analyses searching factors predicting improvement in DRF included age at diagnosis and surgery, sex, type of presentation, cause of obstruction, e-GFR, preoperative DRF, APD (mm), calyceal dilatation, APD/renal parenchymal thickness and grade of hydronephrosis according to Onen (grade 1-4).

RESULTS
Preoperative DRF% on the obstructed side was mean 44% (SD16) with no difference between groups. Median age at surgery was 0.9 (0.2-10) in Group1 and 8 (0.6-16) in Group 2. The majority (n=52, 72%) had unchanged DRF 18 months postoperatively, 19 (26%) improved > 5%, and one deteriorated. The improvement in DRF was higher in Group 1 (n=10, 46%, p=0.025). APD/Parenchymal thickness, APD, Preoperative DRF and antenatal diagnosis were predictors in the univariable analyses and high APD, OR 1.1, p=0.0023, antenatal diagnosis, OR 0.23, p=0.048, and low preoperative DRF, OR 0.90, p=0.0045 were independent factors predicting >5% improvement in DRF in the multivariable regression analyses.

CONCLUSIONS
The majority of children had preserved or improved function after surgery for PUJO. The children with antenatal diagnosis showed greater ability to catch up in DRF and high APD, antenatal diagnosis and low preoperative DRF% are predictive factors for improvement of renal function after pyeloplasty.
XANTHOGRANULOMATOUS PYELONEPHRITIS IN A PAEDIATRIC COHORT (1963–2016): OUTCOMES FROM A LARGE SINGLE-CENTER SERIES

Ionica STOICA¹, Fardod O’KELLY², Michael MCDERMOTT³ and Feargal QUINN¹

¹) Our Lady’s Childrens Hospital, Paediatric Urology, Dublin, IRELAND - ²) Our Lady’s Childrens Hospital, Urological Surgery, Dublin, IRELAND - ³) Our Lady’s Childrens Hospital, Pathology, Dublin, IRELAND

PURPOSE
Xanthogranulomatous pyelonephritis (XGP) is an uncommon chronic destructive granulomatous inflammation of the kidney first described in 1916 and affecting 6/1000 cases of pyelonephritis. Its manifestations are varied, and with a limited number of cases in the literature, the optimal diagnosis and management of XGP in the paediatric cohort is still unknown.

MATERIAL AND METHODS
The medical records of children who were treated for XGP in our unit from 1963 to 2016, inclusive, were retrospectively reviewed. Information recorded for each patient included age, sex, past medical history, clinical and biochemical characteristics, diagnostic procedures, treatment methods, histopathologic findings and outcome.

RESULTS
64 children with a median age of 6.04 (1.1-14.81), with a M:F ratio 1.29:1 underwent nephrectomy for XGP and had median follow-up 9.96yrs (1.19-14.9). The most common presentations were being constitutionally unwell (60.6%), pain (57.6%), urinary tract infections (51.5%) and an abdominal mass (36.4%). Pyrexia was present in 53.1%. Biochemical abnormalities included anaemia (84.8%), thrombocytosis (81.8%) and hypomagnesemia (66.7%). There was an 82.6% concordance between intraoperative cultures and positive mid-stream urines. Index kidneys were significantly larger than the contralateral side (mean 1.4cm; p=0.002). XGP staging demonstrated extension beyond the kidney in 78.8% kidneys. CT was performed in 10 cases. DMSA showed 0-10% function in 87.5% cases. Surgical procedures included nephrectomy (n= 61), partial nephrectomy (n=3). Perioperative complications colonic resections (n= 5) and abscess formation in 18%.

CONCLUSIONS
This is the largest series to date of XGP in a paediatric cohort. XGP should be included in the differential diagnosis of all children presenting with perirenal or psoas abscess, renal mass and/or non-functioning kidney associated with/or without urolithiasis. Clinical awareness and a high index of suspicion is required to achieve the correct preoperative diagnosis and appropriate management.
PREDICTORS OF URINARY TRACT INFECTION IN YOUNG FEBRILE CHILDREN

Dinesh DHAREL1, Srijana BASNET2, Bharatmani POKHAREL3, Asmita BHATTARAI1 and Fakir Chandra GAM14

1) BP Koirala Institute of Health Sciences, Pediatrics, Dharan, NEPAL - 2) Institute of Medicine, TU Teaching Hospital, Pediatrics, Kathmandu, NEPAL - 3) Institute of Medicine, Tribhuvan University, Microbiology, Kathmandu, NEPAL - 4) Institute of Medicine, Tribhuvan University, Pediatrics, Kathmandu, NEPAL

PURPOSE

This study was undertaken to identify whether any clinical features and urinalysis findings help to predict urinary tract infection in young febrile children.

MATERIAL AND METHODS

This prospective observational study was conducted over seven month's period at Pediatric Department of a University Teaching Hospital, among children aged 3 to 36 months, presenting with fever without a definite focus. Clinical features and urinalysis were compared with positive urine culture to calculate the sensitivity, specificity, predictive values and likelihood ratios. The independent predictors of UTI were identified using binary logistic regression.

RESULTS

Out of 248 children, 26 (10.5%) had culture positive UTI; Escherichia coli (80.8%) being the commonest organism. Fever for more than three days, high grade fever ≥102 degF, history of recurrent fever of uncertain origin, urinary symptoms, past history of UTI, phimosis, renal angle tenderness, pain abdomen, failure to gain weight, constipation and pyuria were significantly associated with UTI, with variable sensitivity (15.4-80.8%), specificity (45.1-99.5%), positive predictive values (14.7-87.5%) but good negative predictive values (90.6-95.2%). The positive likelihood ratio was strong for past history of UTI (25.62), renal angle tenderness (59.77), phimosis (19.92) and pyuria (9.07). History of recurrent fever of uncertain origin, presence of phimosis and pyuria were independent predictors of UTI in febrile young children.

CONCLUSIONS

Certain clinical features and pyuria may predict UTI in young febrile children without definite focus, thus helping clinicians to initiate antibiotics pending results of urine culture.
INTRAOPERATIVE BLOOD TRANSFUSION IN PAEDIATRIC PATIENTS UNDERGOING RENAL TRANSPLANT – EFFECT OF RENAL GRAFT SIZE

Martin SIDLER¹, Rakan I. ODEH², Teresa SKELETON³, Armando LORENZO², Walid FARHAT² and Martin A. KOYLE²

¹) The Hospital for Sick Children, Division of Pediatric Urology, Toronto, CANADA - 2) The Hospital for Sick Children, Division of Pediatric Urology, Toronto, CANADA - 3) The Hospital for Sick Children, Department of Anesthesia and Pain Medicine, Toronto, CANADA

PURPOSE
In paediatric renal transplantation (RT), graft size often exceeds desirable measures. We aimed to quantify the effect of transplantation of an oversize kidney on recipient’s hemoglobin concentration (Hb).

MATERIAL AND METHODS
Single institution retrospective analysis of patients undergoing RT over a 10-year period was performed. Variables analyzed included: Age, pre- and post-operative Hb, graft size, estimated intra-operative blood loss (EBL), intraoperative blood-transfusion. We compared patients receiving a regular size kidney to recipients of an oversize kidney (over 95th percentile for age). In order to assess the influence of graft size on transfusion requirements, we calculated expected procedure- and transfusion-induced changes in Hb and compared these changes to observed difference in pre- versus post-operative Hb.

RESULTS
188 patients were included. For regular size group and oversize group, mean preoperative Hb was 11.1g/dL and 10.6g/dL (p=0.35), postoperative Hb was 10.4g/dL (Range 9.8g/dL–17.3g/dL) and 10.8g/dL (Range 8.1g/dL–15.2g/dL; p=0.15), EBL/kg was 5.7mL/kg and 10.9mL/kg (p less than 0.001), respectively, while mean absolute EBL was about 200mL in both groups. Postoperative versus preoperative Hb was 0.7g/dL lower in the regular size group while Hb was 0.2g/dL higher in the oversize group (p<0.001). Observed Hb-increase in the oversize group was lower by 2.2g/dL than the expected/calculated Hb-increase - while observed increase was only 1.1g/dL lower than expected in the regular size group (p=0.003), indicating the greater blood volume taken up by an oversize kidney. For each 1cm that the graft kidney was larger than kidney size according to recipient’s age (50th percentile), the observed increase was 3.5g/dL lower than the expected increase based on patient’s weight and transfused blood volume.

CONCLUSIONS
Transplantation of an oversize kidney in paediatric RT is associated with a higher need of blood transfusion. Quantification of this effect is important to anticipate actual transfusion requirements.
STENTING IN RENAL TRANSPLANT IN CHILDREN

Juan Pablo CORBETTA, Santiago WELLER, Javier RUIZ, Ramiro PEREA, Enrique LAGO, Victor DURAN, Carol BUREK, Cristian SAGER and Juan Carlos LOPEZ

Hospital de Pediatría Prof. Dr. Juan P. Garrahan, UROLOGY, Ciudad Autonoma Buenos Aires, ARGENTINA

PURPOSE
Stenting of the ureterovesical anastomosis in renal transplant is controversial. The aim of the present study was to evaluate the incidence of complications in the use of ureteral double J stent versus feeding tube (K33) ureteral catheter in renal transplantation in children.

MATERIAL AND METHODS
A retrospective study of patients who underwent renal transplantation using the Lich-Gregoir technique for ureterovesical anastomosis from February 2008 to March 2014. Two groups to study urological complications: patients retaining the feeding tube (K33) ureteral catheter for 5 days, and stented patients with double J stent in place for 30 days. Patients with end stage renal disease (ESRD) due to uropathy and nephropathy were identified and they were associated with complications that were classified into non-infectious (urological) and infectious (urinary tract infection).

RESULTS
A total of 183 patients were evaluated. Median (range) follow-up was 63 (22-95) months overall.

<table>
<thead>
<tr>
<th>TOTAL NUMBER OF PATIENTS</th>
<th>FEEDING TUBE 5 days (n=68)</th>
<th>DOUBLE J STENT 30 days (n=115)</th>
<th>P Value</th>
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<tbody>
<tr>
<td>Urological complications (n=11; 6.01%)</td>
<td>n=8; 1.76%</td>
<td>n=3; 2.61%</td>
<td>0.012</td>
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<td>with uropathy</td>
<td>n=2; 25%</td>
<td>n=2; 66.67%</td>
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<td>with nephropathy</td>
<td>n=6; 75%</td>
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<tr>
<td>ns=not significant</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOTAL NUMBER OF PATIENTS</th>
<th>FEEDING TUBE 5 days (n=68)</th>
<th>DOUBLE J STENT 30 days (n=115)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infectious complications (n= 58; 31.09%)</td>
<td>n=15; 22.06%</td>
<td>n=43; 37.39%</td>
<td>0.031</td>
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<tr>
<td>with uropathy</td>
<td>n=3; 20%</td>
<td>n=11; 25.58%</td>
<td>ns</td>
</tr>
<tr>
<td>with nephropathy</td>
<td>n=12; 80%</td>
<td>n=32; 74.42%</td>
<td>ns</td>
</tr>
<tr>
<td>ns= not significant</td>
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</tr>
</tbody>
</table>

CONCLUSIONS
The use of the Lich-Gregoir technique and stenting reduces morbidity avoiding non-infectious complications, but it increases the incidence of infectious complications regardless of the etiology of ESRD.
LONG-TERM OUTCOME OF ADULT RENAL TRANSPLANTATION IN PATIENT WITH CONGENITAL LOWER URINARY TRACT MALFORMATIONS: A MULTICENTER STUDY

Stéphane MARCHAL1, Nicolas KALFA2, François IBORRA1, Lionel BADET3, Georges KARAM4, Lucas BROUDEUR4, Julien BRANCHEREAU4 and Rodolphe THURET1

1) Montpellier University Hospital, Adult Urology, Montpellier, FRANCE - 2) Montpellier University Hospital, Pediatric surgery, Montpellier, FRANCE - 3) Lyon University Hospital, Adult Urology, Lyon, FRANCE - 4) Nantes University Hospital, Adult Urology, Nantes, FRANCE

PURPOSE
Lower urinary tract malformations managed in infancy represent a particular group of kidney transplantation since it may impair the final function of the graft. Data in literature remains sparse. The aim of this study was to report the feasibility and long-term results of renal transplantation during adulthood in patients with a congenital lower urinary tract malformation.

MATERIAL AND METHODS
A retrospective multicenter study from 3 French renal transplant centers included 123 transplantations in 112 patients with lower urinary tract malformations (1996-2016). Graft and patient survivals and complications were analyzed. The results were stratified according to the underlying uropathy and type of initial management during childhood.

RESULTS
Mean age at transplantation was 32.1 years (±11.2). Were included posterior urethral valves (n=49), spina bifida (n=21), central neurogenic bladders (n=13), bladder extrophy (n=14), Prune Belly (n=12), Hinman syndrome (n=6), urogenital sinus (n=4) and others (n=4). The mean follow up was 7.2 years. Overall the 1, 5, 10 and 15 years patient survival was 97.4%, 93.0%, 89.4% and 80.0%. Grafts survival at 1, 5, 10, 15 and 20 years was 96.6%, 87.6%, 77.3%, 60.6% and 36.4%. Enterocystoplasty and continent urinary diversions exposed grafts to more frequent acute pyelonephritis (p=0.02). There were no differences on graft survival when transplantation was performed in enterocystoplasty or urinary diversions compared to a native bladder provided a well conducted bladder management.

CONCLUSIONS
Lower urinary tract malformations should be considered for renal transplantation as any other cause of end stage renal disease. Despite previous surgeries and possible bladder dysfunction, these patients should not be excluded from renal transplantation programs. Even if enterocystoplasty and continent urinary diversions exposed grafts to more frequent acute pyelonephritis, patients and graft survival rates at 10 years are similar to other kidney transplantation.
**BLOOD PRODUCT UTILIZATION PATTERN IN PEDIATRIC RENAL TRANSPLANTATION: A SINGLE INSTITUTION ANALYSIS**

Frank PENNA¹, Rakan ODEH², Teresa SKELTON³, Naimet NAOUM², Armando LORENZO², Walid FARHAT² and Martin KOYLE²

¹) Dartmouth | Geisel School of Medicine, Children’s Hospital at Dartmouth, Pediatric Urology, Hanover, USA - 2) The Hospital for Sick Children, Division of Paediatric Urology, Toronto, CANADA - 3) The Hospital for Sick Children, Department of Paediatric Anesthesia, Toronto, CANADA

**INTRODUCTION**

In renal transplantation (RT), there is an inherent lack of evidence-based guidelines to guide the amount and need of cross-matching blood products for surgery. Due to the inherent added costs, limited availability of blood products and potential waste if not used, we aimed to evaluate our practice to identify factors that can lead to standardized policy for blood product utilization in RT.

**PATIENTS AND METHODS**

Retrospective chart review of patients who underwent pediatric RT over a 10-year period at our institution was performed. Variables analyzed included: patient age, weight, pre- and post-operative hemoglobin (Hb), donor source (deceased- or living-donor), estimated allograft size by ultrasound, mean intra-operative blood loss (EBL), erythropoietin, number of units transfused per case, cross-matched/transfusion (C:T) ratio, overall transfusion rate, type of dialysis and the total cost of unused cross matched units.

**RESULTS**

RT was performed in 188 patients during the study period. Males represented 59.5% (n=112) and females, 40.5% (n=76). Of these, 54% (103/188) received blood transfusions. The total number of units cross-matched was 455 (2.3 units/patient). Average EBL was 212 mL, and C:T ratio was 2.6:1. Univariate analysis of factors predictive of the need for intra-operative blood transfusion demonstrated the following statistically significant parameters: pre-operative Hb, age, weight, and EBL. Multivariate analysis showed EBL as the only factor predictive of the need for intra-operative blood transfusion. Total estimated cost of unused cross-matched units was $22,282.

**CONCLUSIONS**

At our center, the number of unused cross matched units in pediatric renal transplantation represents a considerable waste of limited resources. EBL is the only factor predictive of intra-operative transfusion. More efficient institutional policies with regard to blood cross-matching in RT are in-progress.

10:05–10:20

Discussion
S6-8 (P without presentation)

PAEDIATRIC KIDNEY TRANSPLANTATION: A SINGLE-CENTRE EXPERIENCE OF 16 YEARS

Anja LINGNAU¹, Therese-Marie KOCH² and Beatriz BANUELOS-MARCO³


PURPOSE
Renal transplantation remains the treatment of choice for children with end-stage renal disease. Our aim was to evaluate the effect of patient, surgical and medical factors on the surgical complications and graft function following renal transplantation in children.

MATERIAL AND METHODS
143 children and adolescent transplantations in a single centre from January 1997 to May 2013 were assessed retrospectively. We analysed long-term survival rates and complications, and searched for predictive parameters for graft function.

RESULTS
143 kidney transplantations were performed in 132 patients. Mean age at transplantation was 11.5±4.8 years. The percentage of living donor kidney transplants was 24.5% (35/143). Mean donor age was 33.3±19.6 years. Rejections occurred in 44.1% (63/143). Graft failure occurred in 25% (35/143). Graft survival rates were 92.2%, 85.5%, 71.1% and 62.1% after 1, 5, 10 and 15 years respectively.

The following variables concerning graft survival were significant statistically: Transplantation era, donor age, High Urgency, retransplantation, postoperative use of EPO, cold ischemia time, rejections proved by biopsy and panel reactive antibodies after transplantation. (Table 1).

Overall mortality is 5.6%. Overall survival was 99.3%, 95.2%, 94.2%. 90.7% after 1, 5, 10 and 15 years respectively. Retransplantation (p=0.022) and Post-Transplant-Lymphoproliferative-Disorders (p=0.002) are significant parameters for patient survival. Infections were the main causes of death.

CONCLUSIONS
Renal transplantation in children is a safe and successful procedure. Due to new immunosuppressive medication, decreased number of rejections and improvement of transplant outcome and patient outcome were seen. Influencing factors on graft survival e.g. of donor age and condition, cold ischemia time should be taken into account for allocating the organ.
VASCULAR THROMBOSIS IN PEDIATRIC KIDNEY TRANSPLANTATION: ¿CAN WE SAFE THE GRAFT?

Romy GANDER¹, Marino ASENSIO¹, Gloria Fatou ROYO¹, José Andrés MOLINO¹, Laura GARCÍA², Alvaro MADRID³, Gema ARICETA³ and Manuel LOPEZ²

1) Hospital Vall d’Hebron Barcelona, Pediatric Surgery, Pediatric Urology and Renal Transplant Unit, Barcelona, SPAIN - 2) Hospital Vall d’Hebron Barcelona, Pediatric Surgery, Barcelona, SPAIN - 3) Hospital Vall d’Hebron Barcelona, Pediatric nephrology, Barcelona, SPAIN

PURPOSE
Vascular thrombosis (VT) in Pediatric kidney transplantation (KT) is a dreaded event and related to graft loss in almost 100% of cases. Among KT performed in more recent years it has become the most common cause of early graft loss. The aim of our study was to analyze our experience in diagnosis and treatment of VT.

MATERIAL AND METHODS
We conducted a retrospective study of 176 pediatric KT performed at our institution between January 2000 and December 2015 and identified patients with VT. A protocol of early detection and prevention of VT was introduced in 2012.

RESULTS
Out of 176 KT, 9 cases of VT were identified (5.1%). Mean recipient age was 5.1 years (SD 4.9) and mean weight was 22.28 Kg (SD 15.6). Diagnosis was intraoperative in 2 cases and in the first 24 hours after surgery in the remaining 7. Immediate surgical exploration was performed after diagnosis in all cases. Of the 5 cases that occurred before 2012, all developed complete graft ischemia requiring nephrectomy. In the 4 cases diagnosed after 2012, graft perfusion was recovered completely in 3 and abdominal wall closure with a mesh and delayed sequentially closure under ultrasound guidance was performed. With a follow-up of 20, 15 and 10.5 months respectively, the 3 recovered grafts are functioning normally.

CONCLUSIONS
The application of a protocol for prevention, detection and treatment of VT in pediatric KT can prevent graft loss. Immediate surgical intervention is mandatory after diagnosis. Avoid compartment syndrome with delayed sequential closure is useful to improve graft survival.

CHILD-FRIENDLY PROTOCOLS FOR ISOPOTE EXAMS IN PEDIATRIC UROLOGIC INDICATIONS

Christa STRASSER¹, Bernhard HAID², Nina KUNDTNER³, Martin STEINMAYR⁴, Werner LANGSTEGER⁴, Martin HENKEL³ and Josef OSWALD²

1) Krankenhaus der Barmherzigen Schwestern Linz, Paediatric Urology, Linz, AUSTRIA - 2) Krankenhaus der Barmherzigen Schwestern Linz, Department of Pediatric Urology, Linz, AUSTRIA - 3) Krankenhaus der Barmherzigen Schwestern Linz, Department of Pediatrics, Linz, AUSTRIA - 4) Krankenhaus der Barmherzigen Schwestern Linz, Department of Nuclear Medicine, Linz, AUSTRIA

PURPOSE
Radioisotope investigations of the kidney are essential diagnostic tool in paediatric urology. Despite a variety of publications regarding the technical implementation of these investigations, recommendations concerning child-friendly examination are rare. The aim of this study was to evaluate isotope investigations with particular regard to the indication for sedation of children.
MATERIAL AND METHODS
In total, 435 nuclear medicine investigations of the kidneys were evaluated, thereof 365 retrospectively and 70 prospectively. The data was acquired by using the patient information system (SAP), by questioning the parents, the patients (>5 years) as well as the nuclear medicine staff.

RESULTS
Sedation was indicated - individually and age-dependent - prior to 23.4% (102/435) of all investigations in accordance to our local established dosing regimen. Most frequently sedation with (96%) Chlorprothixen was used. In 3.9% sedation led to minor complications (nausea, vomiting, agitation). In 0.7% (3/435) of patients the investigation was interrupted, in one patient due to a strong restlessness and in two patients (0.44%) due to extravasation of the tracer. Motion artefacts were reported in 11.4% (8/70) of all prospectively evaluated studies.
86% (60/70) of the parents would agree to perform the investigation under the same conditions again, if necessary. 91% (66/70) of the parents stated that performing the same procedure under general anesthesia would be unacceptable.

CONCLUSIONS
Performing nuclear medicine imaging of kidneys in children without anaesthesia is feasible and effective. Individual sedative usage depending on age, most commonly in children between one and two years of age, guarantees accurate investigations with unimpaired diagnostic quality.
S7: EXSTROPHY-EPISPADIAS COMPLEX

Moderators: Oriol Angerri (Spain), Ashraf Hafez (Egypt)

ESPU Meeting on Thursday 20, April 2017, 10:40–11:44

10:40–10:45
S7-1 (LO)

PRIMARY FEMALE EPISPADIAS: PERINEAL URETHROCERVICOPLASTY OR KELLY REPAIR?

Marc-David LECLAIR1, Sébastien FARAJ1, Thierry VILLEMAGNE2, Guillaume LEVARD2, Emilie EYSSARTIER3, Marie BEY3 and Philippe RAVASSE3

1) Nantes University Children Hospital, Pediatric Urology, Nantes, FRANCE - 2) University Hospital, Pediatric Urology, Tours, FRANCE - 3) University Hospital, Pediatric Surgery, Angers, FRANCE

PURPOSE
To report on the outcome of perineal urethrocervicoplasty (PUCP) and radical soft-tissue mobilisation (Kelly repair, RTSM) in the surgical management of primary female epispadias tailored on bladder status at diagnosis

MATERIAL AND METHODS
Prospective study of 14 consecutive girls (42 months [12-102]) treated for incontinent primary epispadias at a single institution (2006-2015), allocated to 2 groups according to bladder status:
- Group 1: Patients (n=7) with normal bladder capacity (>80% of expected BC) and compliance at preoperative assessment, treated with PUCP as a primary procedure.
- Group 2: Patients (n=7) with small/poorly compliant bladder, treated with primary RSTM and cervicoplasty

Follow-up was based on annual functional assessment, renal ultrasound, uroflowmetry/residuals, and cystomanometry whenever necessary. Continence score ranged from grade I (insufficient dry intervals), grade II (dry by day), to grade III (dry day/night).

RESULTS
After a mean follow-up of 52 months [15-120], 12/14 girls showed acceptable social continence grade II (n=5) or III (n=7).

Group 1: after perineal approach, 5/7 acquired continence grade III. Three patients with insufficient cervical resistances required bladder-neck injections (one of whom later underwent secondary RTSM). None required CIC.

Group 2: after Kelly repair, 6/7 patients developed grade II-III continence, with urodynamic evidences of bladder catch-up growth. One girl with obstructive uroflows was under CIC.

CONCLUSIONS
Surgical strategy based on preoperative bladder status provides acceptable social dryness in the majority of patients. Perineal urethrocervicoplasty, when applied to girls with adequate bladder, offers dryness in most girls with minimal risks of passive obstruction, but may provide insufficient resistances. In children with small bladder, the Kelly operation seems to trigger bladder growth and subsequent dryness intervals.
INTRAOPERATIVE MRI-GUIDED NAVIGATION OF THE PELVIC FLOOR DURING EXSTROPHY CLOSURE

Heather DI CARLO¹, Aylin TEKES² and John GEARHART¹
¹) Johns Hopkins, Urology, Baltimore, USA - 2) Johns Hopkins, Radiology, Baltimore, USA

PURPOSE
Radical dissection of the urogenital fibers and the thickened smooth and striated muscle fibers connecting the posterior urethra and bladder plate to the diastatic pubic rami is crucial for adequate placement of the posterior vesicourethral unit deep within the pelvis during CBE and CE closure, as well as ensuring successful outcomes. Intraoperative MRI guided navigation of the pelvic floor offers a novel technique for identification of these important anatomic landmarks during exstrophy closure.

MATERIAL AND METHODS
IRB and FDA approval was obtained for use of Brainlab® (Munich, Germany) intraoperative MRI-guided navigation of the pelvic floor anatomy during closure of CBE and CE at the authors’ institution. Pre-operative pelvic MRI was obtained one day prior to closure in patients necessitating pelvic osteotomies. Intraoperative registration was performed after pre-operative planning with a pediatric radiologist utilizing five anatomic landmarks immediately prior to initiation of surgery. Accuracy of identification of pelvic anatomy was assessed by three pediatric urologic surgeons and one pediatric radiologist.

RESULTS
35 patients with CBE and 2 patients with CE closed at the authors’ institution have successfully utilized Brainlab® technology to navigate and guide the dissection of the pelvic floor intraoperatively. All patients had 100% accuracy in correlation of gross anatomic landmarks with MRI identified landmarks intraoperatively, and all have had successful closure without any complication.

CONCLUSIONS
Brainlab® intraoperative MRI-guided pelvic floor navigation and dissection is an effective way to accurately identify pelvic anatomy during CBE and CE closure. Future assessment of real-time changes in pelvic floor anatomy comparing pre-closure to post-closure MRI will allow quantification of pelvic floor anatomy in these patients and may allow for intra-institutional telementoring in this most important first step of exstrophy reconstruction.

★ BLADDER EXSTROPHY TEMPLATE SIZE IS CORRELATED WITH PUBIC DIASTASIS

David KEENE, Cezar NICOARA, Vytis KAZLAUSKAS, Alessandra SCALAS and Raimondo CERVELLIONE
Royal Manchester Children’s Hospital, Paediatric Urology, Manchester, UNITED KINGDOM

PURPOSE
To determine if there is a relationship between the size of the bladder template, pubic diastasis and subsequent bladder capacity in patients with bladder exstrophy (BE).
MATERIAL AND METHODS
From 2010, infants with bladder exstrophy were prospectively recruited in the study. They were photographed with informed consent at the time of BE closure. The BE ratio (BER) was calculated by measuring the distance between the iliac crests and dividing it by the width of the bladder template. The bladder templates were categorized as (a) small (≥4), (b) medium (3-4), and (c) large (<3) (Arena et al. J Paediatr Surg 2012;47:380-2). Pubic diastasis was measured from a CT reconstruction of the pelvis performed prior to BE closure. Cystometric assessment of bladder capacity was performed after the age of 2 years and expressed as a percentage compared to the expected bladder capacity in millilitres ((age×30)+30). Spearman's rank correlation test assessed the correlation between BER, pubic diastasis and % expected bladder capacity.

RESULTS
RESULTS: Thirty-seven patients with classic BE had photographs taken at the time of BE closure from which BER were calculated. Thirty-four patients also had measurement of the pubic diastasis. Eighteen of these patients had undergone cystometric evaluation of bladder capacity. A significant negative correlation was found between the BER and pubic diastasis (p=0.04, Rho = -0.29). No significant relationship was found between the BER and cystometric bladder capacity (p=0.75).

<table>
<thead>
<tr>
<th>Bladder exstrophy ratio (BER) Group A (BER&gt;4 small)</th>
<th>Group B (BER 3-4 medium)</th>
<th>Group C (BER &lt;3 large)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>Gender</td>
<td>15M,5F</td>
<td>8M,4F</td>
</tr>
<tr>
<td>Median pubic diastasis (cm)</td>
<td>4.4(4.1-4.9)</td>
<td>4.7(4.5-5.3)</td>
</tr>
</tbody>
</table>

CONCLUSIONS
The bladder exstrophy ratio is inversely correlated with the pubic diastasis however BER does not appear to predict cystometric bladder capacity.

10:53 – 10:56
S7-4 (PP)
★ LONG TERM OUTCOME OF LIVING WITH BLADDER EXSTROPHY IN SWEDEN – A NATIONWIDE MATCHED COHORT STUDY 1952–2011
Gisela REINFELDT ENGBERG1, ängla MANTEL2, Magdalena FOSSUM1 and Agneta NORDENSKJÖLD1

1) Karolinska Institutet, Dep of Women’s and Children’s Health, Stockholm, SWEDEN - 2) Karolinska Institutet, Dep of Medicine, K2, Clinical Epidemiology Unit, Stockholm, SWEDEN

PURPOSE
Bladder exstrophy is a rare congenital malformation where the underlying cause is largely unknown with both environmental and genetic mechanisms involved. The aim of the study was to analyze the long term outcome by conducting a nationwide register-based matched cohort study regarding specific comorbidities, mortality and social variables such as partnership, biological children, and educational level among patients with bladder exstrophy in Sweden.

MATERIAL AND METHODS
180 patients were identified in national registers with ICD codes coding for bladder exstrophy 1952-2011. Cases were matched with five controls per patient for birth year and sex, and a cohort study was performed by linkage-analyses of nationwide registers.
RESULTS
Four died in infancy and four (2%) were diagnosed with cancer of the urinary bladder. Thirteen (7%) had psychiatric diagnosis, and sensory neurogenic hearing disorders were noted in five cases (3%), which may indicate an association with the 22q11 duplication syndrome. A generally high educational level was identified and registered partnership data was comparable to controls. Cases, of both sexes, conceived significantly less biological children, though mean age at first child did not differ.

CONCLUSIONS
The mortality and comorbidity rate was low. The educational level was high overall and partnership formations were comparable to controls. However, both male and female cases conceived significantly less children than controls.

10:56–10:59
S7-5 (PP)
THE MACROSCOPIC AND MICROSCOPIC APPEARANCE OF THE BLADDER TEMPLATE IN EXSTROPHY PATIENTS UNDERGOING DELAYED EXSTROPHY REPAIR

David KEENE1, Cezar NICOARA1, Vytis KAZLAUSKAS1, Alessandra SCALAS1, Melanie NEWBOULD2 and Raimondo Maximilian CERVELLIONE2

1) Royal Manchester Children’s Hospital, Paediatric Urology, Manchester, UNITED KINGDOM - 2) Royal Manchester Children’s Hospital, Paediatric Histopathology, Manchester, UNITED KINGDOM

PURPOSE
To correlate the macroscopic appearance of bladder templates in classic exstrophy with the histological features of the polyps after resection.

MATERIAL AND METHODS
Since 2007 the authors have routinely delayed BE closure to 3-6 months of age regardless of the size and quality of the bladder template. The bladder templates were photographed and classified prior to BE closure using the following criteria: Group A -smooth, no polyps, Group B 1-5 polyps, Group C>6 polyps. Fisher’s exact test compared the proportion of patients in each group with intestinal metaplasia. Bladder polyps, if present, are removed prior to closure and sent for histological evaluation.

RESULTS
Sixty-three patients with classic bladder exstrophy patients were classified using the above polyp score; 21 patients (33%) had a smooth bladder template, 42 patients (66%) had a polypoid bladder template (29 group B, 13 group C). Forty-one of the 42 patients with polyps had polyp resection prior to BE closure. Two patients had a second polypectomy prior to BE closure. A significantly higher proportion of patients in group C demonstrated intestinal metaplasia within the resected polyps compared to group B (61% vs 17%) p=0.009.

<table>
<thead>
<tr>
<th>Group</th>
<th>A Smooth</th>
<th>B Moderately polypoid</th>
<th>C Severely polypoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>21</td>
<td>29</td>
<td>13</td>
</tr>
<tr>
<td>Median age at time of polypectomy (months)</td>
<td>NA</td>
<td>4.0(2.5-6.4)</td>
<td>4.7(1.7-6.8)</td>
</tr>
<tr>
<td>Number of polypectomy procedures</td>
<td>0</td>
<td>28</td>
<td>15</td>
</tr>
<tr>
<td>Median age at BE closure (months)</td>
<td>4.1(3.5-5.6)</td>
<td>4.8(3.7-6.8)</td>
<td>6.5(4.9-7.9)</td>
</tr>
</tbody>
</table>
Table:

<table>
<thead>
<tr>
<th>Number of patients with histological features</th>
<th>Cystitis cystica / glandularis</th>
<th>NA</th>
<th>21 (72%)</th>
<th>11 (85%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squamous metaplasia</td>
<td></td>
<td></td>
<td>17 (59%)</td>
<td>6 (46%)</td>
</tr>
<tr>
<td>Intestinal metaplasia</td>
<td></td>
<td></td>
<td>5* (17%)</td>
<td>8* (61%)</td>
</tr>
</tbody>
</table>

CONCLUSIONS
Intestinal metaplasia appears to be more prevalent in those with severely polypoid bladder templates. A careful strategy is needed for these patients to maximise the chance for successful BE closure and the authors suggest polypectomy prior to BE closure. Polyp regrowth does not appear to be a major problem as 5% required a second polypectomy prior to BE closure.

10:59 – 11:14
Discussion

11:14 – 11:17
S7-6 (PP)

COMPLETE PRIMARY REPAIR OF BLADDER EXSTROPHY: A CONTEMPORARY SERIES WITH TIME TO EVENT ANALYSIS

Tamer HELMY¹, Hesham ORBAN², Helmy OMAR², Ahmed GALAL², Ashraf HAFEZ² and Mohammed DAWABA²

¹) Urology & Nephrology center Mansoura, Paediatric Urology, El Mansoura, EGYPT - 2) Urology and Nephrology Center, Paediatric Urology, Mansoura, EGYPT

PURPOSE
To report long term outcomes after complete primary repair of bladder exstrophy in a tertiary referral center.

MATERIAL AND METHODS
we retrospectively reviewed the records of all patients who underwent classic bladder exstrophy closure between June 1998 and May 2010. Patients who were subjected to complete primary repair were filtered for further analysis. Data reviewed included demographic data, history of previous attempts of closure, surgical technique; follow up after exstrophy closure; continence status, measures performed to achieve continence and status at last follow up.

RESULTS
This cohort included 43 boys and 15 girls. Previous attempts of closure were done in 28 children. After 110 months, 2 achieved volational voiding. BNI was tried in 21. Two patients only were dry. BNR with augmentation cystoplasty was performed in 36 children. 26 patients were dry. Continent stoma was used for all patients after BNR. Bulbourethral sling was tried in 15 children (8 after BNI-3 after BNR and 4 denovo patients). Three patients after BUS could achieve partial dryness. Bladder neck transection was performed in 17 children (8 denovo patients, 7 after BNR and 2 after BUS).

CONCLUSIONS
Long term results after complete primary repair were unsatisfactory and this in turn aborts the past expectations of reduction of continence surgeries. Based on these dismal results, staged repair now is considered the standard of care approach for our neonatal exstrophy babies.
INGUINALHERNIOTOMYINCLASSICBLADDER
EXSTROPHY

David KEENE, Doru NICOARA, Vytics KAZLAUSKAS, Alessandra SCALAS
and Raimondo CERVELLIONE

RoyalManchesterChildren’sHospital,PaediatricUrology,Manchester,UNITED KINGDOM

PURPOSE
To determine the incidence of inguinal hernias in bladder exstrophy (BE) patients managed by
delayed staged exstrophy closure and compare the recurrence rates following surgery via an
inguinal or scrotal approach to existing literature (Stringer et al. Br J Urol;1994;73:308-9, Lavien et

MATERIAL AND METHODS
Prospective database of all patients with classic BE operated since 2007 in a single institution.
Fishers exact test two-tailed analysis p<0.05. Gender, age at herniotomy and hernia recurrence
were the outcomes prospectively collected on consecutive patients with classic BE and inguinal
hernias between 2007 and 2016.

RESULTS
Sixty-three BE patients (19 female, 44 male) underwent 45 inguinal herniotomy procedures (9 bi-
lateral, 18 unilateral). The incidence of hernias in this cohort of BE patients was 59% in males and
5% in females. Twenty-one herniotomies were performed via an inguinal approach, 24 via a scrotal
approach; all unilateral hernias were right sided. Forty-one were performed pre or peri BE closure
and 7 recurred, 4 were performed post BE closure and none recurred. The recurrence rate was
not significantly different between the inguinal and scrotal approaches (P=0.3) and between those
described in the literature (Stringer & Lavien).

<table>
<thead>
<tr>
<th>Number of herniotomies performed</th>
<th>Present study</th>
<th>Lavien 2014</th>
<th>Stringer 1994</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence</td>
<td>59.0% (M)*</td>
<td>69% (M)</td>
<td>86% (M)*</td>
</tr>
<tr>
<td></td>
<td>5.2% (F)</td>
<td>8% (F)</td>
<td>15% (F)</td>
</tr>
<tr>
<td>Recurrence (%)</td>
<td>22% (7 pre BEC, 0 post BEC)</td>
<td>17% (BEC with osteotomy)</td>
<td>55% (BEC without osteotomy)</td>
</tr>
<tr>
<td>Mean follow up time (years)</td>
<td>4.4</td>
<td>8</td>
<td>5.9</td>
</tr>
</tbody>
</table>

*p=0.005

CONCLUSIONS
The incidence of inguinal hernias in boys is lower than that previously described (Stringer et al.,1994)
which may be due to the authors using pelvic osteotomies routinely in all exstrophy patients, reduc-
ing de novo and recurrent inguinal hernia development post BE closure as suggested by Lavien et
al., 2014. Both the inguinal and scrotal approach are equally effective in treating the hernias.
VOIDING OUTCOME OF MALE PROXIMAL EPISPADIAS

Sajid SULTAN, Philip RANSLEY, Sadaf ABA UMER KODWAVWALA, Bashir AHMED, Adnan SARWAR, Firasat MAJID, Hina YOUSUF and Adeeb Ul Hassan RIZVI
Sindh Institute of Urology & Transplantation, Philip G. Ransley Department of Paediatric Urology, Karachi, PAKISTAN

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

MATERIAL AND METHODS
Records of 17 male patients who underwent proximal epispadias repair and bladder neck reconstruction (BNR) from 2008 to 2016 were retrospectively reviewed for the presence and degree of pubic diastasis, pre operative early morning voided volume, details of cystogram and cystoscopy especially bladder capacity and its relationship with estimated bladder capacity (EBC) for the age. 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 presentation was 7.2 +/- 3.1 years. Of the seventeen, no pubic diastasis (Group A) was found in 5 (29.5%), mild diastasis (Group B) in 6 (35%), moderate (Group C) in 4 (23.5%) and severe diastasis (Group D) in 2 (12%). Pre BNR mean early morning voided volume was 242mls (60% of EBC) in Group A, 188 mls (52% EBC) in Group B, 147 mls (36% EBC) in Group C and 45 mls (16% EBC) in Group D. Combined single stage epispadias repair and BNR was performed in 5 (29%) whereas 12 (71%) underwent staged procedure for epispadias and BNR. The age at BNR was 10.8 +/- 2.8 years. Mean follow up period is 23 +/-28 months. Two patients lost to follow up. Dry interval ranged 4 -5 hours in 12 /15 (80%) and 1 -2 hours in 3/15 (20%). Urge incontinence was present in 4/ 15(26%), stress incontinence in 11/15 and nocturnal enuresis in 8/15.

CONCLUSIONS
Our results are encouraging especially for those with no or mild to moderate pubic diastasis. 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.
ANTERIOR PELVIC OSTEOTOMIES AND EXTERNAL PELVIC FIXATION WITHOUT LOWER LIMBS TRACTION IS A SUCCESSFUL STRATEGY TO AID DELAYED BLADDER EXSTROPHY CLOSURE

David KEENE1, Cezar NICOARA1, Vytkis KAZLAUSKAS1, Alessandra SCALAS1, Farhan ALI2, Sattar ALSHRYDA2 and Raimondo CERVELLIONE1

1) Royal Manchester Children’s Hospital, Department of Paediatric Urology, Manchester, UNITED KINGDOM - 2) Royal Manchester Children’s Hospital, Department of Paediatric Trauma and Orthopaedic Surgery, Manchester, UNITED KINGDOM

PURPOSE

Delayed bladder exstrophy closure (BEC) can benefit from a pelvic osteotomy to facilitate anterior abdominal wall closure. The authors report the outcomes using a standardised strategy of routine delayed, staged BEC in combination with bilateral osteotomies and external pelvic fixation, without the need for lower limb traction.

MATERIAL AND METHODS

Since 2007, the authors have routinely delayed BEC to 3-6 months of age regardless of the size and quality of the bladder template. Bladder pseudo-polyps, if present, are removed prior to closure and a CT pelvis undertaken prior to closure. BEC closure is performed with bilateral anterior oblique osteotomies (single) with or without an additional posterior unicortical osteotomy parallel to the sacro-iliac joint (combined double). An external fixator is placed for 3-4 weeks with a mermaid bandage applied to the legs without traction for 5-6 weeks. Gender, age at closure and post-operative complications were prospectively collected on consecutive patients undergoing exstrophy closure between 2007 and 2016.

RESULTS

Sixty three patients (44 male) were treated during the study period and followed up for a median duration of 3.7 years (IQR 2.6-6.3 years). Median age at time of bladder closure was 4 months (IQR 3-6 months). Median pubic diastasis was 4.5cm (4.0-5.1). Forty-nine patients had anterior oblique osteotomies, 14 patients had a combined double osteotomy. All patients had a successful bladder closure. No patients developed wound dehiscence, suprapubic fistula or bladder prolapse. None of the patients developed lower limbs neuropathies or other orthopaedic complications.

CONCLUSIONS

Anterior oblique osteotomies and external fixation, without the need for lower limb traction, provides a solid anterior abdominal wall closure which represents a key element for a successful and delayed BEC.
URETERIC-URETHRAL ENGRAFTMENT AS A NEW SURGICAL TECHNIQUE FOR MANAGEMENT OF INCONTINENCE IN BLADDER EXSTROPHY COMPLEX

Shabnam SABETKISH¹, Nastaran SABETKISH¹ and Abdol-Mohammad KAJBAFZADEH²

¹) Tehran University of Medical Sciences, Pediatric Urology and Regenerative Medicine Research Center, Pediatric Center of Excellence, Tehran, ISLAMIC REPUBLIC OF IRAN - ²) Tehran University of Medical Sciences, Pediatric Urology and Regenerative Medicine Research Center, Pediatric Center of Excellence, Tehran, ISLAMIC REPUBLIC OF IRAN

PURPOSE
To report the results of a novel surgical technique for increasing the continence rate in girls with intact bladder exstrophy complex (BEC) by ureteric-urethral engraftment (UUE) technique.

MATERIAL AND METHODS
Sixteen girls with a mean ± SD age of 3.4 ± 1.7 years with BEC were referred for further management from 2009 to 2012. Nine patients out of 16 underwent operation by single staged bladder closure (group I); while 7 patients underwent the novel technique of UUE for better continence achievement (group II). Pubic bone adaptation with miniature plate fixation was performed without any type of osteotomy or leg traction in all the patients. Continence and upper urinary tract evaluation were performed in the follow-ups with 3 months intervals for the first year and biannually thereafter.

RESULTS
All patients in both groups experienced an uneventful postoperative period. Social continence was achieved in 5 patients in each group (55.55% and 71.4% respectively). Three (33.3%) and 2 (28.5%) children were partially continent in group I and II, respectively. One patient was incontinent in group I, while no child undergoing UEE operation remained incontinent. However, 3 patients in UUE group had postoperative vesicoureteral reflux and hydronephrosis that was successfully managed by Deflux injection.

CONCLUSIONS
The eventual clinical outcomes of BEC children undergoing the UUE technique were promising. This practicable, safe, and reproducible option will add one complementary stage to the previously used reconstruction techniques. These patients will necessitate further surveillance with upper urinary tract evaluations during the adult life.

Discussion
SUCCESSFUL PREGNANCY AND DELIVERY IN WOMEN WITH COMPLEX LOWER URINARY TRACT RECONSTRUCTION

Francisco DENES, Lorena OLIVEIRA, Bruno CESARINO, Marcos MACHADO and Amilcar GIRON

Hospital das Clinicas da Faculdade de Medicina - University of Sao Paulo, Urology, Sao Paulo, BRAZIL

PURPOSE
The purpose of this work was to determine the outcomes of pregnancy and delivery in patients with complex lower urinary tract reconstruction.

MATERIAL AND METHODS
We retrospectively reviewed patients with complex lower urinary tract reconstruction who became pregnant and successfully delivered their babies from 1987 to 2016. The patients included in this study were treated for genitourinary malformations such as bladder exstrophy and neuropathic bladder secondary to spinal dysraphism. We collected data on demographics, characteristics of the malformation, method of delivery (vaginal or C-section), upper urinary tract alterations during pregnancy, catheterization, UTI, continence and perioperative complications.

RESULTS
Seventeen women had 24 successful pregnancies and deliveries over a 29-years period. Twenty-two were delivered via C-section and 2 were delivered vaginally. Four patients had spontaneous abortions (one miscarriage each). Two developed severe hydronephrosis during pregnancy which required anticipation of the C-section. Six developed urinary incontinence during pregnancy. Six had symptomatic UTIs (2/6 febrile). A midline incision was made in 22, Pfannenstiel in none. Intraoperative complications were identified in 1/24 (reservatory perforation) which needed reoperation. Seven 7 had genital prolapse after pregnancy. Tubal ligation was performed in 2 cases.

CONCLUSIONS
Despite the increased risk related to complex lower urinary tract reconstruction during childhood, adult patients can achieve successful pregnancies and deliveries with adequate urologic surveillance.

EARLY ESTABLISHMENT OF CLEAN INTERMITTENT CATHETERISATION IN INFANTS WITH BLADDER EXSTROPHY IS WELL TOLERATED

David KEENE, Doru NICOARA, Vytis KAZLAUSKAS, Alessandra SCALAS, Beverley WHITNALL and Raimondo Maximilian CERVELLIONE

Royal Manchester Children’s Hospital, Paediatric Urology, Manchester, UNITED KINGDOM

PURPOSE
The use of clean intermittent catheterisation (CIC) is a mainstay in the management of neuropathic bladder patients. Bladder exstrophy (BE) patients may also experience incomplete bladder emptying following reconstructive surgery. CIC is poorly tolerated when introduced in older bladder exstrophy children. The authors aimed to verify if CIC would be well tolerated if introduced in infancy.
MATERIAL AND METHODS
In this prospective study initiated in 2012, CIC was introduced at discharge following BE closure in infants twice a day using an 8F lofric catheter in males and a 6F lofric catheter in females. The frequency of CIC was increased if there were significant volumes drained or hydronephrosis and decreased if there were no significant urine volumes drained. The compliance to CIC was assessed at the time of follow up clinics at 3, 6 and 12 months postoperatively.

RESULTS
Twenty-six patients with classic BE were commenced on CIC following BE closure. Twenty-five patients successfully continued regular CIC. One male patient stopped CIC because the child was very active and would not keep still enough to allow CIC to be done. Twenty patients continued to receive CIC twice a day at follow up. Two patients had reduced their frequency of CIC after 6 months because of regular spontaneous voiding and low residual volumes at catheterisation. CIC frequency was increased in 2 patients to treat high residual volumes. The median length of follow up was 10 months (6.5-23.4).

<table>
<thead>
<tr>
<th>Number of patients</th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful establishment of ISC</td>
<td>100%</td>
<td>93%</td>
</tr>
<tr>
<td>Age at establishment of ISC (months)</td>
<td>6.2 (5.6-7.9)</td>
<td>6.5 (5.1-7.8)</td>
</tr>
<tr>
<td>Age at latest follow up (years)</td>
<td>1.6 (0.8-3.6)</td>
<td>1.2 (0.9-2)</td>
</tr>
<tr>
<td>Number of times CIC performed per day after 6 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

CONCLUSIONS
Early establishment of CIC by parents in bladder exstrophy patients is well tolerated and can be successfully continued into early childhood.

S7-13 (P without presentation)

THE HIGH COST OF ACHIEVING URINARY CONTINENCE IN CLOACAL EXSTROPHY

Martin KAEFER1, David WEATHERLY1, Benjamin WHITTAM1, Konrad SZYMANSKI1, Carla RAMIREZ2, Rosalia MISSERI1, Katherine HUBERT1, Mark CAIN1 and Richard RINK1

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

PURPOSE
Cloacal exstrophy is the most devastating abnormality that can effect a neonate’s lower urinary tract. Surgical techniques have advanced to a point where a continent urinary reservoir can be successfully constructed. However, the goal of achieving socially acceptable urinary continence may often come at a significant price. We hypothesize that the level of morbidity experienced following creation of a continent urinary reservoir is significant and should lead to our consideration of other strategies for managing this difficult clinical problem.

MATERIAL AND METHODS
We reviewed the records of all patients with cloacal exstrophy presenting to our institution (1977-2015). Charts were reviewed for basic demographic information, comorbidities, total number of surgeries, number of surgeries involving the urinary tract and final renal status. Patients were excluded from final analysis if a complete record of their surgical history was not available or if they had less than one year follow up following initial surgical management of the bladder.
RESULTS
Thirty patients were identified as having Cloacal Exstrophy over the period evaluated. An attempt at creating a continent urinary reservoir was undertaken in 27. Four of the patients experienced significant decline in their baseline renal function following reconstruction (2 renal transplants; 2 ESKD V) while one patient died of hepatic failure. Twenty patients had complete documentation of their surgical history. Follow up ranged from 1-24 years (mean 10.4 years). Patients within this group underwent a total of 302 surgeries resulting in an average of one operation per year of follow up. Urinary tract procedures accounted for 101 (33%) of these procedures.

CONCLUSIONS
The goal of achieving urinary continence in cloacal extrophy results in significant clinical morbidity in the majority of patients. Initial management with an incontinent strategy (e.g. Ileal chimney, ileal loop, delayed continent reconstruction) may prove to be a safer option in children with this complex urinary anomaly.
**S8: HYPOSPADIAS 1**

**Moderators:** Miguel Castellan (USA), Katja Wolfflenbuttel (Netherlands)

**ESPU Meeting on Thursday 20, April 2017, 11:44–12:30**

**11:44–11:47**

**S8-1 (PP)**

★ **EFFECT OF PENILE ISCHEMIA ON SUCCESS OF TUBULARIZED INCISED PLATE (TIP) REPAIR FOR DISTAL HYPOSPADIAS: RANDOMIZED CONTROLLED TRIAL**

Helmy OMAR¹, Tamer HELMY², Hesham ORBAN¹, Ahmed GALAL¹, Ashraf HAFEZ¹ and Mohammed DAWABA¹

¹) Urology and Nephrology Center, Paediatric Urology, Mansoura, EGYPT - 2) Urology & Nephrology center Mansoura, Paediatric Urology, El Mansoura, EGYPT

**PURPOSE**

To assess the effects of penile ischemia using tourniquet on the surgical outcome of distal penile hypospadias repair as regard success and complication rates.

**MATERIAL AND METHODS**

Between April 2014 and January 2016, 60 boys with distal penile hypospadias (who fulfill the inclusion criteria; < 2 years, primary distal hypospadias, no chordee) were equally randomized using envelop method into either repair with ischemia or without ischemia. All patients underwent TIP repair. Intraoperative data were recorded including; operative and ischemia time, plate length, width and glans width. Patients are followed up at 3, 6 and 12 months postoperative. Success was defined as slit shaped meatus at the tip of the glans with no stenosis, fistula or diverticulum.

**RESULTS**

Mean age at surgery was 20.9+ 4.7 months and mean follow up period is 8.6+ 3.2 months. Both groups (30 patients in each) were comparable as regard to patients’ age, meatus location, length and width of urethral plate, glans width. Success rates were reported in 27 (90%) and 25 (83%) patients in ischemia and non ischemia groups, respectively but the difference doesn’t reach statistically significant value. Failures were due to fistula in 4 patients (2 in each group), meatal stenosis in 2 (one in each group) and partial glans dehiscence in 2 patients in non ischemia group. The only statistically significant difference between both groups was higher mean hemoglobin deficit 0.84+ 0.12 gm/dl in non ischemia group compared to 0.59+ 0.08 gm/dl in ischemia group (p 0.024).

**CONCLUSIONS**

The use of penile tourniquet in TIP repair for distal penile hypospadias significantly decreases blood loss. Although ischemia was associated with higher success, the difference doesn’t reach statistically significant value.
SEXUALITY AND FERTILITY IN MEN WITH HYPOSPADIAS; IMPROVED OUTCOME

Lisa ÖRTQVIST¹, Magdalena FOSSUM², Marie ANDERSSON³, Anna NORDENSTRÖM⁴, Louise FRISÉN⁵ and Gundela HOLMDAHL⁶

¹) Womens and children’s health, Unit of Pediatric Surgery, Astrid Lindgren Children’s Hospital, Stockholm, SWEDEN - ²) Womens and children’s health, Pediatric surgery department, Stockholm, SWEDEN - ³) Sahlgrenska Academy, Women’s and Children’s Health, Gothenburg, Sweden, Department of Pediatric Surgery, Gothenburg, SWEDEN - ⁴) Womens and children’s Health, Department of Pediatric Endocrinology, Stockholm, SWEDEN - ⁵) Child and Adolescent Psychiatry Research Center, Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, SWEDEN - ⁶) Sahlgrenska Academy, Women’s and Children’s Health, Gothenburg, Sweden, Department of Pediatric Surgery, Queen Silvia’s Children’s Hospital, Göteborg, SWEDEN

PURPOSE

This study aimed to investigate sexual function and fertility in adult men born with hypospadias.

MATERIAL AND METHODS

Patients born with hypospadias, age-matched controls, and a group of circumcised men completed a questionnaire constructed to reflect their psychosexual situation and fertility. Gender related development was also assessed.

RESULTS

167 patients (63% distal, 24% mid shaft and 13% proximal, mean age 34 [19-54] years), 169 controls from the general population (mean age 33 [19-48] years) and 47 controls circumcised due to phimosis (mean age 26 [19-44] participated and completed the questionnaire.

There were no differences in having a partner, reported fertility, age at sexarche (mean age 17.8), number of sex partners or sexual interest between the patients and controls. More patients reported anejaculation. Glanular sensitivity was reported to be lower in hypospadias patients and circumcised controls compared with non-circumcised controls. The odds of being satisfied with their sexual life increased with a higher penile perception score in patients (OR=1.54, p=0.01). There was no association with penile length. Sexual orientation, core gender identity and gender role behavior were sex-typical in both patients and controls. Patients with proximal hypospadias had a lower reported fertility, experienced anejaculation more often, and were less satisfied with their sexual life.

CONCLUSIONS

Men born with hypospadias have a good long-term outcome concerning sexual function and fertility as well as gender related development. Since satisfaction with genital appearance is important for sexual life satisfaction, clinical and psychological follow-up into adulthood is especially important in boys born with proximal hypospadias.
DISTENSIBILITY OF THE URETHRA WITH FUNCTIONAL LUMEN IMAGING PROBE (FLIP™) IN THE INTRAOPERATIVE ASSESSMENT OF HYPOSPADIAS: DOES BIOMECHANICS SUPPORT THE SURGICAL DECISION MAKING?

Ida FAURSCHOU¹, Andreas ERNST², Jingbo ZHAO³, Donghua LIAO³, Jens Christian DJUURHUS¹ and L. Henning OLSEN⁴

¹) Aarhus University, Department of Clinical Medicine, Aarhus N, DENMARK - ²) Aarhus University, Department of Public Health, Section for Epidemiology, Aarhus C, DENMARK - ³) Aarhus University, Giome Academia, Department of Clinical Medicine, Aarhus N, DENMARK - ⁴) Aarhus University Hospital, Department of Urology, Section for Peadiatric Urology, Aarhus N, DENMARK

PURPOSE
Hypospadias can be accompanied by alterations in urethral biomechanics which may lead to hampered voiding. Even before repair compliance in urethra may be different. Today assessment of urethral size and tissue quality rely on observer-dependent inspection and simple calibration sticks. This study concerns development of a method to assess urethral size and biomechanical properties specifically to compare normal urethras with hypospadias before surgery.

MATERIAL AND METHODS
Modified measurements of electrical impedance using the Functional Lumen Imaging probe (FLIP) was used to assess compliance in the urethra under two steps pressure rise (0-40-60 cmH2O) in a bag covering the impedance measuring system. 15 boys with varying degrees of hypospadias were compared to 4 controls in a non-blinded prospective clinical observational study.

RESULTS
Mean age was 15.3 months for hypospadias and 10.7 months for controls. Our preliminary results show that the urethra of boys with hypospadias have a functional narrowing of the urethral lumen. Our analysis further suggests that patients with hypospadias have a less compliant urethra. Comparison of visual imaging shows a different shape of urethra in hypospadias patients. We continue to include patients and controls.

CONCLUSIONS
The study is the first to use functional lumen imaging of the urethra in patients with hypospadias. It might help to understand the structural and functional changes associated with hypospadias. The FLIP method is feasible and may be a future way of assessing urethral biomechanics aiding the surgical strategy in hypospadias and in addition potentially be included in postoperative assessment when needed.
SHOULD A COVER FLAP BE USED SYSTEMATICALLY FOR URETHROPLASTY WHATEVER THE SEVERITY OF HYPOSPADIAS? A COMPARATIVE STUDY ON 344 PATIENTS

Nicolas KALFA1, Mohamed Sami SFAR1, Margot OLLIVIER1, Sarah GARNIER1, Amandine COFFY2, Paula BORREGO1, Christohpe LOPEZ1 and Charles SULTAN3

1) Hôpital Lapeyronie, CHU de Montpellier, Service de Chirurgie et Urologie Pédiatrique, Montpellier, FRANCE
2) Université de Montpellier, Université Montpellier I, Institut Universitaire de Recherche Clinique, Montpellier Cedex 5, FRANCE - 3) Hôpital Arnaud de Villeneuve, CHU de Montpellier et Université Montpellier 1, Département d’Endocrinologie Pédiatrique, Montpellier, FRANCE

PURPOSE
Interposition of a well-vascularized tissue between the penile skin and neourethra has been advocated to prevent urethro-cutaneous fistula in hypospadias repair. We aimed to evaluate the benefit of this technique according to the severity of hypospadias to determine in which phenotype it should be performed.

MATERIAL AND METHODS
A retrospective database on patients with a primary hypospadias repair was performed from 2009 to 2015. Only patients undergoing urethroplasty based on the principle of a tubularization of the urethral plate were selected to ensure comparable groups. Patients were assigned in two groups according to the use or not of a cover flap.

RESULTS
Three-hundred-and-forty-four patients were included with anterior(57.8%), midshaft(25.3%) and posterior hypospadias(16.9%). Group 1 (n=172 with flap) and group 2 (n=172 without) were compared. The overall rate of fistula was reduced with flap (7.55% vs 17.44%, p=0.0056). When stratifying the results according to the severity of hypospadias, it appeared that the flap efficacy was not homogeneous(p=0.021). The risk of fistula was significantly decreased for severe hypospadias only(11.3% vs 42.8%, p=0.01). Whereas the severity of phenotype increases the risk of fistula without coverage(p=0.02), the protective effect of flap mitigates this risk: the rate of fistula is no longer different in anterior, mid-penile and posterior hypospadias(p=0.53). The multivariate analysis confirmed that only the severity of hypospadias and the covering of the urethroplasty influence the risk of fistula.

CONCLUSIONS
The more severe the hypospadias is, the more effective the cover flap is. Even if covering anterior hypospadias remains debated, the severe phenotype should systematically benefit from this technique.
ERECTILE FUNCTION AND MICTURITION OF MEN WITH NON-CORRECTED HYPOSPADIAS

Norma Katharina RUPPEN-GREEFF, Rita GOBET and Daniel Max WEBER
University Children’s Hospital, Division of Pediatric Urology, Zurich, SWITZERLAND

PURPOSE
Studies about the functional outcome of non-corrected hypospadias are scarce. Therefore, this study investigates the erectile function and micturition of men with non-corrected hypospadias.

MATERIAL AND METHODS
In a cross-sectional survey, 50 men with non-corrected hypospadias (glandular: 17; coronal: 29; penile: 4; age range: 20-75 years; mean age: 53.62 years, SD: 13.87) were asked to answer the International Index of Erectile Function questionnaire (IIEF) to measure their erectile function (ef), and a self-developed questionnaire regarding their micturition. Referring urologists examined and classified the type of hypospadias.

RESULTS
Seven men had no partner at the time of the survey and five did not answer the IIEF. These men (n=12) were excluded from calculations concerning erectile function.
Thirty of 38 men (78.9%) had no erectile dysfunction. Two (5.3%) reported to have a “mild” dysfunction, two (5.3%) a “mild to moderate” dysfunction, one (2.6%) to have a “moderate” dysfunction and three (7.9%) to have a “severe” dysfunction. Severity of hypospadias did not correlate with erectile function (ef).
Most men were able to urinate in a standing position (n= 30/50; 60%) and did not wish a hypospadias repair at the time of the survey (n=44/50; 88%). Only five of 50 men (10%) believed that hypospadias should be generally operated based on parental consent around the first birthday.

CONCLUSIONS
The majority of men reported to have no erectile dysfunction and the ability to urinate in a standing position. Most men did not wish a hypospadias correction and disagreed to hypospadias repair based upon parental consent in early childhood.

A PROSPECTIVE STUDY COMPARING TWO HYPOSPADIAS DRESSINGS: DOES MORE EXPENSIVE MEAN BETTER?

Christopher LUTTERODT1, Anastasia MENTESSIDOU2, Diane DE CALUWE1, Nisha RAHMEN1 and Marie-Klaire FARRUGIA1
1) Chelsea and Westminster Hospital, Department of Paediatric Surgery, Chelsea, UNITED KINGDOM - 2) Chelsea and Westminster Hospital, Paediatric Surgery, London, UNITED KINGDOM

PURPOSE
A number of post-hypospadias repair compressive dressings have been described ranging from simple gauze dressings to commercially-available (more costly) dressings. We questioned whether dressing cost made a difference to outcome.
MATERIAL AND METHODS
We conducted a prospective study of all patients undergoing single or staged hypospadias repairs over a one-year period (2015-2016). The repair was performed over a feeding tube and either a silastic foam (Cavicare) or gauze dressing applied, according to surgeon preference. Carers completed a questionnaire at one week to assess for incidence of bladder spasms, level of post-operative pain on day 1 and 7, analgesic requirement and post-operative problems or hospital attendance. The cost of each dressing was calculated by working out the sum of the individual dressing components and preparation time.

RESULTS
41 out of 45 patients completed the questionnaire. The incidence of bladder spasms (p=0.31) and the level of post-operative pain on day 1 (p=0.13) and 7 (p=0.72) did not differ significantly between the two dressing groups. The frequency of post-operative problems (p=0.75) or attendance to the hospital (p=0.97) was not significantly different between the two dressing groups. Twenty-six patients were discharged home the day of surgery. The foam dressing was three times as expensive as the simple gauze dressing.

CONCLUSIONS
Within the limitation of patient numbers, the simple gauze dressing was as effective as the more expensive alternative. The study also showed that same-day discharge is a safe option for these patients, and that analgesia is only required for the first few post-operative days.

ANTENATAL PREVENTIVE EFFECT OF MEDICATIONS DURING PREGNANCY IN PATIENTS WITH HYPOSPADIAS: CASE-CONTROL ANALYSIS IN 24-YEARS IN SOUTH AMERICA
Nicolas FERNANDEZ1, Angie PUERTO2, Darius BAGLI1, Armando LORENZO1 and Ignacio ZARANTE3
1) Hospital for SickKids, Urology, Toronto, CANADA - 2) Hospital Universitario San Ignacio, Human Genetics Institute, Bogota, COLOMBIA - 3) Pontificia Universidad Javeriana, Human Genetics Institute, Bogota, COLOMBIA

PURPOSE
Environmental risk factors have been described in association with hypospadias. Recent geographical cluster analysis shows predisposing regions with high or low prevalence rates of hypospadias in South-America (SA). Multiple studies focus on deleterious effects of endocrine disruptors but few have focused on environmental protective factors. Effect of folic acid multivitamins reducing hypospadias prevalence might explain specific geographic distributions. The present study explores potential association of medications exposure during pregnancy and hypospadias.

MATERIAL AND METHODS
Case control analysis from 1982 - 2011 in SA analyzing exposure to different medications in patients with hypospadias. The Latin American collaborative study of congenital anomalies (ECLAMC) database was used. Cases were all newborns hypospadias and controls healthy newborns without congenital malformations. Analyzed variables included exposure of medications by trimesters for cases and controls.
RESULTS
A total of 5,115 cases were identified, 388 types of medications and 90 pharmacological groups were evaluated. Alpha-methyldopa and progesterone showed to be potentially risk factors: OR 2.27 (1.17-4.41; p=0.01) and OR 3.88 (1.96-7.70; p value 0.00003) respectively. Ferrous sulfate and folic acid showed possible protective effect: OR 0.72 (0.60-0.87; p=0.0004) and OR 0.74 (0.56-0.96; p value 0.02) respectively. Association with different types of hypospadias demonstrate potential effects depending moment of exposure.

CONCLUSIONS
Potential preventive effects have been demonstrated in the past and this large-scale analysis confirms a preventive effect of multivitamins in developing countries. Further studies will now focus on cluster analysis, medication exposure and prevalence rates of hypospadias.

12:17 – 12:20
S8-8 (PP)
STAGED REPAIR OF PROXIMAL HYPOSPADIAS WITH PREPUTIAL GRAFT OVER VASCULARISED SPLIT DARTOS FLAPS
Elizabeth O’CONNOR, Junaid ASHRAF, Alexander TURNER and Ramnath SUBRAMANIAM
Leeds Teaching hospitals NHS trust, Paediatric Urology, Leeds, UNITED KINGDOM

PURPOSE
To present the outcome of staged repair for proximal hypospadias with preputial graft on the bed of vascularised split dartos flaps.

MATERIAL AND METHODS
73 boys with proximal hypospadias underwent staged repair over 11 years between March 2006 and August 2016; 16 mid shaft, 36 proximal penile, 19 penoscrotal and 3 perineal. Chordee was moderate in 24 (33%) and severe in 44 (61%) requiring nesbitts procedure. 7 boys(9.5%) received Local DHT gel prior to first stage. All of them had preputial graft at the first stage with split vascularised dartos flaps placed on lateral aspects of the bed. Tubularisation of neourethra was done 6-8 months later when the graft was supple. The mean age at first stage was 29 months (14-100) and 43 months at 2nd stage(21-116).

RESULTS
Median length of follow up was 23 months post completion of staged repair (2-95 months). We had a 100% graft take following first stage with no revision of graft. 57 boys had successful repair with planned two stages. 16 boys had complications (21%). 9 boys developed fistulas (12%). 4 fistulas were late complications, one developing 26 months after the second stage, 2 developing 3 years after the second stage and one developing 7 years post second stage. The other 5 developed between 5 and 19 months after the second stage.
Of the 9 fistulas, 7 successfully repaired (5 closure of fistula; 2 redourethroplasty). One boy has had two failed attempts at closure. Another boy is awaiting fistula closure.
4 boys had late presenting meatal stenosis; 2 had meatoplasty; 2 awaiting correction. One boy had a meatal skin tag which was excised and another had penile torsion which was corrected. One boy had residual overhanging foreskin causing spraying, which was repaired.

CONCLUSIONS
Staged repair with preputial graft over dartos flaps for proximal hypospadias is reliable technique with minimum morbidity and no graft loss.
PREOPERATIVE HORMONAL STIMULATION FOR HYPOSPADIAS REPAIR: AN UPDATED SYSTEMATIC REVIEW

Roberto IGLESIAS LOPES¹, Michael CHUA¹, Michele GNECH², Jessica MING¹, Jan Michael SILANGCRUZ³, Stephanie SANGER², Joana DOS SANTOS¹, Armando Jose LORENZO¹ and Luis H BRAGA²

¹) The Hospital for Sick Children, University of Toronto, Division of Urology, Department of Surgery, Toronto, CANADA
²) McMaster Children’s Hospital and University, Division of Urology, Department of Surgery, Hamilton, CANADA -
³) St Luke’s Medical Center, Division of Urology, Department of Surgery, Quezon City, PHILIPPINES

PURPOSE
Preoperative hormonal stimulation (PHS) by giving testosterone or a similar medication is commonly used to improve hypospadias repair outcomes. Our objective was to systematically evaluate the effect of PHS on postoperative complication rates following hypospadias repair.

MATERIAL AND METHODS
Comprehensive literature search was made on April 2016 for OVID MEDLINE, EMBASE, Web of Science, Cochrane Library, Clinicaltrial.gov, World Health Organization (WHO) International Clinical Trial Registry Platform (ICTRP) and Proquest. Study quality assessment was done according to Cochrane collaboration recommendation using risk of bias assessment, ROBINS-I and NOQAS. Effect estimates were extracted as relative risk (RR) with 95% confidence interval (CI) and pooled using Mantel-Haenzel method. Evidence quality was assessed using GRADE approach. Twenty-two publications from 17 trials that examine the effect of PHS on post-operative outcome were included.

RESULTS
Subgroup analysis according to study design, showed that ten cohort studies with moderate to high risk of bias for patient selection, showed that PHS have no significant effect on post-operative outcome (RR 1.23, 95%CI 0.96, 1.58). While pooled effect estimates with moderate quality of evidence from three RCTs showed that significant lesser post-operative complication occurrence among patient with PHS (RR 0.36, 95%CI 0.20, 0.65). Described by all included studies, the reported adverse effects related to PHS were mild and transient with good tolerance.

CONCLUSIONS
Moderate evidence supports the use of PHS as a means to decrease post-operative complication of hypospadias repair. Future studies should aim at standardizing the dose and mode of delivery for best clinical result.
GRAFTED TUBULARIZED INCISED URETHROPLASTY, VISION TO THE FUTURE; EVALUATION AFTER 5 YEARS OF SINGLE SURGEON EXPERIENCE

Mamdouh AHMED¹, Islam AMER², Ashhad KHAN³ and Paradip VINCENT³

1) Ibn Sina Hospital, Paediatric Urology, Kuwait, KUWAIT - 2) Ibn Sina hospital kuwait, Pediatric Urology Unit, Kuwait, KUWAIT - 3) Ibn Sina hospital, Pediatric Urology Unit, Kuwait, KUWAIT

PURPOSE
Grafted TIP was described for redo cases and we extended its indication to be our standard technique for primary hypospadias repair.
Grafting of the incised urethral plate gives the ability of positioning of neomeatus in its anatomical position with decrease the chance of meatal stenosis and reducing the incidence of complications as urethro-cutaneous fistula and neourethral tract stricture.
We evaluate 5 years’ experience of G-TIP technique of single surgeon experience with reported complications and how to avoid them.

MATERIAL AND METHODS
A total of 400 consecutive primary hypospadias patients undergoing the G-TIP procedure were prospectively studied between 2012 and 2016 operated by single surgeon where the incised urethral plate was grafted using inner prepetial graft. Patients where observed for neomeatus site and shape, urethro-cutaneous fistula, residual chordae, granular dehiscence, urine stream caliber and meatal stenosis.

RESULTS
Among the total number of patients 111 were coronal, 185 subcoronal, 60 Distal penile, 35 mid penile, 9 Proximal
Slit like apical neomeatus was present in 397 of patients, fistula occurred in 11 Of patients, 2 patients who developed very thin stream of urine which required cystoscopy and internal urethrotomy due to extension of incision distally into normal urethra when fixing the prepetial graft.
3 patients who developed partial granular dehiscence resulting in distal granular meatus none of them required surgical correction with accepted neomeatus.
None of our patients developed meatal stenosis.
Over all 96% of our patients achieved excellent functional and cosmetic results.

CONCLUSIONS
We conclude that after 5 years of performing G-TIP technique in all cases of primary hypospadias achieving excellent normal anatomical neomeatus, with less incidence of urethro-cutaneous fistula and meatal stenosis.
We believe that worldwide acceptance of this TIP modification technique will be increased by time.
ISOGENIC FORESKIN TRANSPLANT FOR SALVAGE REDO-HYPSPADIAS REPAIR IN MONOZYGOTIC TWINS

Yazan F. RAWASHDEH
Aarhus University Hospital, Urology, Aarhus, DENMARK

PURPOSE
Salvage hypospadias repair procedures are restricted by the paucity of donor sites for harvest of non-hair bearing skin and or mucosa especially when foreskin and buccal mucosa have been used or in cases that require extensive urethral replacement.

MATERIAL AND METHODS
A 33 year old patient born with severe hypospadias and operated upon more than 20 times since childhood, presented with urinary retention. Initial management comprised an extensive meatotomy with removal of urethral calculi. The reconstructed urethra was severely scarred and strictured. On follow-up it transpired that the patient had a monozygotic twin with discordance for the urethral anomaly who was willing to donate his foreskin. Preoperative genetic and virology testing confirmed monozygosity and excluded any infectious risk. A standard circumcision was performed on the brother where after the index patient underwent the first of a two stage procedure. The scarred neourethra was removed in its entirety down to the penoscrotal junction. The resulting defect was covered with the donor foreskin. On dressing removal 7 days later there was 100% take. Eleven months later stage two was completed by tubularising the graft, with tunica vaginalis cover.

RESULTS
Recovery after both procedures and for both the donor and recipient were uneventful. At follow-up 6 months postop there was good cosmesis and the index patient reported being able to void standing with a good stream. There were no fistulae, break down or meatal stenosis.

CONCLUSIONS
Despite its extreme rarity, isogenic grafts can be used in hypospadias repair.
S9: TESTIS

Moderators: Luis Braga (Canada), Marcel Drlik (Czech Republic)

ESPU Meeting on Thursday 20, April 2017, 13:50–14:29

13:50–13:53

S9-1 (PP)

★ ANDROLOGICAL OUTCOME OF MICROSURGICAL VARICOCELECTOMY IN CHILDREN AND ADOLESCENTS ACCORDING TO AGE AND TYPE OF SURGERY – PROSPECTIVE RANDOMISED STUDY

Zuzana VALOVÁ¹, Radim KOCVARA¹, Josef SEDLÁCEK², Marcel DRLÍK¹, Zdenek DÍTE¹, Jaroslav ZVERINA³, Tomas HANUS¹ and Jaromír BELACEK⁴

1) General Faculty Hospital and 1st. Medical School of Charles University, Urology, Prague 2, CZECH REPUBLIC - 2) General Faculty Hospital and 1st. Medical School of Charles University, Prague 2, CZECH REPUBLIC - 3) General Faculty Hospital and 1st. Medical School of Charles University, Institution of Sexuology, Prague 2, CZECH REPUBLIC - 4) General Faculty Hospital and 1st. Medical School of Charles University, Department of Education, Prague 2, CZECH REPUBLIC

PURPOSE
To compare andrological outcome after lymphatic and artery sparing varicocelectomy (VCE) performed by laparoscopic or microscopic subinguinal technique in relation to age of surgery.

MATERIAL AND METHODS
During 2004-2009, 112 patients under 18y, unilateral varicocele grade II-III were prospectively randomised, assigned to microsurgical laparoscopic (Group L-56) or subinguinal microscopic VCE (Group M-56). Entry and control (after 17y of age; minimally 1 year after surgery) testicular ultrasound performed in all; volume asymmetry determined by atrophy index. 57 patients were operated at 11.5-14.9y (mean 13.8 - Group 1); 55 operated at 15-17.9 y (mean 16.5 - Group 2). Spermiogram performed in 49 patients from Group 1 (23L, 26M) and 48 from Group 2 (27L, 21M). Analysed by chi-square, t-test, 3-Way ANOVA.

RESULTS
Atrophy index decreased more in Group 1 (22...8%) than in Group 2 (19... 13%) (p=0.00426). After laparoscopic VCE we found higher sperm concentration (65 vs. 52 mil/ml; p=0.0026), higher progressive motility (43 vs. 37%; p=0.0268) and less asthenozoospermia (in 7/50-14% versus 16/47-34%) than after microscopic VCE. These results were more prominent in Group 1, where pathological spermiogram was present in microscopy group only (9/26-35%). These patients had lower entry atrophy index (15% vs. 28%; p=0.0401), larger refluxing veins (3.5mm vs. 2.5mm; p=0.0431) and at the control, lower right testicular volume (12.4 vs. 16.2 cc; p=0.0272), lower sperm concentration (29 vs. 65 mil/ml; p=0.0026), worse progressive motility (21vs. 45%; p=0.0002) than patients with normal spermiogram.

CONCLUSIONS
Earlier operated patients had better catch-up growth, but a better andrological outcome was achieved in the laparoscopy than microscopy group. The initial testicular asymmetry may be related to a right testicular hypertrophy and represent favourable prognostic sign. These conclusions give new arguments for early adolescent surgery and also necessity of studying long-term outcome of individual types of repair.
CCONTRALATERAL METACHRONOUS UNDESCENDED TESTIS: IS IT PREDICTABLE?

Madeline CANCIAN and Anthony CALDAMONE

Brown University, Department of Urology, Providence, USA

PURPOSE
Metachronous undestended tesis (mcUDT), an acquired UDT after contralateral orchiopexy, can occur in some boys. Our hypothesis was there may be characteristics evident at the time of initial orchiopexy which could predict the development of contralateral mcUDT.

MATERIAL AND METHODS
We used CPT code for inguinal orchiopexy (54640) to identify all patients with UDT between 1/1997-10/2015. We included patients who underwent orchiopexy for unilateral UDT (uUDT). The study population were patients who had undergone metachronous orchiopexies, controls were patients who were 17 years at time of data collection with a single orchiopexy.

RESULTS
From 1035 eligible patients we identified 38 with mcUDT and 207 controls (uUDT). Median age at the first orchiopexy of mcUDT patients was 2.5 yrs (min/max, 0.50, 10.4) and 8.2 yrs (min/max 0.70, 12.8) for uUDT, p<0.0001. Subjects with a contralateral retractile testis on preoperative exam had a 4.2 times higher rate of subsequent UDT than patients with a contralateral descended testis (95% CI [2.077, 8.353]). The rate of mcUDT was 6.7 times higher if the testis was a retractile testis under anesthesia (95% CI [2.7, 16.5]). No relationship was found for side of initial UDT (p=.4947), acquired vs. congenital UDT (p=.40), procedure type (p=.52), ipsilateral testicular position (p=.71), size of ipsilateral UDT (p=.21), and patency of the processus vaginalis (p=.08).

CONCLUSIONS
Patients with a contralateral retractile testis at time of orchiopexy have an increased rate of requiring a contralateral orchiopexy. A discussion of risks and benefits regarding bilateral orchipexies should be undertaken with the parents prior to surgery.

KNOWLEDGE, ATTITUDE AND PRACTICE: ANTIBIOTICS FOR EPIDIDYMO-ORCHITIS

Kathryn O'SHEA, Sumita CHHABRA, Raimondo CERVELLIONE, Tamas CSERNI, Supul HENNAYAKE and Anju GOYAL

Royal Manchester Children’s Hospital, Paediatric Surgery - Urology, Manchester, UNITED KINGDOM

PURPOSE
In our department the diagnosis of acute epididymo-orchitis (EO) is made by ultrasound (US) findings of an enlarged, hypervascular epididymis. The aetiology of EO is not bacterial in the majority of cases. EAU guidelines state antibiotic treatment is not indicated in most cases unless urinalysis and culture show bacterial infection. We report our efforts to implement the guidelines within our department.
MATERIAL AND METHODS
A retrospective audit was performed for all children diagnosed with EO between July 2011 - June 2013. Following audit, recommendations were made for selective use of antibiotics, to bring practice in line with EAU guidelines. We suggested urinary tract ultrasound and use of antibiotics only if urinalysis was positive. A prospective audit was conducted to assess compliance.

RESULTS
Initial audit identified eighty-three boys with EO. Fifty-eight had urinalysis, only five had positive cultures. Sixty-eight were prescribed antibiotics. Forty-four underwent renal tract US. No new urogenital anomalies were detected. Following dissemination of results and implementation of recommendations, the prospective re-audit was undertaken. This identified thirty-one patients with a diagnosis of EO. There was no positive urinalysis, but 58% still received antibiotics. Urinary tract ultrasound was done in 12.5%.

CONCLUSIONS
Following the introduction of new guidelines, there was a reduction in antibiotic prescribing from 82% to 58% and a reduction in OP renal tract US from 44% to 12.5%. Prescribing of antibiotics for EO is an entrenched behaviour. For engagement and adoption of new guidelines, leadership and frequent, effective reinforcement is required. It is important we ensure the implementation of such guidelines to aid antibiotic stewardship and ensure appropriate use of renal tract US.

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

Alessandro TAVARES², Francisco TIBOR-DÉNES¹, Marcello COCUZZA², Bruno TISEU², Amilcar GIRON¹ and Miguel SROUGI²

¹) Hospital das Clínicas São Paulo Medical School, Uropediatric Unit, Urology Department, São Paulo, BRAZIL - ²) Hospital das Clínicas São Paulo Medical School, Urology, São Paulo, BRAZIL

PURPOSE
Prune belly syndrome (PBS) is characterized by abdominal wall muscle hypoplasia, urinary tract dilatation and bilateral intra-abdominal testis. No spontaneous paternity has been reported to date and infertility is usually taken for granted. Our purpose was to gain insight on the causes of infertility in PBS by evaluating reproductive system anatomy and gonadal function in a cohort of post puberal PBS patients.

MATERIAL AND METHODS
We contacted all patients 14 years-old or older that had undergone surgical reconstruction at our Institution since 1987. Age at orchidopexy, type of orchidopexy (with or without ligation of gonadal vessels), testicular volumes and positions and last serum creatinin were recorded. A pelvic MRI to evaluate prostate size, seminal vesicles and vas and serum FSH, LH and testosterone were ordered. Sperm analysis and analysis of urine after masturbation were performed when the patient and family consented.

RESULTS
Fifteen patients had data from physical examination and hormonal profile and were included in this study. Mean age was 18.2 years. Mean age at orchidopexy was 17 months. Fourteen (93.3%) patients had both testes in scrotum. Mean testicular volume was 6.9 cc (2.1 to 9.4 cc). Eight patients collected semen. Mean concentration was 5.07 million/mL. Motile sperm was found in 5 patients
(62.5%): 3 (37.5%) in the ejaculate a 2 (25%) in urine after masturbation. Mean hormone levels were LH: 5.3 mg/dL, FSH:6.9 mg/dL, testosterone 531 mg/dL. MRI revealed prostates hypoplastic in 55.6% and absent in 22.3%. Absence of at least one seminal vesicle was seen in 55.6%. No vasal abnormality was noted. Mean Cr=1.64 mg/dL.

CONCLUSIONS
Patients with PBS may have normal sexual hormonal levels and motile sperm in the ejaculate or post masturbation urine. Our study highlights a high prevalence of prostate and seminal vesical abnormalities that may represent an important cause for their infertility.

14:02 – 14:14
Discussion

14:14 – 14:17
S9-5 (PP)

LAPAROSCOPIC MANAGEMENT FOR INTRA-ABDOMINAL TESTIS: A PEDICULAR TRACTION OR PEDICULAR SECTION? A MULTICENTRIC STUDY

Valeska BIDAULT1, Nathalie BOTTO2, Elisabeth CARRICABURU1, Thomas BLANC2, Matthieu PEYCELON1, Carmen CAPITO2, Goharig ENEZIAN1, Alaa CHEIKHELARD2, Arnaud BONNARD1, Henri LOTTMAN2, Alaa EL GHONEIMI1, Yves AIGRAIN2 and Annabel PAYE JAOUEN3


PURPOSE
To evaluate laparoscopic spermatic pedicular traction (Shehata technique, ST, 2008) for the treatment of unpalpable testis, as an alternative to gold standard pedicular section (Fowler Stephens, FS), successful in 83% and associated with a 8%-risk of testicular atrophy.

MATERIAL AND METHODS
Intra-abdominal testis of 78 patients in two pediatric surgery centers were managed laparoscopically either by staged FS orchidopexy or ST according to the surgeon preference and retrospectively analyzed. Testicular position and size were compared (Fischer’s exact test/Wilcoxon-Mann Whitney).

RESULTS
90 testis (Jan 2011-June 2016) were pulled-down by 58 ST and 32 FS (12 bilateral). Median age at surgery was 23,5 months (ST group) and 16,8 months (FS group) (p=0,013). Scrotal pulling-down of the testis was performed after a median period of 2,3 months (ST group) and 4,8 months (FS group)(p=2,4). No complication occurred during surgery. ST had dropped in 5 cases, and required a redo procedure in 3 cases. Mean follow-up was 12 versus 9,7 months (p=0,82); the testis was in the scrotum in 86,2% cases after ST and 79% after FS (p=1), and testicular atrophy occurred in 10,3% in ST and 12,5% in FS (p=0,74).

CONCLUSIONS
This study shows similar results of ST and FS in the medium-term, and could enable pediatric surgeons to prefer ST who preserves the natural vascularization of the tests. Precise evaluation of size and position of the testis during the first laparoscopic time is essential to assess the results of each surgical technique. Evaluation of a standardized description form is in process.
SCROTAL INCISION AS INITIAL APPROACH FOR THE MANAGEMENT OF BOTH PALPABLE AND NONPALPABLE UNDESCENDED TESTICLES: RESULTS OF FIRST 500 CONSECUTIVE CASES

Juan PRIETO¹, Jeffrey WHITE² and Maria Veronica RODRIGUEZ³

¹) University of Texas Health Science Center San Antonio, Methodist Children’s Hospital and Children’s, Urology, San Antonio, USA - ²) University of Texas Health Science Center, Urology, Houston, USA - ³) University of Texas Health Science Center San Antonio, Urology, San Antonio, USA

PURPOSE
To present the outcomes of the use of a scrotal incision as the first line approach for the management of all undescended testicles (UDT) including both palpable and unilateral nonpalpable testicles.

MATERIAL AND METHODS
From 2009 to 2015, 459 consecutive patients underwent 500 scrotal approaches for the management of all palpable and unilateral nonpalpable UDT. The scrotal approach was the initial selected approach irrespective of the location of the UDT, the patency of the processus vaginalis or size of the contralateral descended testis. If there was neither a nubbin nor a testicle, laparoscopy was performed. All procedures were performed by a single pediatric urologist (JCP) in three different institutions. Minimum follow-up was 6 months. Secondary orchiopexies and inadequate follow-up were exclusion criteria.

RESULTS
Out of the 500 UDT, 432 (86%) were palpable and 68 (14%) were nonpalpable as determined by examination under anesthesia. A scrotal approach was the definitive treatment in 98% of these patients with a success rate for scrotal orchiopexy of 97.4%. Among the nonpalpable UDT (n=68), 46 were either nubbins or testicles located extra-abdominally and the remaining 22 testes were intra-abdominal. Scrotal approach was the definitive treatment in 68% of these patients with a success rate of 100% for those extra-abdominal testes or nubbins. The remaining 22 intra-abdominal testes were managed laparoscopically. In six of these intra-abdominal testes, the initial scrotal approach facilitated the dissection of a looping vas. Three complications were documented (excluding laparoscopic procedures): suture dehiscence (n=1), bleeding (n=1), and persistent high location (n=2).

CONCLUSIONS
The majority of patients with UDT, whether palpable or nonpalpable, can be initially approached via a scrotal incision. Initial scrotal approach was the definitive treatment in 98% of the palpable UDT and prevented unnecessary laparoscopy in 68% of the nonpalpable UDT.
OUTCOMES OF THE VESSEL DISSECTING KOFF PROCEDURE IN PEEPING-TESTIS COMPARED TO A VESSEL SPARING LAPAROSCOPIC ORCHIDOPEXY

Christa STRASSER¹, Tanja BECKER², Bernhard HAID² and Josef OSWALD²
¹) Krankenhaus der Barmherzigen Schwestern Linz, Paediatric Urology, Linz, AUSTRIA - ²) Krankenhaus der Barmherzigen Schwestern Linz, Department of Pediatric Urology, Linz, AUSTRIA

PURPOSE

The surgical treatment of intraabdominal/proximal groin testis can be challenging. Beneath a laparoscopic approach and the popular Fowler-Stephens method, the Koff procedure, implying a low ligation of the spermatic vessels might be an option in such cases. In contrary to the common Fowler-Stephens technique, the Koff procedure has never been evaluated compared to laparoscopic orchidopexy.

MATERIAL AND METHODS

The present study retrospectively evaluated all patients undergoing either laparoscopic orchidopexy (without vascular dissection) or single staged Koff procedure between 2009-2016 at our department. All boys included presented with testis lying at the internal inguinal ring, where both approaches were a theoretical option.

RESULTS

We included 50 patients of which 24 boys (26 testis, 24/26 non palpable during operation, median age 14.1 months) underwent a laparoscopic orchidopexy and 26 boys (28 testis, 23/28 non palpable during operation, median age 15.7 months) an inguinal Koff procedure, partly after orienting laparoscopy.

In the Koff group, after a mean follow up of 12.4 months 96% (27/28) had a viable testis in a scrotal position.
In the laparoscopy group two patients (7%) needed a second operation due to recurrence. After a mean follow-up of 11.7 months 100% of the testis after laparoscopic orchidopexy were viable and stayed in a scrotal position.

CONCLUSIONS

The Koff procedure is a safe and feasible approach in boys with abdominal testis close to the internal ring/peeping testis. The success rate of this vessel dissecting inguinal approach is - in our hands - comparable to a vessel sparing laparoscopic orchidopexy.

14:23–14:29

Discussion
TESTICULAR FIXATION FOR TESTICULAR TORSION: IS THERE ANY NEED?
José A MARCH-VILALBA, Beatriz PEMARTÍN-COMELLA, Elena CARAZO-PALACIOS, Agustín SERRANO-DURBÁ, Alba POLO-RODRIGO, Ivan POVO-MARTÍN and Carlos DOMÍNGUEZ-HINAREJOS
La Fe Universitarian Hospital, Pediatric Urology Department, Valencia, SPAIN

PURPOSE
Assessment of the indication for bilateral fixation of the testis during the surgical exploration of a testicular torsion.

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

RESULTS
Average age was 10.85 years (DS 4.6 years). In 18 patients (26%) orchiectomy was performed. Detorsion was performed in the other 51 patients, being 43.1% right side testicular torsion and 56.9% left side testicular torsion. Only in 4 patients the contralateral testis were fixed, and in 47 (92.1%) contralateral testis were not fixed. Regarding the torsed testicle: in 26 (50.9%) patients the testis were fixed by sutures through the tunica vaginalis, in 25 (49.1%) cases the torsed testis was not fixed. Median follow-up was 12.75 years (1.5 - 20 years) with no evidence of retorsion in either group, or torsion of the contralateral testis. Long term percentage of atrophy of the affected testicle was 8% for the fixed testicles and 19% for not- fixed testicles. (Chi square= 1.35, p=0,41).

CONCLUSIONS
Taking into account the low incidence of recurrent torsion, in our experience, there is no indication for ipsilateral and/or contralateral fixation of the testis. It should be enough warning the patient about the importance of being evaluated soon by a specialist in the emergency department, if a new episode of scrotal pain appears.

EFFECT OF SURGICAL TECHNIQUE ON FERTILITY IN BILATERAL UNDESCENDED TESTIS
Mick UIJLDERT1, Andreas MEIßNER2, Caroline KUIJPER1, Sjoerd REPPING3, Tom DE JONG4 and Rafal CHRZAN5
1) Academic Medical Center, Pediatric Urology, Amsterdam, NETHERLANDS - 2) Academic Medical Center, Urology, Amsterdam, NETHERLANDS - 3) Academic Medical Center, Center for Reproductive Fertility, Amsterdam, NETHERLANDS - 4) University Medical Center Utrecht, Pediatric Urology, Amsterdam, NETHERLANDS - 5) Jagiellonian University, Pediatric Urology, Krakow, POLAND

PURPOSE
Bilateral undescended testis (BUDT) is associated with abnormal semen parameters in up to 94% of cases and a high azoospermia rate of 9-15%. Paternity is achieved in 38-60% of attempts. A negative influence on testicular growth and spermatogenesis in animals was demonstrated when a fixation through the tunica albuginea was used. This study aims to assess the long term results of a tunica albuginea orchidopexy (TAO) compared to a “no touch” technique (NTO).
MATERIAL AND METHODS
Men older than 22 years who had either TAO or NTO in childhood for a BUDT were selected. Participants filled out a questionnaire followed by physical examination, testicular ultrasound, blood sample and semen analysis. Statistical testing was done using General Linear Modelling.

RESULTS
Sixty seven out of 166 responded. Fifty two completed the questionnaire, 10 (19.2%) reported to have fathered children. Thirty six showed up for further examination, 26 had TAO and 10 NTO. Impaired hormonal spermatogenesis regulation (34.6% vs 20%), higher subfertility rate (46% vs 20%) and lower means of motile spermatozoa (58.1x106 spz vs 177.9x106 spz) were observed in the TAO- vs the NTO group, none of these statistically significant. Four (15.4%) of the TAO- and 2 (20%) of the NTO group have azoospermia.

CONCLUSIONS
Although the operation technique did not have a significant impact on fertility, unfavourable outcomes were more common after surgery involving the tunica albuginea of the testis. Larger sample sizes are needed to ascertain if the trends favouring the NTO technique are of any significance.

S9-10 (P without presentation)
PRE-REFERRAL RADIOLOGICAL IMAGING FOR UNDESCENDED TESTIS – WASTEFUL AND POTENTIALLY HARMFUL
Alexander CHO1, Johanna THOMAS2, Archana NATHAN1, Anna SCHMID3, Pankaj MISHRA1, Divyesh DESAI1, Imran MUSHTAQ1, Peter CUCKOW1, Naima SMEULDERS1 and Abraham CHERIAN1
1) Great Ormond Street Hospital, Paediatric Urology, London, UNITED KINGDOM - 2) University College Hospital, Paediatric Urology, London, UNITED KINGDOM - 3) Great Ormond Street Hospital, Paediatric Urology, London, UNITED KINGDOM

PURPOSE
Literature has conclusively shown no benefit from radiological investigations for undescended testis (UDT). We assess the use of radiological investigations prior to referral to paediatric surgery/urology to quantify resource wastage and clinical impact.

MATERIAL AND METHODS
Retrospective review of children that underwent surgery for UDT (Jan2013 to Jan2016). Patients without a referral letter for UDT or DSD were excluded. Statistical-analyses: Fisher-Exact & Student T-test.

RESULTS
Of 425 patients, 169 (40%) underwent radiological investigations pre-referral: 169 ultrasound scans (USS); 5 MRI. Patients without co-morbidities were more likely to have undergone imaging (Fisher-Exact:p<0.05).
Top-5 referrers:

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Referral-number</th>
<th>Referrals-with-imaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>General-Practitioner</td>
<td>141</td>
<td>21%</td>
</tr>
<tr>
<td>Adult-Urology</td>
<td>134</td>
<td>63%</td>
</tr>
<tr>
<td>Paediatrics</td>
<td>95</td>
<td>39%</td>
</tr>
<tr>
<td>Endocrinology</td>
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<td>30%</td>
</tr>
<tr>
<td>Adult-Surgery</td>
<td>11</td>
<td>72%</td>
</tr>
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</table>

USS Reports:
209 testes “abnormal” - Incorrect report in 28% based on operation undertaken
A) “Absent/Not-seen” - 59
26 (44%) false negative: 13 palpable (single-stage-orchidopexy), 13 intra-abdominal
(laparoscopic-Fowler-Stevens-orchidopexy)
B) "Undescended"- 150
33 (22%) false positive location:
21 reported “intra-abdominal” but 4 palpable (single-stage-orchidopexy), 2 intra-abdominal testicular remnants which were excised.
129 reported “groin-position” but 17 were intra-abdominal requiring laparoscopy, 8 descended on clinical-examination and 2 testicular-remnants.
US for impalpable testis (4) suggesting a favourable groin-location lead to unsuccessful exploration at the referring-centre. This resulted in testicular loss(1), revision open-orchidopexy(2) and revision laparoscopic two-stage operation(1).
MRI
5 MRI scans for impalpable testis in four patients identified only one testis. This was reported as intra-abdominal but was in fact palpable and underwent single-stage-orchidopexy. Laparoscopy confirmed absent testis in the remaining three.

CONCLUSIONS
Pre-referral imaging for UDT is common and is likely grossly underestimated in this study. The USS-reported abnormal location of the testis when “seen” was inaccurate in 22% and, if used as the basis for surgical-approach, can lead to morbidity. The psychological impact of imaging remains un-quantified. Educational programmes could reduce resource wastage, financial expenditure and most importantly provide correct and timely management.

S9-11 (P without presentation)

ORCHIDOPEXY IN INFANTS WITH PRADER-WILLI SYNDROME: A 12-YEAR SINGLE CENTRE EXPERIENCE

Audrie LIM1, Alexander MACDONALD1, Nicola BRIDGES2 and Marie-Klaire FARRUGIA1

PURPOSE
A variety of anatomical and physiological factors make the surgical and anaesthetic management of cryptorchidism in Prader-Willi syndrome (PWS) challenging. Optimal age for orchidopexy in these invariably infertile infants remains unclear. We reviewed our 12-year single-centre experience to establish our success rate and determine optimal age for orchidopexy.

MATERIAL AND METHODS
14 infants with PWS referred for orchidopexy were identified from a prospectively maintained database. Case records retrospectively reviewed by 2 independent reviewers.
RESULTS
Median age at referral was 18 months [1.5-62]. 10 patients (71.4%) had associated medical co-morbidities. 6 (43%) had airway/respiratory co-morbidities with potential to complicate anaesthesia. 5 (35.7%) had pre-operative US to confirm diagnosis. 3 (21%) with bilateral undescended testes received pre-operative HCG. 10 patients (17 testes) underwent orchidopexy at a median age of 33 [18-61] months. 2 with impalpable testis underwent 2-stage orchidopexy. 3 with bilateral undescended testis had bilateral orchidopexy performed as a single procedure. 5 had unilateral orchidopexies. 1st follow-up review was undertaken at 2.7 [1.5-16] months. There were no early (<30 days) complications. Total follow-up 1.3 [0.6-3.7] years. 3 out of 17 operated testes (18%) atrophied at 13, 14 & 32 months.

CONCLUSIONS
Early orchidopexy in PWS results in high rate of loss of testis and associated medical co-morbidities pose a challenge to anaesthesia in infancy. As fertility potential and testosterone production is unlikely to benefit from early orchidopexy surgery should be postponed to later childhood but undertaken before weight gain and behavioural issues of adolescence become significant.

S9-12 (P without presentation)

THE COMPARISON OF HIGH LIGATION ONLY VERSUS HIGH LIGATION WITH HYDROCELECTOMY IN THE PEDIATRIC HYDROCELE: IS HYDROCELECTOMY NECESSARY IN PEDIATRIC HYDROCELE?
Ji Yong HA, Teak Jun SHIN, Won Ho JUNG, Byung Hoon KIM, Choal Hee PARK and Chun Il KIM
Keimyung University School of Medicine, Department of Urology, Daegu, REPUBLIC OF KOREA

PURPOSE
We reviewed the outcomes of hydrocele repair to assess the necessity of hydrocelectomy.

MATERIAL AND METHODS
A total of 77 boys received hydrocele repairs from March 2014 to June 2016. The patients were divided into 2 groups. Group 1 consisted of 22 patients who underwent high ligation with hydrocelectomy or unroofing via inguinal incision. Group 2 included 55 patients who received laparoscopic high ligation with or without scrotal aspiration. The surgical complication or recurrence were assessed between the groups. Patient visitations were arranged at 1 week, 1 month, 1 year after surgery.

RESULTS
The mean operative time was 25 and 14 min for group 1 and group 2, respectively. Median follow-up period was 16 months (6-26 months) in group1, 14 months (2-25 months) in group 2. No postoperative hydrocele recurrence was observed in group 1. Two patients in group 2 experienced recurrence due to incomplete enclosing of internal inguinal ring. Seven children had postoperative scrotal swelling or hematoma in group1. No complication happened in group 2. Of the group 2, 3 cases had no patent processus vaginalis (PPV) identified at laparoscopy and of them 2 were converted to open surgery through a scrotal incision, 1 was just aspirated.
Open repair            Laparoscopic high ligation

<table>
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<th>Open repair</th>
<th>Laparoscopic high ligation</th>
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</thead>
<tbody>
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<tr>
<td>Age</td>
<td>29 month (19-65)</td>
<td>37 month (18-136)</td>
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<tr>
<td>No. side/total No. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rt</td>
<td>12 (54.5)</td>
<td>34 (61.8)</td>
</tr>
<tr>
<td>Lt</td>
<td>9 (40.9)</td>
<td>16 (29)</td>
</tr>
<tr>
<td>Both</td>
<td>1 (4.5)</td>
<td>17 (30.8)</td>
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<tr>
<td>Operative time</td>
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<td>14 mins (5-28)</td>
</tr>
<tr>
<td>Hospital stay</td>
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<tr>
<td>f/u duration</td>
<td>16 month (6-26)</td>
<td>14 month (2-25)</td>
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<tr>
<td>Recurrence</td>
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<td>2</td>
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<tr>
<td>Complication</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>

CONCLUSIONS
It was not necessary to remove the hydrocele sac in pediatric hydrocele. The high ligation of PPV is only an effective procedure for pediatric hydroceles.

S9-13 (P without presentation)

ABDOMINAL IMAGING IS UNNECESSARY IN THE EVALUATION OF THE PEDIATRIC VARICOCELE

Martin KAEFER¹, Konrad SZYMANSKI², Benjamin WHITTAM², Rosalia MISSERI², Katherine HUBERT², Richard RINK² and Mark CAIN²

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

PURPOSE
The evaluation and treatment of the pediatric varicocele remains controversial. The paradigm for management has often been based on the strategy used for adults. It has been commonly taught that an adult, who presents with sudden onset varicocele, bilateral varicoceles, or unilateral right-sided varicocele, should be evaluated for an intra-abdominal process that could be causing external compression of the gonadal vasculature. We sought to determine the value of this practice in the pediatric population.

MATERIAL AND METHODS
A retrospective chart review was made of all individuals presenting to our pediatric unit between 1999 and 2012 with the diagnosis of a varicocele. All patients who underwent abdominal imaging as a part of their evaluation were included. Patients older than 18 years were excluded. Age at presentation, laterality, grade, calculated testicular size and mode of abdominal imaging were recorded.

RESULTS
Eighty-eight of 600 boys presenting with a varicocele underwent abdominal imaging (15%). Indications included left sided varicocele (48), bilateral varicocele (11), right-sided varicocele (5), and recurrent varicocele (2). Twenty-two patients underwent abdominal imaging due to concern over other systemic complaints (for example abdominal discomfort). A total of 98 imaging studies were obtained (94 ultrasounds, 3 CTs, 1 MRI). In no case did the abdominal imaging reveal any intraperitoneal or retroperitoneal process causing compression of the gonadal vasculature. Incidental focal nodular hyperplasia of the liver was identified in a single patient with a left sided varicocele, but the involvement was well away from the renal hilum and gonadal vein.

CONCLUSIONS
Although abdominal imaging for rapid onset left, bilateral, or unilateral right-sided varicoceles has been proposed in adults, the value of this screening is of negligible value in the pediatric population.
THE IMPACT OF VARICOCELES ON THE TESTICULAR ATROPHY INDEX: A CROSS-SECTIONAL OBSERVATIONAL STUDY

Frederik DAEMS¹, Donald VAGANÉE¹, Karen DE BAETS², Tinne VAN DEN KEYBUS¹, William AERTS¹, Rosina DEWAIDE¹, Stefan DE WACHTER² and Gunter DE WIN²

1) University of Antwerp, Antwerp, Belgium, Faculty of Medicine and Health Sciences, Antwerp, BELGIUM - 2) Antwerp University Hospital, Edegem, Belgium, Department of Urology, Edegem, BELGIUM

PURPOSE

MATERIAL AND METHODS
From February 2015 till October 2016, we examined 481 adolescents aged 11 to 16 years. Adolescents with current or past pathologies influencing testicular growth were excluded. Ultrasonography was used to determine testicular dimensions. Testicular volumes were calculated using Lambert’s formula: (Volume(ml)=LxWxHx0,71). The proportionate difference between left and right testicular volume was calculated using: TAI=([right testicular volume - left testicular volume]/volume of the largest testicle)x100.

RESULTS
Of the 382 included adolescents, 76(19.90%) were found to have a left-sided varicocele, the other 306(80.10%) formed the control group. Of the varicocele and control group, respectively 56(73.68%) and 183(59.80%) had a smaller left testicle. Chi-square showed a varicocele to be significantly associated with a smaller left testicle (p=0.025). Within these groups, respectively 24(42.86%) and 45(24.59%) had an TAI above 20%. Chi-square analysis showed a significant association between a varicocele and TAI above 20% (p=0.008).

CONCLUSIONS
A left-sided varicocele is significantly associated with a smaller left testicle and TAI transcending 20%. Nevertheless, this observation requires careful interpretation, given the already high prevalence of a smaller left testicle in the healthy population. We need further prospective studies in both the varicocele and healthy population to determine the real meaning of this ambiguous parameter and to explore the usefulness of other parameters as the sole use of TAI probably results in too many unnecessary surgeries.
14:54 – 14:57
S10-2 (PP)
★ SEXUALITY AND CONTINENCE AFTER URETERAL RE-IMPLANTATION AND RECONSTRUCTION OF THE TRIGONUM

Nina HUCK¹, Carolin BECKER², Christian THOMAS² and Raimund STEIN¹

¹ University Medical Centre Mannheim, Department of Pediatric and Adolescent Urology, Mannheim, GERMANY
² Johannes Gutenberg University, Department of Urology, Mainz, GERMANY

PURPOSE
Impaired urinary continence and sexuality is one of the concern after ureteral re-implantation and reconstruction of the trigone in girls with large ureteroceles or ectopic megaureters.

MATERIAL AND METHODS
In a prospective study, all female patients with this condition and were older than 6 years of age received the validated Kings' Health Questionnaire (KHQ) for urinary incontinence, those older than 16 also the female sexual function index Questionnaire (FSI).

RESULTS
A total of 32 patients (73%) answered the questionnaires. Concerning incontinence, there was no impairment. The total score was always lower than 16, only in the domain personal relationship the score was higher than in the normal population. 4/32 patients had in some domains a higher score compared to the normal values. 21 patients (75%) answered the FSI-Questionnaire. 9 patients had lower scores (below 23) especially in the category of desire and orgasm. There was no correlation between the KHQ and FSI.

CONCLUSIONS
These are the first data about the outcome in patients with reconstruction of the lower urinary tract for ureteroceles or ectopic ureters using validated questionnaires. Long-term results are comparable to the normal population.

14:57 – 15:00
S10-3 (PP)
COMPARISON OF SCROTAL ANTEGRADE SCLEROTHERAPY AND LAPAROSCOPIC PALOMO SURGERY IN THE TREATMENT OF ADOLESCENT VARICOCELE

Wing Suet Judy HUNG¹, Lap Yan Kenneth CHUNG², Sih Yin Nicholas CHAO³ and Wai Yip Michael LEUNG¹

¹ Queen Elizabeth Hospital, Paediatric Surgery, Kowloon, HONG KONG
² Queen Elizabeth Hospital, Paediatric surgery, Hong Kong, HONG KONG
³ United Christian Hospital, Paediatric Surgery, Kowloon, HONG KONG

PURPOSE
Scrotal antegrade sclerotherapy (SAS) was introduced in our center since 2011. The objective of this study is to compare the outcomes of SAS and laparoscopic Palomo Surgery (LPS) retrospectively.
MATERIAL AND METHODS
Medical records of 120 patients from 2001 to November 2016 were reviewed. Fifty-two patients underwent SAS and 68 patients underwent LPS. Mean follow-up time for SAS and LPS group were 18.1 and 27.6 months respectively (p = 0.031). SAS was performed with a 1-cm upper scrotal incision, a vein from pampiniform plexus was cannulated and foam sclerosant (mixture of sodium-tetradecyl-sulphate, lipiodol and air) was injected into internal spermatic vein under fluoroscopy. LPS was performed by conventional 3-ports mass ligation technique. Outcomes including clinical recurrence, operative time, post-operative hydrocele and other complications were compared and analyzed.

RESULTS
Clinical varicocele recurrence rate was significantly lower in the SAS group than the LPS group (1.92% vs 11.76%, p= 0.047). One patient in SAS group had grade I recurrence while 8 patients in LPS group had higher grades of recurrence (4 grade II and 4 grade III). All the recurrences were observed within 1 year after primary surgeries. There was no post-operative hydrocele in SAS group compared with 14.7% in LPS group (p= 0.01). There was no significant difference in the mean operative time between both groups (63.2 mins vs 58.9 mins, p= 0.34). No other significant complications were observed.

CONCLUSIONS
Scrotal antegrade sclerotherapy has a higher success rate with no post-operative hydrocele when compared to laparoscopic Palomo surgery in our study. Further prospective study is necessary to validate the results.

15:00–15:03
S10-4 (PP)

VITAMIN B12 LEVEL IN CHILDREN AND ADOLESCENT AFTER URINARY DIVERSION USING THE ILEOCECAL SEGMENT – A LONG TERM STUDY IN 97 PATIENTS OVER 28 YEARS
Nina HUCK1, Karen DAVIS2, Patrick FAE3, Annette SCHRÖDER4 and Raimund STEIN1
1) University Medical Centre Mannheim, Department of Pediatric and Adolescent Urology, Mannheim, GERMANY - 2) Johannes Gutenberg University, Department of Urology, Mainz, GERMANY - 3) Klinikum Darmstadt, Department of Urology, Darmstadt, GERMANY - 4) Johannes Gutenberg University, Department of Urology Section of Pediatric Urology, Mainz, GERMANY

PURPOSE
Decreasing vitamin B12 levels as a consequence of the use of the ileocecal segment for continence urinary diversion is of great concern for paediatric and adult urologists. In this study, we evaluated prospectively the vitamin B12 levels in patients with regular follow-up in our outpatient clinic. In this study, we wanted to know, if there is a clinical significant decrease of the vitamin b12 levels and also at what time after the operation performed in childhood, Vitamin b12 levels should be checked.

MATERIAL AND METHODS
Between 1984 and 2008 the ileocecal segment for urinary diversion was used in 134 children and adolescent up to the age of 18. In 99 patients vitamin b 12 levels were checked; 50 male and 49 female, 55 had a neurogenic bladder, 28 bladder extrophy-epispadias complex , 11 Rhabdomyosarkom, 5 functional or traumatic bladder loss. 50 had an Appendix stoma, 49 an ileal nipple as a continence mechanism.
RESULTS
During long-term follow-up we observed a significant decrease with a median level in the first year 492pg/ml and a median of 264 after 28 years. 9/99 patients had only one substitution o postoperatively, whereas 13 patients took a prophylactic substitution. Only 8 had a low vitamin b12 level, the others took vitamin B12 for personal reasons. In these 8 patients the median year after operation was 9.5 (6-21) years. Neither gender, disease or kind of continence mechanism was a risk factor. None of the patients developed clinical signs of vitamin B12 deficiency.

CONCLUSIONS
In the long-term there is a significant risk for decreasing levels after the use of ileal segments. Therefor vitamin B12 levels should be check once after the operation and than starting after 6 years postoperatively. In those with low levels, a prophylactic substitution therapy should be started to avoid clinical significant problems, despite none of our patients developed clinical signs.

15:03 – 15:15
Discussion

S10-5 (P without presentation)

COMPARISON OF SELECTIVE ARTERY SPARING AND NON-SELECTIVE LAPAROSCOPIC VARICOCELECTOMY IN ADOLESCENTS
Osman Zeki KARAKUS1, Oktay ULUSOY2, Deniz ABDULLAHOGLU3, Gulce HAKGUDER1, Oguz ATES4, Mustafa OLGUNER3 and Feza AKGUR3
1) Dokuz Eylül University, Medical School, Department of Pediatric Surgery, Izmir, TURKEY - 2) Dokuz Eylül University, Medical School, Department of Pediatric Surgery, Izmir, TURKEY - 3) Dokuz Eylül University, Medical School, Department of Pediatric Surgery, Izmir, TURKEY - 4) Dokuz Eylül University, Medical School, Department of Pediatric Surgery, Izmir, TURKEY

PURPOSE
Currently laparoscopic methods are increasingly prefered for surgical treatment of varicocele. We aimed to compare the results of the patients who were underwent laparoscopic nonselective arterio-venous ligation with Palomo procedure and laparoscopic selective artery sparing surgery procedure.

MATERIAL AND METHODS
A total 37 patients who underwent laparoscopic varicocelectomy, between 2004-2015 years, were rewwied retrospectively. Varicocele diagnosis was determined with physical examination and Doppler ultrasonography. Demographic data, varicocele grade, applied methods, testicular catch-up growth, duration of the operation, and complications were recorded.

RESULTS
Mean age of the patients were 13.7 ± 2.1 (10- 17 years). 26 patients (70.2%) had grade 3 and 11 patients (29.8%) had grade 2 varicocele who were all left sided. We treated 17 (46%) patients with laparoscopic Palomo procedure and 20 (54%) patients with laparoscopic selective artery sparing procedure. Conventional single port technique was used in Palomo procedure and multipor technique was used in selective artery sparing procedure. Mean duration time for operation was 32.7 ± 6.4 minute in single port group, 38.6 ± 10.2 minute in multiport group. Hydrocele was occured in 1 (5.9%) patient after Palomo procedure and recurrence was observed in 1 (5%) patient after selective artery sparing procedure. In the first year of postoperative period, 2 of the 3 patients
(66%) with Palomo procedure, and 3 of the 4 patients (75%) with selective artery sparing procedure had caught up the testicular growth. Laparoscopic non-selective procedure was used for the recurrent varicocele and totally regression was observed. Mean follow up duration of patients’ was 10.5 ± 3.8 months.

CONCLUSIONS
Laparoscopic non-selective arterio-venous ligation and laparoscopic selective artery sparing procedures for surgical treatment of adolescent varicocele were both effective and safe methods with similar success and lower complications and recurrence rates.

S10-6 (P without presentation)

COMPARISON THE OUTCOMES OF LAPAROSCOPIC VARICOCELE LIGATION AND MICROSCOPIC VARICOCELECTOMY IN PREADOLESCENT AND ADOLESCENT BOYS

Ahsen KARAGOZLU AKGUL, Murat UCAR, Nizamettin KILIC, Emin BALKAN and Hasan DOGRUYOL
Uludag University Faculty of Medicine, Department of Pediatric Surgery, Division of Pediatric Urology, Bursa, TURKEY

PURPOSE
Surgical treatment of varicocele is controversial in prepubertal boys: Open approach (microscopy assisted or not), laparoscopic. The aim of the study is to compare the outcomes of microscopic and laparoscopic varicocelectomy.

MATERIAL AND METHODS
We compared two groups of prepubertal and pubertal patients who underwent surgical treatment for varicocele in our clinic between 2003 and 2015, retrospectively. Group 1 included boys who underwent laparoscopic unilateral varicocele ligation (LVL) and group 2 included patients who underwent unilateral microscopic varicocelectomy (MV). We compared the operative time, outcomes and complications between groups. Fisher’s exact test, Mann-Whitney U test and independent samples t test were used for statistical analysis.

RESULTS
We identified a total of 43 patient (mean age was 13.2 years), 30 in group 1 and 13 patients in group 2. Varicocele were detected on the left side in 40 patients and right in 3 cases. There was no difference between groups in terms of age, side and grade of varicocele at presentation. Median operative time in group 1 and 2 were 55 min (35-70 min) and 50 min (40-80 min), respectively. Scrotal hematoma was seen in one cases in MV group, and hydrocele were detected in 3 cases in LVL group. Postoperative impairment in testicular volume were detected in four cases, 3 in group 1 and 1 in group 2. There was no postoperative wound infection or recurrence in both groups. There was no statistically significant difference between groups in terms of outcomes and complications.

CONCLUSIONS
Although there were longer operative time, higher hydrocele ratio and more cases with postoperatively decreased testicular volume in LVL group, there was no statistically significant difference between groups. The findings of our study demonstrated that both procedures were effective options in correction of preadolescent and adolescent varicocele.
CUT-OFF VALUES FOR ASSESSING THE NEED FOR VARICOCELECTOMY: A CROSS-SECTIONAL OBSERVATIONAL STUDY

Donald VAGANÉE1, Frederik DAEMS2, Karen DE BAETS3, Rosina DEWAIDE1, Tinne VAN DEN KEYBUS1, William AERTS1, Stefan DE WACHTER3 and Gunter DE WIN3

1) University of Antwerp, Antwerp, Belgium, Faculty of Medicine and Health Sciences, Antwerpen, BELGIUM
2) University of Antwerp, Antwerp, Belgium, Faculty of Medicine and Health Sciences., Antwerpen, BELGIUM
3) Antwerp University Hospital, Edegem, Belgium, Department of Urology, Antwerpen, BELGIUM

PURPOSE
Peak retrograde flow (PRF) is associated with impaired growth of the testicle. It is reported no improvement can be expected in testicular atrophy index (TAI) after the PRF transcends the value of >38 cm/s and is therefore used as cut-off value for varicocele repair. (Poon et al. J. Urol. 2010; 183: 731-734) Impaired growth of the testicle is expressed as a TAI>20% or volume difference >2ml. (Diamond et al. J. Urol. 2007; 178: 1584-8) This study examines these cut-off values in adolescents with a left-sided varicocele.

MATERIAL AND METHODS
From October 2012 till October 2016, we examined 692 adolescents aged 11 to 16 years. Varicoceles were diagnosed clinically. Duplex ultrasonography was used to confirm varicoceles, determine testicular dimensions and measure peak retrograde flow.

RESULTS
In this part of the study, we included 110(14.45%) adolescents with a left-sided varicocele. Mean age was 13.91±1,34. Median Tanner stage P and G were both 3. 25(22.7%) had a PRF>38cm/s. 38(34.5%) had a TAI>20%. 33(30%) had a testicular volume difference >2ml. 8(7.3%) had a PRF>38cm/s in combination with TAI>20%. Chi-square showed no significant difference between adolescents with a PRF above or below 38 cm/s for TAI>20%(p=0,804) or testicular volume difference >2ml(p=0,761).

CONCLUSIONS
The cut-off values for PRF, TAI and testicular volume difference >2ml were met in a minority of all cases in our study population. No statistically significant association between a PRF>38cm/s and a TAI>20% or testicular volume difference >2ml could be found.
16:00–16:05
S11-1 (LO)
★ BLADDER CONTRACTILITY INDEX IN POSTERIOR URETHRAL VALVE: A NEW MARKER FOR EARLY PREDICTION OF PROGRESSION TO RENAL FAILURE

M S ANSARI1, Sandeep NUNIA2, Virender SEKHON3 and Aneesh SRIVASTAVA4
1) Sanjay Gandhi Postgraduate Institute of Medical Sciences, Pediatric Urology, Department of Urology and renal transplantation, Lucknow, INDIA - 2) Sanjay Gandhi Postgraduate Institute of Medical Sciences, Department of Urology and renal transplantation, Lucknow, INDIA - 3) Sanjay Gandhi postgraduate Institute of Medical Sciences, Urology and Renal Transplantation, Lucknow, INDIA - 4) Sanjay Gandhi Postgraduate Institute of Medical Sciences, Pediatric Urology, Department of Urology and Renal Transplantation, Lucknow, INDIA

PURPOSE
Nearly two third of the children may progress to chronic kidney disease (CKD) and bladder decompensation (underactive detrusor) near puberty. Bladder stabilization remains the main modifiable factor which can alter disease progression and ultimate outcome. In this study, we hypothesized that bladder contractility index (BCI) may be an early marker for future renal deterioration in patients of PUV.

MATERIAL AND METHODS
Two hundred and seventy patients were included for the analysis. All patients had a baseline urodynamic study done at 6 months after valve surgery and annually for 5 years. UDS parameters collected were, bladder contractility index (BCI= PdetQmax+5 Qmax), end filling pressure (EFP), compliance (ΔC), bladder outlet obstruction index (BOOI= Pdet Qmax - 2 Qmax) and bladder volume ejection (BVE= Voided volume/total capacity).

Primary end point of the study was an eGFR of < 45 ml/min/1.73m²(CKD stage IIIA or more, KDIGO classification).

RESULTS
Mean follow-up period was 12.5 years and median age of patients at the time of evaluation was 5.8 yrs. At the end of the study, 59 (21.8%) patients had progressed to CKD stage IIIA or more and lifetime risk for developing CKD stage was 45%. In the multivariate model (Cox regression analysis), BCI (HR, 0.8; p=0.004), EFP (HR, 2.1; p=0.010) and ΔC (p=0.020) were significantly associated with the event (i.e. an eGFR of < 45 ml/min/1.73m²; CKD IIIA or more) whereas BOOI (p=0.053) and BVE (p=0.267) were not.

CONCLUSIONS
Bladder contractility index and end filling pressure are the two important urodynamic indices which can predict early the long term risk of development of CKD stage III in children with PUV.
POSTERIOR URETHRAL VALVE AS A CAUSE OF LOWER URINARY TRACT SYMPTOMS: FREQUENCY AND CLINICAL CHARACTERISTICS

Slaven ABDOVIC1, Martin CUK1, Zeljka MUSTAPIC1, Snjezana FUSIC1, Mirjana STANIC1, Mislav BASTIC2 and Zoran BAHTIJAREVIC2

1) Children’s Hospital Zagreb, Department of Pediatric Nephrology, Zagreb, CROATIA - 2) Children’s Hospital Zagreb, Department of Pediatric Urology, Zagreb, CROATIA

PURPOSE
Reports of late findings of posterior urethral valve (PUV) in patients with lower urinary tract symptoms (LUTS) are scarce. Aim was to investigate frequency and clinical characteristics of PUV in boys referred to outpatient clinic for LUTS.

PATIENTS AND METHODS
A retrospective, case-control study included 255 boys aged 3-18 years with storage and voiding LUTS. Patients with acute urinary tract infection, psychomotor retardation, urogenital or rectal surgery were excluded. Bladder diary, ultrasound, uroflowmetry, urinalysis, and urine culture were obtained from all participants. Cystoscopy was ordered for patients with maximum flow rate persistently <5th percentile who had symptoms refractory to the standard urotherapy.

RESULTS
Maximum flow rate <5th percentile was found in 38 patients (14.9%), and in 24 cases cystoscopy was performed. In 22 patients PUV was diagnosed (Young’s type III 80%). Statistically significant difference in median age was not found between patients with PUV (7.5 years; interquartile range 6.8-11.3 years) and without PUV (7.4 years; interquartile range 5.9-9.9 years). Patients with PUV had significantly more often urgency (p=0.005), increased voiding frequency (p=0.036), straining (p=0.001), weak stream/intermittency (p<0.001), and residual urine (p=0.007). Enuresis was significantly more reported in boys without PUV (p<0.001). Statistically significant predictor variables in favor of PUV were urgency (OR=10.59, 95% CI=1.98-56.65, p=0.006), weak stream/intermittency (OR=6.06, 95% CI=1.34-27.41, p=0.019), and maximum flow rate <5th percentile (OR=100.12, 95% CI=11.12-901.76, p<0.001). Complete response was reported for 90% of patients with PUV within 4 months after electroincision.

CONCLUSIONS
PUV was diagnosed in 8.6% of boys with LUTS and we strongly recommend to include uroflow study in routine workup for all patients, as well as to consult urologist when maximum flow rate is persistently <5th percentile, especially in cases of urgency and weak stream or intermittency.
COMBINED INTERFERENTIAL ELECTRICAL STIMULATION AND BIOFEEDBACK FOR TREATMENT OF URINARY INCONTINENCE IN CHILDREN

Seyedeh-Sanam LADI-SEYEDIAN¹, Lida SHARIFI RAD² and Abdol-Mohammad KAJBAFZADEH³

1) Tehran University of Medical Sciences, Pediatric Urology and Regenerative Medicine Research Center Children's Hospital Medical Center, Pedi, Tehran, ISLAMIC REPUBLIC OF IRAN - 2) Tehran University of Medical Sciences, Department of Physical Therapy, Children's Hospital Medical Center, Pediatric Center of Excellence, Tehran, ISLAMIC REPUBLIC OF IRAN - 3) Tehran University of Medical Sciences, Pediatric Urology and Regenerative Medicine Research Center Children's Hospital Medical Center, Tehran, ISLAMIC REPUBLIC OF IRAN

PURPOSE
Nowadays electrical stimulation and biofeedback are used extensively as an alternative option for a wide range of refractory clinical conditions including lower urinary tract syndromes in adults and children. We assessed the efficacy of combined transcutaneous interferential (IF) electrical stimulation and biofeedback on urinary incontinence in children with voiding dysfunction.

MATERIAL AND METHODS
This prospective study comprised 47 children (9 boys, 38 girls; mean age 8.4±2.2) with urinary incontinence. All children were regularly visited at our pediatric urology clinic. Kidney and bladder ultrasounds and uroflowmetry/EMG were performed in all study participants at baseline. Children with evidence of neuropathic disease, anatomical defects and mental retardation were excluded from enrollment. Children were randomly allocated into two groups including group A (n=24) who underwent biofeedback therapy and group B (n=23) who received biofeedback therapy in addition to IF electrical stimulation. A complete 3-day voiding diary was recorded by parents before and after treatment. Re-evaluation with kidney and bladder ultrasounds and uroflowmetry/EMG was also performed 6 months and one year after completion of treatment.

RESULTS
Improvement of urinary incontinence was significantly higher in group B in comparison to group A. Daytime incontinence was improved in 12/24 and 19/23 of children in groups A and B respectively (P<0.01) after treatment. There was no significant difference in uroflowmetry measures between two groups.

CONCLUSIONS
Combination of biofeedback therapy and IF electrical stimulation is a potential effective modality in treating urinary incontinence in children.
ULTRASONOGRAPHIC ASSESSMENT OF BLADDER VOLUMES IN CHILDREN UNDERGOING PENILE SURGERY: DOES THE TYPE OF ANESTHESIA MATTER?

Yuval BAR-YOSEF1, Margaret EKSTEIN2, Ron FLAISHON2, Eyal AMAR2, Avi WEINBROUM2 and Jacob BEN-CHAIM1

1) Dana-Dwek Children’s Hospital, Tel-Aviv Medical Center, Pediatric Urology, Tel-Aviv, ISRAEL - 2) Dana-Dwek Children’s Hospital, Tel-Aviv Medical Center, Pediatric Anesthesia, Tel-Aviv, ISRAEL

PURPOSE
There are scant data reporting postoperative ultrasonographically-measured bladder volumes in children undergoing penile surgery under different types of anesthesia. ultrasonographically-measured post-voiding residual bladder volumes indexed to age-appropriate capacity, and time elapsed between the end of surgery and spontaneous voiding, in children after penile surgery given different types of anesthesia were compared.

PATIENTS AND METHODS
This prospective, observational study, encompassed children undergoing circumcision, distal hypospadias repair, or repair of urethro-cutaneous fistula. Children between 4 months and 12 years were randomized to anesthesia with caudal block, intravenous fentanyl or penile block, in association with inhaled general anesthesia. Bladder volumes were measured before surgery, and immediately after voiding for the first time. Time to first post-surgery void was also recorded.

RESULTS
Thirty-one children completed all assessments, including 12 who underwent caudal block, 9 intravenous fentanyl anesthesia and 7 penile blocks. The first post-void bladder residual volumes were highest in the caudal and lowest in the penile block children (27.5ml vs 17.3ml, p=0.003). The time elapsing between the end of surgery and first voiding was significantly longer (p=0.02) in the fentanyl group (232 minutes) in comparison to caudal block (178 minutes) and penile block (150 minutes).

CONCLUSIONS
None of the anesthetic techniques provoked postoperative urinary retention after minor penile surgery in children. The penile block appears superior to caudal block or to fentanyl-based anesthesia with regard to post-operative recovery of normal micturition.

16:14 – 16:26
Discussion
IMPACT OF POSITIVE PREOPERATIVE URINE CULTURES BEFORE PEDIATRIC LOWER URINARY TRACT RECONSTRUCTIVE SURGERY

Alexander SMALL¹, Alejandra PEREZ¹, Stanley DESIRE¹, Michael LIPSKY¹, Lisa CREELMAN², Pasquale CASALE² and Shumyle ALAM²

¹) NewYork-Presbyterian Hospital / Columbia University Medical Center, Department of Urology, New York, USA - ²) NewYork-Presbyterian Hospital / Morgan Stanley Childrens Hospital of New York, Department of Urology, New York, USA

PURPOSE
Preoperative urinary tract infections have been shown to correlate with postoperative complications including sepsis, surgical site infections, and kidney failure in surgical literature. Children who undergo lower urinary tract reconstruction (LUTR) for congenital malformations or neurogenic bladder often have asymptomatic bacteriuria. We studied the prevalence and impact of positive preoperative urine cultures (PPUC) before pediatric LUTR.

MATERIAL AND METHODS
We retrospectively reviewed pediatric LUTR procedures utilizing bowel segments (including catheterizable channels, enterocystoplasties, and continent diversions) performed by a single surgeon 2/2014-7/2016. Preoperative urine cultures were analyzed 1-2 days before surgery. Baseline characteristics and 90-day infection/readmission rates were compared between patients with and without PPUC.

RESULTS
54 patients with mean age 10+/6 years underwent LUTR. 28 patients (51%) had PPUC. None were symptomatic. All started antibiotics at the time of surgery and continued while inpatient. Postoperatively, 20% had inpatient infections with no difference between groups (9% PPUC versus 11% negative, p=0.69). Length of stay was the same in both groups (median 11 days, p=0.96). Within 90 days of discharge, 28% of patients were readmitted (11% PPUC versus 16% negative, OR1.83, p=0.32), 18% experienced urinary tract infections (7% PPUC versus 11% negative, OR0.58, p=0.45), and 4% developed surgical site infections (2% PPUC versus 2% negative, OR0.96, p=0.96).

CONCLUSIONS
There is a high prevalence of PPUC in patients undergoing LUTR, but this factor did not appear to impact postoperative infection risk or hospital readmission. This study supports the safety of performing complex LUTR in patients with PPUC and may provide rationale for the use of broad-spectrum perioperative antibiotics.
TO CROSS-LINK OR NOT TO CROSS-LINK? THAT IS THE QUESTION

Anna RADFORD, Alexander TURNER, Junaid ASHRAF
and Ramnath SUBRAMANIAM
Leeds Childrens Hospital, Department of Paediatric Urology, Leeds, UNITED KINGDOM

PURPOSE
Acellular matrices (ACMs) may provide a potential strategy for complex hypospadias management. We report our experience in patients who had ACMs used as a peri-urethral splint as part of complex urethral reconstruction.

MATERIAL AND METHODS
From 2008-2016, 48 boys underwent urethral reconstruction using ACMs; 24 cross-linked porcine dermal ACMs (XACMs) (median age 5.34 years (range 1.9-15.5)) and 24 had human non-crosslinked dermal ACMs (NXACMs) (median age 5.5 years (range 2.8-18 years)). Prospective outcome data was collected including complications and uroflowmetry.

RESULTS
All 48 boys made a good initial recovery. Median follow-up was 35.4 months (17-58 months) in XACMs and 6 months (1-24 months) in the NXACM patients. Two complications occurred in XACMs: removal of graft for infection; another skin-tethering. Two children developed fistulae proximal to the graft in the NXACMs secondary to proven infection. One further child developed a tiny fistula proximal to the repair, which resolved spontaneously. None of the XACM developed fistulae or late complications.

Uroflowmetry was performed in 17/24 XACM patients: QMax (r= 0.56, p=0.018) and average flow (r=0.52, p=0.03) correlated with age. Ten children had uroflowmetry in the NXACMs demonstrating; bell-shaped curves (10/10), good flow (10/10), no residual volume (10) and mean QMax = 9.6 ml/sec (± 2.65). Statistical correlation was not performed due to small number of uroflow studies. Failure to perform uroflowmetry in 22 children was due to; recent surgery (n =14) not toilet trained (n = 4) and failure to attend clinic (n=4).

CONCLUSIONS
These results support the use of periurethral ACMs as a splint in complex and redo-urethroplasty. Further work is required to formally assess ACMs and long-term clinical follow-up clinically needs to be acquired.
HUMAN DECELLULARISED DERMIS FOR COMPLEX RECONSTRUCTION OF THE LOWER URINARY TRACT: PRELIMINARY REPORT OF 24 CASES

Anna RADFORD, Alexander TURNER, Junaid ASHRAF and Ramnath SUBRAMANIAM
Leeds Childrens Hospital, Department of Paediatric Urology, Leeds, UNITED KINGDOM

PURPOSE
Reconstruction of anomalies of the lower urinary tract can be challenging. Deficiency of good quality urethral and peri-urethral tissue is recognised as a contributory factor in development of post-urethroplasty complications. Acellular matrices (ACMs) provide a potential solution but selecting the most appropriate strategy remains undetermined. We report our experience and outcomes in patients who have had human dermal acellular matrix (HDACM) implanted as part of complex urethral reconstruction.

MATERIAL AND METHODS
From 2013-2016, 24 boys (median age 5.5 years (range 2.8-15.5)) underwent urethral reconstruction using a NDACM as a peri-urethral splint. Indications for surgery included: urethral fistulae (n=12), redo-urethroplasty (n=8), and urethral diverticulum (n=2), urethral stenosis (n=2). Outcome data was collected prospectively.

RESULTS
All 24 boys made a good initial recovery. Median follow-up was; to 6 months (1-24 months). Wound complications in 3/24 (12.5 %), resulted in one urethral fistula. One child, with diverticulum, developed a tiny fistula at the proximal end of the repair, which seems to have resolved conservatively, with follow-up in clinic. Of those seen in clinic only 1/17 the parents reported to be unhappy with the outcome (5.88%). Uroflowmetry so far (n=10), demonstrated bell-shaped curves (10/10), mean QMax = 9.6 ml/sec (± 2.65).

CONCLUSIONS
These preliminary results in those boys who have had a HDACM implanted suggest it may be utilised as an adjunct to support and waterproofing in complex urethroplasty cases when there is a lack of quality, healthy tissues. Further work is required to formally assess integration and long term follow-up clinically needs to be acquired.
ALPHA-BLOCKER THERAPY FOR BOYS UNDER 12 MONTHS OF AGE AFTER ENDOSCOPIC INCISION OF POSTERIOR URETHRAL VALVES AND BLADDER NECK

Gabriela GROCZOWSKA, Piotr GASTOL, Lidia SKOBEJKO-WLODARSKA and Malgorzata BAKA-OSTROWSKA

Children’s Memorial Health Institute, Warsaw/Poland, Pediatric Urology, Warsaw, POLAND

PURPOSE
The aim of this study is to evaluate incidence of urinary tract infections (UTI’s), ultrasound examination (USG), leak point (LP) and post-void residual volume (PVR) in boys younger than 12 months, before and 3 months after endoscopic incision of posterior urethral valves (PUV) and bladder neck (BN), according to alpha-blocker therapy.

MATERIAL AND METHODS
The prospective study included 44 boys from 3 days to 12 months of age (median 3 months) with PUV and severe BN hypertrophy (white/rigid/high), treated with transurethral incision (TUI) of PUV and BN at the same procedure.

Patients were divided into:
Group A - 22 without alpha-blocker therapy.
Group B - 22 with alpha-blocker therapy (doxazosin 0.5 mg/day).

UTI, USG, LP and PVR were checked before and 3 months after TUI.

RESULTS
No difference in incidence of UTI’s between Group A (before TUI 5/22, after 2/22) and B (before TUI 7/22, after 5/22).

Renal pelvis and ureter diameters in USG decreased in both groups.

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<td>Group A</td>
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<td>Group B</td>
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PVR in Group A occurred in 12/22 before TUI and 11/22 after, in Group B 17/22 before and 16/22 after.

CONCLUSIONS
1. TUI of PUV and BN with alpha-blocker therapy appears to be effective to decrease the LP in boys under 12 months of age.
2. Further investigation are needed to evaluate the advantages of low LP in infants with history of PUV and BN hypertrophy in long-term follow-up.
Y-TYPE URETHRAL DUPLICATION WITH RECTAL IMPLANTATION OF THE URETHRA. WHICH IS THE BEST APPROACH?

Antonio MACEDO JR¹, Jorge ANTONIO POMPERMAIER², Maria Isabel SILVA³, Sêrgio LEITE OTTONI², Marcela LEAL DA CRUZ², Gilmar GARRONE² and Riberto LIGUORI²

¹) Federal University of São Paulo, Departament of Pediatrics, São Paulo, BRAZIL - ²) CACAU - Centro de Apoio a Criança com Anormalidade Urológica, Núcleo de Urologia Pediátrica - NUPEP, São Paulo, BRAZIL - ³) CACAU - Centro de Apoio a Criança com Anormalidade Urológica, NUPEP - Núcleo de Urologia Pediátrica, São Paulo, BRAZIL

PURPOSE

Urethral duplication is an uncommon lower urinary tract anomaly, with multiple anatomical variants described. Generally, the duplication develops in the sagittal plane and the accessory urethra may run dorsally or ventrally to the orthotopic one. The aim of this video was to demonstrate the use of the ASTRA (anterior sagittal trans-anorectal approach) in a case of Y-type urethral duplication (type IIA 2).

PATIENTS AND METHODS

We report a case of a 5-months-old boy with urethral duplication in which the orthotopic urethra was patent in the penile segment but atresic in the bulbar and prostatic segment. The patient had urinary flow per anus and minimal dribbling through the orthotopic urethra since birth. The ectopic urethra could be well identified by anal examination. We performed a combined cystoscopy with retrograde urethrogram and managed to catheterize the dysplastic urethra with a guided-wire that showed ectopic implantation in the prostatic urethra, below the bladder neck. The procedure consisted of an ASTRA (anterior sagittal trans-anorectal) approach to divide the urethra and rectum and managed to successfully reposition the urethra at the perineal area and to create an urethrostomy.

RESULTS

The postoperative hospital-stay was 1 day and follow-up is 6 months. No intestinal complaints and other complications were seen.

CONCLUSIONS

ASTRA proved to be an excellent approach for Y-urethral duplication in which the main urethra was placed into the rectum. We believe from our previous experience, that further efforts to reconstruct the urethra irrespectively of one or two-stage settings are not fruitful and parents should be advised to keep the perineal urethrostomy as the definitive procedure.

Discussion
DELAYED DIAGNOSIS OF INFRAVESICAL OBSTRUCTION IN BOYS: THE ROLE AND VALUE OF URETHROCYSTOSCOPY

Stanislaw WARCHOL1, Grazyna KRZEMIEN2, Agnieszka SZMIGIELSKA2, Jan ZOLADEK3, Ewa MAKULA3, Przemyslaw BOMBINSKI4 and Teresa DUDEK-WARCHOL1

1) Medical University of Warsaw, Department of Pediatric Surgery and Urology, Warsaw, POLAND - 2) Medical University of Warsaw, Department of Pediatrics and Nephrology, Warsaw, POLAND - 3) Medical University of Warsaw, Student's Society for Pediatric Surgery and Urology, Warsaw, POLAND - 4) Medical University of Warsaw, Department of Pediatric Radiology, Warsaw, POLAND

PURPOSE
VCUG is well accepted study to detect PUV, however, there is still debate on the accuracy of this diagnostic procedure. Recently published results of systematic review showed that to date, firm evidence to support common diagnostic pathways is lacking (Hennus et al PLoSOne. 2014; 9: e85474, doi 10.1317). The aim of the study was to assess the role of urethrocystoscopy for ascertainment of infravesical obstruction.

MATERIAL AND METHODS
During the last 6 years 47 boys less than 2 years of age, underwent urethrocystoscopy to complete diagnostic pathway. Twenty aged 0.2-1.5 (mean 0.8 ± 0.4) with VUR (13 bilateral, 7 unilateral) mainly grades III - V and 27 aged 0.2-1.6 (mean 0.5 ± 0.4) with dilatation of upper urinary tract/ megaureter (mainly diagnosed prenatally). In all of them VCUG was estimated by experienced pediatric radiologists (besides the presence of reflux) as normal regarding bladder and urethral anatomy. Urologic assessment of VCUG results, however, somewhat differs, i.e. characteristic bladder neck hypertrophy features and usually slightly dilatation of posterior urethra was found. Almost half of the patients (11 out 20 and 10 out 27) before cystoscopy underwent urodynamic study, which revealed elevated voiding pressure and obstructive uroflowmetry pattern.

RESULTS
In all 47 boys cystoscopy performed at mean age of 0.6 years (ranged 0.2-1.6) revealed PUV (in 3 Type III, in the remaining Type I) and transurethral incision using cold knife was done.

CONCLUSIONS
Our observation suggests that urethrocystoscopy in boys with possible infravesical obstruction serves as valuable diagnostic procedure.
HOW ACCURATE IS THE DIAGNOSIS OF PRESUMED IDIOPATHIC OVERACTIVE BLADDER?

Charlotte MELLING¹, Nicholas WEBB², Michaela BLUNDELL³, Paula WILLIAMSON³, Victoria OZKAN⁴, Malcolm LEWIS² and Anju GOYAL¹

¹) Royal Manchester Children’s Hospital, Department of Paediatric Urology, Liverpool, UNITED KINGDOM - 2) Royal Manchester Children’s Hospital, Department of Paediatric Nephrology, Manchester, UNITED KINGDOM - 3) University of Liverpool, Institute for Child Health, Clinical Trials Research Centre, Liverpool, UNITED KINGDOM - 4) The National Institute for Health Research, Wellcome Trust Clinical Research Facility, Manchester, UNITED KINGDOM

PURPOSE

Diagnosis of Idiopathic Overactive Bladder (IOAB) is based on clinical history and bladder diaries delineating urgency, frequency, day-time wetting and low voided volumes. Management pathways include urotherapy and anti-cholinergic treatment. Urodynamic studies are considered much later in the pathway when there is poor response to treatment. Urodynamic features include detrusor overactivity, low compliance and small capacity bladder. The aim of this study was to present urodynamic findings in children with refractory urinary incontinence who were diagnosed and managed as IOAB but were found not to have urodynamic features of idiopathic overactive bladder.

MATERIAL AND METHODS

39 participants with clinical features of IOAB enrolled in a Pilot RCT for IOAB were prospectively reviewed. Those who did not have urodynamic features of IOAB are included. All participants had refractory day-time wetting despite anti-cholinergic medication. Suprapubic urodynamics were performed according to ICCS guidelines. Data are described using median and range unless stated otherwise.

RESULTS

12/39 (31%) children aged 11(7-14) years, did not demonstrate urodynamic features of IOAB. None of these patients had detrusor overactivity. 75% had larger capacity bladders than expected for their age. Compliance was 40(11-100) mls/cmH20. Post-void residual volumes were high in 17% patients.

The results enabled diagnoses of underactive bladder and dysfunctional voiding to be made allowing initiation of appropriate treatment.

CONCLUSIONS

Children managed as IOAB may have other pathologies indistinguishable by their clinical history and bladder diary alone. Continuation of empirical treatment when there is poor response to management could risk inappropriate treatment. We recommend that urodynamic assessment should be contemplated for children with refractory urinary incontinence, at an earlier stage.
USE OF THE MIC-KEY BUTTON FOR INTERMITTENT BLADDER DRAINAGE IN CHILDREN

David BEN MEIR¹, Bezalel SIVAN², Roei MORAG¹, Anna BABAOF¹, Iris BROWN¹, Rachel MILKH¹, Or AHARON DVIR³, Michal MOZES³ and Shay BENBENISHTI³

¹) Schneider children’s medical center of Israel, Urology, Petah Tikva, ISRAEL - 2) Schneider children’s medical center of Israel, Urology, Petah Tikva, ISRAEL - 3) Schneider children’s medical center of Israel, Psychology, Petah Tikva, ISRAEL

PURPOSE
The Mic-Key button can be used to drain the urinary bladder intermittently in patients that cannot perform intermittent catheterization. We assessed the efficiency and quality of life in children with a Mic-Key button.

MATERIAL AND METHODS
Between 2015-2016 a Mic-Key button was inserted in 11 patients, 5 boys and 6 girls, with a median age of 6 years (range 1.3-18). Indications included: difficulty performing IC - 6, prior to vesicostomy closure -3, refusal to catheterize via urethra -1 and irreversible urethral stricture -1. The Mic-Key button was exchanged every 3-4 weeks at which time the bladder was flushed with Gentamycin. Urine cultures were taken before the exchange or when a UTI was suspected. Quality of life was assessed using validated questionnaires (PedsQL, SDQ) and a comparison to a group of 10 children performing intermittent catheterization was performed.

RESULTS
The Median time with Mic-Key button was 6 months (Range 1-10). All children developed intermittent bacteriuria approximately one month after placement of Mic-Key button. Five of the eleven patients had a symptomatic UTI. No complications related to insertion occurred. One patient developed a granuloma around the insertion site. A statistical difference (p smaller than 0.05) in quality of life, based on the physical and emotional sub scales, was noted in comparison to children performing intermittent catheterization.

CONCLUSIONS
A Mic-Key button can be a temporary solution in children who cannot empty their bladder by Intermittent catheterization. In contrast to published literature a high rate of UTI’s occurred. The quality of life was better in children with a Mic-Key button when compared to children performing Intermittent catheterization.
URODYNAMIC FEATURES OF CHILDREN WITH REFRACTORY IDIOPATHIC OVERACTIVE BLADDER

Charlotte MELLING¹, Nicholas WEBB², Michaela BLUNDELL³, Paula WILLIAMSON³, Victoria OZKAN⁴, Malcolm LEWIS² and Anju GOYAL¹

¹) Royal Manchester Children’s Hospital, Department of Paediatric Urology, Liverpool, UNITED KINGDOM - 2) Royal Manchester Children’s Hospital, Department of Paediatric Nephrology, Manchester, UNITED KINGDOM - 3) University of Liverpool, Institute for Child Health, Clinical Trials Research Centre, Liverpool, UNITED KINGDOM - 4) The National Institute for Health, Wellcome Trust Clinical Research Facility at Central Manchester University Hospitals NHS Foundation, Manchester, UNITED KINGDOM

PURPOSE

Diagnosis of Idiopathic Overactive Bladder (IOAB) is based on clinical history, bladder diaries and urodynamic study. While detrusor overactivity (DO) confirms IOAB, some children may have IOAB features without DO. The aim of the study was to delineate the urodynamic findings in this group of patients.

MATERIAL AND METHODS

27 participants enrolled in a Pilot RCT for children with refractory IOAB were included. Baseline clinical characteristics, using a symptom assessment questionnaire (SAQ), medication histories and pre-randomisation urodynamic features were prospectively collected and analysed. Data are described using median and range unless stated otherwise.

RESULTS

27 patients aged 10(7-14) years underwent baseline urodynamics, medication data was available in 21/27 and SAQ’s for 18/27. 100% had tried first line oral anti-cholinergic medication, 48% had two, and 10% had three or more medications in the past. SAQ analysis revealed urinary daytime frequency and wetting episodes of 9(5-16) and 5(3-7) respectively, with mean 4.7 wet nights/week. The median maximum cystometric capacity was 255mls (EBC was 330mls), with 48% having low bladder capacity. 25/27(93%) had DO and number of overactive contractions was 11(1-25). The maximum pDet during overactivity was 45(17-164)cmH2O. Bladder compliance was 15(3-100)mls/cmH2O, and was reduced in 37%.

CONCLUSIONS

This study provides an insight into the expected urodynamic findings in children with refractory IOAB. Additionally, it can be helpful to all health care professionals involved in the assessment of these challenging group of IOAB patients who do not have DO despite clinical features.
RADIATION EXPOSURE IN CHILDREN WITH POSTERIOR URETHRAL VALVES DURING THE FIRST YEAR OF LIFE: A NECESSITY OR AN AVOIDABLE OVERSIGHT?

Frank PENNA¹, Lael REINSTATLER¹, Kevin SHEE¹, Rakan ODEH², Hassan BUTT², Armando LORENZO², Walid FARHAT², Darius BÄGLI² and Martin KOYLE²

¹) Dartmouth | Geisel School of Medicine, Children’s Hospital at Dartmouth, Division of Pediatric Urology, Hanover, USA - 2) The Hospital for Sick Children, Division of Paediatric Urology, Toronto, CANADA

INTRODUCTION

The diagnosis of posterior urethral valves (PUV) is confirmed postnatally with a voiding cystourethrogram (VCUG). Other imaging studies such as DMSA may be performed during the critical first year of life. While certain studies are indicated to properly diagnose and treat the critically ill child, we hypothesized that some studies, which carry radiation exposure, may be avoidable.

PATIENTS AND METHODS

A single institution retrospective review was performed of all children with a diagnosis of PUV over a 10-year period, from 2003-2013. Patients were stratified into three groups at two time periods (1 month and 1 year of age based on creatinine (Cr) range: Group I (<0.31 mg/dL), Group II (0.31-1.03 mg/dL), and Group III (>1.03 mg/dL). Mean radiation exposure from imaging studies performed during the first year of life was calculated for each group.

RESULTS

Thirty-three children were included in the study. The mean gestational age was 36.6 weeks (range 33-40). All except for 3 had a history of antenatal hydronephrosis; 7 had a history of oligohydramnios. The majority were treated with valve ablation; three had vesicostomy placement. Ten of the children had a urinary tract infection in the first year of life. The table summarizes the mean Cr and radiation exposure/patient by group.

<table>
<thead>
<tr>
<th>Group</th>
<th>% Patients (at 1 mo.)</th>
<th>Mean Cr at 1 mo (mg/dL)</th>
<th>% Patients (at 1 yr.)</th>
<th>Mean # studies/patient</th>
<th>Mean radiation/patient (mSv)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>26.1%</td>
<td>0.27 (0.24, 0.29)</td>
<td>23.1%</td>
<td>1.2</td>
<td>0.67 (0.5, 1.0)</td>
<td>ref</td>
</tr>
<tr>
<td>II</td>
<td>47.8%</td>
<td>0.50 (0.33, 0.72)</td>
<td>57.7%</td>
<td>2.7</td>
<td>1.50 (1.0, 2.0)</td>
<td>0.0189</td>
</tr>
<tr>
<td>III</td>
<td>26.1%</td>
<td>1.53 (1.09, 1.63)</td>
<td>19.2%</td>
<td>2.3</td>
<td>1.33 (0.5, 2.0)</td>
<td>0.0856</td>
</tr>
</tbody>
</table>

CONCLUSIONS

Higher baseline creatinine is associated with a higher risk of radiation exposure from imaging studies during the first year of life. Cr at 1 month was not a predictive indicator of Cr at 1 year. Long-term risks of radiation exposure to children is unknown, and therefore should be minimized.
**HISTOLOGICAL FINDINGS AND FREQUENCY OF URINARY TRACT INFECTIONS FOLLOWING URINARY BLADDER AUGMENTATION IN CHILDREN – LONG-TERM FOLLOW-UP**

Daniel KARDOS¹, Zoltan KISPAL², Andrew PINTER¹ and Peter VAJDA¹

¹) University of Pecs, Department of Paediatrics, Pecs, HUNGARY - ²) Medical University of Graz, Department of Paediatric and Adolescent Surgery, Graz, AUSTRIA

**PURPOSE**

In a longer follow-up, authors repeated their previous prospective study about correlation between histological findings and urinary tract infections following urinary bladder augmentation using different parts of intestinal tract.

**MATERIAL AND METHODS**

Between 1987 and 2016, 90 bladder augmentations were performed at the author’s institute. Seventy-three patients (16 gastrocystoplasty, 32 ileocystoplasty, 25 colocystoplasty) with a mean 11.3 (range 4-24) years of follow up time were included in the present study. Mean age at operation was 11 years. Histological samples from the native bladder, the anastomotic line and from the intestinal segment used for augmentation were taken endoscopically and urinary cultures were collected during a follow-up protocol biannually. Correlation between frequency of urinary tract infections and degree of histological changes (normal, inflamed, metaplastic or dysplastic) were statistically evaluated using chi-squared, ANOVA and independent samples T-tests.

**RESULTS**

In patients with colocystoplasty 1 in-situ carcinoma, 5 squamous metaplasia, 1 colonic-type metaplasia and 3 dysplastic changes were noted. Following gastrocystoplasty 4 squamous and 2 colonic-type metaplasia were found. After ileocystoplasty 3 squamous metaplasia were noted. A significantly higher frequency of urinary tract infections (59%) was found following colocystoplasty vs gastrocystoplasty (38%) and ileocystoplasty (42%). The degree of histological changes in colonic and ileal mucosa significantly correlated with the rate of urinary tract infection.

**CONCLUSIONS**

Our prospective and long-term findings support the previous hypothesis that the frequency of urinary tract infections plays an important role in the histological alterations following urinary bladder augmentation.
BONE DENSITY AFTER ANAL DIVERSION

Nina HUCK¹, Melanie WRUCK², Simin SCHADMAND-FISCHER³, Johannes LOTZ⁴, Patrick HONNECK⁵, Christian THOMAS² and Raimund STEIN¹

¹) University Medical Centre Mannheim, Department of Pediatric and Adolescent Urology, Mannheim, GERMANY - 2) Johannes Gutenberg University, Department of Urology, Mainz, GERMANY - 3) Johannes Gutenberg University, Department of Radiology, Mainz, GERMANY - 4) Johannes Gutenberg University, Department of Clinical Chemistry, Mainz, GERMANY - 5) University Medical Centre Mannheim, Department of Urology, Mannheim, GERMANY

PURPOSE
The influence of the bone mineral content after urinary diversion is well known. Long-term results after performing a continent anal diversion are rare in the literature. Also the definition of osteoporosis as well as the methods to measure a bone density changed over the last 20 years. In this long-term observational studies the bone density electrolytes and bone biochemical markers for an increased bone turn over were measured

MATERIAL AND METHODS
37 patients with continent anal diversion were investigated with a median follow-up 23.6 years. For measurement of the bone density mainly Dual-X-Ray-Absorptiometrie (DXA) was use. Blood gas analysis, creatinine, electrolytes as well as beta-CrossLaps, Calcitonin, Osteocalcin, Prokollagen Typ I Propeptid were measured

RESULTS
After a median of median follow-up of 17.5 years, a reduced bone mineral content could be observed in 19/37 patients. In 4 patients, osteoporosis was diagnosed by DXA after a median follow-up of 39 years. Only one patient was treated with bisphosphonates for one year, the remaining patients with Vitamin D. None of them developed any clinical signs. None of the biochemical makers could predict a reduced bone mineral content or osteoporosis in this group of patient. None of the patients had a severe acidosis.

CONCLUSIONS
Long-term follow-up of patients with a continent anal reservoir should include the measurement of bone density and if there are signs of osteoporosis, treatment using Vitamin D should be started.
BOWEL MANAGEMENT IN AUGMENTATION AND DIVERSON SURGERY USING SMALL BOWEL IN CHILDREN: EVALUATION OF A NEW, CONTEMPORARY PROTOCOL

Bernhard HAID¹, Judith ROESCH², Tanja BECKER², Mark KOEN², Christoph BERGER², Christa STRASSER², Anton HAID³ and Josef OSWALD²

¹) Hospital of the Sisters of Charity, Pediatric Urology, Linz, AUSTRIA - ²) Hospital of the Sisters of Charity, Department of Pediatric Urology, Linz, AUSTRIA - ³) Feldkirch General Hospital, Department of General and Thoracic Surgery, Feldkirch, AUSTRIA

PURPOSE
In children undergoing surgical interventions with anastomosis of small bowel a preoperative “bowel preparation” regimen including the use of laxatives and enemas is common. Contrariwise, early enteral feeding, omitting any period of fasting or parenteral nutrition is uncommon and parenteral nutrition is often used. Although there is an eminent lack of literature concerning children in that field, we recently changed our bowel and nutrition management in children undergoing augmentation and diversion surgery.

MATERIAL AND METHODS
After omitting as well the preoperative laxative treatment and introducing early enteral feeding with no postoperative fasting period, we prospectively evaluated complications, time to stool as well as total hospital stay in 10 consecutive patients. These findings were compared to the data of 10 consecutive patients before the changes in protocol were effective. The groups were comparable in age (8.3 vs. 11.3 years, p=0.128) and mean and operative time (328 vs. 375mins, p=0.399). 2 patients with other reasons for nutritional problems (e.g. long ICU stay, not bowel related surgical complication) were excluded.

RESULTS
The change in protocol led to no bowel related complication or problem. Time to stool (3.1 vs. 5.4 days, p=0.003) as well as hospital stay (11.6 vs. 19.1 days, p=0.002) were significantly shorter using the new protocol. Whereas before the protocol change bowel related symptoms requiring additional medication were present in 5 children (3 thereof requiring distigmin/stomach tube) no child required any intervention after the change.

CONCLUSIONS
If the use of small bowel in pediatric urologic surgery is planned, neither a „bowel preparation regimen” nor a postoperative fasting period is necessary.
CONTINENT CUTANEOUS OUTLET IN CHILDREN: TIME TO EVENT ANALYSIS

Tamer HELMY¹, Helmy OMAR², Hesham ORBAN², Ahmed GALAL², Mohammed DAWABA² and Ashraf HAFEZ²

¹) Urology & Nephrology center Mansoura, Paediatric Urology, El Mansoura, EGYPT - 2) Urology and Nephrology Center, Paediatric Urology, Mansoura, EGYPT

PURPOSE
We retrospectively analyzed the outcomes of continent urinary diversion in children who were suffering from irreversible lower urinary tract dysfunction.

MATERIAL AND METHODS
The study included 182 children (109 boys and 73 girls) who underwent continent urinary diversion between May 1993 and May 2015. The procedure was carried out in 88 patients with extrophy, 79 with neuropathic bladder and 15 cases with other rare indications. Appendix was used as outlet in 122 patients and ileum in 60 patients. Patients were followed up to evaluate continence status and post operative complications. Continence is defined as staying dry for at least 3 hours.

RESULTS
Of 154 evaluable patients, mean age at time of surgery was 7.9±3.8 years. Mean follow up was 78±58 months. Urinary leakage via the stoma has been reported in 31 patients (20.1%). Mitrofanoff outlet is associated with higher continence rate (p=0.05). Late complication had been reported in 57 patients (37%) including pouch stones in 27 patients, stomal stenosis in 19 children and failed catheterization in 4 while prolapsed stoma occurred in 3 children. parastomal hernia, pouch perforation, poucho-colonic fistula and Monti fistula each reported in one patient. Stomal complications were relatively higher with Monti outlet especially stomal revision (p=0.002).

CONCLUSIONS
Continent cutaneous outlet is versatile surgical technique suitable for urinary diversion in children. In our study, Mitrofanoff outlet is associated with higher continence rate and lower complications than Monti outlet.

THE DOUBLE UMBILICAL STOMA FOR COMBINED MITROFANOFF AND MALONE PROCEDURE

Gregory DEAN¹, Matthew SCHAFF², Jonathan ROTH¹ and Michael PACKER¹

¹) Temple University, Urology, Philadelphia, USA - 2) Temple University, Philadelphia, USA

PURPOSE
The advent of the Mitrofanoff procedure has advanced the care of children with the need for intermittent catheterization. Many of these children can also benefit from performing a Malone procedure for bowel management. The split appendix technique has permitted many of these children to undergo both of these procedures using only the appendix. In a quest to maximize cosmetic outcome, we prefer to perform this split technique with placement of both stomas within the umbilicus. In this film we demonstrate this technique.
MATERIAL AND METHODS
A 10 year old boy with a history of spina bifida underwent a split appendix procedure with placement of a double umbilical stoma. Laparoscopy was used to mobilize the cecum and appendix followed by a Pfannenstiel approach for the remaining portion of the procedure. Both stomas were located in the umbilicus and catheters were left in place post procedure.

RESULTS
The patient is using both stomas without trouble, is continent and satisfied with the procedure.

CONCLUSIONS
The double umbilical stoma is our preferred approach the split-appendix procedure. This film demonstrates this technique which results in a cosmetically superior yet fully functional result.

17:15–17:30
Discussion

S12-6 (P without presentation)

DOES THE QUALITY OF LIFE WAS ACHIEVED IN CONGENITALLY INCOMPETENT BLADDER OUTLET ON THE EXPENSE OF RENAL FUNCTION?

Helmy OMAR¹, Tamer HELMY², Ashraf HAFEZ¹ and Mohammed DAWABA¹

¹) Urology and nephrology center, Pediatric urology, Mansoura, EGYPT - 2) Urology & Nephrology center Mansoura, Paediatric Urology, El Mansoura, EGYPT

PURPOSE
To evaluate parent’s satisfaction and quality of life issues in children who underwent augmentation cystoplasty and continent cutaneous outlet aiming to achieve continence and to assess its impact on renal function.

MATERIAL AND METHODS
We retrospectively evaluated patients who outlet between June 1993 and May 2015 in for congenitally incompetent bladder outlet. All patients were evaluated at time of last follow up by health related quality of life questionnaire (HRQoL) and estimated GFR using Cockcroft equation. Continence is defined as staying dry for at least 3 hours.

RESULTS
With a median (range) follow up of 65 (5-267) months, 154 patients were evaluable at time of follow up. Mean age at surgery was 7.9+3.8 years. Continence was achieved in 123 patients (79.9%). Higher QoL score has been encountered in continent patients (figure) (p= 0.002), in patients who don’t require additional surgical intervention (p= 0.001) and in those in whom the appendix was used as continent catheterisable channel (p=0.04). The mean + SD estimated preoperative GFR is higher than the postoperative one (77.2 + 33.4 mg/dl Vs 53.3 + 26.1 mg/dl) (95% CI; 19.6-28.3, P < 0.0001).

CONCLUSIONS
Although augmentation ileocystoplasty and continent continuous outlet are essential in achieving continence and improving quality of life in children with congenitally incompetent bladder outlet, but it has adverse effect on renal function. Thus, close monitoring of renal function is essential in those children.
LONG-TERM FOLLOW-UP IN CHILDREN AND ADOLESCENT WITH A RECTO-SIGMOID-POUCH (MAINZ POUCH II)

Nina HUCK1, Susanne KOEMMERLING2, Andreas NEISIUS2, Joachim THÜROFF3 and Raimund STEIN1

1) University Medical Centre Mannheim, Department of Pediatric and Adolescent Urology, Mannheim, GERMANY - 2) Johannes Gutenberg University Mainz, Department of Urology, Mainz, GERMANY - 3) University Medical Centre Mannheim, Department of Urology, Mannheim, GERMANY

PURPOSE
Anal reservoirs are the oldest form of continent urinary diversion. In this study we evaluate the long-term results of the Recto-Sigmoid Pouch (Mainz Pouch II) performed during childhood and young adolescents.

MATERIAL AND METHODS
Between 1991 and 2012 the MZPII was performed in 18 girls and 18 boys below the age of 18 years. Indications were failed primary repair or primary urinary diversion in 27 patients with in the bladder extrophy-epispadies complex, 5 had a traumatic loss of the urethral sphincter, one vesico-vaginal fistula one a rhabdomyosarcoma and one girl status post repair of a sinus urogenitalis.

RESULTS
During the mean follow-up of 12 (2-22) years, 12/36 patients developed a pyelonephritis, requiring ureteral reimplantation in one. 6 Patients (5 within the first three months) developed a stenosis at the ureterocolic anastomosis (in al 6 a submucosal tunnel was used) requiring reimplantation; a one patient had a secondary UPJ-Obstruction. None of the patients with a serous lined extramural tunnel developed a ureteral stenosis. 6 patients had occasionally (during the night) some loss of urine in the long-term follow-up. In one patients a conversion to a continent cutaneous diversion was performed du to recurrent pyelonephritis. 8 patients developed a benign adenomas (7 endoscopic biopsy, 1 open excision).

CONCLUSIONS
The MZPII is still a valid option in children and young adolescent, requiring a livelong follow-up. For ureteral reimplantation, the serous lined extramural tunnel is the preferred method.

AUGMENTATION GASTROCYSTOPLASTY: THE LAST BREATH?

Alice FAURE1, Geraldine HERY2, Romain BOISSIER3, Thierry MERROT2, Pierre MOURIQUAND4, Gilles KARSENTY5 and Jean-Michel GUYS2

1) Aix-Marseille Université, APHM, CHU Hôpital Timone, Pediatric surgery, Marseille, FRANCE - 2) Aix-Marseille Université, APHM, CHU Hôpital Timone, Pediatric surgery, Marseille, FRANCE - 3) Aix-Marseille Université, APHM, CHU La Conception, Urology, Marseille, FRANCE - 4) Hospices Civils de Lyon et Université Claude Bernard, Lyon 1, CHU Hôpital, Pediatric Urology, Bron, FRANCE - 5) Aix-Marseille Université, APHM, CHU Hôpital La Conception, UROLOGY, Marseille, FRANCE

PURPOSE
To document the long-term outcomes of paediatric augmentation gastrocystoplasty (AGC) in terms of preservation of renal function and maintenance of dryness, and to analyse the rate of complications.
MATERIAL AND METHODS
The medical records of children who had undergone AGC between 1992 and 2000 were reviewed retrospectively. All of the patients were recontacted by telephone.

RESULTS
Eleven patients underwent a AGC at a median age of 11 years (range 6.5-14). The underlying diagnosis included myelomeningocele (n=4), bladder exstrophy (n=4), posterior urethral valves (n=1), irradiated bladder (n=1) and Prune Belly syndrome (n=1). Median follow-up was 17 years (range 15-19.5). Renal function was preserved or improved in 63% of patients and 80% of patients were dry after AGC. Seven (63%) patients reported symptoms linked to haematuria-dysuria syndrome, which was resistant to treatment in one case and requiring excision of the gastric patch. Three of the 11 patients (23%) developed a tumour on the gastric patch after a median delay of 20 years (range 11-22). All had gastric adenocarcinoma of which two were metastatic at the time of diagnosis. Seven of the 11 (63%) patients underwent excision of the gastric patch after 11 years (range 8.5-20.5).

CONCLUSIONS
We confirmed that the majority of patients undergoing AGC had preservation of their renal function and were continent. However, long-term, AGC was associated with a significant risk of malignant transformation and a high rate of surgical re-intervention involving removal of the gastric patch. These results question the use of this technique for bladder augmentation, irrespective of the indication.
SP1: Special Session
"MY WORST COMPLICATION"

Moderators: Yves Heloury (Australia), Anthony Khoury (USA)

ESPU Meeting on Thursday 20, April 2017, 17:30 – 18:15

17:30 – 17:35
SP1-1
NEONATAL MANAGEMENT OF CONGENITAL BILATERAL HYDROURETERONEPHROSIS
Antoine E Khoury, Peter Wang
Pediatric Urology, University of California at Irvine, USA

17:35 – 17:40
SP1-2
INTRARENAL STRICTURE AFTER PCNL
Naima Smeulder
Pediatric Urology, Great Ormond Street Hospital, London, UK

17:40 – 17:45
SP1-3
BLADDER RUPTURE FOLLOWING CPRE IN A GIRL
Joseph G. Borer
Pediatric Urology, Boston Children’s Hospital, USA

17:45 – 17:50
SP1-4
UPPER TRACT COMPLICATION AFTER BLADDER EXSTROPHY REPAIR
Mark Cain
Pediatric Urology, Indiana University School of Medicine
Riley Hospital for Children at IU Health, Indianapolis, USA
17:50 – 17:55
SP1-5

CONGENITAL CARDIOVASCULAR ANOMALIES: AN INCREASED RISK FOR PEDIATRIC UROLOGICAL SURGERIES
Katja Wolffenbuttel
Erasmus MC – Sophia Children’s Hospital, Pediatric Urology, Rotterdam, Netherlands

17:55 – 18:00
SP1-6

UNUSUAL VASCULAR COMPLICATIONS AFTER RENAL MOBILISATION
Sajid Sultan
Pediatric Urology, SIUT, Karachi, Pakistan

18:00 – 18:05
SP1-7

INTERNAL AND EXTERNAL DRAINAGE DYSFUNCTION IN THE SAME PATIENT AFTER LAPAROSCOPIC PYELOPLASTY
Rafal Chrzan, B. Dobrowolska-Glazar, I. Honkisz, J. Sulilawski, M. Wolnicki
Children’s University Hospital Cracow, Jagiellonian University Medical College, Krakow, Poland

18:05 – 18:10
SP1-8 (VP)

RENAL VEIN INJURY DURING ROBOT ASSISTED LAPAROSCOPIC PYELOPLASTY IN A TODDLER AND ITS MANAGEMENT
Venkat SRIPATHI, Aparajita MITRA, Rajiv PADANKATTI and Varun SARODE
Apollo Children’s Hospital, Pediatric Urology, Chennai, India

PURPOSE
This video aims to demonstrate a rather uncommon complication during minimally invasive surgery and its successful management.

MATERIAL AND METHODS
During Robot Assisted Laparoscopy Pyeloplasty in an infant, the renal vein was accidentally nicked when the pelvis was trimmed. The vein was quickly grasped and the cut was sutured with a 6/0 Prolene suture. Around 75 ml of blood was lost during surgery.
RESULTS
Doppler ultrasonography demonstrated normal flow in the renal vein a month after surgery. One year later, the kidney has shown normal growth with minimal residual pelvicalyceal dilatation and satisfactory drainage.

CONCLUSIONS
The video shows the dexterity of the robotic platform and demonstrates how even a serious vascular injury in a small baby can be managed successfully without any untoward sequela. This complication firstly, made us aware of the need to clear the renal vessels of the pelvis before embarking on extensive trimming. Secondly we ensured the availability of laparoscopic ‘bull dog’ clamps on the back table prior to all robotic surgeries on the kidney. We felt this would enable rapid, safe, effective and atraumatic clamping of the vessels (should the need arise).

18:10–18:15
Discussion
CELLULAR COMPOSITION OF WILMS TUMORS, BEFORE AND AFTER PREOPERATIVE CHEMOTHERAPY

Seppo TASKINEN1, Jouko LOHI2, Minna KOSKENVUO3 and Mervi TASKINEN3

1) Children’s Hospital, Helsinki University Hospital, Paediatric surgery, Helsinki, FINLAND - 2) Helsinki University Hospital, Pathology, Helsinki, FINLAND - 3) Children’s Hospital, Helsinki University Hospital, Department of Hematology, Oncology and Stem Cell Transplantation, Helsinki, FINLAND

PURPOSE
To evaluate the change in Wilms tumor histology during preoperative chemotherapy.

MATERIAL AND METHODS
Ninety pediatric patients were operated at our institution for renal tumors in 1988-2015. We included all 59 patients who were operated for Wilms tumor and who had undergone cutting needle biopsy (CNB) at diagnosis before preoperative chemotherapy and whose CNB and nephrectomy samples were available for re-evaluation. Different cellular components in these samples were re-calculated by a pathologist.

RESULTS
Wilms tumor diagnosis was obvious in all patients in pre-chemotherapy CNB samples. However, only focal anaplasia could be found in two of the three patients who had diffuse anaplasia in the nephrectomy samples. In the patients without diffuse anaplasia the median content of the blastemal, stromal and epithelial components were 58 (IQR 23-85)%, 27 (IQR 10-55)% and 4 (IQR 0-10) % in CNB samples and 5 (IQR 0-67)%, 17 (IQR 23-97)% and 10 (IQR 0-40)% in the nephrectomy specimens (p-values <0.001, 0.546 and <0.001 respectively). The median degree of tumor necrosis was 78 (IQR 23-97) % after preoperative chemotherapy. The degree of tumor necrosis after chemotherapy had positive correlation with the amount of blastemal component and negative correlation with amount of epithelial component in pre-chemotherapy CNB samples (p=0.008 and 0.001 respectively).

CONCLUSIONS
It is difficult to detect diffuse anaplasia in CNB samples of the Wilms tumor. In non-anaplastic tumors blastemal component is most sensitive to chemotherapy and is also associated with tumor necrosis after the chemotherapy. On the other hand, epithelial component is most resistant to chemotherapy, and its proportion usually increases during the chemotherapy.
EFFECT OF WILMS TUMOR HISTOLOGY ON TUMOR VOLUME REDUCTION DURING PRE-OPERATIVE CHEMOTHERAPY

Seppo TASKINEN¹, Outi LESKINEN², Jouko LOHI³, Minna KOSKENVUO⁴ and Mervi TASKINEN⁴

1) Children’s Hospital, Helsinki University Hospital, Paediatric surgery, Helsinki, FINLAND - 2) Helsinki University Hospital, Radiology, Helsinki, FINLAND - 3) Helsinki University Hospital, Pathology, Helsinki, FINLAND - 4) Children’s Hospital, Helsinki University Hospital, Department of Hematology, Oncology and Stem Cell Transplantation, Helsinki, FINLAND

PURPOSE
To evaluate the association between the Wilms tumor histology at diagnosis and the change in Wilms tumor volume during pre-operative chemotherapy.

MATERIAL AND METHODS
Ninety pediatric patients were operated at our institution for renal tumors in 1988-2015. We included all 50 patients who were operated for Wilms tumor and who had both pathology samples and either CT or MRI-images before and after preoperative chemotherapy, available for re-evaluation. Different cellular components in pathology samples were calculated by a pathologist and tumor volumes were evaluated by a radiologist.

RESULTS
The median tumor volume was 586 (IQR 323-903) ml and the greatest dimension 120 (IQR 97-144) mm at the time of diagnosis. The median tumor volume change was -75 (IQR -86--43) % during 2 week- 3 month pre-operative chemotherapy (p<0.001). The length of chemotherapy did not have significant effect on the tumor volume change. There was a significant positive correlation between the blastemal cell content in pre-chemotherapy cutting needle (CNB) samples and the degree of tumor volume reduction (p<0.001). In contrast, high stromal and epithelial cell contents in CNB samples were negatively associated with the reduction of tumor volumes (p=0.006 and 0.041 respectively). However, the actual viable cell volume of all three different cellular components decreased significantly with preoperative chemotherapy.

CONCLUSIONS
Median Wilms tumor volume reduced significantly with preoperative chemotherapy. The reduction in the volume was observed in all three cellular components. However, the chemotherapy response was most marked in the blastemal component and accordingly the blastemal rich tumors shrinked most.
CRYOPRESERVATION OF TESTICULAR TISSUE IN PRE-PUBERTAL AND ADOLESCENT BOYS AT RISK FOR INFERTILITY: A LOW RISK PROCEDURE

Jessica M MING¹, Michael E CHUA¹, Anne Marie MALONEY², Abha A GUPTA² and Armando J LORENZO¹

¹) Hospital for Sick Children, Urology, Toronto, CANADA - 2) Hospital for Sick Children, Haematology/Oncology, Toronto, CANADA

PURPOSE
Cryopreservation of testicular tissue (TT) has become an increasingly attractive option for fertility preservation (FP) in pre-pubertal boys at risk for gonadotoxicity due to cancer therapy. At our institution, referred families undergo counselling regarding fertility risk and available FP strategies. Herein, we report complications from a patients who elected to undergo TT biopsies for FP.

MATERIAL AND METHODS
We retrospectively reviewed 34 consecutive patients who underwent unilateral open TT biopsies from January 2014 to October 2016. Patient diagnosis, age, concomitant procedures, anesthetic type, complications, procedure times, planned therapy and platelet counts were evaluated.

RESULTS
Mean age at biopsy was 8.2 years (SD 3.5-12.9). Diagnoses included: 12 leukemia/lymphoma, 15 solid tumors, 7 non-oncology disorders (hemophagocytic lymphohistiocytosis, aplastic anemia). Twenty two patients (64.7%) had planned stem cell transplants (SCT). Of all 34 children, 11 (32.4%) had not yet received any chemotherapy; others had already had exposure to some form of therapy preceding biopsy. Biopsies were performed in conjunction with other procedures (central line placement, bone marrow biopsy, lumbar puncture, lymph node biopsy) in 29 cases (85.3%), and were stand-alone procedures in the rest. Platelet counts averaged 229 x 10⁹/L (SD 78.7-379.4). In cases where a biopsy was performed as the sole operation (n=5), mean operative time was 22 minutes (SD 8.7-30.7). Overall, two complications developed (5.9%) after biopsy, both in SCT patients: ipsilateral epididymo-orchitis (resolved with antibiotics) and an ipsilateral torsed appendix testis (managed conservatively).

CONCLUSIONS
In this series, TT biopsy for cryopreservation is a feasible and safe operation to be performed with concomitant procedures with minimal added anesthetic time. It is associated with minimal risk and gives patients a viable option for future fertility.
ARE THE SIOP CRITERIA OF LAPAROSCOPIC TOTAL NEPHRECTOMY FOR WILMS TUMOR APPROPRIATE?

Aurore BOUTY¹, Annie ROBERTS¹, Alice FAURE¹, Mike O’BRIEN¹, Michael NIGHTINGALE¹ and Yves HELOURY²

¹) Royal Children’s Hospital, Urology, Parkville, AUSTRALIA - ²) Royal children’s hospital, Pediatric urology, Parkville, AUSTRALIA

PURPOSE
In the Umbrella SIOP protocol, total nephrectomy by laparoscopy is a surgical option. The criteria for laparoscopy are: no preoperative rupture; no invasion of surrounding organs; no intravascular thrombus; no massive invasion of the hilum; tumor not extending beyond the ipsilateral border of the vertebral body.

The goal of this study was to determine the results of total nephrectomy by laparoscopy wether the SIOP criteria were respected or not.

MATERIAL AND METHODS
A retrospective study (2011-2016) of the patients operated by laparoscopy for Wilms tumor was performed. All the patients were treated by 4 weeks of preoperative chemotherapy. The following items were selected: respect of the SIOP criteria; volume of the tumor on the preoperative CT scan; peroperative rupture; conversion rate; postoperative staging; histology; recurrence.

RESULTS
44 patients were operated for a Wilms tumor; 14 by laparoscopy.

In 8 cases, the SIOP criteria were respected. The median volume of the tumor was 181 ml (50-367). No peroperative rupture or conversion occurred. The staging was: 7 stage I; 1 stage II. Seven patients had a standard histology and 1 a diffuse anaplasia. One local recurrence happened at 9 months (stage I with standard histology).

In 6 cases, the SIOP criteria were not respected: 1 preoperative rupture; 5 tumors extending beyond the lateral border of the vertebra (2 crossing the midline). The median volume was 378 ml (126-466). No peroperative rupture but 1 conversion to open surgery. The staging was: 1 stage I; 4 stage II; 1 stage III (preoperative rupture). All the patients had a standard histology. No recurrence occurred. With the progressive modification of the indications, between 2014 to 2016, 14 patients over 24 (58.3%) were operated by laparoscopy.

CONCLUSIONS
The SIOP criteria for laparoscopy are conservative in order to maintain an excellent oncological result. Some tumors medial to the lateral border of the vertebral body can be operated safely by laparoscopy.

08:11–08:20
Discussion
PROGNOSIS AND NATURAL HISTORY OF MALIGNANCY AFTER AUGMENTATION ENTEROCYSTOPLASTY: A MULTICENTER REPORT

Sarah GARNIER¹, Bernard BOILLOT², Gilles KARSENTY³, Jean Michel GUYS⁴, Thomas BLANC⁵, Stephen LORTAT JACOB⁶, Laurent SOUSTELLE⁷, Veronique PHE⁸, Alexia EVEN⁹, Emmanuel CHARTIER KASSLER⁸, Gregoire POINAS¹⁰, Pierre COSTA¹¹, Francois IBORRA¹², Xavier GAME¹³ and Nicolas KALFA¹⁴


PURPOSE

Limited data on malignancy after augmentation enterocystoplasty have been reported since it remains rare with a long latency period. The aim of this study is to describe the natural history of these tumours based on the largest series of patients to date.

MATERIAL AND METHODS

A multicenter nationwide retrospective study included 14 patients based on operative, oncologic and anatopathological reports.

RESULTS

Ileum (36%), stomach (36%), colon (21%) and ileo-colon (7%) were used for enterocystoplasty. The mean latency period was 20 years (5-37). Only 14% of patients were diagnosed before clinical manifestations (haematuria, hydronephrosis, fistula). Three patients underwent systematic endoscopy but only one was diagnosed this way. Histology showed adenocarcinomas (43%), urothelial-cell (29%), squamous-cell (21%) and undifferentiated (7%) carcinomas. 80% of gastrocystoplasties led to adenocarcinomas while urothelial-cell carcinoma was typically found after colocystoplasties. Localization of malignancies was mainly on the bowel segment (64%), native bladder (36%) and the entero-urinary anastomosis (21%). The vast majority of patients were diagnosed at an advanced stage (metastases :50%, positive lymph-nodes :36%). Urinary tract infections were statistically associated (p=0,02) with initial metastatic status but lithiasis, intermittent catheterism, immunosuppression and tumour localization were not. Survival rates were 50% after one year and 29% at the end of the study. Only 2 patients are disease-free with a median follow-up of 59 months (20-89).

CONCLUSIONS

Malignancy after enterocystoplasty is lately diagnosed with frequent metastases and low 1-year survival rate. The entero-urinary anastomosis is not the main localization of tumours. Systematic endoscopy is not widely used and its efficiency may be limited. The knowledge of the natural history of these tumours may lead to improved screening and management.
PERCUTANEOUS ENDOSCOPIC TECHNIQUE FOR COMBINED CONSERVATIVE SURGERY-BRACHYTHERAPY IN BLADDER NECK/PROSTATIC RMS

Bernardita TRONCOSO SOLAR¹, Olga SLATER², Peter HOSKIN³, Mark GAZE⁴ and Naima SMEULDERS⁵

¹) Great Ormond Street Hospital, Paediatric Urology, London, UNITED KINGDOM - 2) Great Ormond Street Hospital, Paediatric Oncology, London, UNITED KINGDOM - 3) Mount Vernon Hospital, Clinical Oncology, London, UNITED KINGDOM - 4) University College London Hospitals, Clinical Oncology, London, UNITED KINGDOM - 5) Great Ormond Street Hospital, Paediatric Urology, London, UNITED KINGDOM

PURPOSE

Today, organ-sparing approaches for localised bladder/prostate rhabdomyosarcoma (BP-RMS) in children are preferred. To minimise morbidity from radiotherapy, local control is achievable by surgical excision of the bladder component and brachytherapy to the remaining bladder-neck/prostatic tumour (BnP), for disease <5cm after neo-adjuvant chemotherapy. In this video we demonstrate a percutaneous endoscopic technique for debulking of botyroid tumours with limited extension along the bladder wall prior to brachytherapy.

MATERIAL AND METHODS

Patients for conservative surgery-brachytherapy for BP-RMS are collected prospectively. Technique: Under cystoscopic vision, suprapubic needle-puncture allows dilatation over a 0.035-sensor wire using a NephroMax balloon to a percutaneous 30F Amplatz-Sheath. Through a 24F Wolf®-Nephroscope exophytic tumour polyps are grasped. Holmium-YAG laser energy (Cook® 5Hz, 0.5-1J, long setting) is applied to the tumour stalks for coagulation and excision. 5F cup-biopsy forceps allow samples to be taken from surrounding areas to confirm tumour extent histologically ensuring adequate cover of the residual disease by brachytherapy.

RESULTS

Since November 2014, we offered this technique to two patients (17month-old male, 5year-old female) with localised embryonal BnP-RMS (diagnosis and pre-surgical sizes: 3.9x2.9x2cm reduced to 1.6x1.3x0.8cm, and 3.2x2.9x2.5cm to 1.7x1.5x1.1cm, respectively) with post-operative interstitial brachytherapy (HDR Ir192 paediatric protocol) through ultrasound-guided transperineal catheters (total 27.5Gy in five fractions over 3 days to a planned volume). At 2years and 6months follow-up, remaining tumour-bulk is reducing; patients are dry day+night with complete bladder emptying and no hydronephrosis.

CONCLUSIONS

We propose this minimally invasive technique for debulking of the polypoid component for BnP-RMS extending up to 1cm from the Bn. Biopsy of the neighbouring urothelium/detrusor provides confirmation of tumour extent although lymph node sampling is not feasible.
ROBOTIC RETROPERITONEAL LYMPHADENECTOMY IN PARATESTICULAR Rhabdomyosarcoma

Enver MONCADA, Anna BUJONS, Erika LLORENS DE KNECHT, Jorge CAFFARATTI and Humberto VILLAVICENCIO

Fundació Puigvert, Pediatric Urology, Barcelona, SPAIN

INTRODUCTION
The paratesticular sarcoma is an aggressive malignant tumor of mesenchymal origin. The rhabdomyosarcoma is the most common among children. Rhabdomyosarcoma treatment consists of surgery, chemotherapy and radiotherapy. Prognostic depends on local recurrence and distant metastasis.

MATERIAL AND METHODS
We present the case of a 16-year-old man, who in April 2016 underwent right radical orchiectomy surgery by testicular mass rapidly evolving, with pathological results indicating a paratesticular rhabdomyosarcoma. The extension study showed a precaval adenopathy suggestive of lymph node metastasis, therefore it was a high-grade rhabdomyosarcoma. There was an appropriate response after chemotherapy (Protocol EpSSG RMS2005) and we decided to perform a robotic lymphadenectomy.

RESULTS
We performed a transperitoneal approach with 8 mm trocar and 12 mm optica trocar. We accessed to retroperitoneal space through at latero-colic incision. Then we performed a craniocaudal lymph node dexion until the aortic bifurcation. The surgical time was 240 minutes with a blood loss of 200 ml. There were no complications. The patient was discharged on the fourth day after surgery. Pathology showed metastasis of rhabdomyosarcoma without capsular rupture. After two months, we placed the left testicle into inguinal canal prior to radiotherapy.

CONCLUSIONS
Robotic lymph node metastasis lymphadenectomy from paratesticular sarcomas is a feasible treatment with the advantage of minimally invasive surgery and acceptable morbidity.

Discussion
S14: HYPOSPADIAS 2

Moderators: Enrique de la Peña (Spain), Alexander Springer (Austria)

ESPU Meeting on Friday 21, April 2017, 08:42—09:24

08:42—08:45

S14-1 (PP)

★ RANDOMIZED DOUBLE BLINDED CONTROLLED TRIAL ON EPIDERMAL CHANGES IN PATIENTS SUBMITTED TO SEX HORMONES TREATMENT PRIOR TO HIPOSPADIA SURGERY – PRELIMINARY RESULTS

José Murillo NETTO¹, Thaís CASALI², Maria Christina CASTANON³, Matheus RODRIGUES³, Luana PAIS⁴, Caroline SILVA⁴, Ubirajara BARROSO JR⁵, Kelly Christina PAIVA⁶ and José BESSA JR.⁷

1) Federal University of Juiz de Fora (UFJF) and Hospital e Maternidade Therezinha de Jesus of the Scho, Surgery/Urology, Juiz De Fora, BRAZIL - 2) Federal University of Juiz de Fora (UFJF) and Hospital e Maternidade Therezinha de Jesus of the Scho, Surgery/Plastic Surgery, Juiz De Fora, BRAZIL - 3) Federal University of Juiz de Fora (UFJF), Morphology, Juiz De Fora, BRAZIL - 4) Federal University of Juiz de Fora (UFJF), Surgery/Urology, Juiz De Fora, BRAZIL - 5) Federal University of Bahia (UFBA) and Bahiana School of Medicine, Surgery/Urology, Salvador, BRAZIL - 6) Federal University of Juiz de Fora (UFJF) and Hospital e Maternidade Therezinha de Jesus of the Scho, Surgery/Pediatric Surgery, Juiz De Fora, BRAZIL - 7) State University of Feira de Santana (UEFS), Surgery/Urology, Feira De Santana, BRAZIL

PURPOSE
The rule of hormonal stimulation prior to hypospadias is still not clear. Studies have demonstrated that estrogens improves recovery and healing of damaged tissue, diminishing fibrosis and providing a better functional and aesthetic scar.

MATERIAL AND METHODS
Twenty-one children were randomized into three groups: CG: Neutral base ointment; TG: Testosterone Propionate 1% ointment; EG: 0.01% estradiol ointment. Parents were oriented to apply the ointment twice a day for 30 days prior to hypospadias surgery.

During surgery, fragments of foreskin were excised and fixed in 10% formalin. The skin fragments were embedded in paraffin and sectioned for histology. Paraffin-embedded 4-µm sections were stained with Hematoxilin Eosin (HE). For each sample of HE stained fragment the epidermis width was measured in five different areas by image analysis using a Zeiss camera and PC image capture system. The mean epidermis width (MEW) was calculated dividing the 5 measures by five.

RESULTS
There were 7 children in CG, 9 in TG and 5 in EG. There was no difference in the mean age and hypospadias classification between the groups. The MEW in CG was 18.74 ± 5.44 µm (13.68 - 29.69), in TG was 21.22 ± 8.29 µm (12.05 - 40.76), and in EG was 32.85 ± 4.59 µm (26.16 - 36.79) (p=0.005). The epidermis had a greater width in EG comparing to CG (p=0.005), and comparing to TG (p=0.016), and had the same width in CG and TG (p=0.748).

CONCLUSIONS
These preliminary results demonstrate that the use of estrogen prior to hypospadias surgery increases the width of foreskin epidermis. This improvement of skin quality may help preventing complications after hypospadias surgery.
THE EFFECT OF PREOPERATIVE HORMONAL STIMULATION ON OPERATIVE OUTCOMES AFTER PROXIMAL HYPOSPIADIAS REPAIR

Mariela DORE 1, Paloma TRIANA1, Virgina AMESTY2, Vanessa NÚÑEZ1, Roberto LOBATO2, Susana RIVAS2, Pedro LOPEZ PEREIRA2 and Maria Jose MARTÍNEZ-URRUTIA2

1) Children’s Hospital La Paz, Pediatric Surgery, Madrid, SPAIN - 2) Children’s Hospital La Paz, Pediatric Urology, Madrid, SPAIN

PURPOSE
Hormonal stimulation prior to hypospadias repair remains controversial. Our aim was to evaluate the impact of pre-operative hormone stimulation (PHS) treatment on complication rates of proximal hypospadias repair.

MATERIAL AND METHODS
Single-center retrospective study of patients with penoscrotal hypospadias repaired using a tubularized preputial flap as primary technique from 2000 to 2010. Patients were divided into two groups according to whether or not they received PHS >3 months prior to repair. The decision to provide PHS was made under the surgeon’s assessment. Charts were reviewed for surgical complications associated healing failure and PHS: suture dehiscence, fistulae and meatal stenosis.

RESULTS
A total of 60 patients underwent a tabularized preputial flap as a primary repair at 36±8 months of age with follow-up of 8±1.25 years. PHS was indicated in of 64% (n=38) with a median of 3 (1-5) doses of intramuscular testosterone (25mg). The global complication rate for proximal hypospadias repair was 52%. A lower complication rate was observed in the PHS group 45% versus 65% in the non-PHS, however the difference was not statistically significant (p>0.05). Univariate analysis of the dehiscence, urinary fistulae, or meatal stenosis yielded complications rates of 0%, 42% and 10% respectively in the PHS group, versus 4,5%, 64% and 9% in the non-PHS group (p>0.05). During follow-up 25% reached puberty with only 10% of patient loss.

CONCLUSIONS
Results from this study suggest that PHS prior to proximal hypospadias repair did not affect the complication rate due to healing failure. Future prospective studies are needed to assure the indication of PHS.
THE EFFECT OF PREOPERATIVE TESTOSTERONE ADMINISTRATION ON THE TESTIS IN PATIENTS WITH HYPOSPADIAS

Michiko NAKAMURA, Kimihiko MORIYA, Yoko NISHIMURA, Yukiko KANNO, Takeya KITTA, Masafumi KON and Nobuo SHINOHARA

Faculty of Medicine and Graduate School of Medicine, Hokkaido University, Department of Renal and Genitourinary Surgery, Sapporo, JAPAN

PURPOSE
Testosterone administration (TA) is often indicated before hypospadias (HS) surgery especially for small penis. We retrospectively examined the changes of ultrasonographic findings on the testis before and after TA to evaluate the effect of TA on the testes in patients with HS.

PATIENTS AND METHODS
Among patients with HS who were born during March 2010 and December 2014, children who underwent ultrasonography before and after TA before HS surgery were enrolled. Total testicular volume (TTV) and the incidence of testicular microlithiasis (TM) were compared before and after TA. Statistical analysis was performed by Wilcoxon’s signed rank sum test and Fisher’s exact test. \( P<0.05 \) was considered significant.

RESULTS
Thirty-eight patients (mild HS: 20, severe HS: 18) were included. TTV was unchanged after TA among patients with mild and/or severe HS (table 1). TM was observed only in patients with severe HS. TM was newly detected in 2. Accordingly, the incidence of TM was increased after TA (3 patients (4 testes) before TA and 5 patients (8 testes) after TA; table 2). TTV was not different between patients with TM and without TM.

Table 1: Changes of TTV before and after TA

<table>
<thead>
<tr>
<th>Group</th>
<th>before TA</th>
<th>after TA</th>
<th>( P ) value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TTV (mean ± SD)</td>
<td>0.81 ± 0.25 ml</td>
<td>0.81 ± 0.27 ml</td>
<td>0.989</td>
</tr>
<tr>
<td>Mild HS (n=20)</td>
<td>0.82 ± 0.28 ml</td>
<td>0.75 ± 0.29 ml</td>
<td>0.266</td>
</tr>
<tr>
<td>Severe HS (n=18)</td>
<td>0.79 ± 0.22 ml</td>
<td>0.87 ± 0.24 ml</td>
<td>0.133</td>
</tr>
</tbody>
</table>

Table 2: Incidence of TM before and after TA

<table>
<thead>
<tr>
<th>Group</th>
<th>before TA</th>
<th>after TA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TM(+)</td>
<td>0</td>
<td>3 pts (4 testes)</td>
<td>5 pts (8 testes)</td>
</tr>
</tbody>
</table>

CONCLUSIONS
While TA before HS surgery did not affect TTV, the incidence of TM increased in patients with severe HS after TA. This finding suggests that TA before HS surgery might have negative impact on the testis in some patients especially with severe HS.
★ ANDROGEN RECEPTORS EXPRESSION AND DARTOS TISSUE ARCHITECTURE ARE ABNORMAL IN CONGENITAL PENILE MALFORMATIONS, COMPARED TO HEALTHY CHILDREN: ANALYSIS OF A PROSPECTIVE SERIES

Anne-Françoise SPINOIT¹, Sarah BUELENS¹, Marleen PRAET², Erik VAN LAECKE¹ and Piet HOEBEKE¹

1) Ghent University Hospital, Urology, Ghent, BELGIUM - 2) Ghent University Hospital, Pathology, Ghent, BELGIUM

PURPOSE
Although recent studies showed that congenital penile malformation (CPM) is associated with dartos tissue (DT) structural anomalies, pathophysiological mechanisms remain unclear. The relation between androgen receptor (AR) expression, DT structure and CPM was here analyzed.

MATERIAL AND METHODS
Foreskin tissue samples from children undergoing primary penile surgery (PPS) for CPM (hypo- spadias, epispadias, buried penis) were prospectively collected since November 2011, with tissue samples from children undergoing circumcision for non-medical reasons as control group. Samples were initially stained with smooth-muscle actin and AR antibodies (ARa) were subsequently applied from 2013 on. Samples were analyzed by the same pathologist who was blinded for the indication for surgery. This analysis of the database concerns only samples processed between 2013 and 2016, investigating AR expression in CPM. ARa staining was classified into 3 categories: absence of staining of all smooth muscle cells, weak staining of scarce smooth muscle cells, or strongly positive staining. Statistics were performed using SPSS 23.0

RESULTS
A total of 494 children were included, ARa were applied on foreskin samples of 210 of them. Reason for surgery was CPM in 107, and circumcision in 103 (control group). Median age at surgery was 21 months [4-185]. Strongly positive staining was observed in 19.4% (n=20) of the controls, and 5.6% (n=6) of the CPM, weakly positive staining in 17.5% (n=18) of the controls and 4.7% (n=5) of CPM, and negative staining in 63.1% (n=65) of controls and 89.7% (n=96) of CPM (p<0.001). Organization of DT improved with increasing AR expression (p<0.001). Higher age at PPS corresponded with higher AR expression in controls (p=0.002) in contrary to CPM (p=0.85).

CONCLUSIONS
CPM is associated with significantly lower AR expression (p<0.001) and with significantly DT architecture disorganization (p<0.001) compared to controls. AR expression increases with age in controls, which is not observed in CPM (p=0.002).

08:54—09:06
Discussion
ANTIBIOTIC USE FOLLOWING PRIMARY DISTAL AND MID PENILE HYPOSPADIAS REPAIR: IS IT NECESSARY? (A PROSPECTIVE RANDOMIZED STUDY)

Mohamed ELSAWY, Mamdouh ABDULSALAM and A. Nasser ALSAID
Ibn Sina Hospital, Paediatric Urology Unit, Pediatric Surgery department, Kuwait, KUWAIT

PURPOSE
Antibiotics are routinely used after distal & mid shaft hypospadias repair; here in we evaluate the necessity of its use by comparing the complication rate with and without antibiotic.

MATERIAL AND METHODS
A prospective-randomized study was conducted between (6/2014 & 9/2015). Patients with primary distal & mid-shaft hypospadias were equally randomized into 2 groups, first group received post-operative antibiotic until 2 days after catheter removal while the second group didn’t. All patients received Antibiotic upon induction and underwent single stage Grafted Tubularized Incised Plate repair (GTIP) by single surgeon. Operative steps & post-operative care were standardized using the same sutures, dressing & catheter with drainage for 7 days. Urine analysis & culture were done if symptomatic UTI was suspected. Both groups were compared as regard to early complication (symptomatic urinary tract infection, wound infection) and late complication (meatal stenosis, urethral stricture, fistula, glans dehiscence). Follow up in clinic was scheduled at 10 days, 6 weeks, 3 & 6 months and yearly. Cases having medical conditions (DM, defective immunity and chronic illness) were excluded.

RESULTS
A total of 86 patients were included, 43 in each group. Mean age at surgery was 2.4 years. The mean follow up period was 1.8 years. Both groups were comparable as regard to patients’ age, meatus location and chordee. No symptomatic UTI developed in either group. Total complication rate was 6.9% (3 cases) in each group (Wound infection 1 patient in antibiotic group, 1 fistula in antibiotic group and 2 in non-antibiotic, Urethral stricture 1 case in non-antibiotic group, Glans dehiscence 1 case in antibiotic group). There was no difference in complication rate between both groups.

CONCLUSIONS
Routine use of antibiotics post primary distal and mid penile hypospadias repair has no additional role in reducing early & late complication rate.
IMPACT OF MATERNAL AND PLACENTAL FACTORS, BIRTH WEIGHT, ACCOMPANIED MALFORMATIONS ON THE CLINICAL CHARACTERISTICS OF HYPOSPADIAS IN IDENTICAL OR FRATERNAL TWINS

Ji Yong HA¹, Sang Hoon SONG², Jae Shin PARK³, Won Yeol CHO⁴, Kyung Do KIM⁵, Sungchan PARK⁶ and Kun Suk KIM⁷

1) Keimyung University, School of Medicine, Department of Urology, Daegu, REPUBLIC OF KOREA - 2) Asan Medical Center, University of Ulsan College of Medicine, Department of Urology, Seoul, REPUBLIC OF KOREA - 3) Daegu Catholic University Medical Center, Departments of Urology, Daegu, REPUBLIC OF KOREA - 4) Dong-A University Hospital, Department of Urology, Busan, REPUBLIC OF KOREA - 5) Chung-Ang University Hospital, Department of Urology, Seoul, REPUBLIC OF KOREA - 6) Ulsan University Hospital, Departments of Urology, Ulsan, REPUBLIC OF KOREA - 7) Asan Medical Center, University of Ulsan College of Medicine, Departments of Urology, Seoul, REPUBLIC OF KOREA

PURPOSE
We investigated the clinical features of hypospadias in twin patients and to evaluate the genetic or environmental factors affecting the development of hypospadias.

MATERIAL AND METHODS
We retrospectively reviewed the medical records of 50 male twin patients who underwent urethroplasty in our institution. We investigated the characteristic of mother and patient regarding hypospadias. Small for gestational age, (SGA) was defined when the body weight (BW) was less than 10th percentile of a standard BW curve.

RESULTS
Of the 50 twin patients, 20 (40%) were identical and 8 (40%) of them showed concordance of hypospadias whereas only 1 (3.3%) of fraternal twin showed concordance (p=0.002). Fraternal twins had a tendency to present higher ratio of posterior type of hypospadias than identical twins (40.0% vs 15.0%, p=0.069). Between the 10 concordant and 10 discordant twins, there was no significant difference of the mean age of maternal age at birth, distribution of accompanied diseases, mean GA and placental weight. However, BW was significantly lower in discordant twin with hypospadias (1.38 ± 0.43 vs. 2.03 ± 0.51, p=0.009). Discordant twins had higher prevalence of SGA than concordant twins (90.2% vs. 20.0%, p=0.003). In a multivariate regression analysis, the accompanied congenital anomaly other than urogenital system was the only risk factor for a posterior type hypospadias (HR = 11.39, CI 1.33-97.28, p = 0.026).

CONCLUSIONS
Although monozygotic twins have the same genetic disposition at fertilization, the environmental factors related to low birth weight are involved in development of hypospadias in identical twins.
GLANS GROOVE DEPTH, NOT PREOPERATIVE TESTOSTERONE STIMULATION, IS THE MAIN RISK FACTOR FOR COMPLICATIONS POST-TIP REPAIR

Luis BRAGA¹, Adriana DEKIRMENDJIAN², Melissa MCGRATH², Bethany EASTERBROOK³, Kizanee JEGATHEESWARAN³ and Armando J. LORENZO⁴

1) McMaster University - McMaster Children’s Hospital, Department of Surgery / Urology, Hamilton, CANADA - 2) McMaster University, McMaster Pediatric Surgery Research Collaborative, Hamilton, CANADA - 3) McMaster University, McMaster Pediatric Surgery Research Collaborative, Hamilton, CANADA - 4) The Hospital for Sick Children, Paediatric Urology, Toronto, CANADA

INTRODUCTION AND OBJECTIVE
Effects of preoperative testosterone stimulation (PTS) on complications following TIP repair remain unclear. We conducted a prospective study to examine the association between glans groove (a surrogate for urethral plate[UP] quality) and PTS, with hypospadias complications.

MATERIAL AND METHODS
Of a prospectively collected hypospadias database (n=536), consecutive TIP repairs from 2008-2016 were selected. Staged repairs, other techniques and redos were excluded. Primary outcome was postoperative complication rate(fistula, glans dehiscence and meatal stenosis). Uni/ multivariable analysis (binary logistic and cox proportional regressions)were performed.

RESULTS
Of 312 patients, 235 (75%) had distal, 48 (15%) midshaft and 39 (9%) proximal hypospadias. Median age at surgery was 16 (3-171) months and mean follow-up was 16±15 months. Mean GMS score at initial exam was higher in PTS group vs. no PTS group (7.5±1.6 vs. 5.4±1.3, p<0.01). Mean GMS score for PTS patients decreased at surgery but was still significantly higher than that of non-PTS (6±1.4 vs. 5.5±1.3, p<0.01). Overall complication rate was 12% (9%-distal, 17%-midshaft, and 31%-proximal) and median time to complication was 2.5 months (0-63). On logistic and cox proportional regressions, glans width and PTS were not identified as risk factors; only a combined variable of glans groove depth/UP quality was significantly associated with TIP complications (p=0.01).

<table>
<thead>
<tr>
<th>Multivariable</th>
<th>Complications(n=38)(%)</th>
<th>HR(95%CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preoperative Testosterone Stimulation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>25(10.9)</td>
<td>1.1(0.4-3.3)</td>
<td>0.81</td>
</tr>
<tr>
<td>Yes</td>
<td>13(15.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glans Diameter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;13mm</td>
<td>21(12.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤13mm</td>
<td>17(11.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meatal Location</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distal</td>
<td>22(9.3)</td>
<td>1.5(0.5-4.1)</td>
<td>0.45</td>
</tr>
<tr>
<td>Midshaft/Proximal</td>
<td>16(21.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤30</td>
<td>26(10.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;30</td>
<td>12(22.1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CONCLUSIONS
Previous literature has demonstrated an association between increased GMS scores and higher complication rates. Although PTS reduced GMS scores at surgery, our findings suggested that PTS, and the subsequent lower GMS score, did not significantly reduce postoperative complications. A combination of glans groove depth/UP quality was the main risk factor for TIP complications.

09:15 – 09:24
Discussion

S14-8 (P without presentation)
CORRELATION BETWEEN PENILE LENGTHS MEASURED DURING SURGERY AND COMPLICATION RATES IN HYSPADIAS

Halil TUGTEPE¹, Raziye ERGUN², David Terence THOMAS³, Tural ABDULLAYEV⁴ and Tolga E. DAGLI²

¹) Marmara Un. Medical Faculty, Dep. of Ped. Surgery, Section of Pediatric Urology, Istanbul, TURKEY - ²) Marmara University School of Medicine, Department of Pediatric Surgery, Division of Pediatric Urology, Istanbul, TURKEY - ³) Maltepe University Faculty of Medicine, Department of Pediatric Surgery, Istanbul, TURKEY - ⁴) Marmara University School of Medicine, Department of Pediatric Surgery, Istanbul, TURKEY

PURPOSE
Decrease of complication rates is a primary aim in hypospadias surgery. A recent study found that a glans diameter of under 14mm was an independent risk factor for development of complications. In this study, our aim was to compare complication rates to penile lengths taken during surgery for hypospadias.

MATERIAL AND METHODS
Successive patients undergoing TIPU for hypospadias at our Pediatric Urology clinic between February 2013 and March 2016 were prospectively included in this study. Patients with proximal hypospadias, secondary cases and those undergoing two session repair were excluded. Patients’ age, meatus location, penile lengths measured during surgery (penis length, penis stretch length, glans diameter, urethral plate width before and after incision), follow up times and complications occurring during the followup period were noted. Penile lengths of those with complications and those without, plus complication rates of patients with glans diameter above or below 14mm were compared.
RESULTS
152 patients with an average age of 41.3±31.7 (median 27.5) months were included in the study. Meatus locations was subcoronal in 40.8% (n=62), coronal in 42.8% (n=65) and midshaft in 16.4% (n=25). Average followup was 47±8.0 months. Complications were observed in 17.1% (n=26) patients (17 fistula, 7 meatal stenosis, 1 glans opening, 1 glans closure). Penile length measurements were similar in those with or without complications. Complication rates were not different in patients with glans diameter above 14mm vs below 14mm (p>0.05).

CONCLUSIONS
This study has demonstrated that penile measurement taken during surgery for hypospadias do not correlate with complication rates.

S14-9 (P without presentation)
CHALLENGING THE 2 STAGE DOGMA IN SCROTAL / PERINEAL HYPOSPADIAS- 15 YEAR EXPERIENCE
Devesh MISRA¹, Anastasia VARELI¹, Ashwini JOSHI¹, Clare SKERRITT¹ and Shazia SHARIF²

¹) Royal London Hospital, Paediatric Urology, London, UNITED KINGDOM - 2) Royal London hospital, Dept of Paediatric Urology, London, UNITED KINGDOM

PURPOSE
Medical literature has very few papers published on complication rates in ‘pure’ scrotal hypospadias surgery. We analysed our experience over 15 years, making this one of the largest series reported on this subject.

MATERIAL AND METHODS
This is a prospective series -every patient undergoing hypospadias was logged into a database. We found 92 patients with scrotal or perineal hypospadias, 85% of whom were operated by the senior surgeon.
56 had a single stage procedure, including 15 who had a buccal mucosa ‘Snodgraft’. 36 had a staged Bracka procedure : 19 buccal, 17 prepucial grafts. The median number of procedures per patient was 2 (range from 1 to 9, including dilations). Total number of patients who had a buccal graft -34.
The median follow up- 4.5 years (6 to 172 months).

RESULTS
Our complication rate was as follows-
Urethral fistula: 26 (28%).
Stenosis: 25 (27%).
Wound breakdown: 6 (6.5%).
Graft failure: 1 (1%).
The fistula rate in Bracka staged operations was 30% and in one-stage procedure was 26%. Testosterone therapy was given to 23 boys and 13 saw a significant increase in penile size. However, 3 patients developed pubic hair transiently.

CONCLUSIONS
Scrotal hypospadias remains a challenging condition to treat.
1. It is possible to do a single stage repair in 60%. This brings down the median number of operations to only 2.
2. We successfully used buccal or lower lip grafts in 37%. This allowed us to preserve the dorsal hood or foreskin for covering the penile shaft, or for later use in case of redo- surgery.
3. A quarter of our patients needed testosterone and over half had a pleasing increase in size of the phallus.
4. Our fistula rate of 28% may seem high, but is in line with reports published in literature- Pippi-Salle J Pediatr Urol, 2015- S1477.

On the strength of our experience, we would encourage surgeons to try single stage procedures more often, and to use buccal mucosa even in primary operations.

**S14-10 (P without presentation)**

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

Ahmed HASSAN

*Cairo university specialized pediatric hospital CUSPH. Bani suif general hospital, Pediatric surgery unit., Bai Suif, EGYPT*

**PURPOSE**

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

**MATERIAL AND METHODS**

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

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

**RESULTS**

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

**CONCLUSIONS**

A fibrin glue as a sealant agent could be a useful adjunct to surgical management of patients after multiple failed attempts of post hypospadias surgery urethro-cutaneous fistula repair. Moreover, trials concerning using single donor fibrin glue should be considered.
SP2: Special Session
"TIPS AND TRICKS 1"

Moderators: Antonio Macedo (Brazil), Lane Palmer (USA)

ESPU Meeting on Friday 21, April 2017, 09:24–10:00

09:24—09:27

SP2-1

ABDOMINAL WALL CLOSURE AFTER EXSTROPHY REPAIR: RECTUS ABDOMINIS MUSCLES MOBILISATION

MD Leclair, J. Kelly, S. Sultan, Y. Héloury, PG Ransley

Children university Hospital, Nantes, France

09:27—09:30

SP2-2

MODIFIED REPAIR OF INGUINAL HERNIAS IN BLADDER EXSTROPHY

W.H. Rösch

Department of Paediatric Urology, Klinik St. Hedwig, University Medical School of Regensburg, Germany

09:30—09:33

SP2-3

COMPLETE PRIMARY REPAIR OF BLADDER EXSTROPHY IN THE BOY

Joseph G. Borer

Pediatric Urology, Boston Children's Hospital, USA

09:33—09:36

SP2-4

X-LINKED ICHTHYOSIS AND POSTERIOR HYPOSPADIAS, WHAT A BAD SKIN!

Nicolas Kalfa

Hôpital Lapeyronie, Pediatric Surgery and Urology Departement, CHU de Montpellier, France
09:36—09:39

SP2-5

"LABIUM MAJUS SKIN FLAPS" AS A RESCUE MANUEVER FOR UROGENITAL RECONSTRUCTION

Emir Haluk
Division of Pediatric Urology, Cerrahpasa Medical Faculty, Istanbul University, Istanbul, Turkey

09:39—09:42

SP2-6

NOVEL "WRAP" TECHNIQUE FOR TREATING ANTERIOR URETHRAL BALLOONING

Anna Bujons
Fundació Puigvert, Paediatric Urology, Barcelona, Spain

09:42—09:45

SP2-7

STAGED URETERAL RECONSTRUCTION USING APPENDIX IN A COMPLEX PATIENT

Miguel Castellan
Children's Urology Associates, Univ. of Miami, Miami, Florida, USA

09:45—10:00

Discussion
PREDICTORS OF HIGH-GRADE COMPLICATIONS IN PEDIATRIC ROBOT-ASSISTED LAPAROSCOPIC UROLOGIC SURGERY ON THE LOWER URINARY TRACT

Nimrod BARASHI1, William BOYSEN1, Eric SCHADLER2, Vignesh PACKIAM1 and Mohan S. GUNDETI1

1) The University of Chicago, Section of Urology, Chicago, USA - 2) The University of Chicago, Pritzker School of Medicine, Chicago, USA

INTRODUCTION
The use of robot-assisted laparoscopic (RAL) surgery in pediatric urology has increased in recent years. We sought to analyze our institutional experience with RAL surgery on the lower urinary tract to identify the incidence of grade III or higher Clavien-Dindo complications, and assess for factors associated with complications.

PATIENTS AND METHODS
We retrospectively reviewed our single-surgeon experience performing RAL surgery on the lower urinary tract in children from 2007 to 2016. The patients were grouped according to type of surgery: Appendicovesicotomy with or without Augmentation Ileocystoplasty, and Ureteral Reimplantation (UR). Statistical analysis was performed using a multivariate regression model and Fisher’s exact test.

RESULTS
We identified 127 patients who underwent RAL lower tract surgery, 8 (6.3%) were converted to open and excluded from the analysis. A total 119 patients were included, 87 cases of UR and 32 of Augmentation/Appendicovesicotomy, with a median follow up time of 9 (IQR 4-16) and 40.5 (IQR 13.75-81.5) months, respectively. Relative to the UR group, patients undergoing complex bladder procedures had a higher rate of grade III complications (28.13% vs. 1.15%, p<0.01) and one grade IV complication (3.125%) consisting of postoperative urinary sepsis. On univariate analysis, higher EBL and longer operative time were associated with increased odds of grade III complications (OR 1.02 and 1.01, p=0.04 and p=0.02, respectively); age and BMI were not (p>0.05).

CONCLUSIONS
This series highlights the safety of RAL UR, with no complications related to access and low incidence of major complications on long-term follow up. The incidence of high-grade complications in the bladder procedures group was consistent with reported values for other approaches, reflecting the inherent morbidity of these procedures. Longer operative time and higher EBL, possible surrogates for case complexity, were associated with increased rates of grade III complications.
PREDICTORS OF HIGH-GRADE COMPLICATIONS IN PEDIATRIC ROBOT-ASSISTED UROLOGIC SURGERY ON THE UPPER URINARY TRACT

Nimrod BARASHI¹, William BOYSEN¹, Eric SCHADLER², Vignesh PACKIAM¹ and Mohan S. GUNDETI¹

¹) The University of Chicago, Section of Urology, Chicago, USA - ²) The University of Chicago, Pritzker School of Medicine, Chicago, USA

INTRODUCTION
The use of robot-assisted laparoscopic (RAL) surgery in pediatric urology has increased in recent years. We sought to analyze our institutional experience with RAL surgery on the upper urinary tract to identify the incidence of grade III or higher Clavien-Dindo complications, and assess for factors associated with complications.

PATIENTS AND METHODS
We retrospectively reviewed our single-surgeon experience performing RAL surgery on the upper urinary tract in children from 2007 to 2016. Complications were graded on the Clavien-Dindo scale and a univariate analysis was performed.

RESULTS
We identified 137 patients who underwent RAL upper tract surgery, with a median follow up of 11 months (IQR 4-23.5) and a mean age of 6.3 years (SD 5.9). The type and distribution of procedures is shown in Table 1. Of all the patients, 6 had grade III complications (4.38%) and there were no grade IV or V complications, as well as no complications related to access. The most common type of complication was urinary (2.19%), then wound-related (1.46%) and lastly gastrointestinal (0.73%). On univariate analysis, age less than 1 year, BMI, and EBL were not associated with increased odds of grade III complications (p>0.05), but longer operative time was (OR 1.01, p=0.04).

Table 1: Procedure type and distribution

<table>
<thead>
<tr>
<th>Total patients (n)</th>
<th>Pyeloplasty, n (%)</th>
<th>Heminephrectomy, n (%)</th>
<th>Pyelolithotomy, n (%)</th>
<th>Ureterocalicostomy, n (%)</th>
<th>Nephrectomy, n (%)</th>
<th>Nephropexy, n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>137</td>
<td>102 (74.45)</td>
<td>25 (18.25)</td>
<td>6 (4.38)</td>
<td>2 (1.46)</td>
<td>1 (0.73)</td>
<td>1 (0.73)</td>
</tr>
</tbody>
</table>

CONCLUSIONS
This large single-surgeon series demonstrates that RAL pediatric surgery is a safe approach for upper urinary tract procedures, with no complications related to access and low incidence of major complications on long-term follow up. On univariate analysis, operating time was associated with increased odds of complication, which likely reflects the case complexity in a series performed by a highly experienced robotic surgeon.
10:35 – 10:40

S15-3 (VP)

★ TIPS FOR SAFETY AND PROFICIENCY FOR RENAL ROBOT-ASSISTED LAPAROSCOPIC PROCEDURES IN INFANTS

Nimrod BARASHI, William BOYSEN and Mohan GUNDETI

The University of Chicago, Section of Urology, Chicago, USA

PURPOSE

Robot-assisted laparoscopic (RAL) surgery is being widely embraced by pediatric urologists. The adoption of this generic system and instrumentation is uniquely challenging in infants, given the limited working space and little margin of error. In this video, we highlight technical aspects that we consider critical to maximize safety and proficiency during RAL upper tract surgery in infants.

MATERIAL AND METHODS

Based on our single-surgeon nine-year experience with RAL procedures, we identified some important surgical steps that contribute to a safe and efficient procedure.

RESULTS

From a total of 284 cases in nine years, 136 (47.9%) were upper tract procedures and 43 of those were infants (31.6%). We had 1 early case of port site omental hernia, no complications related to access, no injuries intra-abdominal organs, and no conversions to open. The median operating time was 142 minutes (IQR 128-157) and median EBL 5 ml (IQR 5-10). Based on that experience, we identified these as crucial steps for ensuring a safe and efficient procedure: 1) Patient positioning and port placement to avoid unintentional injuries and allow for a wide range of movement of the robotic arms; 2) Docking the robot and placing the instruments while manually controlling the camera; 3) Maximize tissue exposure and reduce damage to adjacent structures; 4) Proper handling of sutures to guarantee an efficient procedure; 5) Fascial port closure under direct vision to avoid omental or bowel hernia post-operatively.

CONCLUSIONS

We provide a series of recommendations to optimize safety and proficiency of RAL renal surgery in infants. As more pediatric urologists adopt the use of this technology and expand its application to younger patients, these recommendations can help minimize complications.

10:40 – 10:43

S15-4 (PP)

COMPARISON BETWEEN LAPAROSCOPIC AND OPEN ANDERSON-HYNES PYELOPLASTY IN INFANTS YOUNGER THAN 6 MONTHS

Andrea SORIA, Sonia PÉREZ-BERTÓLEZ, Oriol MARTIN and Luis GARCÍA-APARICIO

Hospital Sant Joan de Deu, Pediatric Surgery department, Esplugues De Llobregat, SPAIN

PURPOSE

The aim of our study is to compare the outcomes of laparoscopic versus open Anderson-Hynes dismembered pyeloplasty performed in infants younger than 6 months of age at our institution.
MATERIAL AND METHODS
Retrospective chart review of infants who underwent Anderson-Hynes pyeloplasty from 2004 to 2016 was performed. We defined two groups: open pyeloplasty (OP) and laparoscopic pyeloplasty (LP). Demographic, clinical and surgical data were assessed.

RESULTS
73 patients (60 boys) were included. 70 presented uteropelvic junction stenosis and 3 crossing vessels. 29 surgeries were laparoscopic. There was no difference between OP and LP in terms of age, weigh, gender and side (p=0.90, p=0.54, p=0.91, p=0.191, respectively). Preoperative mean pelvis and calices diameters were 29.5mm and 9.5mm in OP and 25.6mm and 9.55mm in LP (p=0.117, p=0.957, respectively). We registered one conversion to open pyeloplasty. Mean differential renal function was 47.4% in OP and 44.8% in LP (p=0.35). Mean operative time was 126 minutes in OP and 145 in LP (p=0.017). Etiology and surgical approach weren’t related (p=1). We registered 2 urinary leakage in OP and 2 in LP (p=1), 1 patient in LP need reoperation. Mean hospital stay was 6.3 days in OP and 3.7 in LP (p<0.001). Postoperative mean pelvis and calices diameters were 11mm and 4.9mm in OP and 8.7mm and 2.5mm in LP (p=0.43, p=0.039, respectively). Decrease of pelvis and calices dilation was similar in both groups (p=0.61, p=0.114). There was one recurrence in OP.

CONCLUSIONS
Starting from equivalent groups, laparoscopic procedure reaches comparable results, similar complication rates with shorter hospital stay.

10:43 – 10:48
S15-5 (VP)★

LAPAROSCOPIC RETROPERITONEAL APPROACH FOR A RARE CASE OF MID URETERIC STENOSIS ASSOCIATED TO UPJ OBSTRUCTION ON SINGLE KIDNEY
Alaa EL-GHONEIMI, Matthieu PYECELON, Liza ALI and Annabel PAYE-JAOUEN
Robert-Debré University Hospital, Assistance-Publique Hôpitaux de Paris; Université Paris Diderot, S, Paediatric Urology, Paris, FRANCE

PURPOSE
Congenital midureteric stenosis is an uncommon cause of obstructive uropathy. In some exceptional cases it may be associated with stenosis at uretero-pelvic junction (UPJ). In this rare association; the challenge is to preserve the vascularization of the dilated ureteral segment between the two stenosis. We describe a retroperitoneal laparoscopic approach for treating safely and simultaneously both stenosis in a single functioning kidney.

MATERIAL AND METHODS
Fourteen months old girl had left prenatal hydronephrosis. MAG3 and URO-MRI significant hydronephrosis of a single functioning kidney, stenosis at the UPJ and on the mid ureter, suggesting ureteral valves, and dilated lumbar ureter. Retrograde confirmed the diagnosis. The Child was placed in a flank position and underwent three-ports laparoscopic retroperitoneal approach (optic:5mm and 2 operating: 3mm). To preserve the vascularization of the dilated lumbar ureter, the proximal anastomosis was done side to side between the dilated renal pelvis and the dilated proximal ureter. The distal anastomosis was done end to end (6/0 monofilament). Drainage: percutaneous trans-anastomotic stent, peri-renal suction, and bladder catheter.
RESULTS
Operative time was 5h20min. Child needed 6 postoperative days to manage post-obstruction relief polyuria. Stent was removed at the outpatient clinic on 10th day. One year postoperative URO MRI confirmed the significant improvement of the hydronephrosis. At three years FU, the child is asymptomatic, renal function is normal; ultrasound shows significant reduction of the dilatation with normal renal growth.

CONCLUSIONS
Double stenosis on a single kidney can be treated simultaneously through retroperitoneal laparoscopic approach. Safety and efficiency could be achieved in our case by: side to side anastomosis on one site, meticulous bipolar dissection, 3 mm instruments, use of fine suturing, and careful postoperative metabolic surveillance.

10:48 – 11:00
Discussion

11:00 – 11:03
S15-6 (PP)

A COMPARISON BETWEEN LAPAROSCOPIC AND RETROPERITONEOSCOPIC APPROACH FOR PARTIAL NEPHRECTOMY IN CHILDREN WITH DUPLEX KIDNEY. RESULTS OF A MULTICENTRIC SURVEY
Ciro ESPOSITO1, Maria ESCOLINO2, Go MIYANO3, Paolo CAIONE4, Francois VARLET5, Fabio CHIARENZA6, Giovanna RICCIPEITONI7, Alessandra FARINA8, Atsuyuki YAMATAKA9, Antonio SAVANELLI10, Francesco TURRA11, Dariusz PATKOWSKI12, Alessandro SETTIMI13, Marco CASTAGNETTI14, Holger TILL15 and Jean-Stephane VALLA16

PURPOSE
We aimed to compare the laparoscopic and retroperitoneoscopic approach for partial nephrectomy in infants and children with duplex kidney.

MATERIAL AND METHODS
The data of 102 patients underwent partial nephrectomy in a 5-years period using MIS procedures were analyzed. Fifty-two children underwent laparoscopic partial nephrectomy (LPN) and 50 children underwent retroperitoneoscopic partial nephrectomy (RPN). Average age at surgery was 4.2 years. Statistical analysis was performed using χ2 test with Yates corrections and t-student test.
RESULTS
The overall complications rate was significantly higher after RPN (21/50-42%) than after LPN (10/52-19%) \( [\chi^2 = 0.05] \). In LPN group, complications (4 urinomas, 2 symptomatic refluxing distal ureteral stumps (RDUS) with recurrent UTIs and 4 urinary leakages) were managed conservatively. In RPN group, complications (6 urinomas, 8 symptomatic RDUS, 6 peritoneal perforations and 1 opening of remaining calyces) required a re-operation in 2 patients. Operative time (LPN:166.2 minutes vs RPN: 255 minutes; p<.001) and hospitalization (LPN: 3.5 days vs RPN: 4.1 days; p<.001) were significantly shorter in LPN group. No post-operative loss of renal function was reported in both the groups.

CONCLUSIONS
Our results demonstrated that RPN remains a technically demanding procedure with a significantly higher complications and re-operation rate compared to LPN, also in expert hands. LPN seems to be faster, safer and technically easier compared to RPN due to a larger operative chamber available, a good overall exposure of the anatomy of the kidney and the possibility to perform a complete ureterectomy in refluxing systems, avoiding to leave a refluxing ureteric stump.

11:03 – 11:06
S15-7 (PP)
PERI-OPERATIVE OUTCOMES OF LAPAROSCOPIC AND OPEN ADRENALECTOMIES – 28 YEAR’S EXPERIENCE
Siam Wee SIM, Pankaj MISHRA, Abraham CHERIAN and Imran MUSTHAQ
Great Ormond Street Hospital for Children, NHS Foundation Trust, Department of Paediatric Urology, Singapore, SINGAPORE

PURPOSE
We compare perioperative outcomes of laparoscopic and open procedures in 57 adrenalectomies with emphasis on complete resection.

MATERIAL AND METHODS
Retrospective review of all the primary adrenalectomies from April 1988 to April 2016, excluding neuroblastoma and redo surgeries. The outcomes were compared with Fisher’s Exact Test.

RESULTS

<table>
<thead>
<tr>
<th>Approach</th>
<th>Laparoscopic</th>
<th>Open</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>28(21Retro/7trans)</td>
<td>29</td>
</tr>
<tr>
<td>Sex</td>
<td>10males, 15females</td>
<td>16males, 12females</td>
</tr>
<tr>
<td>Age (median, months)</td>
<td>64</td>
<td>44</td>
</tr>
<tr>
<td>Side</td>
<td>7left,7right,7bilateral</td>
<td>9left,18right,1bilateral</td>
</tr>
<tr>
<td>Surgery time (median,minutes)</td>
<td>122(35-340)</td>
<td>170(60-630)</td>
</tr>
<tr>
<td>Weight (median,grams)</td>
<td>15.6(0.5 – 72.5)</td>
<td>80.0(4.0-1566.0)</td>
</tr>
<tr>
<td>Volume (median,cm³)</td>
<td>30(1-168)</td>
<td>103(2-2243)</td>
</tr>
<tr>
<td>Operative capsular breach</td>
<td>2(Patient 1&amp;2)</td>
<td>5</td>
</tr>
<tr>
<td>Microscopic margins positive</td>
<td>1(patient 2)</td>
<td>4</td>
</tr>
</tbody>
</table>
Patient-1, P53-mutation, had small capsular breach, negative microscopic margin; histology was adenoma. He had subsequent recurrences with malignant histology.
Patient-2 had capsular breach while closing endopouch. Histology was adrenocortical-adenoma, no recurrence at 41-months.
In open group 3-patients had distant metastasis at presentation. 1-patient had lung metastasis 7 months after surgery. One patient had local recurrence with distant metastasis 9 months after surgery.
There were no differences in capsular breach, positive microscopic margin or local recurrence in both groups (p-value 0.423, 0.352 and 0.480 respectively). Local recurrence in both groups were statistically significant with capsular breach or positive microscopic margin, (p-value <0.001 and 0.003 respectively). All the metastasis/recurrences were in the adrenocortical tumours and occurred within one-year after primary resection.

CONCLUSIONS
Outcome in terms of capsular breach and local recurrence are comparable in both groups. Capsular breach/Microscopic positive margins are associated with higher recurrence rate. Careful en-bloc retrieval of the specimen is important to avoid local spillage and recurrences.

11:06–11:09
S15-8 (PP)
Polar cysts following minimally invasive heminephrectomy – do they matter?
Bernardita TRONCOSO SOLAR, Roberta IACONA, Katerina PRODROMOU, Pankaj MISHRA, Naima SMEULDERS, Peter CUCKOW, Imran MUSHTAQ and Abraham CHERIAN
Great Ormond Street Hospital, Paediatric Urology, London, UNITED KINGDOM

PURPOSE
Post laparoscopic heminephrectomy finding of a simple cyst at the operative site is common with an incidence of 18-60%. Cyst formation can be related to the moiety involved, the technique used to transect the renal parenchyma or indicate incomplete removal or a breach in the residual functioning moiety. Routine follow-up included monitoring with serial ultrasound(USS).
We analysed the incidence and outcome of polar cysts following minimally invasive heminephrectomy (HN) in duplex kidneys utilising different techniques.

MATERIAL AND METHODS
Retrospective review from August 2000 to June 2016 of HN for duplex kidneys utilising trans(LH) or retroperitoneal(RH) approach. Parenchymal division techniques were noted. Serial USS imaging monitored cysts at resection margins.
RESULTS
Over a 16-year period, 111 HN were performed: 51 RH and 61 LH. Upper Moiety (UM) was removed in 86 and Lower Moiety (LM) in 25. Median age at surgery: 20.4 months (2-168 months). Mean operative time: 141min (57-327min).
Overall incidence of polar cysts at resection margin:38.7%, with 23(27%) UM and 20(80%) LM cysts. Endoloop technique was employed in 39 to transect the renal parenchyma, 34RH and 5LH. Polar cysts were seen in 26/34RH and 4/5LH. The incidence of cysts with endoloop was 77%. Resolution was noted in 4.
Harmonic scalpel was used in 67, in whom 9/55LH and none of the 12RH had residual cysts. The incidence of cysts was 13% and resolution was noted in 3.
36 had minimum of 24months follow-up. 29 patients were discharged in whom the cysts: disappeared in 7, unchanged in 16, decreased in size 5 and 1 had no further USS. No cyst required surgical management. 2 were lost from F/U.

CONCLUSIONS
The incidence of polar cysts after heminephrectomy is significantly higher when LM is involved and with the use of endoloop to transect the renal parenchyma. Although cyst formation is common, it is highly unlikely to require further intervention. Therefore, serial USS follow-up is no longer indicated.

11:09 – 11:14
S15-9 (VP)
★ ROBOTIC ASSISTED “KEEL” BLADDER NECK CONSTRUCTION IN AN OBESE PATIENT WITH URO-GENITAL SINUS

Dario Guido MINOLI¹, Alfredo BERRETTINI², Erika Adalgisa DE MARCO², Mirella MOGIATTI², Bernardo ROCCO³ and Gianantonio MANZONI²

1) Fondazione IRCCS Ca’ Granda - Ospedale Maggiore Policlinico, UOSD Urologia Pediatrica, Milano, ITALY - 2) Fondazione IRCCS Ca’ Granda - Ospedale Maggiore Policlinico, UOSD Urologia Pediatrica, Milano, ITALY - 3) Fondazione IRCCS Ca’ Granda - Ospedale Maggiore Policlinico, Urologia, Milano, ITALY

PURPOSE
In the last years the use of robotic technology has gained popularity, allowing performance of the most difficult reconstructive procedures. This video demonstrates the advantages of the robotic approach for a "keel" bladder neck construction in an obese adolescent girl.

MATERIAL AND METHODS
A 13 year-old-girl (BMI 28) already treated elsewhere for a uro-genital sinus (Total Urogenital Mobilization and VUR endoscopic correction) has been evaluated for persistent total urinary incontinence. Cisto-colposcopy revealed a mild introital vaginal stenosis and an extremely short and tortuous urethra. Bladder neck was wide open and patulous. MCU and Urodynamic evaluation showed a bladder with a capacity of 280 ml without developing high voiding pressures (14-16 cm H20) with continuous and persistent urinary leakage. Normal renal function was confirmed with a MAG3 renal scan. Thus, the girl underwent a laparoscopic robotic-assisted “keel” bladder neck construction.

RESULTS
The patient was discharged on 5th post-operative day without complications. After 9 months she is voiding spontaneously (volume 230cc) without post-void residuals. She still presents with minor leakages (stress incontinence/urgency). A recent cystoscopy has been performed with bulking agent injection in the neo-bladder neck with initial improvement of her continence.
CONCLUSIONS
Robotic access to the bladder neck region is an excellent option with ideal anatomical exposure compared to conventional open surgery. It provides an outstanding advantage, especially for obese patients.

11:14–11:26
Discussion

S15-10 (P without presentation)

IS THERE EVIDENCE FOR PATIENT BENEFIT, USING RAS FOR PYELOPLASTIES?

Pia LOFGREN1, Gundela HOLMDAHL2, Petteri SJÖGREN3, Henrik SJOVALL4, Maud ERIKSSON5 and Eva-Lotte DAXBERG6

1) Pediatric Urology, Pediatric surgery and urology, Queen Silvias hospital Gothenburg, Sweden, Gothenburg, SWEDEN - 2) Pediatric urology, Dep of pediatric surgery and urology, Queens Silvias childrens hospital, Gothenburg, SWEDEN - 3) Oral care AB, Odontology, Gothenburg, SWEDEN - 4) Gastroenterology and hepatology, Internatl medicine, Gothenburg, SWEDEN - 5) Medical Library Sahlgrenska university hospital, Medical Library, Molndal, SWEDEN - 6) Medical Library Sahlgrenska university hospital, Medical Library Sahlgrenska university hospital, Molndal, SWEDEN

PURPOSE
Robotic assisted surgery (RAS) has premise for pediatric urology. It has been adopted for the past 15 years. There are few RCT evaluating RAS in children, even so RAS is a growing modality. Before introducing the robotic technique in Gothenburg, Sweden, we performed a Health Technology Assessment analysis that reviews the results of RAS in pyeloplasties in children. The aim of this systematic review was to study the clinical outcomes and risks focusing on patient benefit. RAS, conventional laparoscopy and open surgery were compared.

MATERIAL AND METHODS
Systematic literature searches were conducted in PubMed, EMBASE, the Cochrane Library and HTA databases. Articles published between Jan 2000 to Feb 2016 were reviewed. 10 cohort studies and 16 case series fulfilled the criteria; i.e. children 10 patients, comparison between RAS, laparoscopic and/or open technique.

RESULTS
The primary outcome, resolution of hydronephrosis, was not significantly different between the modalities. Because of poor quality of evidence, it’s uncertain whether RAS reduces postoperative pain or shortens operation time compared to the other techniques. It is also uncertain whether length of hospital stay and complication rates differ between the methods.

CONCLUSIONS
The pyeloplasty procedure in pediatric urology can be performed with RAS, conventional laparoscopy or open surgery. No documentation proves that any of these techniques is superior to another, regarding the outcomes mentioned above. The identified studies were cohort studies contributing to very low quality of evidence according to GRADE. We call for randomized controlled studies.
S15-11 (P without presentation)

INFANT VERSUS PEDIATRIC ROBOTIC ASSISTED LAPAROSCOPIC PYELOPLASTY: ARE OUTCOMES DIFFERENT?

Charles NOTTINGHAM, Russell BECKER and Mohan GUNDETI
University of Chicago Comer Children's Hospital, Urology, Chicago, USA

PURPOSE
Pyeloplasty has historically been performed in patients after the first year of life. The purpose of this study was to compare outcomes between patients above and below one year of age undergoing robotic-assisted laparoscopic pyeloplasty (RALP).

MATERIAL AND METHODS
We performed a retrospective review of patients aged < 18 years undergoing primary RALP for ureteropelvic junction obstruction (UPJO). We evaluated operating room parameters and complication rates between infant (age < 1 year) and non-infant (age ≥ 1 year) patients, and then assessed radiographic outcomes by comparing change in SFU grade of hydronephrosis between the two age groups.

RESULTS
One hundred consecutive primary pyeloplasties met inclusion criteria, including 28 infant cases. The first infant operation was performed only after achieving surgeon’s confidence in non-infants (n=27). The infant group had shorter median operating room time (142 versus 178 minutes, respectively; p=0.001) than the non-infant group. The rate of high-grade complications (Clavien ≥3) was low overall, and similar in both groups (7.1% in infants versus 13.9% in non-infants; p=0.546); these included four patients who required repeat pyeloplasty. Rates of stable or improved hydronephrosis (96.4% versus 94.4%, p=0.683) and degree of improvement (-1.0 vs. -1.3, p=0.219) were favorable in both groups.

CONCLUSIONS
RALP is an excellent option for both infant and non-infant pediatric patients with UPJO. In the hands of an experienced surgeon and skilled operative team, radiographic outcomes and complication rates are favorable and similar in infants when compared to non-infants.

S15-12 (P without presentation)

ROBOTIC PYELOPLASTY: DOES THE LEARNING CURVE AND PROCTORING AFFECT OUTCOMES?

Abd-El-Rahman ABD-EL-BARR1, Nicolas MENDIETA2, Maurilio GARCIA-GIL3, Mariarita SALVITTI1, Diana LOPATEGUI4, Rafael GOSALBEZ1, Kristin KOZAKOWSKI1 and Miguel CASTELLAN1
1) Miami Children’s Health System, Pediatric Urology, Miami, USA - 2) Hospital Dr. Humberto J. Notti, Pediatric Urology, Mendoza, ARGENTINA - 3) Mount Sinai Medical Center, Urology, Miami Beach, USA - 4) University of Miami - Miller School of Medicine, Urology, Miami, USA

PURPOSE
Although open pyeloplasty remains the standard for treatment of UPJ obstruction, robotic pyeloplasty (RP) has gained popularity, and is now the technique of choice in some centers. It has been reported that confidence and experience with robotic techniques increase considerably after the first 30 cases. We compared the outcomes of our first 30 RP cases against later cases.
MATERIAL AND METHODS
The records of 65 patients who underwent RP with ureteral stent placement between October 2012 and March 2016 were retrospectively analysed for demographics, surgical details and complications. Two were excluded, one for conversion to open surgery, one for short follow up. Group I consistent of the first 30 patients and Group II consisted of the next 33. A single surgeon performed Group I’s surgeries and then proctored two of the other surgeons through some of Group II’s surgeries. Foley catheter was removed within 24 hours in all.

RESULTS
Group I included 11 females and mean age was 120.4 months (range 8-234). Average console time was 98 minutes and length of stay was 1.4 days (1-3). There was a single Clavien IIIb complication (open reoperation) and a single Clavien I complication (admission for nausea). Group II included 8 females and mean age was 102.3 months (11-245). Average console time was 78.3 minutes and length of stay was 1.2 days (1-2). There were two Clavien IIIb complications (both required stent repositioning due to pain or stent migration) and a single Clavien II complication (urinary tract infection).

CONCLUSIONS
RP achieves results comparable to those reported for open and laparoscopic techniques. Despite slightly longer surgical time in the first 30 patients, outcomes were similar and acceptable in both groups. Establishing a pediatric robotic program can be achieved safely and effectively with proctoring.
CONCLUSIONS
Pediatric outpatient tubeless robotic upper tract reconstruction is feasible and safe. Further evaluation is warranted to assess long-term outcomes of the reconstructions and to assess tubeless reconstructions on a larger scale.

OUTCOMES OF THE REMANENT RENAL MOIETY AFTER TRANSPERITONEAL LAPAROSCOPIC HEMINEPHRECTOMY

Javier RUIZ, Juan CORBETTA, Santiago WELLER, Ramiro PEREA, Enrique LAGO, Cristian SAGER, Carol BUREK, Victor DURAN and Juan Carlos LOPEZ
Hospital Pediatria J. P. Garrahan Buenos Aires, Urology, Ciudad Autonoma Buenos Aires, ARGENTINA

PURPOSE
Heminephrectomy is usually choosen as a first line treatment in sintomatic duplex kidneys with a non functioning moiety and severe hydronephrosis. Laparoscopic approach has proven excellent results with a low rate of complications, showing in retroperitoneal laparoscopic series a remanent moiety lost rate of 0-9%. Our purpose is to evaluate long term results about the remanent moiety function using a transperitoneal approach in this population.

MATERIAL AND METHODS
We have retrospectively reviewed the charts of 19 patients with Laparoscopic transperitoneal heminefrectomy surgery in our institution during the 2011-2013 period and prospectively study them with a one year postoperative DMSA nuclear scan and a doppler ultrasound to assess any percentage of remanent renal moiety functional lost. We analized different preoperative and postoperative variables and compared them with the functional results.

RESULTS
Median age at surgery was 35,1 months. Nine patients (47,3%) were diagnosed prenatally and 10 has a history of urinary tract infections. Four patients had a previous ureterocele punction procedure and 4 had documented vesicoureteral reflux (VUR) into the ipsilateral lower moiety. There were no intraoperative complications and no conversions. Three patients developed urinary tract infection postoperatively. A mean decrease of 5,5 % (4,7-17,4%) of relative renal function in the remanent moiety was found in this cohort comparing both pre and postoperative nuclear scan studies. There was no total lost of any remanent moiety function.

CONCLUSIONS
Transperitoneal laparoscopic heminephrectomy is a safe minimally invasive procedure in pediatric patients. We found a mean decrease of 5,5% in function in the remanent moiety after the surgery. We did not find any preoperative variable as a significant determinant of the functional value outcome.
LAPAROSCOPIC APPROACH FOR FAILED OPEN ORCHIOPEXY: TECHNIQUE AND LONG TERM FOLLOW UP

Mario RIQUELME-HERAS

Christus Muguerza, Pediatric Urology, Monterrey, MEXICO

PURPOSE
About 0.2-10% of patients with prior orchiopexy will require reoperation for recurrent cryptorchidism. The most common approach for these patients has been an open inguinal repeat orchiopexy. The aim of this report is to show the technique, and results in long term follow up, with the totally laparoscopic approach for failed prior open orchiopexy.

MATERIAL AND METHODS
Fourteen patients with 18 recurrent undescended testes were treated by the totally laparoscopic orchiopexy approach. We used a four-port technique: one 5 mm umbilical port for a 45 degrees lent, two 3 mm port and one 10 mm trans-scrotal port, starting with laparoscopic dissection of the vas deferens and spermatic vessels as high as possible in order to get adequate length of these structures. The inguinal internal ring was opened and the inferior epigastric vessels are cut in order to expand the ring. In the vast majority of the cases the testicle is found 1 cm back of the ring. The testis was dissected to finally bring it into the abdominal cavity. A transcrotal trocar was introduced all the way to the abdominal cavity to finally pull through the testis into the scrotum. We fix it with prolene 5 0 to the scrotum.

RESULTS
Laparoscopic orchiopexy was performed satisfactorily in all but 2 cases in a mean time of 90 minutes. We did not experience any perioperative complications. In a mean follow-up of 48 months there has not been any recurrent cryptorchidism or atrophic testis.

CONCLUSIONS
Laparoscopy offers the advantage of achieving an extensive mobilization of spermatic vessels and a careful dissection of the vas deferens. This technique is reproducible for surgeons with skills in abdominal laparoscopy. The totally laparoscopic approach for a failed orchiopexy represents a feasible, safe, and successful procedure.
RESULTS
A total of 234 laparoscopic procedures were performed, 16 of them were robot assisted. The indications for surgery were pelviureteric junction obstruction in 83, total or partial nephrectomy in 30, cryptorchidism in 87, complicated duplex systems (VUR or obstruction) managed by ipsilateral ureteroureterostomy in 9, urachal fistula/cysts in 4, ovarian torsions/cysts in 13 and diagnostic procedures in 8. The open umbilical access was used in all procedures. Overall there was a complication rate of 5.6% (13 out of 234). The incidence of grade I, II, III complication was 0.4%, 0.9%, 4.3%, respectively. There was no grade IV and V complication. Complications included chylascites, febrile urinary tract infections, dislocated double J catheter, blocked double J catheter, perianastomotic drains dislocated, bleeding, bowel injury and injury to ureter. Many complications were catheter/drain related therefore we adapted our operative management accordingly.

CONCLUSIONS
Our study shows that pediatric laparoscopic urological surgery is safe, although the risk of significant injury remains. Structured clinical audit with subsequent adjustment of therapy may improve patient outcome.
S16: DSD

Moderators: Francisca Yankovic (Chile), Pierre Mouriquand (France)

ESPU Meeting on Friday 21, April 2017, 13:30–14:12

13:30–13:35
S16-1 (LO)
★ TECHNICAL EVOLUTION OF NEO-PHALLOPLASTY IN PEDIATRIC AGE THROUGH 40 PROCEDURES IN 15 YEARS

Roberto DE CASTRO1, Aurélie CHIAPPINELLI1, Emilio MERLINI2, Marianna IAQUINTO1, Maria Grazia SCUDERI3, Anthony CALDAMONE4 and Tue DINH5

1) C.d.C. Petrucciani, Pediatric Surgery & Urology, Lecce, ITALY - 2) Regina Margherita Children’s Hospital, Pediatric Urology, Torino, ITALY - 3) University of Catania, Pediatric Surgery, Catania, ITALY - 4) Brown University, Providence, RI, USA, Pediatric Urology, Providence, USA - 5) University of Texas, Houston, Texas, USA, Plastic Surgery, Houston, USA

PURPOSE
In 2007 a technique for total-replacement phalloplasty in children affected by penile-agenesis was introduced, reporting 4 cases. Afterwards 36 more procedures were carried out by the same surgeon. Herein the latest technical evolution of penile reconstruction in children is presented, allowing better outcomes and less complications

MATERIAL AND METHODS
From 2001 to 2016, 40 patients have been treated in 14 Countries. Seventeen penile-agenesis, 10 traumatic/iatrogenic total amputations, 6 rudimentary/micropenis, 5 PAIS, and 2 cloacal-exstrophy

RESULTS
Several modifications have been introduced. Penile urethra is not simultaneously reconstructed. Rectal ending urethra is divided from the rectum and sited at the perineal area. A rectangular skin-expander is introduced subcutaneously in the lower abdominal wall 3-6 months before phalloplasty. A composite rectangular skin-flap of the lower abdominal wall is designed to reproduce a cylindrical penile body, spherical glans-penis and urethral meatus. Skin-flap lateral ends are elongated with multiple “Z” plasty obtaining a longer dorsal penile aspect. A strip of rectal muscle fascia is dissected, tabularized, incorporated and connected with the neo-urethral meatus. When present corpora cavernosa remnants are lengthened and incorporated. In PAIS, the micro glans-penis is saved and placed at the scrotal-raphe.

These modifications abolished distal urethroplasty complications and reduced formidably skin-flap ischemia and wound dehiscence. Stability of the new penis is obtained, facilitating future penile urethra reconstruction and prosthesis insertion. Patients/parents’ satisfaction improved with better appearance, easier post-operative management and shorter hospital stay.

CONCLUSIONS
One of the very few techniques proposed for total penile reconstruction in pediatric age is revisited. This is a challenging procedure, sometimes temporary, with possible complications and possible disappointing final outcomes. Herein we report a unique 15-year-long experience of a single surgical-team through a total of 40 procedures. Several technical refinements were progressively introduced reaching improvements in the final outcomes and opening better prospective for these unlucky children.
SCROTAL FLAP PHALLOPLASTY (SFP) AS TEMPORARY NEOPHALLUS IN PRE-PUBERTAL CHILDREN WITH PENILE AGENESIS: SUCCESSFUL SURGERY IN THREE CASES

Bruno CEZARINO¹, Francisco DENES¹, Juan PRIETO² and Jeffrey LESLIE³

¹) University of sao paulo, Urology, Sao Paulo, BRAZIL - ²) University of Texas Health Science Center, Urology, San Antonio, USA - ³) University of Texas Health Science Center, Urology, San Antonio, USA

INTRODUCTION AND OBJECTIVE
Penile agenesis, or aphallia, refers to the complete absence of a penis in a normal genotypic male due to failed development of the genital tubercle. Sex reassignment to female gender is no longer recommended in these patients due to conflicting results and high incidence of gender identity disorder. To favor proper psychosexual development of a child with aphallia, a phallus must be created in early childhood. We present a successful technique using a scrotal flap to build a temporary neophallus in aphallia patients who usually have a well-developed, scar-free scrotum with descended testes.

METHODS
Scrotal Flap Phalloplasty (SFP) involves the creation of a neophallus using a cylinder type shape mid-scrotal flap along with rotation of Glenn-Anderson scrotal flaps for scrotoplasty. This video demonstrates the SFP technique in patients with aphallia.

RESULTS
Three patients with aphallia underwent SFP at 15 months, 18 months, and 6 years old, respectively. The end result was evident in the immediate post-operative period with a satisfactory cylindrical structure resembling an uncircumcised phallus. The satisfactory cosmetic result has persisted up to three years of follow up in two of them. Parents and patients are very satisfied with the neophallus appearance. To date, there has been no evidence of contraction or loss of the flap. The parents of the older patient requested volume/diameter enhancement of the phallus for which AlloDerm® graft bulking procedure was performed satisfactorily.

CONCLUSIONS
SFP is a minimally invasive, simple and reproducible technique to create a temporary phallus in boys with aphallia while awaiting a definitive phalloplasty after the onset of puberty. This technique preserves the lower abdomen, forearms, or lower extremities for any definitive phalloplasty. A temporary phallus should be pursued during childhood to reinforce the child’s male-gender identity thereby favoring his self-esteem and psychosexual development.
STUDY OF TESTICULAR FUNCTION IN INFANTS AND CHILDREN WITH ATYPICAL GENITALIA DUE TO DISORDER OF SEX DEVELOPMENT (46, XY DSD)

Shaymaa RAAFAT¹, Haytham BADAWY², Doaa KHATER¹, Shaymaa ELSAYED¹ and Magdy OMAR¹

¹) University of Alexandria, Endocrinology department, Alexandria, EGYPT - 2) University of Alexandria, Ped-urology, Alexandria, EGYPT

PURPOSE
to evaluate the role of serum AMH as a new tool for investigating the function of the pre-pubertal testis without the need for HCG stimulation test, and to compare the value of basal inhibin B with testosterone response after HCG stimulation in the prediction of pre-pubertal testicular function.

MATERIAL AND METHODS
we studied 33 cases ranging in age from 1 month to 15 years through a whole year from 10/2015 to 10/ 2016. The patients had been referred for hormonal evaluation of gonadal function, including basal testosterone, FSH, LH, AMH, and inhibin B and HCG stimulation test.

RESULTS
we found that there were 16 cases with 5 alpha reductase type2 deficiencies, 10 cases with partial androgen insensitivity, 2 cases with complete androgen insensitivity, 3 cases with syndromic XY DSD, one case with bilateral vanishing testes and one case with partial gonadal dysgenesis. There is clear correlation between basal inhibin B and testosterone increment after HCG stimulation (this was clearly shown in 27 cases in the study). In cases with vanishing testes and gonadal dysgenesis, there was no detectable respectable normal level of inhibin B and AMH. That finding may highlight the role of AMH and inhibin B in assessment of XY DSD cases. There was significant correlation between AMH and inhibin B. There was a stronger correlation between serum FSH level and primarygonadal failure rather than using basal inhibin B in such correlation.

CONCLUSIONS
Basal AMH, inhibin B and FSH are valuable tools during testicular function assessment in cases with XY DSD.

Discussion
PROXY- AND SELF-REPORTED OUTCOME AFTER SURGERY IN DSD PATIENTS

Marion RAPP1, Lise DURANTEAU2, Robert RÖHLE3, Tim VAN DE GRIFT4, Angelica Linden HIRSCHBERG5, Susanne KREGE6, Justine SCHOBER7, Claire BOUVATTIER2, Peggy COHEN-KETTENIS4, Birgit KÖHLER3, Anna NORDENSTRÖM8, Ute THYEN9 and Agneta NORDENSKJÖLD8

1) University of Lübeck, Department of Pediatrics, Lübeck, GERMANY - 2) HUPS (Bicêtre), Le Kremlin-Bicêtre, FRANCE - 3) Charité, Berlin, GERMANY - 4) VU Medical Center, Department of Medical Psychology, Hv Amsterdam, NETHERLANDS - 5) Karolinska Universitetssjukhuset, Department for Gynaecology and Obstetrics, Solna, SWEDEN - 6) Klinikum Essen Mitte, Department of Urology, Essen, GERMANY - 7) UPMC Hamot, Department of Urology, Erie, USA - 8) Karolinska Universitetssjukhuset, Solna, SWEDEN - 9) University of Lübeck, Department of Pediatrics, Lübeck, GERMANY

PURPOSE
Outcome studies of genital surgery in disorders of sex development (DSD) often lack the patient’s perspective. We describe observer’s and patient’s satisfaction with the anatomical and functional result after genital surgery in a large European cohort.

MATERIAL AND METHODS
1040 adolescents (>15 yrs.) and adults with DSD took part in a cross-sectional multicentre clinical evaluation study in six European countries in 2014/15. Diagnoses were Turner syndrome (n=301), 45,XO/46,XY (n=45), Klinefelter syndrome (n=218), XYY (n=1), 46,XY DSD (n =219) and 46,XX DSD (n=256). Study protocol included a clinical report file, an optional gynaecological/urological examination and a patient reported outcome including received surgical interventions, and opinions about the anatomical and functional outcome.

RESULTS
500 of 1040 participants were subjected to genital surgery with the highest rate in 46,XY DSD and the lowest in Turner syndrome. 303 participants got a feminising and 125 a masculinising surgery and overall 217 underwent gonadectomy. Of those who answered the patient reported outcome 13 % were (very) dissatisfied with anatomical appearance and function. Participant’s view correlated positively with the examiner’s view in case of anatomical appearance. Regarding specific interventions clitoridectomy had a very negative effect on participant’s life and one third experienced a negative one of gonadectomy.

CONCLUSIONS
Irreversible removal of organs was regarded most negatively. Physicians should be aware of its possible long-lasting negative effect on patient’s life. Patient reported outcome should be evaluated whenever possible to gain as much understanding of the influence of genital surgery in DSD on future life as possible.
URETHRAL STRICTURE IN THE LONG-TERM FOLLOW-UP OF PATIENTS WITH DSD SUBMITTED TO HYPOSPADIAS REPAIR

Min Jeong BAG¹, Maria Helena PALMA SIRCILI¹, Sorahia DOMENICE², Elaine COSTA², Berenice MENDONÇA² and Francisco T DÉNES¹

¹) Hospital das Clínicas - FMUSP, Urology, São Paulo, BRAZIL - 2) Hospital das Clínicas - FMUSP, Endocrinology, São Paulo, BRAZIL

PURPOSE
Urethral stricture (US) is a complication of hypospadias repair. Our aim is to evaluate the incidence of US in the long-term follow-up of DSD patients submitted to this procedure.

MATERIAL AND METHODS
We reviewed 65 DSD patients submitted to proximal hypospadias repair, regarding the presence of US and its management. Surgeries were performed between 1965 and 2006 and a two-staged repair was performed in 95.5% of the cases. Non-parametrical analysis was done when comparing groups of patients with and without US.

RESULTS
US was found in 15 (23%) patients, all of them were primarily submitted to a two-staged surgery. The median time between stages in the group with US was 8 (5-24) months, which did not significantly differ from the group without US. The median age at the first stage was 13 (1-34) years in the group with US, and 5 (1-47) years in the group without US, which is statistically significant. Three (20%) patients with US presented obstructive symptoms for the first time 20 years after surgery. Successful treatment of US was achieved with dilatations in 8 patients (53.3%), while 2 (13.3%) needed endoscopic urethrotomy and 5 (33.5%) required surgical correction, one of them (6.7%) undergoing an acellular matrix transplantation after many failed surgeries.

CONCLUSIONS
US is a common complication in hypospadias repair and it can be symptomatic for the first time after decades. It is mostly found in cases operated at older age. Urethral dilatation should be the first option for treatment, considering surgical urethral reconstruction in complex cases.

LAPAROSCOPIC VAGINAL PULL THROUGH FOR LONG GAP CONGENITAL VAGINAL ATRESIA

Daniela GORDUZA, Daniel RAUDRANT, Pierre MOURIUAnd and Pierre Yves MURE
Hospices Civils de Lyon - Hôpital Femme Mère Enfant, Université Claude Bernard Lyon 1, Lyon, FRANCE

INTRODUCTION
Vagino-perineal anastomosis for girls with distal vaginal atresia with long gap is a challenging procedure. Combined laparoscopic approaches and perineal anastomosis could be useful to facilitate the lowering of the upper remaining vagina and minimized perineal dissection.
PATIENTS (OR MATERIALS) AND METHODS
For two consecutive patients (13 and 14 years) with distal vaginal atresia and long gap between the remaining vagina and perineum, a combined abdominal laparoscopic dissection and perineal approach was performed. In this video, we describe the surgical procedure including laparoscopic vaginal dissection and pull through with perineal anastomosis.

RESULTS
The technique is derived from the laparoscopic assisted treatment for high ano-rectal malformations and laparoscopic assisted vaginal pull-through for high urogenital sinus in congenital adrenal hyperplasia. Compared with current techniques for treatment of distal vaginal atresia with large defect, the laparoscopic approach allows minimal dissection of the pelvis and perineum. Furthermore, it provides a direct vision for lowering the vagina in the space between rectum and urethra and permits a tension free vagino perineal anastomosis.

CONCLUSIONS
Laparoscopic vaginal pull through appears to be a valuable approach for distal congenital vaginal atresia with large defect. It reduces perineal dissection, better vision of surrounding urinary and digestive structures and postoperative risk of vaginal introitus stenosis. It makes the operation available to a wide range of surgeons skilled in laparoscopy. This preliminary experience needs to be strengthened by other cases.

14:03 – 14:12
Discussion

S16-7 (P without presentation)

BILATERAL INGUINAL HERNIA IN “FEMALE” NEONATE RARELY REVEALS A COMPLETE ANDROGEN INSENSIVITY SYNDROME (CAIS) OR 5 ALPHA REDUCTASE MUTATION

M. OLLIVIER¹, F. PARIS², S. GARNIER¹, P. PHILIBERT², N. SERVANT², P. BORREGO¹, Mp GUIBAL¹, D. FORGUES¹, H. ALLAL¹, C. LOPEZ¹, L. GASPARI², C. SULTAN² and N. KALFA¹

¹) Hopital Lapeyronie, CHU Montpellier, Urologie Pédiatrique, Montpellier, FRANCE - 2) Hopital Lapeyronie, CHU Montpellier, Endocrinologie Pédiatrique, Montpellier, FRANCE

PURPOSE
Neonatal inguinal hernia in “girls” may reveal 46XY-DSD including CAIS and SRD5A2 mutations. However the incidence of underlying DSD remains highly variable due to clinical heterogeneity of previous series. We aimed to evaluate the incidence of 46XY-DSD among neonates with inguinal hernia according to its type (uni-bilateral) and content.

MATERIAL AND METHODS
306 neonates with a female phenotype operated for a herniotomy were included retrospectively (2000-2016). 171 underwent a bilateral repair. Gonads were assessed either by US or by intraoperative direct examination. If CAIS or 5-alpha-reductase mutation was suspected, hormonal dosage, karyotype and direct AR (exons 1-8) and SRD5A2 genes sequencing were performed.
RESULTS
Testes were identified in 5 children: 4 mutations of AR gene (p.F755V, p.W752G, p.F584del, p.S204N+p.R615del) and one of SRD5A2 gene (p.Q126R+p.Y253F). One ovotestis was also found (46XX-DSD). Overall the incidence of DSD in “female” neonate with inguinal hernia is lower than expected (1.9%), even when focusing on cases with bilateral surgery and a simple persistence of the peritoneovaginal channel (3.5%). In case of bilateral hernia with digestive content (n=48), the incidence raises to 12.5%. Patients with persistent gonadal exteriorization (n=19) represent the group with the highest risk of underlying DSD (31%).

CONCLUSIONS
The incidence of DSD among “girls” undergoing unilateral or bilateral hernia repair is low and depends on the exact phenotype. The simple persistence of the contralateral channel is not a risk factor for an underlying DSD. Systematic research of CAIS or SRD5A2 mutations may be justified in selected patients only, especially those with gonadal content on both sides.

IS NERVE SPARING CLITOROPLASTY REALLY A NERVE SPARING?
Haytham BADAWY1, Ashraf SAAD2, Dina ABDALLAH3, Shaymaa ELSAYED4, Doaa KHATER4 and Magdy OMAR4
1) University of Alexandria, Ped-urology, Alexandria, EGYPT - 2) University of Alexandria, Urology, Alexandria, EGYPT - 3) University of Alexandria, Pathology department, Alexandria, EGYPT - 4) University of Alexandria, Endocrinology department, Alexandria, EGYPT

PURPOSE
Surgery for clitoral reduction has been practised for over half a century. The aim of clitoral surgery is to achieve normal clitoral morphology without compromising sexual function. To achieve these purposes, many techniques were developed since Young first reported reduction clitoroplasty in 1937. As the importance of the neurovascular bundle was realized, attempts were made to preserve this structure aiming at preservation of the sensory supply to the clitoris to achieve sexual satisfaction.

MATERIAL AND METHODS
The study was conducted on 6 patients with congenital adrenal hyperplasia, who were operated upon with reduction clitoroplasty with neurovascular bundle preservation as a part of the genital reconstruction between January 2014 and December 2015. The study protocol was approved by the Human Ethics Review Committee of the faculty of medicine and assigned consent form was obtained from each subject. Whole surgically removed corporal bodies were processed. Examination of the sections was done for the presence of nerve bundles related to the anatomical location of the neurovascular bundle.

RESULTS
Thick nerve bundles were seen in the dorsal aspect of the corporal bodies embedded in the fibrous tissue of the tunica albuginea related to the anatomical location of the neurovascular bundles.

CONCLUSIONS
Despite of neurovascular bundle preservation during the reduction clitoroplasty procedure, it is inevitable to destroy a considerable part of the nerve supply to the clitoris thus causing sensory defect which may cause sexual dissatisfaction.
CLEAN INTERMITTENT VAGINAL CATHERIZATION (CIVC): IS IT AN ALTERNATIVE TO VAGINOSTOMY IN MANAGING HYDROCOLPOS ASSOCIATED WITH UROGENITAL SINUS (UGS)?

Mohamed ELSAWY¹ and Abd Alnasser ALSAID²
1) Ibn Sina Hospital, Paediatric Urology-Surgery, Kuwait, KUWAIT - 2) Ibn Sina Hospital, Pediatric Surgery, Urology Unit, Shuweikh, KUWAIT

PURPOSE
Vaginostomy has been practiced as a standard procedure in drainage of hydrocolpos with UGS. We herein emphasize the effectiveness of CIVC in drainage of hydrocolpos in patients having UGS. The advantage of this non invasive technique in facilitating reconstructive surgery by avoiding Vaginostomy and its related complications.

MATERIAL AND METHODS
7 patients of pure UGS (without ambiguous genitalia) presented during first week of life with clinical and ultrasound findings suggestive of huge hydrocolpos. 5 patients underwent Genitoscopy to study the anatomy and vaginal orifice was seen stenotic on the floor of the common channel which was dilated with the scope and 10 Fr feeding tube was inserted for a week. After counseling the parents specifically regarding the advantage associated with avoidance of Vaginostomy related morbidity, CIVC was started and hydrocolpos was successfully drained every 8 hourly. In the other 2 patients CIVC could be performed successfully without need for Genitoscopy.

RESULTS
Follow up period ranged from 14-19 months. The mean hydrocolpos volume at presentation was 120 ml. Serial ultrasound scan on regular follow up suggested that CIVC with no 8 French feeding tube was successful in managing hydrocolpos with daily drainage of 15-45 ml with optimum parents compliance and acceptance. All patients underwent reconstructive procedure successfully without complication.

CONCLUSIONS
CIVC appears to be an easy, simple, effective non-surgical procedure in management of hydrocolpos associated with pure UGS till reconstructive surgery is performed. Awareness among treating physician may help in reducing the incidence of Vaginostomy thus facilitating reconstructive surgery and avoid long-term morbidity.
RELIABILITY OF PRENATAL DIAGNOSIS IN DISORDERS OF SEX DEVELOPMENT (DSD)

Paula BORREGO¹, Florent FUCHS², Cyril AMOUROUX³, Benoit ANTOINE², Alice FAURE⁴, Olivier MAILLET¹, Sarah GARNIER¹, Christophe LOPEZ¹, Dominique FORGUES¹, Thierry MERROT⁴, Jean-Michel GUYS⁴, Jean-Michel FAURE², Claire JEANDEL³, Françoise PARIS³ and Nicolas KALFA¹

¹) CHU Montpellier, Pediatric Surgery, Montpellier, FRANCE - 2) CHU Montpellier, Obstetrics and Gynecology, Montpellier, FRANCE - 3) CHU Montpellier, Pediatric Endocrinolgy, Montpellier, FRANCE - 4) AP-HM, Pediatric Surgery, Marseille, FRANCE

PURPOSE

Fetal sex determination by prenatal ultrasound is performed early during pregnancy but identification of abnormal genitalia remains challenging. We aimed to evaluate the reliability of prenatal diagnosis of DSD (PN-DSD) to support prenatal counseling and birth management.

MATERIAL AND METHODS

From 2008 to 2016, data from fetuses with PN-DSD were collected using a standardized prenatal questionnaire and postnatal evaluation by a pediatric urologist, endocrinologist and/or fetopathologist in case of pregnancy termination. Isolated cryptorchidism and bladder/cloacal extrophies were excluded.

RESULTS

Fifty-five fetuses were included. Overall, the positive predictive value was 85%. PN-DSD were mainly 46XY-DSD (60%, posterior or midpenile hypospadias n=22, anterior hypospadias n=7, scrotal transposition or buried penis n=2, epispidias n=1, micropenis n=1). 46XX-DSD were identified in 14% (congenital adrenal hyperplasia n=4, isolated transient labia hypertrophy or clitoromegaly n=3, ovotestis n=1). Other malformations included Prune-Belly (n=3) and persistent cloaca (n=3).

Prenatal findings were correlated with postnatal phenotype in 72% of 46XY-DSD, but remain very little specific in 46XX-DSD. Severe 46XY-DSD tended to be associated with early diagnosis at second trimester (p=0.06) and intra-uterine growth retardation (IUGR, p=0.06). A significant number of PN-DSD had associated malformations (25.4%) but karyotype abnormalities remain rare (3.6%).

CONCLUSIONS

The positive predictive value of PN-DSD is high. A wide range of phenotypes may be screened by prenatal ultrasound. The correlation between prenatal and postnatal findings is good in 46XY-DSD but shows a low specificity in 46XX-DSD. The high frequency of severe 46XX/XY-DSD among these fetuses justifies birth in a multidisciplinary DSD team. Associated IUGR and early diagnosis during pregnancy may raise suspicion on severe phenotype.
S17: OBSTRUCTION & HYDRONEPHROSIS

Moderators: Jorge Caffaratti (Spain), Josef Oswald (Austria)

ESPU Meeting on Friday 21, April 2017, 14:45–15:40

14:45–14:48

S17-1 (PP)

★ URINARY CARBOHYDARTE ANTIGEN 19-9 MAY PREDICT FAILURE OF NON-OPERATIVE MANAGEMENT IN CHILDREN WITH URETEROPELVIC JUNCTION OBSTRUCTION

Behnam NABAVIZADEH¹, Abdol-Mohammad KAJBAFZADEH¹, Reza KHORRAMIROUZ¹, Erfan AMINI², Asal HOJJAT¹ and Farhad PISHGAR²

1) Tehran University of Medical Sciences, Pediatric Urology and Regenerative Medicine Research Center, Pediatric Center of Excellence, Tehran, ISLAMIC REPUBLIC OF IRAN - 2) Tehran University of Medical Sciences, Uro-oncology Research Center, Tehran, ISLAMIC REPUBLIC OF IRAN

PURPOSE
Surgical intervention is indicated in children with ureteropelvic junction obstruction (UPJO) with deteriorating renal function. Determining predicting factors is of great value in identifying kidneys which might benefit from early surgical intervention. We conducted this study to assess the role of urinary carbohydrate antigen 19-9 (CA19-9) measurement in determining optimal management of children with UPJO.

MATERIAL AND METHODS
The patients were divided into three groups: Patients in group 1 required immediate pyeloplasty. Group 2 were suitable for observation; however due to the deterioration of condition pyeloplasty was indicated after a period of observation. Group 3 consisted of patients who were considered for non-operative management with improvement of the condition during the course of follow up.

RESULTS
A total of 124 children (127 affected kidneys) with UPJO and median age of 4.7 months were considered in this study. 39 patients (31.5%) underwent pyeloplasty (group 1), whereas 85 patients were considered for non-operative management. Crossover from observation to pyeloplasty was necessary in 28 patients out of 85 (32.9%) patients (group 2) and the remaining 57 patients showed significant improvement in APD. Mean urinary CA19-9 level was 224.6±232.5, 134.4±89.3 and 37.0±37.5 in group 1, 2 and 3 patients, respectively. ROC curve analysis revealed that urinary CA19-9 level at cut off value of 25 has 93% sensitivity and 50% specificity in predicting failure of non-operative treatment. Multivariate analysis showed that both CA19-9 and APD were independent predictors of need for surgery.

CONCLUSIONS
Higher urinary CA19-9 level is associated with failure of non-operative management in patients with UPJO.
PROGNOSTIC VALUE OF ULTRASOUND GRADING SYSTEMS IN PRENATALLY DIAGNOSED UNILATERAL URINARY TRACT DILATATION

Aurélien SCALABRE¹, Delphine DEMEDE¹, Segolene GAILLARD², Jean-Pierre PRACROS³, Pierre MOURIQUAND¹ and Pierre-Yves MURE⁴

¹) Hospices Civils de Lyon, Hôpital Femme Mère Enfant, Claude Bernard University Lyon 1, Chirurgie pédiatrique, Bron, FRANCE - ²) EPICIME-Centre d’Investigation Clinique 1407 de Lyon, Inserm, CHU de Lyon, CNRS, UMR 5558, Bron, FRANCE - ³) Hospices Civils de Lyon, Hôpital Femme Mère Enfant, Claude Bernard University Lyon 1, Radiologie Pédiatrique, Bron, FRANCE - ⁴) Hospices Civils de Lyon, Hôpital Femme Mère Enfant, Claude Bernard University Lyon 1, Chirurgie Pédiatrique, Bron, FRANCE

PURPOSE
To compare the prognostic values of the antero-posterior intrasinusal diameter (APD) of the renal pelvis, Urinary Tract Dilation (UTD) and Society for Fetal Urology (SFU) grading systems in children with prenatally diagnosed unilateral UTD.

MATERIAL AND METHODS
All newborns with prenatally diagnosed unilateral UTD, normal bladder and APD ≥10 mm on the first postnatal ultrasonography (US) were prospectively enrolled from January 2011 to February 2015. Indications for surgery were: repeated febrile urinary tract infections and/or decrease of relative renal function of more than 10% on serial isotope studies and/or increasing APD of more than 20% on serial US scans. Sensitivity, specificity and ROC curves were calculated to evaluate the accuracy of APD, UTD and SFU grading systems in discriminating children who would need surgery.

RESULTS
Seventy children (57 males and 13 females) were included. Thirty-three patients required surgery at a median age of 5 months (2-41). The UTD remained stable in 14 cases and decreased in 23 cases with a median follow-up of 42 months (25-67). APD, UTD and SFU scores were all correlated with the need for surgery. APD with a threshold of 20 mm had the best prognostic value with a sensitivity of 81.8% and a specificity of 91.7%.

CONCLUSIONS
Our study confirmed that the prognostic value of APD, UTD and SFU grading systems in newborns with prenatally diagnosed unilateral UTD was comparable. APD and abnormal parenchymal thickness are the most important US criteria to identify children at risk for surgery.
EFFICACY OF UPPER TRACT DILATATION CLASSIFICATION IN PREDICTING THE NEED FOR PYELOPLASTY COMPARED TO THE CURRENT UK APPROACH

Mohammad BADER, Hariom SUR, Andrew ROBB, Harish CHANDRAN and Liam MCCARTHY

Birmingham Children’s Hospital, Paediatric Urology, Birmingham, UNITED KINGDOM

PURPOSE
UK functional diagnostic approach (Renal functions and anteroposterior diameter (APD)) for pyeloplasties is different from USA morphological approach (Society for Fetal Urology classification). Recent Upper Tract dilatation (UTD) classification has unified antenatal and post-natal grading. We aimed to test the efficacy of this grading scheme to our functional approach to predict the need for pyeloplasty in UK children.

MATERIAL AND METHODS
A retrospective case-control study was performed by identifying pyeloplasty patients with isolated PUJO, and controls from MAG3 studies. The demographics, radiological findings and UTD score were analysed. Children with abnormal ureters and bladders were excluded.

Data given as median (inter-quartile range). Fisher exact test was used to compare contingency tables, Mann-Whitney u-test for cardinal data (p<0.05 significant). Odds ratios were calculated for each predictive factor.

RESULTS
50 patients were identified in each group. There was no significant difference between operative group age at operation 1.00(0.55-6.25) years vs. non-operative controls age at scan 2.87(1.55-9.52) years (p=0.23). APD was significantly higher in the pyeloplasty group, 26.5(19-31)mm vs. 11(8-16)mm, p<0.0001. MAG3 differential function was lower in the pyeloplasty group, 44(38-51)% vs 49(44-53)%, p<0.05.

When UTD3 criteria was compared with UK diagnostic factors (APD >20mm and rising, APD >30mm or combination), all were statistically significantly (p<0.0001) associated with pyeloplasty not surprisingly, however UTD grade 3 was most sensitive (94%) and 2nd most specific (98%). APD >30mm, Rising APD >20mm and function <40% were very specific but less sensitive but in combination sensitivity was 74% and specificity was 86%.

CONCLUSIONS
UTD grade 3 correlates extremely well with the need for pyeloplasty by UK criteria. The use of UTD classification is extremely efficacious, and suggests prospective trials should be done. Furthermore, standardization of this classification will allow international comparisons of practice to be made.
THE FIRST LINE PSOAS HITCH BLADDER URETERAL REIMPLANTATION IN CHILDREN UNDER 1-YEAR

Julien ROD\textsuperscript{1}, Jean-Baptiste MARRET\textsuperscript{1}, Henri LOTTMANN\textsuperscript{2}, Marc-David LECLAIR\textsuperscript{3}, Sebastien FARAJ\textsuperscript{3}, Anne DARIEL\textsuperscript{3}, Yves AIGRAIN\textsuperscript{2}, Thomas BLANC\textsuperscript{2} and Philippe RAVASSE\textsuperscript{1}

\textsuperscript{1) Caen University Hospital, Department of Pediatric Surgery, Caen, FRANCE - 2) Necker Enfants Malades University Children Hospital, Department of Pediatric Surgery and urology, Paris, FRANCE - 3) Children University Hospital, Department of Pediatric Surgery, Nantes, FRANCE}

PURPOSE

The surgical management of primary megaureter is controversial for children under 1-year, especially since the development of stenting or balloon dilatation. The aim of this study is to evaluate the results of the psoas hitch bladder ureteral reimplantation as a primary procedure for congenital megaureter in children under 1-year.

MATERIAL AND METHODS

Retrospective study in three centers between 1995 and 2015. Clinical and radiological characteristics were collected of patients who underwent a psoas hitch ureteral reimplantation. The indications were breakthrough UTI, decrease in function on renogram in single or duplex systems Patients were followed up with clinical assessment and renal ultrasonography. According to the age at surgery patients were divided in group 1 (children under 1 year, n=54) and group 2 (children over 1 year n=57). We assessed postoperative evolution of dilatation on ultrasound, rates of recurrent UTIs, and need for redo surgery.

RESULTS

Mean age at surgery was 7,8 (group 1) and 31,7 (group 2) months. There were no significant difference in indications for surgery between the two groups. No patients required re-operation for anastomotic stricture or obstruction. The overall rate of postoperative breakthrough UTIs was 14,8% in group 1, vs 15,8% in group 2. Postoperative ultrasound showed an improvement of hydronephrosis in 93% in the two groups.

When postop VCUG was systematically performed, it demonstrated post-reimplantation VUR in 18% in group 1 and 17% in group 2. No clinical bladder dysfunction during the follow-up (mean follow-up 50 months).

CONCLUSIONS

Bladder hitch ureteral reimplantation is a safe and reliable technique as primary procedure in children under 1-year.
LAPAROSCOPIC EXTRAVESICAL TRANSVERSE URETERAL REIMPLANTATION IN OBSTRUCTIVE MEGAURETER

Sergey BONDARENKO¹ and Ilia KAGANTSOV²

1) Regional Hospital 7, Pediatric Urology, Volgograd, RUSSIAN FEDERATION - 2) Children’s Republican Hospital, Pediatric Urology, Syktyvkar, RUSSIAN FEDERATION

PURPOSE

We report our experience with laparoscopic dismembered extravesical transverse ureteral reimplantation in children with unilateral primary ureterovesical junction obstruction.

MATERIAL AND METHODS

The age of the patient is 3 months. The right side grade IY ureterohydronephrosis was diagnosed prenatally. At the age of two months the boy had acute pyelonephritis. No evidence of vesicoureteral reflux was defined by voiding cystogram but intravenous urography shows grade IY hydronephrosis with extremely dilated ureter. Laparoscopic dismembered extravesical transverse ureteral reimplantation with extracorporeal tapering of the ureter and psoas-hitch was performed.

RESULTS

There were not major intraoperative complications. The operative time was 150 minutes. In 6 months and year follow-up period intravenous urogram demonstrated improvement of the dilatation of the pelvicaliceal system and ureter. No vesicoureteral reflux was detected by voiding cystogram. Seventeen children (16 patients were male and 1 female, aged 3 months to 5 years) underwent laparoscopic dismembered extravesical transverse ureteral reimplantation. In all patients surgery was completed laparoscopically without conversion to open procedure; there were not major intraoperative complications. The mean operative time was 180 minutes (range 150-210 min). In 6 months and year follow-up period intravenous urogram and intravenous urogram demonstrated improvement of the dilatation of the pelvicaliceal systems and ureters in all patients; in two cases vesicoureteral reflux developed and was successfully treated by endoscopic urodex injection.

CONCLUSIONS

We could consider this technique as an eventual option when dismembered extravesical reimplantation is needed. The procedure is ergonomically easier than conventional Lich-Gregoir technique.
MICROSURGICAL-BLADED CUTTING-BALLOON ENDOUTEROTOMY FOR PRIMARY OBSTRUCTIVE MEGAURETER (POM) OBVIATES THE NEED FOR URETERIC RE-IMPLANTATION

Naima SMEULDERS¹, Pankaj MISHRA¹ and Abraham CHERIAN²

¹) Great Ormond Street Hospital NHS Foundation Trust, Department of Paediatric Urology, London, UNITED KINGDOM
- 2) Great Ormond Street Hospital NHS Foundation Trust, Department of Paediatric Urology, London, UNITED KINGDOM

PURPOSE

1/3-1/2 of children stented for primary obstructive megaureter (POM) will require subsequent ureteric re-implantation. Can this be averted by endoscopic incision of the vesico-ureteric junction (VUJ) using a microsurgical-bladed cutting-balloon?

MATERIAL AND METHODS

All patients presenting for cutting-balloon endoureterotomy of POM between April’11 and April’16 were prospectively enrolled into the study and followed a set protocol of investigations (serial ultrasound+MCUG+functional imaging), surgery and follow-up (serial ultrasound+functional imaging).

RESULTS

Thirty-one children (25 male/6 female) presented after antenatally-detected hydronephrosis (24), urosepsis (5), acute renal failure (1) and investigation of hypertension/proteinuria (1). POM was to a solitary-functioning kidney (2), bilateral (2), co-existing with ipsilateral PUJO (7) or VUR (2-ipsilateral, 1-contralateral). Intervention for POM was indicated for symptoms (9), reduced differential function (DF; 6) and increasing hydro-ureteronephrosis (HUN; 15). At age 3weeks-9yrs (median 5months), 33 POM were incised under image-guidance/cystoscopic-vision using a 3-microsurgical-bladed small peripheral cutting-balloon (Boston Scientific 2.5mm-1, 3mm-31, 4mm-1) over a 0.014inx200cm Synchro-wire (Boston Scientific) followed by JJ-stenting (32-Cook 4.7Fr8-20cm; 1-Cook 5Fr8cm) for 4-8 weeks in 28, and 5,5,7,9,9 months in the remainder. A migrated JJ-stent (2) or fractured Synchro-wire (1) were retrieved by ureteroscopy. No stent change for sepsis was required. Follow-up extends from 6-67months (median 24months) with reduced HUN in 27 (DF increased-6, stable-21), stable HUN in 3 (DF increased-1, stable-2), increasing HUN in 3 (DF stable). In the latter, redo-endoureterotomy (4mm-cutting-balloon) resulted in reduced HUN in 2 and clearance of 2mm calculi in the other. No residual/recurrent stenosis was found on balloon re-assessment in one further patient with gross congenital hydronephrosis (APD>90mm) due to PUJO+VUJO.

CONCLUSIONS

Endoscopic deployment of microsurgical-bladed balloons allows precise incision of the VUJ in POM obviating the need for prolonged JJ-stenting and ureteric re-implantation. A repeat endoscopic incision, required in 10% in this study for increasing HUN on follow-up, can tackle persistent/recurrent stenosis.
SIDE-TO-SIDE REFLUXING NON-DISMEMBERED URETEROCYSTOTOMY: KEEPING AN INTACT URETEROVESICAL JUNCTION, SIMPLIFYING THE KAEFER TECHNIQUE AS A STRATEGY TO ADDRESS OBSTRUCTED MEGAURETERS IN CHILDREN

Fahad A. ALYAMI1, Martin A. KOYLE 2, Paul R. BOWLIN3, Joseph M. GLEASON4, Luis H. BRAGA5 and Armando J. LORENZO6

1) King Saud University, King Saud University Medical City, Department of Surgery, Division of Urology, Riyadh, SAUDI ARABIA - 2) University of Toronto, Department Of Surgery, Division of Urology, Toronto, CANADA - 3) University of Kansas Medical Center and Children Mercy Hospital, Department Of Urology, Kansas, USA - 4) University of Tennessee Health Science Center and Le Bonheur Children’s Hospital, Department of Urology, Tennessee, USA - 5) McMaster University, McMaster Children’s Hospital, Department of Surgery, Division of Urology, Hamilton, CANADA - 6) University of Toronto, Department of Surgery, Division of Urology, Toronto, CANADA

PURPOSE
A non-refluxing megaureter (NRMU) is a relatively common etiology of antenatal hydronephrosis. Although surveillance and non-operative management is warranted for the majority of cases, early surgical intervention should be selectively considered in some. Currently accepted options include nephroureterectomy, tapered non-refluxing ureteral reimplantation, cutaneous ureterostomy and later reimplantation, endoscopic dilation with temporary stenting, and dismembered refluxing ureteric reimplantation in an end-to-end fashion (with subsequent reimplantation). Herein we describe our experience with a modified side-to-side refluxing ureterocystotomy (UC) as a simple alternative in the management for NRMU.

MATERIAL AND METHODS
Between February 2012 and August 2016, 32 consecutive side-to-side refluxing UC were performed. Demographics, surgical indications, complications, need for further interventions, and change in hydronephrosis were captured. The procedure was performed through a small inguinal incision, with a refluxing side-to-side anastomosis between the distal ureter and the ipsilateral bladder wall.

RESULTS
Mean age at time of surgery was 3.7 months (0-33), 25 (78%) patients were males. Patients were initially identified based on the presence of ANH (32) or symptoms (10) and followed with US every 3 months and renal scans accordingly. Unilateral procedures were done in 29 patients. The procedure was conducted for primary NRMU in 27 patients and as salvage procedure for obstruction after a common sheath ureteral reimplantation in one child with a duplex system. Average follow-up was 28 months. At time of most recent evaluation, most children demonstrated significant improvement in dilation (86%). To date, 4 patients have required further procedures, including 2 ureteral reimplantations due to recurrent infections.

CONCLUSIONS
Our results show that side-to-side refluxing UC is a simple, minimally invasive alternative for surgical management of primary NRMU. Despite the tradeoff of relieving obstruction and creating reflux, it can be considered a potentially definitive intervention in patients who remain infection-free. Long-term assessment of this technique is required.
CLINICAL OUTCOMES AND THE FATE OF THE UPPER URINARY TRACT AFTER URETERAL CLIPPING FOR THE TREATMENT OF LOW-FUNCTIONING KIDNEYS OR NON-FUNCTIONING UPPER POLE RENAL MOIEITIES ASSOCIATED WITH ECTOPIC URETER OR OBSTRUCTIVE URETEROCELE

Roberto IGLESIAS LOPES¹, Jose Nicolas FERNANDEZ¹, Joana DOS SANTOS¹, Jaime PEREZ², Martin Allan KOYLE¹ and Armando Jose LORENZO¹

1) The Hospital for Sick Children, University of Toronto, Division of Urology, Department of Surgery, Toronto, CANADA - 2) Hospital Universitario San Ignacio, Pontificia Universidad Javeriana, Division of Urology, Department of Surgery, Bogota, COLOMBIA

PURPOSE
Evaluate clinical outcomes and hydronephrosis evolution after ureteral clipping for the treatment of low-functioning kidneys or non-functioning renal moieties associated with ectopic ureter or obstructive ureterocele.

MATERIAL AND METHODS
Prospectively data collection on 25 consecutive patients (17 female, 8 male) who underwent ureteral clipping between 02/2011 and 08/2016. Patients were divided in four groups [1: duplex kidney with ectopic ureter (48%); 2: duplex with large ureterocele (16%); 3: duplex with progressive upper pole dilatation (12%); 4: single-system low or non-functioning kidneys (24%)] and followed postoperatively for clinical outcomes and trends in hydronephrosis of the ligated units over time.

RESULTS
Median age at surgery was 67 months (range: 5-205). Mean operative time was 106.6±33.7 min (range: 20-180) and length of stay 12.1±7.7 hours. Immediate resolution of urinary incontinence was observed in all cases of duplex systems associated with ectopic ureters (10 pts). After a mean follow-up of 24.4±14.7 months, 96% of the patients remained asymptomatic. No significant differences were observed between the initial and last measures of pelvis anteroposterior (9 and 17 mm) and ureteral diameter (9.5 and 14 mm). All ureteroceles showed a significant decrease after clipping (27.2 ± 4mm to 5.3±9.2mm, p=0.007). One patient (4%) developed pyonephrosis two months postoperatively and required a laparoscopic nephrectomy.

CONCLUSIONS
Ureteral clipping is a safe and effective treatment in this setting, with the obvious advantage of being a much simpler and quicker surgical approach over extirpative or reconstructive procedures.
X-RAY STRUCTURAL MARKERS OF THE URETER WITH DIFFERENT PERISTALTIC ACTIVITY IN CHILDREN WITH CONGENITAL NONREFLUXING MEGAURETER

Liudmila DERYUGINA
Saratov State Medical University, Pediatric Surgical Department, Saratov, RUSSIAN FEDERATION

PURPOSE
One of the factors defining the severity of urodynamic disorders in CNMU is contractile activity of the ureter. The aim of the study was to determine x-ray features of the ureters with varying contractile function in CNMU in children.

MATERIAL AND METHODS
47 children with CNMU at the age М=7 months underwent x-ray examination. The frequency of contractions of the ureter were registered by ultrasonic uretrometry in 1 min before and after diuretic stimulation (furosemide 0.5 mg/kg). The results of ultrasonic ureterometry allowed to identify a group of patients with low contractile function of the ureter (the average frequency 0-3,5 per min) and the group with normal contractile function (frequency of contractions 4-7,6 per min). To assess x-ray features of the CNMU “ureteral index (UI)” is proposed. UI is determined by calculating the relationship of the transverse dimension of the most advanced segment of the ureter to its length from pyeloureteral to ureterovesical segment with consideration of the curves according x-ray.

RESULTS
UI was varied in the range 0.04-0.325 and correlated with the average frequency of contractions of the ureter (n=47, r=of 0.7250, p<0.000003). Ureters with low contractility was distinguished by pronounced extension and the minimum number of bends, accompanied by high values of UI (Me=0,21; LQ=0,21; UQ=0,27). A significant predominance of length over width is different from the ureters with normal contractile function, which was accompanied by a low UI (Me=0,12; LQ=0,1; UQ=0,15). The differences between the groups at the “ureteric index” is statistical significant (p=0,000001). Receiver Operating Characteristic statistic test(ROC) has allowed to establish that the values of UI 0,19 more from 87.5% sensitivity and 92% specificity characteristic of the ureters with a low contractility(AUC=0,985±0,016).

CONCLUSIONS
X-ray UI reflects the functional state of the ureter in children with CNMU that will base the choice of tactics of treatment and prognosis.
ACTIVE SURVEILLANCE FOR ANTENATALLY DETECTED URETEROCELES- PREDICTORS OF SUCCESS

Veridiana ANDRIOLI¹, Luis GUERRA¹, Melise KEAYS¹, Katrina SULLIVAN¹, Kenneth TANG², Katie GARLAND¹, Marat RAFIKOV¹ and Michael LEONARD¹

¹) Children’s Hospital of Eastern Ontario, University of Ottawa, Surgery, Division of Urology, Ottawa, CANADA - ²) Children’s Hospital of Eastern Ontario, University of Ottawa, CHEO Research Institute, Ottawa, CANADA

PURPOSE

We sought factors predictive of success in selecting patients for active surveillance (AS) of antenatally detected ureteroceles.

MATERIAL AND METHODS

IRB approved retrospective review of infants with antenatally detected ureteroceles from 1990-2015. All were detected antenatally except for 5 diagnosed when imaged for non-urological indications. Post-natal US confirmed the diagnosis and VCUG documented VUR and/or bladder outlet obstruction (BOO). Patients with BOO were excluded. Patients on AS were placed on antibiotic prophylaxis. Outcomes were assessed by descriptive statistics. Kaplan-Meier curves were utilized to estimate median duration on AS in both single and duplex cohorts. Breakthrough febrile UTI (fUTI) and surgery were surveillance failures and were determined by Cox regression in the duplex system cohort.

RESULTS

102 patients (64F/38M); 78 duplex system and 24 single system. Follow-up for single systems ranged 100 days - 11.2 years and 20% failed AS. Duplex system follow-up ranged 7 days - 17.2 years and 68% failed AS. Regression analysis of duplex systems showed male gender (HR=1.8 95% CI [1.0, 3.3], p=0.037) or fUTI (HR 3.0 95% CI 1.7-5.4, p=0.001) was predictive of intervention. For fUTI, ipsilateral lower moiety or contralateral hydroureter (OR) 9.5, 95% CI 1.2-71.7, p=0.028) was predictive.

CONCLUSIONS

Single system ureteroceles are ideal for AS. AS for duplex systems can be successful in females without hydroureter of non-ureterocele renal units. Males are at higher risk for failure. Long term follow-up of AS patients is mandatory.

ENDOSCOPIC BALLOON DILATION OF PRIMARY OBSTRUCTIVE MEGAURETER. EXPERIENCE AND OUTCOMES AFTER 100 CASES

Ruben ORTIZ, Alberto PARENTE, Laura BURGOS, Laura PEREZ and Jose Maria ANGULO

Hospital Universitario Gregorio Marañon, Pediatric Urology Division, Department of Pediatric Surgery, Madrid, SPAIN

PURPOSE

To assess long-term effectiveness, complications and outcomes of primary obstructive megaureter (POM) treated by endoscopic balloon dilation (EBD) in the largest series reported.
MATERIAL AND METHODS
One hundred POM in 92 consecutive patients were treated by EBD between years 2004-2016. A total of 70 POM (64 patients) with more than 18 months of follow-up after treatment were retrospectively analyzed. EBD of the vesicoureteral junction was performed with semicompliant high-pressure balloon catheters (2.7FG) with minimum balloon diameter of 3 mm, followed by Double-J stent placement. Follow-up protocol included periodical clinical reviews, US and MAG-3 renogram scans.

RESULTS
Median age at surgery was 4 months (15 days-3.6 years), with median operating time of 20 minutes (10-60) and hospital stay of 1 day (1-7). Endoscopic approach of POM had a long-term success rate of 85.7%. Initial renal function was preserved in all patients with normalization of the renogram elimination curves. Significant differences were observed in ureteral diameter before, after EBD and in long-term (p<0.001). Secondary VUR was found in 16 cases (24.6%), being successfully treated by endoscopic subureteral injection in 12 (75%). Endoscopic management of POM failed in 10 cases (14.3%) that required ureteral reimplantation. Five were early failures (4 intraoperative technical problems and 1 double-J stent migration with severe re-stenosis), and 5 long-term (4 persistent VUR and 1 re-stenosis recurrence). Median follow-up was 5.9 years (1.5-12.5).

CONCLUSIONS
EBD has shown to be an effective treatment with few complications and good outcomes at long-term follow up. Secondary VUR can also be treated endoscopically with a high success rate. In our opinion, EBD may be considered first-line treatment in POM. However, it doesn’t invalidate other surgical options in case of failure.

S17-12 (P without presentation)

URETEROCOELExCITION WITH URETERS REIMPLANTATION IN DUPELEX SYSTEM

Gabriela GROCHOWSKA, Piotr GASTOL and Malgorzata BAKA-OSTROWSKA

Children’s Memorial Health Institute, Warsaw/Poland, Pediatric Urology, Warsaw, POLAND

PURPOSE
The aim of this study is to evaluate surgical excision of ureterocele with ureters reimplantation in patients with duplex system after unsuccessful primary treatment (endoscopic incision or upper pole heminephrectomy with decompression of ureterocele).

MATERIAL AND METHODS
We retrospectively reviewed 21 children with ureter duplication and ureterocele who underwent surgical excision of ureterocele with ureter(s) reimplantation between 2003 and 2013. There were 14 girls and 7 boys, age from 1,5 to 13 years (median 3 years). Initially, endoscopic incision of ureterocele was performed in 15/21 children with good isotopic function of the upper pole and heminephrectomy with decompression of ureterocele was done in 6/21 cases with poor function of the upper pole. Indications and outcomes of the surgical excision of ureterocele with ureter(s) reimplantation were evaluated based on clinical patterns (UTI’s, post-void residual urine) and voiding cystography (VCUG). Follow-up time ranged from 2 to 12 years (median 7 years).

RESULTS
Due to recurrent UTI’s, post-void residual urine or vesicoureteral reflux (VUR) during the observation after primary treating all patients required open ureterocele excision and ureter(s) reimplantation. Incidence of above symptoms was observed during follow-up period (Tab. 1):
CONCLUSIONS
1) Ureterocele presenting with complications needs an individualized treatment plan.
2) Patients with recurrent UTI’s, post-void residual urine or persistent VUR after primary endoscopic treatment or heminephrectomy with ureterocele decompression may still require surgery in the bladder.
3) Open excision of ureterocele with ureter(s) reimplantation reduces UTI’s and eliminates VUR, but it doesn’t decrease post-void residual urine.

IPSILATERAL URETEROURETEROSTOMY: AN ARGUMENT FOR LOWER TRACT APPROACH IN DUPLEX SYSTEMS WITH ECTOPIA AND URETEROCELE

Aseem SHUKLA, Trudy KAWAL, Arun SRINIVASAN and David CHU
Children’s Hospital of Philadelphia, Pediatric Urology, Philadelphia, USA

PURPOSE
Upper pole hemi-nephrectomy is traditionally utilized in the management of duplex renal collecting systems with poorly functioning upper pole moieties with ectopia or ureterocele. Ablative surgery is, however, associated with a risk of vascular injury to the lower pole moiety and/or ureteral stump related complications. We hypothesized that ipsilateral upper to lower pole ureteroureterostomy (IUU) offers a viable and safe alternative even in cases of minimal upper pole function.

MATERIAL AND METHODS
We reviewed all IUU procedures entered into an IRB approved data-registry between 2010 to 2016. All patients with duplex systems with obstructed upper pole moieties with function less than or equal to 10% were included in the study. Outcomes assessed were post operative complications (Clavien-Dindo classification), urinary tract infections (UTI), need for secondary surgery and radiological improvement. IUU was completed by robotic assisted or open approach distal to the pelvic brim, and ureteral stump was removed.

RESULTS
62 patients underwent ureteroureterostomy (43 robotic 19 open) between 2010 and 2016 at a median age of 0.92 years. Study cohort comprised of 33 (53.2%) with upper pole moiety function of less than equal to 10% (median 3%). A total of 22 (66.7%) diagnosed with ectopia, and 11 (33%) with an obstructing ureterocele. 8 of 11 ureteroceles had been incised in infancy and 50% had ureteral reflux present. Robotic assisted IUU was the preferred modality in 23 (70%) and 10 underwent open IUU. Median length of stay was 1 day and median follow up 24 months (range 3 to 72 months). Complications were limited to 2 patients (6%) with febrile urinary tract infection in the perioperative period. No case proceeded to upper pole nephrectomy, and 96.9% showed improvement or stable changes on post op imaging.

CONCLUSIONS
This study demonstrates that IUU is a safe, feasible and definitive approach to the management of children with poorly functioning upper pole moieties in duplex systems. The approach may be utilized in cases of ureterocele even with upper pole reflux after previous incision.
SURGICAL MANAGEMENT OF PRIMARY OBSTRUCTIVE MEGAURETER IN CHILDREN WITH PRENATAL DIAGNOSIS OF HYDRONEPHROSIS – WHAT TO EXPECT IN ADULTHOOD

Jawdat JABER¹, Stanislav KOCHEROV², Amicur FARKAS² and Boris CHERTIN³
1) Shaare Zedek Medical Centre, Pediatric Urology, Jerusalem, ISRAEL - 2) Shaare Zedek Medical Center, Jerusalem, ISRAEL - 3) Shaare Zedek Medical Centre, Jerusalem, ISRAEL

PURPOSE
We evaluated whether improved renal function after ureteral reimplantation for prenatal UVJ obstruction persisted through puberty.

MATERIAL AND METHODS
A total of 62 patients (38 males and 24 females) with a prenatal diagnosis of hydronephrosis that led to the postnatal diagnosis of UVJ obstruction were followed at our department from 1989 to 2000. Of the patients we reviewed the records of 21 who underwent ureteral reimplantation and completed puberty. We have examined renal function upon, after surgery and after puberty, the degree of hydronephrosis, and the incidence of UTI during the follow up.

RESULTS
Hydronephrosis was on the right side in 5 children (23.8%), on the left in 12 (57%), and bilateral obstruction was found in three children (14.2%). According to Society for Fetal Urology classification at first presentation postnatal hydronephrosis was grades 3 and 4 in 10 (47.6%) and 11 (52.4%) children respectively.
Initially the relative renal function was less than 40% in 7(33%), and less than 30% in the remaining 14 (67%) children. Preoperative renal function relative +/- SEM finding was 28 +/- 4.3% in all reviewed patients. After reimplantation renal function improved from 28% +/-4.3% preoperatively to 36.4 +/- 5% (p <0.0001). It remained stable at 35.5 +/- 5.6% after puberty in all reviewed patients.
Two patients suffered from febrile urinary tract infections and were diagnosed to have VUR. They required subsequent endoscopic correction.

CONCLUSIONS
To our knowledge our data show for the first time that successful ureteral reimplantation after the prenatal diagnosis of UVJ obstruction is associated with improved renal function throughout puberty.
TREATMENT OF URETEROPELVIC JUNCTION OBSTRUCTION (UPJO) IN POORLY FUNCTIONING (DIFFERENTIAL FUNCTION<20%) KIDNEYS: PYELOPLASTY OR NEPHRECTOMY?

Marco CASTAGNETTI1, Michele GNECH2, Alfredo BERRETTINI3, Daniele MODONUTTI4, Dario Guido MINOLI3 and Gianantonio MANZONI3

1) University Hospital of Padova, Urology Unit, Section for Paediatric Urology, Padova, ITALY - 2) University Hospital of Padova, Paediatric Urology, Padua, ITALY - 3) Fondazione IRCCS Ca’ Granda, Ospedale Maggiore Policlinico, Pediatric Urology, Milan, ITALY - 4) Université Hospital of Padova, Pediatric Urology, Padua, ITALY

PURPOSE
To determine whether pyeloplasty is associated with a higher complication rate than nephrectomy in poorly functioning kidneys with UPJO, and whether it allows for a functional recovery.

MATERIAL AND METHODS
Retrospective review of 63 patients undergoing surgery for UPJO associate with a differential renal function (DRF) <20% at 2 centers between 01/2000 and 12/2015. We compared early (within 6 months of surgery) and long term complications between pyeloplasties (n=47) and nephrectomies (n=16), and the changes in differential renal function after pyeloplasty. Nonparametric tests were used throughout.

RESULTS
The two groups were comparable in terms of presentation [asymptomatic 31/47 (66%) pyeloplasties vs. 9/16 (56%) nephrectomies, p=0.5] and rate of preoperative diversions [9/47 (20%) pyeloplasties vs. 4/16 (25%) nephrectomies, p=0.7]. Patients undergoing nephrectomy were older than those undergoing pyeloplasty [median age 72.8 (range 9-211) months, vs. 15.3 (range 1-240) months, p=0.01]. Post-operative complications were comparable between groups [2/47 pyeloplasties (1 prolonged urinary leakage and 1 urinary tract infection) vs. 1/16 nephrectomies (1 urinary tract infection) p=1]. The dilatation improved after pyeloplasty in all patients. In 33/47 (70%) pyeloplasties, both pre- and post-operative (6-month follow-up) scintigraphy was available. DRF kept decreasing after surgery in 33/33 (9%), remained unchanged in 21/33 (64%), whereas increased >5% [median 14% (range 6-28%)] in 9/33 (27%). After a median follow-up of 6.9 (range 1.1-13.7) years, only 1/47 (2%) patient required a differed nephrectomy, 5.8 years after pyeloplasty, due to the development of hypertension.

CONCLUSIONS
Despite the limitation that we generally offered nephrectomy to older patients, pyeloplasty does not seem associated with a significantly higher morbidity that nephrectomy in poorly functioning kidneys. In almost 25% of our patients, pyeloplasty was followed by an improvement in differential function of the affected kidney. Need for deferred nephrectomy after pyeloplasty seems exceptional in decompressed kidneys even though renal function remains poor.
COMPARING DOUBLE J STENT, EXTERNALIZED STENTS AND NO STENTS FOLLOWING PYELOPLASTIES IN INFANTS: DO THEY CHANGE THE FUNCTIONAL OUTCOME?

Mohammad BADER¹, Andrew ROBB², Harish CHANDRAN², Karan PARASHAR² and Liam MCCARTHY²

1) Birmingham Children’s Hospital, Paediatric Urology, Birmingham, UNITED KINGDOM - 2) Birmingham Children’s Hospital, Paediatric Urology, Birmingham, UNITED KINGDOM

PURPOSE
There are advantages and disadvantages of different Stents. Similarly stentless pyeloplasties are not without complications. We compared stented (Double J stents(JJ), externalized stents(ES)) and stentless (SL) pyeloplasties in infants over 13 years period to see a difference in the functional outcome and complications.

MATERIAL AND METHODS
All infants who presented with PUJ obstruction were identified from a prospectively collected database from 2000 to 2013. All infants had open dismembered pyeloplasties. The demographics, history, pre and post-operative radiological imaging, operation records and follow up data was analysed. Infants were grouped into 3. Group A were SL, group B had ES and group C had JJ. Although one surgeon preferred JJ stent but generally they were reserved for infants who had concomitant VUJ obstruction.

Data given as median (inter-quartile range) and percentage where applicable. Anova test and paired T test were used to compare the groups. p<0.05 taken as significant.

RESULTS
We reviewed 188 renal units in 185 infants. Age at operation, follow up duration, drainage and loss of function data is summarized in the table. There was some improvement in function in Group A, no improvement in group B and slight drop in Group C but none of these were statistical significant. There was no statistical difference in postoperative leaks (p=0.27), infections(p=0.76), recurrences (p=0.45), and redo pyeloplasties (p=0.3. Nephrectomies were more common in Group C as compared to other groups (p<0.05).

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>110</td>
<td>42</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Age at operation (Months)</td>
<td>7 (5-8.9)</td>
<td>5 (4-7)</td>
<td>5.3 (2.9-7.9)</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>Follow up duration (years)</td>
<td>2.4</td>
<td>2.2</td>
<td>4.65</td>
<td>p&lt;0.05</td>
</tr>
<tr>
<td>Improved drainage (%)</td>
<td>85</td>
<td>83</td>
<td>75</td>
<td>p=0.36</td>
</tr>
<tr>
<td>Mean Function (preop:post op) (%)</td>
<td>39:41</td>
<td>40:40</td>
<td>46:43</td>
<td>A:p=0.17  B:p=0.67 C:p=0.26</td>
</tr>
</tbody>
</table>

CONCLUSIONS
Transanastomotic drainage after pyeloplasty in children is controversial. On comparing 3 groups, although there was no differences in functional outcome in any of these groups. Although nephrectomy rate was significant in JJ stent group.
PREDICTIVE VALUE OF CORTICAL TRANSIT TIME ON MAG3 FOR THE NEED OF SURGERY IN ANTENATALLY DETECTED UNILATERAL HYDRONEPHROSIS DUE TO URETEROPELVIC JUNCTION STENOSIS

Jun Nyung LEE, Jae-Wook CHUNG, Yun-Sok HA and Sung Kwang CHUNG
Kyungpook National University School of Medicine, Urology, Daegu, REPUBLIC OF KOREA

PURPOSE
In antenatal hydronephrosis (ANH) due to ureteropelvic junction (UPJ) stenosis, the main challenge is to predict which patients have significant obstruction and require surgical intervention. Some studies showed that cortical transit time (CTT) could successfully predict functional deterioration in children with UPJ stenosis. We assessed the impact of initial CTT on Technetium-99m mercaptaoacetyltriglycerine (MAG3) diuretic renogram for the need for surgery in children with unilateral ANH due to UPJ stenosis.

MATERIAL AND METHODS
We retrospectively reviewed the medical records of 33 patients with unilateral ANH due to UPJ stenosis who managed at our institution between 2006 and 2014. Delayed CTT was defined by absence of activity in the subcortical structures within 3 minutes of tracer injection on MAG3 renogram. This study analyzed and compared the initial level of society of fetal urology (SFU) grade, anteroposterior diameter (APD), spilt renal function, drainage pattern on diuretic renogram, and CTT with the need for surgery.

RESULTS
Of the 33 children, 16 were classified as the delayed CTT group and 17 were placed in the normal CTT group. During follow-up period (31.8 months), the surgery was needed in 75.0% (12/16) of delayed CTT group and in 5.9% (1/17) of normal CTT group. Multivariate analysis showed that delayed CTT on initial MAG3 scan and APD on initial ultrasonography were independent predictive factors of the need for surgery.

CONCLUSIONS
CTT on initial MAG3 scan is useful predictor of the need for surgery in children with antenatally detected unilateral hydronephrosis due to UPJ stenosis.
**S18: PRENATAL UROLOGY**

**Moderators:** Anthony Herndon (USA), Claudio di Carli (Argentina)

**ESPU Meeting on Friday 21, April 2017, 16:00–16:24**

**16:00–16:03**

**S18-1 (PP)**

★ **CONGENITAL SOLITARY FUNCTIONING KIDNEY, HYPERTROPHY OR HYPERPLASIA? – A FETAL ULTRASOUND STUDY**

R. SNOEK¹, R. DE HEUS¹, K.L. DE MOOIJ², L.R. PISTORIUS³, M.N. BEKKER¹ and T.P.V.M. DE JONG⁴

¹) University Utrecht Medical Center, Obstetrics, Utrecht, NETHERLANDS - ²) University Utrecht Medical Center, Pediatric Urology, Utrecht, NETHERLANDS - ³) Tygerberg Hospital and Stellenbosch University, Obstetrics, Cape Town And Stellenbosch, SOUTH AFRICA - ⁴) University Utrecht Medical Center and Academic Medical Center, Pediatric Urology, Utrecht And Amsterdam, NETHERLANDS

**PURPOSE**

Congenital solitary functioning kidney (CSFK) occurs in unilateral renal agenesis and multicystic dysplastic kidney. The ‘hyperfiltration hypothesis’ states that the theoretical 50% loss of nephrons leads to hyperfiltration, with subsequent nephron hypertrophy and risk of renal injury. However, animal studies report signs of hyperplasia (increase in actual number of functioning nephrons) and an increase in the number of renal papillae. We aim to assess renal papilla number (RPN) with fetal ultrasound (US) to assess the role of hyperplasia in CSFK.

**PATIENTS AND METHODS**

A case-control study was performed on conventional and three dimensional fetal US images of fetuses with CSFK and healthy control fetuses. ‘Renal papilla’ was defined as a hyperechogenic focus near the renal pelvis. All imaging was assessed twice by two independent observers.

**RESULTS**

Sixty CSFK fetuses and 60 controls were included. Mean RPN is higher (p<0.001) in CSFK (8.00±1.14) than in controls (6.05±1.23). RPN increases (p>0.001-0.001) with 0.11 and 0.09 papillae per gestational week in cases and controls respectively. This does not differ between groups (p=0.48). Conventional and three dimensional US are comparable (p=0.39) and moderately reliable in assessing RPN, with 0.90 (95% CI 0.85-0.94) and 0.68 (95% CI 0.44-0.81) interclass correlation coefficients in intra- and inter-observer measurements respectively.

**CONCLUSIONS**

We pose that the higher RPN in CSFK supports our hypothesis of nephron hyperplasia and not (only) hyperfiltration resulting in hypertrophy, challenging the hyperfiltration hypothesis. RPN might serve as a predictor for risk of developing renal injury, as a higher nephron number would result in lower risks of renal injury.
PROGNOSTIC SIGNIFICANCE OF MATERNAL URINARY CARBOHYDRATE ANTIGEN 19-9 FOR ANTENATAL DIAGNOSIS OF POSTERIOR URETHRAL VALVE ASSOCIATED WITH FETAL HYDRONEPHROSIS

Abdol-Mohammad KAJBAFZADEH1, Shabnam SABETKISH2 and Nastaran SABETKISH2

1) Tehran University of Medical Sciences, Pediatric Urology and Regenerative Medicine Research Center, Pediatric Center of Excellence, Tehran, ISLAMIC REPUBLIC OF IRAN - 2) Tehran University of Medical Sciences, Pediatric Urology and Regenerative Medicine Research Center, Pediatric Center of Excellence, Tehran, ISLAMIC REPUBLIC OF IRAN

PURPOSE
To evaluate the predictive role of maternal urinary CA 19-9 as a non-invasive marker for diagnosing antenatal posterior urethral valve (PUV).

MATERIAL AND METHODS
A total of 40 women in the third pregnancy trimester were enrolled. Case group (group A) consisted of 20 women with a diagnosis of antenatal PUV. An anteroposterior diameter (APD)≥15 confirmed severe hydronephrosis. Twenty women with similar gestational age, fetal sex, normal US, and no history of congenital anomalies were chosen as control group (group B). Maternal urine samples were collected and urinary CA 19-9 was measured in both groups. The correlations between maternal urinary CA 19-9 and APD (measured during pregnancy and the initial evaluation of the newborn) were assessed. CA 19-9 level in first urine of neonates was also evaluated.

RESULTS
In Group A, the APD ranged from 18 to 38 in twelve cases. Eight cases had contralateral APD≥9 mm. The mean±SD of maternal urine CA 19-9 was higher in PUV group compared to control group (731.6±53.8 U/mL vs. 13±2.7 U/mL). In addition, there was a significant correlations between maternal urinary CA 19-9 and the APD measured at the third trimester (p=0.02) and the initial evaluation of fetus after birth according to SFU grading system (p<0.001). However, no significant difference was found regarding gestational age and urinary CA 19-9 level (p=0.34). There was also a significant correlation between CA 19-9 level in first urine of neonates with CA 19-9 level of maternal urine (p<0.05).

CONCLUSIONS
This is the first time that maternal urinary CA 19-9 has been applied as a diagnostic marker in antenatal PUV. Urinary CA 19-9 is higher in the urine of pregnant women carrying fetus with PUV and it may have the potential to serve as a noninvasive and practical method for diagnosing PUV.
PRENATAL URINARY TRACT ANOMALIES LEADING TO TERMINATION OF PREGNANCY

Guy VERHOVSKY
Assaf Harofeh Medical Center, Urology, Zerifin, ISRAEL

PURPOSE
To assess the characteristics of prenatal diagnosis of fetal urinary tract anomalies (UTA) leading to termination of pregnancy (TOP).

MATERIAL AND METHODS
A retrospective study of TOP after the second trimester screening between January 1998 to April 2015
Cases were divided into two groups:
Group 1 - Solitary UTA leading to TOP
Group 2 - multiple anatomical anomalies including UTA.
The cut-off at 24TH week of gestation was used to define early versus late abortion

RESULTS
There were 2789 cases of TOP. 1557 (50%) due to anatomic anomalies. UTA was diagnosed in 188 (12%) cases.
Group 1 - 97 (52%) - The major anomalies were urinary outlet obstruction (30%), bilateral renal agenesis (19%).
From this group 94% had severe UTA defined as an abnormality incompatible with life or cause severe negative impact on quality of life.
Group 2 - 91 (49%) the most prevalent UTA was Hydronephrosis.
Mean gestational age at TOP was 20.3±4.5 weeks in group 1 and 19.07±3.12 weeks in group 2 (p=0.07).
Out of 1557 cases undergoing TOP, 80% of those with UTA underwent early TOP and 20% late TOP compared to those who underwent TOP due to anatomic abnormalities other than UTA 89% early TOP and 11% late. (P=0.012).
The reason for “late” abortion in group 1 in most of the cases were clinical deterioration during follow up, 2 cases weren’t diagnosed in the early screening.
The main causes of early abortion were bilateral renal agenesis (35%) and bladder outlet obstruction (39%) whereas in the late abortions MCDK and AR-PCKD.

CONCLUSIONS
UTA composes 12% of all anatomic non-chromosomal TOP. Bladder outlet obstruction and bilateral renal agenesis are the most prevalent causes diagnosed in second trimester US screening.
The percentage of late abortions is relatively high and should be reduced by advising strict monitoring aiming for early detection.
PRENATAL DIAGNOSIS OF URINARY TRACT ABNORMALITIES (UTA) AS MARKERS FOR TRISOMY 21

Guy VERHOVSKY, Amos NEHEMAN and Amnon ZISMAN
Assaf Harofeh Medical Center, Urology, Zerifin, ISRAEL

PURPOSE
Prenatal hydronephrosis is considered a soft marker for trisomy 21. The objective of this study was to evaluate the significance of urinary tract abnormality (UTA) especially hydronephrosis, diagnosed during second trimester US screening in a population of consecutive aborted fetuses.

MATERIAL AND METHODS
Retrospective study of all consecutive fetuses aborted between January 1998 to April 2014. All cases with sufficient data regarding fetus karyotype by amniocentesis\choriocyntesis were included. Fetus with trisomy 21 were compared to those aborted for other reasons rather than aneoplodity.

RESULTS
Out of 2700 consecutive abortions, 951 cases have sufficient data regarding karyotype (540 with trisomy 21 and 411 with normal karyotype).

The main causes for abortion in the non-trisomy group: combination of multiple anomalies 31%, cardiopulmonary anomalies 20.4% and CNS anomalies 16.3%.

UTA were found in 35(6.5%) in trisomy 21 group, 13(2.4%) as a solitary finding and 22(4.1%) as a part of multiple anomalies.

In non-trisomy group UTA was found in 52(12.6%), solitary finding in 27(6.6%) and 25(6%) as part of multiple anomalies.

Isolated hydronephrosis was found in 12 cases of the trisomy 21 group and 8 in the non-trisomy 21 group (P=0.7).

In all fetuses, hydronephrosis was present in 34/35(97%) of trisomy 21 and only in 12/52(23%) of normal karyotype fetuses (p<0.01).

In fetuses with normal triple test and nuchal translucency in whom amniocentesis\choriocyntesis was performed, there were 13 cases of trisomy 21, hydronephrosis present in only 2 of them, and 64 cases of non-trisomy with hydronephrosis present in 6 of them ( P=0.28).

CONCLUSIONS
UTA’s are not more prevalent in trisomy 21.

Hydronephrosis is the most common anomaly in trisomy 21 fetuses in our specific population but the diagnosis of hydronephrosis as a single anomaly is not a substantial marker and should not elicit further diagnostic tests.

Fetus with UTA’s other than hydronephrosis have a reduces risk for trisomy 21.

16:12–16:24
Discussion
DECISION CURVE ANALYSIS OF PRENATAL ULTRASOUND TO PREDICT POSTNATAL RENAL FUNCTION IN BOYS WITH POSTERIOR URETHRAL VALVES

Luke HARPER¹, Alice WAUBANT², Yan LEFEVRE³, Eric DOBREMEZ³ and Cyril FERDYNUS²

¹) CHU F Guyon, Pediatric Surgery, Saint-Denis De La Réunion, FRANCE - ²) CHU F Guyon, Saint-Denis De La Réunion, FRANCE - ³) CHU Pellegrin-enfants, Bordeaux, FRANCE

PURPOSE
Prenatal management of boys with suspected posterior urethral valves depends on having a reliable marker for postnatal long-term renal function. It has been suggested that presence of oligoamnios could be predictive of postnatal function. We decided to evaluate this hypothesis using Decision Curve Analysis (DCA), which is a novel method for evaluating the clinical usefulness of diagnostic tests.

MATERIAL AND METHODS
We analyzed retrospectively all boys born, in either of two university hospitals, with Posterior urethral Valves between 2009 and 2012. We analyzed quantity of amniotic fluid on prenatal ultrasound and the nadir creatinine. We divided the patients into two groups according to the nadir of their creatinine using the cut-off value of 75µmol/L. We estimated the benefit of prenatal measurement of amniotic fluid to determine postnatal renal function.

RESULTS
There were 51 children. Twelve presented prenatal oligoamnios. Thirty-one presented normal nadir creatinine of which one had prenatal oligohydramnios, 13 presented a nadir creatinine between 35µmol/L and 75µmol/L of which 4 showed prenatal oligohydramnios, 7 presented a nadir creatinine > 75µmol/L of which all had prenatal oligohydramnios.

CONCLUSIONS
DCA shows a net benefit of the measurement of prenatal quantity of amniotic fluid to determine postnatal renal function.
S19: MISCELLANEOUS

Moderators: Daniel Cabezalí (Spain), Henning Olsen (Denmark)

ESPU Meeting on Friday 21, April 2017, 16:45–17:40

16:45–16:50

S19-1 (LO)

★ VISUAL GUIDELINES AND TUTORING IN PEDIATRIC UROLOGICAL SURGERY

Stanislav KOCHEROV¹, Shahar ROTEM¹, Jawdat JABER¹, Galit AVRAHAM¹, Michal DARMON², Genady LEV², Judit GABAY² and Boris CHERTIN¹

1) Shaare Zedek Medical Center, Pediatric Urology, Jerusalem, ISRAEL - 2) Shaare Zedek Medical Center, Operating Room, Jerusalem, ISRAEL

PURPOSE
The aim of this prospective randomized study was to evaluate of impact of visual guidelines (picture book) and parents tutoring upon pediatric urologic surgery on parents stress and anxiety, the number of postoperative contacts and complications.

MATERIAL AND METHODS
Following institutional ethical committee approval, special picture book reflecting different stages of the convalescent period following multiple types of pediatric urological surgery was developed. All parents were randomly divided into two groups. 33 parents from the first group received the picture book in addition to routine instructions prior to the surgery and 31 from the second received routine postoperative instructions only. The parents were asked to answer on questionnaire (APAIS) regarding the level of anxiety before surgery and immediately after surgery in recovery room. The number of postoperative parent’s calls, non-planed ER visits and complications were recorded.

RESULTS
No statistically significant difference in perioperative parental anxiety was found (p=0.88). Visual tutoring group had significantly lower rate of ER admissions (6.6% vs 18.6%, p=0.0433), however parents from this group made a higher number of postoperative calls (9.9% vs 3.1%, p=0.38). 2 (6.6%) from the tutoring group expressed their desire to omit visual counseling in their future surgery preparation and 4 (13.2%) hadn’t their opinion about that. Overall satisfaction with regards to the preoperative counseling and information and the number of postoperative complications was similar in both group.

CONCLUSIONS
Visual tutoring doesn’t add any value to parental preparation. Moreover, some parents preferred omitting visual information from future preoperative counselling.
★ SOCIAL MEDIA IN PAEDIATRIC UROLOGY: EFFECTS ON PARENTAL AWARENESS AND JOURNAL IMPACT FACTOR

Fardod O’KELLY¹, Gregory NASON², Rustom MANECKSHA³, Salvatore CASCIO², Feargal QUINN², Michael LEONARD⁴, Martin KOYLE⁵, Walid FARHAT⁵ and Michael LEVERIDGE⁶

¹) Our Lady’s Childrens Hospital, Urological Surgery, Dublin, IRELAND - ²) Our Lady’s Childrens Hospital, Paediatric Urology, Dublin, IRELAND - ³) Tallaght Hospital (AMNCH), Urological Surgery, Dublin, IRELAND - ⁴) Childrens’ Hospital of Eastern Ontario, Paediatric Urology, Ottawa, CANADA - ⁵) The Hospital for Sick Children, Paediatric Urology, Toronto, CANADA - ⁶) Kingston General Hospital, Urological Surgery, Kingston, CANADA

PURPOSE
Social media (SoMe) comprises of a number of internet-based applications which have the capability to disseminate multimodal media as well as allow for unprecedented inter-user connectivity. The aim of this study was to assess the impact of social media platforms on the impact factor of both urological and paediatric journals which publish on paediatric urology, and to assess parental awareness of social media.

MATERIAL AND METHODS
A filtered Journal of Citation Reports (JCR) search was performed for 2012-2016 for journals which published articles on paediatric urology. Journals were ranked according to Impact Factor, and each individual journal website was accessed to assess for the presence of social media. Parents in paediatric urology clinics and non-paediatric urology patients also filled out a questionnaire to assess for awareness and attitudes to social media.

RESULTS
Overall there were 50 urological journals and 39 paediatric journals with a mean impact factor of 2.303 and 1.766 respectively. There was an overall average increase in impact factor across all urological journals between 2012-2016. The presence of a Twitter feed was statistically significant for a rise in impact factor over the four years (p=0.017). The cohort of parents was statistically more likely to have completed post-secondary education, to have and access a social media profile, use it for health education, and use it to access journal/physician/hospital social media accounts (p<0.0001).

CONCLUSIONS
This study examines for the first time, the role of social media in paediatric urology. Social media use within paediatric urology is associated with a higher impact factor, which remains significant after four years of analysis. Parents are more likely to use a wide variety of social media to search for conditions and physicians/healthcare providers, and therefore journals and institutions need to embrace and endorse SoMe as a potential source of important clinical information.
DO UROLOGICAL SURGERIES RESULT IN MORE DISTRESS? THE ANALYSIS OF THE STRESS LEVELS CONNECTED TO THE SURGERIES IN PAEDIATRIC PATIENTS

Irena KORICANAC¹, Zoran RADOJICIC², Sasa MILIVOJEVIC² and Sara BECANOVOC¹

1) University Children’s Hospital, Clinical and Health Psychology Department, Belgrade, SERBIA - 2) University Children’s Hospital, Urology Department, Belgrade, SERBIA

PURPOSE
We have considered the stress levels caused by surgery in urological patients. The aim is to analyze the stressfulness of urological interventions compared to other surgeries, as well as determining which aspects of the situation and features of patients cause higher stress levels.

MATERIAL AND METHODS
233 persons were interviewed (69 school children, 164 parents of the operated children aged between 0 and 17). In order to examine the experiences connected with different aspects of the operation from the child’s and the parent’s point of view, questionnaires were prepared. The collected data have undergone quantitative (Mann-Whitney U and Kruskal-Wallis H) and qualitative analysis.

RESULTS
Stress levels reported by the parents and the children who had urogenital interventions are significantly higher than the levels reported at other departments - urological patients got 2.27 stress level out of 3 in comparison to 1.82 stress level of children at other departments; parents at urology department got 2.49 stress level compared to 1.96 level of parents stress at other departments (sig. 0.05). Separated into four age groups (sig. 0.05), the highest stress levels are reported by the parents whose children were operated at age 3 to 7 - (age 0-2_1.88); (age 3-7_2.48); (age 8-12_1.63); (13-17_1.94)

CONCLUSIONS
According to our data, urological surgeries are more stressful than other interventions and the level of stress is highest at the genital stadium of development (age 3-7). Recommendation is to perform urological surgeries before the genital stadium which is characterized by castration and separation anxieties.
EVALUATING EFFECTS OF THREATS AND TEAM EFFICACY ON EFFICIENCY IN A PEDIATRIC UROLOGY OPERATING ROOM

Jessica M MING¹, Michael E CHUA¹, Fadi ZU’BI¹, Eric PHAM-HUNG², Bisma AMIR¹, Edward HICKEY² and Martin A KOYLE¹

¹) Hospital for Sick Children, Urology, Toronto, CANADA - 2) Hospital for Sick Children, Cardiovascular Surgery, Toronto, CANADA

PURPOSE

Minor threats and errors in the operating room (OR) can lead to harmful complications in patient safety as well as decreased efficiency in relatively straightforward operations. We implemented the aviation industry’s “threat and error” management model to patients’ operations. Our aim was to increase the identification of systemic threats and associated errors within pediatric urology operating room by using “line operating safety audits” (LOSA).

MATERIAL AND METHODS

After QI committee approval, 75 inguinal-srotal, penile and laparoscopic cases were prospectively observed by 2 independent observers. LOSA evaluation forms assessed 3 phases: I - wheels in- first incision, II - incision- last stitch, III - final stitch- wheels out. From this, two independent observers assessed: time vs. delay and number of threats per case (co-morbidities, equipment failure, distraction, sterility, failure of communication) using LOSA evaluation forms. The Oxford NOTECH II rating system was used to evaluate the non-technical skills of the OR teams (surgical, anesthetic and nursing). Data was tabulated and assessed for downstream errors or correlation to OR efficiency.

RESULTS

Mean number of threats per penile or scrotal case was 2.71+2.1 and 1.64+1.4, while for laparoscopic cases mean number of threats was 7.5+3.5. We found no correlation between number of threats and delays to the OR or to the phase in which these threats occurred. No significant errors resulted from these threats amongst the cases observed. Amongst the two observers, mean NOTECH scores in phase I, II and III were 73.7+2.5, 73.9+2.7, and 73.0+2.1.

CONCLUSIONS

Due to short OR times and few complications (harm) identified, threats relating to OR efficiency were not identified. Patient safety and teamwork were consistently maintained according to the NOTECH scoring results. We next plan to evaluate how team performance affects overall patient outcomes (length of stay, complications, and OR throughput).

Discussion
VALIDATION OF THE HOPE QUALITY ASSURANCE SCORE ON POSTOPERATIVE RESULTS AFTER SUTURED OR SUTURELESS CIRCUMCISION

Charlotte VANDERSTAPPEN1, Guy BOGAERT1, Hendrik-Jan FLORIN1 and Marleen VAN DEN HEIJKANT2

1) UZLeuven, Pediatric urology, Leuven, BELGIUM - 2) UZLeuven, Gasthuisberg Campus, Urology, Leuven, BELGIUM

PURPOSE
The cosmetic aspect of the penis is an important factor for parents, not only after hypospadias repair, but also after circumcision. The HOPE score (hypospadias objective penile score) is an excellent tool for quality assurance after hypospadias repair. To study the HOPE score on postoperative outcome after circumcision, we have used the scoring system in children who underwent circumcision with sutures or sutureless with fibrin glue.

MATERIAL AND METHODS
Boys between 3 months and 10 years of age were randomized in this ethically approved study between a sutured circumcision (Vicryl® 5.0 rapide) (21 patients) or a sutureless circumcision with fibrin glue (Dermabond®) (20 patients). Pictures were taken before surgery and 4 to 6 weeks after surgery. Standardized pictures were evaluated independently by medical students, urology residents, pediatric urologists using the HOPE score. The 2 groups were assessed using the two sample t-test to compare both surgical techniques. The inter-observer reliability was assessed using the intraclass correlation coefficient.

RESULTS
There was no difference in the HOPE score on the postoperative cosmetic aspect of the penis between the two techniques; the overall HOPE score of sutured circumcisions was 46.15 ±3.17 vs sutureless circumcisions 46.75 ±2.37 (p > 0.05). The HOPE score items “Shape of the skin” and “rotation” were items that were able to differentiate in an objective quality parameter. The inter-observer reliability was strong (0.862).

CONCLUSIONS
In this study, sutured and sutureless circumcisions resulted in similar HOPE score results. As it will be more and more important in the future to have quality assurance scores for surgical outcome, it would be beneficial to have a singular objective scoring system for hypospadias and circumcision. The HOPE score has also shown to be an excellent quality assurance tool for postoperative circumcision scoring.
CORRELATION OF CLINICAL COURSE TO ANTIBIOTIC SUSCEPTIBILITY RESULTS OF EXTENDED SPECTRUM BETA-LACTAMASE OF GRAM NEGATIVE BACTERIA IN PEDIATRIC UTI PATIENTS

Chang-Hee HAN¹, Sang-Rak BAE¹, Jae Shin PARK² and Jun-Se JUNG¹

¹) Uijeongbu St. Mary’s Hospital, Urology, Uijeongbu, REPUBLIC OF KOREA - 2) Daegu Catholic University Medical Center, Department of Urology, Daegu, REPUBLIC OF KOREA

PURPOSE
This study is aimed to identify the effect of disease progression in febrile pediatric UTI patients admitted for treatment in correlation to antibiotics susceptibility of extended spectrum beta-lactamase positive bacteria.

MATERIAL AND METHODS
In order to find correlation between antibiotic susceptibility results and clinical course a retrospective analysis using medical records was done in 1343 febrile pediatric UTI patients admitted to the hospital for antibiotic treatment from January 2010 to April 2015, with outcomes positive to gram negative bacteria in urine culture. Blood tests, urine analysis, urine culture, antibiotic susceptibility tests were identified, along with the initial antibiotics, changes in antibiotics, negative conversion period, antibiotics susceptibility results in relation to negative conversion period, and vital signs with other characteristics were analyzed.

RESULTS
Out of the 1343 patients admitted for febrile UTI, 67 patients were identified with ESBL positive bacteria in their urine culture. In which 35 patients were male and 32 were female. Of the 67 patients the number resistant to initial antibiotics were 10(14.9%). Changes in antibiotics were made in only 2 cases, the other 8 cases did not need changes in antibiotics and negative conversion was identified on the 2nd hospital date. Aminoglycoside was used in initial treatment for 63 patients out of 67 and negative conversion was identified in all patients without using meropenem. The mean negative conversion period was 2.25 days. Only 5 cases(7.5%) in total changed antibiotics to meropenem or tazocin, and resulted in negative conversion in urine culture after 1 day of use.

CONCLUSIONS
Unlike adult patients, ESBL positive pediatric UTI patients showed susceptibility to aminoglycosides. In cases with difficulty in identifying antibiotics susceptibility, aminoglycoside is a good choice for initial antibiotics without the use of carbapenem or meropenem for effective treatment results.
INFLUENCE OF THE KIND OF DIAPER ON THE PRESENTATION OF MICTURITION ELIMINATION SIGNALS: A PILOT STUDY

Kelly VAN DER CRUYSSSENI, Stefan DE WACHTER2, Guido VAN HAL3 and Alexandra VERMANDEL1

1) University of Antwerp, Rehabilitation Sciences and Kinesiology, Antwerp, BELGIUM - 2) University of Antwerp, Urology and urological rehabilitation, Antwerp, BELGIUM - 3) University of Antwerp, Social Medicine - Medical Sociology and Health Policy, Antwerp, BELGIUM

PURPOSE
Signals made by an infant to communicate about the need and awareness of micturition are labeled as elimination signals (ES). Western infants commonly use diapers to micturate and defecate until they display readiness signs. Different kind of diapers will diverge in degree of absorption. This will have an influence on the wet sensation when the infant is voiding. The aim of this study was to assess the difference in presentation of these ES when wearing a disposable compared to a reusable diaper.

MATERIAL AND METHODS
The voiding behavior of 32 non-toilet trained infants (16 wearing disposable diapers, 16 wearing reusable, less absorbent diapers, aged 6 - 24 months) was observed and videorecorded. The diaper contained a light box that initiated to shine when the sensor became wet. This light could not be noticed by the infant. Two independent researchers assessed the videorecordings of the micturition using a checklist containing twelve ES.

RESULTS
Forty-seven percent of the infants displayed ES. Infants wearing a reusable diaper displayed more ES (p=0.013). Only 25% of infants wearing a disposable diaper exhibited at least one ES compared to 68.8% wearing a reusable one. A significant difference was detected in presentation of ES during voiding (p=0.009). No difference could be detected before (p=0.127) and after micturition (p=0.197). No significant relationship was found between any individual ES and the kind of diaper.

CONCLUSIONS
The use of a reusable diaper increases awareness of voiding compared to the use of the disposable one. Parent-infant communication is facilitated possibly due to the increased wet sensation provided by a reusable diaper in contrast to a disposable diaper. Further research should focus on whether the use of the reusable diaper combined with implementation of these ES in toilet training will advance and facilitate the process.
LIDOCAINE GEL FOR URETHRAL CATHETERIZATION IN CHILDREN: A META-ANALYSIS

Paul Nimrod FIRAZA¹, Michael CHUA², Jessica MING³, Jan Michael SILANGCRUZ⁴ and Armando LORENZO²

1) Jose R. Reyes Memorial Medical Center, Department of Urology, Manila, PHILIPPINES - 2) The Hospital for Sick Children, Division of Urology, Toronto, CANADA - 3) Hospital for Sick Children, Urology, Toronto, CANADA - 4) St. Luke’s Medical Center, Institute of Urology, Quezon City, PHILIPPINES

PURPOSE

Lidocaine gel can be used as a lubricating agent to reduce any pain or discomfort during urethral catheterization in children; however, studies have shown conflicting results. Herein, we aim to determine the efficacy and safety of lidocaine gel versus controls in this population.

MATERIAL AND METHODS

Systematic literature search was done up to September 2016 (PROSPERO CRD42016050018). Risks of bias were assessed according to the Cochrane collaboration recommendations. The pain scale assessment scores used in the studies were extracted as mean differences (MD) and standard deviations for each treatment group. For between group estimation, standardized mean difference (SMD) was extrapolated with 95% confidence interval (CI). Effect estimates were pooled using the inverse variance method with appropriate meta-regression model according to inter-study heterogeneity. Inter-study heterogeneity was assessed using Chi² and I². Subgroup analyses were performed for different age ranges.

RESULTS

Five studies (369 subjects) were eligible for the meta-analysis. Overall, pooled effect estimates show that lidocaine gel has no significant difference in decreasing catheterization associated pain in children when compared to controls (SMD-0.22, 95%CI-0.66 to 0.21). Effect estimates from 4 studies that studied children less than 4 year old, revealed no difference in pain reduction between the lidocaine gel and control groups (SMD 0.01, 95%CI 0-0.22 to 0.24). One study assessed children ages 4 years or older and showed a significant improvement on pain control in favour of lidocaine gel group (SMD-1.84, 95%CI-0.69 to 0.20). No serious adverse events from the lidocaine were reported in any of the studies.

CONCLUSIONS

Current evidence showed that lidocaine gel does not reduce urethral catheterization pain in children, particularly among the age group.
PROSPECTIVE EVALUATION OF RADIATION DOSE AT SKIN ENTRANCE WITH FLUOROSCOPIC VOIDING CYSTOURETHROGRAM IN PEDIATRIC PATIENTS

Rajeev CHAUDHRY\textsuperscript{1}, Pankaj DANGLE\textsuperscript{2}, Patrick FOX\textsuperscript{1}, Wael ABDALLA\textsuperscript{3}, Helen BRADLEY\textsuperscript{3}, Mark DURANKO\textsuperscript{3}, Michael SHEETZ\textsuperscript{3}, Glenn CANNON\textsuperscript{1}, Francis SCHNECK\textsuperscript{1}, Michael OST\textsuperscript{1} and Heidi STEPHANY\textsuperscript{1}

\textsuperscript{1) Children’s Hospital of Pittsburgh of UPMC, Pediatric Urology, Pittsburgh, USA - 2) Children’s Hospital of Pittsburgh of UPMC, Pediatric Urology, Pittsburgh, USA - 3) Children’s Hospital of Pittsburgh of UPMC, Pediatric Radiology, Pittsburgh, USA

PURPOSE
A voiding cystourethrogram (VCUG) is a source of ionizing radiation exposure to pediatric patients. The actual radiation dose absorbed by the patient has not been accurately reported. We prospectively measure radiation dose during VCUG using a single point dosimeter.

MATERIAL AND METHODS
Pediatric patients undergoing a VCUG were prospectively enrolled in the study. Dosimeters (nanoDot\textsuperscript{TM} OSL) were affixed to the skin overlying the sacrum. Siemens\textsuperscript{TM} Axiom Luminos TF fluoroscopic machine was used, and skin-to-source distance was fixed at 60 cm, beam collimated to the smallest area possible, low dose setting applied, and fluoroscopy pulsed at 3 frames/sec. Dose area product determined by xray source and dose received by dosimeter (mGy) were measured and compared.

RESULTS
Thirty-two patients were prospectively enrolled in our study with a median age of 12 months (IQR 4-48), median body mass index (BMI) of 17.2 (IQR 16.6-18.6), and female predominance (66%). Median fluoroscopic time was 54 seconds (IQR 33-76.5). The median dose area product (mGy*m\textsuperscript{2}) was 6.55 (IQR 4.1-10.1) and median radiation dose absorbed at the skin entrance per dosimeter (mGy) was 0.32 (IQR 0.11-0.58, range .01-2.9) (p=0.01). There was no correlation between absorbed dose and BMI (r = 0.12, p = 0.5), and fluoroscopy time and BMI (r = 0.23, p = 0.18). There was a positive correlation between fluoroscopy time and absorbed dose (mGy) (r = 0.65, p < 0.001).

CONCLUSIONS
The radiation dose absorbed at skin entrance is low for a single VCUG when employing tight collimation, low dose settings and pulsed fluoroscopy without compromising the quality of the image.

Discussion
**S19-10 (P without presentation)**

**COMPARISON OF DURABILITY OF DIFFERENT SMALL BALLOON CATHETERS FOR TRANSANAL IRRIGATION**

Sofi SIGVARDSSON and Mattias GRÄNFORS

*Wellspect IH, Molndal, SWEDEN*

**PURPOSE**

Transanal irrigation (TAI) is a well-documented bowel-management therapy in children with neurogenic bowel disorder, anorectal malformation and Hirschprung. In TAI, rectal catheters with an inflatable balloon is used. However, balloon burst is a frequent complication and may be a traumatic experience and potentially lead to bowel perforation.

**MATERIAL AND METHODS**

First, the Navina™ Small and Peristeen™ Small catheter, respectively, was attached to an electronic pump blowing air into the balloon. Diameter of the balloon at time of burst was measured. Second, the respective catheter was put into a rigid plastic tube with a diameter of 46 mm and the balloon was inflated with an electronic pump. The length of the balloon inside the tube was measured at balloon burst. Time to burst and pressure at burst were measured in all 30 experiments. Differences in mean were statistically tested using the Student’s t-test.

**RESULTS**

The Navina™ Small catheter showed statistically significant higher durability in all measurements compared with the Peristeen™ Small catheter. Mean (SD) value of diameter, time and pressure at burst in air were 72.5 (1.1) mm, 19.4 (1.3) sec, 493 (20) mbar and 66.8 (0.6) mm, 10.1 (0.3) sec, 243 (4.3) mbar in Navina™ and Peristeen™ respectively (p<0.001). Mean (SD) value of length, time and pressure at burst in plastic tube were 8.4 (0.3) cm, 13.3 (1.3) sec, 687 (58) mbar and 7.0 (0.2) cm, 7.2 (0.2) sec, 377 (16) mbar in Navina™ and Peristeen™ respectively (p<0.001).

**CONCLUSIONS**

This study shows that catheter balloon durability can differ between TAI systems and that safety with the catheter balloon can be enhanced. This need to be further investigated in vivo.

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**S19-11 (P without presentation)**

**HAEMORRHAGIC CYSTITIS AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION: A CHALLENGE FOR THE PEDIATRIC UROLOGIST**

Romy GANDER¹, Marino ASENSIO¹, Gloria Fatou ROYO¹, Mercedes PEREZ² and Manuel LOPEZ³

¹) Hospital Vall d’Hebron Barcelona, Pediatric Surgery. Pediatric Urology and Renal Transplant Unit, Barcelona, SPAIN - 2) Hospital Vall d’Hebron Barcelona, Interventional radiology, Barcelona, SPAIN - 3) Hospital Vall d’Hebron Barcelona, Pediatric Surgery, Barcelona, SPAIN

**PURPOSE**

Haemorrhagic cystitis (HC) is a dreaded event after hematopoietic stem cell transplantation (HSCT). Treatment goals are to preserve life first, followed of preserving the bladder and ultimately its functionality. There is no standard therapeutic approach for HC. Described treatment options provide low success rates and are related to potential life-threatening side effects. The aim of this study was to describe our experience in treatment of HC following HSCT.
MATERIAL AND METHODS
Retrospective study of 39 patients with HC treated at our institution between January 2010 and October 2016. We analysed demographics, underlying diagnosis and treatment modalities.

RESULTS
We treated 39 patients with HC. Mean age was 9.4 years (SD: 4.20) and 64% were males. Acute leukemia was the most common underlying diagnosis in 27 (69%). Mean time from HSCT to HC onset was 55.46 days (SD: 112.35). CH grades were: I (3), II (21), III (8) and IV (7). BK-viuria was present in 34 (87.2%) of patients.
Noninvasive treatment was performed in 28 (71.8%). The remaining 11 (28.2%) required urological intervention (all were high-grade cystitis), consisting of bladder irrigation in all of them. Additional treatments consisted of: intravesical cidofovir (3), intravesical hyaluronic acid (5), cystoscopy and clot evacuation (4), selective angioembolization (2) and cutaneous vesicostomy (1). Overall, 8 patients (20.5%) died as a result of the malignancy (3 in the urological intervention group), 4 had active HC at death. Mean follow-up was 36.2 months (SD: 24.9).

CONCLUSIONS
HC is associated with high morbidity and mortality. Treatment should be individualized and designed to preserve the patient’s life. However, bladder function should try to be preserved for the future.

TESTICULAR REMNANTS: TO EXCISE OR NOT?
THE DEBATE GOES ON
Lee SMITH1, Haitham DAGASH1, Nitin PATWARDHAN1, Bala ERADI1 and Ashok RAJIMWALE2
1) The Children Hospital, Paediatric Surgery, Leicester, UNITED KINGDOM - 2) The Children Hospital, Paediatric Urology, Leicester, UNITED KINGDOM

PURPOSE
There is controversy as to the need for surgical management of the testicular remnant for impalpable testis or “vanishing testis”. This controversy is based on the variable reports of viable germ cell elements found within the testicular remnants and the inferred risk of possible malignant transformation if left in situ.

MATERIAL AND METHODS
A retrospective review of all testicular tissue remnants excised in boys with an impalpable testis during the period from January 1995 - September 2016 using the histology database. Patients with evidence of acute torsion, ambiguous genitalia, testicular biopsy and those who had previous inguinal surgery were excluded. Pathology reports were analysed for presence of seminiferous tubules, Leydig or Sertoli cells, vas, epididymal structures, haemosiderin laden macrophages, calcification and germ cell elements.

RESULTS
A total of 234 testicular remnants were excised from 233 boys, with the average age at operation being 2.8yrs (3mths-13.9yrs). These had been analysed by 10 Consultant Histopathologists over the specified period.
Testicular or paratesticular tissue was confirmed in 181 (77%) specimens. Sixty eight percent of cases were left sided. Seminiferous tubules were identified in 49 (20%) remnants. In 12 (5.1%) germ cells were present in combination with seminiferous tubules; however, there was no germ cell atypia or dysplasia. The average age of boys with germ cells present was 6.8 years (1.4-13.3). Other findings were the presence of calcification (38%), haemosiderin laden macrophages (27%), fibrosis (13.6%), hyaline deposits (4.7%), giant cells (2.1%) and ectopic adrenal rests (1.7%).
CONCLUSIONS
Germ cell elements, without atypia or dysplasia, were present in 5.1% of remnants in our cohort. Despite the risk of malignant transformation being low, this does not equate to no risk, therefore it is our view that testicular remnants should be excised.

S19-13 (P without presentation)

3D PATIENT TAILORED PRINTED HYDRONEPHROSIS: THE NEW ERA OF SURGICAL EDUCATION

Alaa EL-GHONEIMI¹, Matthieu PEYCELON¹, Isabelle LACREUSE², Laurent FOURCADE³, Thomas BLANC⁴, Annabel PAYE-JAOUEN¹, Christine GRAPIN⁵, Francois BECMEUR², Arnaud BONNARD⁶ and Jean BREAUD⁷


PURPOSE
Laparoscopic suturing remains a challenging procedure especially in pediatric urology field. Though laparoscopic pyeloplasty has been demonstrated to be efficient in children with minimal morbidity, the low load of cases makes the standard apprenticeship long, costly and of variable effectiveness. Training using a box model physical simulator is an option to supplement standard training. However, the lack of a high fidelity model of hydronephrosis reduces its impact on training. We aimed to develop a prototype of 3D patient tailored printed model of hydronephrosis.

MATERIAL AND METHODS
The development of the model has followed different steps. The acquisition of the 3D image was obtained from TDM scan of a child with hydronephrosis secondary to pyelo-ureteric obstruction. Specific complex procedures were used to reproduce an accurate model of the kidney and to produce directly a printed 3D organ. This process was done in collaboration with BIOMODEX specialized in medical education 3D printing.

The results were evaluated by senior pediatric urologists to assess for each specimen of final product the following parameters: anatomical morphology, manipulation with laparoscopic instruments of the renal pelvis and ureter, flexibility, resistance to laparoscopic scissors, resistance to 5/0 and 6/0 needles and sutures.

On the same setting, a pediatric box trainer was developed to recreate a similar working space limitation as in pediatric laparoscopy.

RESULTS
First prototype is produced with sufficient resemblances to the reality. The different parameters were satisfying and resection of the UPJ followed by pyelo-ureteral anastomosis was feasible inside the specifically tailored pediatric laparoscopic trainer.

CONCLUSIONS
This is the first description of patient tailored 3D printed hydronephrosis. This preliminary result is encouraging and need to be evaluated by different groups of surgeons and trainees. The success of this experience will open the way in the near future for other complex reconstruction models and may facilitate the diffusion of minimal invasive surgery in safer and more efficient way.
MEGAPREPUCE RECONSTRUCTION: TEN YEARS EXPERIENCE

Miguel PODESTA(JR)¹, Roberto CASTERA² and Miguel PODESTA¹
1) Hospital de Niños Dr Ricardo Gutierrez, Urology Unit, Department of Surgery, Buenos Aires, ARGENTINA -
2) Hospital de Niños Dr Ricardo Gutierrez, Urology Unit, Department of Surgery, Buenos Aires, ARGENTINA

PURPOSE
Megaprepuce is a rare development abnormality characterized by a redundant internal layer of the prepuce covering a normal sized penis.
We report our experience with a simple and reliable surgical technique in 15 patients with megaprepuce treated in our hospital between 2005 and 2015. Mean age was 9 months (3-20).

MATERIAL AND METHODS
A transverse ventral incision was performed between scrotal and penile skin. Apical and lateral scrotal skin extensions were dissected from the penile skin on either side. An incision was then performed along the midline of the ventral penile and preputial skin; opening the preputial sac and evertting its inner layer. Redundant inner preputial skin was excised, leaving a cuff of mucosa under the glans. A tissue plane was developed along Buck’s fascia on both sides of the penile shaft. Scrotal flaps were mobilized beneath the penis and sutured in the midline. The outer preputial layer and the dorsal penile skin was transposed ventrally around the shaft and closed in a vertical line. Finally, penile skin was sutured to the proximal mucosal cuff and to the scrotal skin.

RESULTS
After surgical repair all patients recovered a normal micturition pattern and the cosmetic aspect was considered satisfactory. Two patients developed ventral midline skin dehiscence at the penoscrotal junction that subsided by secondary epithelial ingrowth. One patient suffered a scrotal hematoma. Mean follow-up was 3.6 years.

CONCLUSIONS
This procedure has similarities to other surgical repairs described to treat patients with megaprepuce; and provides adequate anatomic and satisfactory genital appearance.

ADEQUATE PERI-OPERATIVE MANAGEMENT DECREASES COSMETIC COMPLICATIONS AFTER CIRCUMCISION WITH DISPOSABLE RING IN CHILDREN

Abdul Rauf KHAN , Atif SAEED, Mohammed Ruhul AMIN, Murtaza KHANBHAI, Samantha Jane HARRISON and Darrel GREGORY
Thonhill Circumcision Centre, General Practice clinic, Luton, UNITED KINGDOM

PURPOSE
We reviewed our experience in treating children with cosmetic complications following non-therapeutic male circumcision (NMC) with Plastibell and Circumplast devices at a community clinic. This study highlights the factors leading to these complications and clinical management to improve the cosmetic appearance.
MATERIAL AND METHODS
A retrospective review of 3360 children who underwent Circumplast (CC) and Plastibell circumcision (PC) under local anaesthesia at a community clinic from May 2014 to October 2016. Parents were given detailed information and consented preoperatively in children with potential risks. This was provided verbally and in written format. All complications were reviewed by a paediatric surgeon. All preputial adhesions were separated under anaesthetic cream. Buried penis was treated conservatively. Incomplete circumcisions were corrected by excision of excess skin. Acquired phimosis was treated by steroid, simple double incision of the scar and surgical reconstruction. Complications were further looked for CC and PC. Follow-up visits were arranged in all cases.

RESULTS
A total incidence of cosmetic complications in this cohort was 2.3% (n=77/3360) in NMC. Causes of adherent penile skin or incomplete penile exposure included preputial adhesions (1.3%), buried penis (0.5%), acquired phimosis (0.4%) and incomplete circumcision (0.1%). There is no significant difference in the complications between CC (2.2 % n=22/1002) and PC (2.3% n= 55/2357) (p>0.05). Preputial adhesions were higher in PC (1.5%) than CC (0.8%) but not statistically significant. Acquired phimosis was treated by steroid (n=2), simple double incision of the scar (n=6) and surgical reconstruction (n=8). The mean age of the children was 6.5 ± 1.4 months (median 2.1). Mean follow-up was 96 days (range 5 to 373).

CONCLUSIONS
Children with cosmetic complications following NMC by disposable rings can be prevented by meticulous perioperative management. Parental education and surgical expertise is required to minimise these complications.

GENITOURINARY INVOLVEMENT AND URINARY DIVERSIONS IN PAEDIATRIC PATIENTS WITH EPIDERMOLYSIS BULLOSOS

Eleni PAPAGEORGIOU¹, Naima SMEULDERS², Imran MUSHTAQ³, Peter CUCKOW³, Anna MARTINEZ⁴ and Abraham CHERIAN³

1) Great Ormond Street Hospital NHS Trust, Pediatric Urology, London, UNITED KINGDOM - 2) Great Ormond Street Hospital, NHS Trust, Pediatric Urology, London, UNITED KINGDOM - 3) Great Ormond Street Hospital, NHS Trust, Pediatric Urology, London, UNITED KINGDOM - 4) Great Ormond Street Hospital, NHS Trust, Pediatric Dermatology, London, UNITED KINGDOM

INTRODUCTION
Epidermolysis Bullosa (EB) is a rare genetic skin disorder with variable systemic involvement. We present our experience over the last 30 years, focussing on genitourinary involvement and urinary diversions.

PATIENTS AND METHODS

RESULTS
Twenty male patients were identified: 8(40%) junctional-EB (subtype:1-Herlitz, 4-non-Herlitz, 3-non-Herlitz with pyloric-atreasia), 9(45%) dystrophic-EB (5-recessive, 3-dominant, 1-transient-epidermolysis-of-the-newborn) and 3(15%) simplex-EB.
### Group A: 8 patients

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### Group B: 12 patients

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<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocele/UDT/testicular torsion</td>
<td>3</td>
</tr>
<tr>
<td>Circumcision (incl religious)</td>
<td>7</td>
</tr>
<tr>
<td>Enuresis/bladder dysfunction/constipation</td>
<td>2</td>
</tr>
</tbody>
</table>

Severity of urological involvement was significantly associated with EB-type (Fisher-test: p=0.035), with 6 (75%) patients in group A having junctional-EB. Hypospadias repairs (TIP-repair in 1-dystrophic-EB, Duplay in 1-junctional-EB) were complicated by meatal stenosis (dilatation x2) and urethral stricture (culminating in perineal urethroscopy + dilatation), respectively. Three patients (all junctional-EB) required urinary-diversion (vesicostomy/ureterostomies/vesicosotomy followed by cystoplasty + mitrofanoff) for increasing renal-impairment, HUN, and vesical pain respectively. No stoma-related complications were experienced in the short/long-term (follow-up 3, 3.5 and 0.5 years).

### CONCLUSIONS

Severity of urological involvement seems to be related to EB subtype. Hypospadias surgery is complicated by meatal stenosis and surgery should be avoided if possible although it is a small number to draw conclusions from. No complications related to stoma formation were encountered after diversion.

S19-17 (P without presentation)

### THE IMPORTANCE OF PATHOLOGICAL EXAMINATION TO DIAGNOSE BALANITIS XEROTICA OBLITERANS IN BOYS WITH PHIMOSIS

Tiago ELIAS ROSITO¹, Guilherme LANG MOTTA², Patric MACHADO TAVARES¹, Fernando JAHN DA SILVA ABREU¹, Nelson SIVONEI BATEZINI¹, Maria Lucia PEDROSA ROENICK GIOLO³, Raquel FERREIRA¹, Nicolinno ROSITO³ and Brasil SILVA NETO¹

#### PURPOSE

The balanitis xerotica obliterans (B XO) is a chronic inflammation variant of atrophic lichen sclerosus that affects foreskin, glans and urethra which can lead to phimosis and meatus/urethral stricture. Clinically, BXO manifests by a hard and whitish scarring area that affects the foreskin, the glans, the urethral meatus and up the urethra in more advanced cases. The clinical diagnosis is not always obvious. Some patients may have complications of BXO by late diagnosis or when undiagnosed. The aim of this study is to determine if physical examination is sufficient to diagnose BXO and the value of pathological analysis of the foreskin.

#### MATERIAL AND METHODS

The study evaluated 100 male patients, aged 5-18 years-old with phimosis and surgical indication, which underwent circumcision from December 2009 to July 2015. The foreskin was referred to pathological examination (PE). Clinical findings of BXO were correlated with the PE foreskin. The clinical suspicion of BXO was not reported to the pathologist, who followed the guidance of searching the presence of BXO in the foreskins.
RESULTS
Physical exam found nine patients with clinical suspicion confirmed BXO in PE. Of these, two patients had urethral stenosis. However, five patients without clinical suspicion of BXO were diagnosed with BXO in PE. Sensitivity of clinical exam to diagnose BXO was only 64%.

PE of Foreskin findings were: chronic nonspecific inflammation - 46 patients; subepithelial congestion and edema - 38 patients; balanitis xerotica obliterans - 14 patients; lentigo simplex - two patients

CONCLUSIONS
The data presented show that clinical examination is not sufficient for the diagnosis of BXO, and the diagnosis should be based on the PE. The study demonstrates that the incidence of BXO in patients with phimosis is significant, suggesting PE of all foreskins for the diagnostic of BXO.
SP3: Special Session
"TIPS AND TRICKS 2"

Moderators: Abdol-Mohammad Kajbafzadeh (Iran), Stuart O'Toole (UK)

ESPU Meeting on Friday 21, April 2017, 17:40–18:00

17:40–17:43
SP3-1

TIPS TO AVOID COMPLICATIONS FOR ROBOTIC SURGERY

Mohan Gundeti

Section of Urology, University of Chicago Medicine, Chicago, USA

17:43–17:46
SP3-2

RETROGRADE PYELOGRAM PRIOR TO OPEN PEDIATRIC PYELOPLASTY FOR YOUNG INFANTS – DOES IT INFLUENCE THE INCISION SITE FOR SMALL MUSCLE-SPLITTING INCISION IN INFANTS?

Mark Cain

Pediatric Urology, Indiana University School of Medicine
Riley Hospital for Children at IU Health, Indianapolis, USA

17:46–17:49
SP3-3

COMPLEX URETERAL REIMPLANTATION OF ECTOPIC URETERS IMPLANTED IN CONGENITAL BLADDER DIVERTICULA

Antonio Macedo Jr.

Pediatric Departament, Federal University of São Paulo, São Paulo, Brazil

17:49–17:52
SP3-4

CONSTRAINTS OF INSTRUMENTS: NOT A HANDICAP TO MINI PCNL

Sajid Sultan, Bashir Ahmed, Sadaf Aba Umer, Adib-ul-Hassan Rizvi, Philip G. Ransley

Department of Paediatric Urology, Sindh Institute of Urology and Transplantation, Karachi, Pakistan
TRANSURETHRAL NEO-ORIFICE (TUNO): A MINIMALLY INVASIVE TREATMENT FOR ECTOPIC OBSTRUCTIVE MEGAURETER

Alberto PARENTE¹, Ruben ORTIZ², Laura BURGOS² and Jose Maria ANGULO²

¹ GREGORIO MARAÑÓN UNIVERSITY HOSPITAL, PEDIATRIC SURGERY, Madrid, SPAIN - ² Gregorio Marañon University Hospital, Pediatric Urology, Madrid, SPAIN

PURPOSE
To present the creation of a transurethral neo-orifice (TUNO) near the trigone as an initial approach in duplicated ectopic megaureters with preserved moiety function to avoid external urinary diversion.

MATERIAL AND METHODS
We have treated with these technique 7 infants. They presented unilateral duplicated system and ectopic obstructive upper ureter. All patients were symptomatic with at least two urinary infections despite nocturnal antibiotic prophylaxis and increasing hydronephrosis.

In all cases the urethrocystoscopy failed to show the meatus of the ectopic ureter. During the cystoscopy the dilated distal end of the ureter was identified with ultrasound. Under ultrasound scan and direct cystoscopic vision the retrovesical ectopic ureter was punctured transvesically. The puncture was done with a 4Fr needle and contrast was instilled in the ectopic ureter to obtain retrograde pyelogram. Through the puncture needle a 0.014” guidewire was inserted into the upper moiety. The punctured site was then dilated with a high-pressure balloon and the neo-meatus edge was coagulated with monopolar electrocautery to achieve cohesion.

RESULTS
The mean operative time was 57 ± 11 minutes. The mean age at treatment was 2.8 ± 1.9 months. There were not perioperative or postoperative complications. Urinary tract infections disappeared in all cases after the procedure. The assessment done 6 months postoperatively demonstrated a significant decrease in the grade of the hydronephrosis in all cases.

CONCLUSIONS
Creation of TUNO is a minimally invasive technique successful as the initial management of ectopic ureter. It avoids urinary tract infections, decrease the dilatation and preserve the parenchyma function.
S20: FUNCTIONAL VOIDING DISORDERS

Moderators: Marcos Giannetti Machado (Brazil), Guy Bogaert (Belgium)

ESPU Meeting on Saturday 22, April 2017, 08:10–09:12

08:10–08:15

S20-1 (LO)

★ COMBINING TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS) WITH OXYBUTYNIN IS SUPERIOR TO MONOTHERAPY IN CHILDREN WITH OVERACTIVE BLADDER AND DAYTIME URINARY INCONTINENCE – A RANDOMIZED, PLACEBO-CONTROLLED STUDY

Luise BORCH1, Søren HAGSTRØM2, Konstantinos KAMPERIS1, Cecilie Voldum SIGGAARD1 and Søren RITTIG1

1) Aarhus University Hospital, Pediatrics, Aarhus N, DENMARK - 2) Aalborg University Hospital, Pediatrics, Aalborg, DENMARK

PURPOSE
To evaluate if combination therapy with TENS and oxybutynin results in a superior treatment response on childhood urge incontinence than monotherapy with the two modalities.

MATERIAL AND METHODS
In this double-blind, placebo-controlled study 51 children with urge incontinence (mean age 7.5 ± 1.6 years) were randomized into three treatment groups. Group 1: active TENS + active oxybutynin (n = 18). Group 2: active TENS + placebo oxybutynin (n = 19). Group 3: active oxybutynin + placebo TENS (n = 14). The children received active/placebo TENS over the sacral S2-S3 outflow for two hours daily in combination with 5 mg x 2/day of active/placebo oxybutynin. The intervention period was 10 weeks. Primary outcome was number of wet days/week. Secondary outcomes were severity of incontinence, frequency, MVV/EBC, AVV/EBC and VAS score.

RESULTS
We found that active combination therapy was superior to oxybutynin monotherapy (P=0.05) with an 83% greater chance of response in children receiving combination therapy. Active TENS/active oxybutynin was also significantly more effective compared to active TENS monotherapy regarding improvement in number of wet days/week (mean difference = -2.28, [CI: -4.06; -0.49]), severity of incontinence (mean difference = -3.11, [CI: -5.98; -0.23]), and voiding frequency per day (mean difference = -2.82, [CI: -4.48; -1.17]).

CONCLUSIONS
TENS in combination with oxybutynin for urge incontinence in children was shown to be superior to both TENS and oxybutynin monotherapy although the latter only reached borderline statistical significance. Furthermore, TENS treatment was associated with a reduced risk of oxybutynin induced post-void residual urine > 20 ml.
PARASACRAL TENS 2 VS. 3 TIMES A WEEK FOR OVERACTIVE BLADDER IN CHILDREN: A RANDOMIZED CLINICAL TRIAL

Ubirajara BARROSO¹, Maria Luiza VEIGA², Vanessa SANTOS², Anselmo HOFFMANN³, Ana Aparecida BRAGA⁴ and José Murillo BASTOS NETTO⁵

¹) Federal University of Bahia and Bahiana School of Medicine, Pediatric Urology, Salvador, BRAZIL - ²) Bahiana School of Medicine, Physiotherapy, Salvador, BRAZIL - ³) Bahiana School of Medicine, Pediatric Urology, Salvador, BRAZIL - ⁴) Bahiana School of Medicine, Psychology, Salvador, BRAZIL - ⁵) Federal University of Juiz de Fora, Urology, Juiz De Fora, BRAZIL

PURPOSE
Parasacral Transcutaneous electrical nerve stimulation (TENS) is an effective method in the treatment of overactive bladder in children. We have performed this procedure with sessions of 20 minutes, 3 times per week. However, the ideal number of sessions per week is not well established. Fewer sessions would be more suitable to patients and reduce costs. The aim of this study is to compare TENS parasacral held 3 vs. 2 times a week.

MATERIAL AND METHODS
This is a randomized clinical trial. Inclusion criteria: Patients with urgency, urinary flow with bell or tower shape and low post-voiding residual urine.
Patients were randomly allocated to 2 groups: A) Parasacral TENS 3x/week, B) 2x/week. Sessions lasted 20 minutes. The result was evaluated by visual analogical scale (VAS). Below 50% improvement would be poor response, of 50% to 90% was partial and 100% complete response. They were also evaluated by DVSS. The results were compared by Fisher’s exact test for categorical variables and Mann-Whitney test for continuous variables.

RESULTS
34 children were allocated (22 girls) aged 4-14 years: 18 in group A and 16 in group B. Ten children were constipated before treatment. With respect to VAS, in the group A 11 group had a complete response, 6 had partial response and 1 with little response. In group B 8 had complete response, 6 had partial and 2 had poor response. Both evolved with significant improvement in DVSS after treatment, but there was no significant difference between groups (p = 0.618). No difference in the rate of improvement of enuresis and constipation was found.

CONCLUSIONS
This study shows that it is possible to treat patients with parasacral TENS 2x / week without compromising significantly the outcome. A larger number of patients would be required to define that this number of sessions per week is the ideal.
NEUROSTIMULATION THERAPY FOR NON-NEUROGENIC OVERACTIVE BLADDER IN CHILDREN: A META-ANALYSIS

Nicolas FERNANDEZ¹, Michael CHUA¹, Jessica MING¹, Jan Michael SILANGCRUZ², Fadi ZU’BI¹, Armando LORENZO¹ and Roberto IGLESIAS LOPES¹

¹) Hospital for SickKids, Urology, Toronto, CANADA - 2) St. Luke’s Medical Center, Quezon city, Philippines, Urology, Quezon, PHILIPPINES

PURPOSE
Neurostimulation has been utilized to treat pediatric lower urinary tract dysfunction, specifically for non-neurogenic overactive bladder (NNOAB). Available literature has contradictory results on its efficacy in treatment outcomes. We aimed to determine the efficacy and safety of the neurostimulation therapy for NNOAB in children by meta-analysis of randomized control trials (RCTs).

MATERIAL AND METHODS
Systematic literature search was done on August 2016 in Pubmed, Scopus, Embase, Cochrane library, Wiley Online Library, clinicaltrials.gov and WHO-International Clinical Trials Registry Platform. Randomized controlled trials were evaluated according to Cochrane Collaboration risk of bias assessment. The number of patients with post-treatment partial /PR (50%-89%), complete/CR (>90%) and full /FR (100%) responses were extracted for relative risk (RR) and 95% confidence interval (CI). Effect estimates were pooled using the Mantel-Haenszel method with random effect model if significant inter-study heterogeneity (p<0.1) was noted.

RESULTS
Five studies with 245 patients were included. Overall effect estimates showed that compared to standard urotherapy, neurostimulation showed significant better >50% (PR+CR+FR) response rate (RR= 2.79, 95%CI 1.08 to 7.18). Subgroup analysis according the treatment setting showed clinic based neurostimulation has significantly better treatment outcomes for both >50% (PR+CR+FR) and >90% (CR+FR) response rate (RR= 3.24, 95%CI 1.89 to 5.57; RR= 20.81, 95%CI 2.97- 145.59, respectively). While self-administered regimen showed to between treatment group differences for both >50% (PR+CR+FR) and >90% (CR+FR) response rate analysis (RR= 2.61, 95%CI 0.48 to 14.15; RR= 3.55, 95%CI 0.19- 67.82, respectively). No serious adverse events were noted.

CONCLUSIONS
Neurostimulation may lead to improvement; however, may not render definite complete response. Office based seems to be better than self-administered therapy. Further RCTs are needed to compare the treatment outcome of the two regimens.
TREATMENT FAILURE IN POSTERIOR TIBIAL NERVE STIMULATION: RISK ASSESSMENT

M S ANSARI and Panakaj GAUR
Sanjay Gandhi Postgraduate Institute of Medical Sciences, Pediatric Urology, Department of Urology and renal transplantation, Lucknow, INDIA

PURPOSE
Overactive bladder is the commonest voiding dysfunction in children with a prevalence of 10-15%. The conventional treatments such as behavioral therapy and anticholinergics fail in 20-30% of the patients warranting alternative therapies like neuromodulation [posterior tibial nerve stimulation (PTNS) and sacral implant]. The PTNS therapy has shown encouraging results but with a failure rate of 30-40%. We intend to find out the risk factors for the failure of PTNS therapy.

MATERIAL AND METHODS
Thirty five patients with nonneurogenic overactive bladder underwent transcutaneous posterior tibial nerve stimulation [TcPTNS]. Each patient underwent weekly session for 30 minutes for 12 weeks followed by 3 weekly maintenance therapy. The parameters recorded were; overactive bladder symptoms, number of voids daily (NV), maximum voided volume (MVV>or<60% of the expected bladder capacity for age), urge incontinence (UI), urinary tract infection (UTI), hydroureteronephrosis (HUN), bedwetting (BW) and constipation. Response criteria were adopted from international children continence society (ICCS) 2006.

RESULTS
Thirty five patients (median age 8.5+-5 yrs) received TcPTNS therapy. A total of 24 (68.6%) patients reported improvement. Of these 15 (62.5%) patients reported cure and 9 (37.5%) patients reported significant improvement of symptoms. Eleven (31.4%) patients failed to respond to Tc PTNS therapy. On multivariate analysis the factors which adversely affected the success were MVV< 60% of the expected bladder capacity for age (p value 0.040), UI (0.048) and HUN (0.010).

CONCLUSIONS
Smaller voided volume, urge incontinence and upper tract changes (HUN) are the risk factors for the failure of TcPTNS therapy. These patients may be counseled early for alternative therapy.
PROLONGED TOILET TRAINING IN CHILDREN WITH DOWN SYNDROME: A CASE-CONTROL STUDY

José Murillo NETTO¹, Flávia Cristina De Carvalho MRAD², José BESSA JR.³ and André Avarrese FIGUEIREDO²

¹) Federal University of Juiz de Fora e Hospital e Maternidade Therezinha de Jesus da Faculdade de Ciências, Surgery/Urology, Juiz De Fora, BRAZIL - ²) Federal University of Juiz de Fora, Surgery/Urology, Juiz De Fora, BRAZIL - ³) State University of Feira de Santana, Surgery/Urology, Feira De Santa, BRAZIL

PURPOSE
Children with Down syndrome (DS) have delayed psychomotor development, which determines the level of difficulty in toilet training. The current study aims to estimate at what age they start and complete toilet training compared to children with normal psychomotor development, as well as to evaluate the toilet training method used and any association with lower urinary tract symptoms (LUTS) and functional constipation.

MATERIAL AND METHODS
A case-control study was conducted between 2013 and 2015. All parents completed a questionnaire designed to assess the toilet training process. LUTS was assessed through the application of the Dysfunctional Voiding Symptom Score. The presence of functional constipation was evaluated according to the Rome III criteria.

RESULTS
The study included 93 children with DS and 204 children with normal psychomotor development (Control Group- CG). The average age children started toilet training was 22.75 months in those with DS and 17.49 months in the CG (p=0.001). In children with DS, the average age when completing toilet training was 56.15 months and 27.06 months in the CG (p=0.001). Among children with DS, females completed toilet training earlier (p=0.02). The toilet training method used most often was child-oriented approach in both groups. There was no association with the presence of LUTS or functional constipation and the age of beginning and completing toilet training in both groups.

CONCLUSIONS
Children with DS experienced prolonged toilet training time compared to normal ones. Females with DS complete toilet training earlier. Age of finishing toilet training was not associated with LUTS or constipation. Other cohort studies are essential to gain insight into the toilet training process in children with DS.
Are Urinary Neural Growth Factor (NGF) and Brain Derived Growth Factor (BDNF) Valuable Biomarkers in the Differential Diagnosis of Idiopathic and Secondary Overactive Bladder

Can TANELI1, Hasan CAYIRLI2, Fatma TANELI3, Pelin ERTAN4, Ipek AKIL4 and Raziye YILDIZ3

1) Celal Bayar University, Faculty of Medicine, Department of Paediatric Surgery & Paediatric Urology, Manisa, TURKEY - 2) Celal Bayar University, Faculty of Medicine, Department of Paediatric Surgery, Division of Paediatric Urology, Manisa, TURKEY - 3) Celal Bayar University, Faculty of Medicine, Department of Clinical Biochemistry, Manisa, TURKEY - 4) Celal Bayar University, Faculty of Medicine, Department of Paediatrics, Division of Paediatric Nephrology, Manisa, TURKEY

PURPOSE
Urinary neural growth factor (NGF) and brain derived growth factor (BDNF) are novel biomarkers in the diagnosis and assessment of overactive bladder (OAB). The aim of the present study is to investigate urinary NGF and BDNF in idiopathic OAB and overactive bladder secondary to dysfunctional voiding.

MATERIAL AND METHODS
Twenty-seven children with lower urinary tract dysfunction (study group) and 20 healthy children (control group) were recruited in this prospective study. In the study group patients were subgrouped as; Group 1: idiopathic OAB (n=10), group 2: dysfunctional voiding and secondary OAB (n=10), group 3: dysfunctional voiding (n=7). NGF, BDNF and creatinine (Cr), tests were assessed in urine samples. BDNF and NGF values were normalized with urinary creatinine concentrations.

RESULTS
Urinary NGF/Cr was not statistically significant between the study groups and the control group. Urinary NGF/Cr was significantly (p=0.026) higher only in the comparison of the combined idiopathic OAB and secondary OAB (group 1+group 2, n=20) group compared to the healthy controls and the sensitivity and specificity were 60% and 65%, respectively. Urinary BDNF/Cr was significantly higher in all study groups compared to the healthy controls (Group 1 vs control group p=0.0001, group 2 vs control group p=0.0001, group 3 vs control group p=0.041). Sensitivity and specificity of BDNF/Cr were found %95 and %90, respectively. Urinary BDNF/Cr was significantly (p=0.001) higher in combined idiopathic OAB and secondary OAB (group 1+group 2, n=20) group compared to the healthy controls.

CONCLUSIONS
Due to the heterogeneous character of the etiology of overactive bladder, urinary NGF/Cr and BDNF/Cr are not specific biomarkers to differentiate the idiopathic OAB from secondary OAB patients.
THE EFFECTS OF OBESITY ON BLADDER CAPACITY IN CHILDREN WITH AND WITHOUT LOWER URINARY TRACT SYMPTOMS

Zhan Tao (peter) WANG, Crystal DORGALLI, Blake SELBY and Antoine KHOURY
Children's Hospital of Orange Country, University of California, Irvine, Urology, Orange, USA

PURPOSE
Functional bladder capacity is an important factor in the diagnosis of lower urinary tract symptoms (LUTS) in children. This study examines the effect of obesity on functional bladder capacity and LUTS.

MATERIAL AND METHODS
Demographic data and voiding diary measurements were prospectively collected, after informed consent, for children without LUTS. The same data set was then collected retrospectively for children with LUTS with ethics approval from the institution. Obesity was defined as children who were above the 95th percentile in weight by age. Statistical comparison was performed using the Student t-test, where significance was set at p<0.05.

RESULTS
We prospectively screened 110 children without LUTS and enrolled 35. Case-matched controls were retrospectively identified for 35 children with LUTS (Table 1). The average voided volume (128 mL versus 222 mL) was significantly less in obese versus non-obese children with LUTS (p=0.04). In addition, obese children with LUTS had significantly lower average voided volumes, maximum voided volumes and maximum morning voided volumes compared to obese children without LUTS (p=0.001, 0.04, 0.001, respectively).

Table 1: Numbers in Study Groups.

<table>
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<th>Non-Obese No LUTS</th>
<th>Obese No LUTS</th>
<th>Non-Obese LUTS</th>
<th>Obese LUTS</th>
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</thead>
<tbody>
<tr>
<td>18</td>
<td>17</td>
<td>19</td>
<td>16</td>
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CONCLUSIONS
Functional bladder capacity is significantly smaller in obese children with LUTS compared to non-obese children with and without LUTS. Therefore weight counseling should be included in the management of these children.
VOIDING POSITION DURING UROFLOWMETRY SHOULD BE CUSTOMIZED TO CHILD'S PREFERENCE FOR CULTURES WHERE SQUATTING IS COMMON

Eriz ÖZDEN¹, Anar IBRAHIMOV², Parviz HAJIYEV¹, Onur TELLI¹, Arif IBIS², Tarkan SOYGUR¹ and Berk BURGU¹

¹) Ankara University School of Medicine, Pediatric Urology, Ankara, TURKEY - 2) Ankara University School of Medicine, Urology, Ankara, TURKEY

PURPOSE
Uroflowmetry can be challenging for most children due to unfamiliar environment. In some cultures like ours, most children have the home habit of squatting and never experience sitting for micturition. However, most classical uroflowmetry equipments are designed for sitting or standing positions. We aimed to investigate whether the change of voiding position different than home habit, affects the uroflowmetric measures in kids with and without lower urinary tract dysfunction (LUTD).

MATERIAL AND METHODS
We compared uroflowmetric parameters during habitual voiding position with the classical sitting position in both groups and genders. A total of 66 patients with LUTD and 72 healthy controls were enrolled. All children were questioned about their home habit and underwent uroflowmetric test in both positions twice. In some boys standing position was also evaluated. Pattern, voided-volume, maximum flow rate (Qmax), voiding-time, and time to maximum flow were recorded. Postvoiding residue (PVR) were also noted. Following uroflowmetry, all patients were asked to evaluate and grade their experience with special questions focusing on the position.

RESULTS
The mean age was 10.7±4.5. In all groups, girls had higher Qmax in both positions. Only in girls with LUTD the change of position affected the residual urine significantly (p < 0.05). Position did not affect any parameter in healthy controls. All children graded the habitual position higher and wished to repeat the future tests in familiar position.

CONCLUSIONS
The preferred voiding position may differ among children for some cultures. As even clinically important parameters like PVR can be affected by position, in cultures where squatting is frequent, necessary adaptors should be provided to preference.
BIOFEEDBACK AS SINGLE FIRST-LINE TREATMENT FOR NON-NEUROPATHIC DYSFUNCTIONAL VOIDING CHILDREN WITH DIURNAL ENURESIS

Tamer EWIDA1, Khalid FOUDA NEEL1, Hamdan ALHAZMI2, Mahmoud SALEM TRBAY1, Mostafa ARAFA1, Moina TAHIR1 and Fahad A. ALYAMI3

1) King Saud University, King Saud University Medical city, Department of Surgery, Division of Urology, Riyadh, SAUDI ARABIA - 2) King Saud University, King Saud University Medical city, Surgery, Division of Urology, Riyadh, SAUDI ARABIA - 3) King Saud University, Department Of Surgery, Division of Urology, Riyadh, SAUDI ARABIA

PURPOSE
Non-neurogenic Dysfunctional Voiding (DV) accounts a significant portion of outpatient pediatric urologist clinics patients. Biofeedback (BF) is a modern non-invasive promising modality treatment for children with DV and daytime enuresis. Our objective is to investigate the efficacy of BF as a single first-line treatment for DV children with diurnal enuresis.

MATERIAL AND METHODS
It is a retrospective cohort study, where data was obtained from prospectively maintained database between January 2009 to March 2016. All children with non-neuropathic DV, and started BF as first line treatment were included. Full urological history and physical examination, Dysfunctional Voiding Symptom Score (DVSS), urine analysis, Ultrasound (US) and Uroflowmetry (UFM)+ Electromyogram (EMG) were recorded for all patients before and after finishing last BF cycle. Patients satisfaction scale was collected.

RESULTS
Our sample comprised 61 patients, their mean age was 10 years (SD ±2.6), most of them (80.3%) were females. When we analyzed the symptoms individually we found: 52 patients (85.2%) complained of diurnal enuresis, 16 (26.2%) of UTI, and 38 (62.3%) complained of voiding discomfort. Six months after last BF cycle, there was a statistically significant objective improvement in US and UFM+EMG findings, with disappearance of EMG signals in 40/61 (65.5%) patients, in addition to the subjective symptomatic improvement as the mean DVSS decreases from 14 to 7.9 (p =0.003). Forty-seven patients (77%) were satisfied, while only 8 patients (13.1%) were not satisfied.

CONCLUSIONS
BF could be considered as a potential effective single first-line treatment modality for children with DV with diurnal enuresis.
PERCUTANEOUS PARASACRAL NEUROMODULATION FOR OVERACTIVE BLADDER IN CHILDREN – A PILOT STUDY

Ubirajara BARROSO¹, Alan AZEVEDO², Mariana CABRAL², Ana Aparecida BRAGA³, Maria Luiza VEIGA⁴ and José Murillo NETTO⁵

¹) Federal University of Bahia and Bahiana School of Medicine, Pediatric Urology, Salvador, BRAZIL - ²) Bahiana School of Medicine, Pediatric Urology, Salvador, BRAZIL - ³) Bahiana School of Medicine, Psychology, Salvador, BRAZIL - ⁴) Bahiana School of Medicine, Physiotherapy, Salvador, BRAZIL - ⁵) Federal University of Juiz de Fora, Urology, Juiz De Fora, BRAZIL

PURPOSE
We developed a method of neuromodulation for OAB in children that consist of a percutaneous parasacral electrical stimulation by an introduction of an acupuncture needle. The theoretical advantage of this method is to pass the skin that have a high impedance (decreasing the resistance to the current) and to get closer to S3 where our target nerves are. The aim of this studies to report our beginning experience.

MATERIAL AND METHODS
This is a prospective study of 15 patients with pure OAB, meaning that the patients had urgency and low postvoid residual urine (less than 10% of the expected bladder capacity for age) and a bell or tower shaped uroflow curve.

Two needles were placed simetrically in the sacral area, 2 fingers below a posterior line crossing the anterosuperior iliac crist and 2 fingers away of the midline (figure). Patients underwent 6 months of sessions once a week, for 30 minutes. The frequency of current used was 10 Hz. Outcome was evaluated by VAS and DVSS.

RESULTS
Results
We followed 15 children, being 6 boys and 9 girls. The mean age was 7.5 years. The distribution of symptoms before and after percutaneous parasacral neuromodulation (PPN) is shown in the table. After treatment VAS scored 10 (complete resolution of the symptoms) in ten patients, 9 in two, 8 in two and 6 in one. Urgency (p=0.003), daytime incontinence (p=0.001), frequency (p=0.004), enuresis (p=0.016) and DVSS (p=0.002) improved significantly after treatment.

CONCLUSIONS
Percutaneous parasacral neuromodulation (PPN) once a week has shown to be effective in this small number of children with OAB. We believe that by decreasing the skin resistance against the current and getting closer to S3 may make this method useful even being used once a week. A large number of patients, longer follow up, and a control group are necessary to better study the real efficacy of this procedure.
DOES BMI INFLUENCE THE EFFICACY OF TENS TREATMENT FOR OVERACTIVE BLADDER IN CHILDREN?

Raheej KHAN¹, Massimo GARRIBOLI², Joanna CLOTHIER¹ and Anne WRIGHT¹

¹Evelina London Children’s Hospital, Paediatric Nephro-Urology and Bladder Service, London, UNITED KINGDOM
²Evelina London Children’s Hospital - Guy’s and St Thomas NHS Foundation Trust, Paediatric Urology, London, UNITED KINGDOM

PURPOSE
Day and night-time urinary incontinence secondary to overactive bladder (OAB) is a disorder frequently observed in children. Current therapies include urotherapy and anti-muscarinic drugs, however both have shown poor outcomes. Recently, transcutaneous electric nerve stimulation (TENS) has been demonstrated successful treatment for OAB. We aimed to assess compliance and success of TENS in our population.

MATERIAL AND METHODS
We randomly selected a cohort of patients from our prospectively maintained database. Patients were prescribed TENS treatment for a maximum of 84 days. A bladder-voiding diary was completed by parents. Patients were followed-up 3 months after the initiation of treatment. Demographic data including age, gender and BMI were collected. Outcome parameters included: resolution of symptoms, length of treatment and compliance. We analysed results dividing patients based on compliance (table 2) and BMI (table 3: Underweight (BMI<18.5), normal (18.5< BMI < 25), Overweight (BMI > 25)).

RESULTS

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<thead>
<tr>
<th></th>
<th>Total n=124</th>
<th>Females n=72(58%)</th>
<th>Males n=52(42%)</th>
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<tr>
<td>Median age</td>
<td>10(5-17)</td>
<td>11(5-17)</td>
<td>10(5-15)</td>
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<tr>
<td>Compliance</td>
<td>105(85%)</td>
<td>63(88%)</td>
<td>42(81%)</td>
</tr>
<tr>
<td>Median Days used/84</td>
<td>78(5-84)</td>
<td>78(5-84)</td>
<td>78(11-84)</td>
</tr>
<tr>
<td>No response</td>
<td>64(52%)</td>
<td>33(46%)</td>
<td>31(60%)</td>
</tr>
<tr>
<td>Partial/complete response</td>
<td>60(48%)</td>
<td>39(54%)</td>
<td>21(40%)</td>
</tr>
</tbody>
</table>

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<th>Total N=124</th>
<th>Under weight n=68(54%)</th>
<th>Normal n=41(33%)</th>
<th>Over weight n=15(13%)</th>
<th>p</th>
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<td>No response</td>
<td>64(52%)</td>
<td>35(54%)</td>
<td>18(44%)</td>
<td>11(73%)</td>
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<tr>
<td>Partial/complete response</td>
<td>60(48%)</td>
<td>33(46%)</td>
<td>23(56%)</td>
<td>4(27%)</td>
<td>0.1</td>
</tr>
</tbody>
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<table>
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<tr>
<th></th>
<th>Total n=124</th>
<th>Poor compliance n=19</th>
<th>Good compliance n=105</th>
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<tbody>
<tr>
<td>No response</td>
<td>64(51%)</td>
<td>10(53%)</td>
<td>54(51%)</td>
<td>0.95</td>
</tr>
<tr>
<td>Partial/complete response</td>
<td>60(49%)</td>
<td>9(47%)</td>
<td>51(49%)</td>
<td>0.95</td>
</tr>
</tbody>
</table>

CONCLUSIONS
Partial/complete response was obtained in half of the patients in the analysed cohort. Compliance was high (85%). Nor BMI or compliance significantly influenced the success of the treatment.
THE FATE OF LOW DLPP (< 30 CM H2O) NEUROGENIC BLADDER PATTERN THROUGHT YEARS

Antonio MACEDO JR¹, João PARIZI², Marcela LEAL DA CRUZ², Jorge Antonio POMPERMAIER³, Maria Isabel SILVA SILVA⁴, Sérgio OTTONI², Gilmar GARRONE⁵ and Riberto LIGUORI²

1) Federal University of Sao Paulo - Unifesp, Departament of Pediatrics, São Paulo, BRAZIL - 2) CACAU - Centro De Apoio a Criança com Anomalia Urologica, Nupep, São Paulo, BRAZIL - 3) CACAU - Centro de Apoio a Criança com Anomalia Urológica, Núcleo de Urologia Pediátrica - NUPEP, São Paulo, BRAZIL - 4) CACAU - Centro de Apoio a Criança com Anomalia Urológica, NUPEP, Sao Paulo, BRAZIL - 5) CACAU - Centro de Apoio a Criança com Anomalia Urológica, Nupep, São Paulo, BRAZIL

INTRODUCTION
Urodynamic evaluation (UE) is an excellent tool to categorize the bladder pattern of neurogenic bladder and guide the most appropriate treatment. We can assume that patients with low DLPP (detrusor leakage point pressure) will be presumably incontinent. However, bladder pattern may change over time, and even in the considered low-risk patterns, regular assessment is required. We proposed to review the evolution of the urodynamic pattern over time in patients initially classified as incontinent.

MATERIAL AND METHODS
We reviewed data of 2 populations: group A (myelomeningocele - MMC patients that had postnatal repair) and group B (MMC patients that had undergone in utero repair and are being followed prospectively since November 2011). We consider only patients with DLPP equal or less than 30cmH2O. We reviewed first and last UE over the longest time of follow up to interpret changes of pattern along time and have a better tool for parents education and assumption of need of future surgery for urinary leakage.

RESULTS
We found 13 patients in group A and 11 patients in group B. The mean initial DLPP was 24.3 cmH2O (24.3 cmH2O postnatal and 24.4 cmH2O antenatal). Overactive bladder pattern was similarly among groups (61.5% and 63.6% respectively). From the whole series 5 patients were excluded from the analysis because they had only one UE. We defined the delta DLPP in cmH20 as the last figure minus the first one in a delta t of 47 months follow-up. The variation of DLPP was +9.7 cm H2O (8 cmH2O postnatal and 10.8 cmH2O antenatal).

CONCLUSIONS
Patients with low DLPP and a incontinence pattern do not show greater variation on leakage pressure with a maximum range of 10 cmH2O of increase. This information is useful to advise patients over the likelihood of a surgical procedure in the future for patients to become continent.
S21: NOCTURNAL ENURESIS

Moderators: Gillain Barker (Sweden), Erik Van Laecke (Belgium)

ESPU Meeting on Saturday 22, April 2017, 09:12 – 09:40

09:12 – 09:17
S21-1 (LO)

★ TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION IN CHILDREN WITH MONOSYMPTOMATIC NOCTURNAL ENURESIS: A RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED STUDY

Cecilie Voldum SIGGAARD, Konstantinos KAMPERIS, Luise BORCH, Britt BORG and Søren RITTIG

Aarhus University Hospital, Pediatrics, Aarhus N, DENMARK

PURPOSE
Involuntary voiding during sleep, nocturnal enuresis (NE), affects 10-15% of all 7-year-olds and 0.5-2% of young adults. Approximately one-third of all children with NE are refractory to first line treatments. Transcutaneous Electric Nerve Stimulation (TENS) has been documented efficacious in children with daytime incontinence. The aim was to investigate the effect of TENS in children with monosymptomatic nocturnal enuresis (MNE) without nocturnal polyuria.

MATERIAL AND METHODS
We performed a randomized, double-blind, placebo-controlled study. The children were randomized to treatment with either active TENS or placebo TENS for one hour twice daily for ten weeks with electrodes placed in the sacral region at the S2/S3 outflow.

RESULTS
In total, 52 children with MNE were included and 47 completed treatment (mean age 9.5 ± 2.1 years, 38 males). No children experienced full response with complete remission of enuresis whereas two children, who received placebo treatment, showed partial response (≥50% reduction). TENS did not lead to significant changes in the number of wet nights, nocturnal urine production on wet or dry nights, maximum voided volume with and without first morning voided volume or voiding frequency when comparing the parameters before and after treatment. There was no significant difference between active and placebo TENS in any outcome variable.

CONCLUSIONS
The present study demonstrates no anti-enuretic effect of TENS in children with MNE without nocturnal polyuria. Nocturnal urine production and bladder capacity characteristics remained unchanged after treatment with TENS.
IMPROVED SLEEP QUALITY FOLLOWING ADENOTONSILLECTOMY (TA) IS ASSOCIATED WITH ENURESIS (NE) RESOLUTION IN CHILDREN WITH SLEEP-DISORDERED BREATHING (SDB)

Larisa KOVACEVIC¹, Hong LU¹, Myreia DIAZ-INSUA² and Yegappan LAKSHMANAN¹

¹) Children’s Hospital of Michigan, Pediatric Urology, Detroit, USA - 2) Henri Ford Hospital, Urology, Detroit, USA

PURPOSE
We have previously reported that TA leads to complete resolution of NE in about 50% of children with SDB, but the mechanism is not entirely clear. In this study we assessed the effect of TA on sleep quality, night time urinary volume (NUV) and secretion of antidiuretic hormone (ADH) and brain natriuretic peptide (BNP) in children with NE and SDB.

MATERIAL AND METHODS
Prospective pilot study of 40 children 5-18 years of age diagnosed with SDB (snoring and obstructive sleep apnea syndrome, OSAS) on polysomnography, and monosymptomatic primary NE (MPNE) requiring TA for upper airway obstruction release. Arousal score, nocturia, NUV, and plasma levels ADH and BNP were measured pre and 1 month post-surgery.

RESULTS
Decrease in arousal score and plasma BNP level, and increase in plasma ADH level were seen in all post-surgery. However, mixed ANOVA showed that responders (dry) had significantly more improvement than non-responders (wet) in the quality of sleep (Table). Following TA, nearly all dry children reported nocturia and significant decrease in BNP levels (P=0.017) without significant change in their NUV.

<table>
<thead>
<tr>
<th></th>
<th>Dry (N=20)</th>
<th>Wet (N=20)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-T&amp;A</td>
<td>Post-T&amp;A</td>
<td>Pre-T&amp;A</td>
</tr>
<tr>
<td><strong>Heavy sleeper</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (%)</td>
<td>10 (50%)</td>
<td>2 (11.8%)</td>
<td>13 (27.8%)</td>
</tr>
<tr>
<td><strong>Snoring</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (%)</td>
<td>20 (100%)</td>
<td>3 (15.8%)</td>
<td>20 (100%)</td>
</tr>
<tr>
<td><strong>Arousal score</strong></td>
<td>13.17 ± 4.27</td>
<td>7.89 ± 5.04</td>
<td>9.64 ± 3.56</td>
</tr>
</tbody>
</table>

CONCLUSIONS
Change in children’s quality of sleep and arousal score was associated with NE resolution post-TA. Improvement in sleep quality appears to be responsible for the effect of TA on NE in children with SDB.
A PORTABLE UROFLOWMERTY DEVICE NAMED P-FLOWDIARY® COMBINED WITH FREQUENCY VOLUME CHARTS IS USEFUL IN CLARIFYING LOWER URINARY TRACT SYMPTOMS IN CHILDREN

Kazuyoshi JOHNIN, Kenichi KOBAYASHI and Akihiro KAWAUCHI
Shiga University of Medical Science, Urology, Otsu, JAPAN

PURPOSE
It has been generally accepted that uroflowmetry is an important and noninvasive diagnostic tool for children with lower urinary tract symptoms (LUTS). However, it is impossible to offer comfortable environment for children to do several uroflows at the clinic. P-Flowdiary®, which is a handy uroflowmetry device, available in Japan from 2015, can easily record all uroflows and simultaneous frequency volume charts (FVC) at home. To evaluate the feasibility of this new device, we compared uroflows and FVC at home and the clinic among boys with several conditions.

MATERIAL AND METHODS
Forty boys (mean age 9.0±1.9 years) with several conditions underwent home uroflowmetry (P-Flowdiary®, (Muranaka Medical Instruments Co. Ltd., Osaka, Japan) for at least 2 days. All boys were toilet-trained. Several conditions as follows: normal control (10), monosymptomatic nocturnal enuresis (MNE, 9), non-monosymptomatic nocturnal enuresis (NMNE, 10), daytime urinary incontinence (DUI, 11). We evaluated the uroflows data both at home and at the clinic. Interpretation of uroflows data was done according to updated ICCS terminology documents (Austin P, J Urol 2014). We defined the staccato or interrupted flow pattern as >3 peaks and troughs of more than the square root of maximal flow. (Vijverberg MA, Neurourol Urodyn 2011). We used automated objective patterning software (Kanematsu A, J Urol 2010, J Pediatr Urol 2013).

RESULTS
The percentage of normal voider was significantly smaller at home (16%) than at clinic (38%) (p<0.01). The percentage of Bell pattern is not significantly larger at home (61.5%) than at clinic (45%) (p=0.07). The percentage of normal voider was significantly smaller among DUI (9.6%) than control (21.4%) and MNE (20.2%) (p<0.01). The percentage of Bell pattern was significantly smaller among NMNE (52.2%) than among control (64.9%) and DUI (66.5%) (P<0.05).

CONCLUSIONS
P-Flowdiary® is a novel device to record all uroflows and FVC simultaneously at home, and offers useful information of LUTS in children.
NEUROSTIMULATION THERAPY FOR PEDIATRIC PRIMARY NOCTURNAL ENURESIS (PNE): A META-ANALYSIS

Roberto IGLESIAS LOPES¹, Michael CHUA¹, Jose Nicolas FERNANDEZ¹, Jessica MING¹, Jan Michael SILANGCRUZ², Armando Jose LORENZO¹, Martin Allan KOYLE¹ and Joana DOS SANTOS¹

¹) The Hospital for Sick Children, University of Toronto, Division of Urology, Department of Surgery, Toronto, CANADA - 2) St Luke’s Medical Center, Division of Urology, Department of Surgery, Quezon City, PHILIPPINES

PURPOSE
We herein assessed the efficacy of neurostimulation compared to control groups in the treatment of pediatric enuresis. We aim to determine treatment response, as defined by the International Children’s Continence Society, mean number of wet-night per week reduction and adverse events, by meta-analysis of randomized controlled trials (RCTs).

MATERIAL AND METHODS
A systematic literature search was done on August 2016 in Pubmed, Scopus, Embase, Cochrane and Wiley Libraries, clinicaltrials.gov and WHO-International Clinical Trials Registry Platform. RCTs were identified and evaluated according to the Cochrane Collaboration risk of bias assessment recommendations. The number of patients with post-treatment partial /PR (50%-89%), complete/CR (>90%) and full / FR(100%) responses were extracted for relative risk (RR) and 95% confidence interval (CI). The mean numbers of wet-night reductions per week from each treatment group were extrapolated as mean difference (MD) and 95%CI. Effect estimates were pooled using Mantel-Haenszel method and inverse variance with fixed effect model when heterogeneity was not significant (p>0.1).

RESULTS
272 subjects (6 RCTs) were included. Pooled effect estimate of subjects with>50% post-treatment wet-night reduction (PR, CR & FR) showed a significantly better outcome for neurostimulation compared to controls (RR=2.07, 95%CI 1.58, 2.72). Patients with>90% post-treatment wet night reduction (CR & FR) showed a significantly better outcome in the neurostimulation group (RR=2.70, 95%CI 1.48, 4.93). A significant mean difference in wet-night reduction per week was noted with neurostimulation (MD-2.30, 95%CI -3.35, -1.25). No serious adverse effects were observed.

CONCLUSIONS
Current evidence shows neurostimulation is efficacious and safe for pediatric PNE management.

09:26—09:40
Discussion
THE INFLUENCE OF COMPLIANCE ON THE THERAPEUTIC EFFECTS OF MINIRIN IN MONOSYMPTOMATIC ENURESIS TREATMENT

Sasa MILIVOJEVIC¹ and Zoran RADOJICIC²

¹) University Children’s Clinic Belgrade, Urology department, Belgrade, SERBIA - ²) University Children’s Clinic Belgrade, Urology department, Belgrade, SERBIA

PURPOSE
To prove the importance of compliance on the therapeutic effects of Minirin in monosymptomatic enuresis treatment.

MATERIAL AND METHODS
The research was carried out in the 2014-2016 period, during which 26 patients were observed who were treated with Minirin due to the previously diagnosed monosymptomatic enuresis. The average age of the patients was 8.8 years +/- 2.4 SD, out of whom 61.5% were boys and 38.5% girls. After the 3-month Minirin treatment, the effect of medication therapy was compared with compliance. Regarding compliance, the analysis encompassed regular drug intake, arbitrary discontinuation of therapy, improper dosage, drug administration against the instructions, and not following advice related to urination training, fluid intake in the evening, diet, irregular bowel movement, or not following the psychologist’s advice.

RESULTS
The average enuresis frequency before therapy was 23.3 per month +/- 5.4 SD, whereas the average enuresis frequency after the therapy began was 10.6 per month +/- 8.7 SD. The t-test application proved that there is a major statistical difference in enuresis frequencies before and after Minirin treatment (p< 0.001). In the examined group, 16 patients did not demonstrate compliance, while 10 patients demonstrated compliance. An average enuresis reduction in the group that did not demonstrate compliance was 30.1% +/- 22.2 SD, while in the group that demonstrated compliance it was 90.7% +/- 6.8 SD. The t-test application proved that there is a highly important statistical difference between these two patient groups (p< 0.001).

CONCLUSIONS
Compliance considerably influences the beneficial effects of Minirin, because of which it is necessary to prescribe it to each patient on Minirin treatment, especially to patients whose therapeutic effects are poor.
S22: STONES

Moderators: Juan P. Corbetta (Argentina), Henri Lottmann (France)

ESPU Meeting on Saturday 22, April 2017, 10:20–11:02

10:20–10:23

S22-1 (PP)

★ IMBALANCE IN URINARY PROTEOGLYCANS AND THE INSULIN GROWTH FACTOR (IGF) AXIS IN CHILDREN WITH UROLITHIASIS

Larisa KOVACEVIC1, Hong LU1, Joseph A. CARUSO2, Ronald THOMAS3 and Yegappan LAKSHMANAN1

1) Children’s Hospital of Michigan, Pediatric Urology, Detroit, USA - 2) Institute of Environmental Health Sciences, Wayne State University, Proteomics, Detroit, USA - 3) Children’s Hospital of Michigan, Wayne State University, Statistics, Detroit, USA

PURPOSE

Based on the role of the extracellular matrix (ECM) in the Randall plaque formation, we aimed to identify and quantify ECM proteins in the urine of children with urolithiasis (RS) using a proteomic approach.

MATERIAL AND METHODS

Prospective, controlled, pilot study of pooled urine from RS (N=30, 24 females, mean age 12.95±4.03 years) versus age- and gender-matched healthy controls (HC), using mass spectrometry. Relative protein abundance was estimated using spectral counting. The criteria for protein selection were: 1) ≥5 spectral counts; 2) ≥2-fold difference in spectral counts; and 3) ≤0.05 p-value for the Fisher’s Test. Results were confirmed by ELISA.

RESULTS

We found 36 (15.7%) ECM proteins out of 229 that met the above criteria. Significant differences between RS and HC were found among two proteoglycans and four insulin growth factor (IGF) proteins (Table). Significant increase in the urinary excretion of IGFBP4 in RS versus HC was confirmed by ELISA (p=0.001).

<table>
<thead>
<tr>
<th>Accession Number</th>
<th>Protein Assigned peptides</th>
<th>Ratio (Patient/Control)</th>
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</thead>
<tbody>
<tr>
<td>PRG4</td>
<td>Proteoglycan 4</td>
<td>38 (5)</td>
</tr>
<tr>
<td>SDC1</td>
<td>Heparan sulfate proteoglycan (Syndecan 1)</td>
<td>5 (50)</td>
</tr>
<tr>
<td>IGF2R</td>
<td>Cation-independent mannose-6-phosphate receptor</td>
<td>2 (13)</td>
</tr>
<tr>
<td>IGFBP1</td>
<td>Insulin-like growth factor-binding protein 1</td>
<td>8 (0)</td>
</tr>
<tr>
<td>IGFBP4</td>
<td>Insulin-like growth factor-binding protein 4</td>
<td>17 (4)</td>
</tr>
<tr>
<td>IGFBP6</td>
<td>Insulin-like growth factor-binding protein 6</td>
<td>49 (2)</td>
</tr>
</tbody>
</table>

*P<0.01

CONCLUSIONS

Alteration in proteoglycans and the IGF axis appears to have a significant role in the mechanism of urolithiasis, likely by modulating ECM biosynthesis. Further understanding of their roles in urolithiasis may aid in generation of novel therapeutic approaches.
ALL THAT GLITTERS IS NOT GOLD. CT KUB AND INTRAVENOUS PYELOGRAM CAN BE SACRIFICED IN A SAFE PERCUTANEOUS NEPHROLITHOTOMY

Sherjeel SAULAT¹, Adnan SIDDIQ², Shariq ANEES², Hammad MITHANI² and Salman EL KHALID³

1) Kidney center post-graduate training institute, Paediatric Urology, Karachi, PAKISTAN - 2) The Kidney Center, Urology, Karachi, PAKISTAN - 3) The kidney centre, Urology, Karachi, PAKISTAN

PURPOSE
The purpose of this study is to compare the outcomes of the patients who underwent PCNL with only a Xray KUB and a Ultrasound (Group A) with the group of patients who had an IVP or CT scan done before the procedure (Group B) to review whether these traditional Gold standards are really necessary or can they be omitted.

MATERIAL AND METHODS
We retrospectively reviewed the prospectively collected data of 142 children (149 renal units) who underwent PCNL from November 2014 to April 2016. Patient’s data including age, gender, stone burden, hemoglobin drop, operative time, radiation dose, complications and hospital stay duration were documented. Successful outcome was a stone free renal unit on postoperative USG KUB. Statistical analysis was done on SPSS 20 by using independent sample t-test and chi-square test.

RESULTS
149 PCNLs (Group A=101, Group B=48) were performed in 142 patients. The overall mean age was 8.34+-4.8 yrs. There was no significant difference regarding tract approach (p=0.75), tract puncture site (p=0.55) and operative time (CI -17.68 -9.79, p=0.572). The stone burden in group A and B was 2.91+-2.38cm² vs 3.25+-2.44cm² respectively with 95%CI -1.16-0.498 and an insignificant p value (p=0.428).

The overall stone free rate of 149 renal units came out to be 94%. In group A the stone free rate was 95% and in group B it was 92% and not statistically significant(p=0.823). One IVP or CT KUB approximately costs about 50$ and therefore we saved about 5000$ of our healthcare budget of our country.

CONCLUSIONS
We conclude that PCNL has become the procedure of choice in last two decades for treatment of renal stones due its safety and efficacy. As the expertise grows with PCNL, IVU and CT KUB can easily be omitted in majority of patients to decrease the radiation exposure as well as the running cost of the treatment.
SHOCK WAVE LITHOTRIPSY TREATMENT IN THE PEDIATRIC POPULATION COMPARED WITH ADULTS – A 14 YEARS’ EXPERIENCE

Ariel ZISMAN¹, Oleg GOLDIN², Kamil MALSHY², Eden AMIEL², Akram ASSADI², Pinhas M. LIVNE², Gilad E. AMIEL² and Michael MULLERAD²

¹) Rambam Health Care Campus, Urology, Haifa, ISRAEL - ²) Rambam Health Care Campus, Technion Faculty of Medicine, Urology, Haifa, ISRAEL

INTRODUCTION
Evaluating the results of Shock Wave Lithotripsy (SWL) for renal and ureteral stones in pediatric patients in comparison with adults.

MATERIAL AND METHODS
Between 2002-2016 121 children underwent 127 SWL procedures using Dornier HM3 and DLS2. Average age was 11.5±5.1 years, (median age 12 range 2-18). A successful treatment was defined as a stone-free status or stone fragments smaller than 5 mm without the need of further treatment. We evaluated the success rate after one or two SWL’s in a time period of 6 months. Results were compared to a cohort of 427 adults (average age 50±14.4 years). Groups differed in age, gender distribution (boys 57%, men 67%), stone location (renal pelvis and upper ureter - in children 31% and 6.6%, in adults 21% and 21% respectively). Evaluation of treatment outcome was done 4-6 weeks after the procedure using renal ultrasound and abdominal plain film.

RESULTS
107 children had follow-up information available. Average stone size was 10.6 mm (range 4-30 mm; median size 9 mm). Success rate after the first and second SWL’s were 68% and 78% (73 and 83 children) respectively. In the adult group average stone size was 11 mm (5-25 mm; median size 10 mm). A 67.4% success rate was observed after first SWL (insufficient data regarding 2nd SWL). Complications in children compared with adults included: Hydronephrosis (8.5% vs 5%; NS), with only 2 cases of admission following obstruction in the pediatric group, fever (5% vs 5.5%; NS) and perinephric hematoma (1% vs 2%; NS). Success rate after a single SWL were similar between children and adults (68.2% and 67.4%, P=0.91).

CONCLUSIONS
SWL for renal and ureteral stones in the pediatric population is safe with similar results and complication rates as in adults.
KIDNEY STONES AS A RISK FACTOR FOR STUNTING IN CHILDREN

Angel De Jesús RIOS MEDINA, Martha María De Los ángeles MEDINA ESCOBEDO and Gloria De La Luz MARTÍN SOBERANIS
Hospital General “Dr. Agustín O’Horán”, Unidad de Investigación en Enfermedades Renales, Mérida, MEXICO

PURPOSE
Kidney stones (KS) is a problem with a wide range of prevalence throughout the world and its prevalence is on the rise. Several studies have related chronic kidney disease and renal tubular acidosis with stunting in children; however, we found no studies of this kind on patients with KS. The aim of this study was to determine whether KS is a risk factor for stunting.

MATERIAL AND METHODS
Case control study. Male and female under 15 years old were included, all patients underwent ultrasound and blood and urine tests; patients with comorbidities, long course of any pharmacological treatment, anemia, acute disorders that could affect weight or any condition that may trouble measurements were excluded. Standardized SECA instruments were used for height and weight measurements and CDC/WHO growth charts for reference.

RESULTS
We included 165 children with KS (50.9% male) and 173 without KS (50.8% male). No difference was found between means of age (88.36 plus-minus 47.36 and 100.79 plus-minus 41.53 months p=0.059) or hemoglobin (12.71 plus-minus 0.76 and 12.62 plus-minus 0.73 mg/dL p=0.286). BMI as a measure of nutritional status showed no difference on diagnosis (underweight, normal weight, overweight and obesity) by group (p=0.453). Significant difference was found when comparing z-Score means for height (-1.22 plus-minus 1.34 and -0.43 plus-minus 1.05 p=0.004). Odds ratio for stunting in patients with KS was 3.424 (CI 95%: 1.913-6.127 p=0.00003).

CONCLUSIONS
Our results show KS is a risk factor for stunting in children from our study population. Further studies should be done to elucidate the mechanisms on how KS affect growth and if same results can be found on other populations.
**COMPARISON OF INTERMEDIATE AND LOW FREQUENCY SHOCK WAVE LITHOTRIPSY FOR PEDIATRIC KIDNEY STONE**

Onur KAYGISIZ, Hakan KILIÇARSLAN, Ahmet MERT, Burhan COSKUN and Yakup KORDAN  
*Uludag University, Faculty of Medicine, Department of Urology, Bursa, TURKEY*

**PURPOSE**
To compare the low and intermediate shock wave frequency rates in terms of success and complications.

**MATERIAL AND METHODS**
This retrospective study was performed on 58 pediatric patients (24 girls, 34 boys) who underwent Shock Wave Lithotripsy (SWL) for kidney stones with an electrohydraulic lithotripter between April 2014 and March 2016, consecutively. In the first year, all children had undergone SWL with frequency of 90 SWs/min as intermediate frequency (Group 90); and in the second year, all children were treated by SWL using 60 SW/min as low frequency (Group 60).

**RESULTS**
Mean age was 5.87±4.5 years. There were no significant differences in age, gender, stone size, stone location, rate of multiple stone and SWL energy level between the groups. Stone-free status was achieved in 14, 6, and 4 children in group 60; and in 10, 6 and 4 children in group 90 after one, two and three session, respectively. The stone free rates were 80% and 74.1% after SWL and 90% and 88.9% after additional treatment in groups 60 and 90, respectively. The numbers of total median shock pulses were 2000 and 3600 in groups 60 and 90, respectively (p=0.115). Efficiency quotients were 51.93 and 44.47 in groups 60 and 90, respectively. Mean total anesthesia times and complication rates did not differ between the groups.

**CONCLUSIONS**
The low and intermediate frequency of SWL provide similar stone clearance in pediatric renal stones with similar anesthesia time. However, slow SWL need less shock pulses (2000/3600) for stone clearance that was not significant.

**A COMPARISON OF OUTCOMES AFTER PERCUTANEOUS NEPHROLITHOTOMY IN DIFFERENT AGE GROUPS OF CHILDREN. A SINGLE CENTRE STUDY**

Sherjeel SAULAT¹, Salman EL KHALID², Shariq ANEES³, Adnan SIDDIQ³, Hammad MITHANI³ and Jehanzeb SHAIKH³  
¹) Kidney center post-graduate training institute, Paediatric Urology, Karachi, PAKISTAN - ²) The Kidney Centre, Urology, Karachi, PAKISTAN - ³) The kidney center, Urology, Karachi, PAKISTAN

**PURPOSE**
The purpose of this study is to analyze the success and complication rates of PCNL in different age groups of children and to compare the outcomes of the respective groups of patients in order to identify the efficacy of PCNL according to age groups.
MATERIAL AND METHODS
we retrospectively reviewed the prospectively collected data of 215 renal units who underwent PCNL in our department from November 2014 to September 2016. Patient's data including age, gender, stone burden, hemoglobin drop, operative time, radiation dose, pain score, complications and hospital stay duration were documented. Successful outcome was a stone free renal unit on postoperative USG KUB. Statistical analysis was done on SPSS 20 by using independent sample t-test and chi-square test.

RESULTS
In this study, 215 PCNLs were divided into five different age groups i.e. 35 in Group (0-3) years of age, 40(3-6), 68 (6-11), 44 (11-16) and 28 (16-20) years of age. The overall mean age was 8.46±5.34. Significant difference was found between groups regarding operative time (p=0.003), on the other hand hemoglobin and hematocrit drop found to be non-significant p=0.807 and p=0.697 respectively. Similarly, statistically nonsignificant difference was found in complications including pleural effusion p=0.325 and fever (p=0.810). The overall mean stone burden was 2.89±2.06 with 95% C.I. (2.61 - 3.17). The overall stone free rate was 86.50%. It is pertinent to mention here that by comparing the combined first two age groups (0 - 6 yrs.) with the other three combined age groups (6-20yrs.) the stone free rate for the younger age group was 98.8% while for the older group it was 77% which was statistically highly significant p value 0.0001.

CONCLUSIONS
PCNL is a more efficient and safe procedure for the infants and toddlers than for the older age groups of children.

10:50 – 10:53
S22-7 (PP)
MINI PCNL FOR SIMPLE AND COMPLEX STONES IN CHILDREN
Sajid SULTAN, Sadaf ABA UMER KODWAHVWALA, Bashir AHMED, Hina YOUSUF, Firasat MAJID and Adeeb Ul Hassan RIZVI
Sindh Institute of Urology & Transplantation, Philip G. Ransley Department of Paediatric Urology, Karachi, PAKISTAN

PURPOSE
To evaluate the safety and outcome of Mini PCNL in paediatric age group.

MATERIAL AND METHODS
Records of 135 children with 153 RU who underwent mini PCNL with 14 Fr amplatz sheath from January to September 2016 were retrospectively reviewed for age, gender, stone location, stone burden, approach, disintegration technology (pneumatic lithoclast and high power holmium YAG laser), stone clearance, operative time, blood transfusion and complications.

RESULTS
Renal units were classified into two groups. Group A (simple): single stone n=70, (Renal Pelvis=45, calyces=25). Group B (complex): multiple stones n=83 (Renal pelvis stone with one or more calyceal stones).

The mean age and gender were comparable in two groups; 5.3 +/-3.3 vs 6.0 +/-3.8 years(p=0.19) and 2.3:1 vs 1.6:1 (p=0.26) respectively. Stone burden in Group A was 1.5 +/-0.85 vs 2.23 +/- 1.11 cm² in Group B (p <0.0001). Stone clearance in Group A and B was 93% vs 77% respectively(p= 0.008). Mean operative time was 95.7 +/-39 in Group A vs 117 +/-41 min in Group B (p=0.001). Blood transfusion in group A was 9%(6/70) vs 17%(14/83) in Group B (p=0.12). Approach was supracostal in 40% of Group A vs 50% in Group B.
Factors which influenced blood transfusion in “group A” were small age (p =0.02), Preop mean Hb (p=0.009), preop Hematocrit(p=0.01), and mean operative time (p=0.01) whereas in “Group B” pre operative hemoglobin was the only influencing factor (p= 0.001)

In group A Laser was used in 59% and pneumatic lithoclast in 28.5% whereas in Group B laser used in 49.3% and pneumatic lithoclast in 33.7 %. Complications in Group A were 15.7% vs 24% in Group B. Majority were in Clavein grade I and II. Chest tube was placed in 2/83 patients in Group B.

CONCLUSIONS
Mini PCNL is safe and effective with good outcome and acceptable complication rate in both the groups. Increased stone burden in Group B reduced the clearance rate in monotherapy. This is one of the largest series of mini PCNL in children.

10:53–11:02
Discussion

S22-8 (P without presentation)
HIGH POWERED LASERTRIPSY FOR URETERIC STONE
Sadaf ABA UMER KODWAVWALA, Sajid SULTAN, Bashir AHMED, Hina YOUSUF, Firasat MAJID and Adeeul UI Hassan RIZVI
Sindh Institute of Urology & Transplantation, Philip G. Ransley Department of Paediatric Urology, Karachi, PAKISTAN

PURPOSE
To evaluate the safety and outcome of ureterorenoscopy(URS) and high power Holmium:YAG laser lithotripsy for Ureteric stones in children.

MATERIAL AND METHODS
Medical records of patients who underwent ureterorenoscopy and laser lithotripsy using high power holmium: YAG laser (80 watt) for Ureteric stones between September 2015-2016 were reviewed retrospectively for mean age,gender,clinical presentation,laterality and location.Stone volume was assessed by length (cm)xwidth (cms)=volume in cm\(^2\).Outcome as stone clearance was evaluated for stone volume,location and number of sessions required.

RESULTS
107 units in 99 patients with mean age 5.6+/−3.8 years and M:F 1.8:1. 75% were radio opaque. Eighty four (78.5%) were distal,13(12.1%) middle and 10(9.3%) were in proximal ureter.Seventy four percent (79/107) stones were cleared in single session. Ninty two percent(22/24)cleared in two sessions. The mean volume of stone cleared in single session and two session is 0.67+/-0.4 cm\(^2\) and 0.95+/-0.53 cm\(^2\) respectively(p=0.006).

In distal ureter 75%(63/84) cleared in single session and 94%(16/17) cleared in 2 sessions. In mid ureter 84.6%(11/13) cleared in single session and the other 2 cleared in 2nd session.In proximal ureter 50%(5/10)cleared in single session and 4/4 cleared in 2 sessions.

Of the 107, 102 (95.3%) with mean stone volume of 0.74+/−0.44 cm\(^2\) cleared in 1.23+/−0.44 sessions. Four are due for 2nd session and one for third session. Forty four units (41%) required post stenting.Over all complication rate was 27% with majority of clavian Grade I and II.

CONCLUSIONS
There was an excellent clearance for ureteric stone with high power Ho:YAG laser. Increasing stone volume was the most important factor in requiring more number of sessions for clearance. Less proximal Ureteric stones were cleared in single sessions. Limitations are retrospective study and small number in mid and proximal ureter.
THE PROPABILITY OF POSSIBLE PREDICTIVE FACTORS AFFECTING SURGICAL TREATMENT AND COMPLICATION OF INFANTS WITH UPPER URINARY STONE

Abdurrahman ONEN

Dicle University Medical Faculty, Paediatric Surgery, Diyarbakir, TURKEY

PURPOSE
To assess the possible factors affecting treatment modality and occurrence of complications in infants associated with urinary calculi.

MATERIAL AND METHODS
A total of 90 infants younger than 2 years of age who surgically treated for upper urinary calculi between 2008 and 2014 were prospectively evaluated. Age, gender, obesity, stone size, stone number, stone location, stone location number, presence of symptom (UTI, obstruction), type of treatment, complication, operation time, stone free, residual stone, hospital stay, reoperation rate, type of stone were determined as possible predictive factors. Mean follow-up was 4 years.

RESULTS
Forty-six were boy and 44 were girl. Mean age was 15.2 months; all infants who underwent surgery was older than 6 months (7-24). Only 22 (24.4%) were younger than 1 year of age. Stone presented on right side in 36 patients, left side in 28, and bilateral in 26 patients. 63 patients had more than one stone. Stone size was greater than 4mm in all patients. Two patients had significant urinary anomaly that predispose urinary stone development. Eighty-seven (96.7%) patients underwent minimally invasive surgical intervention. A total of 181 surgical interventions were performed (mean number of surgery, 2). Twelve patients required reoperation for residual stone (URS in 7, ESWL in 5). Age (>6month), multiple stone, bilateral stone, multiple side stone, diameter of stone (>3mm), and presence of symptom were found to be possible risk factors for surgical necessity in infants younger than 2 years of age who had urinary calculi.

CONCLUSIONS
Age (over 6month), multiple stone, bilateral stone, multiple side stone, diameter of stone (>3mm), persisting fragments and presence of symptom are factors predictive for surgical necessity in infants younger than 2 years of age who had upper urinary calculi. Minimally invasive intervention is safe and effective for the vast majority of infants who need surgery for upper urinary stone.

SUPINE VS PRONE PCNL

Bashir AHMED, Sajid SULTAN, Sadaf ABA UMER KODWAVALA and Adeeb UI Hassan RIZVI

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

PURPOSE
To compare the safety and outcome (stone clearance, blood transfusion and complications) of supine mini PCNL vs prone mini PCNL in paediatric age group.
MATERIAL AND METHODS
Records were retrospectively reviewed from October 2015 to 2016. Total of 56 renal units (55 patients) underwent mini PCNL were included in this study. In twenty eight units Mini PCNL was performed in the supine position and compared with 28 units underwent mini PCNL in prone position. Stone size was measured in its largest length. Stone size, single or multiple stones in a unit, puncture site, operative time, blood transfusion, complication, hospital stay and stone clearance were compared in the two groups.

RESULTS
There is no significant difference in mean age 7.6 vs 7.4 years (p=0.8), largest length of stone 1.78 vs 1.68 cm (p=0.29) in supine and prone group respectively. Single or multiple stones in each group (supine 60%/40%, and in prone 57%/43% respectively). Kidney was punctured in all cases of supine position by subcostal approach and in prone 39.3% supracostal and 60.7% in subcostal approach. The operative time 114+24.68 vs 110+44.70 (p=0.19) and stone clearance were 71.4% vs 85.7% (p=0.6) in supine vs vs prone respectively. The mean hospital stay was more in prone 3+/-2.2 as compared to supine 2.1+-/0.44 days. There is no difference in post operatively complication(14.3%) in both groups The post operative fever was 10.7% vs 7.14% in supine and prone group respectively, one patient (3.5%) required chest intubation in prone group. Blood transfusion was required in three patient (10.7%) in prone patient as compared to supine 3.5%.

CONCLUSIONS
Our initial results have shown that supine and prone mini PCNL have comparable outcome in this selected group of patients. However larger studies are required.

EXTRACORPOREAL SHOCK-WAVE LITHOTRIPSY WITHOUT URETERAL PRE-STENTING FOR THE TREATMENT OF STAGHORN CALCULI IN CHILDREN

Laura FERNÁNDEZ GARCÍA1, Anna BUJONS TUR2, Jorge CAFFARATTI SFULCINI2 and Humberto VILLAVICENCIO MAVRIC3
1) Hospital Universitario Central de Asturias, Pediatric Surgery, Oviedo, SPAIN - 2) Fundación Puigvert, Pediatric Urology, Barcelona, SPAIN - 3) Fundación Puigvert, Urology, Barcelona, SPAIN

PURPOSE
To evaluate the efficacy of monotherapy with extracorporal shock-wave lithotripsy for staghorn and partial staghorn calculi in children without previous ureteral stent placement.

MATERIAL AND METHODS
Retrospective and descriptive study of 44 patients (23 boys and 21 girls) with staghorn or partial staghorn calculi under 10 years and a mean age of 3.8 years treated with ESWL and managed in our department between 2003 and 2014. Complete staghorn calculi were presented in 14 patients and partial staghorn stones in 20 of them. Two patients presented bilateral staghorn calculi. The mean size of the calculi was 2.8 cm (R 2.3-3.5). Pre-ESWL ureteral stent placement was not done in any case.

RESULTS
A total of 92 extracorporal shock-wave lithotripsy sessions were made to our patients. The mean of sessions required to treat satisfactorily each calculus was 1.77. Most common stone composition was apatite (47.7%) followed closely by struvite (34.1%). 54.5% of patients had positive urine culture for Proteus.
Stone free rate was achieved in 74%.
Almost 62% of patients had no complications related with treatment. Urinary tract infection was the most common one affecting 6 of our patients. Three patients developed post-session steinstrasse as complication, but only 2 of them (4.5%) required ureteral stenting to solve symptomatic urinary tract obstruction.

CONCLUSIONS
ESWL is a safe and effective first-line procedure for the management of staghorn calculi in children. Pre-ESWL ureteral stenting does not seem to be justified for us in children with staghorn calculi, but more prospective randomized studies are needed.
S23: ENDOUROLOGY

Moderators: Rosa Romero (UK), Sajid Sultan (Pakistan)

ESPU Meeting on Saturday 22, April 2017, 11:02–11:48

11:02–11:07

S23-1 (LO)

★ COMPARISON OF HOLMIUM LASER TREATMENT OF URETHRAL STRICTURES IN MALE PATIENTS WITH COLD KNIFE ENDOSCOPIC INCISION

Waseem NABIL ABOUL ELA1, Mohamed ABDL WAHAB2, Walid GHONIEMA3, Ahmed SHOKRY2, Ahmed SHOUUMAN2, Mohamed EL SHEEMY2, Mohamed EL GHONIEMY2, Mostafa ABDL MOHSEN2, Hani MORSI2 and Hesham BADAWY2

1) Kasr al ainy cairo university, Pediatric urology, Cairo, EGYPT - 2) Kasr al ainy cairo university, Aboul reich hospital, Cairo, EGYPT - 3) Kasr al ainy cairo universaity, Aboul reich hospital, Cairo, EGYPT

PURPOSE
To assess the effectiveness of visual laser ablation treatment with holmium:yttrium-aluminum-garnet (Ho:YAG) laser in male patients with urethral strictures and to compare the effects with those obtained in patients treated with visual internal urethrotomy(VIU) urethrotomy.

MATERIAL AND METHODS
From January 2014 to January 2016, 42 patients aged 2 to13years (mean age 6.3) with primary urethral strictures 0.5 to 1.5 cm long qualified for the study. The patients were randomized into two groups: 21 child patients treated using visual laser ablation of urethral strictures (VLASU) with holmium:YAG laser and 21 child patients treated by correction of urethral strictures using Sachse’s optical urethrotomy. Urethrotomy was made at the 12 o’clock position by retrograde vaporization of the scarred tissue through the total length of the stricture with the aid of a metal guidewire.

RESULTS
At 6-month follow-up, eight (38%) patients who underwent optical urethrotomy and 14 (66.7%) in the VLASU group did not require repetition of the procedure. The mean operation time was 30.8 minutes (range 20-45 minutes). No significant bleeding or serious complication was seen in the perioperative or postoperative period in both groups.

CONCLUSIONS
VLASU can be used as a method of treatment of this disorder. It is an effective, modern, low-invasive, and repeatable technique and is technically simple and easy to master with results comparable to those of conventional urethrotomy.
A PROSPECTIVE COMPARATIVE ANALYSIS BETWEEN EMERGENCY AND ELECTIVE URETEROSCOPY FOR ACUTELY OBSTRUCTING URETERAL STONES IN CHILDREN

Ahmed FAHMY, Mohamed YOUSSIF, Haytham BADAWAY, Walid DAWOUD and Samir ORABI

Alexandria University, Urology Department, Alexandria, EGYPT

PURPOSE
Emergency ureteroscopy for acutely obstructing ureteral stone in children offer the advantages of immediate stone fragmentation, relief of patient’s pain and parents’ anxiety. The aim of this study is to evaluate the safety and efficacy of the emergency ureteroscopic management of ureteral stones immediately after a first attack of renal colic in children.

MATERIAL AND METHODS
Sixty children were prospectively randomized between two groups; group 1 (n= 30 patients) who underwent emergency ureteroscopy within 24 hours of admission to emergency department and group 2 (n= 30) who underwent elective ureteroscopy more than 2 weeks after the attack. Unfavorable endoscopic appearance of the ureter including; mucosal hyperemia, edema, inflammatory polyps and tight ureteric rings were reported in both groups. We compared stone-free rate, operative time, incidence of complications during and after ureteroscopy and the length of postoperative stay between both groups.

RESULTS
Unfavorable endoscopic appearance of the ureter was more prevalent in group 1 (40% vs 13.3%) No significant difference in stone free rate (83.3 vs 90%) were observed between both groups. However, intraoperative complication were significantly higher in group 1 (perforation with mild extravasation in 2 pts, postoperative hematuria in 4 pts , one case of febrile UTI) versus one case of hematuria and another case of febrile UTI in group 2. Postoperative stay was significantly longer in group 1 compared to group 2 (2.2 days vs 1.4 days).

CONCLUSIONS
Emergency ureteroscopy is not recommended in case of acutely obstructing ureteric stone in children. Elective ureteroscopy has a lower morbidity with the potential advantage of allowing ample time for clearing of infection, inflammation and theoretical possibility of spontaneous stone passage.
**INTRAOPERATIVE LOCAL ANESTHETIC INJECTION IMPROVES PATIENT COMFORT FOLLOWING PEDIATRIC PERCUTANEOUS NEPHROLITHOTOMY**

Erman CEYHAN¹, Fatih ILERI², Ali Cansu BOZACI³, Hasan Serkan DOGAN³, Ozgur CANBAY⁴, Aysun ANKAY YILBAS⁵ and Serdar TEKGÜL³

1) Hacettepe University School of Medicine, Urology, Ankara, TURKEY - 2) Hacettepe University School of Medicine Ankara, Urology, Ankara, TURKEY - 3) Hacettepe University School of Medicine Ankara, Pediatric Urology, Ankara, TURKEY - 4) Hacettepe University School of Medicine Ankara, Anesthesiology & Reanimation, Ankara, TURKEY - 5) Hacettepe University School of Medicine Ankara, Anesthesiology & Reanimation, Ankara, TURKEY

**PURPOSE**

To assess the effect of preemptive local anesthetic infiltration on postoperative analgesic need and patient comfort after pediatric PNL.

**MATERIAL AND METHODS**

All of the patients treated with PNL recived the same anesthetic and analgesic drugs. The SF group (n:16) received serum physiologic and LA group (n:16) received 2 mg/kg of prilocaine-bupivacaine through the access line. All patients recived 6*15mg/kg paracetamol postoperatively. Patients were evaluated at 15.min, 30.min, 1.h, 6.h ve 24.h with FLACC (Face,Legs,Activity,Cry,C onsolability) scale postoperatively. Patients with pain score≥4 were applied 1mg/kg meperidin(im) as rescue analgesic.

**RESULTS**

Median age was 69,5 (29-204) and 71 (12-204) in SF and in LA groups. Two groups were similar regarding age, stone size, number, hospitalization length and FLACC scores. SF and LA group were similar regarding the analgesic need in first 15 minutes (10/16 vs 5/16;x²:0.077), need for first (87.5% vs 56.3%;x²:0.049; Fisher’s Exact:0.113) and second dose rescue analgesic (SF: 4/16,LA:0/16;Fisher’s Exact 0.101;x² 0.033). Postoperativenausea, vomiting was not increased in LA group. Analgesia satisfaction were significantly in favor of LA group (median 2 for SF and 3 for LA groupsMann-Whitney U; p=0.012).

**CONCLUSIONS**

Despite the fact that PCNL is a minimal invasive surgery, it is not pain free due to the procedure itself and presence of postoperative diversion. Our study showed that the preemptive intraoperative LA administration decreases postoperative analgesic need. LA administration was found to be beneficial on patients’ comfort by increasing analgesia satisfaction.

**Discussion**
SAFETY AND EFFICACY OF SUPRA-COSTAL APPROACH FOR PCNL IN PEDIATRIC PATIENTS: APPLICATION OF CLAVIEN CLASSIFICATION SYSTEM

M S ANSARI¹, Rahul SONI², Aadil FAROOQ³ and Aneesh SRIVASTAVA⁴

¹) Sanjay Gandhi Postgraduate Institute of Medical Sciences, Pediatric urology. Department of Urology and renal transplantation, Lucknow, INDIA - 2) Sanjay Gandhi Postgraduate Institute of Medical Sciences, Pediatric Urology, Sanjay Gandhi postgraduate institute of Medical Sciences, Lucknow, INDIA - 3) Sanjay Gandhi Postgraduate Institute of Medical Sciences, Pediatric Urology, Department of Urology and Renal Transplantation, Lucknow, INDIA - 4) Sanjay Gandhi Postgraduate Institute of Medical Sciences, Pediatric Urology, Department of Urology and Renal Transplantation, Lucknow, INDIA

PURPOSE
Supracostal access in pediatric patients continues to be underutilized due to an unfounded fear of thoracic and vascular complications. The purpose of this study was to evaluate the success and morbidity of percutaneous nephrolithotomy (PCNL) performed through the 11th intercostal space and compare it with the subcostal approach.

MATERIAL AND METHODS
Data of patients with renal calculi under 18 years of age were prospectively collected between January 2005 and December 2015. Patients were divided into two groups those done with supracostal (group 1) and subcostal access (group 2). Patient characteristics, stone location, stone burden, number and location of the access point, operative time, visual pain score, success rate, hospital stay, and complications according to the modified Clavien classification (MCS) were compared between group 1 and group 2.

RESULTS
During the study period 75 paediatric patients underwent PCNL of whom 55 matched the selection criteria. Of these, 25 and 30 had a supracostal and subcostal access respectively. The stone-free rate was 84.8% and 85.36% in groups 1 and 2 respectively after one session of PCNL. After the auxiliary procedures, stone-free rate increased to 96.0% and 97.6% in groups 1 and 2 respectively (p=0.982). Change in hematocrit level (p=0.261), visual pain score/ need of analgesia (p=0.368), and hospital stay (p=0.231) were not statistically different in two groups.

A total of 27 (49%) complications were documented in the two groups according to MCS. Overall complication rate was 28% in group 1 and 25% in group 2 (p value =0.799). Grade-I complications were recorded in 17 (30.1%), grade-II in 8 (14.5%) and grade IIIb in 2 (3.63%) patients. Grade-IIIb complications were recorded in group1 only. There were no grade-IV or grade-V complications.

CONCLUSIONS
Supracostal PCNL in selected cases is effective and safe with acceptable complications. The modified Clavien system provides a standardized grading system for complications of PCNL in pediatric patients.
IS THERE A STILL A NEED FOR OPEN SURGERY FOR MANAGING LARGE URETERAL STONES IN CHILDREN?

Ahmed FAHMY, Mohamed YOUSSIF, Haytham BADAwy, Walid DAWOUD and Samir ORABI
Alexandria University, Urology Department, Alexandria, EGYPT

PURPOSE
Large ureteral stones in children represents an operative challenges to pediatric urologist. In the era of minimally invasive approaches, indications for open stone management have been shrunken significantly. The aim of the present study to prospectively compare between open surgery and ureteroscopy for treatment of large ureteral stone in children.

MATERIAL AND METHODS
We prospectively included 40 children with a ureteric stone > 1.5 cm. Group 1 included 20 children managed by open ureterolithotomy and group 2 (20 children) underwent ureteroscopic lithotripsy. Stone clearance rate, operative time, hospital stay, complication rate, postoperative pain and need for analgesia were compared between both group.

RESULTS
Group 1 had a higher stone free rate rate (100 % vs 80%) after a single session, shorter mean operative time (47 minute vs 72 minute) . one case of extravasation, two case of hematuria and two postoperative fever developed in group 2 while none of group 1 developed intra or postoperative complication. Post operative pain and need for analgesia were significantly higher in group 2. All patients in group 2 were left with JJ stent while none in group 1 needed ureteral stent placement. Further auxiliary procedure were not needed after open ureterolithotomy.

CONCLUSIONS
We believe there is still an indication for open ureterolithotomy for children with a large ureteric stone > 1.5cm. It offers the advantages of high success rate, short operative time with minimal morbidity and need for auxiliary procedures.

BILATERAL SIMULTANEOUS RETROGRADE INTRARENAL SURGERY IN CHILDREN: IS IT SAFE AND FEASIBLE?

Ahmed FAHMY, Mohamed YOUSSIF, Haytham BADAwy, Walid DAWOUD and Samir ORABI
Alexandria University, Urology Department, Alexandria, EGYPT

PURPOSE
Bilateral simultaneous retrograde intrarenal surgery in children has the potential advantages of omitting the need for second intervention together with reducing cost and length of hospital stay. Aim of the current study is to assess the safety and feasibility of this approach in children.
MATERIAL AND METHODS
Twenty four children with a mean age of 11.5 years were prospectively enrolled in this study. Technique of simultaneous removal of the upper urinary tract stones on both sides consisted of removal of the stone from the kidney or the ureter of the technically less complicated side followed by the removal of the stone on the contralateral side. Stones were arranged in renal collecting system in both side (n=8), and in ureters on both sides (n=10) and the remaining (n=6) on one side in the kidney, another side in the ureter.

RESULTS
Mean stone size of both renal unit and ureter ranged from 8 to 22 (14.6 mm) and 5-12 (7.2 mm) respectively. Mean operating time was 98 minutes. Mean hospital stay was 2.4 days. Stone free rate was 83.3% after a single session. Complications included ureteric perforation and extravasation (n=2), postoperatively, moderate hematuria (n=4) and febrile UTI (n=2) requiring intravenous antibiotics. Four patients (16.6%) needed auxiliary procedures for complete recovery of the residual stones in the form of ESWL (n=3) and PCNL (n=1).

CONCLUSIONS
Bilateral simultaneous retrograde intrarenal surgery in children is safe and feasible with good stone clearance and low morbidities. It eliminates the need for repeated anesthesia and psychological stress associated with multiple interventions. However, this practice should be restricted to tertiary referral centers with high stone volume.

HIGH PRESSURE BALLOON DILATATION FOR PRIMARY OBSTRUCTIVE MEGAURETER: CAN WE IMPROVE THE TECHNIQUE?
Ermelinda MELE, Simona GEROCARNI NAPPO, Michele INNOCENZI, Giuseppe COLLURA, Paolo CAIONE and Nicola CAPOZZA
Bambino Gesu' Children's Hospital, Pediatric Urology, Dept of Surgery, Rome, ITALY

PURPOSE
Endoscopic high pressure balloon dilatation (EHPBD) is a recent minimally invasive option for the treatment of primary obstructive megaureter (POM). In some patients however EHPBD is not feasible nor successful. Aim is to assess whether modification of the technique can improve feasibility of EHPBD.

MATERIAL AND METHODS
Since January 2009 EHPBD was offered unselectively to all infants and children with POM requiring correction. Inclusion criteria were: ureter >15 mm with increasing dilatation, UTI, loss of split renal function or obstruction at the vesico-ureteric junction at MAG3 renal scan. Since September 2014 two technical modifications were introduced: the use of an open-tip 3ch ureteric catheter for retrograde pyelogram, and the use of 6 and 7 Fr balloon catheter for dilatation, which replaced the 3 or 4 Fr. Retrospectively, patients treated before September 2014 (group A: 20) were compared with patients treated afterwards (group B: 23). Fisher’s exact test was used for statistic analysis.

RESULTS
44 patients underwent EHPBD, 29 M,29 left side, mean age 24 mths (median 12), all unilateral. In group A the procedure was not feasible or unsuccessful in 6 (inability to negotiate the VUJ in 2, inadequate dilatation of the ureteric ring with the 4 Fr balloon catheter in 4), 30% failure rate. In group B the VUJ was always negotiated and failure to dilate occurred in 1/23 case (8%). The difference was significant (p =0.0377).
CONCLUSIONS
The use of appropriate instruments, such very small open-end ureteric catheter for UVJ negotiation and larger 6 fr balloon catheter for UVJ dilatation, can improve feasibility of EHPBD in over 90% of patients with POM requiring treatment.

11:36 – 11:48
Discussion

S23-8 (P without presentation)
SECONDARY VESICOURETERAL REFUX AFTER SUCCESSFUL ENDOUROLOGICAL TREATMENT OF PRIMARY OBSTRUCTIVE MEGAURETER
Luis GARCIA-APARICIO1, Eva BLAZQUEZ-GOMEZ2, Oriol MARTIN1, Andrea SORIA1 and Sonia PEREZ-BERTOLEZ1

1) Hospital Sant Joan de Déu. University of Barcelona, Pediatric Urology Division. Pediatric Surgery Department, Barcelona, SPAIN - 2) Hospital Sant Joan de Déu. University of Barcelona, Anaesthesiology Department, Barcelona, SPAIN

PURPOSE
To describe the incidence, predisposing factors and management of secondary vesicoureteral reflux (sVUR) after endourological treatment of primary obstructive megaureter (POM).

MATERIAL AND METHODS
We have reviewed all medical charts of patients that underwent endourological treatment of POM from 2008 until 2015. Preoperatively, all patients were evaluated with ultrasound scan (US), voiding cystourethrography (VCUG), and MAG-3 diuretic renography. Endourological treatment was done with high-pressure balloon dilation (HPBD) of the ureterovesical junction; a double-J stenting was done in all patients. After 2 months, double-J was removed. Follow-up was performed with US, VCUG and MAG-3 diuretic renography. VCUG were performed after 6 months of HPBD.

RESULTS
Twenty seven patients with a mean age of 16.4 months were reviewed. A total of 29 ureters were treated. After HBPD, ureterohydronephrosis improved in 24 ureters (82.8%), this improvement was evaluated with US and MAG-3 diuretic renography. After successful treatment of POM, 8/24 ureters developed sVUR (33.3%).
In the first 4 refluxing ureters a successful surgical management was performed (2 reimplantation and 2 endoscopic treatment with Dx/HA). But in the following 4 cases a conservative management was proposed with antibiotic prophylaxis; the evolution was uneventful and after 6 months of starting antibiotic prophylaxis a VCUG was performed. sVUR dissapeared in all patients.
Urinary tract infection after successful treatment of POM was observed in 4 patients, but only two of them were affected with sVUR. UTI was not related with the presence of sVUR (p<0.05).
The presence of parameatal diverticula in the preoperative VCUG and those patients with bilateral POM are risk factors related with sVUR after HPBD.

CONCLUSIONS
The incidence of sVUR after successful endourological treatment of POM is high. Conservative management of sVUR could be the first treatment of choice if patient is asymptomatic, because there is a high rate of resolution.
IS BACTERIAL COLONIZATION OF URETERAL DOUBLE-J STENTS SIGNIFICANT AND PREDICTABLE IN CHILDREN WITH URETERAL STONES?

Cem AKBAL¹, Yiloren TANIDIR¹, Farhad TALIBZADE¹, Cagri Akin SEKERCİ¹, Arzu ILKI², Eda KEPENEKLİ KADAYIFCI³, Ibrahim GOKCE⁴ and Ferruh SIMSEK¹

1) Marmara University School of Medicine, Urology, Istanbul, TURKEY - 2) Marmara University School of Medicine, Microbiology, Istanbul, TURKEY - 3) Marmara University School of Medicine, Pediatrics, Pediatric Infectious Disease Division, Istanbul, TURKEY - 4) Marmara University School of Medicine, Pediatrics, Pediatric Nephrology Division, Istanbul, TURKEY

PURPOSE
Aim of this study is to evaluate bacterial colonization on double-j ureteral stents (DJUS) and find out the reliability of urine tests to detect it.

MATERIAL AND METHODS
Forty children who had undergone endoscopic urinary stone surgery with DJUS placement between 2012 and 2016 were included. All DJUS removals were done following negative urine cultures. In case of refractory urinary tract infection, DJUS removals were done under broad-spectrum antibiotic treatment. All stents were gone under microbiological evaluation. DJUS culture results were compared with three findings in urine analysis: 1- presence of pyuria (having more than 5 leukocyte per HPF), 2- nitrite positivity, 3- leukocyte esterase positivity.

RESULTS
A total of 19 males and 21 females, with mean age of 6.78 ± 4.65 years, were evaluated. Bacterial colonization was detected in 42.5% (n=17) of the DJUSs. Single bacteria was detected in 5 of them. The most common isolated microorganism was Enteroccus spp.(n=6);E.faecalis(n:4) and E.faeciaum(n:2). Almost all isolated microorganisms were sensitive to gentamicin and ampicillin. Mixed growth was detected from three of the cultures. Six of the DJUSs were suspected to be contaminated with skin flora (MRSA (n=1), Diphtheroids (n=1), Coagulase Negative Staphylococcus (n=1), C. albicans (n=1), Bacillus spp (n=1), and antibiotic susceptibility was not assessed to them) . Mean DJUS indwelling time in colonized and non-colonized stents were 43.52 ± 15.48 days and 47.91 ± 23.03 days (p=0.50). All three subdomains of urine analysis were insufficient to predict DJUS contamination prior to removal (p>0.05). Two patients, one with DJUS colonization, were hospitalized for severe UTI after stent removal.

CONCLUSIONS
Negative urine cultures cannot rule out stent colonization. DJUS culture evaluation is a must in every stent removal in pediatric age group. In case of stent related infections best empirical treatment is suggested as Gentamicin and/or Ampicillin.
S24: NEUROPATHIC BLADDER 1

Moderators: Wout Feitz (Netherlands), Rafal Chrzan (Poland)

ESPU Meeting on Saturday 22, April 2017, 11:48–12:40

11:48–11:53

S24-1 (LO)

★ BOTULINUM TOXINE TYPE A THERAPY: INTRAVESICAL INJECTION OR ELECTROMOTIVE DRUG ADMINISTRATION

Seyedeh-Sanam LADI-SEYEDIAN1, Lida SHARIFI RAD2 and Abdol-Mohammad KAJBAFZADEH1

1) Tehran University of Medical Sciences, Pediatric Urology and Regenerative Medicine Research Center, Children’s Hospital Medical Center, Tehran, ISLAMIC REPUBLIC OF IRAN - 2) Tehran University of Medical Sciences, Department of Physical Therapy, Children’s Hospital Medical Center, Pediatric Center of Excellence, Tehran, ISLAMIC REPUBLIC OF IRAN

PURPOSE

In recent years, BoNTA has progressively been used to manage conditions characterized by neuropathic detrusor overactivity (NDO). In this study, we compared the outcomes of intravesical BoNTA injection to intravesical BoNTA electromotive administration (EMDA) for treatment of urinary incontinence secondary to NDO in MMC children.

MATERIAL AND METHODS

A total of 24 MMC patients (11 boys, 13 girls; mean age 7.5±2.5) with urinary incontinence secondary to NDO were enrolled in the study and were randomly divided into two equal treatment groups. 10 IU/kg of BoNTA was inserted into the bladder of the patients in EMDA group (n=12); by using an electrode-catheter, without anesthesia and on an outpatient basis. The EMDA equipment was connected to the electrode of an indwelling catheter and 2 dispersive electrodes, a pulsed current generator delivered 10 mA for 20 minutes. Patients in injection group (n=12) received intravesical injection of 10 IU/kg of BoNTA via rigid cystoscope on an inpatient basis. For all patients, a voiding diary, a UDS and kidney and bladder ultrasounds were performed before 6 months and one year after the treatment.

RESULTS

9/12(75%) and 6/12(50%) of patients in EMDA and injection groups were completely dry between two consecutive CICs one year after the treatment. Mean detrusor pressure decreased significantly in EMDA group compared to injection group (40± 13 vs. 57±2 3 cmH2O, P<0.04) at one year follow up.

CONCLUSIONS

Patients in both groups improved after the treatment; however improvement in EMDA group was more prominent with better sustained effects. Moreover, BoNTA/EMDA is a feasible, reproducible, cost benefit and pain free method as an outpatient basis and there is no need for anesthesia.
THE VALUE OF URINARY BDNF LEVELS ON ASSESSMENT OF THE BOTULINUM TOXIN TYPE A TREATMENT FOR NEUROGENIC DETRUSSOR OVERACTIVITY IN CHILDREN WITH MYELODYSPLASIA

Cem AKBAL1, Cagri Akın SEKERCİ1, Yiloren TANIDIR1, Tuncay TOP1, Banu ISBILEN BASOK2, Ferruh ISMAN3, Ferruh SIMSEK1 and Tufan TARCAN4

1) Marmara University School of Medicine, Urology, Istanbul, TURKEY - 2) Tepecik Training and Research Hospital, Biochemistry, İzmir, TURKEY - 3) Medeniyet University, Biochemistry, Istanbul, TURKEY - 4) Marmara University School of Medicine, Urology and Arasta hansesı Urology AD. Kat. 4 Fevzi Çakmak Mah. Mimar Sina, Istanbul, TURKEY

PURPOSE
Urodynamic studies are the gold standard method for assessment of treatment success following intradetrusor Botulinum Neurotoxin Type A (BoNTA) injections in children with myelodysplasia. In this study we aimed to address the influence of BoNTA treatment on urine Brain Derived Neurotrophic Factor (BDNF) levels in patients who have myelodysplasia due to neurogenic detrusor overactivity (NDOA).

MATERIAL AND METHODS
23 patients with NDOA due to myelodysplasia and treated with intradetrusor BoNTA injection were included in this prospective study. Urines of these patients were collected preoperatively and at postoperative first and third month after BoNTA injection, samples stored at -80°C after centrifugation (3000 rpm for 10 minutes). Urine BDNF levels were measured by using ELISA method with commercial kit. Urodynamic findings were analyzed both before and after BoNTA injection.

RESULTS
Mean age of the childrens were 100,0 ±34,5 months (6 boys 33 % and 17 girls 66 %). Urinary BDNF levels significantly declined after BoNTA treatment compared to preoperative levels (p < 0.05) (Table 1). Maximum cystometric capacity (155,0±105,0;246,1±110,3) and maximum detrusor pressure (47,4±24,3; 29,8±17,0) improved significantly after BoNTA treatment compared to preoperative levels (p < 0.05).

Table 1:

<table>
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<tr>
<th></th>
<th>Before Treatment</th>
<th>Postoperative 1st Month</th>
<th>Postoperative 3rd Month</th>
<th>P Value</th>
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<tbody>
<tr>
<td>BDNF (ng/mg Cr) ±Sd</td>
<td>1,0±1,0</td>
<td>0,6±1,1</td>
<td>0,4±0,3</td>
<td>0,006*; 0,006**; 0,333***</td>
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<td>(n:23)</td>
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* Before and post 1st; ** Before and Postop 3rd; *** Postop 1st and Postop 3rd

CONCLUSIONS
Urinary BDNF not only provide easy follow up of childrens with myelodysplasia and decrease the need for further invasive and expensive procedures but also seem to predict urodynamic results of BoNTA treatment. This can be used for evaluating the efficiency of the treatment.
SAFETY AND EFFICACY OF BOTULINUM-A TOXIN IN THE TREATMENT OF NEUROGENIC BLADDER DYSFUNCTION IN INFANTS AND CHILDREN

Marleen VAN DEN HEIJKANT, Guy BOGAERT and Dries DEVELTERE
UZLeuven, Gasthuisberg Campus, Pediatric urology, Leuven, BELGIUM

PURPOSE
To investigate the safety and efficacy of Botulinum-A toxin (BTX-A) in the treatment of neurogenic bladder dysfunction in infants and children who are on clean intermittent catheterization to ensure low bladder pressures.

MATERIAL AND METHODS
Infants and children (<12yr) with neurogenic bladder dysfunction under anticholinergic medication (oral or intravesical) and clean intermittent catheterization suffering from side effects or persistent high-pressure bladder were included in this prospective and ethical accepted study. Urodynamic studies were performed before and 6 weeks after BTX-A injections. BTX-A injections were performed at a dosage of 12 IU/kg (20 injections) with a maximum dose of 300 IU under general anesthesia. The Wilcoxon signed rank test was used to compare urodynamic data before and after BTX-A injections (p<0.01).

RESULTS
14 patients (median age 4.9yr range 16mo-9.2yr) were included. The maximum bladder capacity increased by 143%, from median 75 ± 18 ml to 182 ± 14 ml. The maximum detrusor pressure during filling significantly decreased by 53%, from median 59 ± 15 cmH$_2$O to 28 ± 6 cmH$_2$O. The detrusor leak pressure decreased by 70%, from median 56 ± 15 cmH$_2$O to 17 ± 6 cm H$_2$O. No immediate or short-term adverse events were reported.

CONCLUSIONS
BTX-A injections can be a safe and efficient alternative to anticholinergic medication in infants and young children patients with a neurogenic bladder and a high-pressure bladder. BTX-A injections could become a valuable bridging therapy between anticholinergic medication and ultimate surgery to maintain a continuous low-pressure bladder.

URODYNAMIC EFFICACY OF MIRABEGRON IN PEDIATRIC PATIENTS WITH SPINA BIFIDA

Yong Seung LEE, Sang Woon KIM, Sung Ku KANG, Sung Hoon KIM, Ju Hee CHON, Su Yeon KIM, Yong Jae IM and Sang Won HAN

1) Yonsei University College of Medicine, Department of Urology, Seoul, REPUBLIC OF KOREA - 2) Severance Children’s Hospital, Department of Pediatric Urology, Seoul, REPUBLIC OF KOREA - 3) Seoul National University College of Medicine, Department of Urology, Seoul, REPUBLIC OF KOREA

PURPOSE
To analyze the urodynamic efficacy of Mirabegron in pediatric patients with spina bifida.
MATERIAL AND METHODS
Patients with spina bifida who underwent urodynamic study before and after the use of Mirabegron were included in this retrospective analysis.

RESULTS
Total 39 (27 male and 12 female) patients met the criteria and were included. Meningomyelocele, lipomeningomyelocele and sacral agenesis had been diagnosed in 11, 26, and 2 patients, respectively. Mirabegron was started at median 12.3 years. Pre-Mirabegron urodynamic study (preUDS) was performed at median 12.1 years. All of them were on anticholinergic medication before Mirabegron treatment. PreUDS was performed after washout period of anticholinergics in 24 patients (group 1). In the other 15 patients, it was performed during anticholinergic medication (group 2). After 8-12 weeks of Mirabegron (50mg) alone therapy, urodynamic study was performed again at median 12.6 years.

In group 1, median maximal cystometric capacity was increased from 244.5 to 353.5ml (p=0.002). Median compliance was increased from 11.4 to 24.0ml/cmH2O (p=0.007). Involuntary contraction was observed in 9 (37.5%) and 6 (25.0%) patients before and after Mirabegron, respectively (p=0.534).

In group 2, median maximal cystometric capacity was 211.0 before Mirabegron and 261.0ml after Mirabegron (p=0.089). Median compliance was 14.8 and 20.8ml/cmH2O (p=0.087), respectively. Involuntary contraction was observed in 3 (20.0%) and 5 (33.3%) patients before and after Mirabegron, respectively (p=0.385).

Among 39 total patients, vesicoureteral reflux was observed in 11 renal units in 7 patients before Mirabegron and 5 renal units in 5 patients after Mirabegron.

CONCLUSIONS
Mirabegron showed urodymic efficacy regarding maximal cystometry capacity and compliance in pediatric patients with spina bifida. Although it showed better MCC and compliance when compared with anticholinergics, it was not statistically significant. Large, multi-center prospective study should be followed.

12:04 – 12:16
Discussion

12:16 – 12:19
S24-5 (PP)

MIRABEGRON IN TREATMENT OF PATIENTS WITH NEUROGENIC BLADDER RESISTANT TO ANTICHOLINERGIC THERAPY
Lidia SKOBEJKO-WLODARSKA, Gabriela GROCHOWSKA and Malgorzata BAKA-OSTROWSKA
Children’s Memorial Health Institute, Paediatric Urology, Warsaw, POLAND

PURPOSE
Evaluation of mirabegron efficacy in treatment patients with neurogenic bladder resistant to anticholinergic therapy
MATERIAL AND METHODS
Mixed therapy including two anticholinergic drugs (solifenacine in connection with oxybutynine and solifenacine in connection with tolterodine) was used in 30 patients with neurogenic bladder resistant to anticholinergic monotherapy. In twelve patients (40%) of 30 treated with two anticholinergic drugs achieved success with decrease of detrusor pressure to 20-30 cm H2O, but 18 patients (60%) of them demonstrated lack of treatment efficacy. In these group of 18 patients without effectiveness of treatment with mixed therapy 8 (44.4%) had urine incontinence between CIC and 5 (27.7%) dilatation of upper urinary tract.
All these 18 patients with lack of anticholinergic mixed therapy effect were qualified to mirabegron therapy. In all anticholinergic therapy was discontinued and in all started mirabegron therapy in dose of 50 mg. Urodynamic examination was performed after 3, 6, 12 months of mirabegron treatment.

RESULTS
The follow-up examination performed in 17/18 patients (94.4%). The dilatation of upper urinary tract disappeared in all 5 patients. Urinary continence achieved in 7/8 patients and 1/8 demonstrated intermittent urinary incontinence.
Decrease of detrusor pressure to 20 cm H2O was observed in 4/17 patients (24%), but unsatisfactory decrease of detrusor pressure to 30-40 cm H2O obtained in 13/17 patients (76%).
In group of 13/17 patients without satisfactory decrease of detrusor pressure, combination of small dose of anticholinergic medication and mirabegron was applied. Solifenacine in dose of 5 mg combined with mirabegron in dose of 50 mg was used in 9/13 patients and tolterodine in dose of 2 mg was applied in 4/13 patients. These combinations became successfully to decreased of detrusor pressure to 20-25 cm H2O in all.

CONCLUSIONS
1. Mirabegron can be used in the treatment of patients with neurogenic bladder, especially those, who are resistant to anticholinergic therapy, as monotherapy or more often in combination with small dose of anticholinergic medication.
2. This type of therapy allows to avoid surgical treatment, especially, bladder augmentation with the use of different bowel segments and following that metabolic disorders.
management involved everyday enemas, laxative application and a special dietary regimen, with an aim of treating constipation and fecal incontinence that was determined according to Roma III criteria. The effects of the administered bowel management on urinary incontinence were assessed on the basis of the maximum dry time interval between two CICs.

RESULTS
In the group with administered bowel management, the average maximum dry interval between two CICs is 125.2 minutes +/- 52.02 SD, whereas in the group treated only with CIC and anticholinergic medication therapy, the average maximum dry interval is 93.0 minutes +/- 47.33 SD. The t-test application proved that there is a statistical difference regarding urinary incontinence, i.e. maximum dry interval between these two patient groups (p <0.05).

CONCLUSIONS
Administering bowel management considerably alleviates symptoms of urinary incontinence, because of which it should be an integral part of treating patients with spina bifida.

12:22–12:25
S24-7 (PP)

NEUROGENIC BLADDER: URODYNAMIC ULTRASSONOGRAPHY ACURACY IN MYELOMENINGOCELE CHILDREN

Tiago ROSITO¹, Tiago BORTOLINI¹, Iara LUCENA², Nelson BATESINI¹, Nicolino ROSITO³, Bruna Brasil CARNEIRO¹, Anderson CASTRO DE SOUZA¹, Patric TAVARES¹ and Brasil SILVA NETO⁴


PURPOSE
Myelomeningocele (MMC) is an important cause of urinary tract dysfunction. Urodynamics is the gold-standard for vesical function assessment, being essential to therapeutic decisions. The feasibility of an alternative non-invasive procedure to replace it, is the purpose of this study.

MATERIAL AND METHODS
We performed standard urodynamic exams simultaneously with urodynamic ultrasound in 62 MMC patients from January/2015 to July/2016. Urodynamic was made by standard technic, without sedatives or anesthesia procedures, simultaneously with Urodynamic ultrasound, focusing on bladder behavior during filling fase, analyzing the presence of involuntary detrusor activity, cystometric capacity, thickness of the bladder wall, bladder neck behavior and incontinence.

RESULTS
Mean age was 7.04 years old, 54.8% being male. 93.5% carried ventriculoperitoneal shunt. Chronic kidney disease was present in 6.4%, recurrent urinary tract infection in 17.7% and constipation in 71%. Anticholinergic therapy was in course of 48.4%. Urodynamic parameters evaluated were detrusor overactivity (positive in 43.5%), compliance (decreased in 48,3%) and cystometric capacity (normal in 59,7%). Ultrasound identified involuntary detrusor activity in 48,4% of these patients. Considering urodynamics the gold standard to identify detrusor overactivity, ultrasound achieved 92,6% sensitivity, 85,7% specificity, positive predictive value of 83,3%, negative predictive value of 93.7%, 88.7% of accuracy and Kappa 0.76. Correlation between urodynamics and ultrasound findings for detrusor overactivity occurred in 55 pacients of this population.
CONCLUSIONS
The follow up on urinary tract of the myelomeningocele patients is essential since urinary parameters can change during child growth. The urodynamic evaluation is an invasive test with related complications, so is necessary monitoring of these patients noninvasively. The results in this study suggest that periodic evaluation in these patients may be accomplished with urodynamic ultrasound, performing standard urodynamic testing in patients that are experiencing an abnormal ultrasound or worsening of urinary tract function.

12:25 – 12:28

★ PREDICTIVE FACTORS FOR DAYTIME URINARY INCONTINENCE IN CHILDREN WITH CEREBRAL PALSY

Bieke SAMIJN¹, Christine VAN DEN BROECK², Catherine RENSON³, Piet HOEBEKE³, Johan VANDE WALLE⁴, Frank Plasschaert⁵, Anne-Françoise Spinoit³ and Erik Van Laecke³

¹) Ghent University, Uro-gynaecology, Ghent, BELGIUM - 2) Ghent University, Physiotherapy and rehabilitation, Ghent, BELGIUM - 3) Ghent University Hospital, Urology, Ghent, BELGIUM - 4) Ghent University Hospital, Pediatric Nephrology and Rheumatology, Ghent, BELGIUM - 5) Ghent University Hospital, Orthopaedic Surgery, Ghent, BELGIUM

PURPOSE
The objective of the current study is to identify risk factors for the presence of daytime urinary incontinence (DI) in children with Cerebral Palsy (CP).

MATERIAL AND METHODS
A prospective study including 34 children with CP and DI and 45 continent children with CP was conducted between 2013 and 2016. Data was obtained using uroflowmetry, questionnaires and bladder diaries. Factors were subdivided in three clusters, i.e. CP classification, general medical data and bladder and bowel symptoms.

Univariate analysis was performed to determine predictive factors for incontinence. Odds Ratio (OR) with 95% confidence interval was calculated. Clustered logistic regression using a stepwise backward selection procedure was then constructed to define an associative model using one factor from each cluster.

RESULTS
Concerning classification of CP dyskinesia (OR 5.67), combined spasticity/dystonia (OR 4.78), bilateral involvement (OR 4.05), quadriplegia (OR 6.07) and gross motor function classification system (GMFCS) level IV (OR 10.63) and V (OR 34.00) were associated with DI. Concerning general medical data and bladder and bowel symptoms intellectual disability (OR 7.70), use of mobility and positioning aids (OR 27.50), fecal incontinence (OR 5.16), lower maximum voided volume (OR 0.97), being unable to void on uroflowmetry (complete separation between groups) and lower oral fluid intake (OR 0.96) were associated with DI. Clustered logistic regression defined GMFCS, intellectual disability and oral fluid intake as factors included in an associative model for DI in children with CP.

CONCLUSIONS
Risk analysis revealed that CP classification, intellectual disability and fluid intake are important factors when considering the ability of being dry in a child with cerebral palsy.

12:28 – 12:40

Discussion
ALTERATION OF AUTONOMIC NERVOUS SYSTEM ACTIVITY DURING BLADDER FILLING IN CHILDREN WITH SPINA BIFIDA

Sang Woon KIM¹, Yong Seung LEE¹, Sang Won HAN¹ and Young Jae IM²

1) Yonsei University College of Medicine, Urology, Seoul, REPUBLIC OF KOREA - 2) Seoul National University, Department of Urology, Seoul, REPUBLIC OF KOREA

PURPOSE
The functional activity of autonomic nervous system in spina bifida has not been well elucidated. Our objective was to investigate autonomic nervous system activity using heart rate variability (HRV) in children with spina bifida during bladder filling.

MATERIAL AND METHODS
HRV was assessed during urodynamic study (UDS) in a fixed protocol (P0 : 2 minutes before start filling; P1 : start of filling-normal desire to void; P2 : P1-end of filling or start of voiding). A total of 25 HRV and UDS results between May 2015 and July 2016 were reviewed retrospectively. During the period, children with vesicoureteral reflux who underwent video-urodynamic study was established as a control group. Children more 4 years old were included for the study. Children who had voiding symptoms or who were on medication affecting autonomic nervous activity such as anticholinergics were excluded. Sixteen patients were included finally (9 control, 7 spina bifida).

RESULTS
Time domain parameters at baseline revealed significantly lower RMSSD and pNN50 in children with spina bifida compared with control (23.46±14.99 vs 50.96±23.53, p=0.018; 4.61±6.58 vs 33.97±22.02, p=0.004, respectively). In frequency domain, high frequency (HF) HRV was significantly lower (117.61±117.83 vs 724.43±402.64 , p=0.002) while low frequency (LF) HRV was not different (p=0.502). The ratio of LF/HF was increased in spina bifida group at baseline (5.43±5.95 vs 1.74±1.79, p=0.098).

During filling phase, the ratio of LF/HF (P0 5.43±5.95 vs P2 4.45±5.36, p=0.090) was reduced in spina bifida while control group showed stable balance (P0 1.79±1.91 vs P2 1.54±1.05, p=0.728). HF were significantly increased in children with spina bifida (p=0.037).

CONCLUSIONS
Domains representing parasymapathetic activity are relatively decreased in children with spina bifida at baseline. During bladder filling phase, parasymapathetic activity was relatively increased while control group demonstrated stable balance of parasymapathetic/sympathetic activity. These findings may be related to the pathophysiology of neurogenic bladder in spina bifida.
SEXUAL ACTIVITY AND FUNCTION IN ADULT MEN WITH SPINA BIFIDA

Konrad Szymanski¹, Devon Hensel², John Wiener³, Benjamin Whittam¹, Martin Kaefer¹, Katherine Chan¹, Richard Rink¹, Mark Cain¹ and Rosalia Misseri¹

¹) Riley Hospital for Children, Pediatric Urology, Indianapolis, USA - ²) Indiana University Purdue University Indianapolis, Department of Pediatrics and Department of Sociology, Indianapolis, USA - ³) Duke University Medical Center, Pediatric Urology, Durham, USA

PURPOSE
Little is known about sexual function of men with spina bifida (SB). The aim of this study was to assess sexual activity and erectile dysfunction (ED) in men with SB.

MATERIAL AND METHODS
We performed an international online survey of men ≥18yo with SB. Participants were recruited via SB clinics and social media. We collected data on demographics, ambulation (Hoffer classification), penile rigidity (Erection Hardness Score), sexual activity and ED (International Index of Erectile Function). Non-parametric tests were used for analysis.

RESULTS
Of 69 men (median age 35, 62.3% shunted, 27.1% community ambulators), 50.7% were single and 43.4% in a relationship (18.8% married). Overall, 35.3% reported full penile rigidity with erections, more commonly in men with better ambulation (p=0.04). 66.2% of men achieved orgasm and 78.3% ejaculated.

Lifetime solo masturbation was reported by 91.3%, partnered non-genital contact: 85.5%, mutual masturbation: 78.3%, and partnered intercourse: 75.4% (62.3% vaginal). Median age at first sexual contact was 19yr, with median 3.5 lifetime partners. Of 25 men who used phosphodiasterase type 5 (PDE5) inhibitors, 76.0% had improved erections, 56.0% improved intercourse.

Overall, 46.3% of men reported non-genital erogenous zones as most pleasurable, more commonly in men with poorer ambulation (p=0.03). Nipples (38.7%) and chest (22.6%) were most common. In 18 men (26.9%) who attempted sexual intercourse in the last 4 weeks, 61.1% had ED (16.7% severe, 5.6% moderate, 22.2% mild-moderate, 16.7% mild). In this group, ED was present in 7/7 men with less than full penile rigidity, compared to 4/11 (36.4%) with full penile rigidity (p=0.01).

CONCLUSIONS
While ED is common in men with SB, PDE5 inhibitors are frequently used and may benefit this population. Better ambulation is associated with better erectile function. Partnered sexual activity is common, although may not involve penetrative intercourse.
CONTINENCE CONDITIONS AND AUTONOMY; A HIGHER CHANCE FOR SOCIAL INTEGRATION OF INDIVIDUALS, 16–18 YEARS, WITH MYELOMENINGOCELE?

Magdalena VU MINH ARNELL¹ and Kate ABRAHAMSSON ²

¹) Queen Silvia Children’s Hospital, Sahlgrenska Academy University of Gothenburg, The Pediatric Surgery Department, Gothenburg, SWEDEN - ²) Queen Silvia Children’s Hospital, Sahlgrenska Academy University of Gothenburg, The Pediatric Surgery Department, Gothenburg, SWEDEN

PURPOSE
The majority of adults with myelomeningocele (MMC) in Western Sweden use incontinence pads. Continence requires active treatment regimen of uro/intestinal therapist and the urologist. The aim was to evaluate the level of incontinence and independence of the treatments in relation to social independence for adolescents with MMC.

MATERIAL AND METHODS
All 25 individuals with MMC (15 men) 16-19 years, were studied prospectively concerning urinary- and fecal continence. Review of medical data and interviews were made regarding; shunt, walking ability, independence of the CIC and bowel regimen, need of reminder/assistant and presence of close friend/partner. “Stay overnight” was defined; sleep overnight without family/assistant. Leakage test was conducted.

RESULTS
In the group overall 17/25(68%) were urine continent 21/25(84%) were fecal continent and 14/25(56%) were totally dry and did not use diapers or pads. Of those who stayed overnight 89% of men were urine continent and 78% were totally dry, the number for women 75% and 25% respectively. Furthermore, to stay overnight 9(60%) of the men and 3(30%) of the women did it without family or assistant. All (4men,1woman) who had had sexual intercourse were urine continent. Not having reminder/assistant and to be urine continent was significant (p <0.05) correlated with having a best friend and/or to be able to sleep overnight.

CONCLUSIONS
With standardized follow-up, active treatment strategy and uro/intestinal therapy support, the continence situation in young individuals with MMC in our study are internationally high. For young people with MMC, independence and to be continent increase the possibility for social inclusion.

ONABOTULINUMTOXINA ROLE AS ADJUNCTIVE THERAPY IN NEUROGENIC BLADDER

Javier RUIZ, Cristian SAGER, Carol BUREK, Juan Pablo CORBETTA, Santiago WELLER, Victor DURAN, Ramiro PEREA, Juan Carlos LOPEZ and Enrique LAGO

Garrahan Pediatric Hospital, Urology, Buenos Aires, ARGENTINA

PURPOSE
OnabotulinumtoxinA is a therapeutic alternative in patients without response to anticholinergics. Objective: To evaluate repeated injections OnabotulinumtoxinA in refractory neurogenic bladders.
MATERIAL AND METHODS
Eighty two patients under 18 years old with neurogenic bladder were evaluated, mostly by spinal dysraphia. All patients were refractory to oral oxybutynin. We reinjected OnabotulinumtoxinA between 9 and 12 months, if there were clinical and / or urodynamic improvement after the third month of the first injection. Otherwise, we indicated bladder augmentation.

RESULTS
We reinjected OnabotulinumtoxinA, two, three, four and five times: 20 cases, 7, 4 and one case, respectively. In 51% average total urinary continence (zero-dry score) was achieved. In the first and second injection there were significant increases in average cystometric capacity: 331 ml from 254 to (p: 0.007) and 257-367 ml (p: 0.014); respectively. The compliance of bladder wall in some cases, improved, after the first injection: from 6.9 to 11.4 ml / cmH2O (p: 0.05). Mean detrusor pressure at end of filling decreased from 41 to 38 cmH2O. Detrusor overactivity (n: 22) was attenuated in 54.4% after the first injection. Any major adverse effects were reported with reinjection. Fifteen patients refractory to OnabotulinumtoxinA were intervened for bladder augmentation.

CONCLUSIONS
The treatment with OnabotulinumtoxinA achieved urinary continence in average 50%. The Cystometric capacity increased significantly with the first two injections; although it was not accompanied by a significant parallel decrease in intravesical pressures. The use of the OnabotulinumtoxinA has been delayed the classic indication of bladder augmentation in refractory to anticholinergic children.

ARE UROLOGICAL ANOMALIES MORE COMMON IN NEWBORNS WITH SPINA BIFIDA WITH UPPER LESIONS COMPARED WITH LOWER?
Claire CULLEN1, Orla MCMAHON2, Emer ALDRIDGE3, Malcolm LEWIS4 and Salvatore CASCIO3

PURPOSE
The large majority of newborns with myelodysplasia are born with a normal renal tract. However, a small percentage of those born with neural tube defects have associated urological anomalies. It is suggested that the level of spinal lesion correlates to specific renal anomalies. The aim of this study is to examine the relationship between spinal dysraphism and renal anomalies.

MATERIAL AND METHODS
We retrospectively reviewed our database of children with spina bifida. Data analysis included demographics, level of lesion, renal ultrasound and urological intervention. Spinal lesions were separated into seven groups; encephalocele, thoracic, thoracolumbar, thoracosacral, lumbar, lumbosacral and sacral.

RESULTS
381 patients were identified. 133 were excluded due to moving abroad, incomplete investigations or being lost to follow up. Of the remaining 248 patients, there were 22 encephalocele, 8 thoracic, 17 thoracolumbar, 17 thoracosacral, 33 lumbar, 86 lumbosacral and 65 sacral.
18 (7%) had significant urological anomalies picked up at birth. These included duplex kidneys (6), hydronephrosis unrelated to neurogenic bladder (6), horseshoe kidneys (4), pelvic kidney (1) and single kidney (1). The most common site for renal anomalies to occur was thoracolumbar (11.7%) followed by lumbosacral (11.6%) and lumbar (6%). Encephalocele and sacral lesions each had 5% incidence of urological anomalies. There were no urological anomalies in the thoracic or thoracosacral groups. Only one patient required a STING procedure for unilateral VUR.

CONCLUSIONS
Our study highlights that urological anomalies were found more commonly in the thoracolumbar and lumbosacral lesions. In contrast to previous studies, no constant pattern of urological anomalies was associated with a particular sensory level in patients with spina bifida.
S25: NEUROPATHIC BLADDER 2

Moderators: Luis Garcia-Aparicio (Spain), Anju Goyal (UK)

ESPU Meeting on Saturday 22, April 2017, 12:40–13:36

12:40–12:43  
S25-1 (PP)

★  A NOVEL GRADING SYSTEM FOR BLADDER TRABECULATION IN PEDIATRIC PATIENTS WITH NEUROGENIC BLADDERS

Blake SELBY¹, Guy HIDAS², Tandis SOLTANI³, Sherrie KAPLAN⁴, John BILLIMEK⁴, Elias WEHBI⁵, Irene MCALEER² and Antoine KHOURY²

¹) CHOC Children’s Urology Center, Paediatric Urology, Orange, USA - ²) University of California, Irvine and the Children’s Hospital of Orange County, Department of Urology, Orange, USA - ³) Michigan State University Medical School, East Lansing, USA - ⁴) University California Irvine Health Policy Research Institute, Irvine, USA - ⁵) University of California, Irvine and the Children’s Hospital of Orange County, Paediatric Urology, Orange, USA

PURPOSE
Bladder trabeculation is a common finding in pediatric patients with neurogenic bladders. There is currently no standardized grading system used to describe the severity of bladder trabeculation. In this study we developed and determined the reliability of a grading system using cystograms.

MATERIAL AND METHODS
The grading system was developed and designed by an expert panel pediatric urologists. The grading system is based on the appearance of the bladder on cystogram. There are 3 grades with a grade 0 as normal and grade 2 being severely trabeculated. A previous pilot study (n=9) showed excellent intra and inter-rater reliability.

In this study, we enrolled 33 participants including pediatric urologist, fellows, urology residents and nurse practitioners to rate 30 cystogram images representing the 3 grades of bladder trabeculation. In order to calculate intra-rater reliability, 18 participants repeated this activity. Reliability was then calculated using Spearman’s rank correlation coefficient, Cohen’s Kappa and intraclass correlation coefficient.

RESULTS
All 33 participants were used to determine inter-rater reliability. This grading system showed a high degree of inter-rater reliability with an intraclass correlation coefficient of 0.998 (p<0.001). In addition, this was further confirmed with a Cohen’s Kappa ranging between 0.795-1.0 (p<0.001). The Spearman’s rank correlation coefficient ranged between 0.910-1.0, (p<0.001), showing good intra-rater reliability.

CONCLUSIONS
This novel grading system for bladder trabeculation shows excellent inter and intra-rater reliability. This tool may potentially improve communication both clinically and within future research involving patients with neurogenic bladders. However, further validation studies are required.
S25-2 (PP)

★ BLADDER DIAMETER RATIO: A RED FLAG FOR THE RISK OF UPPER TRACT DAMAGE IN PATIENTS WITH NEUROPATHIC BLADDER DYSFUNCTION

Ahmed ABDELHALIM1, Miriam FAHIM2, Elias WEHBI1 and Antoine KHOURY1

1) University of California, Irvine and the Children’s Hospital of Orange County, Department of Urology, Orange, USA - 2) Eastern Virginia Medical School, Norfolk, USA

PURPOSE
Up to 30-50% of patients with neuropathic bladder may have some degree of renal damage. We sought to identify if the bladder diameter ratio (BDR: the ratio of the midpoint of the bladder height to the midpoint of the bladder width on the antero-posterior view on a VCUG at maximum cystometric capacity) can be used to identify patients at-risk of upper tract damage in neuropathic bladder patients.

MATERIAL AND METHODS
The electronic records of pediatric patients diagnosed with neuropathic bladder in a single institution were retrospectively reviewed. Patients with history of bladder or ureteral surgery, less than two years of follow-up or incomplete follow-up data were excluded. Baseline and follow up VCUGs were reviewed for BDR. Evolution of hydronephrosis on serial ultrasounds was tested against BDR at baseline and last follow-up.

RESULTS
Between 2008 and 2016, 52 males and 38 females with 179 renal units (RU) met the study criteria. Hydronephrosis was demonstrated in 52 (29.3%) RU at baseline. A total of 30 (16.8%) RU showed persistent/worsening hydronephrosis after a median follow-up of 87.5 (24-140) months. RU with persistent/worsening hydronephrosis had significantly higher BDR relative to those with no or resolving hydronephrosis both at baseline (1.5+0.25 vs. 1.37+0.239, p=0.008) and follow-up (1.498+0.25 vs. 1.353+0.25, p=0.004).

CONCLUSIONS
BDR is a useful indicator of bladder hostility in neuropathic bladder patients. Patients with elevated BDR are more likely to exhibit upper tract deterioration and would benefit from more vigilant surveillance and aggressive proactive treatment.
**DOES IN-UTERO MMC SURGERY IMPACT ON BLADDER FUNCTION AND UROLOGICAL OUTCOME? A COMPARATIVE STUDY OF FETAL VERSUS POSTNATAL MMC REPAIR**

Marcela LEAL DA CRUZ¹, João PARIZI², Antonio MACEDO JR³, Sérgio OTTONI¹, Gilmar GARRONE⁴, Maria Isabel SILVA SILVA⁵, Jorge Antonio POMPERMAIER⁵ and Ruberto LIGUORI⁶

¹) Cacau- Centro de apoio a criança com anomalia urológica, Nupep, São Paulo, BRAZIL - ²) Cacau - centro de apoio a criança com anomalia urológica, Nupep, São Paulo, BRAZIL - ³) Federal University of são paulo, Pediatric department, São Paulo, BRAZIL - ⁴) Cacau-centro de apoio da criança com anomalia urológica, Nupep, São Paulo, BRAZIL - ⁵) CACAU - Centro de apoio a criança com anomalia urológica, NUPEP, Sao Paulo, BRAZIL - ⁶) Cacau-centro de apoio a criança com anomalia urológica, Nupep, São Paulo, BRAZIL

**PURPOSE**
The advantages of in utero myelomeningocele (MMC) repair towards the conventional postnatal consists of less VP-shunts and better motor status. Since November 2011, we prospectively follow a in utero MMC repair series. We compared this population with a subset of patients before the onset of fetal surgery, but followed according the same protocol.

**MATERIAL AND METHODS**
We evaluated two groups: A (postnatal repair) and B (in utero repair). We compared demographic data, gestational age at diagnosis and birth, age at first urological evaluation in our clinic, incidence of febrile urinary tract infection (UTI) and findings at renal ultrasound (US), voiding cystourethrogram (VCUG) and urodynamic exam (UE). All data was collected from initial urological set.

**RESULTS**
A total of 165 patients were studied: 86 at group A and 79 at group B. Mean prenatal diagnosis of MMC was 27.4 weeks of gestational age to group A and 20.5 to group B and mean gestational age at birth was 37.2 weeks and 33 weeks to groups A and B, respectively. The first urological evaluation occurred at a mean age of 27.9 months and 5.4 months in group B. UTI ratio was 40.7% in group A and 22.8% in group B (p: 0.014). US found 22.9% and 19.2% of hydronephrosis in groups A and B, respectively. There was a higher incidence of overactive bladder (p: 0.002) and urinary leakage in group B but with comparable bladder capacity.

**CONCLUSIONS**
Our data showed that MMC patients operated in utero presented earlier to urologist, had higher incidence of overactive pattern but less febrile UTI episodes. Group A had higher incidence of bladder thickness 40.9% vs 19.2% but comparable incidence of vesicoureteral reflux 15.6% vs 16.7%. It is unclear if some of the different characteristics were linked to type of neurosurgical treatment or to later initial presentation.
A 5-YEAR PROSPECTIVE UROLOGICAL ASSESSMENT OF IN UTERO MMC REPAIR: DOES GESTATIONAL AGE AT BIRTH PLAY A ROLE AT LATER NEUROGENIC BLADDER PATTERN?

Marcela LEAL DA CRUZ¹, Antonio MACEDO JUNIOR², Sergio LEITE OTTONI¹, Gilmar GARRONE¹, Riberto LIGOURI¹, Maria Isabel SILVA SILVA¹ and Jorge ANTONIO POMPERMAIER¹

¹) CACAU - Centro de apoio a criança com anomalia urológica, NUPEP, Sao Paulo, BRAZIL - 2) Federal University of Sao Paulo, Departament of Pediatric, Sao Paulo, BRAZIL

PURPOSE
A major complication of in utero myelomeningocele (MMC) repair is premature delivery. The prematurity rate in Management of Myelomeningocele Study (MOMS) was 79%, with a mean gestational age (GA) at birth of 34 weeks. Considering this particular aspect of prenatal surgery group, we speculated if prematurity could also influence the urological outcome.

MATERIAL AND METHODS
Since November 2011, we prospectively follow a population of MMC patients that had undergone in utero repair. We compared the urological status of this population according to GA at birth: below 34 weeks (group 1) and 34 weeks or above (group 2). We reviewed clinical history, renal sonogram, VCUG and urodynamics following a previously reported protocol.

RESULTS
We studied 79 patients, 42 at group 1 and 37 at group 2. Mean GA at birth was 28.3 (25 -33) weeks in group 1 and 35.2 (34-38) weeks in group 2. Patients were classified as high risk in 47.5% of group 1 and 54.5% of group 2, incontinent in 35% of group 1 and 33.3% of group 2, hypocontractile in 10% of group 1 and normal pattern in 7.5% of group 1 and 12.1% of group 2, none with statistical significance. Mean follow up was 27.9 and 24.3 months for groups 1 and 2, respectively.

CONCLUSIONS
Our data showed that GA at birth has little impact on bladder pattern so as to clinical outcome. These data reinforce the need to follow these patients very closely irrespectively of earlier or later age at birth.
EVOLUTION OF BLADDER FUNCTION DURING EARLY CHILDHOOD AFTER IN UTERO MYELOMENINGOCELE REPAIR

Maya HORST¹, Luca MAZZONE², Christine BODMER¹, Martin MEULI³ and Rita GOBET⁴

1) Univ. Children’s Hospital Zurich, Pediatric Urology, Zurich, SWITZERLAND - 2) Univ. Children’s Hospital Zurich, Pediatric Surgery, Zürich, SWITZERLAND - 3) Univ. Children’s Hospital Zurich, Center for Fetal Diagnosis and Therapy, Zürich, SWITZERLAND - 4) Univ. Children’s Hospital, Pediatric Urology, Zürich, SWITZERLAND

PURPOSE

The urological outcome after prenatal myelomeningocele (MMC) repair is still controversial; however, recent data indicate a possible positive effect on postnatal bladder function. We aim to present an update on the urologic outcome during early childhood after prenatal MMC repair.

MATERIAL AND METHODS

All patients operated prenatally for MMC at our institution are followed prospectively. Assessment includes urinary ultrasound, VCUG and urodynamic study, need for clean intermittent catheterization (CIC) and anticholinergics, and the occurrence of urinary tract infections (UTI).

RESULTS

Of the 40 patients who underwent prenatal MMC closure since 2010, one patient died after birth due to respiratory failure. 39 patients were included in this study. Postnatal urodynamics revealed neurogenic bladder dysfunction (NBD) in 46%. The percentage of NBD increased during the first 6 months to 76% and remaining stable during further follow-up at 65%. After 6 months none of the patients with normal bladder function spontaneously developed bladder dysfunction; however 5 patients lost normal bladder function after removal of intradural dermoids. Vesico-ureteral reflux was found in 6 (15%) patients. Three NBD-patients (11%) had at least one febrile UTI, patients with normal bladder function were infect-free. CIC and anticholinergic therapy was initiated in all NBD patients. Four patients additionally received intravesical botox injections, one patient developed upper tract deterioration and underwent vesicostomy.

CONCLUSIONS

Our data suggest that prenatal MMC repair yields less bladder dysfunction than expected after postnatal repair. However, further evolution of bladder function in these patients throughout childhood is indispensable.
DOES EARLY TREATMENT REALLY IMPROVE PROGNOSIS IN NEUROPATHIC BLADDER?

Laura BURGOS LUCENA¹, Pedro LÓPEZ PEREIRA², María José MARTÍNEZ URRUTIA³, Susana RIVAS VILA³ and Roberto LOBATO ROMERA³

¹) Hospital Gregorio Maranon, Paediatric Urology, Madrid, SPAIN - ²) Hospital Universitario La Paz, Urología Pediátrica, Madrid, SPAIN - ³) Hospital Universitario La Paz, Pediatric Urology, Madrid, SPAIN

BACKGROUND
Clean intermittent catheterisation (CIC) and anticholinergic drugs are the mainstay treatment for neuropathic bladder (NB). However, there is not consensus about when to start this therapy.

AIM
To analyse the impact of early start of CIC and anticholinergic treatment on long-term renal and bladder function.

PATIENTS AND METHOD
Retrospective study of NB patients treated in our hospital (1995-2005) dividing them in 2 groups: group 1 started treatment in the first year of life and group 2 between 1-5 years old. Collected data included: date of CIC and anticholinergic initiation, presence of VUR or UHN, renal function, UTIs, renal scars, bladder behaviour and urinary continence.

RESULTS
61 patients were included, 25 (group 1) and 36 (group 2). Initially VUR and overactive bladders were more frequent in group 2 and during follow-up, one overactive bladder in group 1 and 5 in group 2 changed to low compliance. Therefore, there were 11 low compliant bladders in group 1 and 17 in group 2 (NS). However, in group 1, only 2 patients required bladder augmentation (BA) compared to the 12 patients in group 2 (p=0.001). UTIs and new renal scars were more frequent in group 2 (36% vs 12%; 5p vs 1p). At the end of the study mean age was 12.7 and 16.5 years respectively.

CONCLUSIONS
Group 1 had better long-term outcome in terms of UTI, renal scars and surgical procedures and low compliant bladders required less BA. We strongly recommend starting treatment in the neonatal period.
LONG-TERM EFFICACY OF YOUNG-DEES BLADDER NECK RECONSTRUCTION IN THE TREATMENT OF CHILDREN WITH URINARY INCONTINENCE: LESSONS LEARNED FROM THE PAST

Alice FAURE¹, Geraldine HERY², Mirna HADDAD², Thierry MERROT²
and Jean-Michel GUYS²

1) Aix-Marseille Université, APHM, CHU Hôpital Timone, Pediatric surgery, Marseille, FRANCE - 2) Aix-Marseille Université, APHM, CHU Hôpital Timone, PEDIATRIC SURGERY, Marseille, FRANCE

PURPOSE
Since a long time Young-Dees bladder neck reconstruction (YDBNR) has been used for the management of urinary incontinence directed at improving sphincteric incontinence. The majority of experience with the YDBNR has been in exstrophy-epispadias population with a good success rate at short and median term follow-up. In neurogenic bladder the YDBNR did not appear to provide continence rate as good as in exstrophy-epispadias population. No objective data with a real long-term follow-up have yet been published after YDBNR.

MATERIAL AND METHODS
We retrospectively reviewed the clinical outcomes of 55 children (Group 1 n=35 patients with neurogenic bladder-Group 2 n= 20 patients with bladder exstrophy-epispadias) who underwent YDBNR. Because of unsatisfactory results, 45 (81.8%) patients received bladder neck injection (BNI).

RESULTS
After a median follow up of 16 years (range 5-29) 10 patients (18%) were socially continent after the YDBNR (17% from the group1 and 20% for the group2). Of the remaining 45 patients who were still incontinent after the first YDBNR, 15 became continent after associated BNI (n=13 in group 1, n=2 in group 2) difference between group 1 and 2 was significant (p=0.05). The others patients still incontinent after YDBNR and BNI (n=30) required either bladder neck closure, artificial sphincter, or suspension of the bladder neck.

CONCLUSIONS
Long-term results with isolated YDBNR are modest. This procedure does not appear to be a solution at long term even if associated with BNI in bladder exstrophy. However BNI bolster up the results of YDBNR in neurogenic bladder.

COMPLICACIONES AUS

Anahi SALOMON, Yesica Yasmin QUIROZ , Eddys FORTUNATO, Roberto VAGNI, Maria ORMAECHEA, Juan MOLDES and Francisco DE BADIOLA

Hospital Italiano de Buenos Aires, Pediatric Urology, Ciudad De Buenos Aires, ARGENTINA

PURPOSE
The use of artificial urinary sphincters (AUS) is one of the treatment for patients with urinary sphincteric incompetence (SI). In the long term follow up of AUS mechanical complications requires revisions and different types of solutions. We evaluate the revisions and complications of the AUS installed at our institution.
MATERIAL AND METHODS
We performed a retrospective database and medical history analysis of patients at our center who had an AUS placement.
AUS were placed in 163 pediatric patients, of which 130 were able for analysis and included in the series.
One hundred and thirty six AUS were placed in 130 patients. Average age at surgery was 8.8 years. Thirty eight patients (29.2%) had complications requiring new intervention.

RESULTS
Of the 130 patients, 68.4% required one procedure, 23.7% required 2 and 7.9% more than 2 interventions.
Fifty five procedures were performed in 38 patients.
The complications were: lost of contrast fill in 54.5 %, 21.8% were erosions, 12.7% infections, migration of components sphincter in 3.6% and 2% were referred because of chronic pain, recurrent orchitis and ureteral compression by the cuff.
Fifteen component of the AUS were replaced (ballon in 46.7%, pump in 26.7% and wires in 26.7%).
Ten cases were managed refilling the system with contrast, 8 with a fixed resistance, 2 with pump relocation and one with the removal of the ballon.
Twenty three prosthesis (16.9%) were removed, 17 definitely and in 6 (12.3%) patients a second AUS were implanted later in time.

CONCLUSIONS
The AUS as treatment for sphincteric incompetence requires close monitoring and long term follow up. Not all complications involve removal of the prosthesis, except for infection. You can maintain continence in partial removals with connections to fixed resistance. Most patients maintain the prosthesis despite partial rupture.

13:18 – 13:21
S25-9 (PP)

SACROCOCCYGEAL TERATOMA. LONG TERM RECTAL AND BLADDER DYSFUNCTION
Ramiro PEREA1, Javier RUIZ1, Cristian SAGER2, Juan Pablo CORBETTA2, Juan Carlos LOPEZ2, Marcela BAILEZ2, Carol BUREK2, Santiago WELLER2 and Enrique LAGO2
1) Hospital Garrahan, Ciudad de Buenos Aires, Caba, ARGENTINA - 2) Hospital Garrahan, Buenos Aires, Caba, ARGENTINA

PURPOSE
The mass-effect and the surgical resection of sacrococcygeal teratoma (SCT) in neonates may result in a rectal or bladder dysfunction. The aim of this study is to evaluate postoperative long-term functional outcome in children undergoing SCT resection.

MATERIAL AND METHODS
Neonates with diagnosis of SCT who received surgical resection between 1988 and 2010 were included in this retrospective review. Data collected included age at surgery, Altman stage, tumor histology and size, surgical treatment. Functional assessment of the bladder and rectum was made with clinical follow up by a multidisciplinary group. Multivariable regression analysis was performed using IBM SPSS 19 with functional sequelae as outcome.
RESULTS
Thirty one patients were identified. Tumor histology included mature (70% n=22) and immature (29% n=9). Median age at surgery was 9 months (1 day - 11 years). Median follow up was 10.2 years (0.38-23). In twenty four (77.4%) excision was completed in the first surgery while seven patients (22.5%) required multiple surgeries. Median volume was 155cm3 (10-944cm3). Seven patients (22.5%) developed rectal dysfunction. Six patients (19.3%) presented urological complications including detrusor hiperactivity and hiporreflexia. Regression analysis showed significance association between functional sequelaes and multiples surgeries (p-value

CONCLUSIONS
Rectal and bladder dysfunction after SCT are not uncommon, especially in children who required more than one surgery. Therefore, first attempt and complete excision is crucial. These children need a close follow up in order to detect early neurogenic bladder symptoms.

13:21 – 13:36
Discussion

S25-10 (P without presentation)

DOES PRO-ACTIVE MANAGEMENT AVOID UPPER URINARY TRACT DETERIORATION IN PATIENTS WITH MYELOMENINGOCELE?
Sibel TIRYAKI1, Raziye ERGUN2, Ibrahim ULMAN3 and Ali AVANOGLU2

1) Ege University Faculty of Medicine, Department of Pediatric Surgery, Division of Pediatric Urology, Izmir, TURKEY - 2) Ege University, Pediatric Surgery Division of Pediatric Urology, Izmir, TURKEY - 3) Ege University, Pediatric Surgery Division of Pediatric Urology, Izmir, TURKEY

PURPOSE
Early intervention for bladder dysfunction in myelomeningocele is promoted to prevent upper urinary tract deterioration. The aim of this study is to reveal the long-term outcomes of pro-active management.

PATIENTS AND METHODS
Hospital records of patients with myelomeningocele admitted to our outpatient clinic between years 1994-2015 were reviewed retrospectively. Patients with a follow-up of more than 5 years were included in the study. Multivariate analysis of data including age at admission, initiation of anticholinergic therapy, bladder status, renal damage, need for augmentation and continence was performed.

RESULTS
Of the 469 patients with myelomeningocele, 151 patients had a follow-up of more than 5 years. Median follow-up was 9 (5-19) years. Median age at admission was 2 (0-22). New renal scar development was significantly related with UTI (p=0.005), the presence of a scar in the initial scintigraphy (p=0.001), and low compliance to follow-up protocol (p=0.002). No other relation with eventual outcome was found including age at admission or initiation of medical therapy. Sixty-seven patients were admitted in infancy and 49 were compliant with follow-up. These 49 patients with optimal management were then compared with the remaining. In this group, 10 had new scar development and 15 had scars in the eventual scintigraphy which was 37 and 50 in the remaining group with 102 patients. No significant difference was observed between groups.

CONCLUSIONS
Analyses of the long-term follow-up of patients with myelomeningocele failed to show the benefit of pro-active management. The presence of renal scars at admission seems to be an independent risk factor for new scar development reminding genetic predisposition theories.
META-ANALYSIS AND SYSTEMATIC REVIEW OF UROLOGIC OUTCOMES FROM TETHERED CORD RELEASE IN OCCULT SPINAL DYSRAPHISM IN CHILDREN

Jaun Carlos PRIETO¹, Jeffrey WHITE² and Maria RODRIGUEZ²

¹) University of Texas Health Sciences Center, Urology, San Antonio, USA - ²) University of Texas Health Science Center, Urology, Houston, USA

PURPOSE
Review the urologic outcomes after untethering of occult spinal dysraphism, the closed skin variant of TCS.

MATERIAL AND METHODS
A systematic literature review was performed via Pubmed and Ovid, following PRISMA guidelines. Of the original 536 publications in the past 25 years, 17 manuscripts met inclusion criteria. The following biases were assessed: study participation, study attrition, prognostic factor and outcome measurement, confounding measurement and account, and analysis. Studies with high risk for bias were excluded. For each study, the pre- and postoperative data (urological symptoms and urodynamics data) were extracted to evaluate outcomes after untethering. We calculated the summary estimate of effect of untethering using random-effects and fixed-effects models.

RESULTS
The most common urological symptoms in TCS were urinary incontinence, frequency-urgency and febrile and non-febrile urinary tract infections. Urodynamics (UDS) findings included detrusor overactivity, detrusor-sphincter dyssynergia, hypotonia/areflexia and decreased compliance. Meta-analysis and systematic review demonstrated varying degrees of success from untethering: improvement in UDS ranged from 5 % to 93% and improvement in urological symptoms ranged from 17% to 70%. These wide ranges are due to inconsistent classification and definition of terms, patient selection bias, and the varied timing of surgical intervention. Untethering produced a statistically significant reduction in the pooled odds ratio for urinary incontinence by 89.1% (61.8%-96.7%) and detrusor overactivity by 63.4% (20%-83.2%).

CONCLUSIONS
These results prompted several conclusions. First, the different subgroups and different nomenclature of tethered cord syndrome are often confused, making interpretation of results difficult. Second, untethering has a positive effect on urologic symptoms and urodynamics parameters. Third, timing of untethering is important: early intervention prevents significant long-term traction aiming to avoid irreversible neurologic damage. Fourth, a multidisciplinary team is required for diagnosis and treatment of occult spinal dysraphism.
A NEW PORTABLE TRAFFIC LIGHT-LIKE ULTRASOUND BLADDER SCANNER FOR PATIENTS

María FERNÁNDEZ-IBIETA, Nerea GONZALEZ-TEMPRANO, Flor VILLALON-FERRERO, Leyre LARREINA, Eider ETXART-LOPETEGI, Jose Luis RAMOS-GARCÍA, Alex URBISTONDO, Gloria CHOCARRO-AMATRIAIN, Mariona SUÑOL and Iñaki EIZAGUIRRE

Hospital Universitario Donostia, Pediatric Surgery, 20014, SPAIN

PURPOSE
Vesicoureteral reflux and residual urine ultimately cause kidney damage and urinary infections in both neurogenic bladder and bladder dysfunction. In both scenarios, it would be useful to define the presence of Post Voiding Residual (PVR), in an outpatient basis and in real time, in order to proceed to clean catheterization or new urination, as appropriate, and only if necessary. A portable and personal ultrasound bladder scanner, that could be handled by each patient, was designed. The goal was to create a device that would only discern, in an outpatient basis, and in real time, whether a significant PVR exists or not.

MATERIAL AND METHODS
A B mode ultrasound transducer device capable of detecting “water” signal and translating this quantitative signal into a color code was designed. Color code was defined according to International Children Continence Society PVR limit values: green (<20 cc), amber (20-50 cc) and red (> 50 cc), depending on the amount of PVR detected after micturition or catheterization. This new prototype has been developed under collaboration of both public regional health and bio-engineering institutions.

RESULTS
A 390 gr and 14 cm ultrasound probe that includes:a) a convex 2.30 MHz B mode linear transducer and b) a 12 V LED driver or color-coded terminal (red, amber, green) that lights after bladder volume measurement. If green lights, there is no need for catheterization nor double micturition. Accuracy: 10% of detected PMR; volume range: 0-500. Scanning method: sectorial, 180º; Maximal depth: 100 mm. Data can be downloaded from the probe to a personal computer through an USB port.

CONCLUSIONS
This personal and portable ultrasound device is actually under phase II clinical essay. Clinical benefits include: portability, easy understanding, easy diagnosing, preventing unnecessary catheterization, (verifies empty bladder) and monitoring postoperative urinary retention. This personal and portable traffic light like ultrasound bladder scanner facilitates management and understanding of PVR.

URETHRAL MINI-SLING FOR THE TREATMENT OF PEDIATRIC NEUROGENIC SPHINCTER INCOMPETENCE

Jimena ESNAOLA, Roberto VAGNI, Eddys FORTUNATO, Anahi SALOMON, Maria ORMAECHEA, Juan MOLDES and Francisco DEBADIOLA

Hospital Italiano Buenos Aires, Pediatric Urology, Caba, ARGENTINA

PURPOSE
Pediatric neurogenic lower urinary tract dysfunction are the most common cause of sphincter incompetence (SI).
There are many alternatives to surgical treatment of urinary incontinence caused
Objective: To present our experience in implementing mini-sling (MS) as minimally invasive option
in selected patients.

MATERIAL AND METHODS
Prospective study. 31 neurogenic patients were included. 20 females and 11 males (1.8: 1). Period:
November 2009 to June 2016. Average age: 11.8 years.
A MS was indicated for treatment of SI.
All in clean intermittent catheterization (CIC).
The initial urodynamic pressure loss (LP) was 23.3 (15-40 cm H2O)
Perineal approach in men and vaginal approach in women.
Retrograde urethral pressure (PUR) was measured initial and subsequent to the introduction of MS
16 patients (51.6%) had previous urologic surgeries.
In 10 patients (32.2%) concomitant urological procedures were performed.
Clinical and urodynamic evaluation and monitoring.

RESULTS
Mean operating time: 40 minutes.
PL increased to 33.4 cm H2O (increased 43.3%).
24 patients (77.4%) remain dry for more than 3 hours.
Complications: A patient with self-limited bleeding. Another with urethral stricture requiring continent
urinary stoma. A male presented surgical wound dehiscence requiring toilette. 1 case of erosion
No man presented difficulty CIL after implantation.
Follow up (median): 42 (2-81) months.

CONCLUSIONS
The MS is a safe, feasible and useful option for the treatment of neurogenic urinary incontinence IE.
In this indications we should know that patientes depend on CIC and it wil be succesful with PL prior
to placement under 20 cm H2O.

S25-14 (P without presentation)

SACRAL NEUROMODULATION IN CHILDREN WITH NEUROGENIC BLADDER: IS IT EFFECTIVE IN ALL?

Giovanni MOSIELLO¹, Ana Ludy LOPES MENDES², Ilaria JANSEN³,
Antonio ZACCARA⁴, Maria Luisa CAPITANUCCI⁴ and Mario DE GENNARO⁵

1) Bambino Gesù Children’s Hospital, Paediatric Surgery , Neuro-Urology, Rome, ITALY - 2) Bambino Gesù Pediatric
Hospital, Department of Surgery, Rome, ITALY - 3) AMC, Department of Urology and Department of biomedical
engineering and physics, Amsterdam, NETHERLANDS - 4) Bambino Gesù Pediatric Hospital, Urology and Robotic,
Rome, ITALY - 5) Bambino Gesù Pediatric Hospital, Robotic and Surgery, Rome, ITALY

PURPOSE
In pediatric patients with neurogenic bladder (NBD), sacral neuromodulation (SNM) role is unclear
and results are controversial. The aim of this study is to analyse the effectiveness of SNM in children
with congenital and acquired NBD, for identifying a selective group candidate with better functional
response.

MATERIAL AND METHODS
From 2008 to 2016, 45 patients with NBD non-responding to anticholinergics or onabotulinum toxin A
have been treated with SNM, according to our protocol approved by our Institution. We have
evaluated only patients with NBD congenital and acquired, aged <18 years and with a minimum
follow-up for at least 24 months. Patients have been operated after a written consent was obtained
and surgical procedure was performed with 2 stages procedure, as in adults. SNM was performed using Interstim II, Medtronic. Patients were considered responders and non-responders, basing on improvement of Urodynamics and clinical parameters such us voiding diaries, Post voiding residual (PVR) or necessity of CIC. Statistical analysis was performed using SPSS.

RESULTS
26 children, with a mean age of 14.1 ± 3.07 years old underwent SNM implantation. 9 patients with acquired NBD and 17 patients with congenital NBD have been included. An overall success rate was observed in 81% of patients. Responders were most represented by acquired NBD 8/9 patients (88%) versus congenital NBD 13/17 (76.5%), with at least 50% of urodynamics and clinical improvement. The need of CIC in the 2 groups decreased from 3.67 ± 1.0 to 1.75 ± 0.95. PVR improvement was observed in 30.7% of patients with congenital versus 57.1% of patients with acquired NBD.

CONCLUSIONS
SNM is an effective treatment in paediatric patients with NBD. Our results suggest a better response in acquired NBD.
HOW WE IMPROVED LAPAROSCOPIC PYELOPLASTY TRAINING

Pedro Jose LOPEZ1, Yolanda PULLIN2, Francisco REED1, Nelly LETELIER3, Danielle REYES3, Francisca YANKOVIC1 and Ricardo ZUBIETA4

1) Exequiel González Cortés, Urology, Santiago, CHILE - 2) Hospital Exequiel Gonzalez Cortes, Urology, Santiago, CHILE - 3) Exequiel González Cortés, Urology, Santiago, CHILE - 4) Exequiel González Cortés, Urologia, Santiago, CHILE

PURPOSE
Laparoscopic pyeloplasty is the gold standard surgery for resolution in a pelviureteric junction obstruction (UPJO). 1 Being one of the most demanding minimally invasive surgeries in pediatric urology, training in laparoscopic surgery is hard and special skills should be acquired. We believe that better realistic and less stressful training methods should be implemented. Our objectives are to enhance training skills for better surgical outcomes also reduce stress related to learning by simply following a step by step protocol.

MATERIAL AND METHODS
We created a video to demonstrated how we tested the previous published step-by-step protocol. 2 A prospective study was conducted in our institution including 12 patients > 5 kg with UPJO. These patients were separated in 2 groups Group A (Surgeons) and Group B (Trainees). Group A was indicated to perform their procedure technique of choice and Group B was indicated to perform the procedure following the step-by-step protocol. Surgical time from incision to skin closure was measured.

RESULTS
A reduction in surgical time from 157 (120-200) minutes in group A to 150 (90-210) minutes in group B was achieved. No complications where observed after surgery in both groups. Minimum follow up of 12 months with a dynamic scintigraphy showed no obstructed.

CONCLUSIONS
We improved duration and quality of surgery by applying the protocol and practicing the procedure as many times as possible this guarantees a better outcome. Making a step-by-step training surgical protocol for each laparoscopic procedure, which should be interiorized by the trainee, could shorten the learning curve and bringing confidence to the resident in her/his future career. With this surgical protocol, a kind of repeated "brain surgery" is taken in every procedure (assisted or performed), helping in the step-by-step of the surgery.
LAPAROSCOPIC URETEROUURETEROSTOMY FOR RETROCAVAL URETER – CASE PRESENTATION

Y. RUDIN, D. MARUKHNENKO and G. LAGUTIN

N. Lopatkin Scientific Research Institute of Urology and Interventional Radiology, Paediatric Urology Department, Moscow, RUSSIAN FEDERATION

AIM & PATIENT
To share our experience of laparoscopic ureteroureterostomy (UU) that we successfully applied for surgical therapy of retrocaval ureter.


CT S-shaped appearance of the Right upper ureter due to the location of the ureter posterior to the inferior vena cava (IVC). Right kidney function satisfactory.

PROCEDURE
Laparoscopic Right Ureteroureterostomy. Left side lumbotomy position. Infraumbilical approach, 5mm optic and working ports x2 in triangular arrangement. JJ stent 6Ch 26 мм. Operative time - 57 min.

The point of the ureteric obstruction behind the IVC was located. Just above this point the distended ureter was transected. The both ends then were relocated in the antevasal position.

The care was taken to prevent devascularisation of the diveded ends. The distal narrowed part was spatulated at the length approximaetly 4.0-5.0 cm. The anastomosis was carried out using continuous suture 6/0 monocryl.

RESULTS
Prompt uneventful recovery. Discharged on the day 5. Stent removed in 1 month. Follow up at the intervals 3, 6 and 9 months. Asymptomatic. US - remarkable improvement in the pelvio-caleceal appearance.

CONCLUSIONS
Laparoscopic approach is very convenient to run ureteroureterostomy for retrokaval ureter.

URETEROVESICOSTOMY: A FRESH APPROACH TO PRIMARY MEGAURETER

J.M. MING, F.A. ALYAMI, A.J. LORENZO and M.A. KOYLE

Hospital for Sick Children, Urology, Toronto, CANADA

PURPOSE
The approach to a massively dilated ureter in an infant can be quite complex. Multiple surgical options exist, including cutaneous ureterostomies and ureteral re-implantation. Here we would like to introduce a new approach of a non-dismembered refluxing anastomosis for the repair of primary megaureters.

PATIENT AND METHODS
A 2 month old male with bilateral primary megaureters presented to clinic with a history of one febrile urinary tract infection and worsening grade IV hydroureteronephrosis. Renogram revealed 50% split function with delayed drainage of the ureters. After appropriate counseling, his family elected to undergo bilateral ureterovesicostomies in the operating room.
A pfannenstiel incision was used to mobilize the bladder and distal ureters. The ureters were minimally dissected, taking care to avoid compromising the vascular supply, down to the level of the bladder. The medial edges of the bilateral ureters were incised and brought together medially with 6-0 PDS suture creating a Wallace anastomosis posteriorly. The lateral ureteral edges were anastomosed to the posterior bladder wall using 4-0 vicryl suture creating the anterior plate of the Wallace anastomosis. The patient had an uneventful postoperative course and discharged on postop day two with prophylactic antibiotics. A foley catheter was left in place for four days.

CONCLUSIONS
This refluxing side-to side ureterovesicostomy is a useful technique for managing megaureter in infants. It has the benefits of adequately draining the kidneys while preserving the distal ureters for a future reimplantation, if necessary.

VS-4 (VS without presentation)

A SIMPLIFIED APPROACH TO CORRECTION OF PENILE CONCEALMENT EMPLOYING SCROTAL MOBILIZATION

Gregory DEAN, Joshua JONES, Ziho LEE, Daniel PARKER, Jonathan ROTH and Michael PACKER

Temple University, Urology, Philadelphia, USA

PURPOSE
Penile Concealment with inadequate shaft length can be challenging to manage, particularly when a family desires circumcision. Traditional approaches for correction include techniques where shaft length is achieved through excision of of peno-scrotal webbing followed by skin approximation. We have devised an alternative approach which preserves the scrotal skin, yet provides good ventral skin coverage.

MATERIAL AND METHODS
We demonstrate this approach in a boy with inadequate ventral shaft length whose family requested circumcision. During the procedure we deglove the penis and free deep tethering bands at the penopubic junction. We also incise the penile skin on the ventral surface from the coronal margin to the penopubic junction and then retract the superficial scrotum posteriorly. Midline scrotal fat is exposed and divided followed by posterior mobilization and re-positioning of the scrotum. This permits ventral unfurling of the prepuce which provides shaft skin coverage.

RESULTS
This technique is easily performed in an ambulatory setting and has been widely applied to our patients with penile concealment who are undergoing circumcision.

CONCLUSIONS
Penile concealment correction with scrotal mobilization provides excellent cosmetic results and is well tolerated by patients. Preservation of the scrotal skin provides for a natural penoscrotal junction with decreased wound healing requirements.
ANTERIOR URETHRAL SYRINGOCELE WITH POSTERIOR URETHRAL VALVES: A RARE ASSOCIATION

Anand UPASANI1, Ruth KWONG2, Anu PAUL2, Nav JOHAL2, Bernadita TRONSCOSO-SOLAR2 and Peter CUCKOW2

1) Great Ormond Street Hospital, London, Paediatric Urology, Eastleigh, UNITED KINGDOM - 2) Great Ormond Street Hospital, Paediatric Urology, London, UNITED KINGDOM

PURPOSE
We present a 4 day old neonate with bilateral antenatal hydroureteronephrosis and renal impairment with a rare combination of anterior urethral syringocele and posterior urethral valves. We would like to share the endoscopic findings correlated with preoperative imaging.

MATERIAL AND METHODS
After initial acute management of renal impairment, pre-operative imaging with renal ultrasound was performed and it confirmed findings of bilateral hydroureteronephrosis. A micturating cystourethrogram revealed a torturous urethra and a dilated posterior urethra, raising the suspicion of anterior urethral pathology as well as posterior urethral valves. Cystourethroscopy confirmed the diagnoses. The valves were ablated and the anterior urethral syringocele was deroofed.

RESULTS
The baby made an uneventful recovery and is now voiding spontaneously with a good stream and has stable renal function.

CONCLUSIONS
It is a rare occurrence for two urethral pathologies to present at the same time. Posterior urethral valves are well described and have an incidence of 1 in 8000 live births. Anterior urethral syringocele is an uncommon congenital abnormality of the male urethra characterised by cystic dilatation of bulbo-urethral gland ducts. It can be asymptomatic and usually occurs in isolation. Our experience with this case with dual urethral pathology will enhance awareness and knowledge in investigating and managing these conditions.
RALAUS was performed with a dissection of the bladder neck after opening of the endopelvic fascia. A posterior plane was also created between the bladder and the vagina to complete the dissection circumferentially around the bladder neck. The bladder neck diameter was measured and the corresponding cuff was wrapped around it. The cuff and reservoir tubing were brought out of the body and the peritoneum was closed keeping all AUS parts extraperitoneally.

RESULTS
At 3-month follow-up, the patient has remained dry in between voids and both her and her family are satisfied.

CONCLUSIONS
To our knowledge, this is the first described case of a RALAUS placement in children. We believe this can be safely accomplished with good outcomes and it provides an advantage for deep pelvic surgery as well as when concomitant intra-abdominal procedures are planned.

ROBOTIC PARTIAL NEPHRECTOMY IN A CHILD WITH KIDNEY TUMOR
Sibel TIRYAKI1, Burak TURNÀ2, Erkan KISMALÌ3, Ali AVANOGLU4 and İbrahim ULMAN4
1) Ege University-faculty of Medicine, Department of Pediatric Surgery, Division of Pediatric Urology, Izmir, TURKEY - 2) Ege University, Urology, Izmir, TURKEY - 3) Ege University, Radiology, Izmir, TURKEY - 4) Ege University, Pediatric Surgery Division of Pediatric Urology, Izmir, TURKEY

PURPOSE
Robotic surgery is gaining wider utility in adults; however, few reports have addressed the applicability of robotic surgery for renal tumors in children. The aim of this report is to share our experience in an 8 year-old child with a renal tumor. To our knowledge, this is the youngest case of robotic partial nephrectomy in the literature.

CASE
A 8-year-old girl presented with abdominal pain. MRI showed a 24x23x19 mm solid tumor with cystic areas restricted to the upper pole of left kidney. The mass was well-demarcated with benign features and without any signs of a malignant mass or angiomyolipoma. Left robotic partial nephrectomy was planned. There was no postoperative complications. Pathological evaluation revealed metanephric stromal tumor. The patient was discharged on postoperative day three, postoperative 6 months follow-up is event-free.

OPERATIVE DETAILS
The patient was placed in a 30-degree right decubitus position. A 12 mm trocar for the camera from the umbilicus, two 8 mm trocars for robotic arms, and two additional trocars for assistance were introduced. Descending colon was reflected medially to reach retroperitoneal space. Resection margins were evaluated using endoscopic ultrasonography. Renal artery was controlled using endo-bulldog clamps. Mass was totally resected with a safe rim of renal parenchyma. Left robotic partial nephrectomy was planned. There was no postoperative complications. Pathological evaluation revealed metanephric stromal tumor. The patient was discharged on postoperative day three, postoperative 6 months follow-up is event-free.

CONCLUSIONS
There is a worldwide tendency to perform minimal invasive surgery for kidney tumors. Partial nephrectomy can be done open leaving an unsightly long scar. Robotic partial nephrectomy is superior to laparoscopy regarding safety and handling especially during renal vascular control and resection. In the presence of an experienced team and proper conditions, we believe robotic partial nephrectomy will be the preferred option in future.
VS-8 (VS without presentation)

SINGLE-STAGE APPROACH WITH CYSTOSCOPIC-GUIDED BLADDER NECK PLICATION IN FEMALE EPISPADIUS

Tiago Elias ROSITO, Fernando Jahn Da Silva ABREU, Brasil Silva NETO, Patric Machado TAVARES, Nelson Sivonei Da Silva BATEZINI, João Vitor Quadra DOS SANTOS and Guilherme Lang MOTTA

Hospital de Clínicas de Porto Alegre - Universidade Federal do Rio Grande do Sul, Urology, Porto Alegre, BRAZIL

PURPOSE

Isolated female epispadia is a rare congenital anomaly occurring in 1 of 484,000 female live births (1) and represents a minor form of the extrophy-epispadias complex. Epispadias could be definitively diagnosed with a precise external genitalia clinical examination. Early diagnosis and surgical intervention are fundamental to achieving continence and preserving the urinary tract. This video describes the surgical management of a 3-year-old female with epispadia who underwent bladder neck plication, urethroplasty and genitoplasty via a perineal approach.

MATERIAL AND METHODS

A healthy 3-year-old girl presented with history of persistent incontinence and enuresis. Urine analysis did not reveal urinary tract infection. Urinary ultrasound was unremarkable. The physical findings include patulous urethra due to a dorsal urethral defect and bifid clitoris with lack of anterior labial commissure. These findings are suggestive of female epispadia. Voiding cystourethrogram revealed good bladder capacity with no vesico-ureteric reflux on both sides, and she was referred to correct the defects.

RESULTS

This technique of one-stage perineal approach with bladder neck plication increases the urethral and bladder neck resistance.

CONCLUSIONS

It offers the possibility of restoring cosmesis and providing continence in a single-stage surgery precluding the need for abdominal surgery to plicate the bladder neck.

VS-9 (VS without presentation)

ROBOTIC ASSISTED LAPAROSCOPIC EXCISION OF MULLERIAN REMNANT AND BILATERAL ORCHIDOPEXIES IN PERSISTENT MULLERIAN DUCT SYNDROME

Wing Suet Judy HUNG¹, Lap Yan Kenneth CHUNG², Sih Yin Nicholas CHAO³ and Wai Yip Michael LEUNG¹

¹) Queen Elizabeth Hospital, Paediatric Surgery, Kowloon, HONG KONG - ²) Queen Elizabeth Hospital, Paediatric surgery, Hong Kong, HONG KONG - ³) United Christian Hospital, Paediatric Surgery, Hong Kong, HONG KONG

PURPOSE

Persistent Mullerian Duct Syndrome (PMDS) is a rare disorder of sexual differentiation affecting 46 XY male. We reported the first robotic assisted excision of Mullerian remnant with bilateral orchidopexies in an Asian child.
MATERIAL AND METHODS
A 12 months old boy presented with unilateral impalpable testis was diagnosed to have Persistent Mullerian Duct Syndrome with Anti-Mullerian Hormone receptor mutation after serial workups. Robotic assisted laparoscopic excision of Mullerian remnant with bilateral orchidopexies was performed with Da Vinci Xi system. Cystoscopy was performed with cannulation of Mullerian remnant and bilateral ureteric openings prior to robotic assisted procedure. Three 8mm robotic ports were placed at supra-umbilical region, left and right flank and one accessory 5mm STEP port at right upper quadrant. Dissection of Mullerian remnant from both testes was performed safeguarding the vas deferens. Uterine vessels and broad ligament were cauterized and divided. The remnant was mobilized until near the insertion at prostatic urethra and divided. The short stump of insertion was closed with absorbable sutures. Bilateral transverse scrotal incisions were done and both testes were brought down to the base of scrotum and anchored.

RESULTS
Operative time was 235 minutes and blood loss was minimal. Total length of hospital stay was 5 days. There was no intraoperative or post-operative complication. Both testes remained at base of scrotum on latest follow up.

CONCLUSIONS
Robotic assisted laparoscopic approach in Mullerian provides excellent anatomical visualization and enables a more complete excision of the Mullerian remnant to minimize the malignant potential.

VS-10 (VS without presentation)

ROBOTIC ENUCLEATION FOR RENAL MASSES: OUR INITIAL URO-PEDIATRIC EXPERIENCE

Lorenzo MASIERI1, Michele LANCIOITTI2, Chiara CINI2, Francesco SESSA3, Davide VANACORE4, Davide FACCHIANO4, Luca LANDI1, Maria TAVERNA1 and Antonio ELIA1

1) Meyer University Hospital, Pediatric Urology, Florence, ITALY - 2) Meyer University Hospital, Pediatric Urology, Florence, ITALY - 3) Careggi University Hospital, Urology, Florence, ITALY - 4) Careggi University Hospital, Urology, Florence, ITALY

PURPOSE
Robotic surgery is becoming increasingly popular also in the pediatric field. Our case shows how simple enucleation can be achieved even in pediatric patients, despite the small size of the operating field requires a good experience for the correct positioning of the patient. To avoid internal/external conflicts the Da Vinci robot Xi finds particular application in pediatric urology.

MATERIAL AND METHODS
After a large case volume of ERASE technique in adult patients, we performed this technique in a 9 years girl, whose weight was 30 kg. She had a left flank pain, an incidental renal mass, positioned in the upper pole of left kidney at ultrasound, about 2,3x1,9 cm sized. MRI confirmed the presence of the renal mass and its nature partly cystic.

RESULTS
It has been used 1 trocar for the camera, two 8 mm robotic trocars, and one 5 mm trocar for assistant. The technique performed was the simple enucleation, with the removal of the mass preserving the healthy parenchyma and without clamping the pedicle. We also used the robotic ultrasound probe to better define the margins of resection. Hemostasis was achieved with Monocryl 4/0 stitches on the cleavage plane of resection and affixing hemostatic material. The operating time was 110 minutes, it was placed a drainage removed 2 days postoperatively. Hospital stay was 4 days. There were no intra and post-operative complications. Final pathological examination revealed a cystic nephroma.
CONCLUSIONS
Robotic surgery is becoming increasingly popular also in the pediatric field. Our case shows how simple enucleation can be achieved even in pediatric patients, despite the small size of the operating field requires a good experience for the correct positioning of the patient. To avoid internal/external conflicts the Da Vinci robot Xi finds particular application in pediatric urology.

URETEROPELVIC FIBROEPITHELIAL POLYP MIMICKING A STONE ON ULTRASOUND: URETERORENOSCOPY AND LAPAROSCOPY FOR DIAGNOSIS AND MANAGEMENT

Baran TOKAR, Cigdem ARSLAN ALICI and Akin KARAGOZOGLU
Eskisehir Osmangazi University, Faculty of Medicine, Department of Pediatric Surgery, Section of Pediatric Urology, Eskisehir, TURKEY

PURPOSE
Fibroepithelial polyp on ureteropelvic junction (UPJ) is a rare pathology that causes upper urinary tract obstruction. Preoperative radiological examination may not demonstrate the exact pathology. It might be determined in patients who have operation for UPJ obstruction.

MATERIAL AND METHODS
In this video, we present a 6 year old boy who was referred to our clinic with a suspicion of a diagnosis of obstructive stone on UPJ. Ureterorenoscopy showed a polypoid lesion on UPJ and laparoscopy was performed for resection and pyeloplasty.

RESULTS
The patient had a complaint of hematuria and left lumbar pain that was intensified in the last couple of days. Ultrasound showed hydronephrosis and 6 mm stone like appearance on UPJ. Ureterorenoscopy found a broad base Medusa head like polypoid lesion on UPJ with arms protruding into the pelvis and ureter. Following the lateral flank position of the patient, laparoscopic retrocolic exploration of the left kidney was done. UPJ was exposed, ureteropelvic lumen was opened with a vertical incision; the polyp was found and the segment of UPJ with the polyp was resected. Pyeloplasty was performed with a JJ stent insertion. The patient did well at six-month follow-up.

CONCLUSIONS
Fibroepithelial polyp should be considered in differential diagnosis of UPJ obstruction. It may mimic a stone on ultrasound. Endoscopic excision of polyp is possible, but a polyp that has a broad base and atypical macroscopic appearance should be excised surgically as in our case. Laparoscopic approach is a right preference for surgeons who have experience on laparoscopic pyeloplasty.
THE ARROW TECHNIQUE FOR CONGENITAL MEGAPREPUCE

Gloria Fatou ROYO GOMES¹, Romy GANDER¹, Marino ASENSIO LLORENTE¹ and Manuel LOPEZ PAREDES²

¹) Hospital Vall Hebron, Pediatric Urology Unit. Pediatric Surgery, Barcelona, SPAIN - ²) Hospital Vall Hebron, Pediatric Surgery, Barcelona, SPAIN

PURPOSE
Congenital megaprepuce (CMP) appears like a buried penis with a wide base. The characteristics of CMP are: a stenotic preputial opening that difficults micturition and consequently enlarged inner prepuce shaft; an absent penopubic and penoescrotal angles due to abnormal fixation of the dermis; and a limited penile shaft skin for its reconstruction. In symptomatic patients an early surgical correction is needed. The purpose of this Video it’s to describe the technical details for the correction of CMP.

MATERIAL AND METHODS
The arrow technique has been performed in 4 children. An arrow incision was carried out in the ventral skin; the incision started from the preputial ring and ended in the penoescrotal junction. Afterwards a total degloving, excision of the redundant prepuce and dartos fascia was performed. The dermis of the penopubic and penoescrotal angles were fixed to the Buck’s fascia to avoid recurrence. The lateral flaps were rotated up to the balanopreputial groove and sutured by Z-plasty fashion in the ventral shaft. In very large ventral defect a rotational scrotal flaps to the midline were needed. A Foley bladder catheter and a foam compressive dressing were left for 48 hours.

RESULTS
All patients attained good cosmetical and functionals results, with uneventful course and remain asymptomatic. No immediate postoperative complications were collected in these patients.

CONCLUSIONS
The arrow technique for (CMP) is an easy approach and reproducible technique with good functional and cosmetic results.

HIGH-PRESSURE BALLOON DILATATION FOR ORTHOTOPIC URETEROECELE TREATMENT

Alberto PARENTE¹, Laura BURGOS², Ruben ORTIZ² and Jose Maria ANGULO²

¹) Gregorio Marañón University Hospital, Pediatric Surgery, Madrid, SPAIN - ²) Gregorio Marañón University Hospital, Pediatric Urology, Madrid, SPAIN

PURPOSE
Transurethral puncture or endoscopic unroofing is the most common treatment currently used for both orthotopic and ectopic ureteroceles. However, incidence of secondary vesicoureteral reflux is high and usually a subsequent procedure is needed. We present a new technique for treatment of orthotopic ureterocele.

MATERIAL AND METHODS
We analyzed 9 patients with orthotopic ureterocele (9.7 ± 6.2 months old) treated by dilatation of the meatus. No patient had vesicoureteral reflux or duplicate system. The indication was pyonephrosis in 5 children and progressive worsening of hydroureteronephrosis in 4. Dilatation was performed with a 5 mm high-pressure balloon after inserting a stent through a 0.014” guidewire.
RESULTS
There was no intraoperative or postoperative complication and surgical time was 19 ± 9 minutes. All patients were discharged at 24 postoperative hours. Ureterohydrounephrosis disappeared in all the children and they stay asymptomatic after 24 ± 28.5 months of follow-up. There was no case of secondary vesicoureteral reflux and renal scan remained unchanged after treatment.

CONCLUSIONS
Treatment of orthotopic ureterocele by high-pressure balloon dilatation of the meatus is a fast, safe and successful surgical technique. We did not find any case of secondary vesicoureteral reflux and no subsequent procedures were needed. We believe this technique may offer significant benefits over transurethral puncture in such patients.

MODIFIED SHANFIELD ANASTOMOSIS FOR LAPAROSCOPIC EXTRAVESICAL REIMPLANT OF URETER: A VIDEO CASE REPORT

Anu PAUL, Navroop JOHAL and Abraham CHERIAN
Great Ormond Street Hospital, Paediatric Urology, London, UNITED KINGDOM

PURPOSE
Extravesical reimplantation of the ureter is a well established technique. When performed laparoscopically, the most challenging step is creating the water-tight ureterovesical (UV) anastomosis which requires advanced laparoscopic suturing skills. We demonstrate laparoscopic extravesical reimplant of the ureter with a modified Shanfield anastomosis simplifying the process. The UV anastomosis described is a modification of the Shanfield anastomosis first described in 1972.

MATERIAL AND METHODS
A vertical extramucosal detruserotomy is created to provide the submucosal tunnel for the ureter. The bladder is entered at the inferior end of the prolapsed mucosa. The ureter is spatulated for about 5 mm and prolapsed into the bladder. The UV anastomosis is made between the seromuscular layer of the bladder wall and the serosa of the ureter, 1cm proximal to the end of the ureter. This ensures that the end of the ureter is well prolapsed into the bladder. Usually 3 sutures suffice to fix and stabilise the anastomosis before closing the extramucosal tunnel.

RESULTS
Our patient, a three year old, who underwent undiversion of an end ureterostomy with laparoscopic reimplant in the method described above, made a rapid recovery and remains infection free.

CONCLUSIONS
The modified Shanfield UV anastomosis, when utilised for laparoscopic extravesical reimplant of the ureter, simplifies the procedure and potentially shortens operating time.
MINIMALLY INVASIVE APPROACH FOR THE TREATMENT OF MULTILOCULAR CYSTIC NEPHROMA IN CHILDREN

Francisco REED¹, Francisca YANKOVIC¹ and Pedro-José LOPEZ²
1) Clinica Santa Maria, Pediatric Urology, Santiago, CHILE - 2) Clinica Alemana, Pediatric Urology, Santiago, CHILE

PURPOSE
Multilocular cystic nephroma is a benign entity, which requires a pathological study for a definitive diagnosis and to discard any malignant process as a differential diagnosis. Besides being a technically difficult and demanding procedure the laparoscopic partial nephrectomy is a safe and feasible therapeutic and diagnostic method.

MATERIAL AND METHODS
This video showed two paediatric patients with a diagnosis of simple renal cyst during a regular study were referred for paediatric urology management. Case 1: 2 year old female with UTI and hypertension. During a renal USG a complex renal cyst was diagnosed. Study was completed with CT scan an MRI. Case 2: 14 year old male with abdominal pain and a simple renal cyst. During yearly USG follow up a complex renal cyst was diagnosed. Study was completed with a CT Scan before surgery.

RESULTS
Partial nephrectomy was carried out in both cases without incidents trans or postop. Selective ischemia was accomplished in both cases without compromising blood flow to the entire kidney; only one required a renal parenchymal suturing. Surgical time was 120 minutes with no bleeding. Hospital in-stay was 3 days. USG controls were normal. Both cases confirmed diagnosis by pathology.

CONCLUSIONS
Minimally invasive surgery (laparoscopic or robotic) is the best approach for partial nephrectomy even in children. With the adequate expertise and skill is a safe and effective treatment for the management of renal masses in paediatric patients that could be benefited by partial nephrectomy. Nowadays this approach should be the selected technique in paediatric patients.

FULGURATION OF POSTERIOR URETHRAL VALVE WITH STONELIGHT™ HOLMIUM LASER

Patric TAVARES¹, Tiago ROSITO¹, Brasil SILVA NETO², Nelson BATEZINI², Fernando DA SILVA ABREU², Tiago BORTOLINI², Guilherme SMANIOTTO², Guilherme MOTA² and Raquel PEREIRA²
1) Hospital de Clínicas de Porto Alegre, Urology pediatric and reconstructive, Porto Alegre, BRAZIL - 2) Hospital de Clínicas de Porto Alegre, Urology, Porto Alegre, BRAZIL

PURPOSE
Posterior urethral valves (PUV) are the most common cause of bladder outlet obstruction in infants. Endoscopic management is the current standard form of treatment for PUV. The use of laser energy is an alternative to fulgurate the obstructive tissue observed in the posterior urethral valve.

MATERIAL AND METHODS
To demonstrate in this video a fulguration of posterior urethral valve with StoneLight™ Holmium Laser.
RESULTS
An infant diagnosed in utero with hypertrophied bladder with dilatation of both urinary tracts. After 72 hours of the birth, the patient underwent a VCUG that confirmed the hypothesis of PUV and showed severe ureterohydronephrosis. The neonate underwent primary fulguration of PUV using StoneLight™ Holmium Laser with 5 days old.

CONCLUSIONS
PUV ablation using laser energy is a safe, feasible and effective alternative for endoscopic transurethral treatment.

VS-17 (VS without presentation)

VAS JOINING THE URETER – MANAGEMENT DILEMMA AT UNDESCENDED TESTIS SURGERY

Venkat SRIPATHI¹, Aparajita MITRA¹, Rajiv PADANKATTI² and Kj RAGHUNATH³

¹) Apollo Children’s Hospital, Pediatric Urology, Chennai, INDIA - 2) Apollo Children’s Hospital, Pediatric Surgery, Chennai, INDIA - 3) Apollo Children’s Hospital, General Surgery, Chennai, INDIA

PURPOSE
Ectopic vasal insertion is an exceptionally rare entity with only 27 cases reported till date. These may be explained by Stephens’ Proximal Vas precursor concept i.e. encroachment of the process of ureterisation towards the Wolffian duct area. Vasal ectopia (into the ureter) seen in an undescended testis has never been reported in literature. The ensuing video presentation of the surgery is also the first of its kind.

MATERIAL AND METHODS
A 5 year old presented with a right impalpable testis. An ultrasound had reported an intra-abdominal testis near the internal ring and a right dysplastic kidney. DMSA revealed a single left functioning kidney. During laparoscopy, the vas was seen coursing upwards. Dissection showed that it terminated in a ureter attached to a dysplastic low placed kidney. In view of this unexpected development, parents were appraised and consent sought for dysplastic kidney removal. The parents were adamant that the testis be preserved at all costs. Since the vessels to the testis had been ligated in preparation for a stage I Fowler-Stephens orchidopexy, the gubernacular attachment was preserved and testis positioned in the scrotum.

RESULTS
Follow up six months later showed a well located testis though a Doppler ultrasound is awaited. The dysplastic renal moiety along with the ureter and ectopic vas were excised.

CONCLUSIONS
This report represents an unusual embryological malformation during a commonly performed procedure. We believe that the possibility of an ectopic vasal insertion of an impalpable undescended testis should be kept in mind and an algorithm for management evolved. We hope our presentation will help in its evolution.
THE ASSOCIATION OF CONGENITAL URETHRAL DUPLICATION AND MEGALOURETHRA

Ahsen KARAGOZLU AKGUL, Murat UCAR, Nizamettin KILIC and Emin BALKAN

Uludag University Faculty of Medicine, Department of Pediatric Surgery, Division of Pediatric Urology, Bursa, TURKEY

PURPOSE
Congenital megalourethra and urethral duplication are rare urogenital malformations. Congenital megalourethra characterized by severe dilatation and elongation of the penile urethra. The clinical presentations of congenital urethral duplications may vary due to anatomical differences. The condition is usually diagnosed in childhood due to the presence of duplicated urethral meatus or from double stream if both are functional. In older ages, the condition is diagnosed from complications that trigger infections or obstruction or further complications if it is associated with more extensive malformations. In this case, urethral duplication was diagnosed in new-born period and both urethras were in form of megalourethra.

MATERIAL AND METHODS
The 10-month-old baby presented with penile swelling during voiding that recognized by his parents. Physical examination revealed a retractable foreskin, two external meatus of double urethra. Retrograde urethrographic and urethroscopic evaluation demonstrated urethral duplication with megalourethra.

RESULTS
Excision of the ventral megalourethra, tapering of dorsally placed megalourethra and urethroplasty were performed.

The details of the procedure was presented as a video.

CONCLUSIONS
Urethral duplication with megalourethra is an extremely rare birth defect. As our knowledge it is the first case with complete duplicated megalourethra in the literature. The treatment of the urethral duplication with megalourethra should be individualized according to the type of duplication and the clinical symptoms.

FEMALE EPISPADIAS REPAIR: THE TRANSPUBLIC-PERINEAL APPROACH

Paolo CAIONE1, Simona GEROCARNI NAPPO2 and Michele INNOCENZI2

1) Bambino Gesù Hospital, Paediatric Urology, Rome, ITALY - 2) Bambino Gesù Children's Hospital, Division of Paediatric Urology, Rome, ITALY

PURPOSE
Female epispadias (FE), the least severe defect of the exstrophy complex, is referred as very uncommon (1:480,000 female live born). It involves the urethra and partially the bladder neck (BN) with consequent urinary incontinence. Surgical repair is controversial with partially satisfying results. We present our transpubic-perineal approach.

MATERIAL AND METHODS
In lithotomic position, a 3 cm "inverted Y" incision was carried out from suprapubic midline to labia majora internal aspect. The epispadic urethral plate was mobilized between the bifid clitoris. The midline incision was depth into the retropubic space. Bladder neck and urethra were sagittally split. "Z-plasties" allowed to elongate and narrow the bladder neck and urethra on a 7-Ch catheter.
Suprapubic catheter was inserted. Adjacent muscular and connective tissue was overlapped. Pubis diastasis was approximated and monsplasty accomplished. Labia minora and bifid clitoris were approximated medially, labia majora were rotated supero-medially and vulvo-introitoplasty was accomplished.

RESULTS
Four FE girls, 15 months - 4 years aged, consecutively underwent the same procedure in the last 12 months. Surgery required 90-125 mins. Post-operative period was uneventful. The transurethral catheter was removed at day 8th and the suprapubic at day 15th. At 3-9 months follow-up, cosmetic appearance of external genitalia was almost normal and 3 girls experienced 2-3 hours day intervals without significant urine residual. One girl presented stress urinary incontinence, progressively reducing.

CONCLUSIONS
FE repair is often underestimated with disappointing results. Our procedure extends to FE the principles of perineal reconstruction adopted for exstrophy, through a limited transpubic perineal approach.

VESICOSCOPIC BLADDER NECK REPAIR IN NEUROGENIC BLADDER INCONTINENCE
Alberto PARENTE¹, Francisco Javier REED², Raquel ROJO², Ruben ORTIZ³, Laura BURGOS³ and Jose Maria ANGULO³

1) GREGORIO MARAÑÓN UNIVERSITY HOSPITAL, PEDIATRIC SURGERY, Madrid, SPAIN - 2) Clínica Santa Maria, Pediatric Urology, Santiago De Chile, CHILE - 3) Gregorio Marañon University Hospital, Pediatric Urology, Madrid, SPAIN

PURPOSE
Over the years, many options for improving bladder outlet resistance in neurogenic bladder have been described. Minimally invasive techniques are becoming more popular due to the difficult access to this surgical area. We present the vesicoscopic technique for bladder neck plasty on the anterior bladder wall.

MATERIAL AND METHODS
A 14 years-old patient with neurologic sphincter incontinence and previously failed of endoscopic surgery was operated on. The surgery is done with the patient placed in the lithotomy position. During cystoscopy, two 3-mm ports and one 5-mm port are inserted into the bladder under direct transurethral vision. The bladder is insufflated with CO2. A 12 Fr catheter is placed in the urethra and percutaneously fixed to the anterior abdominal wall. A U-shaped incision is made around the bladder neck with a monopolar cautery. The strip is tubularized with full-thickness suture and therefore the intravesical part of the urethra was elonged approximately 2 cm.

RESULTS
Operation time was 151 minutes and postoperative hospital stay was 2 days. The intravesical suprapubic drain was removed the 2nd postoperative day and the urethral catheter was removed on 15th postoperative day. Transurethral clean intermittent catheterization was restarted without complications. Patients are dry after 6 months.

CONCLUSIONS
Vesicoscopic bladder neck plasty is a relatively minor surgery with excellent cosmetic outcome and quick recovery. More patients and more extensive follow-up is necessary for validation.
MACEDO PROCEDURE: CONTINENT CATHETERIZABLE ILEUM-BASED RESERVOIR – STEP-BY-STEP VIDEO

Tiago ROSITO¹, Eduardo CACHOEIRA¹, Patric TAVARES¹, Nicolino ROSITO², Guilherme MOTA¹, Fernando ABREU¹ and Brasil SILVA NETO¹

¹) Federal University of Rio Grande do Sul, Pediatric and Reconstructive Urology, Porto Alegre, BRAZIL - 2) FFFCMPA, Pediatric surgery, Porto Alegre, BRAZIL

PURPOSE
Lower urinary tract symptoms in patients with spinal cord injury, multiple sclerosis, or spina bifida can significantly affect patients’ quality of life.
Macedo et al. described an original procedure that enables the production of a catheterizable channel made with an ileal flap tube from the same segment used to create the reservoir. We have been doing this surgery for the last 6 years with good results.
The goal of this video is to demonstrate the step-by-step procedure to facilitate this understanding and so that it can be performed easily by other pediatric urologists.

MATERIAL AND METHODS
We present a case of a 16-year-old male patient with spinal cord injury, reduction in bladder capacity and a urethral trauma due to clean intermittent self-catheterization.
The technique consists of isolating a 35 cm segment of the distal ileum. The intestine is detubularized and a 3 cm flap is created and the ileum reminder is opened longitudinally. The 3 cm flap is cranially mobilized and tubularized around a 14F Foley tube. The valve continence is reached by embedding the tube over a serous-lined extramural tunnel. The reservoir is anastomosed to the bladder.

RESULTS
The Foley catheter is left indwelling through the stoma for three weeks and a cystostomy tube is left until catheterization start. Total operative time was 200 minutes and patient was discharged home at POD 10. Blood loss was estimated in 300 ml.

CONCLUSIONS
Our video demonstrates a step-by-step approach to a challenging problem in pediatric urology. Macedo procedure should be considered in patients who need augmentation cystoplasty and a catheterizable channel.
ONE STAGE UETHEROPLASTY BY ASOPA VENTRAL SAGITTAL UETHEROTOMY USING ORAL MUCOSA GRAFT AND GLUE IN A PATIENT WITH TWO PREVIOUS HYPOSPADIAS SURGERIES

Tiago ROSITO¹, Eduardo CACHOEIRA¹, Guilherme MOTTA¹, Fernando ABREU¹, Patric TAVARES¹, Nicollino ROSITO² and Brasil SILVA NETO¹

1) Federal University of Rio Grande do Sul, Pediatric and Reconstructive Urology, Porto Alegre, BRAZIL - 2) FFFCMPA, Pediatric and Reconstructive Urology, Porto Alegre, BRAZIL

PURPOSE

Hypospadias is a congenital abnormality occurring in 1/300 live births, and is the most common congenital penile anomaly. Urethral stricture are among the most common complication after hypospadias repair. The aim of this video is demonstrate step-by-step of one-stage urethroplasty using oral graft and glue by ventral sagittal urethrotomy for penobulbar stricture a patient with two previous hypospadias surgeries.

MATERIAL AND METHODS

The patient is a 16-year old male with two previous surgeries to repair hypospadias at age 3 and 12 with lower urinary symptoms. We performed a penile ultrasound because patient not tolerated urethrocytography due to psychiatric problems and it demonstrated a 1,5 cm stricture at penobulbar urethra.

RESULTS

The operative time was 90 minutes and patient was discharged home on post-operative day 1, with removal of the Foley catheter after 3 weeks. There was no surgical complications and patient is satisfied with his urinary pattern 2 months after surgery.

CONCLUSIONS

The use of oral mucosa and glue with ventral sagittal incision for one-stage penile urethroplasty is feasible and efficient for the management of penobulbar urethral strictures, which may be further studied in a larger number of patients.

RIGHT TRANSPERITONEAL LAPAROSCOPIC URETEROCALICOSTOMY AFTER FAILED OPEN PYELOPLASTY IN A 5-YEAR-OLD CHILD

Thomas BLANC, Sylvie BEAUDOIN and Yves AIGRAIN

Necker Enfants Malades University Children Hospital, Department of pediatric surgery and pediatric urology, Paris, FRANCE

PURPOSE

Ureterocalicostomy is indicated for reconstruction of recurrent, recalcitrant UPJO associated with postoperative fibrosis and a relatively inaccessible renal pelvis.

MATERIAL AND METHODS

We performed a laparoscopic ureterocalicostomy in a 5-year-old boy (18 kg). He was operated at 18-month-old for prenatal diagnosis of UPJO (36 mm pyelocaliceal dilatation) via an anterior extra peritoneal approach. Postoperative follow-up showed a persistent dilatation without impairment of renal function. He turned to be symptomatic at 5-year-old (flank pain).
Before redo surgery, workup included ultrasound, CT scan and renal scan. The patient was placed in supine position. Four 5-mm ports were placed. The colon was reflected medial. Extensive fibrotic changes made dissection of the small right intrarenal pelvis, covered by the renal vessels, impossible. The proximal ureter was dissected to the point of obstruction, and the ureter was ligated with absorbable suture and transected at that level. The ureter was then trimmed back to a point at which it was well vascularized and it was spatulated. Renal parenchyma was excised from the anastomotic site to enter substantially the lower pole calix and to prevent reobstruction. Neither cross clamping of the renal hilum nor coagulation were done to control bleeding from the cut parenchymal margin. A mucosa-to-mucosa ureterocaliceal anastomosis was performed with running 5-zero absorbable suture over a JJ stent. No omental or peritoneal flap was brought to the anastomotic site. A drain was inserted.

RESULTS
Total operating time was 240 minutes with minimal resultant blood loss. He recovered well and was discharged home on postoperative day 2. At 1 year, patient remains without symptoms and a renal scan at 6 months showed further improvement in drainage.

CONCLUSIONS
The success of ureterocalicostomy depends not only on the patency of the anastomosis, but also on providing gravity-dependent drainage.

BIFID URETER AND PELVI-URETERIC JUNCTION OBSTRUCTION OF THE LOWER POLE: A DIAGNOSTIC AND TECHNICAL CHALLENGE

Marino ASENSIO¹, Romy GANDER¹, Gloria Fatou ROYO¹ and Manuel LOPEZ²

¹) Hospital Vall d’Hebron Barcelona, Pediatric Surgery. Pediatric Urology and Renal Transplant Unit, Barcelona, SPAIN
- ²) Hospital Vall d’Hebron Barcelona, Pediatric Surgery, Barcelona, SPAIN

PURPOSE
Ureteral duplication is one of the most common urological malformations. However, incomplete ureteral duplication with a bifid ureter is rare. The majority of the reported cases are blind ending bifid ureters and are diagnosed by urinary tract infections (UTI), stones or neoplasia. We describe a case of bifid ureter associated with pelvi-ureteric junction obstruction (PUJO) of the lower pole.

MATERIAL AND METHODS
Nine year old female patient who was referred to our hospital for right renal duplication and hydronephrosis of the lower pole, after 1 febril UTI. The renogram revealed a functioning lower-pole (right kidney 40%) with severe cortical thinning and excretory difficulty (obstructive pattern). The uro-magnetic resonance evidenced dilated chalices but a large dilated pelvis was not seen. Renal ultrasound revealed a 16 mm pelvis with large dilated chalices but without dilatation of the distal ureter. The patient was scheduled for robotic pyeloplasty of the right lower pole.
RESULTS
At intervention a bifid ureter was evidenced which joined just after the exit of the pelvis of the lower pole to a single ureter. Ureteropyelostomy of the right lower pole was performed and a JJ stent was inserted leaving the proximal end in the lower pole pelvis. The patient was discharged uneventfully on the second postoperative day. Ultrasound 1 year after surgery revealed improvement of hydronephrosis with only residual chaliceal dilatation and she remained assymptomatic.

CONCLUSIONS
Incomplete ureteral duplication with a bifid ureter is rare and can be difficult to diagnose by conventional imaging techniques. The intraoperative incidental finding of this rare condition may require technical changes for its resolution.

CROSSING GONADAL VESSELS LEADING TO LAPAROSCOPIC DISMEMBERED PYELOPLASTY IN A THREE MONTHS OLD GIRL WITH A SINGLE KIDNEY

Erika LLORENS DE KNECHT, Anna BUIJONS, Jorge CAFFARATTI, Antonio ROSALES and Humberto VILLAVICENCIO

Fundació Puigvert, Pediatric Urology, Barcelona, SPAIN

INTRODUCTION
Most ureteropelvic junction obstructions (UPJ) are identified and diagnosed in the perinatal period. UPJ obstruction is the most common cause of significant dilatation of the collecting system in the fetal kidney. Bilateral UPJ obstruction is present in 10% to 40% of cases. An aberrant, accessory or early-branching lower-pole vessel is the most common cause of extrinsic UPJ obstruction.

MATERIAL AND METHODS
We present the case of a 3 month-old girl prenatally diagnosed of bilateral hydronephrosis in which the postnatal CT scan showed an atrophied left kidney and right kidney ureterohydronephrosis. A nephrostomy tube was placed in the perinatal period due to renal function deterioration. We performed a laparoscopic dismembered pyeloplasty with 5mm instruments and during the surgery crossing gonadal vessels were found to be the cause of the obstruction. We explain the procedure and share our results.

RESULTS
The operating time was 120 minutes with no significant blood loss. length of in hospital stay was 5 days. One month post surgery the renal scan showed moderately slowed tracer elimination with renal function improvement and without scintigraphic signs of obstruction. Blood serum creatinine and glomerular filtration rates are now within normal limits and the cosmetic appearance is excellent.

CONCLUSIONS
The role of crossing gonadal vessels should be considered as potential causes of ureteropelvic junction obstruction. A laparoscopic dismembered pyeloplasty is a safe and feasible treatment approach, and in our experience with optimal results.
INTRODUCTION
The incidence of a complete duplex system occurs in 0.75%, it's more common in female. Exceptionally it's presented with reflux in the lower pole and obstruction in the upper pole due to an ectopic ureterocele. Its identification and treatment is complex. If both poles have good function, a conservative reconstructive procedure can be performed, with a proximal anastomosis or a distal reimplantation of the obstructed system.

MATERIAL AND METHODS
A 4-year-old girl with bilateral complete duplex system presents at the right side: low grade reflux at the low pole and obstruction at the upper system due to an ectopic ureterocele. Because of the good renal function (>30%) a proximal ureteropyelostomy with distal ureter resection was performed.

RESULTS
In a first surgical time a Deflux® injection was done; in a second one a catheterization of the lower system in a lithotomy position was performed. Afterwards, in a left lateral decubitus position, a laparoscopic robot-assisted ureteropyelostomy and a distal ureteric resection was performed. Our surgical time was 180 minutes with less than 50ml intraoperative bleeding. The hospital discharge was after 3 days and the catheter removal after 1 month. Actually the patient is asymptomatic and with normal renal function.

CONCLUSIONS
Ureteric duplicity is uncommon, moreover if its accompanied of reflux of the upper pole due to an ectopic ureterocele. If function is conserved, a laparoscopic robot-assisted ureteropyelostomy is a valid option and feasible in specialized centres with good functional outcomes.
In this video, we present a case of laparoscopic vaginoplasty using the Davydov technique. The technique is applied with the patient in the gynecological position. First, laparoscopic exploration exposes the Douglas pouch. Thereafter the vaginal space is created from the perineum. With the help of a thick bougie dilator, the pelvic peritonium is dissected laparoscopically and then withdrawn to the perineum using clamps introduced from the perineum. Once suitable vaginal depth is achieved a thick purse string suture is used to separate the peritoneum from the vaginal cavity. The peritoneum - perineum anastomosis is performed from the perineal aspect.

The most important advantages of vaginoplasty using the peritoneum is no requirement for loss of continuity of bowels and no mucous secretion.

**VS-28 (VS without presentation)**

**LAPAROSCOPIC MANAGEMENT OF ECTOPIQUE URETER WITH VAGINAL INSERTION DIAGNOSED IN ADULT FEMALE**

Krzysztof RATAJCZYK¹, Adrian CZEKAJ², Marek FIUTOWSKI², Pawel PIOTROW² and Pawel KOWAL²

¹) Regional Specialistic Hospital In Wroclaw, Department of Urology, Wroclaw, POLAND - 2) Regional Specialistic Hospital in Wroclaw, Department of Urology, Wroclaw, POLAND

**INTRODUCTION**

Ectopic ureters are rare and usually accompanied with double collecting system. Ectopic ureter with the orifice in urethra distal to external sphincter or emptying to uterus, vagina and vestibulum may cause incontinence in females. We present a late diagnosed case of ectopic insertion of right upper pole ureter to the lateral vaginal wall.

**MATERIAL AND METHODS**

A 27-year-old female patient with normal urination presented with a continuous urine dribbling since her childhood. Ultrasound and urodynamic study results were normal. IV urography identified bilateral double collecting system. MR urography showed right upper pole ureter emptying to the vagina. An embolisation attempt was made to functionally disable upper pole collecting system of the right kidney. It was unsuccessful due to a lack of renal artery branches specific to upper pole on the angiography. Therefore, the surgical treatment was indicated. Double - J stent was inserted preoperatively to aid identification of lower pole ureter. The patient underwent a transperitoneal laparoscopic ureteropielostomy. The anastomosis of the upper pole ureter to the lower pole pelvis was made using 4-0 monofilament running suture.

**RESULTS**

The surgical time was 145 min and estimated blood loss 100 cc. The double - J stent was removed on the first postoperative day after no leakage had been observed. The patient presented with no perioperative complications and was discharged on the third postoperative day. At three months follow-up, the patient was dry and had non-dilated right renal collecting system on ultrasound.

**CONCLUSIONS**

Detection of ectopic ureter with vaginal insertion in adulthood is extremely rare. Magnetic resonance urography is the most appropriate imaging tool for determining renal collecting system anatomy and localising ectopic ureteral orifice. Laparoscopic ureteropielostomy is a safe and feasible treatment option of ectopic ureter and double collecting system for a female patient in reproductive age.
LAPAROSCOPIC PYELOURETERAL ANASTOMOSIS FOR THE MANAGEMENT OF VESICOURETERAL JUNCTION OBSTRUCTION OF UPPER POLE DUPLEX RIGHT KIDNEY.

Ilia KAGANTSOV¹, Sergey BONDARENKO², Vitaly DUBROV³, Vladimir SIZONOV⁴, Ilya SANNIKOV⁵ and Anton GOLOVIN⁵

¹) Federal State Budget Educational Institution of Higher Education «Syktyvkar State University named a, Pediatric Urology, Syktyvkar, RUSSIAN FEDERATION - 2) Regional Hospital 7, Pediatric Urology, Volgograd, RUSSIAN FEDERATION - 3) Children Hospital 2, Pediatric Urology, Minsk, BELARUS - 4) Rostov State Medical University, Pediatric Urology, Rostov-On-Don, RUSSIAN FEDERATION - 5) Republican Children’s Clinical Hospital Syktyvkar, Republic Komi, Russia., Pediatric Urology, Syktyvkar, RUSSIAN FEDERATION

PURPOSE
In this video, we present laparoscopic pyeloureterostomy in infant with obstructive megaureter of upper pole duplex kidney.

MATERIAL AND METHODS
The age of the patient is 6 months. The duplication of pelvicalyceal system on both sides, ureterohydronephrosis of the upper pole of the right kidney were diagnosed prenatally. At the age of four months the girl had acute pyelonephritis. Ureterohydronephrosis of the satisfactory functioning upper pole of the right kidney was detected. No evidence of vesicoureteral reflux was defined by voiding cystogram. Cystoscopy with insertion of the stent in to the lower pole ureter was performed. The upper pole ureteral orifice was detected in the neck of the urinary bladder. We performed laparoscopic ureteropyelostomy . Dilated ureter of the upper pole was removed.

RESULTS
Operation time was 110 min; blood loss was less than 10 milliliters. Ureteral stent was removed on the 32 day after repair. During the follow-up examination six months later, good pyeloureteral anastomosis patency has been marked, upper pole right kidney function is preserved. Pyelonephritis relapse hasn't been noted in the girl.

CONCLUSIONS
We could consider this technique as a feasible nephron-sparring procedure in cases of the obstructive megaureter of the duplex kidney.

EXTERNALISED STENTING IN LAPAROSCOPIC PYELOPLASTY: A NOVEL TECHNIQUE

Anand UPASANI¹, Anu PAUL¹ and Abraham CHERIAN²

¹) Great Ormond Street Hospital, London, Paediatric Urology, Eastleigh, UNITED KINGDOM - 2) Great Ormond Street Hospital, Paediatric Urology, London, UNITED KINGDOM

PURPOSE
Majority of surgeons leave internal stents following laparoscopic pyeloplasty which necessitates a second anaesthetic for removal. We share a novel technique of placing external nephro-ureteric stents obviating a second procedure for retrieval.
MATERIAL AND METHODS
Transperitoneal laparoscopic pyeloplasty was performed in the lateral position. Following completion of the anterior wall anastomosis, a Kirschner wire (K wire -1.6mm x 250mm, Ortho Solutions) is introduced through the cranially placed working port, and under laparoscopic vision guided through the open pelvis, middle or lower calyx and finally through the renal parenchyma to emerge on the surface of the posterior abdominal wall. A blue nephro-ureteric stent (Urosoft Multipurpose Stent 4.7Fr; Angiomed-Bard) is threaded on to the posterior end of the K wire. The K wire is then retracted through the port to deliver the stent into the pelvis to place the curl of the stent within the renal pelvis and the straight limb extending across the anastomosis into the ureter stopping well short of the vesico-ureteric junction. Post operatively, the stents were knotted at 48 hours and patients discharged. They returned for stent removal after a week.

RESULTS
8-patients, aged 3-months to 4-years had externalised nephro-ureteric stents placed. One patient had concomitant vesico-ureteric-junction obstruction which required further cystoscopy and stenting. No bleeding or other stent related complications were encountered.

CONCLUSIONS
Our method of external stenting is technically feasible, safe and reproducible. It obviates the need for a further anaesthetic and avoids potential risks of another procedure. Secondary benefits include avoiding another hospital admission.

LEFT LAPAROSCOPIC RADICAL NEPHRECTOMY IN THE NEWBORN INFANT
Ilia KAGANTSOV1, Violetta SHESTAKOVA2, Andrey KARMANOV2, Ilya SANNIKOV3 and Anton GOLOVIN3
1) Federal State Budget Educational Institution of Higher Education «Syktyvkar State University named a, Pediatric Urology, Syktyvkar, RUSSIAN FEDERATION - 2) Republican Children’s Clinical Hospital Syktyvkar, Republic Komi, Russia., Oncology, Syktyvkar, RUSSIAN FEDERATION - 3) Republican Children’s Clinical Hospital Syktyvkar, Republic Komi, Russia., Pediatric Urology, Syktyvkar, RUSSIAN FEDERATION

PURPOSE
In this video, we present left laparoscopic radical nephrectomy in the newborn infant.

MATERIAL AND METHODS
The child is 29 days old. His weight is 3,600. The tumor of left kidney under 3.5 cm in size was prenatally diagnosed by ultrasonography. Computerized Tomography Scan on kidneys was performed after the child’s birth, that showed a big tumor of the left kidney which hadn't spread beyond the organ’s margins. We made the decision to perform left laparoscopic radical nephrectomy.

RESULTS
After mobilization of renal hilum renal vein, duplicated artery and ureter were clamped separately with Gemolok and then incised. Kidney was completely mobilized and placed into a plastic bag which had been extracted out of the abdominal cavity through the additional 40m incision in the pelvic area. The drainage of the abdominal cavity wasn't necessary. Operation time was 80 min. Postoperative period was smooth; patient was discharged in the satisfactory state on the 5th day after the repair. Histopathology report mesoplastic nephroma.

CONCLUSIONS
The laparoscopic radical nephrectomy is a feasible and safe procedure in newborn with nephroblastoma.
INTRODUCTION AND OBJECTIVES
Our patient is an 18-month-old girl born full-term with ambiguous genitalia and a salt-wasting form of CAH. We present a pull-through vaginoplasty for a high confluence UGS.

METHODS
The patient is positioned in a prone jack knife position and UGS endoscopy is performed with the objective to evaluate the urethra and the vagina. Two foley catheters are positioned: one in the bladder and other in the vagina, to facilitate further dissection.

A perineal midline incision extended in a Y shape around the anal verge is made. The UGS is exposed separating the bulbospongious muscle and exposing the anterior vaginal wall from the posterior rectal wall reaching the peritoneal fold at the level of the cervix and the uterus proximally. A longitudinal incision of the UGS at 12 o'clock is extended proximally until the confluence is identified. The fully mobilized vagina is advanced towards the perineum, and the anterior vaginal wall is fixed to the urethral ventral margin. The posterior vaginal fourchette is then fashioned demarcating the length of the perineum. The labia majora are advanced to the vaginal introitus and the rest of the perineum is closed. Advancing the lateral vaginal walls to the perineum completes the repair.

RESULTS
The patient had an uneventful post-operative course with a good cosmetic outcome at the follow-up.

CONCLUSIONS
CAH can often present with high confluence UGS. In such cases, our preferred approach is a pull-through vaginoplasty, after separating the vagina from the urogenital sinus. This technique can provide good functional and cosmetic outcomes.

INTRODUCTION AND OBJECTIVES
Thulium laser presents a promising alternative to achieve tumor excision and renal hemostasis without hilar occlusion thus it preserves renal function. Its use in paediatrics partial nephrectomy has not been significantly evaluated. We report a case of pT1N0M0 papillary renal cell carcinoma at inferior pole of the left kidney in 10 year-old female patient treated by zero ischaemia open partial Thulium laser nephrectomy. This study aims to know the effectiveness and efficacy of Thulium laser in open partial nephrectomy especially in paediatrics.

MATERIAL AND METHODS
We used the Thulium laser (RevoLix DUO) with power 30 - 50 Watt and Cavitron Ultrasonic Surgical Aspirator/CUSA (SONOCA 300) in frequency 25 kHz to excise the tumor and control the bleeding.
RESULTS
The tumour diameter was 4 cm. The operative time was 180 minutes, tumor extirpation time was 33 minutes. There was no complication after surgery, blood loss 150 mL, negative tumor margins, and post op hospitalization was 4 days. The serum creatinin, glomerular filtration rate, and hemoglobin level were nearly unaltered before and after surgery.

CONCLUSIONS
Thulium laser demonstrated acceptable hemostasis and precise resection capability of the renal cortex during open partial nephrectomy without ischaemia. Our case showed promising perioperative and postoperative outcomes including minimal blood loss, zero ischaemia, negative tumor margins, short length of hospitalization, and preservation of renal function.

POSTERIOR AND ANTERIOR SAGITTAL ANORECTOPLASTY APPROACHES: APPLICATIONS OF TWO TECHNIQUES IN RECTOUURETHRAL AND RECTOGENITAL ANOMALIES IN CHILDREN
M S ANSARI
Sanjay Gandhi Postgraduate Institute of Medical Sciences, Department of Urology and renal transplantation, Lucknow, INDIA

PURPOSE
Many procedures have been described in the past to deal various rectourethral and rectogenital anomalies. Most of them had limitations like incomplete exposure, blind tunnelling of rectum, lack of anatomical reconstruction of perineal body with more anterior migration of the anus. Both posterior [PSRP] and anterior sagittal anorectoplasty [ASARP] provide better exposure of the muscle complex, rectal wall, direct vision of fistulous opening, good exposure of operative field, adequate mobilization of rectum and anatomical reconstruction of perineal body. Both the techniques have their advantages and disadvantages.
Here in the authors present their experience with Posterior [PSARP] and anterior sagittal anorectoplasty [ASARP] in various genitourinary anomalies.

MATERIAL AND METHODS
Records of pediatric patients who underwent PSARP and ASARP for rectourethral fistulae [RUF] both acquired and congenital were reviewed. Besides RUF other associated conditions were, posterior urethral stricture, posterior urethral diverticulum, duplication of urethra and rectovestibular fistula. The results were reviewed in terms of feasibility and outcome of the two techniques in these conditions.

RESULTS
Between January 2008 to June 2015, 10 patients with a median age of 5.8 yrs. underwent PSARP [n=6] and ASARP [n=4]. The indications were isolated RUF [7], RUF with posterior urethral stricture [1], RUF with posterior urethral diverticulum [1], duplication of urethra and rectovestibular fistula [1]. Two patients had recurrence of RUF in PSARP group who were successfully managed with ASARP approach. None had urinary or faecal incontinence.

CONCLUSIONS
Both PSARP and ASARP give direct access to RUF sparing the external urinary sphincter area. ASARP provides additional advantage of dealing with associated posterior urethral abnormalities like stricture urethra, diverticulum, and duplication of urethra and rectovestibular fistula avoiding trans-sphincteric approach.
HOW TO ASK QUESTIONS RELATED TO CHILD ABUSE?

Lottie PEERDEMAN1, Anka NIEUWHOF-LEPPINK2, Renske SCHAPPIN2 and Aart Jan KLIJN3

1) Wilhelmina Children’s Hospital, Utrecht, Pediatric Psychology & Social Work, Utrecht, NETHERLANDS - 2) Wilhelmina Children’s Hospital Utrecht, Pediatric Psychology & Social Work, Utrecht, NETHERLANDS - 3) Wilhelmina Children’s Hospital, Utrecht, Pediatric Urology, Utrecht, NETHERLANDS

PURPOSE

Lower urinary tract problems in children can be related to bullying, physical abuse and unwanted sexual experiences. In general, patients with incontinence are not explicitly asked about these experiences during intake for urotherapy. Healthcare professionals may be reluctant to ask about these experiences due to their own discomfort to talk about these topics and their own personal experiences. However, healthcare professionals are responsible for child wellbeing. Knowledge about these topics contributes to better diagnosis and treatment of urological problems.

MATERIAL AND METHODS

We extended our intake interview with questions about bullying, physical abuse and unwanted sexual experiences, for example “Does anyone touch your body while you don’t want it? For example between your legs, your bottom or penis?”.

RESULTS

Approximately 200 intakes have been conducted with the new interview. Among these children, 3 stated they had unwanted sexual experiences and 4 experienced bullying. Resistance and inquiry by parents occurred only once.

CONCLUSIONS

By routinely asking during intake interviews about bullying, physical abuse and unwanted sexual experiences, professionals become familiar with talking about these topics and overcome their initial discomfort. Our new intake interview has increased transparency on child abuse within our urological department. By asking children and parents about experiences of abuse, we show that it is accepted to talk about these experiences and that we can offer appropriate care. Of course, we realize that a substantial group of patients is underdiagnosed/missed. In theory, one would expect a much higher percentage of sexual abuse in this group of patients.
S1: FUNCTIONAL VOIDING DISORDERS

Moderators: Louiza Dale (UK), Magdalena Vu Minh Arnell (Sweden)

ESPU-Nurses Meeting on Thursday 20, April 2017, 09:20 – 10:40

09:20 – 09:30

S1-1 (LO)

VOIDING SCHOOL AS A TREATMENT OF CHILDREN’S FUNCTIONAL INCONTINENCE: THE DEVELOPMENT OF A PRACTICAL GUIDE FOR SUCCESSFUL REPLICATION OF THE INTERVENTION

Anneli SAARIKOSKI1, Riitta KOPPELI2, Seppo TASKINEN3 and Anna AXELIN4

1) Helsinki University Central Hospital, Pediatric outpatient clinic, Helsinki, FINLAND - 2) Pikkujätti, Private clinic for children and adolescent, Helsinki, FINLAND - 3) Helsinki University Central Hospital, Pediatric surgery, Helsinki, FINLAND - 4) University of Turku, Department of nursing science, Turku, FINLAND

INTRODUCTION
Intervention research is necessary to generate evidence about interventions which benefit patients and are cost-effective. Although urotherapy interventions have indicated to be effective, the essential elements of urotherapy have not been unambiguously identified. One reason might be that the interventions are reported unclearly and therefore cannot be reliably replicated. Voiding school for children with functional incontinence is a simple nursing intervention. First results of its effectiveness and acceptability from the children’s perspective are promising and encourage its implementation in clinical practice. The purpose of this paper is to present a practical guide, which enables health-care practitioners to replicate the intervention.

MATERIAL AND METHODS
The key components of the intervention were presented using the TIDieR (template for intervention description and replication) guideline. The TIDieR provides 12 criteria for intervention description in a rigour that enables the replication of the intervention.

RESULTS
The main elements of a written manual are: 1) Theoretical basis of the intervention (standard urotherapy, Piaget’s developmental theory and Bandura’s social learning theory) aiming to reinforce children’s self-care abilities in achieving better bladder control with changes in daily habits; 2) Educational materials and modes of delivery such as child-oriented teaching methods, learning by doing and peer-support and 3) Process of delivery of two one-day group visits at a nurse-led outpatient clinic.

CONCLUSIONS
With the help of systematic intervention description it is possible to replicate the Voiding School in different health care settings. Proper implementation in its turn enables the valid outcome evaluation of the intervention.
FRUCTOSE INTOLERANCE AS A CAUSE OF BLADDER AND BOWEL DYSFUNCTION

Hanny COBUSSEN-BOEKHORST¹, Jet VAN KUPPENVELD² and Barbara KORTMANN³

¹) University Center Radboudumc, Pediatric Urology, Nijmegen, NETHERLANDS - 2) University Center Radboudumc, Psychology, Nijmegen, NETHERLANDS - 3) University Center Radboudumc, Pediatric Urology, Nijmegen, NETHERLANDS

PURPOSE
In about 80% urotherapy is a successful conservative treatment for children with overactive bladder (OAB) or dysfunctional voiding. Regularly, other problems appear during training which can influence the effect of urotherapy. The aim is to describe a case in which fructose intolerance appeared to be the main cause of bladder and bowel dysfunction.

MATERIAL AND METHODS
A retrospective analysis of the medical, nursing and psychological history of a girl with overactive bladder wet, small bladder capacity and defecation problems was done.

RESULTS
A 5 yr old girl was referred to our hospital after recurrent pyelonephritis. She had a history of cow’s milk intolerance, nose bleedings, and a traumatic experience of hospital admissions. Her father was recently diagnosed with celiac disease. Because of a deviated urinary stream a meatal correction was performed and voiding pattern improved temporarily. At the age of 6 yrs urotherapy plus psychologic support was initially successful in combination with a gluten free diet, antibiotic prophylaxis and laxatives. After 6 months complaints worsened. Anticholinergics were added, but interrupted because of severe side-effects. Celiac disease was not confirmed. Finally, fructose intolerance was diagnosed. Anticholinergics and laxatives contain fructose. After 3 months of fructose-free diet the stomach pain, nose bleedings, bladder and bowel problems were much better. Antibiotics were stopped. One year later she is still doing well on a strict fructose-free diet.

CONCLUSIONS
Fructose intolerance is a rare condition. But in specific refractory complaints a food intolerance should be considered.

ADDED VALUE OF MICTURITION DIARY IN CHILDREN

Gunter DE WIN, Sigrid VAN DE BORNE, Natalia ZABEGALINA, Stefan DE WACHTER and Karen DE BAETS

University Hospital of Antwerp, Urology, Edegem, BELGIUM

PURPOSE
Just based on a case history, making a right therapy decision can be difficult in children with Lower urinary tract symptoms (LUTS). Often analyses are unstructured.
MATERIAL AND METHODS
From 01/02/2015 through 25/10/2016, all pediatric micturition diaries were evaluated. Following data were calculated: expected bladder capacity (EBC), average miction frequency, morning miction volume, average miction volume/day, average miction volume compared with % EBC, average fluid intake, compared with the expected fluid intake, fluid intake before 12, before 16 and after 16 hours, miction volume night, % miction volume night versus total 24 hours, % miction volume night versus day volume. Bladder sensation was indicated on a scale from 1-5.

RESULTS
127 voiding diaries were evaluated, 24 for diurnal + nocturnal diuresis, 47 for nocturnal diuresis, 30 for diurnal diuresis, 13 for urinary tract infections and 13 for other problems. By calculating, an objective result is made and a more accurate therapy could be given. The following important data could be evaluated: high/small miction volumes, amount of drinking, hours of drinking, type of drink, amount of produced urine during the night versus the day. Data is compared with normal values.

CONCLUSIONS
A proper calculated micturition diary can be an added value for treating voiding disorders.

09:50 – 10:00
S1-4 (LO)
DOES BMI INFLUENCE THE EFFICACY OF TENS TREATMENT FOR OVERACTIVE BLADDER IN CHILDREN?
Raheej KHAN¹, Massimo GARRIBOLI², Joanna CLOTHIER¹ and Anne WRIGHT¹
1) Evelina London Children’s Hospital, Paediatric Nephro-Urology and Bladder Service, London, UNITED KINGDOM - 2) Evelina London Children’s Hospital - Guy’s and St Thomas NHS Foundation Trust, Paediatric Urology, London, UNITED KINGDOM

PURPOSE
Day and night-time urinary incontinence secondary to overactive bladder (OAB) is a disorder frequently observed in children. Current therapies include urotherapy and anti-muscarinic drugs, however both have shown poor outcomes. Recently, transcutaneous electric nerve stimulation (TENS) has been demonstrated successful treatment for OAB. We aimed to assess compliance and success of TENS in our population

MATERIAL AND METHODS
We randomly selected a cohort of patients from our prospectively maintained database. Patients were prescribed TENS treatment for a maximum of 84 days. A bladder-voiding diary was completed by parents. Patients were followed-up 3 months after the initiation of treatment. Demographic data including age, gender and BMI were collected. Outcome parameters included: resolution of symptoms, length of treatment and compliance. We analysed results dividing patients based on compliance (table 2) and BMI (table 3: Underweight (BMI<18.5), normal (18.5< BMI < 25), Overweight (BMI > 25)).

RESULTS

<table>
<thead>
<tr>
<th>Measure</th>
<th>Total n=124</th>
<th>Females n=72(58%)</th>
<th>Males n=52(42%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median age</td>
<td>10(5-17)</td>
<td>11(5-17)</td>
<td>10(5-15)</td>
</tr>
<tr>
<td>Compliance</td>
<td>105(85%)</td>
<td>63(88%)</td>
<td>42(81%)</td>
</tr>
<tr>
<td>Median Days used/84</td>
<td>78(5-84)</td>
<td>78(5-84)</td>
<td>78(11-84)</td>
</tr>
<tr>
<td>No response</td>
<td>64(52%)</td>
<td>33(46%)</td>
<td>31(60%)</td>
</tr>
<tr>
<td>Partial/complete response</td>
<td>60(48%)</td>
<td>39(54%)</td>
<td>21(40%)</td>
</tr>
</tbody>
</table>
Partial/complete response was obtained in half of the patients in the analysed cohort. Compliance was high (85%). Nor BMI or compliance significantly influenced the success of the treatment.

**CONCLUSIONS**

Partial/complete response was obtained in half of the patients in the analysed cohort. Compliance was high (85%). Nor BMI or compliance significantly influenced the success of the treatment.

**PERCUTANEOUS TIBIAL NERVE STIMULATION AS TREATMENT FOR THERAPY-RESISTANT OVERACTIVE BLADDER**

Vera JANSSEN¹, Hanny COBUSSEN-BOEKHORST¹, Ini DIEK², Marleen TROMPETTER³, Barbara KORTMANN⁴ and Liesbeth DE WALL⁴

1) Amalia childrens hospital, university center Radboudumc, Pediatric Urology, Nijmegen, NETHERLANDS - 2) Isala hospital Zwolle/Meppel, Urology, Meppel, NETHERLANDS - 3) Isala hospital Zwolle/Meppel, Urology, Meppel, NETHERLANDS - 4) Amalia childrens hospital, university center Radboudumc, Pediatric Urology, Nijmegen, NETHERLANDS

**PURPOSE**

Overactive bladder (OAB) is a common pediatric disease. In 20% standard treatments are insufficient. Percutaneous Tibial Nerve Stimulation (PTNS) might promising in these children. It is proven effective in adults but inadequately studied in children. Our aim is to study effect and feasibility of PTNS. A prospective, observational study starts in 2017. We present the pilot results here.

**MATERIAL AND METHODS**

Patients of 7-16 yrs with therapy-resistant OAB of two centers were included. All patients received 30 minutes of PTNS for 12 subsequent weeks. Parameters were collected before and after treatment.

**RESULTS**

A total of 7 (4 boys/3 girls) were included, aged 9 (8-12) yrs. Maximum bladder capacity (MBC) as percentage of expected bladder capacity for age (EBC) increased with a mean of 34 (23-50) % (see table). Overall incontinence episodes decreased.
Needle puncture was not experienced as traumatic. Peers contact had additional therapeutic value. The optimal maintenance schedule is to be studied.

CONCLUSIONS
Preliminary results of PTNS in children with therapy-resistant OAB are promising. Bladdercapacity increased and overall incontinence episodes decreased. Further study results are presented in 2018.

10:10–10:20
S1-6 (LO)
THE EFFECT OF BIOFEEDBACK TRAINING ON STACCATO AND INTERRUPTED UROFLOWS OF CHILDREN WITH DYSFUNCTIONAL VOIDING

Nienke IDSARDI1, Anka NIEUWHOF-LEPPINK2, Jorinde KORTENBOUT3, Bennie TEN HAKEN4, Pieter DIK5 and Aart KLIJN6

1) University Children’s Hospital UMC Utrecht/ University of Twente, Pediatric urology/Technical Medicine, Westergeest, NETHERLANDS - 2) University Children’s Hospitals UMC Utrecht and AMC Amsterdam, Pediatric Urology, Utrecht, NETHERLANDS - 3) University of Twente, Technical Medicine, Enschede, NETHERLANDS - 4) University of Twente, Faculty Science and Technology Dept. of Neuroimaging (NIM), Enschede, NETHERLANDS - 5) University Children’s Hospitals UMC Utrecht and AMC Amsterdam, Pediatric Urology, Utrecht, NETHERLANDS - 6) University Children’s Hospitals UMC Utrecht and AMC Amsterdam, Pediatric Urology, Utrecht, NETHERLANDS

PURPOSE
The talking toilet (TT) is a home uroflowmeter designed for children that gives objective scores to flows and produces immediate spoken feedback to the child. Analysis of the TT uroflow curves of children with dysfunctional voiding, showed that, in a tertiary centre setting with patients, refractory to earlier treatment in a secondary setting, the biofeedback training produced no improvement in uroflow curves. Therefore, we did a study to compare results in a secondary, general pediatrician setting, and our tertiary situation.

MATERIAL AND METHODS
Sixty eight children with dysfunctional voiding, aged 5-16, were included in 3 groups: 25 children had standard outpatient training with addition of the TT, 13 children had standard outpatient training in a tertiary center, 30 children had standard outpatient training in a secondary center. The uroflows have been analyzed by professionals involved in urotherapy and pediatric urology and have also been analyzed using the software of the TT. Linear mixed models analyzed whether time has an effect on the scores.

RESULTS
Differences exist between the improvement of urowflows of these 3 groups. Uroflowcurves of third line referrals improve less or do not improve, compared to secondary settings.
CONCLUSIONS
Apparently, normalization of staccato uroflows in DV patients is a treatment goal that can be achieved in a secondary general pediatric setting. In a tertiary center with patients refractory to standard urotherapy normal uroflows cannot be achieved by this instrument. The TT is a useful tool in a general pediatric setting with first referrals.

10:20 – 10:30
S1-7 (LO)

NOVIOMINI – CONTINUOUS ULTRASOUND MONITORING OF URINARY BLADDER IN CHILDREN DURING (VIDEO) URODYNAMICS: A PILOT STUDY

P.G. VAN LEUTEREN¹, E. DE BRUIIJN-KEMPE¹, L. HERMSEN-HEILEMA¹, T.P.V.M. DE JONG² and P DIK¹

1) University Children’s Hospitals UMC Utrecht, Department of Pediatric Urology, Utrecht, NETHERLANDS
- 2) University Children’s Hospitals UMC Utrecht and AMC Amsterdam, Dept. of Pediatric Urology, Utrecht, NETHERLANDS

PURPOSE
Pediatric urinary incontinence has a major impact on the quality of lives of both the child and the family. For this reason, it is important that these children receive clinical help. To increase the effectiveness of their current treatment, the NovioMini Bladder Monitor is developed. The NovioMini estimates the bladder filling status and informs the patients when the bladder reaches its maximum capacity to prevent the child from wetting itself. In this study, the aim is to perform a clinical evaluation of the NovioMini in children during (video) urodynamics to examine the performance of the NovioMini over a wider range of bladder volumes and to determine if there is a relation between the anterior-posterior bladder dimension measured by the NovioMini and the infused bladder volume.

PATIENTS AND METHODS
The NovioMini is a small wearable ultrasound sensor which is fixated on the lower abdomen by a skin-friendly adhesive patch, combined with standard ultrasound gel. In this pilot study, 30 children (age 6-12 years) are included who are scheduled for a (video) urodynamic study. During (video) urodynamics, the NovioMini continuously measure the size of the bladder to estimate the filling status. The estimated bladder dimension is analyzed by descriptive statistics. The correlation between the estimated bladder size and the infused bladder volume is analyzed by the Pearson’s correlation coefficient.

PRELIMINARY RESULTS
The study is on-going, but the first results show that the NovioMini is able to measure the changes in bladder size over time, as result of an increase in bladder volume. Also, the range in detected bladder volume is promising.

CONCLUSION
The NovioMini Bladder Monitor is able to measure the changes in bladder volume, based on the detection of the bladder dimension over time. It gives a warning to the child when the pre-selected volume to go to the toilet has been reached.
URIKA – OPTIMIZED BLADDER MONITOR FOR THE DETECTION OF A FULL BLADDER IN CHILDREN WITH DAYTIME INCONTINENCE: A FEASIBILITY STUDY

P.G. VAN LEUTEREN¹, G.C.J.W. DE JOODE-SMINK², T.P.V.M. DE JONG³ and P DIK⁴

¹) Wilhelmina Children’s Hospital, Department of Pediatric Urology, Utrecht, NETHERLANDS - ²) University Children’s Hospitals UMC Utrecht, Department of Pediatric Urology, Utrecht, NETHERLANDS - ³) University Children’s Hospitals UMC Utrecht and AMC Amsterdam, Department of Pediatric Urology, Utrecht, NETHERLANDS - ⁴) Wilhelmina Children’s Hospital UMC Utrecht, Department of Pediatric Urology, Utrecht, NETHERLANDS

PURPOSE

In children at school-age (6-10 years), the prevalence of daytime incontinence equals 6-9%. Children often experience a reduced bladder sensation, which makes it difficult to recognize a full bladder. For this reason, we have developed the URIKA Bladder Monitor (UBM): a wireless ultrasound-based sensor which detects a full bladder before voiding and informs the user to prevent urinary leakage. Previous results showed that the UBM was influenced by sensor movement and a minor detection area, resulting in a detection-rate of 71%. In this study, the aim is to evaluate the feasibility of the optimized UBM after increasing the detection area and improving sensor fixation.

MATERIAL AND METHODS

The optimized UBM uses multiple ultrasound transducers, which results in an increased field of view (30 degrees). With a skin-friendly adhesive patch, the UBM transducer is positioned to the lower abdomen combined with an elastic belt. In this feasibility study, 12 children (6-12 years) with daytime incontinence are subjected to an UBM monitoring session during which a full bladder is detected four times. Transabdominal ultrasound (TUS) was used repeatedly as reference. The estimated bladder dimension are analyzed by descriptive statistics. The level of agreement between these methods are analyzed by the Pearson’s correlation coefficient and the Bland-Altman plot.

RESULTS

The optimized UBM is able to measure the changes in bladder size over time repeatedly and accurately. A pre-selected volume to go to the toilet for micturition can be installed in the system.

CONCLUSIONS

The optimizations of the UBM result in a higher detectability of a full bladder, giving a signal to the child when the pre-selected volume to go emptying the bladder has been reached.
CLEAN INTERMITTENT VAGINAL CATHERIZATION (CIVC): IS IT AN ALTERNATIVE TO VAGINOSTOMY IN MANAGING HYDROCOLPOS ASSOCIATED WITH UROGENITAL SINUS (UGS)?

Mohamed ELSAWY¹ and Abd Alnasser ALSAID²

¹) Ibn Sina Hospital, Paediatric Urology-Surgery, Kuwait, KUWAIT - 2) Ibn Sina Hospital, Pediatric Surgery, Urology Unit, Shuweikh, KUWAIT

PURPOSE
Vaginostomy has been practiced as a standard procedure in drainage of hydrocolpos with UGS. We herein emphasize the effectiveness of CIVC in drainage of hydrocolpos in patients having UGS. The advantage of this non-invasive technique in facilitating reconstructive surgery by avoiding Vaginostomy and its related complications.

MATERIAL AND METHODS
7 patients of pure UGS (without ambiguous genitalia) presented during first week of life with clinical and ultrasound findings suggestive of huge hydrocolpos. 5 patients underwent Genitoscopy to study the anatomy and vaginal orifice was seen stenotic on the floor of the common channel which was dilated with the scope and 10 Fr feeding tube was inserted for a week. After counseling the parents specifically regarding the advantage associated with avoidance of Vaginostomy related morbidity, CIVC was started and hydrocolpos was successfully drained every 8 hourly. In the other 2 patients CIVC could be performed successfully without need for Genitoscopy.

RESULTS
Follow up period ranged from 14-19 months. The mean hydrocolpos volume at presentation was 120 ml. Serial ultrasound scan on regular follow up suggested that CIVC with no 8 French feeding tube was successful in managing hydrocolpos with daily drainage of 15-45 ml with optimum parents compliance and acceptance. All patients underwent reconstructive procedure successfully without complication.

CONCLUSIONS
CIVC appears to be an easy, simple, effective non-surgical procedure in management of hydrocolpos associated with pure UGS till reconstructive surgery is performed. Awareness among treating physician may help in reducing the incidence of Vaginostomy thus facilitating reconstructive surgery and avoid long-term morbidity.
IMPACT OF RECURRENT HOSPITALIZATION IN BLADDER EXSTROPHY

Muñoz Pérez MARIA¹, Maria Teresa ALONSO TORRES², Fernández Maldonado GEMMA³, Casado Carro MARTA³, Pérez Sancho SANDRA³ and Franquet Barnils ESTHER³

¹) Fundación Puigvert, Nursing, Barcelona, SPAIN - ²) Fundación Puigvert, Nursing Department, Barcelona, SPAIN - ³) Fundación Puigvert, Nursing, Barcelona, SPAIN

PURPOSE
The European Society of Paediatric Urology estimates the incidence of bladder exstrophy in 1 / 71,000 births. It requires several surgical interventions to preserve renal function, achieve satisfactory aesthetic appearance of the genitals, preserve their sexual function and achieve continence. The objective is to describe the care process of patients with bladder exstrophy.

MATERIAL AND METHODS
A descriptive, retrospective, and Unicentric study in an Uropaediatrics Unit from 1980 to 2016, in Spain. The study population were all patients diagnosed with bladder exstrophy. The sample consisted of 113 patients. Sociodemographic variables, clinical care, and complications were collected.

RESULTS
113 patients with bladder exstrophy were studied, 36.3% boys and 63.7% girls. Number of episodes with hospitalization were 926, mean hospital stay 8.78 days (DE: 9.346). In a case, the same patient was admitted up to 33 times. Among the main reasons of income: study, complications (urolithiasis, urinary tract infections, abnormal reproductive tract, urinary tract fistulae, and urinary incontinence). Professionals make a nursing care plan tailored to the needs of patients and families, including active listening, emotional support, therapeutic education, and information when hospital discharged.

CONCLUSIONS
Recurring revenue of bladder exstrophy patients produced an emotional impact on them and their families. The nursing role is to provide care aimed at reducing psychosocial consequences arising hospitalization.
12:20 – 12:30

S2-3 (LO)

INFLUENCE OF SEXUAL FUNCTION IN QUALITY OF LIFE IN WOMEN WITH BLADDER EXSTROPHY OF REPRODUCTIVE AGE

Fernández Maldonado GEMMA¹, Maria Teresa ALONSO TORRES², Pérez Sancho SANDRA¹, Casado Carro MARTA¹, Muñoz Pérez MARIA¹ and Franquet Barnils ESTHER¹

1) Fundación Puigvert, Nursing, Barcelona, SPAIN - 2) Fundación Puigvert, Nursing Department, Barcelona, SPAIN

PURPOSE
Maintain the same care team in the transition between pediatric and adult age, favors track changes that affect sexual function. Thus the quality of life of women with bladder exstrophy is improved. Sexual function is defined as the body’s physiological function influenced by various aspects of biological, social, and emotional health. Objective: To know the quality of life and sexual function of women with bladder exstrophy of reproductive age.

MATERIAL AND METHODS
Observational and unicentric study in an Uropediatrics Unit with bladder exstrophy women born between 1972 to 1998 in Spain. The study population were all women with bladder exstrophy of reproductive age. The initial sample consisted of 20 women. Inclusion criteria were being women between 18 and 44 years, with bladder exstrophy, and signed informed consent. On-line questionnaire was sent to patients: SF-36 Health Survey, FSFI, Barthel Index and a sociodemographic questionnaire.

RESULTS
Of the 20, 1 declined to participate, with 7 not contacted. The final sample was 12, 9 women completed and returned the questionnaires. Mean age 34.9 years, 89.9% married or with a partner, 2 had children, 77.8% worked, 22.2% received professional information about sexuality, 88.8% perceived their health as good or very good, 100% were autonomous, 55.2% considered very low sexual desire or low and 44.4% were satisfied with their sexual activity.

CONCLUSIONS
Nurses should provide training on sexual function to women with bladder exstrophy and / or provide tools to help them improve their sexual function and thus their quality of life.
EVALUATION OF SOCIAL LIFE OF PATIENTS WITH BLADDER EXSTROPHY

Birsen EROGLU¹, Ezgi ALTUN¹, Meltem POLAT¹, Sibel TIRYAKI², Ali AVANOGLU³ and Ibrahim ULMAN³

¹) Ege University, Pediatric Surgery, Izmir, TURKEY - 2) Ege University-faculty of Medicine, Department of Pediatric Surgery, Division of Pediatric Urology, Izmir, TURKEY - 3) Ege University, Pediatric Surgery Division of Pediatric Urology, Izmir, TURKEY

PURPOSE
Patients with bladder exstrophy experience health and social adaptation problems which effects their school, work and sexual lives. The aim of this study is to evaluate social lives of bladder exstrophy patients over 18 years of age.

PATIENTS AND METHODS
Nineteen adult exstrophy patients who have been followed in different centers constituted the study sample. Patients were contacted through a closed social media group. Data was collected with face-to-face or telephone inquiries.

RESULTS
Mean age of 19 patients was 27.6 years (5 female, 14 male). Eighteen patients reported to use clean intermittent catheterization for continence. Three patients were able to empty their bladders with voiding. Fourteen patients were continent; however, the patients reached continence at a median age of 15 (3-31) years. Nine patients graduated from university, 9 high school and 1 primary. Three patients were still students. Only one patient was unemployed. Sixteen patients had disability reports. Twelve patients used these disability reports for gaining their jobs according to National Labor Act. Ten patients admitted to share their condition with their friends and relatives. Sixteen patients were in a relationship, three of these married and had children. Nine patients had sexual experience. All patients had to come to hospital with at least 2 months intervals for any reason.

CONCLUSIONS
Interview with adult patients revealed that they can somehow manage their school and work life but experience more problems in relationships. Disability reports seem to provide benefit in finding jobs so guidance for it is strongly recommended.
EARLY ESTABLISHMENT OF CLEAN INTERMITTENT CATHETERISATION IN INFANTS WITH BLADDER EXSTROPHY IS WELL TOLERATED

David KEENE, Doru NICOARA, Vytis KAZLAUSKAS, Alessandra SCALAS, Beverley WHITNALL and Raimondo Maximilian CERVELLIONE
Royal Manchester Children’s Hospital, Paediatric Urology, Manchester, UNITED KINGDOM

PURPOSE
The use of clean intermittent catheterisation (CIC) is a mainstay in the management of neuropathic bladder patients. Bladder exstrophy (BE) patients may also experience incomplete bladder emptying following reconstructive surgery. CIC is poorly tolerated when introduced in older bladder exstrophy children. The authors aimed to verify if CIC would be well tolerated if introduced in infancy.

MATERIAL AND METHODS
In this prospective study initiated in 2012, CIC was introduced at discharge following BE closure in infants twice a day using an 8F lofric catheter in males and a 6F lofric catheter in females. The frequency of CIC was increased if there were significant volumes drained or hydronephrosis and decreased if there were no significant urine volumes drained. The compliance to CIC was assessed at the time of follow up clinics at 3, 6 and 12 months postoperatively.

RESULTS
Twenty-six patients with classic BE were commenced on CIC following BE closure. Twenty-five patients successfully continued regular CIC. One male patient stopped CIC because the child was very active and would not keep still enough to allow CIC to be done. Twenty patients continued to receive CIC twice a day at follow up. Two patients had reduced their frequency of CIC after 6 months because of regular spontaneous voiding and low residual volumes at catheterisation. CIC frequency was increased in 2 patients to treat high residual volumes. The median length of follow up was 10 months (6.5-23.4).

<table>
<thead>
<tr>
<th></th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Successful establishment of ISC</td>
<td>100%</td>
<td>93%</td>
</tr>
<tr>
<td>Age at establishment of ISC (months)</td>
<td>6.2 (5.6-7.9)</td>
<td>6.5 (5.1-7.8)</td>
</tr>
<tr>
<td>Age at latest follow up (years)</td>
<td>1.6 (0.8-3.6)</td>
<td>1.2 (0.9-2)</td>
</tr>
<tr>
<td>Number of times CIC performed per day after 6 months</td>
<td>1 1 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 9 14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 1 2</td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSIONS
Early establishment of CIC by parents in bladder exstrophy patients is well tolerated and can be successfully continued into early childhood.
ADDED VALUE OF AMBULATORY URODYNAMICS IN CHILDREN

Natalia ZABEGALINA, Sigrid VAN DE BORNE, Stefan DE WACHTER, De Baets KAREN and Gunter DE WIN

University Hospital of Antwerp, Urology, Edegem, BELGIUM

PURPOSE

Conventional urodynamics (CU) may fail in reproducing lower urinary tract dysfunction (LUTD). CU is often unsuitable in pediatric population. Different factors may interrupt investigation or cause misinterpretation of the results. In those cases ambulatory urodynamics (AU) can help to diagnose LUTD such as overactive bladder (OAB). Furthermore, a normal CU in child with persisting complaints doesn’t rule out OAB and AU may be useful in detection of underlying pathology. The aim of our study was to evaluate the added value of AU in children.

MATERIAL AND METHODS

From 1/01/2014 through 30/09/2016, 16 patients (6 boys, 10 girls, median age 10.5 years) with LUTD underwent AU. All patients were treated based on previous CU results. Main inclusion criterion was inadequate result of therapy with persisting LUTD. AU was performed several weeks/months after CU to reassess bladder function. Age was not an exclusion criterion. Vesical and abdominal pressure was recorded outside hospital during an average of four hours using Bluetooth technology. Patients were asked to void or to catheterize and to fill in micturition and activity diaries in order to analyze events which provoke urine leakage.

RESULTS

The data of AU were compared with the CU. All of the results (100%) were evaluable and technically feasible for diagnosis. In thirteen out of 16 patients (81.3%) AU showed detrusor overactivity (DOA) which wasn’t documented previously on CU. Treatment was modified in fifteen out 16 patients (93.8%) based on AU data, leading to satisfactory results in most of the patients.

CONCLUSIONS

Ambulatory urodynamics is a good tool for detection of DOA in children where previous conventional urodynamics have failed to detect LUTD. When used correctly, it may give valuable information, on which further treatment may safely be modified.
14:00 – 14:10
S3-2 (LO)

TRANSANAL IRRIGATION FOR CHILDREN WITH NEUROPATHIC OR NON NEUROPATHIC CONSTIPATION – A RETROSPECTIVE REVIEW
Jo SEARLES¹, Govind MURTHI², Richard LINDLEY², Sarah BOULBY² and Prasad GODBOLE²

1) Sheffield Childrens Hospital, Urology, Sheffield, UNITED KINGDOM - 2) Sheffield Childrens Hospital, Urology and Continence, Sheffield, UNITED KINGDOM

PURPOSE
To review the outcomes of TAI over a 7 year period for children with intractable constipation of neuropathic or non neuropathic origin.

MATERIAL AND METHODS
111 Children (1:1 male/female) with intractable constipation as defined by Rome III criteria and soiling as per ICCS guidelines who underwent TAI were included in the study. All had been unsuccessfully treated with oral medication and with rectal medications where appropriate in line with NICE and Trust guidelines. Patients with bowel obstruction or inflammatory bowel disease and recent perineal surgery and those under 3 years were excluded. Outcome measures were resolution of symptoms and cost effectiveness of the various systems used.

RESULTS
The median age at commencement and follow up in the TAI group was 8.5 years and 2.4 years. The main indication was functional constipation in 61%; neuropathic bladder in 21% and ano rectal malformations in 11% respectively. 67.5% were completely clean; 8% had less than 4 accidents per month; 6% had more than 4 accidents per month; 1.5% were ineffective and 16% discontinued TAI. 9 of these were converted to ACE. There were no serious adverse events with TAI.

CONCLUSIONS
TAI is safe and effective for wide range conditions and ages. It has minimal complications with no serious adverse events. The procedure is easy to do and generally well tolerated and should be considered as an alternative to surgical intervention as a first line intervention in intractable constipation in children.
PARENTAL PERCEPTION ON ELIMINATION SIGNALS RELATED TO MICTURITION: A PILOT STUDY

Kelly VAN DER CRUYSSSEN¹, Stefan DE WACHTER², Guido VAN HAL³, Tinne VAN AGGELPOEL⁴ and Alexandra VERMANDEL⁴

¹ University of Antwerp, Rehabilitation Sciences and Kinesiology, Antwerp, BELGIUM - ² University of Antwerp, Urology and urological rehabilitation, Antwerp, BELGIUM - ³ University of Antwerp, Social Medicine - Medical Sociology and Health Policy, Antwerp, BELGIUM - ⁴ University of Antwerp, Rehabilitation Sciences and Kinesiology, Antwerp, BELGIUM

PURPOSE

Signals made by an infant to communicate about the need and awareness of micturition are labeled as elimination signals (ES). Elimination communication, using ES is more commonly used in developing countries. So the objective of this research is to determine the Western parental perception on these ES compared to the raters’ observation.

MATERIAL AND METHODS

The voiding behavior of 32 non-toilet trained infants (16 wearing disposable diapers, 16 wearing reusable diapers, aged 6 - 24 months) was observed and recorded. The infant was wearing a diaper containing a light box that initiated to shine when becoming wet. This light could not be noticed by the infant. During the observation, parents were asked to fill in a questionnaire on their infant’s voiding behavior.

RESULTS

Only twenty-five percent of the infants’ parents indicated that their infants occasionally displayed ES. In contrast, ES were detected by the independent observers in 46.9% of the infants. Only 6.25% of the parents indicated that their infant displayed ES before micturition compared to 31.3% of the raters. They were described as ‘interrupting their activity’, ‘having shivers over the back’ and ‘a worried or more concentrated gaze’. During voiding 15.6% of the parents detected ES whereas 34.4% of the raters reported them.

CONCLUSIONS

Western parents are not trained in recognizing ES. Knowledge of these ES will enable parents to communicate with their infant. Further research should be undertaken to explore whether implementing parent-child communication in toilet training will facilitate the development of toileting skills and will advance the acquisition of bladder control.
INFLUENCE OF THE KIND OF DIAPER ON THE PRESENTATION OF MICTURITION ELIMINATION SIGNALS: A PILOT STUDY

Kelly VAN DER CRUYSSSENI, Stefan DE WACHTER², Guido VAN HAL³ and Alexandra VERMANDEL¹

1) University of Antwerp, Rehabilitation Sciences and Kinesiology, Antwerp, BELGIUM - 2) University of Antwerp, Urology and urological rehabilitation, Antwerp, BELGIUM - 3) University of Antwerp, Social Medicine - Medical Sociology and Health Policy, Antwerp, BELGIUM

PURPOSE
Signals made by an infant to communicate about the need and awareness of micturition are labeled as elimination signals (ES). Western infants commonly use diapers to micturate and defecate until they display readiness signs. Different kind of diapers will diverge in degree of absorption. This will have an influence on the wet sensation when the infant is voiding. The aim of this study was to assess the difference in presentation of these ES when wearing a disposable compared to a reusable diaper.

MATERIAL AND METHODS
The voiding behavior of 32 non-toilet trained infants (16 wearing disposable diapers, 16 wearing reusable, less absorbent diapers, aged 6 - 24 months) was observed and videorecorded. The diaper contained a light box that initiated to shine when the sensor became wet. This light could not be noticed by the infant. Two independent researchers assessed the videorecordings of the micturition using a checklist containing twelve ES.

RESULTS
Forty-seven percent of the infants displayed ES. Infants wearing a reusable diaper displayed more ES (p=0.013). Only 25% of infants wearing a disposable diaper exhibited at least one ES compared to 68.8% wearing a reusable one. A significant difference was detected in presentation of ES during voiding (p=0.009). No difference could be detected before (p=0.127) and after micturition (p=0.197). No significant relationship was found between any individual ES and the kind of diaper.

CONCLUSIONS
The use of a reusable diaper increases awareness of voiding compared to the use of the disposable one. Parent-infant communication is facilitated possibly due to the increased wet sensation provided by a reusable diaper in contrast to a disposable diaper. Further research should focus on whether the use of the reusable diaper combined with implementation of these ES in toilet training will advance and facilitate the process.
S4: MISCELLANEOUS 2

Moderators: Anka Nieuwhof (Netherlands), Kelly van der Cruyssen (Belgium)

ESPU-Nurses Meeting on Friday 21, April 2017, 09:50–10:30

09:50–10:00

S4-1 (LO)

ORAL SEDATION FOR CATHETER PLACEMENT BEFORE CYSTOGRAPHY – MORE OR LESS

Rachel MILKH¹, Iris BRAUN², Ana BABAYEV¹, Sara BITAN³, Bezalel SIVAN², Roy MORAG¹ and David BEN MEIR¹

¹) Schneider, Pediatric Urology Unit, Petach Tikva, ISRAEL - ²) Schneider, Pediatric Urology Unit, Petach Tikva, ISRAEL - ³) Schneider, Nursing Research, Petach Tikva, ISRAEL

PURPOSE

Urological procedures such as catheter placement involve pain and anxiety to patient and caregivers. Using Midazolam to attain conscious sedation alleviates these feelings and increases the child’s cooperation. Monitoring is done due to potential side effects including respiratory depression, drowsiness and confusion. The recommended oral dose of Midazolam to achieve conscious sedation in children, is 0.25-0.5 mg/kg.

Purpose: Comparison of two doses of Midazolam with regard to quality of sedation, recovery time and family satisfaction.

MATERIAL AND METHODS

Sedation prior to catheter placement for Cystography was performed in 48 children aged 1-6 years. The procedures were performed between 2015-2016. Oral Midazolam was given at 0.3mg/kg (low dose group-LDG) versus 0.5mg/kg (high dose group-HDG). Data was collected from a family reported questionnaire and from the nurse report. The quality of sedation was graded 0-poor, 1-fair and 2-good.

RESULTS

The LDG included 27 children, the HDG 21. No demographic differences were present. The quality of sedation was slightly better in the HDG-1.95 versus LDG -1.81, but was not of statistical significance. Average recovery time was 11 minutes longer in HDG. Caregiver’s satisfaction did not differ significantly between the groups.

CONCLUSIONS

Both 0.3mg/kg and 0.5mg/kg of Midazolam attain good sedation and similar caregiver satisfaction. The recovery time was shorter in the LDG. Therefore it seems sufficient to use the lower dose of Midazolam, to attain a safe and efficient sedation, for catheter placement in young children.
COMFORT MANAGEMENT AFTER URETHRAL MANIPULATIONS IN CHILDREN

Karen KWAK¹, Jacqueline KNOLL², Femke GLAAP-ROEVEN², Robert DE GIER², Barbara KORTMANN² and Wout FEITZ²

¹) Radboud UMC Amalia Children’s Hospital, Paediatric Urology, Nijmegen, NETHERLANDS - 2) Radboudumc Amalia children’s hospital, Pediatric urology, Nijmegen, NETHERLANDS

PURPOSE
Children with urological disorders need urethral manipulations (UM) regularly. UM is a common treatment in pediatric urology and is a relative low risk operation. In our hospital these interventions take place under anesthesia, during a day care or short stay visit. In 2016 we performed more than 300 UM, this includes UM in urological surgeries such as hypospadias, but also UM for children with different kind off incontinence problems. Most children experience complications like pain, discomfort and fear to urinate for the first couple of times after the operation, in clinic but also at home. Mostly it continues for several days, or sometimes even for weeks. In our opinion these “negative experiences” need to be improved, and is better comfort management necessary.

MATERIAL AND METHODS
We have to investigate the rate of complications; facts and psychosocial impact, in order to solve these “negative experiences” after UM. We like to share and discuss the results, outcome and how to solve the medical problems and psychosocial impact in an interactive workshop. In addition to medical solutions will best practices also play a role in dealing with these experiences. We will use international literature, guidelines, classifications and standards to support our presentation and discussion.

RESULTS
The participants of the ESPU-N meeting will receive tools and learn to measure pain and how to deal with discomfort after UM.

CONCLUSIONS
Together we will explore the nursing best practices about this issue in order to increase the quality of care and postoperative comfort in low risk operations.
IMPROVEMENT OF COMMUNICATION ABOUT SEXUAL HEALTH ASPECTS WITH CHILDREN WITH A CHRONIC CONDITION

Mej J L KNOLL¹, M.M. ENGELEN², H.G.I. VAN GAAL², P.R.I. RABSZTYN³, K. J.M. KWAK², B.B.M. KORTMANN¹ and W.F.J. FEITZ¹

¹) Radboud Amalia Children’s University Hospital Nijmegen, Pediatric Urology, Nijmegen, NETHERLANDS - ²) Radboud university medical center, Radboud Institute for Health Sciences, IQ healthcare, Nijmegen, NETHERLANDS - ³) Radboud Amalia Children’s University Hospital Nijmegen, Pediatric Urology, Nijmegen, NETHERLANDS

PURPOSE

Sexual health consultation by healthcare professionals in pediatric care is not common. In our hospital the multidisciplinary team for disorders in sex development and genital urological malformations discusses all aspects, including sexual health, on a regular base. Sexual development in all children with a chronic condition can be affected with large consequences. Therefore, talking about sexuality is important, but due to lacking skills and knowledge not standard discussed by health care professionals.

MATERIAL AND METHODS

With our experience we started an improvement project about how to communicate about sexual health aspects with children with a chronic condition. The project lasts 16 months. It’s divided into 7 phases; inventory existing interventions, literature review, research and intervention development followed by the implementation and the evaluation of the intervention.

I’ll present an overview of inventory existing interventions and experiences in all pediatric university hospitals in the Netherlands and the outcome of the literature review.

RESULTS

The preliminary results show that all health care professionals endorse the fact that sexual development should be discussed in a better way. The current support in sexual health care is sparsely given and there are little existing tools used. A seven step development program has been structured to approach and solve this lack of care.

CONCLUSIONS

Sexual health communication aspects in all children with a chronic condition is clearly underexposed in pediatric care and can be improved. From our urological experience and the needs of the target groups we’ll offer new intervention tools for healthcare professionals.
PIVOTAL ROLE OF PUBLIC RELATION (PR) IN PEDIATRIC RENAL TRANSPLANT: COMPREHENSIVE COUNSELLING AND LEGAL SUPPORT

Neeraj DIXIT¹, Rajendra NERLI², Shridhar GHAGANE³, Prasad MAGDUM³, Amey PATHADE³, Shivagouda PATIL³ and Parveen DONKAR³

¹) KLES Kidney Foundation, KLES Dr. Prabhakar Kore Hospital & MRC., Department of Urology, Belagavi, INDIA - ²) KLE Kidney Foundation, KLES Dr. Prabhakar Kore Hospital & Medical Research Centre., Department of Urology, Belagavi, INDIA - ³) KLE Kidney Foundation, KLES Dr. Prabhakar Kore Hospital & Medical Research Centre, Department of Urology, Belagavi, INDIA

PURPOSE
The intervention of public relations in transplant programs is an emerging field and varies across the country from centre to centre. The aim of this study is to explore the role of public relation to counsel the families and patient who require a pediatric renal transplantation, discuss the legal procedure and regulatory aspects of transplant programs.

MATERIAL AND METHODS
We present a case of pediatric renal transplant at our centre. In July 2015, the child presented with end-stage renal disease. Unfortunately the patient’s parents were not enthusiastic to undergo renal transplant due to psychological depression, heavy cost expenses and legal formalities. The public relations counselling overcame the hindrance in clinical decision making of patient and parents for renal transplant.

RESULTS
The pre-transplant legal, ethical, psychological and other clinical formalities were completed. The child’s mother turned out to be the live donor and live related pre-emptive transplant was performed successfully in early 2016. The child and his mother were discharged from the hospital within a fortnight and are on regular follow-up.

CONCLUSIONS
Intervention of public relations into practice is discussed as a model for providing care throughout the process of renal transplantation. Public relations experts are in a unique position to expand the care for pediatric kidney transplant patients by assuming the role of clinician, educator, administrator, and coordinator.
**S5: NEUROPATHIC BLADDER**

**Moderators:** Lynne Bartlett (UK), Hanny Cobussen (Netherlands)

**ESPU-Nurses Meeting on Friday 21, April 2017, 11:00–11:20**

11:00–11:10

**S5-1 (LO)**

**PREDICTIVE FACTORS FOR DAYTIME URINARY INCONTINENCE IN CHILDREN WITH CEREBRAL PALSY**

Bieke SAMIJN¹, Christine VAN DEN BROECK², Catherine RENSON³, Piet HOEBEKE³, Johan VANDE WALLE⁴, Frank PŁASSCHAERT⁵, Anne-Françoise SPINOIT³ and Erik VAN LAECKE³

¹) Ghent University, Uro-gynaecology, Ghent, BELGIUM - ²) Ghent University, Physiotherapy and rehabilitation, Ghent, BELGIUM - ³) Ghent University Hospital, Urology, Ghent, BELGIUM - ⁴) Ghent University Hospital, Pediatric Nephrology and Rheumatology, Ghent, BELGIUM - ⁵) Ghent University Hospital, Orthopaedic Surgery, Ghent, BELGIUM

**PURPOSE**

The objective of the current study is to identify risk factors for the presence of daytime urinary incontinence (DI) in children with Cerebral Palsy (CP).

**MATERIAL AND METHODS**

A prospective study including 34 children with CP and DI and 45 continent children with CP was conducted between 2013 and 2016. Data was obtained using uroflowmetry, questionnaires and bladder diaries. Factors were subdivided in three clusters, i.e. CP classification, general medical data and bladder and bowel symptoms.

Univariate analysis was performed to determine predictive factors for incontinence. Odds Ratio (OR) with 95% confidence interval was calculated. Clustered logistic regression using a stepwise backward selection procedure was then constructed to define an associative model using one factor from each cluster.

**RESULTS**

Concerning classification of CP dyskinesia (OR 5.67), combined spasticity/dystonia (OR 4.78), bilateral involvement (OR 4.05), quadriplegia (OR 6.07) and gross motor function classification system (GMFCS) level IV (OR 10.63) and V (OR 34.00) were associated with DI. Concerning general medical data and bladder and bowel symptoms intellectual disability (OR 7.70), use of mobility and positioning aids (OR 27.50), fecal incontinence (OR 5.16), lower maximum voided volume (OR 0.97), being unable to void on uroflowmetry (complete separation between groups) and lower oral fluid intake (OR 0.96) were associated with DI. Clustered logistic regression defined GMFCS, intellectual disability and oral fluid intake as factors included in an associative model for DI in children with CP.

**CONCLUSIONS**

Risk analysis revealed that CP classification, intellectual disability and fluid intake are important factors when considering the ability of being dry in a child with cerebral palsy.
CONTINENCE CONDITIONS AND AUTONOMY; A HIGHER CHANCE FOR SOCIAL INTEGRATION OF INDIVIDUALS, 16-18 YEARS, WITH MYELOMENINGOCELE?
Magdalena VU MINH ARNELL1 and Kate ABRAHAMSSON 2
1) Queen Silvia Children’s Hospital, Sahlgrenska Academy University of Gothenburg, The Pediatric Surgery Department, Gothenburg, SWEDEN - 2) Queen Silvia Children’s Hospital, Sahlgrenska Academy University of Gothenburg, The Pediatric Surgery Department, Gothenburg, SWEDEN

PURPOSE
The majority of adults with myelomeningocele (MMC) in Western Sweden use incontinence pads. Continence requires active treatment regimen of uro/intestinal therapist and the urologist. The aim was to evaluate the level of incontinence and independence of the treatments in relation to social independence for adolescents with MMC.

MATERIAL AND METHODS
All 25 individuals with MMC (15 men) 16-19 years, were studied prospectively concerning urinary- and fecal continence. Review of medical data and interviews were made regarding; shunt, walking ability, independence of the CIC and bowel regimen, need of reminder/assistant and presence of close friend/partner. “Stay overnight” was defined; sleep overnight without family/assistant. Leakage test was conducted.

RESULTS
In the group overall 17/25(68%) were urine continent 21/25(84%) were fecal continent and 14/25(56%) were totally dry and did not use diapers or pads. Of those who stayed overnight 89% of men were urine continent and 78% were totally dry, the number for women 75% and 25% respectively. Furthermore, to stay overnight 9(60%) of the men and 3(30%) of the women did it without family or assistant. All (4men,1woman) who had sexual intercourse were urine continent. Not having reminder/assistant and to be urine continent was significant (p <0.05) correlated with having a best friend and/or to be able to sleep overnight.

CONCLUSIONS
With standardized follow-up, active treatment strategy and uro/intestinal therapy support, the continence situation in young individuals with MMC in our study are internationally high. For young people with MMC, independence and to be continent increase the possibility for social inclusion.
COMPARISON OF DURABILITY OF DIFFERENT SMALL BALLOON CATHETERS FOR TRANSANAL IRRIGATION

Sofi SIGVARDSSON and Mattias GRÄNFORS
Wellspect IH, Molndal, SWEDEN

PURPOSE
Transanal irrigation (TAI) is a well-documented bowel-management therapy in children with neurogenic bowel disorder, anorectal malformation and Hirschprung. In TAI, rectal catheters with an inflatable balloon is used. However, balloon burst is a frequent complication and may be a traumatic experience and potentially lead to bowel perforation.

MATERIAL AND METHODS
First, the Navina™ Small and Peristeen™ Small catheter, respectively, was attached to an electronic pump blowing air into the balloon. Diameter of the balloon at time of burst was measured. Second, the respective catheter was put into a rigid plastic tube with a diameter of 46 mm and the balloon was inflated with an electronic pump. The length of the balloon inside the tube was measured at balloon burst. Time to burst and pressure at burst were measured in all 30 experiments. Differences in mean were statistically tested using the Student’s t-test.

RESULTS
The Navina™ Small catheter showed statistically significant higher durability in all measurements compared with the Peristeen™ Small catheter. Mean (SD) value of diameter, time and pressure at burst in air were 72.5 (1.1) mm, 19.4 (1.3) sec, 493 (20) mbar and 66.8 (0.6) mm, 10.1 (0.3) sec, 243 (4.3) mbar in Navina™ and Peristeen™ respectively (p<0.001). Mean (SD) value of length, time and pressure at burst in plastic tube were 8.4 (0.3) cm, 13.3 (1.3) sec, 687 (58) mbar and 7.0 (0.2) cm, 7.2 (0.2) sec, 377 (16) mbar in Navina™ and Peristeen™ respectively (p<0.001).

CONCLUSIONS
This study shows that catheter balloon durability can differ between TAI systems and that safety with the catheter balloon can be enhanced. This need to be further investigated in vivo.
HOME REMOVAL OF HYPOSPADIAS CATHETER: A PILOT STUDY

Beverley Ann WHITNALL¹, Anju GOYAL² and Liz EDWARDS²

¹) Manchester Children’s Hospital, Department of Paediatric Urology / Nursing Services, Manchester, UNITED KINGDOM - 2) Royal Manchester Childrens Hospital, Paediatric Urology, Manchester, UNITED KINGDOM

PURPOSE
Most patients with Hypospadias who undergo an operation have a Foleys catheter left in which requires removal 7-14 days later. Usually this is done by the community nurses and sometimes patients are admitted back for removal in the hospital. These catheters can however be removed at home by cutting the balloon port. This deflates the retaining balloon allowing the catheter to come out spontaneously over the next few hours. An information leaflet was devised to inform the staff nurses and parents.

MATERIAL AND METHODS
We did a prospective audit over a 3 month period from 01/07/2016 until 30/09/2016. Information about the audit was provided to the nursing staff in the ward. All patients who had a hypospadias repair were sent home with a catheter and were given information about the method of catheter removal along with an information leaflet, scissors and an alcowipe. Parents were advised to cut the balloon port on the specified date and the urology team followed this up by telephone call to assess the outcome and the audit proforma was completed.

RESULTS
A total of 14 eligible patients were given the information leaflets. Two patients were anxious about the procedure and did not wish to proceed ahead with the home catheter removal.

The remaining 12 patients cut the balloon port at home. In 11 the catheter came out spontaneously after a period of 1-16 hours. In 8 it came out easily and in 3 it required a gentle pull. In 1 patient the catheter did not come out and they needed to come to A&E for catheter removal.

CONCLUSIONS
Home removal of a Foleys catheter is feasible. This simplifies the patient pathway and reduces costs.
URO APP: A NEW HELPER FOR MANAGEMENT AND TIMING OF CLEAN INTERMITTENT CATHETERIZATION IN ADOLESCENTS

Mark KOEN¹, Anita SILYE¹, Simone KOGLER¹, Bernhard HAID² and Josef OSWALD¹

¹) Hospital of the Sisters of Charity, Department of Pediatric Urology, Linz, AUSTRIA - ²) Hospital of the Sisters of Charity, Pediatric Urology, Linz, AUSTRIA

PURPOSE
Maintaining compliance in performing clean intermittent catheterization (CIC) can be challenging, especially in adolescents. To use a smartphone application in order to improve on minuteness and to motivate patients seems a logical step, as 97% of all adolescents (age 12-19) are reported to own a smartphone with a mean usage of 2-4 hours daily. We tried to design an adolescent friendly, cross-platform smartphone app that we would like to present, put up for discussion and promote.

MATERIAL AND METHODS
After thorough research on Apple AppStore and Google Play Store, no App specifically designed for adolescents on CIC could be identified. Based on close daily interaction with adolescents performing CIC a respective App (“Uro App”) was designed in direct collaboration of an experienced pediatric urologist (MK) with the app programmers and went online in October 2016.

RESULTS
The resulting app is in many respects different to existing offers as it directly focuses on adolescents on CIC. Dependable data on their first reactions and on a possible effect on compliance and reduction of complications are not at hand by the time of abstract deadline, however first reactions are positive.

CONCLUSIONS
In order to improve on compliance in CIC in adolescents’ age respective motivation is a key factor. By presenting our new Uro App we would like to invite you to start a multicentric prospective effort to promote its use and further evaluate its potential effect on patients compliance.