



# 30<sup>th</sup> CONGRESS OF THE ESPU

24–27 APRIL, 2019,  
LYON, FRANCE



# ABSTRACT BOOK



5<sup>th</sup>

JOINT MEETING OF  
**ESPU-SPU**

INVITED SOCIETIES  
**ICCS-APAPU-SIUP**

16-19 SEPTEMBER 2020

• *Lisbon* •

PORTUGAL

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# Word of Welcome

Dear Members, Friends and Colleagues,



The Scientific Programme of this 30<sup>th</sup> ESPU is so rich and promising that nobody should miss it because everyone has contributed such good abstracts.

This year we have received a total of 551 abstracts from 49 countries (474 clinical abstracts, 20 basic research abstracts and 57 videos). In order to keep the objectivity; while selecting the abstracts our reviewing process scrupulously respected the anonymity principle. Clinical abstracts were screened in five groups with seven reviewers; basic research had one group of eight reviewers (coordinated by Marco Castagnetti) and videos were evaluated by two groups of three reviewers. The overall acceptance rate this year is 40.11 %.

We would like to thank all the reviewers for being willing to help us in this process and for submitting their evaluations on time, the Scientific Committee who worked intensively to finalize the programme and our Webmaster Clement Eckstein for his tremendous work in the management of this process.

The Scientific Programme includes 19 hours of standard presentation sessions with 164 clinical abstracts (including CR), 18 basic research abstracts and 11 videos. The Programme will also have a very interesting History Session, four Lectures, two Panels (Tissue Engineering and Rhabdomyosarcoma), three Educational Sessions (Biased to Bias; The Secrets of Luck, Randomness and Probability; Treatment of Varicocele) and two Satellite Workshops as well as the Tips and Tricks, Case Reports and Worst Complication Sessions that have always been enjoyed by the audience.

The Young Paediatric Urologist Group, as in the last ESPU Meetings, will give us the program highlights every day.

The Meeting this year will again be a unique occasion to meet and exchange knowledge among Paediatric Urologists from all over the world and the ESPU Board hopes this Programme will meet your expectations and also would like to remind you that your feedback through the evaluation form is the way to help us improve the Scientific Programme.

Pedro López Pereira  
ESPU Scientific Secretary

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<b>Mohan Gundeti</b>	USA

# SH: HISTORY SESSION

Moderators: Cenk Büyükkunal (Turkey)

**ESPU Meeting on Wednesday 24, April 2019, 17:10–18:55**

**17:10–17:15**

## Opening remarks

S.N. Cenk Buyukunal

**17:15–17:20**

## Opening address by president of ESPU

Henri Lottmann

**17:20–17:40**

## History of ESPU

Rien Nijman

**17:40–18:00**

## History of French Paediatric Urology

Marc Cendron

**18:00–18:20**

## History of Mitrofanoff procedure

Paul Mitrofanoff

**18:20–18:40**

## History of obstruction

Robert Whitaker

**18:40–18:55**

## History of the ESPU logo

Pierre Mouriquand

# SRC: Research Committee Session: BIASED TO BIAS

Moderators: Goedele Beckers (Netherlands), Darius Bägli (Canada), Magdalena Fossum (Sweden)

ESPU Meeting on Wednesday 24, April 2019, 12:30–13:15

12:30–12:36

SRC-1 (PP)

## ASSESSING THE METHODOLOGICAL AND REPORTING QUALITY OF CLINICAL SYSTEMATIC REVIEWS AND META-ANALYSES IN PAEDIATRIC UROLOGY: CAN WE BUILD PRACTICES ON CONTEMPORARY HIGHEST LEVELS OF EVIDENCE?

Fardod O' KELLY<sup>1</sup>, Keara DE COTIIS<sup>1</sup>, Armando LORENZO<sup>1</sup>, Luis BRAGA<sup>2</sup> and Martin KOYLE<sup>1</sup>

1) The Hospital for Sick Children (Sick Kids), Paediatric Urology, Toronto, CANADA - 2) McMaster Childrens' Hospital, Paediatric Urology, Hamilton, CANADA

### INTRODUCTION

Systematic reviews and meta-analyses provide a comprehensive summary of research studies and are used to assess clinical evidence, form policy and construct guidelines. This is pertinent in childhood surgery with issues of consent, and condition prevalence. It has previously been demonstrated that the data published by these reviews contain deficiencies and high variability in the literature. Our aims were to evaluate the methodological and reporting quality of these reviews, and to identify how these reviews might guide clinical practice amongst those conditions most commonly encountered and managed by paediatric urology residents and fellows

### METHODS

A systematic search of the English literature was performed to identify systematic reviews and meta-analyses focusing on clinical paediatric urology (1/1/2000–7/9/2018) to include common paediatric urological conditions managed by paediatric urology residents/fellows. To these reviews, AMSTAR-2 and PRISMA scores were applied. Univariate linear regression and descriptive statistical methods were performed

### RESULTS

From an initial literature review of 389 articles, 101 were included in the analysis. Inter-reviewer agreement was high ( $k=0.92$ ). 70 % systematic reviews/meta-analyses were published since 2013. The overall impact factor was 3.38 (0.83–17.58), with adherence to AMSTAR-2 criteria 48.46 % and PRISMA criteria 73.32 %. From a methodological perspective, 62.5 % reviews were of poor quality, with 37.5 % of fair quality, 50 % reviews were found to have good quality reporting. There has been an increase in methodological quality of from 2000–2018 with a shift from poor quality to fair quality in 2012 ( $p=0.0024$ )

## **CONCLUSIONS**

Despite the continued increase of systematic reviews and meta-analyses in paediatric urology from which many guidelines are based, a significant number contain poor methodology, and to a lesser extent poor reporting quality. Journals should consider having specific “a priori” criteria based on checklists prior to publication of manuscripts in order to ensure the highest possible reporting quality

# STT: Special Session – TIPS & TRICKS

Moderators: Guy Bogaert (Belgium)

ESPU Meeting on Friday 26, April 2019, 17:36–18:11

17:36–17:41

STT-1 (SO)

## HIDDEN INCISION ENDOSCOPIC SURGERY (HIDES): CAN WE IMPROVE AESTHETICS IN PEDIATRIC LAPAROSCOPY?

Bruno Nicolino CEZARINO<sup>1</sup>, Roberto LOPES<sup>2</sup>, Ricardo HAIDAR<sup>2</sup> and Francisco DENES<sup>2</sup>

1) University of Sao Paulo, Urology, Sao Paulo, BRAZIL - 2) University of São Paulo Medical School, São Paulo, BRAZIL

### INTRODUCTION AND OBJECTIVE

Well-known advantages of minimally invasive surgery (such as smaller incisions, decreased post-operative pain and faster return to normal activity) popularized this approach in the pediatric group. Recently, Gargollo (Gargollo, j.jurol.2010.11.054) first described a robotic approach using umbilicus and Pfannenstiel line to minimize visible scarring called hidden incision endoscopic surgery (HidES) with the obvious advantage of better cosmesis. We present a prospective evaluation of pure laparoscopy HidES nephrectomy, comparing with a matched retrospective cohort of traditional port placement (TPP) laparoscopic nephrectomy.

### MATERIAL AND METHODS

Sixteen patients were submitted to HidES laparoscopic nephrectomy: a 5 mm port inside the umbilical scar, 5 mm port at the end of the virtual pfaneistiel line, ipsilateral to the kidney to be removed and a 10 mm port at the suprapubic position. To show non-inferiority of the surgical outcomes as long as better cosmesis, 45 patients age and sex matched submitted to TPP were evaluated.

### RESULTS

Both groups were comparable in terms of gender, median age ( $p > 0,05$ ), median weight ( $p > 0,05$ ), and laterality ( $p > 0,05$ ). No statistical difference was noted in terms of bleeding, operative time, admission, narcotic use and postoperative complications. HidES group had no conversions to classic laparoscopy or open surgery and no additional port was needed during surgery. TPP group had 3 conversions due to bleeding and 1 accidental puncture of a small mesenteric vein ( $p > 0,05$ ).

### CONCLUSIONS

Hidden incision endoscopic procedure can be reproducible with pure laparoscopy, being a safe and viable alternative to TPP. HidES is comparable to TPP regarding operative time, bleeding, narcotic administration, hospital stay and complication rate with improved cosmesis.

17:41–17:46

STT-2 (SO)

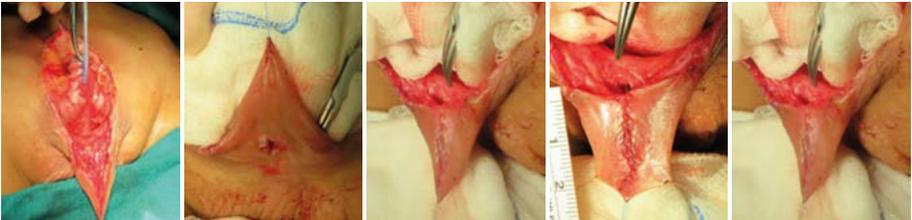
## DOUBLE FACED PREPUTIAL URETHROPLASTY VERSUS PREPUTIAL FALP URETHROPLASTY IN EEC CASES WITH SHORT URETHRAL PLATE

Haluk EMIR

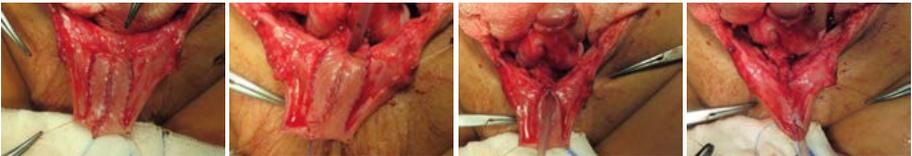
*Istanbul University, Cerrahpasa Medical Faculty, Department of Pediatric Surgery, Division of Pediatric Urology, Istanbul, TURKEY*

Preputial flap urethroplasty is a described technique in EEC cases with short urethral plate. But it might be surgically challenging procedure especially in secondary cases. Presented modification (trick) gives a good solution to surgeon in this challenging situation.

First, both end of circumcision line preputial inner surface bring together and sutured with fine absorbable suture.



This maneuver creates an epiteal surface on dorsal face of ventrally located penil skin. Similar to double faced preputial urethroplasty in hypospadias repair, enough width and length flap is marked on this surface leaving the suture line on midline. Marked borders of the flap are incised and following a limited dissection from ventral skin both side are sutured.



This ends up with a preputial inner surface tube which is connected to ventral penil skin. Proximal end of the tube is anastomosed to distal end of original urethra.



A few millimeter distal tip of neourethra is dissected from the ventral skin. This part of neourethra is passed between corporal bodies at the level of coronal sulcus and anastomosed to the tip of glans.

17:46–17:51

STT-3 (SO)

## OUR MODIFIED SPONGIOPLASTY FOR PATIENTS WITH HYPOSPADIAS

Yutaro HAYASHI, Kentaro MIZUNO and Hidenori NISHIO

*Nagoya City University Graduate School of Medical Sciences, Department of Pediatric Urology, Nagoya, JAPAN*

Snodgrass et al mentioned that dorsal dartos flap or ventral based dartos flap is suitable to cover the TIP neourethra. Yerkes et al. employed a neourethral reinforcement method based on a spongiosum wrap and insisted that spongioplasty is more effective at covering the neourethra than a dartos flap because it is thicker and contains more vascular tissue. Regarding the spongioplasty procedure, Yerkes et al. and Beaudoin et al. proposed that reconstruction should be performed via the dissection of spongy tissue up to the exterior of the penis followed by its repositioning over the neourethra. Although we followed this method when we started the spongioplasty, we encountered difficulties with the repositioning of the bilateral spongy tissues over the neourethra. Therefore, we modified the original procedure by incising the Buck fascia at 3–4 mm lateral to the spongy tissue and positioning the resultant bilateral tissue wings consisting of the Buck fascia and spongy tissue over the neourethra. We would like to demonstrate our modified spongioplasty.

17:51–17:56

STT-4 (SO)

## HOW TO AVOID URETERAL COMPLICATIONS AND OPTIMIZE THE OUTCOMES – DURING ROBOT ASSISTED URETERAL REIMPLANTATION

M. GUNDETI

*University of Chicago Medicine, Department of Paediatric Urology, Chicago, USA*

The robot assisted laparoscopic reimplantation is getting popular in select patients. Unfortunately the ureteral dissection and suturing is crucial for success and preventing complications. There has been poor resources to learn this and has led to variable success rates and complications. I am planning to present the nuances based on experience over last 10 years of these procedures to optimize the success and reduce the complications.

17:56–18:01

STT-5 (SO)

## TREATMENT OF BURIED OR CONCEALED PENIS AVOIDING CIRCUMCISION

Emilio MERLINI, C. CARLINI and A. PINI PRATO

*S.S. Antonio e Biagio e Cesare arrigo Hospital, Division of Pediatric Surgery, Alessandria, ITALY*

Buried penis comprises a spectrum of pathology, including primary and secondary buried penis; the most severe end of the spectrum is represented by buried penis with megaprepuce and difficulties in micturition. Features common to most cases of concealed penis are a tight phimosis and short-age of penile skin, especially on the ventral aspect. Other features include deficient attachment of penile skin to the corpora cavernosa and presence of dysgenetic dartos fibres.

Many procedures described for the treatment of buried penis start with circumcision. In our opinion the paucity of penile skin is further worsened by circumcision and therefore we prefer to treat this malformation avoiding circumcision.

Operation starts with an anterior midline vertical incision including both penile skin and the inner portion of foreskin. Penile shaft is the degloved, isolating corpora cavernosa from surrounding tissues, extending dissection well under pubis. Penile skin acquires a trapezoid shape with an obvious deficiency of ventral skin. The short upper side that is incised at the junction between inner and outer foreskin. Inner foreskin, that is usually redundant, is cut dorsally in the midline to match with the length of the penile skin. Inner prepuce and penile skin are sutured together on the dorsal aspect with three stitches to stabilize the foreskins. Penile skin is secured to the corpora cavernosa with four non reabsorbable 6/0 sutures in order to stabilize the penile skin to the corpora cavernosa. Two sliding flaps of inner foreskin are then rotated ventrally, generously trimmed to match the penile skin, sutured vertically in the midline and diagonally to the penile skin to cover the bare area of the penile shaft. A catheter is inserted for 24 hours to allow for a compressive dressing, the child is then discharged 24 hours later.

We have treated around 20 cases of buried penis according to this procedure with acceptable long term results and no major complication.

**18:01–18:06**

**STT-6 (SO)**

## **DOUBLE HITCH STITCH. ONE WAY TO FACILITATE THE DISMEMBERED PYELOPLASTY**

Juan MOLDES

*Hospital Italiano de Buenos Aires, Buenos Aires, ARGENTINA*

The laparoscopic anastomosis of the Uretero Pyelic Junction in cases of UPJO is technically challenging. Different techniques to perform it have been described and almost every technical description includes the pexy of the Renal Pelvis with a stitch to the abdominal wall (Hitch Stitch) in order to stabilize the Renal Pelvis and facilitate the exposure of the obstruction.

Once the stenotic segment is resected, a posterior and anterior wall of the Renal Pelvis and the Ureter to be anastomosed are presented.

The posterior wall is technically more complex since the suture must be done from within the anastomosis while the anterior border is easier since it is done from the outside. To facilitate the exposure and the approach of the posterior border, we place a second Hitch Stich at hour 6 of the anastomosis enabling the rotation of the same, exposing the posterior border to the anterior, allowing the surget to be made from outside with better visualization and less need to manipulate the tissues.

In our experience in more than 300 laparoscopic pyeloplasties this tip has made the technique simpler and easier to reproduce.

18:06–18:11

STT-7 (SO)

## URETEROCELE FENESTRATION WITH STENTING: OPTIMAL DRAINAGE OF A GIANT URETEROCELE OBSTRUCTING THE BLADDER NECK IN A NEONATE

Martin KAEFER

*Riley Children's Hospital, Indiana University School of Medicine, Urology, Indianapolis, USA*

The ideal management of the newborn with a large prolapsing ureterocele remains controversial due to the many treatment options that are available to the practitioner. Immediate, complete excision with ureteral reimplantation has for the most part been replaced by endoscopic means of decompression. The goal of endoscopic incision is to relieve obstruction of the kidney while avoiding not only vesicoureteral reflux but also the creation of a distal flap of tissue that can obstruct the bladder neck. To avoid these complications we propose a novel approach.

The patient is prepped in the dorsal lithotomy position. The ureterocele is visualized through the cystoscope and a Deflux® needle is used to first decompress the ureterocele and then fill it with radiographic contrast. The needle is then used to puncture the ureterocele between 10–25 times with subsequent dilation of the puncture sites with a 5 French open-ended catheter. In cases where there is proximal ureteral tortuosity and concern over complete upper tract drainage, a JJ stent is placed through one of the dilated openings into the renal pelvis under fluoroscopic guidance. The stent is removed 10 weeks later.

The technique of ureterocele fenestration serves to create multiple small openings that allow egress of urine from the ureterocele while at the same time preventing bladder urine from entering the ureterocele in a retrograde direction. As an adjunct to this technique we now place a double J stent through one of the puncture holes in cases where there is marked upper tract dilation with ureteral tortuosity. This management scheme has proven invaluable in providing reliable drainage while avoiding both vesicoureteral reflux and urethral obstruction. This technique has the potential to serve as the definitive treatment for even the most complex ureteroceles.

# SWC: Special Session – MY WORST COMPLICATION

Moderators: Emilio Merlini (Italy)

ESPU Meeting on Thursday 25, April 2019, 15:58–16:46

15:58–16:06

SWC-1 (LO)

## THINK TWICE BEFORE DOING A CIRCUMCISION IN AN AUTISTIC ADOLESCENT

Delphine DEMÈDE, Sébastien FARAJ, Marc BARRAS, Aurora MARIANI and Pierre MOURIQUAND

*Hôpital Mère-Enfants, Paediatric Urology Groupe Hospitalier, Lyon, FRANCE*

This overweighted agitated autistic adolescent had a straightforward circumcision under GA for recurrent preputial infections associated with urinary incontinence. The patient scratched his penis after surgery causing a huge hematoma and a retraction of the penile skin. This led to a revision in OR. But the same problem recurred despite various precautions to stop the patient touching his penis. The problem recurred again and we had to sedate the patient in intensive care unit for 4 days during which he bled from a stress gastric ulcer. The adolescent bang his head against the bed causing a scalp tear when sedation was progressively stopped ... Eventually, the situation improved despite quite difficult separated parents (father anaesthetist ; mother nurse) who constantly criticized our management of the situation. This case raises an interesting discussion about surgery (even for minor procedures) in incontrollable patients.

16:06–16:14

SWC-2 (LO)

## THE DANGER OF SUPRAPUBIC CATHETER INSERTION IN PROXIMAL HYOSPADIAS

Claudia KOH, Supul HENNAYAKE and Tamas CSERNI

*Royal Manchester Children's Hospital, Paediatric Urology, Manchester, UNITED KINGDOM*

### PURPOSE

The incidence of prostatic utricle in proximal hypospadias has been reported as up to 33 %. A urethral catheter inserted to optimise repair may pass into the utricle. We present a case where a urethral catheter was inadvertently passed into a large undiagnosed urine-filled utricle, leading to postoperative complications.

### MATERIAL AND METHODS

An 8Ch urethral catheter was inserted blindly with slight resistance at the posterior urethra at the beginning of a re-do second stage penoscrotal hypospadias repair, and the balloon filled after clearly identifying urine flashback. To aid the insertion of a suprapubic catheter, 120 ml of normal saline was flushed through the urethral catheter until the "bladder" was palpable and the suprapubic catheter was placed by Seldinger technique. Both catheters were flushing and draining urine well intraoperatively. Postoperatively, there was urine leak around both catheters which were not draining.

## RESULTS

Ultrasound showed a single fluid filled cavity believed to be the bladder. Fluoroscopic contrast study confirmed both catheters were in the same cavity and demonstrated the catheters' patency. Finally, surgical exploration was required, and revealed that both the suprapubic and urethral catheters were located in a large cystic prostatic utricle. The suprapubic catheter was replaced into the bladder and the urethral catheter was left in the prostatic utricle to aid the healing of the hypospadias repair.

## CONCLUSIONS

Preoperative ultrasound or cystoscopic assessment may be considered before the repair of proximal hypospadias, especially if catheter insertion is problematic.

16:14–16:22

SWC-3 (LO)

## THE DANCING MEMBRANES: EARLY SIGN OF HYPOSPADIAS COMPLICATIONS NIGHTMARE?

Alaa EL GHONEIMI

*University Hospital Robert Debré, University Paris -Diderot, Department of pediatric Urology, Paris, FRANCE*

Proximal hypospadias remains a challenging surgery with uncertain outcomes. We share a major complication of operated perineal hypospadias.

A boy was born with DSD 46XY/X0, perineal hypospadias, persistent significant Mullerian structure. He had many septic complications before surgery due to salpingitis at 3 and 7 months of age, that needed partial removal of Mullerian structures. One stage urethroplasty was done at age of 19 months (mai 2009), when he was free from infection (double face, transverse preputial island flap, Onlay-Tube-Onlay). The postoperative was smooth till 18 months, until the appearance of UTI and severe dysuria. Cystoscopy showed "floating membranes" in the reconstructed urethra without any organic stenosis. He continued developing dysuria, local infection shortly improved after each calibration and disruption of the membranes. Pathology examination of the membranes was nonspecific. Many procedures were done to treat the recurrent phenomena of dysuria and the floating membranes at each cystoscopy: internal urethrotomy, supplementary removal of Mullerian structures, many dilatations under general anesthesia, local steroid treatment, augmenting the urethroplasty by a free graft at the suspected area of stenosis. Finally, we have decided to divert by perineal urethrostomy. Even with the proximal diversion he had again dysuria and finally developed macroscopic aspect of BXO that was confirmed by total skin biopsy.

The final treatment was removal of the urethroplasty and replacement by staged buccal mucosa graft. Since then the child had a smooth healing and 2 years of follow up without any recurrence of dysuria.

We believe that the phenomena of "floating membrane" in the reconstructed urethra should had alerted us, even without an organic stricture, of an early sign of irreversible inflammatory process and we would have saved years of dilatations, general anesthesia and recurrent severe dysuria. Another question to discuss, should an early total removal of Mullerian structures would have avoided the recurrent episodes of "infection", "stagnation" "inflammation"? The endoscopic aspect of different stages of inflammation will be shown.

16:22–16:30

SWC-4 (LO)

## LEFT TOTAL URETERAL SUBSTITUTION USING APPENDIX AFTER FAILED URETERAL REIMPLANTATION IN A PATIENT WITH A SINGLE KIDNEY

Emilio MERLINI<sup>1</sup>, R. DE CASTRO<sup>1</sup>, M. IACQUINTA<sup>2</sup> and B. TADINI<sup>1</sup>

1) *Città della Salute e della Scienza, Division of Paediatric Urology, Turin, ITALY* - 2) *Clinica Petrucciani, Division of Paediatric Urology, Lecce, ITALY*

Ureteral substitution may be partial or total and is generally secondary to inflammation, radiation, traumas tumors or, more frequently to jatrogenic damage to the delicate vascularization of the ureter. The bridging of a distal ureteric loss may be achieved mobilizing the bladder (psoas hitch) or using a Boari flap. When the ureter is to be substituted in its entirety a bowel loop, intact or reshaped according to Yang Monti can be used. The use of appendix is seldom reported in the literature, mainly for partial or total substitution of the right ureter. The total substitution of the left ureter with the appendix in a child has been reported in few cases.

A 2 yrs. old baby affected by high grade VUR in a single Left kidney had been treated conservatively since birth. At 2 yrs an endoscopic treatment was carried out that caused acute obstruction and renal insufficiency 3 days later, after failure of JJ insertion a trans trigonal reimplantation of the ureter was performed, but after 4 days again signs of acute renal failure occurred and a Lt ureterostomy was made. Six month later an undiversion was attempted using a psoas hitch and a Politano Leadbeter type of reimplantation ending in acute obstruction and a nephrostomy tube was inserted and the child referred to our hospital.

At surgery the left ureter was a solid tiny string, PUJ was completely closed, so the need for a total ureteral substitution was clear. A long and straight appendix was found that was freed from the caecum together with a caecal cuff of tissue, Cecum was freed laterally in order to mobilize it medially. The mesoappendix was very carefully isolated as far as its origin obtaining a long meso with sound vessels. A tunnel was created under the sigmoid taking care to make it very large to avoid pressure over the appendiceal vessels or their kinking. The appendix was then brought under the sigmoid, reaching the left side of the abdomen. The tip of the appendix was cut longitudinally on the lateral aspect and a long anastomosis with the renal pelvis that had been opened on the medial aspect was performed.

The caecal cuff reached quite comfortably the bladder dome that was opened and a large anastomosis between the caecal cuff and the bladder was carried out. The anastomosis was minimally buried with a second row of stitches in a "Lich Gregoir" fashion, paying much attention not to obstruct the appendix.

After removal of the JJ three months later the child voided normally without any sign of obstruction.

16:30–15:38

SWC-5 (LO)

## BILATERAL COMBINED SUPERIOR AND INFERIOR PUBIC RAMOTOMY COMPLICATION

Sajid SULTAN

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Bilateral combined superior and inferior pubic ramotomies have been described as one of the options to facilitate secure midline closure in exstrophy patients. From a series of nine cases we describe a horrible complication occurring post ramotomy.

A 13 m male with wide diastasis underwent a Kelly procedure with bilateral combined osteotomies. Mobilisation of the pubic bones to the midline was difficult requiring more extensive dissection however midline closure under some tension was achieved. On 8<sup>th</sup> postoperative day he developed a large incisional hernia with subcutaneous bowel loops and partial wound breakdown. The patient was re-explored through the lower abdominal midline incision. The rectus muscles and the attached bony (butterfly pubic bone) fragments were found completely detached from the obturators and retracted into the upper half of the abdominal incision. There was a large peritoneal defect below with bowel loops prolapsing through it. The bowel was returned and the peritoneal defect closed. The abdominal wall muscle gap was covered with the vicryl mesh. The skin was closed over the mesh in the midline from above the umbilicus to the base of the penis. Fortunately there was uneventful recovery.

### CONCLUSION

In our limited experience of the above technique has many advantages. It doesn't require additional incisions or the need for an orthopaedic surgeon as compared to the Salter's osteotomy as it can be performed by the same paediatric urologist and with the same exposure required for the Kelly or Kureel type of EEC repair. However, there is a learning curve which requires understanding of its limitations and the tolerance limits for mobilisation of the bony elements.

16:38–16:46

SWC-6 (LO)

## CLOACAL EXSTROPHY: ONE SURGEON'S EFFORT TO PROVIDE URINARY CONTINENCE RESULTING IN A DECADE OF IATROGENIC MISERY

Martin KAEFER

*Riley Children's Hospital, Indiana University School of Medicine, Urology, Indianapolis, USA*

Cloacal exstrophy is one of the most complex abnormalities that the pediatric urologist is called upon to manage. Despite the nearly universal need for a colostomy and frequent abnormalities of multiple other organ systems, surgeons have generally offered patients the option of creating a continent urinary reservoir with the stated aim of "improving patient quality of life".

Our patient is a boy born with cloacal exstrophy who at birth underwent closure of omphalocele and creation of an end ileostomy. The two bladder halves were approximated in the midline. Two years later he underwent bladder closure and creation of an appendicovesicostomy. A remarkable series of complications ensued. In the initial postoperative period the patient developed a midline fistula to the bladder (#1). After six months an attempt was made to close the fistula without success. Two years later, the patient developed incontinence through the appendicovesicostomy (#2). Urodynamics demonstrated a small capacity, poorly compliant bladder. A decision was made to re-operate on his

bladder and perform a bladder augmentation and a second continent catheterizable channel. In the postoperative period he developed cardiogenic shock (#3). At age six the patient developed a series of severe febrile urinary tract infections (#4). A scrotal abscess (#5) subsequently developed which grew the same organism cultured during the previous urinary tract infections. Over the ensuing three years he developed two additional abdominal abscesses requiring incision and drainage (#6, #7) and a urinary fistula to the left hemiscrotum (#8).

After 12 operations, 8 major complications and over 140 days of combined in-hospital stay; the family has elected to proceed with cystectomy and creation of an ileal loop. This case is representative of a large number of our cloacal exstrophy patients who, in an attempt to achieve urinary continence, have developed devastating complications and have required numerous additional operations.

We recommend that surgeons discuss the significant risks of achieving urinary continence in patients with cloacal exstrophy and strongly consider initial management of these complex patients with an ileal chimney or ileal loop.

# VD: VIDEO DISPLAY

## ESPU Meeting

VD-1 (VD without presentation)

### THE KIDNEY THAT WASN'T

Anne-Sophie BLAIS, Douglas CHEUNG, Fadi ZU'BI, Martin KOYLE and Walid FARHAT

*Hospital for Sick Children, Urology, Toronto, CANADA*

#### PURPOSE

A 14-year-old girl presented to the Emergency Room with intermittent stabbing pain at the left lower abdomen. The pain was occasionally associated with her menses. Upon investigation, she was found to have a non-functioning dilated large pelvic kidney with normal müllerian organs as described on the ultrasound. She was offered a laparoscopic nephrectomy. Herein we show a video depicting the surgical technique and the unexpected postoperative pathologic findings.

#### MATERIAL AND METHODS

Using a 3 trocar laparoscopic approach, a transperitoneal nephrectomy was done. We noted an unusual appearance to the kidney with abnormal appearing cystic structures and lobulations. As we dissected further medially, multiple small renal vessels arising from the iliac vessels were clipped and cauterized. On the lateral edge of the kidney, a tubular structure that appeared to be a bifid pelvis was transected. Since the kidney was too large to be placed within the EndoCatch bag, hence we attempted deflating the kidney by aspirating the fluid that looked like old blood. The operative time was 192 minutes.

#### RESULTS

No operative or postoperative complications were reported. However, the pathology revealed uterine, tubal and ovarian tissues. There was no renal tissue. The patient had normal menstrual cycles postoperatively and the abdominal pain she experienced before the surgery resolved. A postoperative ultrasound showed normal uterus and right ovary. The left ovary was not visualised. The patient was diagnosed with OHVIRA (obstructed hemivagina and ipsilateral renal anomaly) syndrome, a congenital malformation of the urogenital system. In our case, the apparent left pelvic kidney was in fact uterine duplication with an obstructed blind ending hemivagina and left renal agenesis.

#### CONCLUSIONS

The diagnosis of OHVIRA was missed and should be considered in cases of a non-functioning dilated pelvic kidney in females who report pain upon menarche and with menses.

## VD-2 (VD without presentation)

# HARMONIC SCALPEL TECHNIQUE IN ADOLESCENT WITH NON COMMUNICATING HYDROCELE

Mark ZAONTZ<sup>1</sup>, Christopher LONG<sup>2</sup>, Thomas KOLON<sup>3</sup> and David BEN MEIR<sup>4</sup>

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## PURPOSE

Repair of a non communicating hydrocele is generally corrected by using either a "bottle" or "imbrication" technique. This video demonstrates a novel way to correct non communicating hydroceles using a harmonic scalpel technique. The harmonic scalpel has the advantages of completely sealing the encountered lymphatics and blood vessels and allows for trimming the tunica vaginalis around the testis. In this way there is minimal bulk remaining and the procedure can be done safely and quickly.

## MATERIAL AND METHODS

In this series we have operated on 36 boys with a mean age of 14.6 years for non communicating hydroceles.

## RESULTS

Mean follow up was 13.7 months. There were 2 complications which included 2 wound site seromas thought secondary to analgesic infiltration of the scrotal incision. There were no recurrent hydroceles and minimal post op swelling. As an added benefit we noted that there was minimal post op discomfort and rare need for narcotics.

## CONCLUSIONS

We conclude that the harmonic scalpel hydrocele repair is a safe, effective and reproducible technique.

## VD-3 (VD without presentation)

# NEAR-INFRARED FLUORESCENCE (NIRF) IMAGING IN PAEDIATRIC 3D LAPAROSCOPIC NEPHRECTOMY

Ling LEUNG, Ivy Hau Yee CHAN, Patrick Ho Yu CHUNG, Kenneth Kak Yuen WONG and Paul Kwong Hang TAM

LKS Faculty of Medicine, The University of Hong Kong, Division of Paediatric Surgery, Department of Surgery, Queen Mary Hospital, Hong Kong, HONG KONG

## PURPOSE

Near-infrared fluorescence imaging using intraoperative indocyanine green (ICG) has numerous emerging clinical applications, including identification of hilar vessels of the kidney. In paediatric patients requiring nephrectomy, innocent moiety injury during heminephrectomy in duplex kidney and difficulty in locating multicystic dysplastic kidney have been reported. We present our initial experience of using ICG to facilitate nephrectomy in these patients.

## MATERIAL AND METHODS

Patients who underwent laparoscopic total or heminephrectomy using NIRF in 2018 were included. Intravenous injection of ICG was given and NIRF was utilized to identify the affected moiety / kidney and the corresponding ureter. Patient demographics, surgical anatomy, indication for operation, peri- and post operative complications were studied.

## RESULTS

Two female patients were identified, with left duplex kidney (Patient 1, aged 17 months) and right multicystic dysplastic kidney (Patient 2, aged 7 years) respectively. Patient 1 presented with recurrent urinary tract infections, she was diagnosed to have impaired left upper moiety function and an obstructing intravesical ureterocele requiring prior transurethral incision at 7 months old. Patient 2 was antenatally diagnosed and non-resolution of multicystic dysplastic kidney (measuring 6.5 cm) was noted. 3D Laparoscopic left upper moiety heminephrectomy and laparoscopic right nephrectomy were performed using NIRF imaging respectively. Hilar vascular anatomy can be delineated by NIRF in both patients. Perfusion of unaffected lower moiety was confirmed by fluorescence of the parenchyma after ligation of the upper pole vessels. Resection of the multicystic dysplastic kidney can be navigated by the fluorescence of its parenchymal components and vascular supply. There were no peri-operative complications, no urinary leaks or postoperative fluid collections.

## CONCLUSIONS

Near-infrared fluorescence (NIRF) imaging using ICG in paediatric 3D laparoscopic nephrectomy was safe and feasible in paediatric patients with congenital urinary anomalies. It allows superior delineation of resection zones in duplex kidney and accurate localization of multicystic dysplastic kidney.

### VD-4 (VD without presentation)

## LAPAROSCOPIC URETEROURETEROSTOMY: AN ARROW IN THE QUIVER FOR THE TREATMENT OF DUPLICATION ANOMALIES OF THE URINARY TRACT

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## PURPOSE

In some patients with duplication anomalies of the urinary tract, surgery is needed to treat obstruction or reflux. The most common approach is the double barrel ureteral reimplantation. Laparoscopic ureteroureterostomy (LUU) can be a valid alternative or a rescue procedure after failed reimplantation. Aim of the video is to present our experience with this technique.

## MATERIAL AND METHODS

Charts of all children who underwent LUU (ipsi- and translateral) in our center from 2009–2018 were reviewed retrospectively.

## RESULTS

Eleven ipsilateral LUU (in one patient bilateral) and one translateral LUU were performed in eleven patients. Median age at surgery was 14 months (range 7–117 months). Mean follow-up was 59 months (12–113 months). LUU was a primary procedure in eight patients (five with obstructive upper pole ureter, three with reflux in the lower pole ureter). In two patients, LUU was done after failed reimplantation and in one after cutaneous ureterostomy. Median operative time including cystoscopy was 185 min (133–495 min). Operative times diminished from mean 312 min in the first five operations to mean 165 min in the latter six operations. There were no intraoperative complications. Two patients suffered an anastomotic leak, warranting nephrostomy placement in one. Median time to discharge was 6d (2–26d). Anastomotic stenosis did not occur. Two patients had a febrile UTI in the follow-up.

## CONCLUSIONS

LUU was done safely and effectively in all patients. A learning curve was observed in regard of operation times. LUU should be considered as an option for the management of duplication anomalies of the urinary tract.

VD-5 (VD without presentation)

# TRANSMESENTERIC LAPAROSCOPIC LEFT UPPER POLE PYELOPLASTY

Venkata JAYANTHI

*Nationwide Children's Hospital, Section of Urology, Columbus, USA*

## PURPOSE

Upper pole ureteropelvic junction (UPJ) obstruction in complete duplex systems is relatively uncommon. We present a case of laparoscopic left upper pole UPJ dismembered pyeloplasty to highlight technical concepts for such complex repairs.

## MATERIAL AND METHODS

A 4-month-old girl presented with urosepsis and an ultrasound showed pyonephrosis in the left upper pole. An urgent nephrostomy tube was placed to control the sepsis. A subsequent voiding cystourethrogram was normal and a renal scan showed preserved function but poor drainage of the left upper pole.

At 6 months of age, using 3 mm instruments, laparoscopic repair was performed. A percutaneous holding suture was placed through the epiploic fat on the colon to lift the colon up and away which allowed for a transmesenteric approach to the upper pole. As the upper pole renal pelvis was small and intrarenal, pyelopyelostomy was not an option. Another holding suture was placed in the upper pole pelvis to maintain exposure and access for the repair. The spatulated upper pole ureter was sutured to the upper pole pelvis with interrupted 5–0 polydioxanone suture and a double J stent left indwelling. No drain was placed but a foley catheter was left for one week, to minimize the potential for an anastomotic leak as the repair was not a water tight closure.

## RESULTS

Postoperative imaging performed 6 weeks after surgery showed improvement in upper pole hydro-nephrosis and a renal scan showed preserved function and good drainage.

## CONCLUSIONS

The video highlights several concepts to consider when performing complex laparoscopic renal surgery. Liberal use of percutaneous holding sutures can greatly assist with varied aspects of the procedure. A foley catheter left indwelling for an extended length of time may help prevent a urine leak and obviate the need for a perinephric drain

## MICROPERCUTANEOUS ENDOPYELOTOMY FOR RECURRENT PYELOURETERAL JUNCTION OBSTRUCTION

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### PURPOSE

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

### MATERIAL AND METHODS

In Valdivia position, a 5 or 6 mm high-pressure balloon is placed in the renal pelvis under cystoscopic and fluoroscopic guidance. The 4,8 or 8 Fr microperc puncture needle is placed into the pelvicalyceal system. After appropriate calyceal access, a three-way connector is placed to allow the 300 µm laser fiber (4,8 Fr) or 2,5 Fr monopolar hook (8 Fr) go through. Endopyelotomy is performed with laser fiber or monopolar hook over high-pressure balloon. In order to improve the exposure of the cutting area, the PUJ is introduced into the renal pelvis by pushing the high-pressure balloon. Double J stent is left for 4 weeks.

### RESULTS

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

### CONCLUSIONS

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

## CYSTOSCOPIC INJECTION SCLEROTHERAPY FOR BLADDER VENOUS MALFORMATIONS

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### INTRODUCTION

Vascular-malformations of the urinary-bladder are rare in children and their treatment can be challenging. We present the minimally-invasive approach of cystoscopic injection sclerotherapy for the management of bladder venous malformations.

### MATERIAL AND METHODS

A 13-year-old girl with Klippel-Trenaunay syndrome and a low-flow pelvic vascular-malformation presented with 5-weeks of frank-haematuria with episodic clot retention. She had previously undergone injection bladder sclerotherapy 18 months ago with no symptoms since.

Under general-anaesthesia, a diagnostic cystoscopy was undertaken. The foci of venous malformations were visualised as small blue exophytic malformations protruding toward the bladder lumen. Sodium Tetradecyl Sulfate (STS-3 %) was utilised as a chemical sclerosant. The STS foam was generated by pumping 5 mls STS in one syringe backward and forward into another syringe containing 5 mls room-air through a two-way connector (Tessari-method).

Under cystoscopic vision using a STING scope (8/9Fr, 12°-angled scope, R. Wolf), the primed 23G Deflux needle (Q-med AB, Uppsala, Sweden) was directed into the venous malformation. The needle was elevated after insertion to ensure that the STS does not enter the peritoneal cavity. The Deflux needle markings act as a guide for depth. Adequate sclerotherapy caused visible blanching as the foam displaced the blood from the veins causing sclerosis.

## RESULTS

She was managed with simple oral analgesia, no urinary catheter and discharged within 24 hrs. Her haematuria resolved within 12 hours with no recurrence after 3 months.

## CONCLUSIONS

This minimally invasive approach of cystoscopic injection sclerotherapy is very successful in managing the complications of bladder vascular malformations and thereby avoids extensive surgery.

**VD-8 (VD without presentation)**

## MIV HYPOSPADIAS REPAIR

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## PURPOSE

This video revisits the meatal inversion V flap (MIV) hypospadias repair first described by Decter as an alternative to the MAGPI procedure. This procedure shown is applicable in cases where the glans wings form a cleft like appearance into the midline as seen in the video. The M incision thus allows the meatus to "elevate" superiorly and to thus allows glans approximation below the meatus to create a more normal appearance with a more distal meatus.

## MATERIAL AND METHODS

The records of all boys who underwent the MIV procedure were queried from April 2016 through October 2018. Twenty one boys with a median age of 9.2 months underwent the MIV repair. Four boys had 10–25 degrees of ventral penile curvature after degloving and were treated by a single dorsal plication suture in the midline as previously described by Baskin. A urethral stent was left in only 3 boys due to concerns of a hypoplastic urethra. The operative description is highlighted in the video.

## RESULTS

There were no complications at a median follow-up of 4.1 months. In all 21 boys there was no evidence of meatal retraction with good positioning of the meatus within the glans.

## CONCLUSIONS

The MIV glansplasty procedure is a safe, effective and reproducible technique for proximal glanular/coronal hypospadias provided the glans configuration as described is present

#### VD-9 (VD without presentation)

## ROBOT ASSISTED LAPAROSCOPIC EXTRAVESICAL CROSS-TRIGONAL URETERAL RE-IMPLANTATION WITH TAILORING FOR OBSTRUCTIVE MEGA-URETER

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### PURPOSE

In this video we describe a technique of robot assisted extravesical cross-trigonal ureteral re-implantation with intra-corporal tailoring of the ureter.

### MATERIAL AND METHODS

We present a multi institutional study of 20 cases, in this video we describe the case of a 1y/o male who was diagnosed with a left mega-ureter prenatally. US scans showed dilation of renal pelvis and ureter (17 mm), MAG3 Renal scan indicated 37 % function of the left kidney with delayed drainage. The patient was placed in the supine position. A Foley catheter was inserted to allow bladder distention. Peritoneal access is obtained with the open Hasson technique. 12 mm camera port at the umbilicus, 2 robotic 8 mm ports and an assistant 5–10 mm ports were placed under vision. The distal ureter was identified and dissected distally to the bladder where it is ligated and transected. Ureteral tailoring was performed over a 7FR UK and sutured with a 3–0 V-Loc™. A transverse trough of 4–5 cm is created. Emphasis is made to dissect the detrusor to facilitate a tension free closure over the ureter. Bladder mucosa is opened and uretero-vesical anastomosis is performed with interrupted 5–0 PDS sutures over DJ stent. Detrusor tunnel is closed incorporating the ureter between the mucosa and the detrusor. Water tight closer is verified.

### RESULTS

Console time was 180 min. Patient was discharged on POD1, DJ stent was removed 4 weeks post operatively. Imaging showed improvement in hydronephrosis and renal drainage.

### CONCLUSIONS

Robot assisted cross-trigonal ureteral re-implantation with intracorporeal tailoring is safe feasible and reproducible.

#### VD-10 (VD without presentation)

## ROBOT-ASSISTED EMBRYOLOGICAL REMNANT RESECTION IN A 1 YEAR OLD BOY WITH DIFFERENCE OF SEXUAL DEVELOPMENT

Mieke WATERSCHOOT<sup>1</sup>, Ruben DE GROOTE<sup>2</sup>, Elise DE BLESER<sup>2</sup>, Martine COOLS<sup>3</sup>, Erik VAN LAECKE<sup>1</sup>, Piet HOEBEKE<sup>1</sup> and Anne-Françoise SPINOIT<sup>1</sup>

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### PURPOSE

Differences of sexual development are defined as congenital conditions associated with atypical development of chromosomal, gonadal, or anatomical sex. This video shows the robotic resection of a gonadal structure and underdeveloped uterus in a 1 year old DSD boy.

## MATERIAL AND METHODS

A newborn diagnosed with 45,X/46,XY DSD was referred to our center for management of penoscrotal hypospadias and a non-palpable testis on the right side. Ultrasound demonstrated an uterus-like structure above the bladder. At the age of one year, a RA diagnostic exploration with concomitant resection was performed.

## RESULTS

The child was positioned in a classical robot-adapted supine position. A transurethral catheter Charrière 8 was placed. The camera-trocar was placed in the umbilicus and 2 additional ports were inserted at the right and left mid-clavicular line. During inspection, a nubbin was found at the internal inguinal ring on the right-hand side. This gonadal structure was connected to the round band ligament with a uterus-like structure ending up blind onto the bladder. Total resection of the embryological remnants was performed. The postoperative recovery was marked by a urinary retention successfully treated with clean intermittent catheterisation.

## CONCLUSIONS

RA resection of embryological remnants is safe and effective in children aged one year and older.

VD-11 (VD without presentation)

## ULTRA-MINI PCNL WITH CLEAR PETRA® SUCTION-EVACUATION ACCESS SHEATH AND WARMING IRRIGATION FLUID SYSTEM (ROCAMED®) FOR STONE TREATMENT IN CHILDREN

Anna BUJONS TUR<sup>1</sup>, Erika LLORENS DE KNECHT<sup>1</sup>, Sebastian TOBIA GONZALEZ<sup>2</sup>, Guilherme LANG MOTTA<sup>1</sup>, Yesica QUIROZ MADARRIAGA<sup>1</sup> and Joan PALOU<sup>1</sup>

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## PURPOSE

Inadvertent perioperative hypothermia (a drop in core temperature to below 36 °C) occurs because of interference with normal temperature regulation by anaesthetic drugs, exposure of skin for prolonged periods and receipt of large volumes of intravenous and irrigation fluids. If the temperature of these fluids is below core body temperature, they can cause significant heat loss. Warming irrigation fluids to core body temperature or above might prevent some of this heat loss and subsequent hypothermia and that is the function of ROCAMED®.

## MATERIAL AND METHODS

The video describes prone ultra mini PCNL with Clear Petra® sheet under ROCAMED® system in a 15 month-old boy with a 2 cm – 600HU staghorn calculi and one stone of 7 mm – 500HU in proximal ureteric.

## RESULTS

The surgery was performed without intraoperative complications and perioperative hypothermia was prevented. The patient started the surgery at 35.4 °C and the final temperature was 36.3 °C in 60 minutes of procedure, in addition to being free of stones.

## CONCLUSIONS

The ROCAMED® system is effective in preventing inadvertent perioperative hypothermia in children, improving the safety of ultra mini PCNL with Clear Petra® sheet and showing promising results with high stone-free rates and low complications.

## SUPER-MINI PERCUTANEOUS NEPHROLITHOTOMY (PCNL) IN PAEDIATRIC STONE DISEASE

Eleni PAPAGEORGIOU<sup>1</sup>, Alex BARNACLE<sup>2</sup>, Simon CHOONG<sup>1</sup> and Naima SMEULDERS<sup>1</sup>

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### INTRODUCTION

Super-Mini-PCNL (SMP) is advocated in children for renal stones less than 2.5 cm, unsuitable for Extracorporeal Shock Wave Lithotripsy (ESWL) or difficult anatomy. In this video we demonstrate two SMP systems: the Hawk<sup>®</sup> and the Clear-Petra Wellead<sup>®</sup>.

### MATERIAL AND METHODS

Prospective cohort (March 2017–October 2018).

Technique: After initial cystoscopic insertion of a 5F-Pollack ureteric-catheter (Cook<sup>®</sup>) over a 0.035Fr Sensor-guidewire (Boston Scientific<sup>®</sup>) and urethral catheterization, the patient is positioned prone. The desired calyx is accessed under ultrasound guidance using a 5Fr Kellett-needle (Cook<sup>®</sup>) and the tract serially dilated to 14Fr (Cook<sup>®</sup>) under fluoroscopic control after wire-exchange (0.035Terumo, Radifocus<sup>®</sup> to Sensor, Boston Scientific<sup>®</sup>). A second guidewire (0.035Sensor, Boston Scientific<sup>®</sup>) is placed via a 10Fr flexi-tip dual-lumen ureteric catheter (Cook<sup>®</sup>). Nephroscopy is performed by 7Fr nephroscope for the Hawk<sup>®</sup> system and by 6/7.5Fr semi-rigid ureteroscope (R.Wolf<sup>®</sup>) for the Clear-Petra. Lithotripsy is performed by Holmium-YAG-Laser (Cook<sup>®</sup>) using a high-frequency-low-energy setting. With the sheath-tip placed in proximity, stone fragments are cleared through suction connected to the short-arm of the Y-sheath in both systems. For advancement of the Clear-Petra-sheath within the pelvicalyceal system, the trocar should be replaced to avert infundibular injury. In the absence of hydronephrosis or haematuria, SMP is undertaken tubeless.

### RESULTS

The two different systems are illustrated using the 8 SMPs undertaken in 2017–2018 in 7 children, aged 3–15 years, 4 Clear-Petra-Wellead<sup>®</sup> and 4 Hawk<sup>®</sup>, for stones (6–18 mm) unsuitable for ESWL, instead of RIRS (Retrograde Intra-Renal Surgery), used alone or in combination with standard PCNL.

### CONCLUSIONS

This video demonstrates the equipment and technique for SMP in paediatric stone disease.

## AUTOLOGOUS FAT GRAFTING WITH STEM CELLS TRANSPLANTATION IN AN EXSTROPHIC PATIENT. A CASE REPORT

Anna BUJONS<sup>1</sup>, Yesica QUIROZ<sup>1</sup>, Erika LLORENS DE KNECHT<sup>2</sup>, Guilhaerme Lang MOTTA<sup>1</sup> and Joan PALOU<sup>3</sup>

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### PURPOSE

Adipose tissue is a reservoir of mesenchymal stem cells that can produce different types of cellular lines, managing architectural remodeling and loose connective regeneration when it's used in scars. Co-transplantation of adipose derived stem cells is an alternative therapeutic approach to enhance the survival and quality of transplanted fat tissue by increasing neovascularization. Lipofilling has been implemented in plastic surgery for breast reconstruction and treatment of burns. The use of the minimally invasive technique would allow treatment of hypertrophic scars and depressed suprapubic area in exstrophic patients to improve the aesthetic appearance of them.

### MATERIAL AND METHODS

This video presents the case of a female 16 year old patient of with bladder exstrophy, who initially had an urinary reconstruction with ureterosigmoidostomy and posteriorly bladder augmentation and Mitrofanoff, with a hypertrophic scars and depressed abdominal wall in suprapubic area. We present this procedure for autologous fat grafting with stem cells in the abdominal area.

### RESULTS

The lipofilling procedure was carried out successfully, without intraoperative complications in 120 minutes. The liposuction was 250cc and 80cc was used for injection, achieving the improvement of the aesthetic appearance of the scars in a short time. The imaging control was follow up with abdominal wall ultrasound, three months later, increasing its thickness by 42 %.

### CONCLUSIONS

The autologous fat grafting with stem cells is a safe and feasible procedure in the exstrophic population, with excellent aesthetic results, but we need long term follow up to determine how long the effect of fat grafting remains.

## ULTRA - MINI PERCUTANEOUS NEPHROLITHOTOMY WITH CLEARPETRA® SHEATH AND HEATED SALINE CONTINUOUS IRRIGATION IN CYSTINE PATIENT

Anna BUJONS, Luis LADARIA, Erika LLORENS DE KNECHT, Yesica QUIROZ and Guilhaerme Lang MOTTA

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### PURPOSE

The gold standard treatment for stones up to 2 cm in renal pelvis is percutaneous nephrolithotomy. Considering the risk of surgical morbidities, advances in technology and smaller access have made minimal invasive treatments possible. The reduced access (<20Fr) worsens visibility and fragment extraction. New percutaneous access sheath ClearPetra® allows 14Fr access and continuous aspiration to solve these difficulties.

Saline continuous irrigation decreases intraoperative body temperature which can lead to hypothermia with several consequences for pediatric patients. Endoflow Rocamed® system allows heated irrigation which solves this problem.

#### **MATERIAL AND METHODS**

In Valdivia's position (supine), a fluoroscopy guided percutaneous puncture was performed with Chiba's needle in a fifteen year old child. Tract was dilated using Amplatz dilators from 8 to 14 French (Fr). After placement of ClearPetra® sheath (12/14Fr), 9,8Fr nephroscope was used to visualize the pelvicalyceal system. Stone fragmentation was achieved with 120 W Holmium laser Lumenis®. ClearPetra® sheath with continuous aspiration allowed correct visibility and the extraction of cystine fragments. During the procedure we used heated saline continuous irrigation with Endoflow pump (Rocamed®) to maintain corporal body temperature between 36 and 37 Celsius grades. A nephrostomy catheter was placed

#### **RESULTS**

Surgical time was 180 minutes without intraoperative complications. A double J stent was placed. Cristalographic analysis demonstrated cystine lithiasis. No residual stones were found in x-ray control.

#### **CONCLUSIONS**

Ultra-mini perc with ClearPetra® access sheath and continuous aspiration is feasible, save and present minimal complications with stone free rates, and also offers correct visibility in spite of limited access. Endoflow heated irrigation system prevents hypothermia and reduces its risks for the patients.

#### **VD-15 (VD without presentation)**

## **BURIED PENIS CORRECTION: MIDLINE INCISION ROTATION FLAPS (MIRF)**

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#### **PURPOSE**

In the presented video, our objective was to demonstrate a personal technique used for a buried penis repair in a 1-year-2-month-old child.

#### **MATERIAL AND METHODS**

The main distinction of this technique from other well-known ones is the midline incision on the volar surface of the penis and a circular incision on corona of glans penis, which serves as a universal approach; degloving and preparation of skin flaps with their rotation to substitute the skin defects on the volar surface (Midline Incision Rotation Flaps – MIRF).

#### **RESULTS**

In early and 1 year follow-up, the patient had successful results of the treatment – cosmetic result was close to nature, no scarring and edema were present.

#### **CONCLUSIONS**

The developed method of buried penis correction allows to get successful both cosmetic and functional results, and decrease the number of post-operative complications, preventing re-burying of penis and skin lymphostasis.

#### VD-16 (VD without presentation)

## ADVANCEMENT URETHROPLASTY WITHOUT DISMEMBERING URETHRA SPONGY BODY AND GLANS PENIS

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### PURPOSE

There are known special urethral advancement techniques for the distal hypospadias type. They do not include suturing the urethra, which makes the risk of complications comparatively low. Beck in 1898 presented such method. But it's not popular today because of meatostenosis. We demonstrate modified technique that helped us to reduce postoperative complications.

### MATERIAL AND METHODS

A 2 years old boy with distal type of hypospadias – distal penile, without chordae. Meatus was opened 8 mm proximal of the glans tip. Incision was made around the meatus with surrounds tissues 2–3 mm. A tourniquet was applied to the base of the penis. Mobilization of the urethra spongy body was started from the middle. We marked special rule – 1 cm of spongy body mobilization allows to advance the meatus distally by 2 mm. Consequently, in this case 4 cm mobilization was required. The urethra was totally dismembered from the cavernous bodies except distal splitted part of the spongy body. This part was saved as the pedicles, and urethra became more movable. There is no need of tunnelisation of the glans. Spongioplasty was performed to cover distal urethra after the latter was fixed in new position. Remaining tissues were sutured in a reverse order. For urinary diversion transurethral catheter was used. Dressing of the penis was not used (optional).

### RESULTS

Total operating time was 94 minutes. Diversion catheter was removed 7 days later. Wound healing and functional results were good.

### CONCLUSIONS

This modified advancement urethroplasty is a good alternative for treating distal hypospadias.

#### VD-17 (VD without presentation)

## TRANSPERITONEAL LAPAROSCOPIC PYELOPLASTY IN A SIX MONTHS INFANT WITH A RETROCAVAL URETER

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### PURPOSE

Retrocaval ureter is a rare urinary anomaly. Open or laparoscopic surgery is preferred in the treatment. Due to the rare occurrence of the anomaly, the number of cases undergoing laparoscopic repair is very few in the literature. In this video presentation; We aimed to present a laparoscopic corrective surgery performed in the case of a six-month infant with retrocaval ureter.

## **MATERIAL AND METHODS**

Case: Physical examination revealed a palpable kidney on the upper right side of the abdomen due to antenatal hydronephrosis. The ultrasonography; There was Grade 4 hydronephrosis, anteroposterior diameter of the renal pelvis 52 mm, parenchyma thickness 2.2 mm in the right kidney. Right percutaneous nephrostomy was performed in the case. Retrocaval ureter was suspected on the presence of an inverted J finding on the antegrade pyelograph. Laparoscopic transperitoneal pyeloplasty was performed as a corrective surgery.

## **CONCLUSIONS**

The preference of laparoscopic approach for infants with suspected retrocaval ureter provides both minimally invasive and safe surgical procedures.

**VD-18 (VD without presentation)**

# **LAPAROSCOPIC TRANSPERITONEAL PYELOLITHOTOMY IN A CHILD WITH HORSESHOE KIDNEY AND NEPHROLITHIASIS**

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## **PURPOSE**

It is aimed to present laparoscopic transperitoneal pyelolithotomy applied in a case of 8 years old girl with a 12 millimeters stone in the left kidney, accompanied by horseshoe kidney and have unsuccessful medical history of Extracorporeal Shock Wave Lithotripsy (ESWL) and Retrograde Intrarenal Surgery (RIRS).

## **MATERIAL AND METHODS**

Using a 3-trocar laparoscopic procedure was applied. Transperitoneal approach was preferred.

## **RESULTS**

The renal stone was extracted using laparoscopic tecnic. Patient was discharged without any complications after three days postoperatively.

## **CONCLUSIONS**

Laparoscopic approach can be performed safely in experienced centers in cases in which classical treatment methods such as ESWL and RIRS have failed and urinary system anomalies such as horseshoe kidneys.

## PREPUTIAL RECONSTRUCTION IN DISTAL HYPOSPADIAS REPAIR - A NEW TECHNIQUE

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### PURPOSE

The aim of the hypospadias repair is to restore the normal appearance of the penis. That's why foreskin preservation and reconstruction has become a necessary part of the hypospadias surgery. However, in most cases simple reapproximation of the cleft skin margins usually does very little for the final appearance. If the purpose of penile surgery is "normality" it was necessary to develop a technique which fulfil the promise. The video presents the most important steps of the new technique.

### MATERIAL AND METHODS

A total number of 562 boys aged from 6 months to 12 years underwent one-stage hypospadias repair with full foreskin reconstruction. TIP, Thiersch-Duplay, Mathieu and Beck procedures were used in 454 88, 6 and 14 cases respectively. The technique consisted of full separation of external and internal preputial laminae and 3-layered reapproximation of the foreskin. Care was taken to equalize the length of dorsal and ventral aspect of the reconstructed prepuce and form a bottle neck-like appearance.

### RESULTS

Most patients without complications presented with excellent cosmesis and normal, uncircumcised penis look. Foreskin related complications (preputial fistula or foreskin dehiscence) were noted in 49 cases (8.7 %). Secondary phimosis developed in 10 patients (1.8 %) and was successfully treated conservatively with topical steroids.

### CONCLUSIONS

Since the distal hypospadias may be regarded as mostly cosmetic defect, proper technique selection is extremely important. Presented technique of preputial reconstruction is feasible in most cases undergoing one-stage hypospadias repair and allows to get a normal look. It must be borne in mind however, that foreskin reconstruction increases an overall complication rate but improved final effect should withstand the test of time.

## POSTERIOR AND ANTERIOR SAGITTAL ANORECTOPLASTY APPROACHES IN GENITOURINARY ANOMALIES IN CHILDREN

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### PURPOSE

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 with various genitourinary anomalies who underwent PSARP and ASARP for rectourethral fistulae [RUF] both acquired and congenital, RUF with posterior urethral stricture, RUF with posterior urethral diverticulum, duplication of urethra and rectovestibular fistula were reviewed. The results were reviewed in terms of feasibility and outcome of the two techniques in these conditions.

## **RESULTS**

Between January 2008 to June 2016, 10 patients with a median age of 5.8 yrs underwent PSARP [n=6] and ASARP [n=6]. The indications were RUF [7], RUF with posterior urethral stricture [1], RUF with posterior urethral diverticulum [1], duplication of urethra and rectovestibular fistula [1]. 2 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 gives 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, duplication of urethra and rectovestibular fistula avoiding trans-sphincteric approach.

## **VD-21 (VD without presentation)**

# **UPPER LIP GRAFT (ULG) FOR REDO URETHROPLASTIES IN CHILDREN. A STEP BY STEP VIDEO**

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## **PURPOSE**

Lower lip and cheek are commonly used sources of buccal mucosa grafts for urethroplasty. In recent years, aiming to improve the donor site morbidity, our preference changed to the use of Upper Lip Graft (ULG). The aim of this video is to illustrate the technical details of the ULG harvesting for children

## **MATERIAL AND METHODS**

The perioral area is cleaned and two stay sutures are placed in order to expose the inner surface of the upper lip. Having the midline frenulum spared, the area of mucosa to be harvested is then delineated with marking pen and local submucosal infiltration is done with a solution of bupivacaine plus epinephrine. The edges are incised and the submucosa plane created with a scissor. The graft is detached, defatted, and then applied with quilting stitches over the recipient site with the standard technique. Hemostasis is secured and the donor site is left open.

## **RESULTS**

From 2015 to 2018, 25 ULG harvests were done in 24 patients. Only one (5 %) presented local pain associated to the procedure in the first 24 hours. After minimum 2 months after surgery, none of the patients presented perioral numbness, difficulty with mouth opening, contraction of the donor site or changes in salivation.

## **CONCLUSIONS**

ULG harvest is easy and a suitable alternative source of oral mucosa for urethroplasty in children.

## VD-22 (VD without presentation)

# INTRACORPOREAL URETERAL TAPERING REPAIR BY LAPAROSCOPY AND LICH-GREGOIR REIMPLANTATION FOR PRIMARY OBSTRUCTIVE MEGAURETER IN CHILDREN

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## PURPOSE

Laparoscopic-assisted extravesical ureteral reimplantation and extracorporeal ureteral tapering was previously reported in 2017 for the treatment of primary obstructive megaureter (POM). We recently modified this technique by performing a full intracorporeal laparoscopic ureteral tapering (LIUTR). We reported our early experience with the first two cases.

## MATERIAL AND METHODS

Two females aged 15 and 23 months with POM underwent LIUTR in our department in 2018. They both had recurrent febrile urinary tract infections and decreased relative renal function on the side of POM. The surgeon was positioned at the head of the patient. Surgery was performed using a 5 mm-30° telescope and two 3 mm trocars. The dilated ureter was dissected and sectioned at the level of the uretero-vesical junction. A JJ stent was inserted in the ureter by laparoscopy. A 7 cm long ureteral tapering was performed by laparoscopy using a 5/0 continuous suture. Vesicoureteral anastomosis was carried out after opening the bladder mucosa, by two continuous 5/0 sutures. Extravesical ureteral reimplantation by following Lich Gregoir technique was done. The ureter was placed in the new tunnel, and the detrusor muscle was reapproximated with absorbable sutures. The stent was removed at 6 weeks postoperatively.

## RESULTS

LIUTR was completed successfully in both patients without conversion. The operative time was 284 and 224 minutes, respectively. Both patients were discharged on post-operative day 1. Both children were asymptomatic with no recurrent febrile UTI after 1 months and 3 months.

## CONCLUSIONS

LIUTR may represent a valid treatment of POM, without inconvenient associated with extracorporeal tapering.

## VD-23 (VD without presentation)

# TRANSPERITONEAL LAPAROSCOPIC REPAIR OF A COLO-URETERAL FISTULA SECONDARY TO A FOREIGN BODY

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## PURPOSE

Fistulas between genito-urinary and digestive systems are very rare in the pediatric population. Only a few cases have been reported in the literature and none of them were resolved using a laparoscopic approach.

## MATERIAL AND METHODS

A 3-year-old girl with a history of one episode of febrile urinary tract infection. Ultrasound and CT scan images revealed a left uretero-hydronephrosis and the presence of an echogenic and linear image in the mid-ureter. Retrograde pyelography and flexible ureteroscopy were performed revealing a 2-cm narrowed ureteral segment secondary to a swollen process and no ureteral stone. A ureteral stent was left in place and a transperitoneal laparoscopic approach was performed using 5-mm instruments. The ureter was dissected and a fistula between the middle ureter and the left colon was identified. A 2-cm foreign body was removed after transecting the fistula. The opening of the fistula in the left colon was closed with separated 4/0 reabsorbable monofilament intracorporeal stitches. The narrowed ureteral segment was resected and a ureteral-ureteral anastomosis was performed. A retrograde ureteral stent was left in place. Hospital stay was 2 days and no postoperative complications were observed.

## RESULTS

After a 1-year follow-up, the patient remains asymptomatic with improvement of the hydronephrosis on ultrasonography. Analysis of the foreign body revealed an organic composition compatible with a fish bone.

## CONCLUSIONS

Laparoscopic transperitoneal approach is a safe and useful tool for the diagnosis and management of a common and even unusual mid-ureter pathology.

VD-24 (VD without presentation)

## A VERY RARE CASE: THREE URETERS AND VUR

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## PURPOSE

Vesico-ureteral reflux (VUR) is a common pathology for pediatric urologist in patients with recurrent urinary tract infections. Sometimes VUR is detected in patients with some urinary anomalies such as posterior urethral valve, neuropathic bladder or duplex system. Triple ureter is a very very rare anomaly that presented with VUR. We present a video of the management of a patient with triple ureter and VUR.

## MATERIAL AND METHODS

A 1.5 year old male patient was evaluated for recurrent febrile UTI and determined to have duplex system of the right ureter with Grade 4 VUR to lower and Grade 3 VUR to the upper pole. DMSA revealed a smaller right kidney but no scarring. Subureteric injection was scheduled.

## RESULTS

Duplex system was confirmed on cystoscopy. The cranially located ureteric orifice was observed to have a mucosal fold medial to the orifice. A 3F ureter catheter was advanced through the fold and a third ureter was therefore located. Fluoroscopic imaging demonstrated the segments from which each ureter originated from. VUR was confirmed for both ureters originating cranially. Subureteric injection was performed to these two ureters.

## CONCLUSIONS

Although duplex ureter is a commonly seen anomaly, three ureters is extremely rare. There are only some case reports in literature. We are unaware of a report of three ureters and VUR being observed concurrently.

## LAPAROSCOPIC-ASSISTED INSERTION OF PERITONEAL DIALYSIS CATHETERS WITH OMENTECTOMY ACROSS TWO TERTIARY CENTRES IN NORTH ENGLAND – TECHNIQUE AND OUTCOMES

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### INTRODUCTION AND AIM

Insertion of peritoneal dialysis catheters (PDC) is prone to complications as displacement, blockage and leakage. Laparoscopic insertion was popularised by the senior author in 2006 (Milliken et al. JPUrol 2006;2(4):308–311) and adopted in two linked tertiary centres. It offers the advantage of sub-fascial tunnelling and controlled positioning of the catheter tip, making it less liable to migration and leakage. This is especially important following previous laparotomies. This work evaluates the outcomes of laparoscopically-guided insertion of PDCs in both centres over the last two years, combined with a video presentation of the technique.

### PATIENTS AND METHODS

Thirty PDCs were inserted from August 2016 to August 2018 across both centres. The procedure included an omentectomy either laparoscopically or by delivering the omentum to the umbilical port site (15 cases each), followed by a pre-peritoneal insertion of the catheter using Seldinger technique under laparoscopic control.

### RESULTS

The median age was 5.8 years (IQR:0.76–13.7 years). The median follow-up was 9 months. All catheters were inserted laparoscopically and used within 24 hours. No cases of catheter migration or cuff displacement were noted. Mechanical complications occurred in 7 cases (23 %), four of which had previous laparotomies or open PDC insertion. Leakage occurred in 1 case and resolved by resting the PDC for 48 hours; early blockage occurred in 3 cases (2 not flushing, 1 not aspirating and all were salvaged laparoscopically); delayed suboptimal drainage occurred in 3 cases (within 12 months) requiring adjustment of the dialysis rates in 2 cases and removal of the PDC in 1 case.

### CONCLUSION

Laparoscopic-assisted insertion of peritoneal dialysis catheters with omentectomy is reproducible, has a low incidence of leakage and showed no catheter migration in this series. It is the gold standard approach in our tertiary referral units.

## LAPAROSCOPIC AUGMENTATION ENTEROCYSTOPLASY

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### PURPOSE

The aim of this study is to describe a simplified surgical technique for laparoscopic augmentation enterocystoplasty (LAEC) in children and evaluate the short-term outcomes.

### MATERIAL AND METHODS

The procedure was performed in a 14-year-old male with a history of myelomenigocele and secondary neurogenic bladder who presented with recurrent pyelonephritis. Uroynamics revealed a hypertonic bladder with low compliance and capacity (140 ml). On voiding cystourethrogram a left unilateral grade II vesicoureteral reflux was observed. He received two injections of intravesical botulinum toxin without improvement and was therefore scheduled for LAEC.

### RESULTS

The procedure included: transperitoneal placement of four ports, selection of a 15-cm ileal segment with sufficient mobility, extracorporeal isolation of the bowel segment and termino-terminal anastomosis, extracorporeal suturing of the detubularized bowel into a U-shaped configuration, placement of 4 reference sutures, reintroduction in the peritoneal cavity, bladder opening in a coronal plane, fixation of the ileal patch to the bladder suturing first the 3 posterior reference sutures and followed by watertight anastomosis with running sutures of each quadrant.

Only a urethral catheter was left in place. There were no intra- or postoperative complications. Operative time was: 320 minutes. The patient started oral feeding 12 hours after surgery and was discharged on the 5<sup>th</sup> postoperative day. With a follow-up of 10 months he remains asymptomatic and current bladder capacity is 360 ml.

### CONCLUSIONS

LEC is a complex procedure that requires advanced laparoscopic skills. It reproduces the open technique providing the advantages of laparoscopy, with the disadvantage of prolonging the surgical time. Although short-term results seem encouraging, long-term follow-up is required.

## TUNICA VAGINALIS FLAP IN A PEDIATRIC PATIENT WITH TESTICULAR RUPTURE DUE TO GUNSHOT

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### PURPOSE

Blast testicular injury from gunshot may result in severe testicular damage and rupture, are rare conditions in paediatric population. The management of these wounds are difficult and 50 % result in orchiectomy. A patient with bilateral severe testicular rupture and large tunica albuginea defect that repaired with tunica vaginalis flaps was presented in this study.

### MATERIAL AND METHODS

A 16 years old boy was administered with both ruptured testes that are located out of the scrotum. He was a sheep-man in the field and fired to kill the fox but shot himself. The first examination revealed both tunica albuginea defects and unviable tissues but normal blood supply in testes. He was taken to the operating theatre and the exploration revealed entrance of the wound in the cranial

portion of the scrotum on the left side of the penis. Tunica albuginea defects were severe and primer closure could not be achieved, but defect were minimize with a few primer sutures on the tunica albuginea edges. To sacrifice of the viable testicular tissue to close the tunica albuginea was not prefer. Tunica vaginalis flaps sutured to the remaining edges with absorbable sutures.

## RESULTS

At his fourth month follow up, Doppler ultrasound revealed normal blood supply of both testes.

## CONCLUSIONS

Severe testicular rupture with tunica albuginea defect sometimes cannot be closed primarily without excision of viable testicular tissue. In these cases, the vascularized tunica vaginalis flaps provides an alternative method to closure without sacrificing viable tissue.

VD-28 (VD without presentation)

# LAPAROSCOPIC REDO PYELOPLASTY WITH CULP DE WEERD TECHNIQUE

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## PURPOSE

The redo pyeloplasty with shortened ureter and fibrosis is always a complex case to resolve. The Culp De Weerd flap pyeloplasty can be used in special cases such as long stenosis of the proximal ureter and fibrosis.

We present a video of the resolution of a complex redo pyeloplasty with this technique.

## PATIENT AND METHODS

**Clinical Case:** A 6 month old patient was operated due to severe hydronephrosis performing a dismembered pyeloplasty. One month later was reoperated because of persistent hydronephrosis with double J stent placement. In two other times a double J stent needed to be inserted. At 25 months, a third open pyeloplasty with double J stent was performed. It presents severe hydronephrosis after double j removal and is therefore referred to our center. Ultrasound showed persistent dilatation. Radiorenogram had a retentive curve and relative renal function of 39 %.

**Surgery:** we performed a laparoscopic left pyeloplasty in the modified Valdivia position. A pyelography demonstrate a 2.5 cm stenosis. Three mm instrument were used for dissection. An important fibrosis, a dilated pelvis and a long ureteral stenosis was found. A pelvis flap as the Culp de Weerd technique was used to bridge the stenotic segment. A double J stent was left in place for 8 weeks. The surgical time was 3 hours. The patient was discharged from the hospital 48 hours after the surgery.

At 8 month follow up the patient have minor pelvic dilatation on ultrasound and is without symptoms.

## CONCLUSIONS

Redo pyeloplasty with pyelic flap could be used as an alternative in cases of long ureteral stenosis with good results.

## WHEN VISION IS EVERYTHING; ANALYSIS OF A PEDIATRIC SERIES OF LAPAROSCOPIC MANAGEMENT OF RECURRENT PYELOURETERAL OBSTRUCTION

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### PURPOSE

Although the Anderson-Haynes pyeloplasty has a low rate of complications, there are cases that require reoperation for recurrent obstruction. Redo pyeloplasty is complex surgery, especially because of the scar tissue from the previous intervention. Our aim was to evaluate patients undergoing laparoscopic redo pyeloplasty, analyzing whether this approach offers advantages for this difficult surgery.

### MATERIAL AND METHODS

A retrospective study of all patients undergoing laparoscopic redo pyeloplasty between January 2009-December 2017, with at least 6 months follow-up at 3 international centres for paediatric urology. Demographic data, perioperative characteristics, complications and outcome data were collected.

### RESULTS

In the 9 years studied, there were 18 redo surgeries performed laparoscopically. Of those, 9 cases were initially operated open (lumbotomy) and 9 laparoscopically. The average time to reoperation after the first surgery was 18 months (range, 3–120 months). The average surgery time was 148 min (range 90–240 min). In all cases considerable scar tissue was identified at the ureteropelvic junction and transperitoneal laparoscopic vision allowed for the correct identification of the anatomy and to be able to perform a new pyeloureteral anastomosis in a comfortable way. After a follow-up time of 20 months all patients are asymptomatic and with improved radiological parameters (US and MAG3).

### CONCLUSIONS

The reoperation of a patient is a stress for any surgeon. This series shows that the transperitoneal laparoscopic approach provides good vision and approach to the problem allowing this complex surgery to be carried out effectively and comfortably with an excellent success rate, making it the first option in recurrent PUJO.

VD-30 (VD without presentation)

## FIBROEPITHELIAL "OCTOPUS" – A RARE PATHOLOGY ON RETROPERITONEAL LAPAROSCOPIC PYELOPLASTY

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### PURPOSE

Retroperitoneal 3D laparoscopic pyeloplasty is a minimally invasive technique for treating uretero-pelvic junction obstruction. We present this video with the purpose to show that sometimes rare tumors like fibroepithelial polyps can cause such obstructions and how to tackle with such unusual situations.

### MATERIAL AND METHODS

A 12 year old boy presented with 1 year history of fever, with occasional hematuria and episodes of renal colic. His ultrasound showed left sided hydronephrosis with sagging pelvis. His IVP showed PUJ narrowing on left side with delay in excretion of contrast. A MAG3 nuclear renal scan with Lasix demonstrated 51 % of total left kidney function. An obstructive drainage pattern with the T1/2 Lasix drainage time never being reached was noted for the left kidney.

A 10 mm camera port was placed in left flank 1 cm below the tip of 12<sup>th</sup> rib with two 3 mm working ports in Left renal angle and above iliac crest respectively. Renal pelvis and proximal ureter were dissected and mobilized. The suspicion started when there was feel of a firm fullness of the ureter from pelvis up to midureter. UPJ was opened and there was emergence of multiple mucosal legs like that of an octopus followed by its main body arising from PUJ. It was completely resected, ureter inspected by a 8 Fr flexible ureterorenoscope and ureteropelvic anastomosis was completed over a 4 Fr DJ stent. He was discharged after 48 hours.

### RESULTS

DJ stent was removed 4 weeks later and patient reviewed at three months showed a non hydronephrotic kidney and no hydroureter. He is no more symptomatic and UTI free.

### CONCLUSIONS

Retroperitoneal Laparoscopic pyeloplasty is a feasible, safe and efficient technique for the relief of PUJ obstructions. One must be aware of and ready for tackling unusual lesions and growths as the cause of hydronephrosis in pediatric population.

VD-31 (VD without presentation)

## LAPAROSCOPIC EXTRAVESICAL REIMPLANTATION FOR THE TREATMENT OF PRIMARY OBSTRUCTIVE MEGAURETER

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### PURPOSE

Reimplantation for treatment of primary obstructive megaureter (POM) can be done by open or laparoscopic surgery, intra or extravesical. We show our experience in laparoscopic extravesical (LE) treatment of POM.

## MATERIAL AND METHODS

Three children with POM have undergone surgery using LE reimplant Lich Gregoir. Surgical indication was based on no improvement in the obstructive elimination curve of the MAG-3 renogram after pneumatic dilatation of the ureterovesical junction. The patients were monitored by ultrasound, diuretic renogram and cystography 6 months after the intervention.

## RESULTS

The age of the three cases intervened was 1 year and 10 months, 6 and 8 years. Two POM were left (66, 7 %) and one right (33.3 %). One case required ureteral modeling that was performed according to the Kalicinsky technique. The mean surgical time was 3 h and 16 minutes and there were no surgical complications. The patients were discharged at 3, 4 and 5 days respectively. The ureteral catheter was accidentally left at 24 hours in one case and in the other two it was withdrawn after 7 days on an outpatient basis. The urethral catheter was maintained in all cases for 14 days. In all cases, the control ultrasound showed a decrease in ureteral dilation without vesicoureteral reflux in the cystography and a nonobstructive elimination curve in the diuretic renogram.

## CONCLUSIONS

LE approach to POM is a valid and effective technique, with rapid recovery and low hospital stay. A greater number of cases are needed to establish more solid conclusions.

### VD-32 (VD without presentation)

## LAPAROSCOPIC URETEROCALICOSTOMY FOR URETEROPELVIC JUNCTION OBSTRUCTION WITH INTRARENAL PELVIS IN A 13 YEARS OLD GIRL: TECHNIC AND RESULT

Pauline LOPEZ, Alaa EL GHONEIMI, Matthieu PEYCELON and Annabel PAYE-JAOUEN

*Robert Debre University Hospital, APHP, University Paris Diderot. Centre de référence des malformations rares des voies urinaires (MARVU), Pediatric Urology, Pediatric Urology Departement, Paris, FRANCE*

## PURPOSE

Ureterocalicostomy (UC) for ureteropelvic junction obstruction (UPJO) has been described in children as primary procedure in case of unusual anatomical variation (malrotation, horseshoe kidney, intrarenal pelvis) or secondarily after a failed pyeloplasty. Few cases of laparoscopic UC have been reported. This video describes the technic of ureterocalicostomy for primary UPJO in a 13 years old girl with an intrarenal pelvis and parenchymal thinning.

## MATERIAL AND METHODS

Surgical approach was a four ports technique. Anastomosis was performed with 3 mm instruments with a 5/0 absorbable running suture over a double-J stent.

## RESULTS

There was no intraoperative complication. The operative time was 129 minutes. Hospital stay was 2 days. Double-J stent was removed during the 4<sup>th</sup> week postoperative. Delay to ultrasound was 35 days after stent removal and hydronephrosis had totally shrunk. At last follow-up, stable renal function without persistent symptoms was observed.

## CONCLUSIONS

Laparoscopic ureterocalicostomy is a feasible and safe approach for the first line treatment of UPJO in case of unusual anatomical variation such as intrarenal pelvis in the pediatric population.

## LAPAROSCOPIC AND URETHROCYSTOSCOPIC APPROACH OF CROSSED TESTICULAR ECTOPIA IN A 18-MONTH-OLD PATIENT

Alejandro MANZANARES<sup>1</sup>, Andrea SORIA GONDEK<sup>1</sup>, Maria OVIEDO<sup>1</sup>, Maria Pilar ABAD<sup>1</sup>, Marta MURILLO<sup>2</sup> and Marta DE DIEGO<sup>1</sup>

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### PURPOSE

To present the laparoscopic and urethrocystoscopic approach of a crossed (or transverse) testicular ectopia.

### PATIENTS

An 18-month-old male without any medical history presented with non-palpable left testis. The right testicle was palpable and located in the right inguinal canal. The ultrasound imaging revealed the presence of both testicles in the right inguinal canal. His karyotype was 46XY.

### RESULTS

Given the suspicion of a transverse testicular ectopia, we performed a laparoscopy. The right peritoneo-vaginal process was wide open. The left (ectopic) testicle was located at the right deep inguinal ring. Its vessels were crossing from the left side. The right (orthotopic) testicle had correctly descended to the scrotum. We identified the presence of Müllerian duct remnants that were intimately close to the left vas deferens and testicle. An urethrocystoscopy was performed to rule out any communication between the urethra and the Müllerian duct remnants. Finally we descended and performed a transeptal orchidopexy of both testicles.

### CONCLUSIONS

Crossed testicular ectopia is a rare urologic malformation. To rule out the presence of Müllerian duct remnants is mandatory. In our single experience we did not find any communication between the urethra and those remnants. We do not recommend the excision of Müllerian duct remnants due to the risk of vas deferens or testicular vascularization damage.

## PEDIATRIC PERCUTANEOUS NEPHROLITHOTOMY (PCNL) WITH ASPIRATION SHEATH FOR STAGHORN LITHIASIS

Tessi CATALINA, Felicitas LOPEZ IMIZCOZ, Javier RUIZ, Santiago WELLER, Cristian SAGER, Carol BUREK and Juan Pablo CORBETTA

Garrahan Hospital Buenos Aires Argentina, Urology, Ciudad Autonoma De Buenos Aires, ARGENTINA

### PURPOSE

The introduction of the aspiration's sheath (Clear Petra<sup>®</sup>) with reduced gauge access (16 Fr) has advantages such as: faster aspiration of fragments without the need of baskets for lithiasis extraction, excellent visibility, low intrarenal pressure. It is our goal to present a video demonstrating the usefulness of Clear Petra<sup>®</sup> in the treatment of pediatric staghorn lithiasis.

### MATERIAL AND METHODS

2-year-old male patient with a history of febrile urinary infections and a positive urine study for phosphate-magnesium.

In renal ultrasound and in CT scan without contrast, incomplete staghorn lithiasis was observed, without ureteral or bladder lithiasis.

It is decided to perform PCNL.

## RESULTS

PCNL was performed in the supine position (Valdivia Galdakao modified), entered under fluoroscopic control by lower posterior calyx, dilatation with Alken, placement of Clear Petra® 16 Fr and nephroscopy with MIP M nephroscope (Storz)

Lithiasis fragmentation was performed with Holmium laser with fiber of 940 um with dusting technique with low energy (0.8J) and low frequency (10 hz) combined with the suction component of Clear Petra®.

Nephrostomy was placed as urinary diversion.

## CONCLUSIONS

The aspiration sheath in stones of infectious origin in pediatric population allows an objective improvement in PCNL times, and avoids the use of forceps or baskets for fragment extraction.

In pediatric population with staghorn lithiasis of infectious origin the use of Holmium laser applying dusting technique is a very effective method.

### VD-35 (VD without presentation)

## INDOCYANINE GREEN-ENHANCED FLUORESCENCE FOR ASSESSING RENAL VASCULARIZATION DURING LAPAROSCOPIC NEPHRECTOMY

Alberto PARENTE, Laura BURGOS, Ruben ORTIZ and Jose Maria ANGULO

*Gregorio Marañón University Hospital, Pediatric Urology, Madrid, SPAIN*

### PURPOSE

Sometimes, localizing renal vascularization is not easy due to anatomical variability. It may lead to errors during laparoscopic nephrectomy producing significant bleeding and long surgical time. The indocyanine green (ICG) aided near infrared fluorescence (NIRF) imaging using Striker ENV system provides enhanced real-time visualization of anatomy during minimally invasive surgery.

### MATERIAL AND METHODS

We present 2 patients (3 and 6 years-old) who underwent bilateral laparoscopic nephrectomy due to corticoid resistant hypertension and end-stage renal failure. We found difficulty in localizing renal vascularization. When ENV mode is activated, the system uses fluorescent light to visualize blood flow, tissue perfusion, and biliary ducts. The system illuminates the surgical site by generating light within visible and infrared spectra. After image signals are transmitted from the laparoscope to the camera control unit for processing, the final image is displayed on the monitor. A button on the camera head can be used to shift between visible light and NIR light.

### RESULTS

There were no intraoperative complications and blood loss was insignificant. Mean surgical time was 36 ± 10 minutes in both procedures and patients were discharged 24 hours after surgery.

### CONCLUSIONS

Although there is no replacement for good surgical technique and judgment, indocyanine green (ICG) aided near infrared fluorescence (NIRF) imaging during nephrectomy is a useful real-time way of alerting the surgeon of unexpected anatomy. It could as well contribute to lessen the number of surgical procedures that need to be converting to open surgery.

# S1: BASIC RESEARCH 1

Moderators: Magdalena Fossum (Sweden), Darius J. Bägli (Canada)

ESPU Meeting on Wednesday 24, April 2019, 13:15–14:15

13:15–13:18

S1-1 (PP)

## MUTATIONAL ANALYSIS OF HOGA1 IN CHINESE PEDIATRIC PATIENTS WITH PRIMARY HYPEROXALURIA TYPE 3

Wenyng WANG and Jun LI

*Beijing Friendship Hospital, Capital Medical University, Urology, Beijing, CHINA*

### PURPOSE

The aim of our study was to analyze and characterize the mutational spectrum of PH3 in Chinese pediatric patients with kidney stones. Primary hyperoxaluria type 3 (PH3) is an autosomal recessive metabolic disorder caused by inherited mutations in the HOGA1 gene. Nearly thirty HOGA1 mutations have been reported in PH3 with c.700+5G>T accounting for about 50 % of the total alleles in the literatures.

### MATERIAL AND METHODS

Ninety-five pediatric patients with early-onset nephrolithiasis were suspected of having PH. DNA was extracted from patient's white blood cell. The whole exome sequencing was performed. All coding regions, including exon, intron-exon boundaries, were analyzed using PCR followed by direct sequence analysis.

### RESULTS

PH1, PH2 and PH3 were found in 7, 4 and 10 pediatric patients respectively. Among of PH3 patients, 8 were boys and 2 were girls, the mean age was 35 months. Three mutations not previously described in the literature about HOGA1 were identified (compound heterozygous or homozygous). The most commonly mutation was seen in 6 patients, which was a guanine to adenine substitution of the last nucleotide of exon (c.834G>A). In addition, three SNPs were found in these family (c.812G>A, c.952C>T and c.811C>T).

### CONCLUSIONS

This is the largest cases reporting PH3 mutations in Asian families. Three novel HOGA1 mutations were found in associated with PH3, and c.834G>A was the most commonly seen mutation of PH3 in Chinese pediatric patients with kidney stones. Future investigation in Chinese pediatric populations, especially cases with PH3 genotype and phenotype, are highly needed.

## OXIDATIVE STRESS IN PEDIATRIC UROLITHIASIS- PROTEOMIC EVIDENCE

Larisa KOVACEVIC, Hong LU, Natalija KOVACEVIC and Yegappan LAKSHMANAN

*Children's Hospital of Michigan, Pediatric Urology, Detroit, USA*

### PURPOSE

We aimed to investigate whether oxidative stress is present in children with stones (RS) compared to healthy controls (HC) by measuring urinary proteins involved in this process.

### MATERIAL AND METHODS

Prospective quantitative proteomic comparison of pooled urine from RS (n=30, 24 females, mean age 12.95±4.03 years) versus age- and gender-matched HC (n=30), using liquid chromatography-mass spectrometry. Proteins of interest were selected using the following criteria: 1) ≥5 spectral counts; 2) ≥2-fold difference in spectral counts; and 3) ≤0.05 p-value for the Fisher's Exact Test.

### RESULTS

Of the 1813 proteins identified, 230 met the above criteria, with 163 proteins up-regulated in the RS group and 67 up-regulated in HC.

Five proteins involved in oxidative stress were over-represented in stone children. Of those, NADPH-oxidase, a major source of reactive oxygen species, was only found in the RS group, while glutathione S-transferase A2, an important antioxidant enzyme, was more abundant in controls (Table).

Accession Number	Assigned peptides [Patient-Control]	Ratio (Patient/Control)	Fisher's Exact Test (p-Value)
BLVRB	5-0	Unique	0.0630
CATA	13-0	Unique	0.0003
SODC	35-13	2.69	0.0034
PERM	95-43	2.21	< 0.0001
GSTA2	19-38	0.59	0.0076

BLVRB-flavin reductase; CATA-catalase, SODC-Cu/Zn superoxide dismutase; PERM- myeloper-oxidase; GSTA2- glutathione S-transferase A2.

### CONCLUSIONS

We provide proteomic evidence of oxidative stress in children with renal stones. We speculate that changes in the oxidant-antioxidant balance may cause tubular dysfunction in these patients. Targeting these proteins may have therapeutic benefits.

13:21–13:24

S1-3 (PP)

## ★ GLOBAL GENE EXPRESSION PROFILING OF BLADDER EXSTROPHY SMOOTH MUSCLE CELLS

Jason MICHAUD<sup>1</sup>, Heather DICARLO<sup>2</sup> and John GEARHART<sup>2</sup>

1) Johns Hopkins SOM, Pediatric Urology, Baltimore, USA - 2) Johns Hopkins SOM, Baltimore, USA

### PURPOSE

Bladder dysfunction in patients with bladder exstrophy is characterized by an array of phenotypes, including poor bladder growth and poor detrusor contractility. To better understand smooth muscle cell physiology in bladder exstrophy, we investigated global gene expression profiles in primary bladder exstrophy smooth muscle cells using RNA sequencing technology.

### MATERIAL AND METHODS

Primary human bladder smooth muscle cell lines were generated from patients with classic bladder exstrophy and controls with vesicoureteral reflux. mRNA-seq libraries were prepared from total RNA for next-generation sequencing. Reads were mapped against the human transcriptome reference (GRCh38). Normalization and differential expression analysis was performed using Partek GS 7.0, and Ingenuity Pathway Analysis (QIAGEN) was used for dataset functional analysis and modeling.

### RESULTS

We identified 1422 differentially expressed genes in bladder exstrophy smooth muscle cells when compared to controls. Bladder exstrophy cell lines showed increased expression in pathways for the inflammatory response, genitourinary development and cell migration. Expression of known exstrophy candidate genes including SCL20A1, CELSR3, or the ISL-1 pathway were not altered. Inflammatory genes were upregulated in bladder exstrophy smooth muscle cells across all ages and bladder exstrophy subgroups. Furthermore, inflammatory gene expression was higher in patients undergoing delayed closure compared to newborn closure.

### CONCLUSIONS

Our results represent the first application of RNA-seq technology in the study of bladder exstrophy. Bladder exstrophy smooth muscle cells demonstrated upregulation of genes relating to pathways of inflammation, genitourinary development and cell movement across all exstrophy patients. Overall, these results help further illuminate the underlying muscle pathology in exstrophy.

13:24–13:27

S1-4 (PP)

## GENETIC VARIANTS RELATED TO SEX HORMONE BIOSYNTHESIS, GENITAL TUBERCLE, AND URETHRAL DEVELOPMENT AS A PREDICTIVE MARKER FOR HYPOSPADIAS

Jae Hyeon HAN<sup>1</sup>, Je Sung LEE<sup>1</sup>, Sang Hoon SONG<sup>1</sup>, Jin-Ho CHOI<sup>2</sup> and Kun Suk KIM<sup>1</sup>

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### PURPOSE

Hypospadias is a frequent congenital anomaly but in most cases an underlying cause has not been found. While a single gene mutation has been recognized as the factor that causes hypospadias, a wide range gene panel investigation has been conducted only in a few researches. This research will discuss about various genetic factors that influences development of hypospadias in children.

### MATERIAL AND METHODS

Twenty one hypospadias patients consisted of identical or fraternal twin and traditional patients are selected from retrospective investigation on medical records of 339 hypospadias patients of age 0 to 20 from July 2004 to May 2016. Blood sample of interest group has been collected to conduct targeted exome sequencing in an attempt to localize genetic mutation using 67 types of gene panel that influences a development of reproductive organ and testosterone and its receptor. Known and investigated genetic mutations that affects development of hypospadias are interpreted using 1000 genomes browser and potential disease causing mutations are recognized with Polyphen-2.

### RESULTS

Among 21 patients, 2 genetic mutation were recognized. Heterozygous genetic mutation at AMH, BBS12, SRD5A2, BBS12 in 3 pairs of concordant twin, heterozygous genetic mutation at AMH, BBS1, WWOX, CHD7, BBS2, FGFR1 and hemizygous genetic mutation at AR, MAMLD1 were noticed. Known heterozygous FGFR1 mutation are noticed from 1 of 3 Traditional patients. No genetic mutation has been found on 4 patients. Among those mutations, CHD7, BBS1, BBS12, AMH shows great disease causing potential.

### CONCLUSIONS

We found potential novel hypospadias causing genetic mutation at CHD7, BBS1, BBS12, AMH. However, another research is required to investigate influence of such mutation in a development of hypospadias.

13:27–13:39

### Discussion

13:39–13:42

S1-5 (PP)

## **IN VIVO ASSESSMENT OF THE BIOMECHANICS OF RABBIT URETHRA; AN IMPORTANT AID IN OPTIMIZED TRANSLATABLE URETHRAL REGENERATIVE MEDICINE EXPERIMENTS**

Tariq Osman ABBAS<sup>1</sup> and Cristian PENNISI<sup>2</sup>

1) Hamad General Hospital, Pediatric Surgery, Doha, QATAR - 2) Aalborg University, Laboratory for Stem Cell Research, Department of Health Science and Technology, Aalborg, DENMARK

### **PURPOSE**

We studied the in vivo biomechanical properties of the different regions of the urethrae in a rabbit urethral reconstruction simulation model with emphasis on aging effect.

### **MATERIAL AND METHODS**

The mechanical properties of the urethrae of different lower urinary tract segments of six 9-week-old and two 4-week-old and two 20-week-old white New Zealand male rabbits were assessed. The biomechanical parameters studied were urethral tensile strength at numerous strain values, tensile strength at break and suture retention.

### **RESULTS**

The urethral tensile strength and Young's modulus were significantly higher in the proximal urethra samples ( $p < 0.001$ ). The strain-tension curves were not significantly different between the groups.

### **CONCLUSIONS**

All groups showed a wall tension-strain relationships in the 3 distinct sites. The urethras exhibited a decreasing ability to be distended with increasing distance from the bladder neck, indicating self-protection against damage. Rabbit urethral simulation model could be useful to test commonly used or new urethroplasty techniques and their functional (biomechanical) long-term results prior to clinical application.

13:42–13:45

S1-6 (PP)

## **★ DESIGN AND CHARACTERIZATION OF A TISSUE-ENGINEERED TRILAYER CHITOSAN, AND PLA BASED SCAFFOLD FOR URETHRAL TISSUE REPAIR**

Tariq Osman ABBAS<sup>1</sup> and Cristian PENNISI<sup>2</sup>

1) Hamad General Hospital, Pediatric Surgery, Doha, QATAR - 2) Aalborg University, Laboratory for Stem Cell Research, Department of Health Science and Technology, Aalborg, DENMARK

### **PURPOSE**

Treatment of full-thickness urethral defects relies on grafts, which mimic the normal microenvironment and structure of the deficient affected tissues: epithelial, submucosal and spongiosal layers. However, the integrity and stability of the grafts are hampered by the presence of a weak interphase, generated by the layering processes of scaffold manufacturing. We hypothesized that the middle layer acts as mechanical support, being composed of a synthetic polymer like polylactide (PLA), while the other two layers performs the role of primary cell attraction sites, being constituted by high-affinity, natural matrices chitosan.

## MATERIAL AND METHODS

We describe here the design and development of a trilayer graft, avoiding delamination of the three distinct layers but preserving the cues for selective generation of the unique urethral layered structure. A highly porous chitosan/poly(lactide)/Chitosan-based grafts were obtained by layering electrospinning technique.

## RESULTS

Pore structure and interconnections were designed to support the potential in vivo vascularization at the different layers. The structural integrity of the graft was successfully validated by tension-strain tests, biodegradability, suture retention and peeling tests revealing high resistance to delamination. There is a significant difference in surface wettability of Chitosan or PLA and blended scaffolds, as verified by water contact angle assays, being the chitosan layer more hydrophilic (contact angle around 35°) than the PLA-based layers (contact angle around 110°). In vitro cellular proliferation of grafts in transwell inserts was assessed, utilizing co-seeding with urothelial cells and primary bladder smooth muscle cells, that resulted in successful attachment, growth, proliferation and differentiation of these cells.

## CONCLUSIONS

This easily generable skeleton of blended trilayer scaffolds are mechanically and biologically functional and forms a novel approach in tissue-engineering applications for urethral repair.

13:45–13:48

S1-7 (PP)

## THE PATTERN OF GROWTH FACTORS GENE EXPRESSION DURING URETHRAL HEALING PROCESS IN ANIMAL MODELS

Irfan WAHYUDI<sup>1</sup>, Chaidir Arif MOCHTAR<sup>1</sup>, Nuryati Chairani SIREGAR<sup>2</sup> and Akmal TAHER<sup>1</sup>

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2) Cipto Mangunkusumo Hospital/ Faculty of Medicine, Universitas Indonesia, PATHOLOGY ANATOMY, Jakarta Pusat, INDONESIA

## PURPOSE

Growth factors is a polypeptide that induces cell proliferation by activating a specific membrane bound receptor. They play some roles in wound healing. The objective of this study was to observe the pattern of some key growth factors during urethral healing.

## MATERIAL AND METHODS

This was an experimental study with male New Zealand rabbit as a subject, divided into 2 groups: group I as a normal urethral healing group after urethral midline dorsal incision and group II as a urethral stricture group after deep cauterization of urethral circumference. Examination of RT PCR was done to detect and quantify transforming growth factor (TGF)  $\beta$ , basic fibroblast growth factors (b-FGF), and epidermal growth factor (EGF) gene expression in specimen taken from involved urethra.

## RESULTS

Thirty two subjects survived until the end of the study. Gene expression of TGF- $\beta$  was elevated during urethral healing process until day 90 in group II while reduced level of TGF- $\beta$  gene expression was observed after day 60 in group I. Gene expression of b-FGF in group I was higher than in group II in most of the time series until day 90. Increased gene expression of EGF was demonstrated in both group during the first 3 weeks of urethral healing but almost diminished after that.

## CONCLUSIONS

This study shows some differences in gene expression of growth factors during urethral healing process in two scenario animal model. Understanding the fluctuation of growth factors level and timing of expression can be explored to modify and improve urethral healing in the future.

13:48–13:51

S1-8 (PP)

## ★ SINGLE NUCLEOTIDE POLYMORPHISM ARRAY ANALYSIS IN FAMILIES OF 223 CHILDREN BORN WITH ISOLATED DISTAL HYPOSPADIAS

Matthieu PEYCELON<sup>1</sup>, Fernanda FRADE<sup>2</sup>, Sandra CHANTOT-BASTARAUD<sup>3</sup>, Genevieve QUENUM-MIRAILLET<sup>3</sup>, Capucine HYON<sup>4</sup>, Muriel HOUANG<sup>5</sup>, Laetitia MARTINERIE<sup>6</sup>, Annabel PAYE-JAUOEN<sup>7</sup>, Christine GRAPIN-DAGORNO<sup>8</sup>, Georges AUDRY<sup>9</sup>, Serge AMSELEM<sup>4</sup>, Marie LEGENDRE<sup>4</sup>, Alaa EL GHONEIMI<sup>10</sup> and Jean-Pierre SIFFROI<sup>11</sup>

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## PURPOSE

Hypospadias is the most common malformation affecting male genitalia and its incidence is increasing. Although the causes remain often unknown, endocrine, vascular and environmental factors have been implicated. The genetic basis in case of minor forms of hypospadias is probably underestimated. The aim of this study was to perform a pangenomic study using single nucleotide polymorphism (SNP) array in children with isolated and distal hypospadias.

## MATERIAL AND METHODS

A cohort of 284 children born with hypospadias has been established since 2011 of whom 223 boys had distal and isolated hypospadias. Genomic DNA was extracted from blood lymphocytes using standard techniques. A systematic karyotype was realized in all patients. SNP-array analysis was made using Cyto SNP 12 chips (Illumina®, New York, USA).

## RESULTS

A total of 617 copy number variations (CNVs) were identified in this cohort of whom 192 children had known CNVs from worldwide databases. Familial study revealed a parental heredity in six cases. Twenty-five anomalies (11.2 %) that could be a potential cause of hypospadias were identified by SNP-array in this cohort of children with isolated and distal hypospadias. One case of de novo translocation 46,XY,t(7;11)(p14;q23) has been identified from a karyotype. Twenty-one

patients presented CNVs which were likely to be implicated in this pathology: 16 duplications, three deletions, three double duplications, one translocation with one duplication, and one deletion and duplication encompassing a total of 22 candidate genes in 15 chromosomes. SNP-array analysis detected shared regions of homozygosity over two megabases in four patients which may harbor homozygous mutations in potential candidate genes.

### CONCLUSIONS

Pangenomic analysis found surprisingly 11.2 % anomalies which could be likely linked to isolated and distal hypospadias. This study highlights the usefulness of SNP-array in malformations with potential genetic causes and raises the issue of difficulties in genetic counseling.

13:51–13:54

S1-9 (PP)

## IS IT POSSIBLE TO USE ARTIFICIAL INTELLIGENCE TOOLS TO AUTOMATIZE THE SEGMENTATION OF KIDNEY TUMORS IN CHILDREN?

Yann CHAUSSY<sup>1</sup>, Florent MARIE<sup>2</sup>, Thibault DELAVELLE<sup>2</sup>, Lisa CORBAT<sup>2</sup>, Lorédane VIEILLE<sup>1</sup>, Marion LENOIR<sup>3</sup>, Frédéric AUBER<sup>1</sup> and Julien HENRIET<sup>2</sup>

1) CHRU Jean Minjot, Paediatric Surgery, Besançon, FRANCE - 2) University of Bourgogne Franche-Comté, FEMTO-ST, Besançon, FRANCE - 3) CHRU Jean Minjot, Paediatric Radiology, Besançon, FRANCE

### PURPOSE

The aim of this study is to determine if it is possible to use artificial intelligence tools to automatize the segmentation of kidney tumors on the basis of CT-scan of child treated for nephroblastoma.

### MATERIAL AND METHODS

We have manually segmented 10 kidney tumors using 3D Slicer software to constitute a case base. Then, we have developed a case-based reasoning system using a region growing approach for an automatic segmentation of kidneys and tumors. We have then completed the process with an adaptation phase that can modify the position of the seed (according to the expected level of grey of the structure to segment). The results of manually segmented cases and automatic segmented cases have been compared on 10 cross-sectional images using the Dice similarity Index.

### RESULTS

The mean Dice similarity index was 0.92 for the segmentation of renal tumor and 0.83 for the segmentation of pathologic kidney. The automatic segmentation failed in two cases without the adaptation phase. The development of this adaptation phase permits to confirm that the seed is correctly placed before the region growing process starts.

### CONCLUSIONS

Artificial intelligence tools, and particularly case-based reasoning system, are efficient to segment kidneys and renal tumors. The results could be improved by the enhancement of the case base. This system has to be developed to segment others structures like urinary cavities or renal vessels.

13:54–14:15

### Discussion

# S2: CASE REPORTS

Moderators: Rita Gobet (Switzerland), Alexander Springer (Austria)

ESPU Meeting on Wednesday 24, April 2019, 14:15–15:30

14:15–14:17

S2-1 (CP)

## BOTRYOID WILMS TUMOR WITH EXTENSION TO THE URETER: CASE REPORT AND LITERATURE REVIEW

Ana Maria GOMEZ<sup>1</sup>, Victor Hugo FIGUEROA<sup>2</sup>, Laura ARENAS<sup>1</sup>, Alba J RAMOS<sup>1</sup> and Maria Jose DIAZ<sup>1</sup>

1) Universidad Autonoma de Bucaramanga / Clinica Foscal, Urology, Floridablanca, COLOMBIA - 2) Universidad Autonoma de Bucaramanga / Clinica Foscal, Floridablanca, COLOMBIA

### PURPOSE

Wilms tumor (WT) is one of the most frequent pediatric solid tumors. Rarely, it arises from the renal pelvis growing in an exophytic fashion similar to botryoid sarcomas, hence the name Botryoid Wilms tumor (BWT).

### MATERIAL AND METHODS

We describe the case of a 15 month-old girl who was referred to the emergency department with history of febrile urinary tract infection, gross hematuria with clots and urinary retention. After her Foley was removed she prolapsed a mass through her urethral meatus. A right-side hydronephrosis without an associated renal mass was seen on the renal ultrasound (US). Cystoscopy showed a necrotic-appearing mass emanating from the right ureteral orifice. A CT scan confirmed the presence of right hydroureteronephrosis with a small hypo-dense mass in the renal pelvis extending into the right ureter.

### RESULTS

We performed a right radical nephroureterectomy with retroperitoneal lymph-node sampling. Severe hydroureteronephrosis with multiple polypoid masses in the collecting system extending down the ureter was found. Pathology report revealed a nephroblastoma with favorable histology originating at the pelvis underneath the urothelium. The typical triphasic features of WT were present. No anaplasia was seen. Lymph nodes, ureter, renal artery and vein were free from tumor. Adjuvant chemotherapy was given following the NWTS-4 protocol.

### CONCLUSIONS

BWT is an atypical form of WT, and it can present without a large parenchymal mass on US or CT scan. BWT should be suspected in patients with macroscopic hematuria and hydroureteronephrosis with passage of clots or tissue fragments per urethra.

14:17–14:19

S2-2 (CP)

## NEPHRON-SPARING SURGERY IN CHILDREN WITH WILMS TUMOR USING A SINGLE LAPAROSCOPIC ACCESS

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### PURPOSE

The question of preserving treatment in children with Wilms tumor is being discussed in the international literature. Unfortunately, the problem of nephron sparing surgery is not limited by the improvement of surgical techniques. Only the joint efforts of various experts can cure the patients with such disease.

### MATERIAL AND METHODS

Two children with Wilms tumor were treated using preserving surgery, the first case – the bilateral process and the second case – the volume of tumor less than 30 % of the kidney. Pre- and postoperative therapy was carried out in accordance with the Protocol SIOF 2001 / GPOH. In both cases, as a surgical technique we were used partial nephrectomy by a single laparoscopic access. That is why the access to the abdominal cavity was performed through a 2.5 cm length incision of umbilicus through single-port. The 5 mm laparoscope 30 °, rotating curved instruments and ultrasonic scissors were used. The rubber band was applied on the renal vessels with the exposition of no more than 40 minutes. The tumor was dissected entirely after the renal resection at the level of the healthy parenchyma (5 mm from the tumor), and removed using a laparoscopic evacuation bag. The renal wound was closed with hemostatic mesh and was sprinkled with hemostatic powder. Top of the wound was applied with kidney fat. Intraoperative blood loss in both cases were less 25 ml.

### RESULTS

Six months later the surgery both children were tested on the computerized tomography, which showed no signs of metastasis or recurrence of the tumor. Parents of the patients were satisfied by the cosmetic results of the surgical treatment.

### CONCLUSIONS

So, the partial nephrectomy in children with Wilms tumor using of a single laparoscopic approach may be the choice with good functional and cosmetic results.

14:19–14:21

S2-3 (CP)

## RHABDOMYOSARCOMA OF THE BLADDER AND PROSTATE IN THE FIRST MONTHS OF LIFE

Solón CASTILLO MALDONADO<sup>1</sup>, B NAVA<sup>1</sup>, A BUENO<sup>1</sup>, P LOPEZ PEREIRA<sup>1</sup>, B LOPEZ-IBOR<sup>2</sup>, S RIVAS<sup>1</sup>, V AMESTY<sup>1</sup>, R LOBATO<sup>1</sup> and MJ MARTINEZ-URRUTIA<sup>1</sup>

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### PURPOSE

Bladder/prostate (BP) location is the most common primary genitourinary site of rhabdomyosarcoma (RMS) and accounts for 5 % of all RMS. Survival has improved significantly with the advent of the multidisciplinary approaches.

The current treatment of the non-metastatic BP RMS includes chemotherapy and radiotherapy for local control. What options are there when this strategy is not enough?.

### **MATERIAL AND METHODS**

A 6-month-old boy consulted for UTI, bilateral ureterohydronephrosis and impaired renal function; MRI shows BP tumor and no distant metastases (Pet-scan). Endoscopic biopsy revealed bothyroid rhabdomyosarcoma. Induction chemotherapy was started (Ifosfamide, vincristine and actinomycin x 4) and radiotherapy from the 16<sup>th</sup> week after beginning the chemotherapy. Great reduction of the mass was obtained but residual tumor occluded the urethra with a transurethral biopsy showing residual embryonal rhabdomyosarcoma.

Surgical intervention was initially proposed given the persistence of residual mass at the end of the treatment, but a multidisciplinary evaluation of the situation was carried out and it was decided to prolong the treatment with chemotherapy (5 cycles) obtaining extraordinary results. The patient presented proximal tubulopathy secondary to chemotherapy and during follow-up required a vesicostomy to stabilize bilateral hydronephrosis and renal function.

### **RESULTS**

The patient is in complete remission confirmed by biopsy 2 years after the end of treatment. In terms of renal function he presents a GFR in the limits of normality and has achieved urinary and fecal continence.

### **CONCLUSIONS**

Non-metastatic BP RMS can be treated without mutilating surgery thus avoiding the significant morbidity from radical extirpation. A multidisciplinary approach should always followed.

**14:21–14:23**

**S2-4 (CP)**

## **TRANS URETHRAL RESECTION "EN-BLOC" OF TRANSITIONAL BLADDER CELL CARCINOMA WITH HOLMIUM:YAG LASER IN TWO PEDIATRIC PATIENTS**

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### **PURPOSE**

Urothelial bladder carcinoma frequently occurs in adults over 60 years of age and affects only 0,1 %-0,4 % of patients before the first two decades of life. We want present two cases of transitional cell carcinoma in two young patients treated with Holmium:YAG laser

### **MATERIAL AND METHODS**

A 14-year-old female presented with macroscopic haematuria in the previous 1 month, not associated with other symptoms. Physical examination and laboratory exams were all normal. Bladder ultra-sound revealed an intravesical endophytic lesion in the trigone zone of 10 mm x 6 mm x 10 mm. A 12-year-old female presented with acute macroscopic haematuria. No other symptoms were associated. Physical examination and laboratory exams were all normal. Bladder ultrasound revealed an irregular 15 mm intravesical endophytic lesion in the posterior-superior area.

All 2 patients are treated with the same approach. For resection, a Holmium:YAG fiber laser of 272 micron in diameter is used through the 12ch cystoscopy working channel with an energy of 0.8–1 J/pulse and a frequency of 8–10 Hz.

## RESULTS

There was not haematuria after the procedure, and the trans-urethral catheter remained for 12 hours. The histological diagnosis was Papillary Urothelial Neoplasm of Low Malignant Potential (PUNLMP) according to WHO/ISUP 2004 classification.

We performed a cystoscopy at 3 and 9 months, and bladder ultrasonography at 6 and 12 months, resulted normal. The follow-up for each patients, consists of a cystoscopy once a year, according with EAU guideline.

## CONCLUSIONS

According to us Holmium:YAG laser is a good alternative to treat superficial transitional cell carcinoma.

Although there are few cases, with this technique, we have achieved good results in the absence of post-operative complications.

14:23–14:25

S2-5 (CP)

## MALIGNANT PERIPHERAL NERVE SHEATH TUMOR OF THE DORSAL PENIS; A CASE REPORT AND REVIEW OF THE LITERATURE

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Malignant peripheral nerve sheath tumors are a rare type of cancer that occurs in the lining of the nerves that extend from the spinal cord into the body. Malignant peripheral nerve sheath tumors can occur anywhere in the body, but most often occur in the deep tissue of the arms, legs and trunk. They tend to cause pain and weakness in the affected area and may also cause a growing lump or mass. Malignant peripheral nerve sheath tumors (MPNSTs) is an aggressive neoplasm in which local recurrence is common and complete excision of the mass should be the goal of surgery. This is the first report of this case from Indonesia. We report a case of MPNST involving the penis in a 13 month-old boy. That had complain of growing lump on dorsal penis and suprapubic area for two weeks. The lesion was excised and a formal circumcision performed. Histology of the lesion revealed a spindle cell tumour. Immunohistochemistry showed the tumour cells to be strongly positive for a diagnosis of high grade malignant peripheral nerve sheath tumour was made. Malignant schwannoma is rare in children and is previously unreported in the penis in the paediatric age group without evidence of neurofibromatosis. The surgery is followed by post-operative radiotherapy and adjuvant chemotherapy.

14:25–14:27

S2-6 (CP)

## MEGALOURETHRA-LIKE MALFORMATION AFFECTING DUPLICATED URETHRA IN A GIRL. A CASE REPORT

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and Remi BESSON

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### PURPOSE

Both megalourethra and urethral duplication are rare urogenital malformation. Although urethral duplication has already been reported in girl (approximately 40 cases), megalourethra is a specific malformation of male genitalia. There are few report of (single urethra) megalourethra-like malformation (mega-urethra) in girl.

### CASE REPORT

A 31 years old pregnant woman (G4P2, one miscarriage), was diagnosed on 21<sup>st</sup> week of gestation, with a 45\*25 mm anterior perineal cystic mass affecting her female fetus, without reno-vesical dilatation. Biochemical analysis indicated urine and amniocentesis confirmed a 46 XX karyotype. Prenatal MRI showed no associated malformation. Ultrasound follow-up was maintained. At birth the child presented a median perineal cystic mass, above orthotopic meatus, repelling labia majora. Blood test showed no hormonal anomaly. Micturating cystourethrogram catheterizing both meatus confirmed urethral duplication, communicating with orthotopic urethra. We decided a two stages treatment. During neonatal period (day 6), we incised the ventral part of the mega-urethra to improve drainage. At 6 month, we planned a surgery for resection of duplicated urethra, reconstruction of external genitalia using skin flap from the dilated mega-urethra, and clitoroplasty with corpus cavernosum preservation.

### RESULTS

Postoperative follow up at 3 months was simple, with no voiding difficulties, nor urinary tract infection. Ultrasound showed no reno-vesical dilatation either.

### CONCLUSIONS

Presence of a dilated duplicated urethra in girl is a very rare condition. Primary objective should be to optimize urine drainage. Timing for reconstructive surgery should be discussed for each case. In these urogenital malformation, prenatal diagnosis is essential to estimate renal prognosis, and detect associated malformation.

14:27–14:39

### Discussion

14:39–14:41

S2-7 (CP)

## TRANSURETHRAL UNROOFING OF SEMINAL CYSTS IN ZINNER SYNDROME- A SAFE AND EFFECTIVE ALTERNATIVE MINIMAL INVASIVE PROCEDURE

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### PURPOSE

Zinner syndrome is rare anomaly of the mesonephric (Wolffian) duct comprising a triad of unilateral renal agenesis, ipsilateral seminal vesicle obstruction and ipsilateral ejaculatory duct obstruction. This syndrome was first described by A. Zinner in 1914 since then about 200 cases are reported. In symptomatic cases a surgical intervention is demanded.

### MATERIAL AND METHODS

2 boys in the age 15 and 18 years presented with scrotal pain and aliguria. They were sent with suspected urinary tract infection and bladder stone. Ultrasound revealed in both patients a left sided renal agenesis and an ipsilateral cystic enlargement of the seminal vesicle. MRI confirmed cystic-tubular retrovesical structures. Both patients went to the OR for transurethral incision (unroofing) of a cystic mass in the prostatic portion of the urethra.

### RESULTS

After transurethral incision both boy showed immediate improvement. In the nearly 2 year follow-up with ultrasound and MRI neither new seminal vesical cysts nor inflammatory changes of the ejaculatory ducts were seen. The clinical presentation was unremarkable and there were no more urinary tract infections.

### CONCLUSIONS

Particularly in non-giant seminal vesical cysts transurethral incision (unroofing) is a reliable and successful option. Due to the high infertility-rate related with retrovesical operations, primarily transurethral incision should be tried.

14:41–14:43

S2-8 (CP)

## CHALLENGING DECISION MAKING IN A 46XY DSD PATIENT

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### PURPOSE

To discuss and highlight the challenging decision making progress encountered in a patient with a particular form of DSD 46 XY.

## MATERIAL AND METHODS

A full term baby born to non-consanguineous parents was addressed for ambiguous genitalia (well developed penis with posterior hypospadias, scrotal bifidity with non-palpable testes and a vaginal opening at the perineum). Postnatal diagnosis was 46XY DSD gonadal dysgenesis and male gender assigned after multidisciplinary assessment and parental choice. At one year of age a laparoscopy and genitoscopy confirmed the internal anatomy: normal uterus with fallopian tubes and vaginal opening at the perineum. Two streak gonads were removed and a right testis biopsied. The second part of the surgery consisted in a modified Koyanagi procedure with preservation of the perineal vaginal opening. Histology described the streaks as undifferentiated gonadal material and the right gonad biopsy as dysgenetic testicular tissue. During regular out-patient clinic visits, the patient's psychological development was monitored. Parental concerns consisted in mainly two questions: when should the remaining gonad be removed as to the malignancy risk and to remove or not the Mullerian structures (irreversible surgery). The former concern was addressed ten months later by laparoscopic removal and cryopreservation of the remaining testis. Despite conflicting specialists' opinions, at 2 years of age, considering the clear masculine behavior of their child the parents opted for definitive resection surgery in early infancy in order to avoid later psychological problems. Uneventful total laparoscopically utero-vaginectomy were performed.

## CONCLUSIONS

This case illustrates the difficult parental decision making process in a complex moving social and legal context where specialist opinions invariably differ.

14:43–14:45

S2-9 (CP)

## VAGINOPLASTY WITH OXIDIZED CELLULOSE IN MAYER-ROKITANSKY-KUSTER-HAUSE SYNDROME

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## PURPOSE

Mayer–Rokitansky–Kuster–Hause Syndrome(MRKHS) is the major cause of vaginal agenesis. They present 46XX karyotype, appropriate external genitalia and primary amenorrhea, hypoplastic or absent uterus and the ovaries are normal. Surgical reconstruction of the vagina may be performed with different surgical techniques. A case of MRKHS that underwent Vaginoplasty with oxidized cellulose will be reported.

## MATERIAL AND METHODS

46, XX, 17 years old patient, with MRKHS. The patient was kept in a gynecological position. After bladder catheterization, a transverse incision was made in the vaginal introitus, followed by blunt digital dissection between rectal and retroaretral space to a depth of 10–15 cm. The vaginal silicone mold wrapped in oxidized cellulose was placed into the dissected cavity and it was kept there for five days. The vaginal mold was used daily during the night At the end of the second month of follow-up, the vaginal canal had a length of 8–9 cm and there was no pain

## RESULTS

The vaginoplasties with intestinal segments are certainly the most widespread surgical techniques among pediatric urologic surgeons. The necessity of intra-abdominal access is a major disadvantage of these procedures. Gynecologists use mechanical dilatation of the introitus as the first non-surgical attempt. Among the surgical interventions, the Abbe-McIndoe vaginoplasty is the preferred technique and consists of perineal incisions and, classically, the use of skin grafts. The use of oxidized cellulose in modified Abbe-McIndoe procedure has been reported with good cosmetic and functional results. After 6-month follow-up, these neovaginas present histological characteristics like a normal vagina. The best results were obtained in patients with vaginal agenesis and no functional uterus. In MRKHS, the uterus is absent in most patients, thus making vaginoplasty with oxidized cellulose an excellent surgical option.

## CONCLUSIONS

The vaginoplasty with oxidized cellulose may be considered as a surgical alternative in the MRKHS.

14:45–14:47

S2-10 (CP)

## OLBERT'S BALLOON AS A POSSIBILITY OF TREATING URETERAL STRICTURE AFTER COMPLICATED URS-L IN CHILDREN – PRELIMINARY REPORT

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### PURPOSE

Olbert's balloon dilatation is a surgery technique used for the treatment of the ureteral stricture. It is very often used in adult patients, however, due to the advancing miniaturization of the equipment as well as its precision, this technique has also become possible in the treatment process in children.

### MATERIAL AND METHODS

We would like to present 3 cases of Olbert's balloon dilatation carried out in children with ureteral stricture after complicated URS-L, aged 12 to 17 years. The average age was 14.3 years and the children were treated in our department from January 2016 to February 2017. All ureteral stricture was noticed after complicated URS-L procedure. All of those children were diagnosed for at least one year because of the abdominal pain!, before there were referred to our Clinical Department. All of the children had hydronephrosis of the 3<sup>rd</sup> grade. The lack of function of the kidney in DMSA was observed with average on about 20 %. During the URS-L procedure in all children the ingrown to the ureteral wall stone was noticed. Stone free rate was 100 % and the DJ stent was inserted. After removing DJ stent hydronephrosis was observed in US. Retrograde pyelogram revealed ureteral stricture in the place where stone was ingrown. DJ stent was placed and Olbert's Balloon dilatation under fluoroscopy was performed.

### RESULTS

We achieved an efficiency of 100 %. In DMSA function of the kidney after 3 months increased to the average of 36 %. The level of creatinine stayed at average 0.6. In US two children had no hydronephrosis and one child had 1<sup>st</sup> grade on hydronephrosis. The longest follow up is now 1.5 year still with the same good results.

### CONCLUSIONS

Olbert's balloon dilatation is an effective, safe and minimally invasive tool both for the ureteral stricture, but only in the hands of endourological experienced paediatric urologist. Still more and more prospective, randomized trials are needed.

14:47–14:49

S2-11 (CP)

## BLADDER EXSTROPHY ACCOMPANIED WITH RECTAL DUPLICATION, BIFID PHALLUS AND EPISPADIAS COMPLEX, AS AN EXTREMELY RARE CASE

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### PURPOSE

The bladder exstrophy is a midline closure defects which must be treatment with primary reconstruction in infancy period. The aim with this case is to discuss the evaluation and management of bladder exstrophy abnormality with rectal duplication.

### MATERIAL AND METHODS

On hospital records of patient was evaluationed included clinical and radiological findings, examination under anesthesia and assessment of the surgical findings, operative procedures and the results of management.

### RESULTS

The present patient was 4 month-old-age male. He referred with exstrophy vesicae and perineal mass. On physical examination, exstrophy vesicae, bifid phallus and rectal duplication placed on anus anteriorly were observed. Bladder was be able to primary closure, but couldn't performed iliac ostomy due to late presentation. Prior to closure, pseudopolyps were excised on the bladder mucosa. Urethral plate was created as epispadias. So urinary drainage was provided. Low abdomen anatomy was be able to restore anatomically. Symphysis pubis opening was greater than 5 cm. Duplication structure was excised. On histopathological examination, rectal duplication cyst abnormal structure was reported as intestine tissue. Bilateral gonadal structures were placed on intrascrotal. Perineal anatomy was restored by excising the mucosa lined lesion. Penile reconstruction was planned in one year old. On postoperative following vesico-ureteral reflux was not observed.

### CONCLUSIONS

The association of classical bladder exstrophy with ruptured rectal duplication cyst has never previously been described in the literature. The urinary bladder must be closed at the very early period. It was thought that this case report will contribute to the rare congenital anomalies of the literature.

14:49–14:03

## Discussion

14:59–15:01

S2-12 (CP)

## PRENATALLY DETECTED PATENT URACHUS WITH BLADDER PROLAPSE: FETAL COURSE AND POSTNATAL OUTCOME

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### PURPOSE

Patent urachus is a rare anomaly that may be identified as an abnormality of the umbilicus in the newborn. In some cases, patent urachus is detected prenatally. Although correct diagnosis is not always easy, this kind of anomaly displays some specific findings in utero. The purpose of this study was to assess the antenatal course and outcome of fetuses with bladder prolapse through a patent urachus.

### MATERIAL AND METHODS

A review of medical charts of 4 patients (3 boys and one girl) with prenatally detected patent urachus and bladder prolapse between 1996 and 2017 in our institute was conducted. All underwent serial ultrasound evaluation at the diagnosis and during follow-up.

### RESULTS

Gestational age at diagnosis ranged from 14 to 19 weeks. At presentation, a cystic mass was located in the base of the umbilical cord, communicating with the fetal bladder in all cases. The cystic mass suddenly disappeared as a result of spontaneous rupture at 26–34 weeks of gestational age. All patients were delivered at term without complication. All neonates had urinary leakage through the inferior portion of the umbilicus associated with bladder prolapse and omphalocele. Surgical repair was carried out within 48 hours in all cases. Postoperative voiding cystourethrography showed an adequate bladder capacity and no bladder outlet obstruction in all cases, and vesicoureteral reflux, which resolved subsequently, in 2 patients.

### CONCLUSIONS

Bladder prolapse through a patent urachus can be predicted by prenatal ultrasound. Prognosis of this condition is good.

15:01–15:03

S2-13 (CP)

## SYMPTOMATIC PARAPELVIC CYSTS IN CHILDREN: A RARE ENTITY. REPORT OF 4 CASES

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### PURPOSE

Parapelvic cysts (PC) lie directly adjacent to the renal pelvis and sinus. Most of them are asymptomatic. We report characteristics of symptomatic PC that mimic an ureteropelvic junction (UPJ) obstruction. The objective was to highlight specific features to avoid a misdiagnosed UPJ obstruction.

## MATERIAL AND METHODS

We reviewed retrospectively the files of four symptomatic PC.

## RESULTS

All children (18 months to 7 years) presented acute abdominal pain crises and vomiting with a large intra-sinusal liquid mass (42 to 85 mm) on ultrasound evoking a UPJ obstruction.

On dynamic renography (n = 3) there was no dilatation of the renal pelvis and in 2 cases differential function of the affected kidney was severely impaired (21 % and 28 %).

The diagnosis was suspected preoperatively for 3 patients with CT scan (n=1) and RMI (n=2) and made peroperatively in 1.

Injection of methylene blue (n=4) or retrograde pyelography (n=3) failed to identify communication between the renal pelvis and the cyst. Subtotal resection of the cyst was performed in all cases. There was no renal pelvis in two patients.

With a follow up of 17 to 65 months, no recurrence was observed. Renal function returned to normal in one patient and stayed impaired in the other.

## CONCLUSIONS

Diagnosis of PC should be considered with symptoms of UPJ obstruction associated with a medio renal liquid mass on ultrasound and no dilatated pelvis on dynamic renography.

In such cases, the evaluation of the upper urinary tract with MRI or CT scan and retrograde pyelography is mandatory prior to surgery.

15:03–15:05

S2-14 (CP)

## PAEDIATRIC XANTHOGRANULOMATOUS CYSTITIS (XC) AS A PELVIC MASS: CASE REPORT

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## PURPOSE

Xanthogranulomatous cystitis (XC) is a rare condition. Few cases have been reported in the literature so far. Here we present the case of XC in a girl with spina bifida.

## MATERIAL AND METHODS

Twelve years old girl, operated for MMC in infancy, presented with three months history of fever and lower abdominal pain. She was urinary and faecal incontinent.

## RESULTS

The girl was febrile and anaemic. A firm tender mass was palpable in lower abdomen. She had low haemoglobin, high leukocyte counts and a high serum creatinine. Ultrasound showed 8 x 7 cms. vascularized heterogenous mass on anterosuperior aspect of thick wall urinary bladder with bilateral hydroureteronephrosis. Her fever, leukocytes count and lower abdominal tenderness responded to I/V antibiotics and per urethral bladder drainage but mass of same size persisted. Her CT scan revealed 8 x 6 x 6 cms. heterogeneously enhancing mass involving anterosuperior aspect of urinary bladder and invading the anterior abdominal wall. Biopsy showed sheet of foamy histiocytes and fragments of necroinflammatory tissue. Mass gradually decreased in size and disappeared completely in a month time.

## CONCLUSIONS

This case highlights the importance of recognizing an unusual lesion that can present in individuals of any age. Histopathology can differentiate XC from other pathologies. To our knowledge this is the second reported case of paediatric xanthogranulomatous cystitis.

15:05–15:07

S2-15 (CP)

## GIANT BILATERAL HYDRONEPHROSIS - A CASE REPORT

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### PURPOSE

Prenatal hydronephrosis is common and may vary in severity. Although mostly unproblematic, it may be a sign for urinary tract obstruction of different severity.

### MATERIAL AND METHODS

We present a boy with known massive prenatal bilateral hydronephrosis. Prenatal ultrasound showed the whole abdominal cave of the fetus filled with urine. Renal parenchyma could not be seen. Due to prenatal counseling of the mother she was recommended to terminate pregnancy. The boy was born at 34 weeks of gestation.

### RESULTS

After delivery the boy showed a severely distended abdomen. Insertion of nasogastric tube was not possible and he had to be intubated due to respiratory insufficiency. Immediate percutaneous nephrostomy was performed bilaterally. After a few hours he could be stabilized and extubated. Ultrasound on the following day showed two renal units with normal renal parenchyma. The initially slight elevated serum creatinine level normalized within one week. An antegrade pyelography via the nephrostomy tubes was performed, where bilateral pyeloureteral junction obstruction could be verified.

### CONCLUSIONS

Severe bilateral hydronephrosis is not compulsorily associated with poor outcome of renal function. Prenatal counseling should be done carefully with discussion of the different possibilities and without definitive prediction of outcome. We would like to present this case with a complicated course but an excellent prognosis despite these severe prenatal findings.

## EXTRARENAL CALYCES MIMICKING RETROPERITONEAL CYSTIC MASS WITH CONCOMITANT URETEROPELVIC JUNCTION OBSTRUCTION: RENAL PELVIS RECONSTRUCTION USING CALYCES UNIFICATION

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### BACKGROUND

Extrarenal calyces (ERC) has still become one of the highly rare anomalies, especially in concomitant with ureteropelvic junction obstruction (UPJO). Its treatment is dominated by the use of dismembered pyeloplasty. We present a case in which its treatment was done by renal pelvis reconstruction using calyces unification.

### PATIENT

An eleven-year-old boy was referred to us due to a bilateral hydronephrosis and left multicystic kidney disease by ultrasonography examination. MRI showed left severe hydronephrosis with concomitant left cystic mass and left UPJO. Renal function was in preserved based on TC-99m DTPA diuretic renal scan. Intraoperatively, we found ERC with severe dilated renal pelvis. Renal pelvis was excised, major calyces which protrude from the kidney were anastomosed to each other using side-to-side anastomosis to become renal pelvis-like structure and further anastomosed to ureter. DJ stent, nephrostomy and 12 Fr drain were placed on the patient. Pathological examination revealed atrophic transitional epithelial cells.

### RESULTS

Patient underwent removal of 12 Fr drain, nephrostomy tube and DJ stent in 3 days, 2 weeks and 3 months after surgery, respectively. Patients had no complain and ultrasonography examination revealed no hydronephrosis after DJ stent removal. Therefore, the surgery is considered successful.

### CONCLUSIONS

Renal pelvis reconstruction using calyces unification could become one of the treatment choices in a patient with ERC coinciding with UPJO, especially in severe dilated renal pelvis or difficult to maintain portion of renal pelvis cases.

15:09–15:11

S2-17 (CP)

## OCHOA SYNDROME: BEHIND PECULIAR SMILE. CASES REPORTS

Anna BUJONS<sup>1</sup>, Erika LLORENS DE KNECHT<sup>2</sup>, Yesica QUIROZ<sup>2</sup>, Guilherme LANG MOTTA<sup>2</sup>, Helena VILA DEL REY<sup>2</sup> and Joan PALOU<sup>2</sup>

1) *Fundació Puigvert Barcelona, Paediatric Urology, Barcelona, SPAIN* - 2) *Fundació Puigvert, Pediatric Urology Unit, Barcelona, SPAIN*

### PURPOSE

The Ochoa Syndrome (OS) is characterized by urinary bladder voiding dysfunction (BVD) (vesico-sphincter dyssynergia, VSD) associated to inversion of the facial expression when laughing and crying and often bowel dysfunction. The BVD increases the risk of end-stage renal disease, because of vesicoureteric reflux (VUR), hydronephrosis and urosepsis. The aim of this report is to describe three cases of OS with different start symptoms and its long term follow up.

### MATERIAL AND METHODS

Three patients are described with these initial symptoms, diagnosis process and treatments received before and after the final diagnosis of OS, also the long term follow up of two of them who are adults actually.

### RESULTS

Case 1: 41 year old male started with enuresis at 7 years old and had bladder neck surgery because VSD. 6 years later had an augmentation cystoplasty for renal exclusion and has 29 years of follow up with preserved renal function. Case 2: 27 year old male with incontinence since 7 year of age who started clean intermittent self-catheterization. However he presented febrile ITU by VUR, which was treated with endoscopic treatment without success and finally he needed an augmentation cystoplasty. Case 3: 4 year old female with antenatal bilateral hydronephrosis who at birth was treated with vesicostomy. Three years later she came to our institution with a left renal exclusion and recurrent febrile ITU for laparoscopic nephroureterectomy.

### CONCLUSIONS

The OS is a rare pathology with serious repercussions in the upper urinary tract and for that reason it must be recognized to start the urological management early and improve the kidney function in the adulthood.

15:11–15:30

## Discussion

# S3: BASIC RESEARCH 2

Moderators: Luke Harper (France), Katherine Herbst (USA)

ESPU Meeting on Wednesday 24, April 2019, 15:50–16:50

15:50–15:53

S3-1 (PP)

## EARLY LIFE VOIDING DYSFUNCTION CAUSES LUTS IN ADOLESCENCE THROUGH ALTERATIONS OF BLADDER NEURONAL PATHWAYS

Nao IGUCHI<sup>1</sup>, Anna MALYKHINA<sup>1</sup> and Duncan WILCOX<sup>2</sup>

1) University of Colorado, Aurora, USA - 2) Children's Hospital Colorado, Aurora, USA

### PURPOSE

Bladder dysfunction in early life contributes to lifelong urinary tract symptoms and kidney failure. Despite its recognition, the underlying mechanism was not well understood. Voiding in neonatal mice depends on the perigenital-bladder reflex triggered by their mother licking the perineum until voluntary bladder control emerges around 3-week-old. The aim of this study was to examine the effects of early life voiding perturbation including urinary retention and disturbing normal voiding cycle induced by neonatal maternal separation (NMS) using a murine model.

### MATERIAL AND METHODS

Newborn mouse pups were divided into control and NMS groups after birth. NMS pups were removed from their dam and housed individually (6h per day) from postnatal day 2 to 14 days. Pups in the control group stayed with their dam all the time. Effects of NMS on bladder function were assessed in vitro by detrusor contractility studies as well as by evaluation of gene expression in the bladder at 6-week-old.

### RESULTS

NMS caused a significant decrease cholinergic receptor-mediated detrusor contractility besides an increase in purinergic-mediated contractility compared to control group. Gene expression studies revealed that a downregulation of M2 and M3 muscarinic receptors alongside of an upregulation of a purinergic receptor, P2x1, specifically expressed in detrusor muscle cells.

### CONCLUSIONS

Our results provide evidence that early life bladder dysfunction can affect the bladder development and alter the molecular mechanisms that control bladder function later stages in life. Developing a selective anti-purinergic therapy would provide an alternative treatment for patients who do not respond to antimuscarinic drugs.

## BLADDER FIBROSIS: EARLY MOLECULAR CHANGES AFTER 24-HOUR COMPLETE URETHRAL OBSTRUCTION

Yutao LU<sup>1</sup>, Rikke NØRREGAARD<sup>2</sup>, Jens C. DJURHUUS<sup>2</sup> and L. Henning OLSEN<sup>1</sup>

1) Aarhus University, Department of Urology & Department of Clinical Medicine, Aarhus, DENMARK - 2) Aarhus University, Department of Clinical Medicine, Aarhus N, DENMARK

### PURPOSE

Acute complete bladder outlet obstruction (BOO) can be seen in pediatric patients. The aim of this study is to elucidate the molecular changes in the bladder after acute infravesical obstruction.

### MATERIAL AND METHODS

Sixty male and female mice were randomly divided into Control, Sham and BOO groups with 10 mice in each group. Urethral obstruction was achieved by 6–0 suture tying around mid-urethra. In the Sham group, only skin incision was made without further dissection. The bladder tissue was harvested 24 hours after the procedure. Western blot and QPCR analysis were performed for related fibrosis markers. Colonic tissue was analysed to evaluate a possible systemic reaction due to the surgical stress.

### RESULTS

Our data indicated upregulation of fibrotic markers (TGF-beta, pSMAD2/3, pSMAD1/5, alpha-SMA), and downregulation of the anti-fibrotic protein (bone morphogenetic protein-7, (BMP-7)) in both BOO male and female mice. Fibronectin protein showed a tendency to increase in BOO male mice while it was significantly decreased in female BOO mice comparing to the Control group. Gender differences concerning histological damage and BMP-7 expression distribution were also observed in BOO group. In addition, the sham group showed increased bladder weight, TGF-beta expression, combined with BMP-7 downregulation compared to the control group. In colonic tissue, TGF-beta and interleukin-1 did not show significant differences between groups.

### CONCLUSIONS

Acute BOO induces series of early molecular changes, including a significant fibrotic reaction. The gender differences observed in this study needs further investigation. Single skin incision seems to cause molecular changes in the bladder.

15:56–15:59

S3-3 (PP)

## ★ POTENTIAL BENEFICIAL EFFECT OF TOCOTRIENOLS ON BLADDER DYSFUNCTION DUE TO PARTIAL BLADDER OUTLET OBSTRUCTION

Nao IGUCHI<sup>1</sup>, M.Irfan DÖNMEZ<sup>1</sup>, Anna MALYKHINA<sup>1</sup> and Duncan WILCOX<sup>2</sup>

1) University of Colorado, Aurora, USA - 2) Children's Hospital Colorado, Aurora, USA

### PURPOSE

Bladder dysfunction due to posterior urethral valves is a major issue that contributes to renal impairment of those patients. Only available medication is symptomatic use of anticholinergics. Hypoxia inducible factor (HIF) pathway has been shown to be involved in bladder dysfunction caused by partial bladder outlet obstruction (PBOO). In this study, we aimed to evaluate if tocotrienols (minor ingredients of vitamin E and HIF inhibitor) has beneficial effects on bladder function following PBOO in a murine model.

### MATERIAL AND METHODS

PBOO was surgically created by ligation of the bladder neck in 3-week-old male mice. Animals were divided into sham or PBOO+Soy bean oil (SBO, vehicle) and sham or PBOO+tocotrienol enriched palm oil extract (Toco) by daily oral administration from 0 to 14 days post-surgery. Bladder function was examined in vitro by physiological tests, and in vivo by weekly void spot assays (VSA). Also, bladder histology to examine the morphological changes among all groups of animals.

### RESULTS

PBOO induced fibrosis in the bladder as previously described, while the bladders from Toco group was significantly less fibrotic than SBO group following PBOO. VSA showed significant increases in the number of small voids in PBOO groups than in sham groups. PBOO+Toco group did not show a progressive increase in small voids as observed in PBOO+SBO group. Detrusor contractility in PBOO+Toco mice showed less severe decreases compared to PBOO+SBO group.

### CONCLUSIONS

Results of our study indicate that oral tocotrienol treatment may help slowing down the progression of bladder dysfunction caused by PBOO.

15:59–16:02

S3-4 (PP)

## THE NOTION OF OBSTRUCTIVE UROPATHY IN CONTEXT OF TELOCYTES AND TGF B1 INTERPLAY IN ITS PATHOGENESIS

Michał WOLNICKI<sup>1</sup>, Veronika ALEKSANDROVYCH<sup>2</sup>, Krzysztof GIL<sup>3</sup>, Janusz SULISLAWSKI<sup>4</sup>, Barbara DOBROWOLSKA-GLAZAR<sup>4</sup>, Ireneusz HONKISZ<sup>4</sup> and Rafał CHRZAN<sup>4</sup>

1) University Children Hospital, Paediatric Urology, Krakow, POLAND - 2) Jagiellonian University Medical College, Department of Pathophysiology, Krakow, POLAND - 3) Jagiellonian University Medical College, Krakow, POLAND - 4) Jagiellonian University Medical College, Department of Pediatric Urology, Krakow, POLAND

### PURPOSE

Newly discovered interstitial cells – telocytes are presumably involved in the pathogenesis of obstructive uropathies (OU). This study was conducted to assess the density of telocytes related to collagen formation in the ureter and to urinary TGF b1 concentrations in this group of patients.

### MATERIAL AND METHODS

This prospective study was approved by the local Ethical Committee. The samples were taken from 35 surgically treated patients due to UPJ obstruction. Control Group (CG) are 22 patients with non-obstructive disease of the urinary tract-mainly with renal tumors. Tissue specimens were immunolabeled, using specific telocytes markers: c-kit, CD34 and PDGFR $\alpha$ . The semiquantitative analysis of telocytes density was performed, using a simple scale with one, two or three pluses. TGF b1 concentration was evaluated in a urine sample taken from the bladder before and after surgery. TGF b1 concentration was evaluated in a urine sample from the bladder before and after surgery. Routine histology was performed for collagen deposits analysis. Student T test and ANOVA test (analysis of variance) were used for statistic with  $p < 0.001$  and  $\alpha = 0,05$  considered significant.

### RESULTS

Density of telocytes was decreased (one plus) in OU group compared to CG group (three pluses). The TGF b1 in bladder urine before surgery ranged from 4.8 up to 180 pg/ml (median 11.5 pg/ml) and decreased after surgery (median - 4.6 pg/ml). In control group TGF b1 concentrations never exceeded 4.6 pg/ml. The ratio of collagen and smooth muscle was altered in OU patients (%): collagen  $40 \pm 10$ ; muscle fibers  $40 \pm 10$ , in CG group (%): collagen  $32 \pm 10$ ; muscle fibers (%)  $54 \pm 12$ .

### CONCLUSIONS

A declined density of telocytes accompanied hydronephrosis development. The elevation of TGF b1 correlated with collagen accumulation. Both factors contributed to fibrotic transformation in OU patients.

16:02–16:14

## Discussion

16:14–16:17

S3-5 (PP)

## NORMAL AND HYDRONEPHROTIC MORPHOLOGICAL PROFILE OF THE PELVIS IN CHILDREN OF THE FIRST THREE YEARS OLD

Nikolay KHVATYNETS<sup>1</sup> and V.V. ROSTOVSKAYA<sup>2</sup>

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### PURPOSE

To investigate the age-related dynamics of the morphometry of pelvis in children under 3 y.o. in normal and with hydronephrosis

### MATERIAL AND METHODS

We compared two groups: normal autopsy (n=20) and specimens of patients with UPJO (n=20). Histology was analyzed using methods of morphometry and photocolourimetry with the calculation of the conjunctive tissue-muscle coefficient (CMC)

### RESULTS

Normally 0–6 m.o. the thickness of the lamina muscularis  $139 \pm 33.2 \mu\text{m}$  ( $p=0.05$ ) occurred due to myocyte hyperplasia, from 12–24 m.o. -  $275.0 \pm 48.1 \mu\text{m}$  ( $p=0.28$ ) occurred due to myocyte hypertrophy; the submucosa growth increased to  $102,5 \pm 3,5 \mu\text{m}$  ( $p=0,28$ ) and  $182,0 \pm 19,8 \mu\text{m}$  ( $p=0,68$ ) at the same periods. At the age of 6–12 and 24–36 m.o. the optical density in the muscular layer increased from 226.17 to 241.88, in the submucosa - from 231.09 to 247.50.

The thickness of the submucosa in children with UPJO to the date of birth was make up to  $188.5 \pm 85.9 \mu\text{m}$  ( $p=0.83$ ). The lamina muscularis ( $229.0 \pm 68.4 \mu\text{m}$  ( $p=0.84$ )) was 1.8 times thicker than normal.

At the age of 0–24 m.o. the growth of the lamina muscularis ( $570.7 \pm 214.6 \mu\text{m}$ ) occurred due to hypertrophy of myocytes. CMC grew up to  $1.21 \pm 0.04$  ( $p>0,05$ ). In the group aged 24–36 m.o. fibrosis increased, so the volume of muscle fibers ( $336 \pm 2.8 \mu\text{m}$  ( $p=0,56$ )) decreased

### CONCLUSIONS

Features of morphogenesis of pelvis in normal are the immaturity of myocytes and the intensive development of histo-structures at the age 0–6 and 12–24 m.o. UPJO inhibits the processes of maturation and differentiation of the pelvis

## GENE EXPRESSION PROFILE IN BILATERAL OBSTRUCTIVE UROPATHY IN THE FETAL SHEEP MODEL

Alexander SPRINGER<sup>1</sup>, Klaus KRATOCHWILL<sup>2</sup>, Helga BERGMEISTER<sup>3</sup>, Johann HUBER<sup>4</sup>, Isabel SOBIESZEK<sup>5</sup>, Markus UNTERWURZACHER<sup>6</sup> and Christoph AUFRICHT<sup>2</sup>

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### PURPOSE

Bilateral fetal obstructive uropathy is a leading cause of loss of renal function. In many patients therapeutic options are limited to renal replacement therapy or kidney transplantation. To gain new knowledge and define future research targets we studied the gene expression profile of the cellular responses to obstruction in an ovine model of fetal bilateral ureteral obstruction (BUO).

### MATERIAL AND METHODS

BUO was created by ligation of the urethra and urachus in six sheep fetuses at the 60<sup>th</sup> day of gestation (GA). Kidneys were harvested 80 days GA (n=2), 100 days GA (n=3) and 120 days GA (n=1). For transcriptomics profiling total RNA was extracted from bilateral renal biopsies. Affymetrix<sup>®</sup> microarrays (Ovigene Gene 1.1 ST) were used following the manufacturer's protocol. Biostatistical analysis was performed using Ingenuity<sup>®</sup> Pathway Analysis (IPA<sup>®</sup>): Canonical Pathways, Upstream Regulators, Diseases and Bio Functions, Tox Functions, Regulator Effects, Networks, Ingenuity Toxicity Lists, Analysis Ready Molecules.

### RESULTS

This analysis is BUO at 80 days GA versus 100 days GA: 367 genes were significantly expressed (p<0.01, 2-fold changes). IPA<sup>®</sup> diseases and biofunctions included embryonic development, cell death and survival, stress response in the kidney, renal oxidative stress. IPA<sup>®</sup> tox functions included glomerular injury, nephrosis, renal tubule injury, and interstitial injury. Key genes identified in the analysis were: WNT11, BMP2, UPK (amongst others).

### CONCLUSIONS

Transcriptomics and bioinformatics were able to identify a distinct genetic fingerprint of BUO in mid-term gestation. Further analysis will enable us to categorize the genetic profile of a "dying kidney" over time and with the opportunity of defining potential new biomarkers or even novel therapeutic targets.

## THE ENROLLMENT OF MIF G173C AND TNF-A G308A GENES POLY MORPHISM BIOMARKERS IN MULTICYSTIC DYSPLASTIC KIDNEY DEVELOPMENT IN CHILDREN

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1) Ministry of Health, Pediatric surgery, Al Qadisiya, IRAQ - 2) College of Medicine Al Qadisiya University, Microbiology and Clinical Immunology, Al Qadisiya, IRAQ

### PURPOSE

Multicystic dysplastic kidney (MCDK) is a developmental irregularity that is composed of non-functioning cysts. It is the most documented renal cystic complication in children and occurs in one of every 4300 live births. Aim: The present study was conducted to evaluate the correlation of MIF G173C and TNF- $\alpha$  G308A genes polymorphism with MCDK in children.

### MATERIAL AND METHODS

Thirty-eight patients diagnosed with MCDK (28 male and 10 female), and 30 apparently healthy individuals were enrolled as a control. The genotypes of the MIF G-173C and TNF- $\alpha$  G308A gene were determined by PCR–restriction fragment length polymorphism (RFLP) The serum levels of TNF- $\alpha$  and IL-13 were detected by ELISA technique. An expert statistical analysis was sought.

### RESULTS

Three genotypes at MIF G-173C locus were detected, GG, GC and CC with band sizes 100 pb, 100/263 pb and 363 pb respectively. For TNF- $\alpha$ G308A GG, GA and AA with band sizes 87 pb, 87/107 pb and 107 pb respectively. The CC genotype has obviously suggested a strong correlation with MCDK (OR of 3.6 and Etiologic Fraction (EF) of 0.619). In contrast, the GG genotype had a rather preventive role (Protective Fraction (PF) of 0.140 and low OR 0.794). TNF- $\alpha$  showed a strong association at genotypic level (OR = 14.671), as well as at allelic level (OR = 2.002), which demonstrates that this may be one of the risk factors for developing MCDK.

### CONCLUSIONS

CC genotype with MIF 173C allele polymorphism and AA genotype with TNF-  $\alpha$  -G308A were mainly expressed among MCDK patients and susceptibility of their correlation to these anomalies might be prospected.

## ★ WHOLE EXOME SEQUENCING IDENTIFIES KIF26B, LIFR AND LAMC1 MUTATIONS IN FAMILIAL VESICoureTERAL REFLUX

Zsuzsa INGULF BARTIK<sup>1</sup>, Ulla SILLÉN<sup>2</sup>, Tommy MARTINSSON<sup>3</sup>, Anna DJOS<sup>3</sup>, Anna LINDHOLM<sup>4</sup> and Susanne FRANSSON<sup>3</sup>

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### PURPOSE

Vesicoureteral reflux (VUR) is a common urological problem in children and its hereditary nature is well recognised. However, despite decades of research, the aetiological factors are poorly understood and the genetic background has only been elucidated in the minority of cases. The aim of this study was to explore the molecular aetiology of primary hereditary VUR.

### MATERIAL AND METHODS

We performed whole-exome sequencing in 13 large families with at least three affected cases. A large proportion of our study cohort had congenital hypodysplasia in addition to VUR. Variants with an allele frequency above 1 % in known databases, such as the SweGen dataset, 1,000 Genomes, Exome Aggregation Consortium or Genome Aggregation Database were discarded. Sanger sequencing was used to verify significant WES findings as well as for segregation analysis for family members.

### RESULTS

This high-throughput screening revealed 23 deleterious heterozygous variants in 19 genes associated with VUR or nephrogenesis. Sanger sequencing and segregation analysis in the entire families confirmed the findings in three genes in three families: frameshift LAMC1 variant and missense variants of KIF26B and LIFR genes. SALL1, ROBO2 and UPK3A gene variants, predicted to be deleterious, were excluded by segregation analysis.

### CONCLUSIONS

In all, we demonstrate likely causal gene mutation in 23 % of the families. Whole-exome sequencing technology in combination with a segregation study of the whole family is a useful tool when it comes to understanding pathogenesis and improving molecular diagnostics of this highly heterogeneous malformation.

16:26–16:29

S3-9 (PP)

## UROTHELIAL CELLS SEEDING ONTO BLADDER ACELLULAR MATRIX FOR BLADDER TISSUE ENGINEERING

Massimo GARRIBOLI<sup>1</sup>, Koichi DEGUCHI<sup>2</sup>, Ellie PHYLLACTOPOULOS<sup>3</sup>, Paolo DE COPPI<sup>4</sup> and Paola BONFANTI<sup>3</sup>

1) Evelina London Children's Hospital - Guy's and St Thomas NHS Foundation Trust / University College London Great Ormond Street Institute of Child Health, Paediatric Nephro-Urology / Stem Cell and Regenerative Medicine Section, London, UNITED KINGDOM - 2) University College London Great Ormond Street Institute of Child Health, Stem Cell and Regenerative Medicine Section, London, UNITED KINGDOM - 3) University College London Great Ormond Street Institute of Child Health / The Francis Crick Institute, London, UK, Stem Cell and Regenerative Medicine Section, London, UNITED KINGDOM - 4) University College London Great Ormond Street Institute of Child Health and Great Ormond Street Hospital, Stem Cell and Regenerative Medicine Section, London, UNITED KINGDOM

### PURPOSE

We have previously presented a dynamic decellularisation protocol for generating a porcine-derived bladder acellular matrix (BAM) that can be used for bladder tissue-engineering.

We demonstrated that BAM retains the ultrastructural characteristic, is stronger and more compliant than native tissue and has angiogenetic potential.

We aimed to investigate its potential biocompatibility and define the best protocol for urothelial cells seeding.

### MATERIAL AND METHODS

Normal Human Urothelial (NHU) cells were harvested from culture and seeded ( $1 \times 10^6$  cells  $\times$  1 cm<sup>2</sup>) onto BAM either before or after expansion and initial differentiation on flask. Differentiation and stratification was obtained replacing medium with KSFMc+5 % adult bovine serum (ABS) for 5 days and increasing Calcium concentration.

The cellular coverage and proliferation of NHU cells were analysed at day 3–5–7–14 using Vybrant® MTT Cell Proliferation Assay Kit. Trans-epithelial electrical resistance (TER) was measured to assess barrier function. Reseeded BAMs were fixed for Histological analysis (hematoxylin and eosin) and immunostaining (CK13/CK14 and Ki67).

### RESULTS

MTT assay revealed that NHU cells adhered and proliferated on the BAM reaching almost complete coverage when seeded on the proliferation phase while scarce coverage was identified when cells were seeded after differentiation. MTT quantification revealed 5-to-7 days of expansion phase was optimal for maximum coverage by proliferating NHU cells.

Histology analysis demonstrated multilayered epithelial cells with cellular polarity. TER test showed significant difference between seeded and unseeded BAM (mean 131.4  $\Omega$ .cm<sup>2</sup> and 1133  $\Omega$ .cm<sup>2</sup>.  $p=0.017$ ). CK14 and CK13 staining showed specific co-localisation in keeping with urothelial stratification while ki67 was down-represented as expected in differentiated cells

### CONCLUSIONS

BAM obtained after decellularisation of a porcine bladder is biocompatible and has potential to support in vivo urothelial maturation. The best timing for cells seeding is during the proliferation phase.

16:29–16:50

## Discussion

# S4: VESICoureTERAL REFLUX

Moderators: Josef Oswald (Austria), Raimondo Maximilian Cervellione (UK)

ESPU Meeting on Thursday 25, April 2019, 08:20–08:52

08:20–08:25

S4-1 (LO)

## RESULTS OF OPEN, LAPAROSCOPIC AND ENDOSCOPIC SURGERY FOR INTERMEDIATE GRADE VESICoureTERAL REFLUX (VUR) IN CHILDREN: A COMPARATIVE MULTICENTRIC STUDY

Benoit TESSIER<sup>1</sup>, Sophie VERMERSCH<sup>2</sup>, Luke HARPER<sup>3</sup>, Sarah GARNIER<sup>4</sup>, Leslie REMONT<sup>4</sup>, Christophe LOPEZ<sup>4</sup>, François VARLET<sup>2</sup> and Nicolas KALFA<sup>4</sup>

1) CHU Lapeyronie, Chirurgie pédiatrique viscéral et urologique, Montpellier, FRANCE - 2) CHU Saint Etienne, Chirurgie pédiatrique viscéral et urologique, Saint-Priest-En-Jarez, FRANCE - 3) Groupe Hospitalier Pellegrin - CHU, Chirurgie pédiatrique viscéral et urologique, Bordeaux, FRANCE - 4) CHU Lapeyronie, Chirurgie pédiatrique viscéral et urologique, Montpellier, FRANCE

### PURPOSE

VUR is commonly associated with febrile urinary-tract-infection (UTI). Endoscopic management is preferred for low-grade reflux whereas open or laparoscopic procedures are rather performed for high-grade reflux. Management of intermediate grade is still controversial. This study aims to compare the results of open, laparoscopic and endoscopic approaches in children with grade III VUR.

### MATERIAL AND METHODS

This multicentric comparative retrospective study included children with a grade III VUR operated on for febrile UTIs (2007–2016). VUR was either unilateral or bilateral with grade III as the highest grade. Neurological bladders, renal duplex systems, posterior urethral valves and bladder exstrophies were excluded. Success was defined as no recurrence of febrile UTI.

### RESULTS

171 children were included including 77 open Cohen procedures, 35 laparoscopic Lich-Gregoire and 59 submucosal endoscopic injections. Groups were comparable for age and sex. The length of follow-up was 64 months (mean, 12–132). Recurrence of febrile UTI was significantly different in the 3 groups (6/77 Cohen vs 13/35 laparoscopy vs 16/59 endoscopic injection,  $p=0,0005$ ). Febrile UTI more frequently recur after laparoscopic ( $p=0,0001$ ) or endoscopic treatment ( $p=0,002$ ) than open Cohen surgery. The success rate was similar between laparoscopic and endoscopic treatments ( $p=0,31$ ). Redosurgery was more frequent after laparoscopic Lich-Gregoire ( $n=4, p=0,008$ ) and endoscopic injection ( $n=15, p<0,0001$ ) than in open Cohen surgery ( $n=0$ ).

### CONCLUSIONS

The success rate of endoscopic and laparoscopic procedures in grade III VUR is lower than open Cohen surgery and redosurgery is more frequently needed. If the lower morbidity of laparoscopic and endoscopic approaches worth the higher risk of recurrent febrile UTI remains to be determined for intermediate grade reflux.

08:25–08:28

S4-2 (PP)

## LONG-TERM OUTCOME OF SURGERY IN PATIENTS OF PRIMARY VUR WITH FEBRILE UTI-A RETROSPECTIVE STUDY OF 16 YEARS

Anil TAKVANI and Virender SEKHON

*Takvani Kidney Hospital, Urology, Junagadh, INDIA*

### PURPOSE

The aim of this study was to determine long-term outcome in terms of UTI, febrile UTI or pyelonephritis (PN) and renal scarring after reimplantation surgery in patients of high grade VUR who had recurrent or febrile UTI.

### MATERIAL AND METHODS

It is a retrospective review of 156 consecutive cases that underwent reimplantation for primary VUR in last 16 years. Included patients were having dilating reflux with a history of recurrent or febrile UTI. All were subjected to DMSA scan prior to surgery. Lesions on scans were classified into congenital and acquired reflux nephropathy. Patients of VUR without history of UTI and scan suggestive of congenital reflux nephropathy were not included. Indications for surgery were: breakthrough PN and and/or post PN scarring (acquired lesions). Patients with antenatal diagnosis of hydroureteronephrosis and detection of VUR during postnatal work-up without any history of documented UTI were excluded. Post surgery regular USG done to look at the renal conditions. New MCU and DMSA scan were done in patients who developed UTI post reimplantation.

### RESULTS

Sixteen patients could not be followed. Median age at surgery was 25 months. Follow up was ranging from 1 to 16 years. Out of 140, 21 patients had post reimplant UTI (15.0 %). Febrile UTI rate was 5 %. Of this, except 1 all were females. 7/21 had urge incontinence and dysfunctional voiding, and 12/21 had constipation (BBD). In MCU 7/21 had persistent reflux. Only 3/156 showed new scarring or worsening scars. 1 male and 2 female patients required redo reimplantation for recurrent PN because of persistent high grade reflux.

### CONCLUSIONS

Reimplantation surgery is giving excellent results in patient of primary VUR with febrile UTI with least surgical morbidity. Over all post reimplant UTI, febrile UTI or PN resulting in new renal scars is rare( $p < 0.001$ ). Female sex and BBD are most prominent risk factors for post reimplant UTI.

## TIME PERIOD FOR DETECTION OF OBSTRUCTIVE COMPLICATIONS FOLLOWING ENDOSCOPIC TREATMENT OF VESICoureTERAL REFLUX WITH POLYACRYLATE-POLYALCOHOL COPOLYMER

Vladimir SIZONOV<sup>1</sup>, Iliia KAGANTSOV<sup>2</sup>, Nail AKRAMOV<sup>3</sup>, Aleksandr PIROGOV<sup>4</sup> and Dzhaliil GASANOV<sup>5</sup>

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### PURPOSE

The development timeline of obstructive complications represents an essential aspect defining the duration of mandatory postoperative supervision for children who have undergone endoscopic treatment of vesicoureteral reflux. Polyacrylate-polyalcohol copolymer has unique properties manifesting themselves in the interaction with the ureterovesical junction tissues, which determine the importance of researching the timeline of obstruction development typical for the substance.

### MATERIAL AND METHODS

We performed retrospective analysis of treatment experience for 774 patients comprising 1133 renal units (RU) in five clinics where polyacrylate-polyalcohol copolymer was used for implantation throughout 2012–2017. 449 (58.0 %) of the patients were girls and 325 (42.0 %) - boys. Right-sided VUR was found in 180 (23.3 %) patients, left-sided - in 235 (30.4 %) children, and bilateral process - in 359 (46.4 %) cases. Median age (months) [Q1; Q3] of all the patients was 39 [17; 78]. Renosonography was carried out in a day, after 3 days, and then every 6 months following endoscopic treatment. Control micturating cystography was performed in 4–6 months after endoscopic treatment. Whenever renosonography data revealed signs of obstruction, radioisotope diuretic renography was carried out.

### RESULTS

Obstructive complications were found in 41 (5 %) patients, median age - 21.5 months [12.0; 43.0], 27 boys (65.9 %), and 14 girls (34.1 %). Late obstructive complications were diagnosed in the interval from 1 to 41 month following the last injection of the implant substance. More than a half of the cases (29 (70.7 %)) were revealed during the first year of observation, 6 (14 %) during the second year, 2 (4.9 %) - in the third year, and 3 (7 %) - during the fourth year following the operation.

### CONCLUSIONS

Collected data demonstrated that patients who have undergone endoscopic treatment using polyacrylate-polyalcohol copolymer must be monitored for at least 4 years in order to detect delayed development of late obstructive complications.

## EFFECTS OF BIOFEEDBACK THERAPY FOR CHILDREN WITH VESICoureTERAL REFLUX: A 18-YEAR EXPERIENCE

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### PURPOSE

It has been widely known that biofeedback therapy is effective for vesicoureteral reflux(VUR) with dysfunctional voiding. We evaluated the results of biofeedback on children with VUR.

### MATERIAL AND METHODS

A total of 475 patients received biofeedback therapy from February 2000 through June 2018. Among them, patients who had VUR(non-neurogenic) at the time of biofeedback were analyzed retrospectively.

### RESULTS

There were 51 patients and girls were 94.1 %(48/51). The mean age at which patients first visited the center was  $5.5 \pm 2.98$  (0.3–12) years old and at the time of biofeedback was  $6.7 \pm 2.64$  (4.0–14.8) years old. There were 66.7 %(34) cases where biofeedback treatments were prescribed for the primary purpose of VUR and 33.3 %(17) cases for the lower urinary tract symptoms(LUTS) with VUR. The average number of treatment was  $7.2 \pm 3.90$  and average period was  $1.6 \pm 1.40$  months. Among them, 26 cases were monitored with VCUG and 40 % of right(4/10) and 40 % of left(2/5) dilating VUR(grade 3–5) were lost or decreased to non-dilating VUR(grade 1–2). 10 cases were monitored with DMSA and 90 % showed normal or no difference from before when 1 case showed new defect.

Among 36 patients identified without interruption at this point, 10 patients experienced febrile UTI and 6 of them got anti-reflux surgery. 1 patient who didn't get surgery but showed additional defect are under close observation(average tracking period:  $75.7 \pm 34.1$ , min–max 27–144 months). Meanwhile, the number of patients who's never had a febrile UTI after biofeedback therapy were 26 and 7 of them got anti-reflux surgery(21.6 %). All 26 patients were either on a follow-up or discontinue the observation without any problems(average tracking period:  $59.6 \pm 39.5$ , min–max 7–161 months).

### CONCLUSIONS

After biofeedback therapy, 40 % of dilating VUR became non-dilating VUR and 61 % of patients with VUR healthily discontinued or under observation without febrile UTI, additional renal damage and anti-reflux surgery.

## CURRENT TRENDS IN MANAGEMENT OF VESICoureTERIC REFLUX (VUR) WITH RESPECT TO EAU GUIDELINES: A MULTICENTER STUDY

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### PURPOSE

To investigate the current trends in management of reflux with respect to EAU risk groups and effect on results of treatments in our country.

### MATERIAL AND METHODS

The study group consisted of 1988 renal units of 1345 (%70 female, %30 male) patients treated surgically due to VUR between years 2003–2016 in 9 different institutions. Patients were divided into 2 groups according to time of initial treatment and also grouped according to risk factors by "EAU guidelines on VUR". The data were analyzed due to risk groups, time of diagnosis (before-after 2013) and initial treatments and subsequently for success according to risk groups and diagnosis time.

### RESULTS

The mean age and follow up were  $5.18 \pm 3.6$  years and 32 (1–184) months respectively. Among the preoperative parameters, only the presence of renal scar on DMSA and treating lower urinary tract symptoms were found to determine the postoperative success rates ( $p:0.002$ ,  $p:0.000$ ). Surgery as the initial treatment approach increased significantly in both moderate and high risk groups ( $p=0.000$ ,  $p=0.0001$  respectively) after 2013 (Table). In the low and moderate risk groups, clinical success rates of medical treatment increased ( $p=0.0001$ ,  $p=0.0001$ ) while success rates of surgery decreased ( $p=0.046$ ,  $p=0.0001$ ) after 2013. However, in the high risk group, medical treatment's success rate was higher ( $p=0.018$ ), while there was no significant change in success of surgery ( $p=0.46$ ) after 2013.

EAU/ESPU VUR Grouping		Medical Treatment (%)	Surgical Treatment (%)	p value
Low risk	Before 2013	135 (73.4)	49 (26.6)	0.096
	After 2013	125 (65.4)	66 (34.6)	
Moderate risk	Before 2013	469 (77)	140 (23)	0.000
	After 2013	287 (65.7)	150 (34.3)	
High risk	Before 2013	264 (77.2)	78 (22.8)	0.001
	After 2013	146 (64.9)	79 (35.1)	
Total		1426 (71.7)	562 (28.3)	

## CONCLUSIONS

Current trends in management of reflux in our country do not yet follow the EAU guidelines on VUR in low and moderate risk groups.

**08:37–08:52**

## Discussion

# S5: OBSTRUCTION & HYDRONEPHROSIS 1

Moderators: Martin Kaefer (USA), Marcel Drlik (Czech Republic)

ESPU Meeting on Thursday 25, April 2019, 08:52–09:40

08:52–08:57

S5-1 (LO)

## ★ A SUPERIORITY, PARALLEL, BLINDED RANDOMIZED PLACEBO CONTROLLED TRIAL OF CONTINUOUS ANTIBIOTIC PROPHYLAXIS FOR FEBRILE UTIS IN INFANTS WITH PRENATAL HYDRONEPHROSIS: THE ALPHA STUDY

Luis BRAGA<sup>1</sup>, Melissa MCGRATH<sup>2</sup>, Steven ARORA<sup>3</sup>, Martha FULFORD<sup>4</sup>, Armando J LORENZO<sup>5</sup>, Lucy GIGLIA<sup>3</sup> and Forough FARROKHYAR<sup>6</sup>

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### PURPOSE

CAP to prevent fUTIs in infants with prenatal HN (PHN) remains controversial, contributing to a lack of consensus guidelines and diverse practice patterns. We aimed to determine whether CAP vs. placebo reduces fUTIs in prenatal HN patients within the first 18 months of life.

### MATERIAL AND METHODS

Infants 0–7 months with PHN were recruited. Inclusion criteria: SFU-grade III/IV with/without dilated ureter(>7 mm) or UTD P2/P3, and VCUg to rule out VUR. Patients received equivalent volumes of Trimethoprim(TMP) or placebo(syrup) with a 1:1 allocation ratio, using a computer-generated randomization sequence in random block sizes of 4,6 and 8. Trial participants were blinded, except the pharmacist. Primary outcome: catheter specimen fUTIs adjudicated by a 3-physician panel. Secondary outcome: bacterial resistance patterns. ITT analysis to estimate fUTI-free rate using KMcurves. A subgroup analysis between UPJO-like vs non-refluxing primary megaureter(NRPM) was conducted.

### RESULTS

We screened 1435 infants, 1137 did not meet inclusion criteria; 48 refused and 150 were randomized: 75-placebo/75-TMP, 4 patients withdrew, leaving 146 for analysis. Baseline characteristics were equally distributed between groups. Overall fUTI rate was 6 % (9/146), with 8 events in the placebo vs. 1 (TMP resistant bacteria) in the intervention (11 % vs. 1.4 %, p=0.03). 8 fUTIs occurred in uncircumcised males and 1 in a female. NRPM infants had a significantly higher fUTI rate vs. UPJO-like (14 % vs. 3 %, p=0.02). Median time to fUTI=3 months. Multi drug resistance was higher in placebo vs. intervention patients (42 % vs. 22 %, p=NS). Overall NNT=10; NNT for NRPM=4.

## CONCLUSIONS

Patients with SFUIII/IV-PHN receiving placebo were 10x more likely to develop a fUTI than those on TMP. CAP should be offered to uncircumcised males and those with dilated ureters due to their higher risk of fUTI.

08:57–09:02

S5-2 (LO)

## ★ EFFECT OF CAP IN CHILDREN WITH POST OPERATIVE JJ STENTS: A PROSPECTIVE RANDOMIZED STUDY

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### PURPOSE

We aimed to investigate the effectiveness of continuous antibiotic prophylaxis (CAP) in patients with JJ stent and try to identify the group who could specifically benefit from CAP by a prospective randomized study. A total of 101 patients who underwent surgery with insertion of JJ stent (PNL, URS, pyeloplasty, UNC) were randomized in two groups.

### MATERIAL AND METHODS

Group A included 51 patients who received CAP during the presence of JJ stent, and 50 patients Group B were controlled without CAP. Patients with external stents, nephrostomy tubes, indwelling long-term urethral catheters were excluded. History of preoperative use of CAP, lower urinary tract symptoms and presence of scars on DMSA if available were noted.

Trimethoprim/sulfamethoxazole (TMP/SMX) were used as initial choice whereas if there was a history of resistance in previous urinary cultures Nitrofurantoin administered. Symptomatic febrile UTIs with positive urine culture (10<sup>5</sup> CFU on a clean catch or 10<sup>3</sup> with urethral catheterization) were compared between groups. Urinary cultures were obtained before surgery and before stent extraction. In the presence of fewer with stents after extraction JJ stents were sent to culture.

### RESULTS

The median age of stent insertion was 4.8 years (2 months–16 years). The mean duration of the stent was 15.3 days (6–42 days). Continuous antibiotic prophylaxis significantly reduced the incidence of febrile UTIs (19 % vs. 3.9 % p<0.01). Multivariate regression analysis revealed that a positive history for preop febrile UTI and/or LUTS a significantly higher association with the incidence of febrile UTIs.

### CONCLUSIONS

CAP in presence of JJ stents reduces the incidence of febrile UTIs in a short time period, especially in children with the previous history of febrile UTIs and LUTS.

## PEDIATRIC URETERAL STENT SYMPTOMS: PROSPECTIVE STUDY

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### PURPOSE

Urinary symptoms and pain associated with ureteral stents are well characterized in the adult population, but is poorly understood in children. We prospectively evaluated ureteral stent pain and symptoms in children.

### MATERIAL AND METHODS

Children ages 1 month to 18 years were eligible for prospective evaluation of urinary symptoms and pain associated with ureteric stents. Evaluations occurred during the first and fourth week of double-J ureteral stent insertion, and one month following the stent removal. Urinary symptoms and pain were evaluated with a modified Ureteral Stent Symptom Questionnaire (USSQ); the Face, Legs, Activity, Cry, and Consolability (FLACC) behavioral pain assessment scale; and the Wong-Baker FACES Pain Scale (FPS).

### RESULTS

From September 2016 to September 2018, 43 children with ureteral stents were evaluated after procedures including: pyeloplasty (18), ureteral balloon dilation (10), ureteroscopic stone treatment (7), ureteroureterostomy (4) and ureteroneocystostomy (2). Toilet trained children had dissatisfied urinary bother rate of 42.9 % and 31.3 % at 1 and 4 weeks with the stent, respectively.

Questionnaire scores at week 1, week 4 and after stent removal, respectively, include the following: urinary frequency at 28.6 %/18.8 %/7.7 %; nocturia at 4.8 %/0 %/0 %; urinary urgency at 23.8 %/18.8 %/23.1 %; urge incontinence at 9.5 %/6.3 %/0 %; unaware incontinence at 9.5 %/0 %/0 %; dysuria at 28.6 %/31.3 %/21.4 %; and hematuria at 47.0 %/20.0 %/7.1 %. Higher pain scores and medication usage was seen in the first 2–3 days after stent placement ( $p < 0.05$ ).

### CONCLUSIONS

Children tolerate ureteral stents better than adults, with a dissatisfied bother rate of 31.3 %–42.9 % in toilet-trained children compared to 58–78 % in adults (Joshi et al. J Urol 2003;169: 1065–9). Significant pain requiring medication improves 3 days after ureteral stent surgery in children.

## REVISITING RISK FACTORS FOR FEBRILE URINARY TRACT INFECTION IN INFANTS WITH PRENATAL HYDRONEPHROSIS

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### PURPOSE

Risk factors for febrile UTI(fUTI) in infants with prenatal hydronephrosis(HN) have been previously identified in small sample size series. Herein, we revisit this clinically important outcome using a large single center database to confirm or refute past findings.

### MATERIAL AND METHODS

Since 2009, we have prospectively followed 876 consecutive prenatal HN infants <12 months of age with the following conditions: UPJO-like, non-refluxing primary megaureter(NRPM) and VUR. Patients with <6 months F/U were excluded. A priori collected variables HN-SFU grade(low-I/II vs. high-III/IV), HN etiology, CAP status, gender and circumcision status. Primary outcome was catheter specimen fUTI. Univariate and multivariable analyses were conducted.

### RESULTS

Of 848 included patients, 632 (75 %) were male and 36 % were circumcised. 73 (9 %) had a fUTI at a median age of 6 months (2–11). III–IV HN was seen in 467 (55 %) infants and CAP prescribed for 481 (57 %). VUR (68 % grades IV–V) was detected in 168/572 (29 %) patients who had a VCUG. On multivariate analysis, NRPM, VUR, uncircumcised males, females, III–IV HN and lack of CAP were significantly associated with fUTI (Table 1).

	OR (95 %CI)	p value
Female	2.3 (1.1–4.9)	0.03
Uncircumcised Male	2.8 (1.3–6.3)	0.01
Hydronephrosis (III–IV) (I–II)	1.9 (1.1–3.3)	0.03
Etiology		
NRPM	4.4 (2.3–8.4)	<0.01
VUR	8.4 (4.0–17.6)	<0.01
UPJO-like		
CAP		
No	0.3 (0.15–0.5)	<0.01
Yes		

### CONCLUSIONS

This study corroborates previous findings, establishing III–IV HN, NRPM, VUR, uncircumcised status and female gender as important risk factors for fUTI. According to our large sample size analysis, CAP should be offered to those high risk groups as it was shown to significantly reduce fUTI rates in this population.

09:08–09:20

## Discussion

09:20–09:23

S5-5 (PP)

# DISTRIBUTION OF CAJAL CELLS IN URINARY TRACT: A PATHOPHYSIOLOGICAL PREDICTOR OF CONGENITAL ANOMALIES?

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## PURPOSE

To determine the distribution of Cajal cells in congenital ureteropelvic junction obstruction(UPJO), ureterovesical junction obstruction(UVJO) and vesicoureteral reflux(VUR).

## MATERIAL AND METHODS

The study group consisted of 77 renal units (41 renal units with UPJO,9 renal units with UVJO, 14 renal units with VUR and 13 renal units as control group) surgically treated by pyeloplasty and ureteroneocystostomy in our clinic between 2013–2018. Related UPJ and UVJO specimens from patients were immunohistochemically stained with CD117 (c-kit) antibody for Cajal cells and compared to each other and controls. The control group consisted of UPJ tissues of patients with renal cortical tumors.

## RESULTS

The mean age of the patients was 8,25±8,536 years. There was significant difference in the distribution of Cajal cells between UPJO and control group (p=0.011). However, no significant difference was determined between ureteral reimplantation (UVJ) specimens of patients either with VUR or UVJO and the control group (p=0.202, p=0.845 respectively) (Table). Comparison within anomaly groups yielded significant difference only between UPJ and VUR (p=0.000), UVJO (p=0.012).

Groups	n	Distribution of Cajal cells (median, min–max)	P value
UPJO	41	6 (0–97)	0.011 (UPJO-control group)
VUR	14	42 (10–131)	0.202 (VUR-control group)
UVJO	9	35 (8–154)	0.845 (UVJO-control group)
CONTROL	13	26 (5–186)	

## CONCLUSIONS

Deficiency of Cajal cells might be the reason or result of pathophysiological mechanisms in UPJO. On the other hand, Cajal Cell distribution in urinary pathologies accompanied by ureteral abnormalities might represent a different pathophysiological mechanism. So,there is a need for studies with large number of cases in order to explain the increment of Cajal cells in cases with ureteral abnormalities.

09:23–09:26

S5-6 (PP)

## PELVIC SHAPES AS AN ULTRASOUND MARKER IN FETAL GRADE III HYDRONEPHROSIS TO PREDICT POSTNATAL SURGERY FOR URETERO-PELVIC JUNCTION OBSTRUCTION

Sergei BONDARENKO

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### PURPOSE

Assess the role of the pelvic shape as a predictor for postnatal surgery in fetuses with grade III hydronephrosis (SFU grading system).

### MATERIAL AND METHODS

Prospective study of 45 fetuses with grade III hydronephrosis at the third trimester was conducted. Cases with megaureter or posterior urethral valves were excluded from the study. The pelvic shapes were classified as funnel-shaped and ellipse-shaped. In ellipse-shaped pelvis the aspect ratio of the ellipse was calculated. Indications for surgery were an increase of the anteroposterior renal pelvis diameter and a decrease in kidney function. Statistical significance of continued variables was determined by t-test. Logistic multinomial and binary regressions were used for the prediction of neonatal hydronephrosis requiring surgery.

### RESULTS

Of the 45 pelvises, 26 were classified as ellipse-shaped and 19 units as funnel-shaped. There was no difference in anteroposterior renal pelvis diameter between two groups ( $18.2 \pm 6.0$  vs  $16.4 \pm 4.8$  mm,  $p=0.31$ ). Postnatally, the anteroposterior renal pelvis diameter decreased in 17 funnel-shaped pelvises (89.5 %) and in 7 (26.9 %) ellipse-shaped pelvises. Nineteen patients (42.2 %) underwent pyeloplasty, 17 of them with an ellipse-shaped pelvis with the aspect ratio  $\geq 0.7$  (89.5 %). Logistic regression showed that the elliptical shape of pelvis can predict the need for surgery with a probability of 0.75–0.95 ( $p=0.0001$ ).

### CONCLUSIONS

Estimation of pelvic shapes in fetuses with hydronephrosis is a significant and independent predictor for pyeloplasty.

09:26–09:31

S5-7 (VP)

## ★ URETERAL CLIPPING FOR THE TREATMENT OF A NON-FUNCTIONING UPPER KIDNEY MOIETY ASSOCIATED WITH A MASSIVE URETEROCELE: STEP-BY-STEP DESCRIPTION OF A NOVEL TECHNIQUE

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### PURPOSE

To illustrate the ureteral clipping for the treatment of massive ureteroceles associated with non-functioning upper kidney moieties in duplex kidneys.

## **MATERIAL AND METHODS**

A nine years-old boy presented with progressive lower urinary tract symptoms (weak urinary flow, dysuria and increased postvoid bladder residuals). Radiological work up depicted a duplex kidney on the left side with absence of function on the upper pole and huge ureterohydronephrosis with a massive ureterocele insinuating to the bladder.

Ureteral clipping after aspiration of the enlarged ureter was performed laparoscopically.

During follow up the patient remained completely asymptomatic.

## **RESULTS**

A cohort of four patients with massive obstructing ureteroceles associated with a non functioning upper pole treated by ureteral clipping. All cases, complete decompression of the ureterocele with significant improvement on the ureterohydronephrosis was seen. After a mean follow-up of 3 years, all remained asymptomatic and no postoperative complications were recorded to date.

## **CONCLUSIONS**

Ureteral clipping is safe and feasible for the treatment of massive ureteroceles associated with non-functioning upper kidney moieties in duplex kidneys. Advantages of this minimally invasive procedure is the small operative room time and early hospital discharge. The disadvantage is the need of regular clinical and ultrasonographic follow-up for the ligated upper pole.

**09:31–09:40**

## **Discussion**

# S6: OBSTRUCTION & HYDRONEPHROSIS 2

Moderators: Anthony Herndon (USA), Goedele Beckers (Netherlands)

ESPU Meeting on Thursday 25, April 2019, 09:40–10:26

09:40–09:43

S6-1 (PP)

## VALIDATION OF HYDRONEPHROSIS SEVERITY SCORE FOR PREDICTION OF NEED FOR SURGERY IN PATIENTS WITH UPJO IN A PROSPECTIVE DATABASE

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### PURPOSE

The hydronephrosis severity score (HSS), which relies on SFU HN grades, differential renal function (DRF) and drainage curve patterns was previously described to assess the severity of UPJO-like cases and the likelihood of surgical intervention. Herein, we sought to validate this scoring system in our PHN population with UPJO-like.

### MATERIAL AND METHODS

A prospectively collected PHN database was reviewed to extract UPJO-like patients. Children with VUR, primary megaureter and other associated anomalies were excluded. HSS was calculated at the initial, interim and last follow-up clinic visits. Scores were analyzed regarding its usefulness to predict need for pyeloplasty.

### RESULTS

Of 168 patients, 131 (78 %) were male, 120 (71 %) had left UPJO-like, and 113 (67 %) had a pyeloplasty. The median age at baseline was 2 months (IQR1–4). According to initial (1<sup>st</sup> clinic visit) HSS, 5/36 (14 %) patients with a 0–4 score, 93/116 (80 %) with a 5–8 score, and 15/16 (94 %) with a 9–12 score underwent pyeloplasty, respectively ( $p < 0.01$ ). When HSS cut off values were changed to mild (0–3), moderate (4–7) and severe (8–12), modified mild group was more representative of a true low risk category with no patients requiring surgery and the new high risk group include almost 100 % of patients who had pyeloplasty.

### CONCLUSIONS

The new proposed HSS system for UPJO-like patients was reproducible, however cut off values needed to be reassessed to accurately reflect true risk categories, as the purpose of this system was to differentiate those who will need surgery from those who may be managed conservatively. Changing risk groups to mild (0–3), moderate (4–7) and severe (8–12) allowed for better discrimination of patients who would undergo surgical intervention from those who no longer need monitoring.

## A MULTI-INSTITUTIONAL COMPARISON OF OPEN, LAPAROSCOPIC AND ROBOT-ASSISTED PYELOPLASTY FOR URETERO-PELVIC JUNCTION OBSTRUCTION IN INFANTS

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### PURPOSE

To compare the outcomes of open (OP), laparoscopic (LP) and robot-assisted (RAP) pyeloplasty for ureteropelvic junction obstruction (UPJO).

### MATERIAL AND METHODS

We retrospectively reviewed the medical records, from a prospectively maintained database, of patients who underwent OP, LP and RAP at 3 different medical institutions, between December 2009 and December 2017.

### RESULTS

Thirty-nine patients underwent OP, 26 LP and 39 RAP. No conversion to open occurred in the LP and RAP cohorts. The mean operative time (OT) of RAP was longer than OP and LP. However, LP had a statistically significant steeper learning curve (LC) as compared to RAP. There was no difference in rate of complication events between OP and LP. RAP was found to have a significantly lower rate of complication events as compared to OP. However, for Clavien-Dindo grade III, no difference in complication rates was found between groups. Post-operative rates of opioids use were similar between OP and RAP, however, RAP required on average a significantly lower dosage. In addition, 5 OP patients required opioids after hospital discharge. No difference was found between the three groups in success rates, and post-operative remaining moiety functions at MAG3 renal scan. Median follow up was 84 months. All data are presented in table 1.

Table 1: Open vs Laparoscopic vs Robot-Assisted Pyeloplasty.

	OP	LP	RP		OP vs LP	OP vs RP	LP vs RP
Patients	39	26	39		P*		
OT (min)	106 (± 30)	121 (± 37)	151 (± 54)	<0.001	0.112	<0.001	0.004
(Mean± SD)							
LOS (days)	1.1 (± 0.3)	2 (± 0.8)	1.5 (± 0.7)	<0.001	<0.001	0.011	0.027
Complication events	15 (38.5 %)	8 (30.8 %)	7 (17.9 %)	0.131	0.525	0.044	0.229
Clavien-Dindo grade	I	6	0	1	-	-	0.047
	II	6	5	4	0.587	0.685	0.498
	III	3	3	2	0.636	0.275	0.643
Use of opioids	17 (44 %)	NA	13 (33 %)	-	-	0.351	-
Total opioid dose	0.8±0.5	NA	0.5±0.5	-	-	0.033	-
per patient (mg)							
Average opioid dose (mg/kg)	0.1±0.05	NA	0.08±0.08	-	-	0.036	-
Success rate (%)	37 (95 %)	24 (92 %)	38 (97 %)	0.634	-	-	-

Post-operative kidney function at MAG3 scan	37.3 (± 20.7)	36.6 (± 14.8)	37± 14.2	0.338	-	-	-
LC correlation coefficient (r)	-	-0.36	-0.68	-	-	-	0.004

OP: Open Pyeloplasty; LP: Laparoscopic Pyeloplasty; Robot-Assisted Pyeloplasty (RAP); OT: Operative Time; LOS: Length Of Stay; LC: Learning Curve; NA: Not Available.

\*Statistical analysis:  $\chi^2$  test, One-way ANOVA, Mann-Whitney U test, Fisher r-to-z transformation.

## CONCLUSIONS

LP and RAP are safe and effective minimally invasive procedures for the treatment of UPJO with similar outcomes as compared to OP. Despite the shorter OT, LP has shown to have a steeper learning curve as compared to RAP.

09:46–09:49

S6-3 (PP)

## ★ RESULTS OF INTRAPELVIC PRESSURE MONITORING AFTER DISMEMBERED PYELOPLASTY IN CHILDREN

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### PURPOSE

The choice of timing for pelvic drainage following pyeloplasty in children is determined by accumulated clinical experience of implementing various urinary diversion strategies. To research the dynamics in the functional patency of pyeloureteral anastomosis, we studied intrapelvic pressure (IP) for two weeks following the surgery.

### MATERIAL AND METHODS

IP was monitored in 31 children through a pyelostomy tube for 20 hours during a day for initial 14 days following dismembered pyeloplasty performed without stenting of the pyeloureteral anastomosis. Average age of the patients was 73.9±18.4 months, 21 (67.7 %) boy and 10 (32.3 %) girls. IP was registered by a mobile device recording the pressure values with simultaneous registration of time intervals when the patient was in horizontal or vertical position, with subsequent calculation of the average IP values. Average IP for every day following surgery was calculated based on the data of all patients collected during that day. We stopped the research whenever febrile temperature or pain complaints appeared. Wilcoxon rank-sum test and Friedman test were used as statistical tools.

### RESULTS

The research was discontinued in 5 cases: 4 (80 %) - in connection with pain, in 1 case (20 %) - because of temperature rising to febrile values. Average IP during the first 6 days remains stable within standard limits (13.4–13.9 cm H<sub>2</sub>O) without statistically significant differences. By day 7–8, we noted pressure increase (17.9[15.8–19.2] - 20.2[18.9–21.1] cm H<sub>2</sub>O) reaching maximum values by day 9 (20.7[18.5–21.2] cm H<sub>2</sub>O) (p<0.0001). Beginning with day 11, a decrease in average IP was registered (p<0.001), reaching by the day 14 the values (13.2[11.8–14.9] cm H<sub>2</sub>O) obtained during the days 2–6 after the operation (p>0.3).

### CONCLUSIONS

Beginning with day 7 following pyeloplasty, an abnormality is noted in functional patency of pyeloureteral anastomosis disappearing by the day 14 after surgery, which should be viewed as the earliest time to consider stopping drainage of the upper urinary tract

## ★ URETEROURETEROSTOMY IN PATIENTS WITH COMPLEX DUPLEX MALFORMATIONS: DOES A LARGE DIAMETER OF THE DONOR URETER AFFECT THE OUTCOME?

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### PURPOSE

Ureteroureterostomy is a commonly adopted, minimally invasive approach for the management of duplex anomalies requiring diversion of e.g. ectopic upper-pole ureters. We hypothesized that large diameters of the donor-ureter could affect the outcome of this procedure.

### PATIENTS AND METHODS

36 patients from two centers were retrospectively reviewed. To compare patients with small vs. large donor-ureters the group was split at the median of the preoperative, sonographically measured diameter at the level of the future anastomosis ( $n=17 < 1.3$  cm, mean 0.79 cm vs.  $n=18 \geq 1.3$  cm, mean 1.68 cm,  $p < 0.001$ ). Ureteroureterostomy was performed in an end-to-side fashion with tapering of the donor-ureter as required. The groups were comparable in age (3.1 vs. 3.05 years,  $p=0.94$ ), sex (m/f, 5/12 vs. 3/15,  $p=0.44$ ), duration of follow-up (13.6 vs. 19.1 months,  $p=0.467$ ) and number of preoperative fUTIs (9 vs. 9). Outcomes were compared using Fisher's Exact Test, Student's t-test and Wilcoxon Test.

### RESULTS

There was no significant difference in operative time (134 vs. 114 mins,  $p=0.13$ ), duration of hospital stay (4.17 vs. 4.0 days,  $p=0.72$ ) or number of perioperative complications (2 febrile UTIs in each group). Reoperations during follow-up (1 stump resection and 1 endoscopic VUR procedure) occurred rarely and exclusively in the group with small donor-ureter diameter ( $p=0.229$ ). The mean preoperative hydronephrosis grade was larger in the group with large donor-ureters as compared to the group with small donor-ureters (mean 2.83 SFU vs. 1.53,  $p=0.007$ ). During follow-up, the mean hydronephrosis grade in patients with large donor-ureters improved from 2.83 to 1.39 ( $p < 0.001$ ). In patients with small donor-ureters the mean hydronephrosis grade remained unchanged.

### CONCLUSIONS

A donor-ureter diameter  $\geq 1.3$  cm in ureteroureterostomy was not associated with a higher complication rate or a worse outcome considering further UTIs or reoperations. The postoperative reduction in hydronephrosis grade was more pronounced in patients with larger donor-ureters.

10:04–10:07

S6-5 (PP)

## LAPAROSCOPIC VASCULAR HITCH IS WORTH TAKING INTO ACCOUNT IN CHILDREN WITH UPJO CAUSED BY POLAR VESSELS

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### PURPOSE

Vascular hitch (VH), the transposition of lower pole crossing vessels (CV), is an alternative technique for treatment of UPJO caused by extrinsic compression. We report a prospective study of laparoscopic VH in children with intermediate follow-up.

### MATERIAL AND METHODS

Prospective analysis of 12 consecutive children treated by laparoscopic VH and age-matching 28 children treated by laparoscopic dismembered pyeloplasty. Criteria for VH procedure were: lower pole crossing vessels with moderate hydronephrosis and poor renal drainage confirmed in renal ultrasonography and MAG-3 renal scan. All patients presented intermittent hydronephrosis, recurrent flank pain and hematuria. Diuretic test (DT) was performed before and after laparoscopic VH confirming extrinsic UPJO and normal ureter with UPJ peristalsis. In cases of negative DT-laparoscopic dismembered pyeloplasty was performed. Follow-up included renal ultrasonography and MAG-3 renal scan. Success was defined by resolution of symptoms with improvement in hydronephrosis and drainage.

### RESULTS

15 children presenting with flank pain, hydronephrosis, impaired drainage and lower-pole crossing vessels at a mean age of 8.5 years were selected for laparoscopic VH. 12 patients (positive-DT) underwent VH, 3 patients (negative-DT)- underwent dismembered pyeloplasty. The mean operative time of laparoscopic VH was 96 min. (40–130), and length of hospital stay was 3 days (1–5). No ureteral catheters were placed intraoperatively. Mean follow-up of 18 months showed success in all patients with resolution of symptoms. Two children have shown improvement of hydronephrosis and symptoms, but still present impaired drainage on MAG-3 renal scan. Laparoscopic VH and dismembered pyeloplasty showed no difference in success rate.

### CONCLUSIONS

At intermediate follow-up the laparoscopic VH procedure has been successful in treating a selected group of children with UPJO caused by CV, and represents a safe and reliable alternative to standard dismembered pyeloplasty. VH is not an alternative surgery of UPJO, but a complementary way to repair hydronephrosis in very selected cases.

10:07–10:12

S6-6 (VP)

## THE "VASCULAR HITCH"-PROCEDURE IS AS A VALUABLE ALTERNATIVE TO DISMEMBERED PYELOPLASTY IN PATIENTS WITH URETEROPELVIC JUNCTION OBSTRUCTION DUE TO ABERRANT LOWER POLE VESSELS – A VIDEO PRESENTATION

Katrin ZAHN<sup>1</sup>, Nina HUCK<sup>2</sup> and Raimund STEIN<sup>2</sup>

1) UMM Mannheim, Pediatric, Adolescent and Reconstructive Surgery, Mannheim, GERMANY - 2) UMM Mannheim, Pediatric, Adolescent and Reconstructive Urology, Mannheim, GERMANY

### PURPOSE

Dismembered pyeloplasty is the gold-standard procedure in patients with ureteropelvic junction obstruction (UPJ) and aberrant lower pole vessels which can also be performed minimally-invasive.

### MATERIAL AND METHODS

Our 'vascular-hitch' technique is presented. The transabdominal approach is used for laparoscopic exploration after preoperative intravenous hydration. If aberrant lower pole vessels are identified, careful dissection off the UPJ is performed. If the pyelon shows good peristalsis and emptying, the UPJ is brought caudal and the aberrant lower pole vessels are enveloped in a pyelon-tunnel. Care has to be taken not to make the tunnel too tight and to have a good distance to the UPJ. Under visual control and forced diuresis (Furosemid is given) the UPJ is observed to exclude any persistent obstruction. In cases of doubts a dismembered pyeloplasty is performed.

### RESULTS

Out of 26 patients, one of our first patients required open re-do-surgery. In 2 patients a dismembered pyeloplasty was performed after initial vascular hitch procedure during the same surgery. In all of the 25 laparoscopic patients resolution or significant reduction of hydronephrosis was seen in follow-up of 0.5 to 8 years. No arterial hypertension was observed.

### CONCLUSIONS

We think that our technique is safe and might be a valuable alternative to dismembered pyeloplasty in children presenting with aberrant lower pole vessels - not requiring stents. The majority of these patients does not present a clinically relevant concomitant intrinsic stenosis of the UPJ. Preliminary results are promising, but longterm-outcome until adulthood has yet to be awaited.

10:12–10:17

S6-7 (VP)

## THE ROBOTIC APPROACH TO FRALEY SYNDROME

Dario Guido MINOLI, Erica Adalgisa DE MARCO, Michele GNECH, Alfredo BERRETTINI and Gianantonio MANZONI

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### PURPOSE

Fraley's syndrome results from a rare anatomic variant of the renal vasculature that compresses the upper pole infundibulum resulting in intermittent calyceal obstruction with symptoms of flank pain and/or hematuria. We report the case of a 15-year-old boy with typical presentation

## **MATERIAL AND METHODS**

A 15 year-old-boy referred to our center for the presence of colicky lombar pain associated with macroscopic hematuria which was present in the last 7 years. Imaging studies with US, CT scan and MRI showed a left duplex system with dilatation of the upper moiety. A MAG3 scan showed reduced function of the upper moiety and the surgical decision was conservative with a laparoscopic-assisted robotic pieloplasty instead of an upper hemi-nephrectomy. The anatomy found was typical for Fraley Syndrome with the renal vasculature crossing and compressing the infundibulum of the upper pole ureter in an incomplete duplex system. Section of the upper infundibulum with uncrossing of the vessels and pyelo-ureteral anastomosis was performed

## **RESULTS**

The boy has been discharged on the 2<sup>nd</sup> post-operative day. A retrograde pielography was performed at stent removal confirming a patent anastomosis. Follow-up ultrasound showed mild residual calico-pelvic dilatation in the upper moiety and the patient is now symptom free.

## **CONCLUSIONS**

Although the surgical management of Fraley's syndrome has historically involved complex open renal reconstruction, a robotic-assisted laparoscopic approach to the upper pole infundibulum is feasible and offers significant advantages

**10:17–10:26**

## **Discussion**

# S7: EXSTROPHY-EPISPADIAS COMPLEX

Moderators: Wolfgang Rösch (Germany), Marc David Leclair (France)

ESPU Meeting on Thursday 25, April 2019, 10:56–12:02

10:56–10:59

S7-1 (PP)

## CLOACAL EXSTROPHY (CE) AFTER SINGLE STAGE INITIAL CLOSURE : WHERE DO WE STAND AND HOW DID THEY DO?

May BISHARAT, Sherif M. SOLIMAN, Alice MEARS, Wilson TO and Peter CUCKOW

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### PURPOSE

CE is the most challenging of abdominal wall defects affecting the hindgut, bladder and genitalia, with a high association of spinal dysraphism. Since 1999, our management includes a delayed, single-stage osteotomy-aided closure with stoma formation, incorporating distal hindgut if possible. A subsequent Kelly procedure is performed for phallic corporal advancement in males. At school age, an ileocystoplasty, Monti-Mitrofanoff and bladder neck reconstruction/closure are performed. Herein, we review the outcomes of this surgical strategy.

### MATERIAL AND METHODS

CE patients managed with initial single-stage closure between 1999–2018 were retrospectively reviewed. Outcomes include continence, renal function and educational attainment. A comparative review of literature for similar large CE series was performed. Data are presented as median (range).

### RESULTS

Thirty-one CE children were identified (17 male, 14 female). Age at last review was 10.9 years (7 months–25 years) with a follow up of 9.2 years (6 months–19 years). 74 % had spinal anomalies. 30/31 (97 %) are alive. One died of short gut in infancy. Age at initial surgery was 34 days (3–455 days). 87.5 % had a hindgut colostomy. Subsequently, 87 % of boys underwent a Kelly procedure, and 57 % underwent an augment. 93 % maintain normal renal function. 20/30 (67 %) walk unaided, 4/30 (13 %) use a wheelchair and 5/30 (17 %) walking aids. All children/adolescents who have reached the endpoint of reconstruction are clean, with 85 % in mainstream school/university education. Results were similar to series employing a staged approach.

### CONCLUSIONS

Our data support the premise that a single stage CE closure, followed by a Kelly's procedure and further lower urinary tract reconstruction ultimately achieve protection of the upper urinary tract and enable reconstruction of a penis allowing an adherence to genetic and gonadal sex of rearing. Urinary and faecal cleanliness are attainable, facilitating integration into mainstream education. Families of this once hopeless anomaly should be counselled accordingly despite the high surgical cost.

## SHORT URETHRA - LONG COMMON CHANNEL CLOACA: AN ALTERNATE SURGICAL STRATEGY WITH DUAL BENEFITS

Anand UPASANI<sup>1</sup>, Alexander CHO<sup>1</sup>, Anu PAUL<sup>1</sup>, Lyndsay ALLEN<sup>1</sup>, D DESAI<sup>1</sup>, Simon BLACKBURN<sup>2</sup>, Joe CURRY<sup>2</sup> and Abraham CHERIAN<sup>1</sup>

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### PURPOSE

Short-urethra (<1.5 cm) with long-common-channel poses a management dilemma. Urogenital-separation utilising the common-channel for urethroplasty is an option (Wood et al. JPS2018;53:90–95). Potential risks include difficult CIC, fistula, stricture and fixed/adynamic bladder-outlet, leading to subsequent interventions. Primary-bladder-neck-closure (PBNC) is an alternate strategy and we use common-channel for vagina.

### MATERIAL AND METHODS

Prospective cloaca-database with protocolised-care-pathway were analysed in 25-consecutive-patients (2012–2018). All patients with short urethral-length (<1.5 cm) had PBNC. Patients were monitored - clinically (UTI), Ultrasound (KUB) for upper-tract-dilatation (UTD), creatinine/eGFR (renal function), nuclear-medicine-scans (scarring), non-invasive-urodynamics and check-vaginoscopy was performed at colostomy-closure).

Wilcoxon Signed-Rank-Test (WSRT) was applied.

### RESULTS

6/25 had PBNC with appendico-vesicostomy (Table-1). Median-age at reconstruction: 14 months (5–36). Median-follow-up: 19 months (1–48). Common-channel was used as vagina for all. No leak or fistula were noted. No mechanical problems with CIC-channel. 1/6 with poor-compliance has indwelling-catheter. 1/6 had lower-UTI. No new upper tract dilation or renal-scarring was observed. There was no significant difference in early-versus-follow-up creatinine.

Table 1:

Case #	Common channel length (cm)	Urethral Length (cm)	Spinal anomaly (Y/N)	Renal-function					Bladder-outcome	
				Renal dysplasia (Y/N)	UTI	New Scars (Y/N)	New UTD (Y/N)	eGFR (ml / min / 1.73m <sup>2</sup> )	Problem with CIC	Reintervention
1	Atypical	0	Y	N	N	N	N	147	Y*	N
2	5	< 1.5	Y	Y	N	N	N	75 <sup>#</sup>	N	N
3	Atypical	0	Y	N	N	N	N	106	N	N
4	3.5	0.5	Y	Y	Y <sup>^</sup>	N	N	100	N	N
5	6.5	1	Y	Y	N	N	N	101	N	N
6	3.5	< 1.5	N	N	N	N	Awaited	144	N	N

\*Poor-compliance; # Pre-existing-significant-renal-dysplasia; ^Lower-UTI.

### CONCLUSIONS

PBNC is a safe alternative in select-complex-cloaca and concurrently simplifies vaginal-management which may have required vaginal-substitution. Understanding longterm outcomes including subsequent interventions for the two approaches is paramount.

## CLOACA: EARLY RENAL OUTCOMES USING A PROTOCOLISED MDT APPROACH

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### PURPOSE

Renal impairment is a significant cause of morbidity in cloacal-malformation. Historically, CKD is reported in nearly 50 % of the cases, 17 % ESRD and 6 % mortality at 5 years (Warne et al. Urology 2002;167:2548–2551). Our prospective-protocolised-multidisciplinary team (MDT) report early renal outcomes and analyse incidence of pre-existing and further renal damage.

### MATERIAL AND METHODS

Prospective-cloaca-database of 25 consecutive patients, that followed a protocolised-care-pathway was analysed (2012 to 2018). Median age at reconstruction: 12 months (5–36). Median follow-up: 32 months (1–88). Renal outcome was monitored by regular clinical-reviews, serum creatinine, nuclear-medicine scans and eGFR.

Wilcoxon Signed-Rank Test (WSRT) and Fischer Exact Test (FET) were applied.

### RESULTS

Of 25 patients, associated renal abnormalities 15(60 %), hydronephrosis 7(28 %), VUR 5(20 %) and pre-existing renal-dysplasia 9(36 %). 15(60 %) had spinal dysraphism - 5 had untethering.

21(84 %) have eGFR above 90 ml/min/1.73 m<sup>2</sup>. There was no progression of CKD-staging during this period. Median creatinine in early- life was 51 umol/L and improved with time to 31 umol/L at last follow-up. This was significant (WSRT, Z-value: -1.8969 @ p

Progressive renal-scarring was noted 4/25(16 %). Correlation to presence of VUR(4/4) and pre-existing hydronephrosis(3/4) was significant (FET).

Concomitant-urology-interventions included 3 STING, 1 VUJO required balloon dilation followed-by uretero-cystostomy, 1 nephrectomy for non-functioning-dilated kidney.

Table 1: compares our results with published-literature.

	Warne et al(2002)	Defoor et al(2015)	Current Study
Study-type	Retrospective	Retrospective	Prospective
Sample-size	64	44	25
Study-period	20 years (1980–2000)	7 years (2006–2013)	6 years (2012–2018)
GFR-method	<sup>51</sup> Cr-EDTA-clearance	Cystatin-C/DTPA	eGFR (Modified-Schwartz-formula)
GFR calculated for	38/64	44/44	25/25
CKD-1 (> 90)	>80 6 (16 %)	38(86 %)	21 (84 %)
CKD-2 (60–89)	50–80 8 (21 %)		2 (8 %)
CKD-3 (30–59)	25–49 13 (34 %)	5 (11 %)	-
CKD-4 (15–29)	<25 11 (29 %)	1 (2 %)	1 (4 %)
CKD-5 (<15)		-	1 (4 %)
Progression of CKD	-	No	No

## CONCLUSIONS

Pre-existing hydronephrosis and VUR correlate with higher incidence of new renal scarring. Our outcomes are comparable to similar cohort in recent literature. A protocolised MDT approach offers the means for timely diagnosis and intervention to preserve renal function.

11:05–11:08

S7-4 (PP)

## 3D REAL TIME MRI-GUIDED INTRAOPERATIVE NAVIGATION OF THE PELVIC FLOOR DURING CLASSIC BLADDER EXSTROPHY AND CLOACAL EXSTROPHY CLOSURE – CUTTING EDGE TECHNOLOGY FOR SURGICAL SKILL EDUCATION

Heather DI CARLO<sup>1</sup>, Eric MASSANYI<sup>1</sup>, Bhavik SHAH<sup>1</sup>, Mahir MARUF<sup>2</sup>, Aylin TEKES<sup>1</sup> and John GEARHART<sup>1</sup>

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### PURPOSE

Intraoperative magnetic resonance imaging (MRI) guided navigation of the pelvic floor offers a novel technique for identification of the urogenital diaphragm fibers and the thickened muscular attachments between the posterior urethra, bladder plate and pubic rami during closure, allowing precise surgical skill education in this crucial step of reconstructive surgery of bladder exstrophy (BE).

### MATERIAL AND METHODS

Institutional review board and Food and Drug Administration approval was obtained for use of Brainlab® (Munich, Germany) intraoperative MRI-guided navigation of the pelvic floor anatomy during closure of BE 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 two pediatric urologic surgeons and one pediatric radiologist.

### RESULTS

Forty eight patients with BE 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 major complication.

### CONCLUSIONS

Brainlab® intraoperative MRI-guided pelvic floor navigation and dissection is an effective way to accurately identify pelvic anatomy during BE closure. This technology offers a unique opportunity for surgical skill education in this complex reconstructive operation.

11:08–11:11

S7-5 (PP)

## HEALTH-RELATED QUALITY OF LIFE AMONG INDIVIDUALS WITH BLADDER EXSTROPHY-EPISPADIAS COMPLEX: A SYSTEMATIC REVIEW OF THE LITERATURE

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### PURPOSE

Children with bladder-exstrophy-epispadias-complex (BEEC) risk long-term urinary and genital dysfunctions. This study aims to review the literature on studies of health-related quality of life (HRQOL) in BEEC patients, and describe methodologies used.

### MATERIAL AND METHODS

A literature search on HRQOL in BEEC patients was conducted in Pubmed, CINAHL, Embase, PsycINFO, Cochrane, from inception to May 2018. A meta-analysis of HRQOL in BEEC patients compared to healthy references was performed.

### RESULTS

Twenty-one articles (published 1994–2018) including 830 reports from patients or their parent-proxies, described HRQOL in children and adolescents (n=5), adults (n=5) or mixed age populations (n=11). Median sample size was 24, loss to follow-up 43 % and response rate 84 %. Four articles reported multi-center studies. Overall HRQOL was reduced in BEEC patients compared to healthy references in 4/4 studies. Impaired physical or general health in BEEC patients were described in nine articles, diminished mental health in eleven and social health in ten articles. This included descriptions of BEEC patients' internalizing problems, bullying, loneliness and social restrictions. Thirteen studies demonstrated presence of their sexual health/functioning or body perception impairments. Urinary incontinence was the most common factor related to low HRQOL (12 studies). In six studies, HRQOL was better than healthy norms. In eligible studies (n=5) for the metaanalysis, the pooled estimate of the effect of BEEC indicated lower HRQOL in children or adults on several domains. Thirty-six HRQOL assessments were used; none developed and validated for BEEC.

### CONCLUSIONS

BEEC patients may have impaired HRQOL, however, HRQOL is diversely investigated. Future research is warranted and should encompass strategies to increase study participation, multi-center collaborations, investigations stratified for psycho-developmental age and a standardized BEEC-specific HRQOL instrument including questions important for BEEC patients.

11:11–11:26

## Discussion

## **SUBSYMPHESEAL URETHROSCPIC GUIDED BLADDER NECK AND URETHRAL PLICATION IN FEMALE EPISPADIAS: LONG-TERM OUTCOME IN 25 PATIENTS**

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### **PURPOSE**

Isolated female epispadias is an uncommon congenital anomaly. The aim of the present study was to describe long-term follow-up of female epispadias patients who underwent novel approach of subsympheseal urethroscopic guided bladder neck and urethral plication with external genitoplasty as well as monsplasty.

### **MATERIAL AND METHODS**

The records of 25 female patients referred for repair of epispadias were extracted from an institutionally approved database. All girls had regular yearly follow-up examination and urinary tract ultrasonography, post voiding urine residue measurement uroflowmetry and urine exam. Ten patients have had grade I-II vesicoureteral reflux without history of urinary tracts infection prior to reconstruction. All patients underwent subsympheseal urethroscopic guided bladder neck and urethral plication. For urethral elongation a strip of 2–3 centimeter of shiny skin between the clitoral divergent was separated on the pedicled based flap. They were followed up for an average period of 8.3 years.

### **RESULTS**

In the last follow-up, 20 patients (80 %) were totally continent without any postoperative complications; while injection of bulking agent into the bladder neck was needed in 3 children and were socially continent after further attempts. Incontinence rate was 4 % in the last postoperative follow-up (n=1). One girl was on intermittent clean catheterization till puberty due to overcorrection and high post voiding residue.

### **CONCLUSIONS**

This technique provides satisfactory outcomes in selected female patients with epispadias without further bladder neck reconstruction. The majority of patients attained social dryness with minimum complication rate and best cosmetic results.

## COMPLICATIONS DURING THE LEARNING CURVE OF KELLY RADICAL SOFT-TISSUE MOBILISATION FOR BLADDER EXSTROPHY & EPISPADIAS

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### PURPOSE

The radical soft-tissue mobilisation (RSTM) described by J.Kelly offers a unique opportunity of anatomical reconstruction aiming at improving genitalia outcomes and continence function in exstrophy-epispadias complex. However, it implies extensive perineal dissection and potential subsequent vascular risk. The aim of this study was to assess the morbidity of the RSTM during its learning curve.

### MATERIAL AND METHODS

From April 2008 to Apr 2018, 71 children (45 bladder exstrophy - 21 epispadias - 5 cloacal exstrophy or other) underwent RSTM by a single surgical team at a median age of 12 months [0–107]. Among children with bladder exstrophy, 24 had previously undergone neonatal bladder closure (8/24 unsuccessful), whereas 21 underwent RSTM combined with delayed closure in a single-stage. Among 21 children with proximal epispadias, 18/21 underwent RSTM as primary reconstruction. No pelvic posterior or innominate osteotomy was performed whatever the age. The main criteria was occurrence of surgical complication.

### RESULTS

With a mean follow-up of 36 months [4–115], 29 complications occurred in 27 children (38 %): urethrocutaneous fistula (n=8), surgical site infection (n=2), parietal hernia (n=2), urethral stenosis (n=6), febrile UTI (n=11). 6/8 fistula closed spontaneously ; urethral stenoses were successfully treated with balloon dilatation in 4/6. No grade IV–V Clavien-Dindo complication was observed. Eleven children (15 %) required revision surgery for grade III complications including urethral stenosis treatment (n=5), VU reimplantation (n=3), parietal hernia repair (n=1), urethrocele excision, and fistula closure.

Of note, no dehiscence occurred among the 29 exstrophy cases treated by RSTM combined with bladder closure as a single-stage. No ischemic complication nor late corpora cavernosa or hemiglans atrophy was observed.

### CONCLUSIONS

During its learning curve, the Kelly RSTM yielded acceptable complications and revision surgery rates, presumably similar to other major BEEC reconstructive procedures, without demonstrable specific morbidity related to extensive mobilisation of the corpora and anterior pelvic floor.

11:32–11:35

S7-8 (PP)

## KELLY RADICAL SOFT-TISSUE MOBILISATION FOR BLADDER EXSTROPHY & EPISPADIAS: CONTINENCE RESULTS OF A PRELIMINARY COHORT

Solène JOSEPH<sup>1</sup>, Sébastien FARAJ<sup>1</sup>, Philippe RAVASSE<sup>2</sup>, Yves HELOURY<sup>1</sup> and Marc-David LECLAIR<sup>3</sup>

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### PURPOSE

From 2008 to 2018, a Kelly RSTM was performed as continence procedure in 71 consecutive BEEC patients, following a prospective protocol, by a single surgical team. Our aim was to report on the continence results of the initial group of this cohort.

### MATERIAL AND METHODS

Inclusion criteria: children with bladder exstrophy (EXS) / incontinent proximal epispadias (EPI), successful bladder closure, having reached >3 y.o, and >12 months follow-up after undergoing RSTM.

Children underwent regular clinical examination/renal US, annual endoscopy and cystography under GA, and annual cystomanometry after the age of 3, if incontinent.

Continent score was: grade I (dry intervals, still wearing daytime protection), II (dry by day without protections, wet at nights), III (dry day and night).

### RESULTS

A total of 30 children met inclusion criteria: 16 EXS (14M-2F) and 14 EPI (5M-9F), aged 7.25 y.o [3–15] at last follow-up. Overall, 21/30 (70 %) were dry at least by day after a median follow-up of 5.4 years [1.5–10].

Among EXS patients, 10/16 (63 %) had continence grade II–III, of whom 6/10 voided per urethra (in addition to 2/10 dry under CIC, and 2/10 dry after bladder augment+CIC). Six EXS patients with persistent grade I continence had bladder capacity of 25 % [8–32] of expected capacity for age, and may ultimately require bladder augmentation.

In EPI group, 11/14 (80 %) achieved at least daytime continence.

Overall, 4/30 (13 %) children had insufficient resistances requiring additional bulking agents cervical injections. In the opposite, 3/30 (10 %) had symptomatic bladder outlet obstruction requiring CIC only.

### CONCLUSIONS

The Kelly RSTM allows to achieve acceptable social continence and voiding per urethra in half of BEEC patients (EXS 38 %-EPI 70 %). The rate of EXS patients requiring bladder augmentation after RSTM could be as high as 50 %, traducing a limited impact of the Kelly procedure on bladder growth potential.

## IMPACT OF PELVIC IMMOBILIZATION TECHNIQUES ON THE OUTCOMES OF PRIMARY AND SECONDARY CLOSURES OF CLASSIC BLADDER EXSTROPHY

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1) Johns Hopkins Hospital, Pediatric Urology, Baltimore, USA - 2) Johns Hopkins Hospital, Pediatric Orthopedic Surgery, Baltimore, USA

### PURPOSE

A potential determinant of successful bladder closures in patients with classic bladder exstrophy (CBE) is the postoperative pelvic immobilization technique. This study investigates the success rates of primary and secondary bladder closures based on various immobilization techniques from a high-volume exstrophy center.

### MATERIAL AND METHODS

A prospectively maintained institutional exstrophy-epispadias complex database of 1336 patients was reviewed for patients with CBE who have underwent primary or secondary closures between 1975 and 2018 and subsequently had a known method of pelvic immobilization. Patients were divided into two groups: primary and secondary closures. Associations between closure outcomes and immobilization techniques were determined.

### RESULTS

A total of 486 patients with primary closures and 107 patients with secondary closures met the inclusion criteria. In total, 348 (71.6 %) primary closures were successful. As shown in the table, the success rates of primary closures were highest in patients immobilized with modified Buck's and Bryant's Traction (94.9 % and 79.3 %, respectively) and lowest in those with spica cast (49.6 %). A propensity score adjusted logistic regression (adjusting for osteotomy status, period of closure, location of closure, and closure type) revealed that modified Buck's traction had a 5.58 (95 % CI 1.74–23.01,  $p = 0.008$ ) compared to spica casting during the primary closure. For the secondary closure group, there were 95 (88.8 %) successful secondary closures. Success rates were highest in modified Buck's traction (97.2 %) and lowest with spica cast (66.7 %).

### CONCLUSIONS

Success rates for primary closures were highest using modified Buck's traction with external fixation and lowest for spica casts. Similarly, for secondary closures, the best outcomes were achieved using modified Buck's traction with external fixation and the lowest success rates were associated with spica casts.

## URINARY CONTINENCE AND RENAL SCARRING IN PATIENTS WITH CLASSIC BLADDER EXSTROPHY

Raimondo Maximilian CERVELLIONE, David KEENE, Jennifer POWELL, Alan DICKSON and Tamas CSERNI

*Royal Manchester Children's Hospital, Paediatric Urology, Manchester, UNITED KINGDOM*

### PURPOSE

To assess the urinary continence and the presence of renal scarring in patients treated because of classic bladder exstrophy (BE) in a high volume exstrophy centre.

### MATERIAL AND METHODS

Data was prospectively collected on consecutive classic BE patients treated primarily in a single exstrophy centre between 1999 and 2013 (patients currently at least 5 years old). The following exclusion criteria were adopted: patient lost to follow-up, severe comorbidities and continent procedure performed within 12 weeks. Outcomes measured included: age, gender, surgical history, urinary continence (defined as continent, intermittently incontinent and continuously incontinent) and presence of renal scarring on DMSA scan.

### RESULTS

Sixty-four patients were identified. Thirteen were excluded: 5 lost to follow-up, 6 had co-morbidities (2 autism, 2 ADHD, 1 developmental delay, 1 epilepsy), 2 had a recent continent procedure. Fifty-one were included in the study (24 males) with a mean age of 11 years. 34/51 (66 %) had a functional reconstruction: 23 had primary closure only, 8 bladder neck reconstruction, 3 bladder augmentation; 17/51 (33 %) had a non-functional reconstruction: 15 bladder neck closure + bladder augmentation + Mitrofanoff formation and 2 urostomy. Overall 40 (78 %) patients are continent, 8 (16 %) are intermittently incontinent and 3 (6 %) are incontinent. 42/51 had a DMSA: 25 (60 %) showed no renal scarring and 17 (40 %) showed renal scarring, 7 of which was bilateral.

### CONCLUSIONS

In a high volume exstrophy centre, the treatment of classic BE has allowed a functional reconstruction in 2/3 of the patients with good overall urinary continence. However, a significant number of them has developed renal scarring.

11:41–11:44

S7-11 (PP)

## **BLADDER HERNIATION AS AN AUTO-AUGMENTATION TECHNIQUE IN BLADDER EXSTROPHY: INITIAL EXPERIENCE IN PATIENTS WITH SMALL BLADDER TEMPLATE**

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### **PURPOSE**

Surgical techniques for management of newborns with bladder exstrophy epispadias complex (BEEC) with small bladder template have remained undetermined. Herein, we aim to present our long-term experience of bladder plate herniation technique in patients with inadequate bladder template.

### **MATERIAL AND METHODS**

Our institutional database of exstrophic patients treated and followed between 2006 and 2015, showed that 10 had an inadequate bladder template that was not suitable to be closed in newborn period. The bladder underlying fascia was opened and the exstrophic bladder was fixed above the peritoneal cavity so that the abdominal pressure would be directly transferred to the posterior bladder wall and protrudes the bladder template. By this phenomenon bladder bulging causes gradual bladder expansion and auto-augmentation. Inguinal hernia was also fixed during this process to increase the pressure transferred to the exstrophic bladder (n=5). Bladder surface was measured while the patient was crying and when the bladder was enlarged. These children were followed during the next 6 to 8 months and underwent primary closure if the template was adequate enough.

### **RESULTS**

All patients experienced an uneventful postoperative period without any complications. The bladder was enlarged with maneuvers increasing the abdominal pressure as well as during laughing/crying. The average bladder surface was increased about 2.5 to 3 times at the last follow-up. The bladder was enlarged enough so that the patients were all prepared for undergoing primary closure.

### **CONCLUSIONS**

This technique seems to be feasible in patients with small-sized bladder and may be performed before the primary closure to increase the success rate. In addition, this technique may be performed in patients who do not attain adequate capacity for future augmentation and ureteral reimplantation.

11:44–12:02

## **Discussion**

# S8: LAPAROSCOPY & ROBOTICS

Moderators: C. Esposito (Italy), Mohan Gundeti (USA)

ESPU Meeting on Thursday 25, April 2019, 14:00–14:48

14:00–14:03

S8-1 (PP)

## ★ LAPAROSCOPY VERSUS ROBOTIC-ASSISTED PYELOPLASTY IN CHILDREN: PRELIMINARY RESULTS OF A RANDOMIZED CONTROLLED TRIAL

Mesur Selçuk SILAY<sup>1</sup>, Onur DANACIOGLU<sup>1</sup>, Kerem OZEL<sup>2</sup>, M.Ihsan KARAMAN<sup>1</sup> and Turhan CASKURLU<sup>1</sup>

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### PURPOSE

In this randomized controlled trial (RCT), we aimed to compare the outcomes of laparoscopic pyeloplasty (LP) versus robotic-assisted-laparoscopic pyeloplasty (RALP) for UPJO in pediatric population.

### MATERIAL AND METHODS

Between January 2017–April 2018 a total of 33 patients with UPJO were randomized as LP (Group 1, n: 17) and RALP (Group 2, n: 16). Redo cases and patients with anatomical abnormalities were not included. Patients were followed with urinary ultrasound and diuretic renal scintigraphy. Failure was defined as progressive hydronephrosis on ultrasound, obstructive parameters on diuretic renal scintigraphy, decline in renal function, or symptom relapse. All the parameters were statistically compared.

### RESULTS

The mean age of the patients were 45.1 ( $\pm 43.6$ ) months versus 85.8 ( $\pm 74.2$ ) months for group 1 and group 2 respectively. The mean follow-up period was 9.41 and 7.81 months for group 1 and group 2, respectively ( $p > 0.05$ ). The mean operative times were longer for group 1 (147,6 $\pm$ 47,7 minutes) than group 2 (106,5 $\pm$ 21,5 minutes) ( $p = 0.004$ ). The hospital stay was similar. Success rates were 94.1 % and 100 % and comparable for LP and RALP respectively. One failure was defined in group 1 which required redo surgery. A significant improvement was detected in mean anteroposterior diameter and renal parenchyma thickness for both groups.

### CONCLUSIONS

The preliminary short term results of this RCT reveals that both LP and RALP are safe and effective in children with comparable success and complication rates. Operative time was longer for LP when compared to RALP.

14:03–14:06

S8-2 (PP)

## ★ LAPAROSCOPIC DISMEMBERED FLAP PYELOPLASTY – THE FIRST SERIES

Zuzana VALOVA<sup>1</sup>, Josef SEDLACEK<sup>2</sup>, Vojtech FIALA<sup>2</sup>, Marcel DRLIK<sup>2</sup> and Radim KOCVARA<sup>2</sup>

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### PURPOSE

The flap pyeloplasty, mostly non-dismembered, has been reported rarely in English literature. This is the first report of a series of dismembered flap pyeloplasty performed by laparoscopy.

### MATERIAL AND METHODS

In a review of 779 patients (aged 0.3–20 years), operated for congenital hydronephrosis between 1990 and 2018, we detected 50 patients (6.4 %) with flap dismembered pyeloplasty according to Kucera. 29 patients, mean age 4.6 ys (0.3–18), had open repair, one bilateral; 21 patients, mean age 8,3 ys (1.6–20), had laparoscopic repair. Indications to flap pyeloplasty were: horseshoe kidneys(13), long stenosis(13), intrarenal pelvis or high intrasinus UP-junction(18), kidney mal-rotation(14), crossing vessels(26). The ureter is closed and divided at UP-junction and the pelvis is incized from above (V-shape) and flipped caudally. Ureteropyelonefrostomy was mostly used in open repair(26) and JJ-stent in laparoscopy(16). Mean time after open surgery is 16.9 ys and 4.2 ys after laparoscopy. Supported by grant RVO-VFN64165.

### RESULTS

The operating time in the laparoscopic pyeloplasty was longer, 226(145–435) min., compared to open surgery, 183(120–279) min. ( $p=0.019$ ). Intraoperative complications occurred in the two first patients operated laparoscopically: unfavorable anatomy with intrarenal pelvis and multiple vessels required conversion to open surgery; and in the second patient extraction of multiple caliceal stones extended the operating time(435 min.). Postoperative complications after open surgery include retrograde stenting due to persistent leakage of urine(1) and dilatation of ureteral stenosis(1); after laparoscopic repair replacement of stents blocked by coagula(2).

### CONCLUSIONS

Dismembered flap pyeloplasty is an important technique for specific anatomical conditions, and according to this first series it can be performed safely by laparoscopy. The initial evaluation of the anatomy is crucial for decision to create the flap.

## OPEN VS ROBOTIC PYELOPLASTY. WHICH ARE THE DIFERENCES?

Sebastian TOBIA GONZALEZ<sup>1</sup>, Erika LLORENS DE KNECHT<sup>2</sup>, Anabella MAIOLO<sup>1</sup>, Yesica GOMEZ<sup>1</sup>, J. J. SALAMANCA<sup>2</sup>, Yesica QUIROZ MADARRIAGA<sup>2</sup>, Ignacio TOBIA GONZALEZ<sup>3</sup> and Anna BUJONS TUR<sup>2</sup>

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### PURPOSE

The open dismembered pyeloplasty described by Anderson-Hynes is the gold standard in the treatment of uretero-pelvic junction obstruction. Today, technological development let us perform this surgery with minimally invasive techniques. The objective of this study is compare the results of open (OP) versus robot-assisted pyeloplasty (RAP).

### MATERIAL AND METHODS

A retrospective observational comparative study was performed in two centers with 62 OP in center A and 52 RAP in center B. Patient demographics, antenatal hydronephrosis antecedents, kidney function (KF) by MAG3, operating time, hospital stay, complications (Clavien-Dindo), analgesics requirement and functional results were reviewed.

### RESULTS

The mean age of the patient was 6,73 year-old. The distribution of gender, laterality, synths or KF by MAG3 didn't differ among groups. The operation time of OP was 110,48 minutes (60–210) and 163,6 minutes for RAP (120–300) ( $p < 0.001$ ). The hospital stay of the OP was 5,24 days (3–13) and for RAP was 3,68 (2–11) ( $p < 0.001$ ). The RAP group needed less analgesics than in the OP group ( $p > 0.001$ ). Postoperative complications weren't statistically different among groups, but the OP had more serious complications than RAP ( $p < 0.03$ ). Postoperative KF was worse in OP patients than RAP with a statistically significant difference ( $p < 0.04$ ). The mean follow up was 61,81 months.

### CONCLUSIONS

The RAP required less hospital stay and analgesic needs, greater possibility of KF improvement in postoperative, as well as having milder complications than OP. However, requires more operation times.

## FEASIBILITY OF LAPAROSCOPIC PYELOPLASTY IN CHILDREN UNDER 1 YEAR OF AGE: A MULTICENTER STUDY

Francisco REED<sup>1</sup>, Ximena RECABAL<sup>1</sup>, Florin DJENDOV<sup>2</sup>, Javier RUIZ<sup>3</sup>, Abraham CHERIAN<sup>2</sup>, Roberto VAGNI<sup>4</sup>, Francisca YANKOVIC<sup>5</sup>, Santiago WELLER<sup>3</sup>, Juan Pablo CORBETTA<sup>3</sup>, Juan Manuel MOLDES<sup>4</sup>, Imran MUSHTAQ<sup>2</sup> and Pedro-Jose LOPEZ<sup>6</sup>

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### INTRODUCTION

Anderson-Hynes pyeloplasty is the preferred technique in management of ureteropelvic junction obstruction (UPJO) with excellent success rate. Classically, approach is through lumbotomy or anterior incision. Although minimally invasive approach has shown comparable results, its application in young children has not been universally accepted. Aim of study was to analyze experience of 4 centers with laparoscopic pyeloplasty (LP) in children under 1 year of age.

### MATERIAL AND METHODS

Retrospective study of all infants under 1 year of age who underwent LP between 2009 and 2017 at 4 international pediatric urology centers. Evaluation included ultrasound and renogram before and after surgery. Demographic data, perioperative characteristics, complications and results are described.

### RESULTS

In 9 years, out of 327 transperitoneal LP, 42 procedures were performed in patients under 1 year (35 males). Two cases bilateral UPJO. 12/44 renal units were right-sided. 70 % had prenatal diagnosis (n31). At surgery average age was 6 months (1–12 months) and 64 % (n27) were under 6 months of age. Average weight was 8 kg (5–10 kg), 31 % (n13) less than 7 kg. Average operative time was 145 min (75–230 min). After mean follow up of 22.5 months (4–75 months), 2 (4.5 %) patients developed complications. One developed recurrence of UPJO, requiring redo LP and other required nephrectomy due to progressive renal function deterioration.

### CONCLUSIONS

LP in children under 1 year old has similar results to older children. Once experience has been achieved in LP, age and weight have ceased to be a limiting factor, gaining strength and popularity in all pediatric age groups with comparable results as classical AH pyeloplasty.

14:12–14:15

S8-5 (PP)

## LAPAROSCOPIC LICHTENBERG PROCEDURE IN INFANTS WITH UPJO

Galina KUZOVLEVA

*Speransky Children's Hospital №9, Urology department, Moscow, RUSSIAN FEDERATION*

### PURPOSE

To prove the advantages and evaluate the results of laparoscopic Lichtenberg procedure in children with UPJO of the first year of life with high inserted ureter

### MATERIAL AND METHODS

We compared two groups of children aged 3 to 12 months. The first group (39 patients) underwent laparoscopic Lichtenberg procedure (non-dismembered pyeloplasty with a longitudinal side-to-side anastomosis). In the second group (31 patients) laparoscopic Hynes-Anderson pyeloplasty was reformed.

The criteria for comparison of two groups were the mean time of operation, learning curves, the frequency of postoperative complications and the results of treatment. To assess the level of complexity of the operation, the learning curves for Lichtenberg and Hynes-Anderson procedures were compared.

To determine the learning curve, we fitted a non-linear regression of a point set with every point representing the duration of the unilateral laparoscopic Lichtenberg and Hynes-Anderson procedures.

### RESULTS

It was established that the learning plateau (the shortest possible surgery duration) was  $97 \pm 30.6$  and  $67.8 \pm 30.9$  minutes ( $p=0.0001$ ) for Hynes-Anderson and Lichtenberg procedures respectively.

According to our data, the surgeon needs to carry out 15 Hynes-Anderson procedures to reach the 96 % potential (reflecting the corresponding learning rate). When performing the Lichtenberg procedure the learning curve from the first operation had the form of a plateau, which proves that it is easier to perform.

Success rates were 98 % and 96.4 % in group 1 and group 2 respectively. No complications were observed in both groups.

### CONCLUSIONS

Laparoscopic Lichtenberg procedure is ergonomic, efficient and doesn't require significant time. In this regard, it can be recommended for an infant with UPJO and high inserted ureter.

14:15–14:30

## Discussion

14:30–14:33

S8-6 (PP)

## LAPAROSCOPIC TRACTION VS STAGED LAPAROSCOPIC FOWLER STEPHENS IN MANAGING INTRA ABDOMINAL TESTES

Waleed DAWOOD<sup>1</sup>, Mohamed YOUSSEF<sup>2</sup>, Haytham BADAWEY<sup>2</sup>, Ahmed FAHMY<sup>2</sup>, Assem GHOZLAN<sup>2</sup> and Samir ORABI<sup>2</sup>

1) Alexandria faculty of Medicine, Faculty of Medicine, Alexandria, EGYPT - 2) Alexandria faculty of Medicine, UROLOGY, Alexandria, EGYPT

### PURPOSE

Staged laparoscopic Fowler Stephens orchiopexy is the most popular method for managing intra-abdominal testis with a success rate of 50–86 %. Laparoscopic traction for managing intra-abdominal testis is an old technique that had undergone some modifications in the last years. We compared both techniques to evaluate the success and limitation of each of them.

### MATERIAL AND METHODS

Forty Patients were enrolled in our study. Age ranges from 8–98 months and technique was chosen randomly. Techniques are Fowler Stephens staged laparoscopic orchiopexy and staged laparoscopic traction orchiopexy.

### RESULTS

Success rate of Staged Laparoscopic Fowler Stephens orchiopexy in relation to the site of the testis 6 months postoperatively 78.9 % and in relation to size 68.4 %, one case was found atrophied at the time of 2<sup>nd</sup> stage and for traction was 85 % and 70 % with no statistical significance. Operative time is lower in 1<sup>st</sup> stage of Fowler Stephens and lower in 2<sup>nd</sup> stage in laparoscopic traction and it was statistically significant in both 1<sup>st</sup> and 2<sup>nd</sup> stage. In children >60 months Fowler Stephens orchiopexy was better than laparoscopic traction. There was no statistical difference between both techniques in relation distance of the testis from the internal ring, ring open or closed and age of the patient at first stage.

### CONCLUSIONS

Laparoscopic traction for managing intrabdominal testis is comparable to Staged laparoscopic Fowler Stephens orchiopexy. Site of the testis from the internal ring, ring open or closed and age of the patient don't affect the results of both techniques. The overall operative time is comparable.

14:33–14:36

S8-7 (PP)

## 3 YEARS ON – REALISING THE BENEFITS OF CUSUM ANALYSIS IN ROBOTIC SURGICAL PRACTICE

Alexander TURNER and Ramnath SUBRAMANIAM

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### INTRODUCTION

The learning curve is an important method of assessment of progression in the use of a new technique or device. Unlike case duration curves, cumulative summation curves (CUSUM) monitor process changes and calculate the number of cases required to leave the learning phase. Basic data was presented previously; now we have interpreted inflection and transition points in the curves with interesting results. We show a single surgeon's entire robotic CUSUM data for docking time (all operations) and surgical time (pyeloplasty).

### MATERIAL AND METHODS

The time from first skin incision to robotic docking (docking time) for the first 137 robotic cases and the time from robot start to robot finish (operative time) for the first 37 pyeloplasties were collected prospectively. Raw and CUSUM data were found and plotted, with learning durations calculated and inflection points analysed. Statistical analysis compared initial learning and maintenance phases.

### RESULTS

A classical learning curve of approximately 30 and 13 cases was found for docking time and pyeloplasty respectively, with statistically significant reductions in time between learning and maintenance phases ( $p < 0.001$  and  $p = 0.01$ ). Graph inflections were analysed and corresponded to important events and process changes experienced by the team, such as learning new skills or the use of new equipment. New learning curves appeared in response to these changes.

### CONCLUSIONS

CUSUM analysis is vital in the interpretation of learning curves and pinpointing the effects of changes in practice and can be applied similarly to technical and surgical components. It is fascinating to be able to account for real-life events and the effects they have on performance, which can only be seen on CUSUM graphs. These enable teams to track training and attainment accurately.

14:36–14:39

S8-8 (PP)

## LAPAROSCOPIC NEPHRECTOMY IN CHILDREN: STONE OR NO STONE. DOES IT REALLY MATTER?

Sadaf ABA UMER KODWAWALA, Sajid SULTAN, Bashir AHMED,  
Philip G. RANSLEY and Adeeb-UI-Hassan RIZVI

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

### PURPOSE

To compare the perioperative parameters and outcome of laparoscopic nephrectomy (LN) in children with and without urinary stone disease (USD).

## **MATERIAL AND METHODS**

Retrospective analysis of medical records of children who underwent LN for non-functioning kidney between June 2011–December 2017. On the basis of etiological factors children were divided in two groups. Group I: Children with stone disease (USD), Group II: Children with non-stone disease (NSD). Data was analysed on SPSS v.20. T- test and Chi- square tests were used for statistical analysis.  $P < 0.05$  was considered significant.

## **RESULTS**

Total 249 laparoscopic nephrectomies were done between 2011 and 2017. Group I included 110 and Group II – 139 children. Children in Group II were comparatively younger than Group I, 7.9 vs. 10.1 y ( $p < 0.0001$ ). Boys were more in Group II (77 % vs. 59 %) -  $p = 0.004$ . Right sided nephrectomies were more in Group I (62 % vs. 45 %) -  $p = 0.008$ . Use of approach; Transperitoneal vs. retroperitoneal, duration of surgery, mean haemoglobin drop and need of blood transfusion were not statistically different in both groups ( $p = 0.73$ ,  $p = 0.9$ ,  $p = 0.41$ ,  $p = 0.15$  respectively). Children with USD were more with Percutaneous nephrostomy preoperatively for pyonephrosis than Group II (23.7 % vs. 4.1 %)  $p < 0.0001$ . Complication rates were slightly higher in Group I (21.5 % vs 12.5 %) but statistically not significant ( $p = 0.07$ ). Elective conversion to open was 13.6 % in Group I vs. 6.1 % in Group II ( $p = 0.05$ ). Xanthogranulomatous pyelonephritis was found in 7.3 % of histopathology.

## **CONCLUSIONS**

Non-functioning kidney with or without stone disease can be operated safely with laparoscopic nephrectomy with comparable complication rates.

**14:39–14:48**

## **Discussion**

# S9: DSD

Moderators: Katja Wolffenbuttel (Netherlands), Daniela Gorduza (France)

ESPU Meeting on Thursday 25, April 2019, 15:18–15:38

15:18–15:23

S9-1 (LO)

## ★ SEXUAL FUNCTION AND QUALITY OF LIFE IN ADULT PATIENTS WITH CONGENITAL ADRENAL HYPERPLASIA

Barbara DOBROWOLSKA-GLAZAR<sup>1</sup>, Anna GUZIK<sup>1</sup>, Ireneusz HONKISZ<sup>1</sup>, Janusz SULISŁAWSKI<sup>1</sup>, Katarzyna TYRAWA<sup>2</sup>, Michał WOLNICKI<sup>1</sup> and Rafał CHRZAN<sup>1</sup>

1) Jagiellonian University Medical College, University Children's Hospital, Paediatric Urology, Cracow, POLAND -

2) Jagiellonian University Medical College, University Children's Hospital, Paediatric Endocrinology, Cracow, POLAND

### PURPOSE

This is to assess sexual function and Quality of Life (QoL) in adult women with Congenital Adrenal Hyperplasia (CAH) who had feminizing genitoplasty in childhood.

### MATERIAL AND METHODS

This prospective study including a control group was approved by the Ethical Committee. Fifty adult patients who had genitoplasty in childhood were identified and 9 (18 %) agreed to participate in the study (mean age -30.6 years). Mean age at operation was 5.4 years and mean follow-up was 10.9 years. Female Sexual Function Index (FSFI) was used to evaluate sexual function and Short Form Health Survey (SF-36) to value the QoL. A FSFI score <26,55 was classified as Female Sexual Dysfunction (FSD). The control group (GC) consists of 10 adult females in comparable age, without any oncological and chronic diseases. Fisher's exact test was used for statistical analysis.

### RESULTS

All patients in CAH group had female gender identity. One was homosexual and one reported having no sexual activity. In CG all patients had female gender identity and all was heterosexual and one reported having no sexual activity.

The FSD (FSFI <26.55) was found in 5/9 patients of the CAH group vs 4/10 CG patients. The difference was statistically not significant (p value -0.66). Mean SF-36 score in the CAH group was 47.1 and 46.7 in the CG.

Mean serum testosterone in CAH group was 0.46 ng/ml (norm:0,1–1,12 ng/ml) and in the CG was 0.40 ng/ml, 17OH progesterone was 6.41 ng/ml (norm:0,2–5,2 ng/ml) and 2.26 ng/ml, respectively.

### CONCLUSIONS

The traceable adult CAH patients has a good QoL and sexual function. Remarkable only a small number is willing to participate in such evaluation.

## ★ VIRILIZED FEMALES WITH CONGENITAL ADRENAL HYPERPLASIA AND PERSISTENT URO-GENITAL SINUS (UGS), INTERFERE EARLY BETTER THAN DEFER

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### PURPOSE

Congenital adrenal hyperplasia (CAH) is a group of autosomal recessive disorders found in 1 every 15,000 births. Female virilisation and persistent UGS are common features and surgical correction usually needed. We aimed to study effect of timing of surgery on the perioperative outcomes.

### MATERIAL AND METHODS

Twenty six female patients with (CAH) were identified retrospectively in the period (2000–2010). Nine patients were excluded due to previous surgical correction and or incomplete data. We included 17 patients, 9 (group A), underwent surgical correction before age of 2 years (range 9 months–2 years) and 8 patients (group B), underwent surgery after the age of 2 years (range 2.5–15 years). Patients with, low confluence were, 5 and 4, and high confluence, were 4 and 4, in group A and B respectively. All patients underwent total uro-genital sinus mobilization (TUM), with distal or proximal dissection. Mean follow up period was 10 years, (range 8–18 years). Perioperative outcomes were assessed.

### RESULTS

Mean operative time was 115 and 181 minutes (range 90 to 185 and 120 to 235 minutes; p value =.001) for group A and group B respectively. None in group A, received blood transfusions, however 37.5 % of group B needed, with a mean Hemoglobin drop 1.2 and 2.3 grams for group A and group B respectively. After a mean follow up period of 10 years (range 6 to 14 years), three patients in group B needed re-surgery for vaginal stenosis, but none in group (A). All patients were continent.

### CONCLUSIONS

Early surgery for virilized females with CAH and persistent UGS is preferable due to less intraoperative morbidity, (shorter operative time, and easier tissue handling with less intraoperative bleeding) and better post-surgical outcome.

15:26–15:29

S9-3 (PP)

## LONG-TERM SURGICAL RESULTS IN CONGENITAL ADRENAL HYPERPLASIA

Javier SERRADILLA RODRIGUEZ<sup>1</sup>, Susana RIVAS VILA<sup>2</sup>, María José MARTÍNEZ URRUTIA<sup>2</sup>, Roberto LOBATO<sup>2</sup>, Alba BUENO JIMÉNEZ<sup>1</sup>, Solon CASTILLO<sup>2</sup>, Virginia AMESTY<sup>2</sup> and Pedro LÓPEZ PEREIRA<sup>2</sup>

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### PURPOSE

Surgical treatment in congenital adrenal hyperplasia (CAH) is very debated due to the patients' psycho-physical impact.

Our aim is to evaluate our patients' current sexual situation and satisfaction according to the treatment that they received.

### MATERIAL AND METHODS

Retrospective study of our CAH patients treated between 1977–2012, assessing their baseline situation (physical examination, genetics, family history), the surgery performed (resection or plication of corpora cavernosa (CC), glanuloplasty, vaginoplasty) and their secondary sexual development.

The long-term surgical results were analyzed through a subjective questionnaire about their current sexual situation, satisfaction and self-esteem, excluding patients below 16.

### RESULTS

Thirty-three patients (20 years, [6–43]) were reviewed. The surgical procedure differed depending on the historical period: plication of CC was performed in 7 of our oldest patients, requiring 3 of them a resection later; resection of CC was performed in 21 in the later years and 5 did not require any intervention in the erectile tissue. Glans reduction was practiced in 7 and vaginoplasty in 30.

Twenty-two patients met the questionnaire inclusion criteria. The response rate was 68 % (15). While resection or plication of CC did not show differences in sexual satisfaction ( $p > 0.05$ ), glans reduction showed a significant decrease in clitoral sensitivity ( $p < 0.05$ ). Although the majority (10) were satisfied with their genitalia appearance, 3 referred not being satisfied with their female assignment.

### CONCLUSIONS

Glans reduction in CAH patients cause a decrease in genital sensitivity. The surgical consequences for sexual and social development in this condition should lead us to a multidisciplinary, more conservative management.

15:29–15:38

## Discussion

# S10: RENAL TRANSPLANT

Moderators: Sajid Sultan (Pakistan), Seppo Taskinen (Finland)

ESPU Meeting on Thursday 25, April 2019, 16:46–17:30

16:46–16:49

S10-1 (PP)

## THE FUTURE OF DATABASE ANALYSIS: PREDICTING ESTIMATED GLOMERULAR FILTRATION RATE (EGFR) AFTER KIDNEY TRANSPLANTATION EMPLOYING MACHINE LEARNING TECHNOLOGY

Armando LORENZO<sup>1</sup>, Mandy RICKARD<sup>2</sup>, Anne-Sophie BLAIS<sup>2</sup>, Nicolas FERNANDEZ<sup>2</sup> and Martin KOYLE<sup>2</sup>

1) *The Hospital for Sick Children, Urology, Toronto, CANADA* - 2) *The Hospital for Sick Children, Division of Urology, Toronto, CANADA*

### PURPOSE

The application of artificial intelligence is becoming widespread in medical communities and being explored to enhance patient care. Herein we explore this technology, by using commercially available machine learning algorithms to assist with prediction of posttransplant glomerular filtration rate (eGFR) in pediatric renal transplantation (RT) patients.

### MATERIAL AND METHODS

A de-identified RT database was uploaded into Microsoft® Azure Machine Learning Studio. Probabilistic principal component analysis was employed for data imputation. Relevant clinical variables were included in two class decision jungle and logistic regression for model training. The outcome of interest (eGFR) was dichotomized into a binary variable of >60 or <60. Models were scored and evaluated after a 70/30 split of the data.

### RESULTS

325 patients were included and the optimized model (decision jungle) achieved an area under the curve of 0.9, accuracy of 0.80 and precision of 0.80, employing a threshold of 0.5 to predict eGFR<60. Average run time to train, score and evaluate the model was 34 seconds. The predictive model was deployed as a web service in 25 seconds, generating a unique API key for app and webpage development. Individualized prediction based on the included variables was deployed as a web-based and batch execution Excel® file in less than one minute. Updating the model with new data was achieved within these timeframes.

### CONCLUSIONS

We have demonstrated that cloud-based machine learning technology allows easy building, deployment, and sharing of predictive analytics solutions. Large databases can be easily combined and analyzed in real time, which allows for creation and updating of predictive models based on large amounts of information.

## THE PAIRED KIDNEY EXCHANGE PROGRAM: A WAY TO INCREASE THE NUMBER OF LIVING DONOR PAEDIATRIC KIDNEY TRANSPLANTS. RETROSPECTIVE ANALYSIS OF BENEFITS AND SPECIFIC DIFFICULTIES

Aurore BOUTY<sup>1</sup>, Esther MACKNAMARA<sup>2</sup>, Mike O'BRIEN<sup>1</sup>, Joshua KAUSMAN<sup>2</sup> and Yves HELOURY<sup>1</sup>

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### PURPOSE

Paired kidney exchange (AKX) allows patients to receive a living donor transplant when direct related donation is impossible due to immunological barriers (donor-specific antibodies (DSA) or blood group mismatch (ABOi)). It involves multi way donation between pairs of donors and recipients that are better matched than related pairs. The goal of the study is to report the benefits and difficulties of paediatric AKX in a vast country.

### MATERIAL AND METHODS

Unicentric retrospective review of paediatric renal transplants between 2010 and 2018. Electronic medical records were scanned with special emphasis on reasons for AKX and outcomes.

### RESULTS

Seventy paediatric renal transplants were performed; 44 from living donors, including 9 AKX. Reason for AKX was as follow: DSA in 7 (three previous transplants, four blood transfusions), poor matching in one and Hep BcAb positive donor in one. Median number of recipients per chain was 3 (2–9) with a median of 4 (3–8) hospitals involved on a same day. The median of the longest distance travelled by a kidney is 878 km (36–3934). Two chains were cancelled and significant preoperative logistic challenges were present in 5 cases. Although median cold ischemia time was 337 minutes (202–521), there was no delayed graft function. All grafts were functional at a median of 33 months (4–51).

### CONCLUSIONS

AKX has specific organisational constraints related to the number of patients and departments involved in the chains. It requires significant adaptability but allows to increase the possibility of living donor kidney transplant even in large geographic areas.

16:52–16:55

S10-3 (PP)

## **GRAFT SURVIVAL IN PAEDIATRIC RENAL TRANSPLANT: COMPARATIVE STATISTICAL ANALYSIS BETWEEN UROLOGICAL AND NO-UROLOGICAL CAUSES OF ESRD**

Tessi CATALINA, Javier RUIZ, Snatiago WELLER, Felicitas LOPEZ IMIZCOZ, Cristian SAGER, Carol BUREK and Juan Pablo CORBETTA

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### **PURPOSE**

Kidney transplantation is the treatment of choice for children with end stage renal disease (ESRD). Immunologic and surgical advances have improved patient and graft survival. Urological causes of ESRD had been associated with higher complication rates and poorer graft survival. The aim of this study is to compare outcomes between urological and no-urological etiologies of ESRD in terms of graft survival and urologic complications.

### **MATERIAL AND METHODS**

We performed a retrospective study of paediatric patients who underwent renal transplantation at our department from January 2014 to December 2016. Demographic data, cause of ESRD, type of donor, and cold ischemia time were recorded.

Overall graft survival rates and urologic complications were statistically analysed.

### **RESULTS**

97 paediatric kidney transplants were analysed. Mean age at transplantation was 11.8 years (+/-4.2). Urological cause of ESRD represented 43.2 % of the patients, in this group UTIs were more frequent ( $p < 0.008$ ). There were no statistical differences in other urologic and vascular complications between urological and non-urological causes of ESRD. Graft survival rates were 86.2 % in the urological group and 88.4 % in the non-urological group (log Rank test  $p = 0.735$  HR 1.2 IC95 % 0.4–4.1). Age, weight, previous surgeries, and cold ischemia time were not associated with graft survival in univariate analysis. The mean follow-up was 32 months (23–43).

### **CONCLUSIONS**

Kidney transplantation in patients with urological cause of ESRD has similar graft survival rates when compared with non-urological ESRD. Despite the fact that ITU were more frequent in urologic patients, complications rates were similar in both groups.

## COMPARING OUTCOMES OF CONVENTIONAL URETERONEOCYSTOSTOMY VERSUS URETEROURETEROSTOMY IN PEDIATRIC RENAL TRANSPLANTATION

Fadi ZUBI, Michael CHUA, Jessica MING, Justin KIM, Mitchell SHIFF, Martha POKAROWSKI, Armando J. LORENZO, Walid A. FARHAT and Martin A. KOYLE

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### PURPOSE

Ureteroureterostomy (UU) has been proposed as an alternative to the conventional ureteroneocystostomy (UNC) in pediatric renal transplantation. This technique may proffer the advantage of maintaining a natural ureteral orifice with natural antirefluxing anatomy, and for endoscopic access if needed in the future. Herein we compare the outcomes of UU and UNC in the pediatric transplant population.

### MATERIAL AND METHODS

We retrospectively reviewed all pediatric transplants performed in a single institution from January 2000 to September 2018. Two groups were evaluated: UU group and UNC group. We compared age at time of surgery, total operative time and estimated blood loss using the student T-test. Other variables including: underlying diagnosis (intrinsic vs urologic), living vs deceased donor, intraoperative complications, ureteral anastomosis related complications and urinary leaks were compared using Fisher exact test.

### RESULTS

A total of 374 transplants were performed (68 UU and 306 UNC) during the study period. There was no significant difference between UU vs UNC in regards to age in months at time of surgery ( $128.2 \pm 6.9$  vs  $132.7 \pm 3.6$ ,  $p=0.58$ ), total operative time ( $287. \pm 11.6$  vs  $289. \pm 6.7$ ,  $p=0.89$ ), and estimated blood loss ( $206.4 \pm 23.8$  vs  $288 \pm 31.6$ ,  $p=0.23$ ). There was no significant difference in underlying conditions with intrinsic diagnoses in 79.4 % UU vs 69.3 % of UNC ( $p=0.1$ ). We found a significant difference in donor type with living being 22.1 % of UU vs 50.3 % UNC ( $p<0.0001$ ). There was no significant difference in intraoperative complications, ureteral anastomotic related complications (urinary leak or stenosis) between the UU and UNC groups.

### CONCLUSIONS

Ureteroureterostomy has comparable outcomes to ureteroneocystostomy in the pediatric transplant population. It should be considered in certain complex situations include challenging small bladder due to anuria, valve bladder and in a neurogenic augmented bladder.

## UPSIDE-DOWN KIDNEY PLACEMENT: AN ALTERNATIVE IN PEDIATRIC RENAL TRANSPLANTATION

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### PURPOSE

Kidney placed "upside-down" (inverted) has been reported as an acceptable alternative in cases of technical difficulty in kidney transplantation but there is no literature on this resource in pediatric population.

The aim of our study is to analyze whether the placement of the upside-down kidney could affect the graft outcome or produce more complications.

### MATERIAL AND METHODS

A retrospective study of pediatric kidney transplant performed in our center in the last 12 years (2005–2017), with at least 6 months of follow-up, was conducted.

Epidemiological and anthropometric data, type of donor (deceased/alive), graft position (normal/upside-down), reason for the inverted placement of the kidney, early, medium and long-term complications and renal function were analyzed and compared with patients transplanted in the same period with non-inverted graft's placement.

### RESULTS

From 181 transplants, 167 grafts were placed in normal position (mean age and weight of yrs and kg respectively) and 14 were inverted (10 yrs, 37 kg), all of them due to shortness of vessels after laparoscopic nephrectomy. Male predominance was observed in both groups.

57 % grafts from control group and 64 % from study group came from a living donor.

4 vascular and 2 ureteral reanastomoses were recorded in control group and 2 vascular and 1 ureteral in study group ( $p>0.05$ ). In the latter, there were no graft loss due to vascular or urological causes and no patients have been on dialysis ever since.

### CONCLUSIONS

The inverted position of the renal graft is a safe alternative in pediatric population when required.

17:01–17:04

S10-6 (PP)

## THE IMPACT OF MULTIPLE DONOR RENAL ARTERIES ON PERIOPERATIVE COMPLICATIONS AND ALLOGRAFT SURVIVAL IN PAEDIATRIC RENAL TRANSPLANTATION

Fardod O' KELLY, Fadi ZUBI, Keara DE COTIIS, Mandy RICKARD, Armando LORENZO, Walid FARHAT and Martin KOYLE

1) *The Hospital for Sick Children (Sick Kids), Paediatric Urology, Toronto, CANADA*

### INTRODUCTION

The use of grafts with multiple donor arteries in paediatric kidney transplantation has not been clearly established with evidence suggesting their use may lead to higher risks of complications and delayed graft function in adult studies. The aim of this study was to determine whether kidney grafts with multiple arteries pose any adverse effects upon perioperative surgical outcomes, and graft survival up to 12 months post-transplant

### MATERIAL AND METHODS

We reviewed 379 transplants performed in our institution (2000–2018), of which 90 (23.7 %) contained multiple donor arteries. The number of arteries of the graft, donor type, vascular reconstruction technique, the occurrence of urological and vascular complications, the incidence of delayed graft function, estimated GFR and graft survival 1, 6 and 12 months after transplantation, graft loss and patient deaths were analysed, with log-rank, univariate and comparative statistical analysis performed to identify risk factors for vascular complications

### RESULTS

There were found no significant differences found in age ( $p=0.42$ ), BMI ( $p=0.39$ ), estimated intraoperative blood loss ( $p=0.14$ ), overall ( $p=0.63$ ) or warm ischaemic time ( $p=0.37$ ). 51.3 % patients with multiple donor arteries underwent an ex-vivo reconstruction. There were no differences in the site of arterial anastomosis (aorta, iliac, epigastric), or anastomotic type (end-side; side-side). Whilst there was a significantly higher post-op lymphocele rate in the multiple vessel cohort ( $p=0.033$ ), there was no increase in post-transplant urine leaks, rejection episodes, graft loss (1.1 % multiple vs 2.1 % single), perioperative complications ( $p=0.68$ ) or estimated GFR at 1 week ( $p=0.52$ ), 1 month ( $p=0.59$ ) and at 1 year (mean 95.76 mL/min/1.73 m<sup>2</sup>;  $p=0.3$ )

### CONCLUSIONS

This relatively large series demonstrates that multiple renal artery allografts which have previously been considered to carry a high complication risk can be safely used for paediatric renal transplantation with equivalent perioperative complications and graft outcomes to single artery allografts

17:04–17:22

### Discussion

17:22–17:27

S10-7 (VP)

## ★ SINGLE SETTING ROBOT-ASSISTED KIDNEY TRANSPLANTATION (RAKT) IN A CHILD CONSECUTIVE TO SINGLE-SITE LAPAROSCOPIC NEPHRECTOMY IN THE CHILD AND LIVING-DONOR RELATED ROBOTIC NEPHRECTOMY: INITIAL EXPERIENCE

Anne-Françoise SPINOIT<sup>1</sup>, Achilles PLOUMIDIS<sup>1</sup>, Athanasios PAPPAS<sup>1</sup>, Ruben DE GROOTE<sup>1</sup>, Elise DE BLESER<sup>1</sup>, Caren RANDON<sup>2</sup>, Agnieszka PRYTULA<sup>3</sup>, Johan VANDE WALLE<sup>3</sup>, Ann RAES<sup>3</sup>, Erik VAN LAECKE<sup>1</sup>, Piet HOEBEKE<sup>1</sup> and Karel DECAESTECKER<sup>1</sup>

1) Ghent University Hospital, Urology, Ghent, BELGIUM - 2) Ghent University Hospital, Vascular Surgery, Ghent, BELGIUM - 3) Ghent University Hospital, Pediatric Nephrology, Ghent, BELGIUM

### PURPOSE

Kidney transplantation is gold-standard treatment for end-stage renal disease (ESRD) in children. Robot-Assisted Kidney Transplantation (RAKT) in adults is becoming increasingly common in centers of reference with promising results and potentially improved morbidity compared to open transplantation. Our objective was to evaluate the feasibility, perioperative and early postoperative outcomes of RAKT in children. To our knowledge, this is the first report of RAKT in a child. The technique is presented in our video.

### MATERIAL AND METHODS

January 2018: a 7-years-old boy with ESRD due to congenital uropathy received a kidney transplant from his mother. Simultaneously in two operation theatres, the boy underwent single port (GelPOINT®) right laparoscopic nephro-ureterectomy (LNU) and his mother underwent robot-assisted left donor nephrectomy (RADN). The GelPOINT® was used as single-site for the LNU to minimize invasiveness. Two full surgical teams were operating at the same time. Subsequently, the boy underwent RAKT, introducing the kidney through the GelPOINT®.

### RESULTS

Total operative time for RAKT, RADN and LNU was 195, 140, 180 min respectively, with warm, cold and rewarming ischemia times 1.5, 200 and 47 min respectively. Vascular and ureterovesical anastomosis times were 30 and 25 min respectively. Blood loss was 50, 20, 300 cc respectively. No intraoperative or postoperative complications were noted. Convalescence of both the donor and the recipient was uneventful. Estimated glomerular filtration rate of the graft at day 1, 3, 7, 30 and 90 was 75, 94, 62, 46 and 60 ml/min/1,73 m<sup>2</sup> respectively. At 4 weeks, he was diagnosed with acute humoral rejection grade IA (Banff score g0i2t2) treated successfully with pulsed corticosteroids.

### CONCLUSIONS

RAKT in children is technically feasible and safe, resulting in excellent graft function. Concomitant nephrectomy can be done laparoscopically through the single-site GelPOINT®. It should be attempted by an experienced RAKT team with the full support of pediatric nephrologists.

17:27–17:30

### Discussion

# S11: LOWER URINARY TRACT

Moderators: Alaa El Ghoneimi (France), Alex Turner (UK)

ESPU Meeting on Friday 26, April 2019, 08:10–09:08

08:10–08:15

S11-1 (LO)

## EFFECT OF POP-OFF MECHANISMS ON BLADDER FUNCTION IN BOYS WITH POSTERIOR URETHRAL VALVES

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### PURPOSE

We aimed to assess the effect of pop-off mechanisms on bladder function in boys with posterior urethral valves, as well as the relationship between renal and bladder function in these patients.

### MATERIAL AND METHODS

In this retrospective study, we included all boys with PUV and a minimum 5 year follow-up, including renal and bladder function evaluation. Boys with PUV with and without pop-off mechanisms were divided into three severity groups for renal function according to nadir creatinine (NC), i.e. lowest creatinine during the first year following diagnosis, as well as three severity groups for bladder function as determined by clinical parameters and Uroflow. We compared bladder function between each group and also studied the relationship between bladder and renal function within the global PUV population.

### RESULTS

We included 73 boys of which 22 had a pop-off mechanism. Average follow-up was 10 years. Fewer pop-off patients had severe bladder dysfunction as compared to the non-pop-off-group (13 % vs 21 %). As concerns the relationship between renal and bladder function, 41.4 % of boys with NC < 35 had abnormal bladder function vs 47.4 % of those with a NC between 35 and 75 µmol/L and 83.3 % of boys with NC > 75 µmol/L ( $p < 0.01$ ).

### CONCLUSIONS

In our series, an initial NC > 75 µmol/L was associated with a higher risk of long-term bladder dysfunction regardless of presence or absence of a pop-off mechanism. Our results also suggest that pop-off mechanisms protect the bladder from severe dysfunction.

## ASSOCIATED ANOMALIES IN POSTERIOR URETHRAL VALVES IN A NATIONAL COHORT

Ewan BROWNLEE<sup>1</sup>, Ruth WRAGG<sup>2</sup>, Andrew ROBB<sup>2</sup>, Harish CHANDRAN<sup>2</sup>, Marian KNIGHT<sup>3</sup> and Liam MCCARTHY<sup>2</sup>

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### PURPOSE

What are the associated anomalies with posterior urethral valves (PUV)? is there any correlation with severity of renal disease? Are urinomas protective of renal function?

### MATERIAL AND METHODS

A national audit (BAPS CASS) of referrals in the UK of boys diagnosed with PUV in a year was conducted. Details of abnormalities were correlated with plasma creatinine and renal dysplasia score (presence cortical thinning, reduced cortico-medullary differentiation, or cysts scored 1 each per renal unit (0–3)).

Data presented as number(%), median(interquartile range), analysed by Mann-Whitney U-test,  $p < 0.05$  taken as significant.

Ethics approval: NRES Committee South Central Oxford A (12/SC/0416).

### RESULTS

Data collected October 2014 - September 2015, 25/26 centres submitted data (96 %). 121 cases BOO; PUV 113(93 %). Of PUV patients, 23(20 %) had associated anomalies: 10 had urinary obstruction/oligohydramnios (group-1), 13 incidental (group-2), 90 isolated PUV (group-3). Group-1: Pulmonary hypoplasia(7), Talipes(3), hydrops(1). Three in group-1 also had Pyloric stenosis(2), cleft lip/palate, hand and foot contractures, craniosynostosis. In group-2 abnormalities included 4 CNS(IVH, Chiari Malformation, developmental delay), 3 GI(Hirschsprung's, Gastroschisis, GORD), 2 cardiac(PDA, pulmonary atresia), 3 syndromes(Downs, Alport's, Di George), 2 hypospadias, 1 each of Hypothyroidism, Hand/foot contractures, cleft lip/palate, polydactyly, hypothyroidism, idiopathic hypertriglyceridaemia. Urinomas were present in 9/113(8 %) of PUV-boys.

The 3 abnormality groups had no difference in renal dysplasia, plasma creatinine.

Plasma creatinine for urinoma vs. non-urinoma PUV-boys was 24(21–33) micromol/l vs. 38(26–67) micromol/l,  $P < 0.05$ . Dysplasia scores for urinoma vs non-urinoma boys were 2(0–3) vs. 1(0–1),  $P < 0.01$ .

### CONCLUSIONS

20 % of PUV boys have another abnormality. Urinomas are protective of renal function, despite increased renal dysplasia.

## POSTERIOR URETHRAL VALVES AND CONSANGUINITY

Gul NAWAZ and Ijaz HUSSAIN

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### PURPOSE

Posterior urethral valve (PUV) is life-threatening congenital anomalies of the urinary tract which if not treated in time, results in vesicoureteric reflux, recurrent UTI, voiding dysfunction and renal insufficiency. Valves have occurred in siblings, twins, and in successive generations but its frequency and severity with consanguinity have never been studied. We aimed to determine the frequency and severity of PUV in the products of cousin marriage.

### MATERIAL AND METHODS

We retrospectively reviewed the medical record of all 180 consecutive patients who underwent posterior urethral valve fulguration in last 9 years from Jan 2010 to April 2018. Diagnosis was made by voiding symptoms, ultrasonography and confirmed by voiding cystourethrogram (VCUG). History of first-degree cousin marriage and family history of PUV was specifically inquired in each case.

### RESULTS

Total 180 patients having mean age of 4.8 years (SD± 3.1) were treated for posterior urethral valve. Family history of first-degree cousin marriage was found in 39 (22 %) patients. Furthermore, PUV was diagnosed in 15 (8.3 %) male siblings of the child having family history of cousin marriage.

Parameter	Total number (%)	Hx of consanguinity
Antenatal diagnosed	48 (27 %) (patients)	17 (35 %)
Severe hydronephrosis	60 (26 %) (units)	43(73 %)
Bilateral hydronephrosis	50 (43 %) (Patients)	17 (34 %)
Bilateral Vesicoureteric reflux	60 (29.7 %) units	19 (63 %)
Chronic renal insufficiency	54 (30 %) patients	19 (36 %)
End stage renal failure	6 (3 %) patients	4 (66 %)

### CONCLUSIONS

Cousin Marriage is very common in this part of world. Significant number of patients with PUV has history of consanguinity. These patients present with more severe disease and early renal insufficiency.

## THE PREVALENCE OF VITAMIN D DEFICIENCY IN BOYS WITH POSTERIOR URETHRAL VALVES

Zeni HAVELIWALA<sup>1</sup>, Giulia DEL RE<sup>1</sup>, Massimo GARRIBOLI<sup>2</sup> and Joanna CLOTHIER<sup>3</sup>

1) Evelina London, Paediatric Urology, London, UNITED KINGDOM - 2) Evelina London, London, UNITED KINGDOM - 3) Evelina London, Paediatric Nephrology, London, UNITED KINGDOM

### PURPOSE

Vitamin D deficiency is widely prevalent in the western population and often severe in children with chronic kidney disease (CKD). The high prevalence of CKD in posterior urethral valves (PUV) patients is concerning for the pleotropic and skeletal sequelae of vitamin D deficiency. The aim of this study is to review the incidence of vitamin D deficiency in our cohort of patients.

### MATERIAL AND METHODS

Single centre retrospective study of all patients followed up with PUV. Collected all 25-hydroxy vitamin D levels measured over a 32 month period. <30 nmol/L defined as deficiency, 30–50 nmol/L defined as insufficiency and > 50 nmol/L considered sufficient. Patients categorised as per their CKD stages.

### RESULTS

Two hundred and twenty six patients identified; 173 patients had levels recorded, of which 106 (61 %) were found to have insufficiency or deficiency. Vitamin D deficiency stratified according to CKD stage is show in table 1.

CKD stage	Number of patients	Vitamin D insufficiency/deficiency (%)
1	48	26 (54 %)
2	58	34 (58 %)
3	26	15 (57 %)
4	5	4 (80 %)
5	36	23 (63 %)

Table 1.

### CONCLUSIONS

There is a high incidence of vitamin D deficiency in this cohort, which does not seem to be correlated with renal function. We would recommend routine vitamin D monitoring in all children with PUV.

## THE LONGITUDINAL CHANGE IN RENAL AND BLADDER FUNCTION OF BOYS WITH POSTERIOR URETHRAL VALVES (PUV) BEFORE PUBERTY

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### PURPOSE

Although PUV resection is effective in de-obstructing the urethra, the trajectory of bladder and corresponding upper tract function is not well documented. We aimed to assess the change in urodynamic parameters and eGFR of boys with PUV before puberty

### MATERIAL AND METHODS

Single center retrospective longitudinal review of urodynamic (UD) findings and eGFR of boys with PUV at two time points: 5 and 10 years of age.

The urodynamic parameters documented include detrusor overactivity (DO), compliance ( $C = \Delta \text{bladder volume} / \Delta \text{detrusor pressure}$ ) and capacity.

### RESULTS

Nineteen boys included, 1<sup>st</sup>UD at the median age of 5 (range 3.8–6 yrs), 2<sup>nd</sup>UD 4.7 yrs later.

Average (sd) change in eGFR is a decrease of 13.4 (+12.1) ml/min/1.73 m<sup>2</sup> (p=0.07).

DO was documented in 12/19 patients at 5 years of age, in 6 of them DO persisted at 10 years of age. Only 2/7 patients developed new onset DO at 10 years of age. Compliance appeared compromised ( $C < 20 \text{ ml/cm H}_2\text{O}$ ) in 9/19 patients at 5 years. However, by the age of 10, 16/19 patients had reduced compliance. There was statistically significant difference between the  $\Delta \text{eGFR}$  for the group with poor compliance (-17.1 ml/min/1.73 m<sup>2</sup>) and normal C (0.06 ml/min/1.73 m<sup>2</sup>) (p=0.02).

UDS parameter	5 yrs	10 yrs	Total at 10 yrs
Detrusor overactivity	+ve n= 12	+ve n=6	+ve n=8
		-ve n=6	
	-ve n=7	+ve n=2	-ve n=11
		-ve n=5	
Compliance >20 ml/cm H <sub>2</sub> O?	yes n= 10	yes n=2	Yes n=3
		no n=8	
	no n=9	yes n=1	No n= 16
		no n=8	
Mean capacity (+sd)	262 + 126 ml	353+ 138 ml	

### CONCLUSIONS

The results of this study suggests that renal and bladder function worsens in PUV boys between the age of 5 to 10 years. The presence of poor compliance at the age of 5 significantly predict declining in renal function.

## INTRODUCTION OF A STANDARDISED REPORTING PROFORMA FOR PAEDIATRIC MICTURATING CYSTOURETHROGRAMS

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### PURPOSE

MCUGs are commonly requested to exclude VUR and bladder outlet obstruction. Useful additional information including timing and bladder volume at the start of reflux, ureteral anomalies and post-void drainage can be obtained from the cystograms, but are not routinely reported by radiologists. A standardised MCUG reporting proforma was devised specifying key features to be reported. Our study compared reporting quality before and after introduction of the proforma.

### PATIENTS AND METHODS

A retrospective analysis of paediatric MCUG reports was undertaken from two patient cohorts. Cohorts A (41 reports) and B (51 reports) comprised reports written before and following distribution of the proforma, respectively. Reports from each cohort were assessed with respect to the parameters outlined on the standardised MCUG reporting proforma. Findings from both cohorts were compared to establish if the proforma influenced the content of reports. Statistical analysis was performed using R statistical computing software. Significance was defined as p value less than 0.05.

### RESULTS

Statistically significant improvements were demonstrated (after proforma vs before proforma) in the reporting of the following features: Bladder outline normal/abnormal – 92 % vs 56 %, urethra normal/abnormal – 87 % vs 68 %, contrast volume instilled – 84 % vs 61 %, bladder emptying – 69 % vs 17 %. In patients with VUR, reporting of VUR timing – 96 % vs 33 % and VUR grade – 91 % vs 40 % was significantly improved.

### CONCLUSIONS

Implementation of a standardised MCUG reporting proforma produced a substantial improvement in report quality and consistency, with statistically significant improvements noted in six of the seven key features.

## BILATERAL SIMPLEX ECTOPIC URETERS: HOW TO SPARE RENAL FUNCTION AND ACHIEVE CONTINENCE

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### PURPOSE

Bilateral simplex ectopic ureters (BSEUs) are defined as all bilateral implantation of the ureters below the bladder neck. The bladder is usually small and incontinent. The kidney may be dysplastic. Our aim was to report our results regarding renal function and continence in a cohort of 18 girls with BSEUs.

### MATERIAL AND METHODS

We retrospectively reviewed medical charts of patients with BSEUs over a 30-year period, focusing on diagnosis, surgical management and outcome regarding renal function and continence. Diagnosis was based on physical examination, imaging and endoscopy.

### RESULTS

Eighteen girls were diagnosed with BSEUs. Mean follow-up was 12 years [2–19 years]. Diagnosis was made during infancy (n=15), or after 5 years of age (n=3). Eight patients had unilateral (n=6) or bilateral (n=2) dysplastic kidney at diagnosis. Initial management was ureteroneocystostomy in native bladder (n=8), cutaneous urinary diversion (n=7), augmented bladder (n=2) and Mainz pouch (n=1). Ten girls have had multiple surgeries in order to keep the native bladder. Two girls have had a urinary diversion directly followed by a bladder augmentation. Final status was bladder augmentation (n=8), complete bladder replacement (n=3), cutaneous ureterostomy (n=2) and native bladder after ureteroneocystostomy with or without bladder neck procedure (n=5). Either bladder augmentation or complete bladder replacement with CIC allowed social continence in 9/11. Only two girls achieved social continence with good renal function without bladder augmentation. Three girls (including the 2 with bilateral dysplastic kidney) have had kidney transplantation, and 6 other girls have CKD (stage 2–4).

### CONCLUSIONS

Renal function preservation must be the main goal in the management of BSEUs. It goes through early diagnosis, eventual temporary cutaneous urinary derivation and avoidance of "Utopic" surgical reconstruction. Social continence requires CIC.

## BLADDER INSTILLATIONS WITH SODIUM CHONDROITIN SULFATE SOLUTION AND HYALURONIC ACID CAN BE EFFECTIVE AND SAFE TO TREAT RECURRENT UTIS IN CHILDREN

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### PURPOSE

Bladder instillations with Sodium Chondroitin Sulfate (SCS) and Hyaluronic Acid (IHA) are used to treat interstitial cystitis / painful bladder. Benefit is also reported in adults with recurrent urinary tract infections (UTIs) but data for this indication in children is lacking. We evaluate use of bladder instillations in children with recurrent UTIs.

### MATERIAL AND METHODS

Patients identified from specialist nurse records were studied retrospectively. Patients with neuro-pathic bladder or bladder pain alone were excluded.

The patients were divided into two groups: recurrent UTIs (group 1) and with UTIs with bladder pain (group 2). After 5 weekly bladder instillations of SCS or IHA, patients received monthly administrations. Complete response = UTI free, partial response = reduction in UTIs by more than 50 %.

### RESULTS

Nineteen girls (mean age 12 years) were treated with SCS or IHA between April 2015 and March 2018. Mean follow up from last instillation was 10 months (range 3–32). Fourteen received SCS, 4 IHA, one received both.

Group 1 (n=11), complete response in 6 (55 %) and partial in 2 (18 %), no response in 3 patients.

Group 2 (n=8), complete response in 6 (75 %) with no response in 2 patients.

In total, 63 % had a complete response and 11 % a partial response, with no difference between groups nor in the response to SCS vs IHA ( $p>0.05$ , Fishers Exact test). One patient experienced vulvovaginitis, there were no other complications.

### CONCLUSIONS

For selected children bladder instillations can safely resolve or reduce UTIs.

08:51–08:56

S11-9 (VP)

## CYSTOSCOPIC ASSISTED LAPAROSCOPIC EXCISION OF A LARGE BLADDER DIVERTICULUM IN A 1 YEAR OLD BOY

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### PURPOSE

Bladder diverticulae are herniation of the bladder mucosa through an area of weakness in the bladder wall. Ineffective emptying of the bladder can lead to infection, calculi or urinary incontinence. The current management includes observation or surgical excision. Symptomatic diverticulae may require resection. Surgical approaches in children are described using an open extravesical technique. We present a case of cystoscopic assisted laparoscopic bladder diverticulectomy in a 1 year old boy.

The patient had an antenatal diagnosis of bladder diverticulum, confirmed on postnatal ultrasound and micturating cystourethrography. No upper tract anomalies were found. The diverticulum measured 30x59x57 mm. Cystoscopy did not demonstrate urethral obstruction. A non-invasive bladder emptying study was performed which demonstrated a large capacity bladder with incomplete emptying (PVR 52 mls). Laparoscopic bladder diverticulectomy was performed.

### MATERIAL AND METHODS

The patient is placed in the lithotomy position. Three 5 mm ports are placed: umbilical, left and right flanks. Cystoscopic illumination and hydrodistension is used at the neck of the diverticulum to help identify margins of diverticulum. Dissection proceeded laparoscopically by incising peritoneal coverings with careful identification of a displaced left vas deferens. Cystoscopic illumination helped dissection of diverticulum and ensured preservation of the ureters. The diverticulum has been excised and the mouth closed by double-layered continuous sutures. A urinary catheter was left in situ for 10 days.

### RESULTS

The post-operative course was unremarkable, with no urinary leak, infection or complication to date.

### CONCLUSIONS

We describe a Laparoscopic bladder diverticulectomy with cystoscopic guidance as safe and effective technique in children.

08:56–09:08

### Discussion

# S12: HYPOSPADIAS

Moderators: Pierre Mouriquand (France), Ashraf Hafez (Egypt)

ESPU Meeting on Friday 26, April 2019, 09:08–10:14

09:08–09:11

S12-1 (PP)

## ★ SNODGRASS VERSUS SNODGRAFT OPERATION TO REPAIR THE DISTAL AND MIDPENILE HYPOSPADIAS IN THE NARROW URETHRAL PLATE

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### PURPOSE

Using the snodgraft in the narrow urethral plate less than 8 mm to repair distal hypospadias is still debatable. But to our knowledge, no one compared the Snodgrass and the snodgraft operations in the narrow urethral plate less than 8 mm. we aimed to compare the short outcomes of the Snodgrass versus snodgraft operations in the narrow urethral plate less than 8 mm.

### MATERIAL AND METHODS

This prospective study included 73 children whom had been operated for distal and mid penile hypospadias utilizing either Snodgrass or snodgraft operation from March 2017 to September 2018. Sixty (82 %) of them had a narrow urethral plate less than 8 mm. They were randomized into two subgroups. Every group of patients had 30 children. Group 1 underwent Tubularized incised plate (TIP), while the second group underwent snodgraft operation utilizing the inner prepuce. All the repairs were done by a single surgeon. Operative detailed, postoperative period and complications were reported and statistically analysed and compared between both groups.

### RESULTS

In both groups there were no statistically differences regarding the age, urethral plate length and width. Only the operative time was longer in the snodgraft group ( $75.9 \pm 10.6$  minutes in Snodgrass versus  $109.8 \pm 17.3$  in snodgraft). Moreover, the complication rate was not in favor of any group. We had one case of complete dehiscence, one meatal stenosis and a fistula in the snodgrass group. Also, we had one fistula at the snodgraft group

### CONCLUSIONS

In the narrow urethral plate less than 8 mm, snodgraft had a longer operative time than the snodgrass operation. Also, Snodgraft is not superior to Snodgrass regarding the success and occurrence of complications

09:11–09:14

S12-2 (PP)

## PROXIMAL HYPOSPADIAS REPAIR WITH THE KOYANAGI URETHROPLASTY: RESULTS AS A TWO-STAGE PROCEDURE AND COMPLICATIONS EASILY MANAGED

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### PURPOSE

Experience and technical refinements with the Koyanagi urethroplasty for proximal hypospadias.

### MATERIAL AND METHODS

A retrospective study was conducted between 2004 and 2017. Medical records of patients treated by the Koyanagi technique were investigated. The penile ventral skin was closed either with a Byars flap or using an "Ombredanne's chasuble" (OC). The cohort was divided chronologically into two groups of the same number of patients (early -E- and late experience group -LEG-). Surgical outcomes were compared between groups using univariate analysis. A logistic regression was performed to assess factors associated with the occurrence of a post-operative urethro-cutaneous fistula or urethroplasty dehiscence (UD).

### RESULTS

The Koyanagi urethroplasty was performed in 67 patients. The overall surgical complication rate was 64.2 % (n=43), including 42 fistula or UD, higher in the EEG (81.8 %) than in the LEG (44.1 %,  $p < 0.01$ ). However, in the LEG, patients underwent the surgery older and the use of OC was more frequent. After multivariate analyses, factors associated with a post-operative fistula or UD were the year of surgery (OR=0.71 [0.53–0.96]  $p=0.02$ ), the age at surgery (OR=1.11 [1.01–1.22],  $p=0.03$ ) contrary to the skin coverage method or the stenting duration ( $p > 0.05$ ). An urethral stenosis occurred in 1 patient. At last follow-up, 64.2 % of patients required a further procedure and 80.6 % of urethral meatus were glandular.

### CONCLUSIONS

In this study the complication rate, essentially the urethro-cutaneous fistula, decreased with the experience and the age at surgery but remained high. Urethral stenosis, were rare. Considering as a 2 stage procedure koyanagi urethroplasty allows to obtain finally good results.

09:14–09:17

S12-3 (PP)

## ★ THE TUBULARIZED INCISED PLATE URETHROPLASTY (SNODGRASS) IN RECURRENT DISTAL HYPOSPADIAS

Souhem TOUABTI

Pr., Setif, ALGERIA

### PURPOSE

To assess the success rate and postoperative complications of tubularized incised-plate (Snodgrass) urethroplasty in recurrent distal hypospadias.

## MATERIAL AND METHODS

Between January 2010 and december 2016; 60 children underwent a redo Snodgrass repair in prospective study.

## RESULTS

in the 1<sup>st</sup> month postoperatively, the early complication rates was as follows: postoperative wound dehiscence rate was 6.7 (4 cases). bleeding, oedema, wound infection and urinary retention rates was 6 % for each.

With 2–10 month of follow-up, the late complication rates were as follows: repair disruption rate was 50 % (30 cases), the fistula formation rate 30 % (18 cases), penile torsion rate was 10 % (6 cases), epidermoid cyst rate was 6.7 % (2 cases); urethral stricture and meatal stenosis rates were 3 %.

## CONCLUSIONS

Although the Snodgrass tubularized incised-plate urethroplasty is one of the first choices in primary distal hypospadias repair.

Its rule in recurrent distal hypospadias repair in questionable, espicialy in cases with previous Snodgrass repair.

Good selection of repair type according to each patient critica in mandatory.

09:17–09:20

S12-4 (PP)

## AUGMENTATION OF THE GLANS AND DISTAL URETHRA EFFECTIVE METHOD OF CORONAL URETHRAL FISTULAS CORRECTION

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## PURPOSE

Urethral fistula at the coronal area is the most frequent complication of urethroplasty of hypospadias repair. These complications are observed mainly in patients with small size of glans (groove depth). Suturing of the coronal fistula is often unsuccessful, due to the lack of plastic material in this area.

## MATERIAL AND METHODS

58 boys with urethral coronal fistula underwent repair over 8 years between March 2011 and August 2018. The mean age was 39 months (23–138). Conventionally, children are divided into two groups. The first group (27) boys who underwent closure of fistula. In the second group (31) patients were performed redourethroplasty with augmentation distal urethra (dilating of glans penis plasty) operation Graft TIP (implantation rectangular form free prepuccial flap in to dissected urethral plate of glans penis and distal urethra. The suture line of neourethra in both groups was over dartos flaps of prepuce, scrotum or tissue of the process vaginal of the testicle.

## RESULTS

Median length of follow up was 23 months post operation (2–75 months). Recurrent fistula was observed in 7 (25.9 %) patients of the first group and - 3 (9.6 %) in the second group ( $p < 0,01$ ). The reason for complications in the first group is the narrowing and partial obstruction in the distal urethra, even with free urethral age catheterization.

## CONCLUSIONS

Suturing of the coronal fistula have often recurrent fistula. GTIP augmenting urethra plasty is indicated in patients with small glans, flat groove and coronal urethral fistulas. This technique allows to achieve a good cosmetic and functional result without disrupting the flow of urine.

09:20–09:23

S12-5 (PP)

## OUTCOME OF STENTED VS UNSTENTED HYPOSPADIAS REPAIR

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### PURPOSE

We did a retrospective study of the outcomes of the hypospadias (HS) repair comparing stented (SR) vs unstented repair (UR)

### MATERIAL AND METHODS

Retrospectively we studied all the patients with mid-shaft to coronal hypospadias who had undergone hypospadias repair between January 2013 till January 2018. The major variables we looked at were degree of HS, age at repair, type of repair, use of waterproofing layer, suture used and stent usage. We recorded early complications like urinary retention, severe pain before discharge or revisit to emergency within 14 days for surgery related complications mainly urinary retention, dysuria, bladder spasms, catheter blockage/dislodgment. In the follow up we only included patient who were at least 6 months post op and fully potty trained. A p-value of <0.05 was considered significant.

### RESULTS

We included 120 patients (57 SR, 63 UR). There was no significant difference in severity of HS, age at repair, type of repair and length of follow up in both groups. Snodgrass procedure was done in 65 (SR 37, UR 28), and tubularization in 55 (SR 20, UR 35). PDF 6/0 was used in all cases for urethral and glanular repair. In day care only one UR patient went into retention needing insertion of catheter. 7 Patient revisited emergency (SR 5, UR 2) p 0.02, all the 5 SR patients came back with bleeding/severe swelling while two of UR came back with dysuria needing analgesia only. For follow-up 98 patients were available (SR 47, UR 51). Fistula was reported in 17 (17.3 %)-SR 9 (19.1 %), UR 8 (15.6 %) p 0.5, meatal stenosis in 3 (SR 3) p 0.06, partial/full dehiscence 6 (SR 2, UR 4) p 0.25.

### CONCLUSIONS

Early post op SR patients are more likely to return to emergency. There is no significant difference in the long term complications and outcome of stented vs unstented HS repair.

09:23–09:38

## Discussion

## ANGROGEN RECEPTOR EXPRESSION IN PREPUTIAL DARTOS TISSUE OF CONGENITAL MALFORMATIONS OF THE PENIS IN COMPARISON WITH CONTROLS: A NOVEL SEMIQUANTITATIVE TECHNIQUE

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### PURPOSE

As the role of androgen activity in the development of congenital malformations of the penis (CMP) is controversial, this study aimed at assessing androgen receptor (AR) expression in smooth muscle fibers of dartos tissue (DT) of patients with hypospadias, buried penis (BP) and circumcision as controls.

### MATERIAL AND METHODS

428 foreskin samples were prospectively gathered: 230 CMP (197 hypospadias, 33 BP) and 198 circumcisions (age range: 0,40–54,20 years; 0,36–87,51 years, respectively). Immunohistochemical AR staining was semi-quantitatively studied, using a modified quick score (mQuicks) (0–6), assessing intensity (0–3) and proportion (0–3) of stained smooth muscle fibers. mQuicks obtained in hypospadias and BP were compared with controls and proximal with distal hypospadias in different age groups. Statistical analysis was performed with IBM SPSS 20.0.

### RESULTS

AR expression shows a bimodal distribution in both CMP and controls. The first peak is seen between 6 and 12 months of age, i.e. following mini-puberty, with half of the samples showing positive AR staining. A second peak coincides with the advent of puberty. As no samples obtained before the age of 6 months were available, it is currently unclear if the first peak coincides with onset of mini-puberty or is already present at birth. No significant difference in mQuicks were found between hypospadias, BP and controls or between proximal and distal hypospadias in all age groups

### CONCLUSIONS

AR expression shows a bimodal distribution in both CMP and controls, coinciding with physiological androgen production. These findings can explain conflicting results in previous studies assessing AR expression in DT of CMP and emphasize the need for age-matched controls.

## ★ SCORING SYSTEM FOR GRADING HYPOSPADIAS SEVERITY AND QUANTIFYING RISK OF POSTOPERATIVE COMPLICATIONS

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### PURPOSE

Grading of hypospadias severity is often a subjective task, potentially causing barriers for dissemination of findings and research collaboration. Herein, we describe a modified, more objective GMS(mGMS)scoring system to grade hypospadias phenotype and investigate its association with urethral complications(UC) post-TIP repair.

### MATERIAL AND METHODS

680 patients from a prospective database were graded preoperatively using the mGMS score. We excluded F/U<3 months, redos and staged repairs. Age at surgery, preop testosterone, meatal location, glans groove depth, glans size(mm) and VC were collected for a score of 4–12. Primary outcome: complication rate(fistula, glans dehiscence and meatal stenosis); secondary outcome: association of mGMS severity score groups (mild:4–5; mod:6–7; severe:8–10) with complications. Student's t, Fisher's exact tests and logistic regression were performed.

### RESULTS

UCs developed in 40/445(9 %) patients; most commonly fistulas(47 %). Median age at surgery=16 months(IQR:13–21) and mean F/U=21 months(3–104). Mean mGMS score =6.3. UC rates by mGMS severity categories are shown in Table 1. The severe phenotype had a significantly higher complication rate than the mild category (19 % vs. 5 %, p<0.01).

mGMS Category	Phenotype	Urethral Complications		Patients-n
		n	%	
4-5	Mild	5	(5)	106
6-7	Moderate	21	(8)	276
8-10	Severe	14	(19)	73

### CONCLUSIONS

We have found the mGMS scoring system to be an objective, standardized and statistically useful instrument for describing the severity of hypospadias phenotypes and for quantifying UCs. We also identified an association between mGMS severity scores groups and UC rates. Boys in the severe mGMS score category had a 4-fold higher complication rate than those with mild hypospadias phenotype. This information can be useful for counseling during preoperative appointment.

## OBJECTIVE PENILE PARAMETERS AS PROGNOSTIC FACTORS IN HYPOSPADIAS REPAIR

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### PURPOSE

The main predictive factor for surgical success of hypospadias repair is considered to be meatal location (Duckett, 1996). In this study we describe additional objective parameters and evaluated correlation to surgical and cosmetic outcomes.

### MATERIAL AND METHODS

All boys undergoing hypospadias repair between 2015–2018 were prospectively evaluated. Intra operative measurements were obtained under general anastasia prior to surgical intervention: Glans penis width, height, AP diameter and distance from initial meatal opening to desired location was measured using a caliper, degree of chordee was assessed using a goniometer. Surgical end points were: incidence of fistula, dehiscence, and meatal stenosis. Cosmetic outcome was evaluated by the validated HOPE score. An institutional IRB and parental consent was acquired prior to data collection. SPSS system was used to analyze categorical and continuous variables.

### RESULTS

54 patients met the inclusion criteria. Patient demographic and pre-operative data is presented in the table. Overall there was 13/54 (24 %) addition procedure (7 fistula, 6 meatal stenosis, 4 dehiscence). Roc analysis didn't demonstrate a correlation between any pre-operative parameters to surgical outcome. "Perfect" cosmetic outcomes (HOPE=60) was achieved in 33/54 (61 %) cases. There was statistical significant correlation between degree of chordee and HOPE score ( $p=0.023$ ).

Median age (months)	12.9 (IQR, 10.8–19)
Median weight (Kilogram)	10.8 (IQR, 9.3–12.5)
Meatal location:	
Sub coronal	35
Distal shaft	4
Midshaft	11
Peno-scrotal	4
Degree of Chordee:	
Mild (<30°)	33
Moderate (30°–60°)	13
Severe (>60°)	8
Glans Width (mm)	13 (IQR 12–14)
Glans height (mm)	10 (IQR 9–10)
Glans AP diameter (mm)	11 (IQR 10–12)

### CONCLUSIONS

In this study we found no correlation between objective penile measurements and surgical outcomes. Pre-operative penile chordee was the only significant predictive factor for suboptimal cosmetic outcomes.

## EFFECT OF CASTOR OIL AND PENILE PUMP ON COMPLICATION RATES IN CHILDREN UNDERGOING TWO-STAGE HYPOSPADIAS SURGERY

Halil TUĞTEPE<sup>1</sup>, Arzu CANMEMİŞ<sup>1</sup>, Ahsen KARAGÖZLÜ AKGÜL<sup>1</sup>, Zeynep ÇALIKLI<sup>2</sup>, Nicat VALIYEV<sup>2</sup>, Tülay GÜRAN<sup>3</sup>, Abdullah BEREKET<sup>3</sup> and Tolga DAĞLI<sup>2</sup>

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### PURPOSE

Two-staged free preputial graft has recently increased in popularity for use in severe hypospadias repair. In this study, the aim was to evaluate the effect on complications of using castor oil and penile pump after 1<sup>st</sup> stage of two-stage repair with free preputial graft.

### MATERIAL AND METHODS

Patients undergoing two-stage hypospadias repair between April 2013 and August 2018 were included in the study prospectively. In the study group, 14 days after 1<sup>st</sup> stage, castor oil was applied on the graft 3 times a day until 2<sup>nd</sup> stage in addition to use of penile pump. Castor oil and pump was not used in the control group. Complications were compared between the two groups and Odds ratio was calculated.

### RESULTS

There were 30 patients in study group and 21 patients in control group. The average age in study group at 1<sup>st</sup> and 2<sup>nd</sup> stage was 21.7 months and 28.7 months, and in control group 31.3 months and 39 months respectively. There were 3 patients with midshaft, 27 with penoscrotal, 18 with scrotal and 2 with perineal hypospadias. There was no statistical difference between ages, follow up times and hypospadias types between the two groups. Complications were seen in 11 patients (55 %) in the control and 8 patients (26.6 %) in the study group ( $p=0.07$ ). Use of Indian Oil and penile pump had an Odds ratio of 0.38 (%95 CI 0.10–1.35).

### CONCLUSIONS

Use of castor oil and penile pump in patients undergoing two-staged hypospadias repair reduces the complication rates and protects from complications but this outcome did not reach statistical significance. Further studies with larger population are required.

## COMPARISSON BETWEEN "MACHINE-LEARNING" AND HUMAN TO IDENTIFY AND CLASSIFY HYPOSPADIAS

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### PURPOSE

Anatomical variables such as meatal location, quality of the urethral plate, glans size and ventral curvature have been identified as predictors for post-operative outcomes. Nonetheless, there is still significant subjectivity between evaluators. Hereby we propose the use of machine learning/image recognition to increase objectivity of hypospadias recognition and classification.

### MATERIAL AND METHODS

Using an image database, a total of 1169 anonymous images (837 distal and 332 proximal) were used. All pictures had the same format (ventral aspect of the penis including the glans, shaft and scrotum). Images were classified into distal or proximal and shown the computer for training with TensorFlow. Data from the training was outputted to TensorBoard, to assess for the loss function. The model was then run on a set of 29 "Test" images arbitrarily selected. Same set of images were distributed amongst expert clinicians in pediatric urology. Inter and intrarater analysis were performed using Fleiss Kappa statistical analysis.

### RESULTS

After training phase with 627 images (440 distal and 187 proximal), detection accuracy was 60 %. When training was increased to 1169 images, accuracy increased to 90 %. Overall inter-rater analysis amongst expert pediatric urologists was  $k = 0.86$  and intra-rater 0.74.

### CONCLUSIONS

Image recognition model after established training has an accuracy detection rate of 90 % which emulates the almost perfect inter-rater agreement between experts. Future applications of this technology may be used as a predictive tool for surgical outcomes and to identify image properties to better define difficult variables such as the quality of the urethral plate.

09:53–09:56

S12-11 (PP)

## ★ A LOWER D2/D4 DIGIT RATIO AND SCROTAL BASE DISTANCE IN MALE INFANTS WITH HYPOSPADIAS AND/OR CRYPTORCHIDISM THAN NORMAL BOYS

Tariq Osman ABBAS<sup>1</sup>, A ELKADHI<sup>2</sup> and Joao PIPPI SALLE<sup>3</sup>

1) Hamad General Hospital, Pediatric Surgery, Doha, QATAR - 2) Hamad Medical Corporation, Pediatric Surgery, Doha, QATAR - 3) Sidra Medicine, Urology, Doha, QATAR

### PURPOSE

In humans, the ratio of the index finger to the ring finger is sexually dimorphic, as the mean ratio was found to be shorter in men than in women. It has been suggested that this difference is related to prenatal androgen exposure in men. This has been also demonstrated in children with severe hypospadias and congenital adrenal hyperplasia. We have shown previously that scrotal base distance is lower in patients with Hypospadias and undescended testes. We therefore aimed to determine if the 2D:4D digit ratio was correlating with scrotal base distance (SBD) in this group of patients.

### MATERIAL AND METHODS

We prospectively enrolled prepubertal patients with cryptorchidism or hypospadias between September 2016 and January 2018. We then compared their D2:D4 digit ratio with SBD in two control groups made up of normal boys and with Hypospadias or undescended testes.

### RESULTS

57 boys with hypospadias or cryptorchidism, 79 boys undergoing circumcision we included. The mean D2:D2 ratio for left hands was significantly different between the two groups, and correlating with SBD ( $p < 0.05$ ).

### CONCLUSIONS

It appears that boys with cryptorchidism or hypospadias have a lower D2:D4 digit ratio than boys without genital anomalies. This ratio is correlating with the newly described genital anthropometric measure "scrotal base distance". This validate the utilization of this measure as an a physical reflection to male fetal underverilization.

09:56–10:14

## Discussion

# S13: ONCOLOGY

Moderators: Yves Heloury (Australia), Marco Castagnetti (Italy)

ESPU Meeting on Friday 26, April 2019, 11:14–12:00

11:14–11:17

S13-1 (PP)

## ★ CANCER GENE PANEL ANALYSIS OF MALIGNANCY AFTER AUGMENTATION ENTEROCYSTOPLASTY

Sarah GARNIER<sup>1</sup>, Julie VENDRELL<sup>2</sup>, Bernard BOILLOT<sup>3</sup>, Gilles KARSENTY<sup>4</sup>, Jean Michel GUYS<sup>5</sup>, Thomas BLANC<sup>6</sup>, Stephen LORTAT JACOB<sup>7</sup>, Laurent SOUSTELLE<sup>8</sup>, Veronique PHE<sup>9</sup>, Alexia EVEN<sup>10</sup>, Emmanuel CHARTIER KASSLER<sup>11</sup>, Pierre COSTA<sup>12</sup>, Francois IBORRA<sup>13</sup>, Ourdia BOUALI<sup>14</sup>, Xavier GAME<sup>15</sup>, Jerome SOLASSOL<sup>16</sup> and Nicolas KALFA<sup>17</sup>

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### PURPOSE

Malignancy after augmentation enterocystoplasty (AE) is often diagnosed at an advanced stage with a high mortality. Comprehensive characterization of mutations in key cancer pathways may be of interest for the development of personalized treatment.

### MATERIAL AND METHODS

A multicenter nationwide retrospective study included 14 patients. From our cohort, 11 tumor samples were retrospectively analyzed using a Next-Generation-Sequencing assay specifically dedicated to the detection of clinically actionable somatic alterations of 21 cancer genes.

### RESULTS

Over half of analyzable samples (n=5/9) harbored missense mutations in known oncogene genes. Two samples exhibited mutations in KIT and PDGFRA and one sample in KRAS hotspot. Two samples showed an alteration in the exon 3 of CTNNB1. One tumor that harbored a CTNNB1 mutation, also exhibits a concomitant ERBB4 alteration.

Histology of the tumor	Cancer genes Alterations detected	Initial stage of disease / outcome
Undifferentiated carcinomas	wild-type	M+/death
UCC	Not analyzable	localized/disease free
UCC	wild-type	N+/ disease free
SC	Missing sample	localized/ recurrence and death

AC	Not analyzable	M+/recurrence and death
AC	CTNNB1	N+/ death
AC	CTNNB1 ERBB4	M+/recurrence
AC	KIT	N+/ recurrence
AC	Missing sample	M+/ death
UCC	Missing sample	N+/ death
UCC	PDGFRA	N+/ recurrence and death
AC	KRAS	M+/recurrence and death
SC	wild-type	M+/recurrence and death
SC	wild-type	M+/ death

UCC: urothelial-cell carcinoma, SC: squamous-cell carcinoma, AC: adenocarcinoma  
M+:distant metastasis, N+:lymph-nodes involvement

## CONCLUSIONS

This is the first report of mutations of cancer genes in malignancy after AE, for witch target therapies are available or under development.

11:17–11:20

S13-2 (PP)

## TESTIS SPARING SURGERY FOR PEDIATRIC LEYDIG CELL TUMORS: THE NEW STANDARD OF SURGICAL CARE?

Fadi ZUBI<sup>1</sup>, Mandy RICKARD<sup>1</sup>, Mohammed BEAITI<sup>1</sup>, Nathan KAHN<sup>1</sup>, Anne-Sophie BLAIS<sup>1</sup>, Jessica HANNICK<sup>1</sup>, Roberto IGLESIAS LOPES<sup>2</sup> and Armando J. LORENZO<sup>1</sup>

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### PURPOSE

Testicular Leydig cell tumor (LCT) is a rare disease in children, with paucity of information related to its natural history and most appropriate management. Herein we review our single institution experience and management of a cohort of children with testicular LCT.

### MATERIAL AND METHODS

We reviewed all children presenting with testicular lesions between 2003–2017 (n=68), and excluded patients with alternative pathologies (n=57). We subsequently collected data on the following variables: age at surgery, laterality, type of surgery, operative time, presenting symptoms, serum markers, imaging findings, frozen section and margins, final pathology and follow-up time.

### RESULTS

During the study period, a total of 11 children were treated for LCT of the testis. Age at surgery was  $8.4 \pm 1.6$  years and the majority (82 %) presented with unilateral disease. Most patients presented with a testicular mass and only 3 (27 %) presented with testicular pain. None of the patients were found to have gynecomastia or elevated tumor markers. The primary method of management was ultrasound-guided testicular sparing surgery (82 %); operative time was  $90.2 \pm 58.8$  minutes. Mean tumor size was  $27 \pm 30$  mm and of nine patients who had testis sparing surgery (TSS), two patients had final pathology prompting radical orchidectomy without residual disease encountered. At a follow-up time of  $41 \pm 31$  months none of the patients had disease relapse.

## CONCLUSIONS

To our knowledge, this is the largest reported series of pediatric LCT. Our data suggests that LCT in children is associated with a good prognosis and that TSS is a reasonable surgical approach with no obvious detrimental effects to perioperative morbidity or long-term outcomes. This is particularly true when tumor markers are negative. Moreover, pathological diagnosis after TSS should not prompt completion orchidectomy. These results may be helpful during family counseling with respect to prognosis and expected outcomes.

11:20–11:23

S13-3 (PP)

## TESTICULAR RELAPSE IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA

Conca MA<sup>1</sup>, Romeu G<sup>1</sup>, Fernández J.M.<sup>2</sup>, March JO<sup>1</sup>, Polo A<sup>1</sup>, Agustín SERRANO-DURBÁ<sup>1</sup> and Domínguez C<sup>1</sup>

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### PURPOSE

Testicular relapse of acute lymphoblastic leukemia (ALL) although it is very scarce is one of the extramedullary "sanctuaries". We try to clarify its true incidence with new protocols and evaluate the management of ALL patients with testicular relapse.

### MATERIAL AND METHODS

Prospective study (2008–2018) of 334 boys affected of ALL. Review of the Spanish Society of Pediatric Hematology and Oncology-Program for the Study of Therapeutics Malignant Hematology (SEHOP-PETHEMA) protocol.

### RESULTS

Only three cases (0,89 % incidence) of testicular relapse were diagnosed.

Case 1: 3-years-old, right testicular relapse after 3 years. Bilateral biopsy confirmed right infiltration, treated by high dose radiotherapy(RT).

Case 2: 4-years-old, right testicular relapse after 2 years. Right orchiectomy + contralateral biopsy was performed, unilateral testicular relapse was confirmed. He is undergoing treatment with consolidation chemotherapy(CH), pending RT.

Case 3: 9-years-old, early bone marrow relapse and suspicious testicular asymmetry. Bilateral biopsy was performed, testicular relapse was not confirmed.

According SEHOP-PETHEMA protocol, testicular involvement at ALL diagnosis does not require anatomopathological confirmation(AP). Testicular biopsy will be performed when ultrasound involvement persists after consolidation CH. If confirmed, treatment will be bilateral RT. In testicular relapse, it will always be necessary to confirm AP and rule out contralateral subclinical infiltration, treatment includes orchiectomy + contralateral biopsy + low dose RT or bilateral biopsy + full dose RT, with CH.

### CONCLUSIONS

Therapeutic combination described in our cases supposes an important multidisciplinary task. Collaboration and knowledge by different specialties is mandatory to offer the patient optimal treatment.

11:23–11:32

## Discussion

## WILMS TUMORS, NEPHROGENIC RESTS AND NEPHROBLASTOMATOSIS: RADIOLOGIC DIAGNOSIS VERSUS HISTOPATHOLOGY

Kristina DZHUMA<sup>1</sup>, Huber DUCOU LE POINTE<sup>2</sup>, Aurore COULOMB<sup>3</sup> and Sabine IRTAN<sup>4</sup>

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### PURPOSE

Despite typical imaging features described for Wilms tumors (WT), nephroblastomatosis and nephrogenic rests (NR), the radiologic assessment is not always congruent with the final histology. So, the aim of this study was to compare the imaging features of renal nodules with their final histology and identify radiological factors that would better differentiate WT from NR.

### MATERIAL AND METHODS

Patients with multifocal bilateral or unilateral renal tumors with histologically confirmed NR or nephroblastomatosis were included. A senior radiologist blinded to histology reviewed CT images at diagnosis and after neoadjuvant chemotherapy. The difference in findings between the initial cross-sectional imaging at diagnosis and preoperative phase and the histopathology results was noted and correlations were made.

### RESULTS

Among 205 nodules identified in 48 patients (mean 4.3 nodules/patient) at diagnosis, 175 were resected after a median of five courses of chemotherapy for the first side and 13 courses for the second side. The radiology/pathology correlation showed 118 (74,6 %) nodules adequately classified, 20 (11,3 %) false positive (9 patients) and 20 (11,3 %) false negative (9 patients) for WT. WT was significantly bigger than other tumor types at diagnosis and preoperative assessment ( $p < 0.0001$ ). The homogeneity rate was not different between WT and NR and 95 % of nodules thought NR that were finally WT were homogeneous while 83 % of nodules initially diagnosed as WT that were finally NR were heterogeneous.

### CONCLUSIONS

Radiological misdiagnosis occurred in 25 % of kidney nodules in bilateral renal tumors. The size of nodules at diagnosis and their decrease under neoadjuvant chemotherapy may be an interesting factor to help recognizing WT from NR before surgery. On the contrary, other criteria like homogeneity did not seem key features.

## IMAGE RECOGNITION ALGORITHM FOR SEMI-AUTOMATED TUMOR AND PARENCHYMA VOLUME CALCULATION IN PEDIATRIC WILMS' TUMOR PATIENTS

Armando LORENZO<sup>1</sup>, Mandy RICKARD<sup>1</sup>, Anne-Sophie BLAIS<sup>1</sup>, Nicolas FERNANDEZ<sup>1</sup>, Asfaneh AMIRABADI<sup>2</sup>, Wayne LEE<sup>2</sup>, Ahmed SHALABI<sup>2</sup> and Jeffery TRAUBICI<sup>3</sup>

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### PURPOSE

Advances in the management of Wilms' tumor (WT) have led to changes in management and increased survival. To date, quantification of tumor/parenchyma volume remains cumbersome without standardization. Herein, we present our initial experience and proof-of-concept with automatic image recognition/segmentation technology for calculation of tumor/parenchyma volume in WT patients.

### MATERIAL AND METHODS

We reviewed WT patients between 2000–18, capturing CTscan images at baseline, post-neoadjuvant chemotherapy (NaC; if applicable) and post-operatively. Images were uploaded into MATLAB-3-D volumetric image processing software. The algorithm was developed at our institution and trained by 2 clinicians who supervised the demarcation for tumor and parenchyma, recognition/delineation of tumor margins while differentiating it from uninvolved parenchyma and autocalculation of volume for both on serial imaging.

### RESULTS

During the study period 98 patients were identified. Of these 32 (38 moieties) were selected for the pilot/proof-of-concept. Most patients (65 %) were female, age 50+37 months and 80 % had unilateral disease. NaC was employed in 64 %. Surgical management included 27-radical and 11-partial nephrectomies. Tumors measured 9x7x6 cm and weighed 433+/-352 g. Mean gain in parenchyma was 15–38 % from baseline to postoperative studies and tumor volume decreased by 60–68 % from baseline to post NaC (Table 1.)

	Baseline Volume (cm <sup>3</sup> )	Post-NaC Volume (cm <sup>3</sup> )	Post-operative Volume (cm <sup>3</sup> )	Change (%)
Unilateral				
Uninvolved Parenchyma	68±45	75±11	49±17	-21±118
Contralateral Kidney	82±43	91±8	118±51	15±24
Tumor	639±51	500±314	NA	-68±20
Bilateral Disease				
Uninvolved Parenchyma	35±11	28±18	38±48	38±36
Tumor	383±522	107±175	NA	-66±38

### CONCLUSIONS

Machine driven, semi-independent volumetric analysis is feasible, and allows analysis of tumor and parenchyma volume in response to chemotherapy and surgery. Our data shows changes after therapy that may be otherwise difficult to quantify. Utilizing such technology may enhance surgical planning, monitoring response to treatment, and predict long-term changes in renal function.

## ★ TRANSPERITONEAL LAPAROSCOPIC NEPHRO-SPARING SURGERY OF A RENINOMA TUMOR

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### PURPOSE

Reninoma is a juxtaglomerular cell tumor and a rare but treatable cause of hypertension. This type of benign renal neoplasm has elevated plasma renin activity with secondary hyperaldosteronism and it is usually well localized using computed tomography or magnetic resonance imaging. The first choice of treatment consists in the surgical resection of the tumor with a nephron-sparing approach.

### MATERIAL AND METHODS

Report a laparoscopic resection of a reninoma tumor in a pediatric patient.

### RESULTS

A well circumscribed 20 mm diameter tumor was discovered with ultrasound and then confirmed with computed tomography images in the lower pole of the right kidney of a 14-year-old girl with a history of severe high blood pressure.

The patient was positioned laterally with sand bag underneath the lumbar region, and the table was put in a reverse Trendelenburg position. A transperitoneal laparoscopic approach was performed using 4 ports. After mobilization of the colon, the Gerota's fascia was opened and the tumor located on the anterior surface of the lower renal pole. Both polar and principal renal arteries were dissected and secured with vessel loops. The tumor was resected using an ultrasonic energy device with an 8-minute polar artery clamping. The transected renal surface was closed using 2 continuous barbed sutures and the tumor was removed using a handmade endobag. There were no perioperative complications and a perianastomotic drainage was left for 4 days.

The patient was discharged 2 days after surgery with decreasing blood pressure measurements and normal plasma renin activity levels without any medication. The surgical pathology confirmed the typical reninoma immunohistochemically features.

### CONCLUSIONS

Reninoma is a rare but benign renal tumor and because of its nature and localization it represents an ideal tumor for minimally invasive nephron-sparing surgery.

11:43–11:48

S13-7 (VP)

## ★ RETROPERITONEAL ROBOTIC ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY (RRALPN) FOR NEPHRON-SPARING RESECTION IN CHILDREN

Thomas BLANC<sup>1</sup>, Luca PIO<sup>1</sup>, Pierre MEIGNAN<sup>1</sup>, Jules KOHAUT<sup>1</sup>, Daniel ORBACH<sup>2</sup>, Véronique MINARD<sup>3</sup>, Yves HELOURY<sup>1</sup> and Sabine SARNACKI<sup>1</sup>

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### PURPOSE

The role of MIS for renal tumour treatment in children has been limited to pioneer groups. Our aim is to report a retroperitoneal robotic approach for nephron-sparing resection of renal tumours.

### MATERIAL AND METHODS

Children with Wilms' tumour were treated according to the SIOP-2001 protocol.

A four-trocar retroperitoneal lateral approach was used. The renal artery was dissected and clamped with bulldog. Direct tumour manipulation was carefully avoided. The tumour was excised with scissors, leaving a margin of normal renal parenchyma around it. The sliding-clip renorrhaphy technique was used to close the cone-shaped defect with running suture incorporating a small piece of Surgicel Fibrillar. The clamp was removed, and haemostasis was confirmed.

Intraoperative frozen sections to assess the surgical margins were not performed.

The tumour was retrieved in an EndoCatch without morcellation.

### RESULTS

4 children, aged 3.2–4.7–9.8–14.1 years, underwent RRALPN. Mean weight was 32 kg (15–50)

The 3 younger patients developed a renal tumour on the solitary kidney after contralateral Wilms tumour. The eldest one had undergone multiple laparotomies including liver transplantation for hepatoblastoma. During the work up for a new transplantation, a tumour was found on the left kidney.

Console time was 2 hours. Warm ischemia time reduced from 40 to 26 minutes.

The tumour was completely removed without rupture. No bleeding occurred.

Three patients had a Wilms stage 1 (2.5–2.5 and 3.5 cm), one a 3.5 cm tubulopapillary carcinoma. The postoperative course was free of complications, all the patients were discharged on day-2 to day-4.

No recurrences or long-term complications have been detected (follow-up: 1–12 months).

### CONCLUSIONS

RRALPN for renal tumour is a feasible and safe procedure in a selected group of children. This approach follows the current aim to decrease burden of treatment in children cancer and has the advantage to avoid peritoneal spread in case of tumour rupture.

11:48–12:00

### Discussion

# S14: ADOLESCENT UROLOGY

Moderators: Gianantonio Manzoni (Italy), Radim Kočvara (Czech Republic)

ESPU Meeting on Friday 26, April 2019, 12:00–12:28

12:00–12:05

S14-1 (LO)

## ★ IS THE SUCCESS RATE OF VARICOCELECTOMY DIFFERENT IN ADOLESCENTS WITH NUTCRACKER SYNDROME (NCS)?

Perviz HAJIYEV<sup>1</sup>, Cagri AKPINAR<sup>2</sup>, Baris ESEN<sup>2</sup>, Murat KARABURUN<sup>2</sup>, Gunay EKBERLI<sup>1</sup>, S. FITOZ<sup>3</sup>, Tarkan SOYGUR<sup>1</sup> and Berk BURGU<sup>1</sup>

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### PURPOSE

We questioned whether Nutcracker(NCS) Etiology etiology for pediatric varicocele is related with special diagnostic features and can predict a lower success rate after surgery in mid-term follow up.

### MATERIAL AND METHODS

Records of 17 boys (mean age at diagnosis 158±38 months) with NCS and varicocele were retrospectively evaluated. Age, presenting symptoms and findings were recorded. All patients underwent subinguinal microscopic varicocelectomy and re-examined within last 6 months before abstract submission to evaluate the mid-term (33±11 months) postoperative status clinically and sonographically for recurrence and testicular volume. Catch-up growth was compared also in patients with significant pre-operative asymmetry. Semen analysis was performed in patients with TannerV. The results were compared with the results of 108 adolescents without NCS who underwent subinguinal microscopic varicocelectomy between 2007–2017 with unilateral left sided varicocele with a follow up of 79±28 months. Indications for surgery in both groups were asymmetric testicular growth >20 %, Peak Retrograde Flow (PRF) >35 cm/s and pain with grade3 varicocele. We compared preoperative mean RPF of NCS associated and non-associated varicocele groups and its relation with postoperative recurrence.

### RESULTS

Preoperative NCS patients had all grade3 varicocele and significantly higher mean PFR (median: 39±13 cm/s) when compared to control (28±12 cm/s). Whereas presence of testicular asymmetry was comparable in both groups. Recurrence confirmed with a postoperative PFR above 20 cm/s in DUS in NCS group was significantly higher. The percentage of, catch-up growth were similar in both groups. Results of postoperative semen analysis from 6 patients in NCS and 28 from control in terms on TMC were comparable. All NCS patients had at least one of the accompanying symptoms such as abdominal pain, micro/macrohematuria, low BMI or orthostatic non-nephrotic-proteinuria. Presence and severity of these were not able to predict the recurrence in this group postoperatively.

### CONCLUSIONS

NCS patients admit with a higher grade varicocele and PFR in DUS than a non-NCS group. Testicular asymmetry and catch-up growth are similar. There is a significantly higher postoperative recurrence rate.

12:05–12:10

S14-2 (LO)

## POST-PUBERTAL SELF-REPORTED OUTCOMES AFTER DISTAL HYPOSPADIAS TABULARISED INCISED PLATE (TIP) REPAIR COMBINED WITH PREPUTIAL RECONSTRUCTION (PR) VS. CIRCUMCISION: A NORM RELATED STUDY

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### PURPOSE

We assessed post-puberal self-reported outcomes in patients undergoing TIP repair of primary distal hypospadias in combination with either PR or circumcision, in comparison to normal controls. Our hypotheses were that hypospadias patients had worse outcomes than normal controls, and that hypospadias patients undergoing PR fared better than those undergoing circumcision.

### MATERIAL AND METHODS

Between 10/2001 and 09/2012, 498 patients underwent primary distal hypospadias repair. Inclusion criteria were age at surgery >10 years, TIP repair, and Tanner stage 2 or greater.

Validated self-administered questionnaires included 1. the HOSE, the PPPS, and the SIGHT score to assess penile appearance and patient satisfaction; 2. the Stark QoL to assess quality of life; and 3. the RQ to assess interpersonal relationships.

Results were compared among patients undergoing TIP repair and PR, those undergoing TIP repair and circumcision, and normal age-matched controls.

### RESULTS

During the study period, 208/498 patients underwent primary TIP distal hypospadias repairs, 83 (39.9 %) were eligible for the study, and 41 completed the study (response rate 49.3 %). Of these 41, 26 underwent PR and 15 circumcision. Median follow-up was 11.6 (range 5.2–16.2) years. The control group included 45 healthy boys.

Comparing the three groups, there was no statistically significant difference in cosmetic results, patient perception of penile appearance, and quality of life. Patients tended to perceive the aspect of their genitalia as embarrassing compared to normal controls ( $p=0.023$ ) irrespective of preputial management. However, they showed less difficulties in starting social relationships compared to the control group ( $p=0.016$ ).

### CONCLUSIONS

Patients reevaluated post-pubertally after TIP repair in childhood of primary distal hypospadias did not show a statistically significant difference in cosmetic results, patient perception of penile appearance, and quality of life compared to normal controls irrespective of preputial management. Genital appearance was perceived as a reason for embarrassment, but it did not seem to interfere with social skills.

## PERSISTING COMPLICATIONS IN MEN TREATED FOR HYPOSPADIAS DURING CHILDHOOD

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### PURPOSE

Hypospadias surgery during childhood may lead to persisting or recurring complications at adult age. We aimed to describe complications observed and treated in a cohort of adults with previously treated hypospadias.

### METHODS

All patients referred from 2004 to 2016 to a adult urology university center for late or persisting urethral complications requiring surgical intervention were included. Anatomical, clinical and surgical history data from both childhood and postpubertal period were retrospectively reviewed.

### RESULTS

A total of 31 patients underwent redo surgery for hypospadias complications at a median age of 36 years [19–87]. Initial position of meatus was anterior in 18, penile in 10 and posterior in 3. Several different procedures had been performed as initial surgical repair, with a majority of TIP. Fourteen patients (45 %) had already required multiple redo-surgery during childhood.

Complications at adult age included distal (n=22) or proximal (at the level of bulbar urethra, n=6) urethral stenoses, residual chordee (n=2), urethral fistula, and urethrocele.

Various surgical procedures were performed at this stage. Recurring complications were observed in almost half of the patients (14/31, 45 %), with a median delay of 4 years [1–7], including 13 uni- or bifocal stenoses in 11 men, fistulas (n=2), or stone on urethral hair (n=1). In total, stenosis of the bulbar urethra was observed in 8/31 men, either at initial adult presentation or as a complication of surgery at adult age. Of these, note, 6/8 were initially distal hypospadias, and 5/8 had already undergone multiple procedures before puberty.

### CONCLUSIONS

Persistent urethral strictures are not uncommon at adult age after childhood history of hypospadias. We observed an unexpected high number of proximal stenoses even in distal hypospadias, raising the suspicion that multiple surgeries and repeated urethral catheterizations may contribute to progressive proximal injury and acquired stricture upstream to the urethroplasty

12:13–12:16

S14-4 (PP)

## SEXUAL AND PREGNANCY KNOWLEDGE AMONG TRANSITIONAL SPINA BIFIDA WOMEN: A PATIENT-BASED SURVEY ANALYSIS

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### PURPOSE

Pregnancy remains under-investigated and debated among spina bifida (SB) patients. Some studies present data associating gestation in SB patients with higher rates of urinary complication. Thus, we performed this study to assess the educational status of SB young women about intimate care and pregnancy.

### MATERIAL AND METHODS

A multicenter cross sectional survey based on personal interview among 253 SB patients was conducted at the Spanish SB Association centers on the cities of Barcelona, Madrid and Malaga. Among these, 126 female patients were asked about sexual and obstetrical themes and its relationship with their chronic condition.

### RESULTS

Patients presented mean age of 25 years (range from 18 to 40) and 35.2 % reported at least one sexual experience, which occurs regularly in 58.2 %. However, only 50 % of sexually active patients use a birth-control method and, among these, the preferences were: 58.8 % condom, 23.5 % hormonal contraceptives, 13.7 % coitus interruptus or 3.9 % calendar-based method. Besides, 37.2 % claims that never had a gynecological evaluation, 8 % did not know that they could have intercourse and 18 % were uninformed about possibility of pregnancy. Among those who received sexual information, only 16.7 % report that obtained it during their medical visits.

### CONCLUSIONS

Our survey demonstrates the need to improve communication between health professionals and SB patients about sexuality and the gestacional risks. Since most of these patients follow regularly a transitional urological clinic, we believe that urologists are the most trained professionals to treat and counsel patients about this issue, yet many still don't discuss it with patients.

12:16–12:28

## Discussion

# S15: NEUROPATHIC BLADDER 1

Moderators: Rosalia Misseri (USA), Erik Van Laecke (Belgium)

ESPU Meeting on Friday 26, April 2019, 13:50–14:56

13:50–13:55

S15-1 (LO)

## ★ ONE HUNDRED CASES OF NEUROGENIC BLADDER AFTER IN-UTERO MMC REPAIR: AN OBSERVATION OF BLADDER PATTERN AND URINARY AND FECAL CONTINENCE

Antonio MACEDO JR<sup>1</sup>, Riberto LIGUORI<sup>2</sup>, Gilmar GARRONE<sup>2</sup>, Sergio OTTONI<sup>2</sup>, Ricardo MATTOS<sup>2</sup> and Marcela LEAL DA CRUZ<sup>2</sup>

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### PURPOSE

To assess the first one hundred cases of in utero myelomeningocele repair in regards to bladder classification and define urinary and fecal continence for patients aged 5 years and over.

### MATERIAL AND METHODS

We used a protocol consisting of detailed medical history, urinary tract ultrasound (US), voiding cystourethrography (VCUG) and urodynamic evaluation (UE) to categorize patients into 4 patterns: normal, high risk (overactive bladder with DLPP higher than 40 cm H<sub>2</sub>O), incontinent and underactivity (underactive bladder with post-void residual urine). Patients aged 5 years and over completed a questionnaire to study aspects of urinary and fecal continence.

### RESULTS

We evaluated 100 patients at mean age of 5.8 months (median 4 months), classified as high risk in 52.6 %, incontinent in 27.4 %, with underactive bladder in 4.2 % and only 14.7 % had a normal bladder profile. Of these 100 cases, 14 were 5 years or over consisting of 4 (28.6 %) males and 10 (71.4 %) females. Three patients had undergone surgery (2 augmentations and 1 mini-sling urethroplasty). Twelve patients perform CIC (85.7 %). Only 3 (21.4 %) patients had no urinary leakage. Eleven patients (78.6 %) use diapers. Eight patients (57.2 %) perform retrograde rectal irrigation and 11 (78.6 %) complained of fecal loss. Eleven patients (78.6 %) did not report impair in their self esteem.

### CONCLUSIONS

The high incidence of abnormal bladder patterns suggest poor benefit of in utero MMC surgery towards the urinary tract. The urinary continence rate is low and 78.6 % of patients use diapers.

13:55–14:00

S15-2 (LO)

## A COMPARATIVE ANALYSIS OF IN UTERO MYELOMENINGOCELE REPAIR VERSUS POSTNATAL SURGERY. IS THERE ANY DIFFERENCE?

João PARIZI<sup>1</sup>, Marcela LEAL DA CRUZ<sup>2</sup>, Gilmar GARRONE<sup>2</sup>, Sérgio OTTONI<sup>2</sup>, Riberto LIGUORI<sup>2</sup>, Ricardo MATTOS<sup>2</sup> and Antonio MACEDO JR<sup>1</sup>

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### PURPOSE

Myelomeningocele is the result of two factors: failure to close neural tube and continuous injury by exposed neural tissue in intrauterine environment. We aimed to evaluate possible urologic benefits of patients undergoing in utero MMC correction.

### MATERIAL AND METHODS

Three groups of patients were analyzed retrospectively in a serial way: Group 1 (fetal MMC repair): 88 patients; Group 2 (MMC correction after birth): 86 patients, and of these, 38 patients, who started follow-up before 12 months of life (Group 3). We looked at urological data, urodynamics, evolution of the bladder pattern and bladder response to treatment.

### RESULTS

UTI prevalence was higher in patients operated in the postnatal period (45 %) whereas in group 1 it was 20 %. Hydronephrosis occurred in 20.7 % in Group 1, 22.6 % in Group 2 and 28.9 % in Group 3 (no statistical significance). The presence of VUR occurred in 15 % in all groups. The urodynamic data showed a statistically higher prevalence of bladder hyperactivity in Group 1 compared to Groups 2 and 3 (high-risk bladder pattern in the initial evaluation occurred in 56 %, 50 % and 46 % in groups 1, 2 and 3, respectively). There was a trend to decrease high risk bladder pattern in all groups after treatment, assessed in patients with at least three urodynamic exams. Patients with incontinent bladder and hypocontractility tend to maintain the same bladder pattern over time.

### CONCLUSIONS

We confirmed that in utero MMC surgery does not improve urological parameters when compared to patients operated in the postnatal period.

14:00–14:03

S15-3 (PP)

## EVALUATION OF BLADDER AND BOWEL FUNCTION IN CHILDREN AFTER PRENATAL AND POSTNATAL MYELOMENINGOCELE REPAIR. MIDE-TERM AUTCOMS

Agnieszka PASTUSZKA<sup>1</sup>, Janusz BOHOSIEWICZ<sup>2</sup> and Tomasz KOSZUTSKI<sup>3</sup>

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### PURPOSE

Prenatal myelomeningocele (MMC) closure significantly reduces the need for hydrocephalus shunting and improves lower extremity motor function. Urologic benefits, however, remain to be unclear. The aim of study was to assess mid-term outcomes of bladder and bowel function in children after prenatal and postnatal myelomeningocele repair.

### MATERIAL AND METHODS

Clinical data were prospectively collected for all patients who underwent fetal or postnatal MMC repair. Assessments include renal and bladder ultrasound, VCUG, urodynamic study, need for CIC, occurrence of UTI, degree of social urinary continence and constipations.

From the group of 104 patients who underwent prenatal MMC closure from 2006 to 2017, 39 patients with a postnatal follow-up of at least 3 years, were included in this study and compared with age-matched 39 MMC patients who did not undergo fetal surgery. The level of the spina bifida was similar in both groups. All children, regardless of the type of operation, were managed according to the same protocol.

### RESULTS

Urodynamic and imaging studies showed no differences between the groups.

The incidence of neurogenic bladder dysfunction was similar. Children from the prenatal group showed statistically significant lower number of UTI in all age groups and had a statistically significant better urine continence in age above 3 years and less frequent constipation when compared to postnatally operated patients ( $p=0.005$ ).

### CONCLUSIONS

Prenatal MMC repair improved the clinical condition of the urinary tract, therefore improving significantly the social urinary continence and reducing the risk of constipation.

Children operated prenatally can achieve in the future better quality of life, self-esteem and independence.

14:03–14:12

### Discussion

## THE VALUE OF INTRAOPERATIVE NEUROPHYSIOLOGICAL MONITORING IN LIPOMYELOMENINGOCELE REPAIR FOR URINARY AND BOWEL FUNCTION: THE PRELIMINARY FINDINGS OF A PROSPECTIVE LONGITUDINAL STUDY

Cem AKBAL<sup>1</sup>, Gülden Demirci OTLUOĞLU<sup>2</sup>, Müge KOÇAK<sup>3</sup>, Elif Ilgaz AYDINLAR<sup>4</sup>, Ahmet ŞAHİN<sup>1</sup> and M. Memet ÖZEK<sup>5</sup>

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### PURPOSE

Lipomyelomeningocele (LMM) is the one of the commonest forms of spinal dysraphism. Because LMM and Myelomeningocele (MM) are different in many ways, it is important to separately assess the long-term urologic outcomes of LMM from MM, in order to incorporate realistic continence and bladder management scenarios when counseling families. Many individuals affected by LMM retain a higher functional status than individuals born with Myelomeningocele (MM), and acceptance of Clean Intermitant Catheterisation (CIC) has been difficult in some LMM patients. Intraoperative neurophysiological monitoring (IONM) in lipomyelomeningocele repair was developed to identify the functional nervous structure of the urinary tract and continuously ensure the integrity of the sacral motor roots, thereby protecting bladder and bowel function. In the current study the surgical outcomes with IONM of 13 patients, and in particular those pertaining to urinary and bowel function, were prospectively analyzed in this study.

### MATERIAL AND METHODS

Lipomyelomeningocele repair and duraplasty were performed for all cases by a single surgeon in a 1.5-year period, i.e., between 2016 and 2018. Standard IONM was applied, comprising motor-evoked potentials obtained by transcranial electrical stimulation, bulbocavernosus reflex, or direct nerve root stimulation. Three-monthly postoperative urinary ultrasound results were recorded, along with the number of postoperative urinary tract infections (UTIs). Constipation was evaluated using the Bristol Stool Scale.

### RESULTS

IONM responses were obtained for all patients, except one. Temporary intraoperative nerve deterioration was identified in two patients, one of whom experienced  $\geq 2$  UTI/year and need CIC after one year of operation. Constipation was seen in two patients. Upper urinary tract deterioration was not evident in any patients on ultrasound.

### CONCLUSIONS

The use of IONM is feasible in lipomyelomeningocele patients. IONM helps to ensure the short-term safety of the urinary tract through the continuous regulation of urinary tract function and ensuring the integrity of the sacral nerve roots.

## BLADDER FUNCTION OUTCOMES IN LUMBOSACRAL LIPOMA SUBTYPES

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### PURPOSE

Lumbosacral lipoma (LSL) is a common pathology within the spectrum of spinal dysraphisms. There is paucity of bladder functional outcomes in this cohort of patients. We aim to evaluate the bladder function outcomes against LSL subtypes.

### MATERIAL AND METHODS

A single centre prospective database of patients born from 2005 to 2010 was used. The lipomas had been primarily classified into dorsal, caudal or transitional types (in relation to the conus medullaris). Other subtypes included were the filum terminale and chaotic lipomas (fat extending anterior to the spinal cord). Bladder Function Assessments (BFA) had been periodically carried out, 6-monthly until the child was toilet trained and then annually. The age matched control group for this study was the standardised International Children's Continence Society (ICCS) nomograms with post void residual. Outcomes were measured in terms of a normal or abnormal BFA.

### RESULTS

Forty-two patients, 12 boys and 30 girls were included. Median age was 10 years (range 7–12 years) with a mean follow up of 9.5 years. The table below correlates BFAs with LSL subtypes. Since the observed outcomes were better in the dorsal lipomas compared to other subtypes, a Pearson Chi-Square test was conducted to test for significance in this observed difference (P value was <0.05).

Type of LSL	Normal BFA Age 5 years or more	Abnormal BFA Age 5 years or more
Dorsal (n=8)	6	2 (25 %)
Caudal (n=9)	6	3 (33 %)
Transitional (n=21)	7	14 (66 %)
Others (n=4)	1	3 (75 %)

### CONCLUSIONS

Dorsal Lumbosacral lipomas have better bladder function outcomes followed by the caudal subtype. The majority of transitional (two-thirds), filar and chaotic types have poor bladder function outcomes. These observations were constant irrespective of conservative monitoring or surgical untethering. Our findings may be useful in counselling families and discussing management options.

14:18–14:21

S15-6 (PP)

## IMPACT OF HYPNOSIS ON INTERMITTENT CATHETERIZATION AND URODYNAMIC STUDIES IN CHILDREN: A PRELIMINARY STUDY

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### PURPOSE

Clean Intermittent catheterization (CIC) and urodynamic studies (UDS) in children could be painful and stressful. Our objective was to assess the impact of hypnosis on acceptance and the realisation of the studies or the CIC.

### MATERIAL AND METHODS

The study was conducted prospectively in our centre between June 2016 and June 2018. Children needing CIC were included. Hypnosis sessions were coordinated by therapeutic education (TPE) team at the outpatient clinic. Children with Mitrofanoff, psychiatric trouble, not speaking English or French were excluded. For CIC: feasibility of the catheterization, number of hypnosis and TPE sessions, anxiety and pain (self or hetero assessment by digital scale) were collected at the first day, one week, one month and six months. For UDS, we assessed feasibility of the study, anxiety and pain, children had only one hypnosis session.

### RESULTS

31 children (9 girls, 22 boys) mean age 9 years (1–17) were included. 14 children had CIC, 57 % were anxious or painful on first session. At one month, CIC was done daily by 100 % of parents or children. Anxiety and pain disappeared in 92 % of patients. Six months later, no patient had pain. 17 patients had hypnosis session during UDS. The study was feasible for all. 35 % were anxious and 41 % had pain.

### CONCLUSIONS

Our preliminary study showed the feasibility of hypnosis in the daily practice of the outpatient clinic of pediatric urology. Hypnosis seems to improve the acceptance rate for CIC. UDS under hypnosis was also feasible. These results need to be validated compared to control groups. In our daily practice, its use is also extended to another indications.

14:21–14:24

S15-7 (PP)

## VALIDATION OF A NEW SCORING SYSTEM (UNION) FOR THE CLINICAL ASSESMENT AND FOLLOW-UP OF SPINA BIFIDA PATIENTS

Ilker Zeki ARUSOGLU<sup>1</sup>, Ibrahim ULMAN<sup>1</sup>, Sibel TIRYAKI<sup>1</sup>, Hasan CAYIRLI<sup>1</sup>, Ali AVANOGLU<sup>1</sup>, Huseyin GUNAY<sup>2</sup>, Tuncer TURHAN<sup>3</sup> and Kazim CAPACI<sup>4</sup>

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### PURPOSE

Efficacy of specialized clinics in the follow-up of spina bifida patients have been documented. But a scoring system for overall evaluation of these patients for different specialties is lacking. The objective of this study was to develop, to test clinically, and to validate a new scoring system easily applicable and reproducible in the follow-up evaluation of spina bifida patients.

### MATERIAL AND METHODS

In this prospective study; different specialists designed a simple, objective, convenient assessment tool to evaluate spina bifida patients during their clinic visits. Five systems and functional status affected frequently in spina bifida; urinary, neurologic, intellectual, orthopedic, and nutritional status were separately scored in four different grades of clinical severity by different specialists and the parents (UNION Score). The scores obtained from various evaluators were compared statistically using Cronbach's alpha reliability test.

### RESULTS

One hundred twenty two patients were scored separately by five evaluators. The scores for each patient demonstrated a high correlation among evaluators (Alpha=0.966). The highest correlation was noted between pediatric urologist and neurosurgeon (Alpha=0.941). The correlation between family scores and the scores of healthcare givers was also noteworthy (Alpha=0.804–0.917).

### CONCLUSIONS

The new scoring system was easy to use and it was convenient among evaluators. Changes in the scores during follow-up of spina bifida patients may help warning patients, parents, and health care providers. It also may ease evaluation of spina bifida patients between different specialties. Acquaintance of scores between family and medical group may be important to motivate the patients socially, and increase their compliance during follow-up.

14:24–14:27

S15-8 (PP)

## CLINICAL PROPERTIES OF SPINA BIFIDA PATIENTS WITH JARCHO LEVIN SYNDROME

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### PURPOSE

Jarcho Levin Syndrome (JLS) is diagnosed when vertebral and costal anomalies are associated with spina bifida (SB). The aim of this study was to delineate the clinical properties of JLS.

## MATERIAL AND METHODS

Patients treated in our Spina Bifida Center were enrolled retrospectively. Patients who had diagnosis of JLS and randomly selected SB patients were compared. Age, gender, presence of VP shunt, urinary tract infection, clean intermittent catheterization (CIC), constipation, anticholinergic usage, presence of hydronephrosis, renal scarring, vesicoureteral reflux, bladder wall thickness, bladder capacity, compliance, detrusor activity, sphincter activity and residual urine were compared with student's t test and chi square test.

## RESULTS

A total 60 patients were diagnosed as JLS among 900 SB patients. Randomly selected 100 patients were chosen for comparison. JLS was found in girls in a rate of 40 %, in SB 17 % ( $p=0,001$ ), in JLS need for VP shunt was 41,6 %, in SB 22 % ( $p=0,01$ ), CIC was necessary in 30 % of JLS and 36 % in SB ( $p=0,045$ ), anticholinergic was used in 25 % of JLS and 29 % in SB ( $p=0,026$ ). Mean bladder wall thickness was  $2,75\pm 1,29$  mm in JLS and  $3,38\pm 1,1$  mm in SB ( $p=0,05$ ).

## CONCLUSIONS

This is the largest case series of JLS in the literature. Female gender is more prominent in JLS and more VP shunting may be needed in these patients. More need for CIC, anticholinergic and increased bladder wall thickness in SB may show that bladder is more affected in SB. It is possible to say that JLS may affect bladder less from urological point of view.

14:27–14:30

S15-9 (PP)

## ★ CLINICAL AND URODYNAMIC OUTCOMES OF SECONDARY UNTETHERING IN SPINA BIFIDA PATIENTS

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## PURPOSE

Secondary tethering of the spinal cord (TSC) can lead to worsening of bladder and lower extremity function (LEF). The indications and outcomes of are seldom described in the literature.

## MATERIAL AND METHODS

A retrospective study on a cohort of 306 spina bifida patients was performed. Patients who underwent a video urodynamics 12 months before and after the procedure were included. We analyzed the indication for detethering as well as bladder capacity, detrusor pressure, leak point pressure and compliance. The degree of severity was assigned according to the Abrahamsson classification (2007) and the modified Hostility Score (AWMF guideline). The indications leading to surgical intervention included worsening of the bladder function resistant to therapy and/or of LEF and adhesiolysis before spondylolisthesis.

## RESULTS

58 patients fulfilled the inclusion criteria ( $n=6$  spina bifida occulta). Mean age was 9,1 years at the time of the operation (range 0,5–22,5). The indications for surgery were worsening of the bladder function in 10 patients (17,2 %), worsening of LEF in 26 (44,8 %), worsening of both bladder and LEF in 17 (29,3 %) and other in 5 (8,6 %).

Bladder function before and after the operation, improved as frequently as it worsened, each 11 (19 %), no changes are observed in 36 (62 %). In contrast, the hostility score improved in 27 cases (46,6 %), worsened in 17 (29,3 %) and remained unchanged in 14 (24,1 %). Most of the patients with a postoperative worsening of the bladder function had been operated due to worsening LEF.

## CONCLUSIONS

We conclude that the hostility score can be improved in 46 % of the cases after detethering but in patients operated solely for LEF changes the operation tended to worsen bladder function.

14:30–14:33

S15-10 (PP)

## APPENDICOVESICOSTOMY USING SPLIT APPENDIX TECHNIQUE HAS HIGHER RATE OF COMPLICATION COMPARED TO INTACT APPENDIX OR MONTI CHANNEL

Anja ZANN<sup>1</sup>, Yuri SEBASTIAO<sup>1</sup>, Christina CHING<sup>1</sup>, Daniel DAJUSTA<sup>1</sup> and Venkata JAYANTHI<sup>2</sup>

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### PURPOSE

Many patients with neurogenic bowel/bladder require an appendicovesicostomy for bladder management and a Malone for antegrade bowel management. The split appendix technique enables the use of this organ for both procedures, obviating the need for a bowel anastomosis. We compared complication rates of the split appendix Mitrofanoff vs use of an intact appendix or a Monti channel.

### MATERIAL AND METHODS

We retrospectively reviewed consecutive patients who underwent a continent catheterizable channel. We recorded demographics, diagnosis, body mass index, stoma location, surgical technique and outcomes.

### RESULTS

From Jan 2014–July 2018, 109 patients underwent creation of a continent catheterizable channel Mitrofanoff procedure. 86 (79 %) also underwent a Malone. Median age was 7 years; 66 (60 %) were females. Intact appendices were used in 48 (44 %), a Monti channel in 26 (24 %), and a split-appendix technique in 35 (32.1 %). Overall, 37 (34 %) patients had complications, of which 27 (25 %) required surgical revision. The complication rate requiring surgical revision was 17 %, 23 %, and 37 % for intact appendix, Monti, and split appendix, respectively. After multivariable analysis, the only independent factor associated with an increased risk of revision was split appendix technique. There was no significant difference between intact appendix and Monti groups.

### CONCLUSIONS

Our data suggest that there is an increased risk of complication and need for secondary surgery in children who undergo a Mitrofanoff procedure using a split appendix technique. Prospective studies, objectively considering the length of the appendix may be helpful in determining which patients may safely undergo a split appendix procedure.

14:33–14:56

## Discussion

# S16: NEUROPATHIC BLADDER 2

Moderators: Anju Goyal (UK), Yazan Rawashdeh (Denmark)

ESPU Meeting on Friday 26, April 2019, 14:56–15:52

14:56–14:59

S16-1 (PP)

## MACE FLUSH VOLUMES INCREASE WITH LONG-TERM USE: A RETROSPECTIVE COHORT STUDY OF CHILDREN AND ADOLESCENTS WITH SPINA

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### PURPOSE

Little is known about whether Malone antegrade continence enema (MACE) flush volumes change with prolonged use in the setting of intermittent bowel distension and somatic growth. Our aim was to determine (1) if MACE volumes changed over long-term follow-up in children with spina bifida (SB), and (2) if this was related to length of follow-up, increasing age, or both.

### MATERIAL AND METHODS

We retrospectively reviewed medical records patients with SB at our institution after a MACE procedure performed before their 21<sup>st</sup> birthday. Those without MACE volume data were excluded. Demographic and clinical variables were obtained. Outcomes were assessed annually, within 12 months of each anniversary. Data nearest to the anniversary was used. Analysis involved generalized linear models.

### RESULTS

Overall, 166 patients underwent a MACE procedure at a median 6.8 years. Median follow-up was 4 years. MACE was used 6–7/week 91.6 % of the time.

MACE volumes increased over time, from a median 400 ml at baseline, to 600 ml at 1 year after surgery, 700 ml at 4 years to 800 ml at 8 years. After adjusting for age and variation between patients, irrigation volumes increased by an average 15 ml/year ( $p < 0.0001$ , Figure). Compared to children who had a MACE procedure before age 5.5, older children used higher volume flushes: +93 ml for 5.5–6.5 years ( $p = 0.03$ ), +186 ml for 6.5–9 ( $p < 0.0001$ ), and +234 ml for children older than 9 ( $p < 0.0001$ ).

### CONCLUSIONS

MACE volume flushes increase with long-term use. While this increase is related to chronic use, the main difference appears to be due to increasing age, which corresponds to somatic growth.

14:59–15:02

S16-2 (PP)

## MICTURITION REEDUCATION IN CHILDREN WITH CEREBRAL PALSY

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### INTRODUCTION

Urinary incontinence is the most frequently observed lower urinary tract symptom in children with cerebral palsy (CP). The objective of the study was to investigate the effectiveness of urotherapy in children with CP. Being continent can positively influence quality of life and health status of the child.

### MATERIAL AND METHODS

A prospective case-control study including 21 urinary incontinent children with cerebral palsy and 24 typically developing children with urinary incontinence was conducted between 2014 and 2018. Children received treatment for one year with three-monthly examination. Treatment was individualized to every patient. Children started with three months of standard urotherapy. Every three months treatment was adapted to primary problems and pharmacotherapy and/or specific interventions could be added to the initial treatment strategy. Time-effects were analyzed by means of multilevel modeling.

### RESULTS

Seven children with CP became dry during the day and 5 children became dry during the night. Significant time-effects ( $p < 0.05$ ) in children with CP were found with a higher voided volume, lower frequency of daytime incontinence, lower amount of urine loss, lower frequency of enuresis, less lower urinary tract symptoms, better micturition pattern and less fecal incontinence after training. In general, results demonstrate effectivity rate of urotherapy is lower and changes occur slower in time in children with CP compared to typically developing children.

### CONCLUSIONS

Urotherapy can be an effective long-term treatment for urinary incontinence in children with CP. Therapy should be multidisciplinary, individually adapted to child and feasible for the child and social environment.

15:02–15:05

S16-3 (PP)

## THE OUTCOME OF PREOPERATIVE VESICoureTERAL REFLUX IN CHILDREN WITH NEUROGENIC BLADDER AFTER AUGMENTATION CYSTOPLASTY

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### PURPOSE

Although the reflux should be improved and upper tract deterioration would be avoided if poor bladder dynamics are corrected, there is still a concern regarding the outcomes of preoperative VUR in children who underwent augmentation cystoplasty. The objective of this study was to evaluate the fate of vesicoureteral reflux after augmentation cystoplasty in children with neurogenic bladder.

## MATERIAL AND METHODS

Since June 2006, 55 male and 38 female patients with low compliant neurogenic bladder have undergone augmentation cystoplasty in our institution. All patients had undergone augmentation with either of generous detubulized ileocystoplasty or seromuscular sigmoidocystoplasty. Among these, 26 patients demonstrated VUR confirmed by preoperative videourodynamics. After excluding 7 children due to loss of follow-up, congenital anomaly on bladder and simultaneous procedure for reflux, 19 children (23 refluxing renal units) were finally included in this study.

## RESULTS

The mean age at augmentation cystoplasty was 11.8 years and mean follow duration was 76.9 months. Concomitant bladder neck procedures were performed in 6 children (5 fascial sling, 1 artificial sphincter). The postoperative videourodynamic study manifested a significant improvement of bladder capacity, diminution of intravesical pressure, and resolution of reflux. After the surgery, 16(69.6 %) no longer had reflux, 4(17.4 %) showed improvement in reflux, and 3(13 %) demonstrated no change in reflux. In addition, 100 % patients with reflux Grades I and II had complete cessation of reflux. Five patients demonstrated febrile urinary tract infection during follow up and 2 patients required reflux procedures (1 nephrectomy, 1 endoscopic injection therapy). Of these 5 children, three had remnant VUR and the mean preoperative compliance was worse in children with postoperative febrile urinary tract infection (13.1 vs 5.2 ml/cmH<sub>2</sub>O, p=0.045).

## CONCLUSIONS

Our review showed a 69.6 %VUR resolution and 17.4 % improvement rate achieved by augmentation cystoplasty alone. However, 26.3 % of patients experienced febrile urinary tract infection after surgery during follow up. Patients with poor preoperative compliance and remnant VUR required careful follow-up after augmentation cystoplasty.

15:05–15:08

S16-4 (PP)

## CHANGES OF SYMPTOMS AND URODYNAMIC PARAMETERS IN PATIENTS WITH SECONDARY TETHERED CORD SYNDROME AFTER SURGICAL UNTETHERING

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### PURPOSE

Few reports are available for the successful release of secondary TCS (2TCS) in spinal dysraphism. This reflects current challenge to 2TCS in diagnosis and management. However, proper release of 2TCS may offer the optimal results. We realized that most urological deterioration if they are relevant to 2TCS, would be reversed following surgery. We reported our experience focusing on both detection of urologic deterioration due to 2TCS and postoperative improvement.

### MATERIAL AND METHODS

Charts of 26 patients who underwent release for 2TCS between 2011 and 2017 were retrospectively reviewed. Symptomatology, concomitant neuro-orthopedic problems, pre/postoperative video-urodynamic study (vUDS) and postoperative voiding status were examined. Release of 2TCS was conducted by experienced neurosurgeon with the aid of intraoperative monitoring bulbocavernosus reflex to avoid neural damage.

## RESULTS

Median age at surgery was 9.3 years (4–15) and median follow-up was 28 months (16–47) following surgery. Urologic deterioration was the first sign of 2TCS in 17 (61 %) patients, and all patients showed evidence of detrusor-sphincter dyssynergia (DSD) in vUDS. Postoperatively, two patterns of improvement seen. Patients with deformed bladder, decreased compliance and capacity preoperatively experienced better bladder shape, improved urodynamic profiles. However, they still require intermittent catheterization (IC) and anticholinergics. Patients with normal capacity and compliance also showed normalized urodynamic profile. Moreover, they sometimes showed spontaneous voiding from their sensation with further follow-up.

## CONCLUSIONS

The possibility of 2TCS should be included in case of urological deterioration. DSD should be sought in vUDS. Early diagnosis of 2TCS with vUDS may lead to better results.

15:08–15:11

S16-5 (PP)

# NEED FOR BOTOX INJECTION AND AUGMENTATION CYSTOPLASTY AFTER ISOLATED BLADDER NECK PROCEDURE IN PATIENTS WITH MYELOMENINGOCELE

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## PURPOSE

In patients with neurogenic bladder dysfunction, a bladder neck procedure (BNP) may be required to achieve urinary continence. However, a BNP may lead to bladder deterioration and upper-tract changes when performed in isolation. The purpose was to assess the long-term outcomes after an isolated BNP and to identify any risk factors for bladder deterioration.

## MATERIAL AND METHODS

A retrospective cohort study was performed for patients with myelomeningocele who underwent an isolated BNP between 2004–2017. Primary outcomes included the need for Botox injection (BTI) or augmentation cystoplasty (AC) and time to these additional procedures. Secondary outcomes included the association between urodynamic parameters and need for BTI or AC.

## RESULTS

A total of 36 patients were identified during the study period. The median age at surgery was 8.7 years (IQR 6.8–12.3). BTI or AC was performed in 18 (50 %) patients at a median of 17.8 months (IQR 11.2–29.3) after an isolated BNP. A median of 1 (IQR 1–3) BTI was performed in 11 (30.6 %) patients. AC was performed in 9 (25 %) patients, including 2 patients who previously underwent BTI. No preoperative demographics, clinical data, or urodynamic parameters were associated with the need for BTI or AC. Patients with no bladder deterioration had an increased bladder capacity from 350 to 450 mL ( $p=0.05$ ); while those undergoing BTI or AC had a decreased percentage estimated bladder capacity from 112 to 70 % ( $p<0.001$ ), increased maximum Pdet from 43 to 67 cm H<sub>2</sub>O ( $p=0.01$ ), and higher rate of de novo upper-tract changes.

## CONCLUSIONS

The need for BTI or AC is high after an isolated BNP in patients with myelomeningocele. BTI is an alternative to AC for bladder deterioration after an isolated BNP.

## IS BOTULINUM TOXIN INJECTION USEFUL IN ALL TYPES OF NEUROPATHIC BLADDERS?

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### PURPOSE

Botulinum-A toxin endoscopic injection (BTI) is widely used in patients with refractory neuropathic bladder (NB). But it is still not clear if it is a valid treatment for all NB patients. Our aim is to analyse the different aspects that could be involved in the results and outcome

### MATERIAL AND METHODS

Our series of patients with NB who underwent BTI were retrospectively analysed collecting data about urodynamic parameters, treatment compliance, continence and other surgical procedures. Patients were divided for comparison in 2 groups according to the baseline urodynamic study: group A includes those with mostly uninhibited detrusor contractions (UDC) and group B those with low compliant bladders.

### RESULTS

Twenty-six patients were treated with BTI (2005–2018) once (n=5), two times (n=9) and three or more times (n=12). Eleven patients had mostly UDC (group A) and 15 had a non-compliant bladder (group B). In group A only improvement in bladder pressure after the 2<sup>nd</sup> BTI was significant. In group B, improvement in median bladder capacity was significant after the 1<sup>st</sup> and 2<sup>nd</sup> BTI and compliance improvement was always statistically significant. However after the first BTI, there were not differences between both groups. After the third BTI, differences in the compliance and volume improvements were statistically significant. Persistent UDC was found in group A (n=2p, 18 %) and B (n=4p, 26 %). Six patients (54,5 %) in group A and 6 (40 %) in group B had VUR that was solved in 100 % and 66 % of cases respectively. During follow-up 5p from group B (33,3 %) needed a BA. Final continence was 100 % and 66,6 % in group A and B respectively.

### CONCLUSIONS

BTI has proven to be safe and effective in refractory NB. The degree of continence observed after BTI in our series was lower for patients with low-compliant bladders, although a significant number of them also achieved continence and avoided bladder augmentation. Further studies are needed in order to standardise criteria.

## MANAGEMENT OF NEUROPATHIC DETRUSOR OVERACTIVITY WITH ELECTROMOTIVE DRUG ADMINISTRATION(EMDA) OF BOTULINUM TOXIN A IN CHILDREN

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### PURPOSE

Botulinum toxin A injection is a well established line of treatment for neuropathic detrusor overactivity in children with Myelomeningocele (MMC) who don't respond to the traditional anticholinergic medications. However, it needs cystoscopy and anaesthesia.

Intravesical electrolytic drug administration(EMDA) is an attractive way of delivery of Botulinum toxin A through urothelium as it avoid the need for cystoscopy and anaesthesia, but its effectiveness is controversial.

This prospective study investigate the success rate of this method of administration.

### MATERIAL AND METHODS

We included children with refractory neuropathic overactivity due to MMC.

Patients were assessed with voiding diary, urodynamic and ultrasound before and after 3 months of the procedure.

10 IU/kg with maximum of 300 IU of Botulinum Toxin A were administered using EMDA equipment on outpatient basis.

Data were analyzed with SPSS software, using paired T test with P value < 0.5.

### RESULTS

17 patients with mean age of 9.1 years (range 4–14).

No side effects related to the technique of administration.

Eight out of twelve patients (66.6 %) showed complete resolution of hydronephrosis.

Eight out of fifteen incontinent patients(53 %) showed dryness in between catheterization.

There was no statistical significant improvement regarding the maximum bladder capacity (209+/- 91 MLK versus 213+/- 87), P < 0.817.

The maximum detrusor pressure decreased significantly from 74.5+/-46.8 to 53.7+/-34.5 cm H<sub>2</sub>O with P < 0.003.

### CONCLUSIONS

EMDA of Botulinum toxin A is safe, reliable and attractive technique.

IT saves the patients from cystoscopy and anaesthesia.

Randomized controlled trials with large number of patients are required to validate the result.

## SHOULD WE AVOID MITROFANOFF FORMATION IN EARLY LIFE?

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### INTRODUCTION

Formation of a continent-catheterisable-channel in pre-school children is controversial due to concerns regarding compliance and complications. We compared channel-outcomes including complications and usage-by-age in infancy and early-childhood.

### MATERIAL AND METHODS

Patients under 4-years with Mitrofanoff-formation (2007–2017) were included. All families were counselled preoperatively. Parental/patient compliance were prospectively-collected. Channel-type, indication, complications and re-intervention were noted. Statistical-analysis: Mann-Whitney-U-Test.

### RESULTS (SUMMARISED IN TABLE 1)

27-Patients (M:F 13:14)

Median age at surgery: 29 m(1d-47 m); Median follow-up:3.5 yrs(9 m–13 yrs)

Mitrofanoff:Appendix (n=22); Ileal Monti (n=4); Ureter (n=1)

Indications for Formation:

Cloaca(n=5); Cloacal-Exstrophy(n=5), Pre-transplant(n=3); Acquired urethral-stenosis(n=4); Reconstruction post-eRMS(n=3); Urethral-abnormalities with indwelling-SPC(n=2); Prune-Belly variant(n=2); UTIs, non-neurogenic-bladder(n=2); Neuropathic-bladder(n=1).

Patient & Parental Compliance with CIC: 24/27 (89 %)

Operative Re-intervention: 9/27 (33 %)

- Age-at-surgery vs. further surgery = Did not reach statistical significance (p=0.254)

Leakage via Mitrofanoff: 2/27 (7 %)

Table: Summary based on age at time of Mitrofanoff formation.

	Under 1's	1 year of age	2 years of age	3 years of age	Total
Number	4	8	3	12	27
Age: Median (range)	5 m (1 d to 8 m)	15 m (13 m–21 m)	29 m (26 m–32 m)	44 m (36 m–47 m)	29 m (1 d–47 m)
F/up: Median (range)	27 m (9 m–156 m)	33 m (9 m–120 m)	101 m (22 m–122 m)	43 m (12 m–129 m)	42 m (9 m–156 m)
Synchronous Cystoplasty (26 %)	-	-	2	5	7
Compliance	4/4	6/8	2/3	12/12	89 %
Disuse		1			
Further Intervention / Complications					
Mitrofanoscopy	2	2	1	1	4
Leakage				2	2
Stenosis		1	1		2
Revision				1	1

## CONCLUSIONS

This first age-focused study of Mitrofanoff formation in pre-school children demonstrates 89 % compliance. The complication-rate does not differ from the published literature. Its creation in this population may be appropriate with careful patient selection and family counselling.

15:20–15:44

## Discussion

15:44–15:49

S16-9 (VP)

# INTRAVESICAL ELECTROMOTIVE BOTULINUM TOXIN TYPE A ADMINISTRATION IN CHILDREN WITH MYELOMENINGOCEL

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## PURPOSE

Electromotive drug administration (EMDA) presents a minimally-invasive method of intravesical instillation of therapeutic agents without the need of general anesthesia. It employs a combination of iontophoresis, electrophoresis, and electroporation to deliver drugs into deep tissue layers using an electrical current created between two electrodes. The video shows feasibility of BoNTA/EMDA in myelomeningocele (MMC) patients who had urinary incontinence secondary to neuropathic detrusor overactivity (NDO).

## MATERIAL AND METHODS

During 2008–2017, BoNTA/EMDA was performed in 35 patients with MMC who had NDO and urinary incontinence for the first time in our center. Applying an electrode bladder catheter, 10 IU/kg of Dysport® (BoNTA) was inserted into the bladder for EMDA without anesthesia as an outpatient basis. The EMDA equipment was connected to the electrode of indwelling catheter and two dispersive electrodes, a pulsed current generator delivered 10–20 mA for 20 minutes. At the end of the procedure, the electrodes were separated, and the bladder was emptied. The preliminary assessments were voiding diary, urodynamic study (UDS), kidney and bladder ultrasounds.

## RESULTS

According to our prior reports, urinary incontinence improved in 75 % of the patients between two consecutive clean intermittent catheterizations after BoNTA/EMDA treatment at 1 year follow up. Mean maximal cystometric capacity significantly increased in the most of the patients after the treatment.

## CONCLUSIONS

BoNTA/EMDA is a feasible, safe, reproducible, cost effective, long lasting and pain free method as an outpatient's basis with long-term duration of effects without anesthesia or cystoscopy procedure.

15:49–15:52

## Discussion

# S17: GENITALIA 1

Moderators: Berk Burgu (Turkey), Pedro Jose López (Chile)

ESPU Meeting on Friday 26, April 2019, 16:12–16:58

16:12–16:17

S17-1 (LO)

## ★ RANDOMIZED OPEN LABEL TRIAL COMPARING TRIAMCINOLONE TO HYDROCORTISONE FOR THE TREATMENT OF PHIMOSIS

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### PURPOSE

Phimosis can cause penile infection, inflammatory changes, and urinary retention. Medical treatment for symptomatic phimosis includes topical corticosteroids with manual foreskin retraction. In a randomized controlled fashion we compared prescription triamcinolone to over-the-counter hydrocortisone for the medical management of phimosis.

### MATERIAL AND METHODS

We performed a single institution randomized open label trial for the treatment of grades 4–5 physiologic phimosis. We included boys age 3–13 years, randomizing them to 1 % hydrocortisone cream or to 0.1 % triamcinolone cream dosed 2–4 times per day for a course of 12 weeks. Instructions were provided on appropriate application and manual retraction of the foreskin. Evaluations were performed at 4, 8 and 12 weeks. Successful completion of the study was determined by reaching phimosis grade 2 or less or after completing 12 weeks of treatment.

### RESULTS

A total of 52 boys enrolled in the trial, with a total of 32 boys completing the 12 week duration. Of the 13 boys in the hydrocortisone arm, there was a 30.8 % success at 4 weeks, 53.8 % success at 8 weeks and 61.5 % success at 12 weeks. Of the 19 boys in the triamcinolone arm, there was a 31.6 % success rate at 4 weeks, 52.6 % success rate at 8 weeks and 68.4 % success at 12 weeks. There was no statistical difference between the 2 arms at each interval.

### CONCLUSIONS

Over-the-counter hydrocortisone 1 % cream is not inferior to triamcinolone 0.1 % cream when paired with manual retraction for the treatment of grade 4–5 phimosis. Successful treatment response may be seen up to 12 weeks.

## ANNUAL AUDIT HAS IMPROVED OUTCOMES OF CIRCUMCISIONS WITH DISPOSABLE RINGS IN CHILDREN IN A COMMUNITY CLINIC UNDER LOCAL ANAESTHESIA

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### PURPOSE

To evaluate the early postoperative complications particularly delayed separation/impaction of disposable devices in children's circumcision procedures under local anaesthesia in a community clinic in this year's audit versus previous 3 audits

### MATERIAL AND METHODS

In our current audit cycle, the outcome of circumcisions (n=1222) was prospectively studied over a 1 year period (May 2017 to April 2018) and were compared with the last 3 audit cycles. Circumcision was performed under local anaesthesia, by trained doctors in a community clinic using Circumplast (CC) (n=310) and Plastibell (PC) (n=912). Early postoperative complications especially delayed ring separation/impaction were compared among the four audits. Follow-up was arranged if required.

### RESULTS

The mean age was  $4.4 \pm 0.3$  months (median 1.5). Complication rate in this year's audit was 5.1 % (62/1222). There is no significant difference in overall complications rate in CC (6.8 % n=21/310) versus PC (4.5 % n=41/912) ( $p > 0.5$ ). Delayed ring separation/impaction is significantly lower in CC (0.96 % n=3/310) versus PC (2.4 % n=22/912) ( $p < 0.05$ ) and has significantly improved from the previous audits (table 1). In current year, 202 (16.5 %) children were followed and mean duration of follow up was  $10 \pm 2.6$  days (median 6).

Table 1: 4-year Audit cycles (n=5375).

Year	2015		2016		2017		Current data	
Method	Circumplast n=208 (%)	Plastibell n=1179(%)	Circumplast n=569 (%)	Plastibell n=748 (%)	Circumplast n=470 (%)	Plastibell n=979 (%)	Circumplast n=310 (%)	Plastibell n=912 (%)
Complications	13 (6.3)	154 (13.1)	55 (9.7)	91 (12.2)	33 (7.0)	64 (6.5)	21 (6.8)	41 (4.5)
Ring delayed separation / impaction	7 (3.4)	102 (8.7)	8 (1.4)	50 (6.7)	2 (0.4)	33 (3.4)	3 (0.96)	22 (2.4)

### CONCLUSIONS

The annually conducted audit has shown improved outcomes of circumcisions with disposable devices especially delayed ring separation/impaction in children in a community clinic under local anaesthesia over successive years.

16:20–16:23

S17-3 (PP)

## SKIN FLAP CORRECTION OF CONCEALMENT FOLLOWING CIRCUMCISION INDUCED SKIN LOSS

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### PURPOSE

We have previously described correction of penile concealment using scrotal mobilization. Penile skin loss following newborn circumcision can complicate correction of associated concealment. We describe a strategy employing local skin flap to overcome this deficiency in conjunction with scrotal mobilization.

### MATERIAL AND METHODS

Between December 2015 and August 2018 twenty-three boys (age 6 months-16 years) underwent circumcision revision and concealment repair requiring skin flap reconstruction. Patients were identified during our standard scrotal mobilization to correct penile concealment. During degloving, a mid-line ventral incision extending to the penoscrotal junction is made. Deep tethering bands are released, and the scrotum retracted toward the anus. Midline scrotal fat is divided, and the scrotum repositioned to correct ventral shaft length deficiency. Inadequate skin coverage secondary to prior aggressive newborn circumcision, was identified and corrected with skin flaps. These were obtained from the scrotum, mucosal collar or lateral shaft skin. These flaps retained a vascular pedicle and were mobilized to provide ventral and dorsal coverage.

### RESULTS

Twenty-three boys underwent penile concealment repair requiring associated skin flap coverage. Mean dorsal/ventral measurements (cm) were 3.03/1.46 prior to correction and improved to 5.00/4.81. This yielded a mean dorsal/ ventral ratio of 2.07 pre-op and improved to 1.04 with reconstruction. Mean dorsal length improved 165 % and mean ventral length improved 329 %. All patients healed without complications and none required revision.

### CONCLUSIONS

Newborn circumcision when performed aggressively can result in penile skin loss contributing to penile concealment. We describe a method to achieve improved penile symmetry, length and cosmesis.

## BETTER COSMETIC OUTCOMES WITH COMPATIBLE FUNCTIONAL IMPROVEMENTS: A NOVEL METHOD OF NON-FIXATION PENOPLASTY FOR PEDIATRIC CONCEALED PENIS

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### PURPOSE

To compare our non-fixation technique penoplasty with fixation suture method to repair concealed penis (CP) in terms of cosmetic and functional outcomes.

### MATERIAL AND METHODS

From 2012 to 2017, 52 pediatric CP patients were treated with penoplasty, 28 of whom with four-stitch fixation method (F group) and 24 with non-fixation method (NF group). The surgical techniques consisted of complete degloving of the phallus with vertical and circumferential incisions, and complete division of fibrotic bands of the dartos. Yet, fixation sutures between the dermis of penile skin and Buck's fascia were not applied in the NF group. After suturing of penile skin, gentle traction of phallus was performed with the aid of compressive dressing, which was changed and maintained for a week or more after surgery. The operation time, adverse events, improvements of penile length and satisfaction were evaluated for both groups.

### RESULTS

	Fixation (n=28)	Non-fixation (n=24)	p-Value
Age, years (mean±SD)	5.9±7.2	6.1±5.3	0.834
Operation time, minutes (mean±SD)	65.3±11.8	57.5±7.5	<0.001
Follow-up, months (mean±SD)	18.6±5.8	18.3±6.1	0.203
Perioperative complications, n(%)	6/28 (21.4)	3/24 (12.5)	0.045
Skin necrosis	0 (0.0)	0 (0.0)	
Postoperative bleeding	5 (17.8)	2 (8.3)	
Skin infection	3 (10.7)	1 (4.2)	
Dimpling or grooving	5 (17.8)	1 (4.2)	
Penile length, cm (mean±SD)			0.601
Preoperative	2.10±0.65	2.24±0.70	
Postoperative	5.14±0.73	5.18±0.62	
Improved length	3.03±0.68	2.95±0.69	
Recurrence, n(%)	2 (7.1)	2 (8.3)	0.103
Satisfaction	19 (67.9)	22 (91.7)	0.002

Satisfaction scale: 1–3, unsatisfied / 4–6, satisfied

The F group showed significantly better outcomes than the NF group regarding perioperative complications, operation time, and higher subjective satisfaction rate.

### CONCLUSIONS

Our novel method of non-fixation penoplasty was functionally compatible with fixation method and it showed better outcomes regarding satisfaction and perioperative complications.

16:26–16:29

S17-5 (PP)

## CHILDREN CIRCUMCISION OVER 5 YEARS OF AGE UNDER LOCAL ANAESTHESIA IN A DEDICATED COMMUNITY CLINIC

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*Thornhill Circumcision Clinic, GP Surgery, Luton, UNITED KINGDOM*

### BACKGROUND AND PURPOSE

Circumcision in older children is usually performed under general anaesthesia in a hospital. The acceptance of children's circumcision under local anaesthesia in the community clinic remains debatable. We report outcomes of circumcision aged 5 to 16 years from a dedicated community clinic.

### MATERIAL AND METHODS

The outcome of circumcisions was prospectively studied over a two year period (May 2016 to April 2018). Five children who deemed unsuitable for this clinic, were excluded. Informed consent was obtained from the parents and Gillick competent children. Paracetamol and ibuprofen were recommended before and after the procedure. Parents were fully involved for the whole process. Topical anaesthesia cream is applied 60 minutes before the procedure. When required, premedication (Midazolam 0.5 mg/kg, max 20 mg) was given 20–30 minutes before the procedure. Circumcision was performed under penile block (mixture of lignocaine and levobupivacaine) by trained doctors, in a community clinic using a disposable ring or stitches. Children play games or watch movies during the procedure. Codeine phosphate is given to children over 12 years of age postoperatively. Any postoperative complication was recorded.

### RESULTS

The children mean age was  $10 \pm 0.2$  years (median 9.9). Of 194 circumcisions (with disposable ring  $n=9$  and stitches  $n=185$ ), 190 had non-medical indications and 4 (2 %) had balanitis xerotica obliterans. Overall early minor complication rate was 6.7 % [ $n=13/194$ , bleeding  $n=5$  (2.6 %), infection  $n=4$  (2 %), ring removal  $n=2$  (1 %), buried penis  $n=1$  (0.5 %), adhesion  $n=1$  (0.5 %)]. There is significant difference in complications rate in ring ( $n=4/9$ ) versus stitches ( $n=8/185$ ) ( $p<0.5$ ). We preferred circumcision with stitches in this age group. Bleeding is most common complication in circumcision with stitches (5/185). One child with bleeding was admitted to hospital for treatment and bleeding stopped spontaneously in 4 children. Mean follow-up for 41 children (21 %) were  $15 \pm 6$  days (median 4).

### CONCLUSIONS

Circumcision performed in older children remains a safe surgical option under local anaesthesia in dedicated clinics.

## SHEAR WAVE ELASTOGRAPHY EVALUATION OF TESTIS WITH PRADER-WILLI SYNDROME

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### PURPOSE

Hypogonadism in adult males with Prader-Willi syndrome (PWS) arises due to primary testicular dysfunction. However, few studies have evaluated the testicular histology of PWS, because repeat testicular biopsy is invasive. Shear wave elastography (SWE) is a new, non-invasive ultrasound technology to measure tissue rigidity and elasticity. SWE is increasingly being used to assess liver fibrosis. Intertubular fibrosis of the testis increases SWE values. We used SWE to evaluate the testis of patients with PWS.

### MATERIAL AND METHODS

We prospectively enrolled 48 PWS males (mean age, 11.0 years (1.1–35.7)) at our hospital between May 2017 and September 2018. SWE was performed by a pediatric radiologist. SWE values were assessed based on normal values described in previous studies (<5 years: 3.9 kPa (2.3–6.2), >9 years: 2.4 kPa (2.0–2.9)).

### RESULTS

Eight testes were extra-canalicular, 87 were scrotal, and one patient had previously undergone gonadectomy. Eighty-three testis (86.5 %) underwent orchiopexy at 18.8 months (9–76) of age, of which 63 were extra-canalicular, 11 were intra-abdominal, and nine were intra-canalicular testes. Mean SWE values in children <9 years was 6.6 kPa (2.6–10.9). Among patients >9 years, mean SWE value was 4.9 kPa (2.7–12.5) and 37 testes (86.0 %) had elevated values. Even testes without cryptorchidism had elevated SWE levels (3.4 kPa (2.8–4.4)). Younger age correlated with favorable testicular elasticity (<18 months: 3.9 kPa, >18 months: 6.1 kPa,  $P < 0.05$ ). Lower testicular position and underlying genetic defects were not associated with favorable testicular elasticity.

### CONCLUSIONS

SWE values for testis of those with PWS during childhood can vary between normal and high. However, most testis showed elevated SWE values after puberty, suggesting that testicular dysfunction might become markedly noticeable after puberty.

16:32–16:37

S17-7 (VP)

## A SIMPLE WAY TO TREAT PENILE CONCEALING DUE TO MEGAPREPUCE AND WEBBED PENIS

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### PURPOSE

Megaprepuce and webbed penis represent a common genital abnormality consisting of penoscrotal transposition, ventral attachments of penile shaft from midshaft to proximal area and a stenotic ring of distal prepuce (phimosis or paraphimosis). Some authors propose an D/V penile length index by measuring the dorsal and ventral length of the penis.

### MATERIAL AND METHODS

We want in this video to illustrate the steps of this common procedure associated with an excellent cosmetic result and improvement of self-esteem. Surgery consists of treating penoscrotal transposition when present by two inverted scrotal V-shaped skin flaps to be brought down to its natural position. The ventral penile shaft is detached from the scrotum, excising or dividing the fibrotic and fatty tissue. We dissect the skin and the deglove the penis proximally almost reaching the pelvic floor, producing a release of the penile shaft and increase in size. After that, we suture the ventral penile skin at the lowest level of dissection by two 3.0 vycril sutures anchoring it the Buck's fascia one at each side of the urethra. Subsequently the circumcision is performed and the scrotum reconstructed with removal of redundant skin when necessary.

### RESULTS

The surgery produces a nice cosmetic appearance and can be performed as outpatient. Postoperative D/V penile length index can confirm the result of surgery.

### CONCLUSIONS

Megaprepuce and webbed penis is a frequently under-recognized abnormality by pediatricians, but a major cause of anxiety for parents. This technique can be regarded as an option to these patients.

16:37–16:58

### Discussion

# S18: GENITALIA 2

Moderators: Nicolas Kalfa (France), Anna Bujons (Spain)

ESPU Meeting on Friday 26, April 2019, 16:58–17:36

16:58–17:01

S18-1 (PP)

## FERTILITY POTENTIAL IN ADOLESCENTS AFTER BILATERAL ORCHIDOPEXY FOR UNDESCENDED TESTES

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1) Rouen University Hospital, Pediatric Surgery, Rouen, FRANCE - 2) Rouen University Hospital, Reproductive Biology Laboratory, Rouen, FRANCE

### PURPOSE

The aim of this study was to evaluate fertility potential in adolescents who had undergone bilateral orchidopexy for undescended testes.

### MATERIAL AND METHODS

All 75 patients who underwent bilateral orchidopexy in the years 1999–2004 were invited in 2017 for clinical examination, hormonal analysis, testicular US-scan and semen analysis. Among 40 adolescents who accepted clinical examination, 16 consented to a spermogram. Sperm parameters have then been compared to those obtained in a population of 26 adolescent cancer patients referred for fertility preservation before chemotherapy or radiotherapy.

### RESULTS

Mean age at bilateral orchidopexy was 4.5 years (1.4–12.5 years). Among 71 testes which had undergone orchidopexy, 26 (36 %) were hypotrophic. Hormonal analysis revealed elevated FSH levels in 5 and decreased inhibin B levels in 3 adolescents. Mean age at spermogram was 16.5 years. Among 16 adolescents who performed spermogram, 2 (12 %) had physiological semen parameters, 6 (38 %) had hypospermia, 14 (88 %) oligozoospermia, 11 (69 %) asthenozoospermia and 6 (38 %) teratozoospermia. When compared with the control group, sperm concentration was significantly lower in adolescents with a history of bilateral orchidopexy.

### CONCLUSIONS

History of bilateral orchidopexy for undescended testes is associated with decreased fertility potential in adolescents. For these patients, we strongly recommend clinical examination, testicular US-scan and hormonal analysis at 15 years of age. Then a spermogram should be systematically proposed with the aim of preserving later fertility.

## TESTICULAR ATROPHY FOLLOWING TORSION IN PEDIATRIC PATIENTS. RESULTS OF A LONG-TERM FOLLOW-UP

Sasa MILIVOJEVIC<sup>1</sup>, Ivana DASIC<sup>2</sup>, Jelena MILIN LAZOVIC<sup>3</sup>, Goran DJURICIC<sup>2</sup> and Zoran RADOJICIC<sup>1</sup>

1) University Children's Hospital Belgrade, Pediatric Urology, Belgrade, SERBIA - 2) University Children's Hospital Belgrade, Radiology, Belgrade, SERBIA - 3) Institute for Medical Statistics and Informatics, Faculty of Medicine, University of Belgrade, Medical Statistics and Informatics, Belgrade, SERBIA

### PURPOSE

Study assesses torsion outcomes and evaluates the rate of testicular atrophy.

### MATERIAL AND METHODS

The study was done over the 2000–2018 period during which 85 patients of average age  $12.9 \pm 3.1$  SD were echosonographically followed up after operative detorsion and testicular salvage. The first group includes patients who underwent detorsion within 6 hours after torsion ( $n=36$ ), the second who underwent detorsion between 6 and 12 hours after torsion ( $n=24$ ), and the third group who were operated more than 12 hours after torsion ( $n=24$ ). The follow-up period was 64.4 months  $\pm 6.5$  SD.

### RESULTS

There are 36 (100 %) salvaged testicles in the first group, 13 (54.2 %) in the second group, and 5 (20.8 %) in the third group. The detorsioned testicle median size in the first group was 43.0 (40.0–48.0), 11.0 (11.0–14.0) in the second, and 11.0 (11.0–12.0) mm in the third, ( $p<0.001$ ). The median contralateral testicle size in the first group was 49.5 (45.0–52.5), 56.0 (55.0–64.0) in the second, and 58.0 (57.0–59.0) mm in the third group, ( $p<0.001$ ). The vascularisation through the detorsioned testicle was present in 35 (97.2 %) patients in the first, 6 (42.9 %) in the second and 1 (20 %) patients in the third group, ( $p<0.001$ ). The structure homogeneity was present in 20 (55.6 %) patients in the first, and non-existent in all the patients in the second and third groups, ( $p<0.001$ ).

### CONCLUSIONS

Despite rapid intervention, testicular torsion may still result in testicular atrophy at a higher rate than traditionally thought (if the torsion occurred more than 6 hours the possibility of testicular salvage is very low in the long term). This allows clinicians to more accurately inform patients and families of atrophy risk following detorsion. Further studies with more consistent follow-up are needed.

## ★ TESTOSTERONE PRODUCTION BY LEYDIG CELLS STIMULATES PERI-TUMORAL SPERMATOGENESIS IN PRE-PUBERTAL BOYS DESPITE HAVING A QUIESCENT HYPOTHALAMIC-PITUITARY-GONADAL AXIS

Anne-Sophie BLAIS, Mandy RICKARD, Fadi ZU'BI, Nagam YEHIA and Armando LORENZO

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### PURPOSE

Leydig cell tumors (LCT) are hormonally-active testis tumors found in children and are associated with precocious puberty due to testosterone secretion. While high levels of testosterone (induced by gonadotropin secretion during puberty) are known to initiate spermatogenesis, it is yet to be determined if a similar phenomenon is triggered by isolated testosterone production in prepubescent boys. We hypothesized that prepubertal LCT will demonstrate evidence of spermatogenesis on surgical pathology- a finding unique to this population when compared to other testicular lesions in an age matched group.

### MATERIAL AND METHODS

We reviewed patients who underwent an orchiectomy for a testicular tumor from 2003–15. We included patients with LCT and matched them to children with teratomas, excluding other pathologies and pubertal patients, for a total of 31 children for analysis. We focused on presence of spermatogenesis in the pathology specimen.

### RESULTS

Of the 67 patients who underwent an orchiectomy for testicular tumors, 20 had teratomas and 11 LCTs. Age at presentation was  $6.3 \pm 5.8$  years for the teratoma group vs.  $8.4 \pm 1.6$  years for LCTs ( $p=0.26$ ). Spermatogenesis was detected in 7 (64 %) of the LCT group vs 2 (10 %) in the teratoma group ( $p=0.002$ ). While there was no significant difference in the age of the spermatogenesis patients in the LCT ( $8.3 \pm 2.0$  years) vs the teratoma group ( $11.1 \pm 2.5$  years) ( $p=0.15$ ), the 2 patients in the teratoma group were approaching age appropriate puberty.

### CONCLUSIONS

Leydig cell testicular tumors induce spermatogenesis in prepubertal patients. This reinforces the theory that paracrine testosterone signaling plays a significant role in spermatogenesis. This finding could be further explored for additional fertility preservation opportunities in this population.

## PREVALENCE, DOPPLER ULTRASOUND FINDINGS, AND CLINICAL IMPLICATIONS OF THE NUTCRACKER PHENOMENON IN PEDIATRIC VARICOCELES

Jessica HANNICK<sup>1</sup>, Anne-Sophie BLAIS<sup>2</sup>, Jin Kyu (Justin) KIM<sup>2</sup>, Jeffrey TRAUBICI<sup>3</sup>, Mitchell SHIFF<sup>2</sup> and Armando LORENZO<sup>2</sup>

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### PURPOSE

Varicoceles are common in adolescent males, generating concerns regarding etiology and management. Our institution obtains Doppler US of the renal vessels to rule out obstruction due to Nutcracker phenomenon (NcP) as the etiology of varicocele. Our study aimed to evaluate if NcP was associated with testicular characteristic differences or a higher need for initial or recurrent surgery for varicocele repair.

### MATERIAL AND METHODS

Between 1/2000 and 3/2017, 182 male patients with clinical varicoceles were evaluated with Doppler ultrasonography. Twenty-two patients were excluded because they had never been evaluated in the urology clinic. Retrospective assessment provided complete data in 137. Presence of NcP was reported in patients with velocity ratios greater than 4.8. Maximum varicose vein diameter, testicular measurements, renal vein velocities at the hilum and impingement point by the superior mesenteric artery, and need for intervention were compared in patients with versus without NcP using Mann-Whitney U testing. Need for intervention was compared between groups using Chi-squared and Fisher's exact tests.

### RESULTS

NcP was detected in 77 (56.2 %) patients, who experienced a higher velocity ratio (8.33 vs. 2.87;  $p < 0.001$ ) than those without NcP. Overall, 39 (28.5 %) patients had a testicular volume discrepancy  $>20$  %, without a significant difference based on the presence or absence of NcP (27.3 vs. 30.0 %;  $p = 0.36$ ). Patients with and without NcP had similar ages at diagnosis, testicular volumes, volume differences, maximum varicose vein sizes, and follow-up ( $p$  greater than or equal to 0.05). Intervention was more likely with testicular volume difference  $>20$  % ( $p = 0.014$ ). Having NcP was not associated with a higher incidence of initial ( $p = 0.59$ ) or reoperative surgery ( $p = 0.73$ ).

### CONCLUSIONS

NcP is common in males with adolescent varicocele but was not correlated with an increased frequency of initial or reoperative surgery. NcP may have few clinical ramifications as an isolated finding in this patient population, calling into question the need to assess for its presence.

## RELATIONSHIP BETWEEN ANOGENITAL DISTANCE AND TESTICULAR POSITION IN EGYPTIAN MALE INFANTS WITH CRYPTORCHIDISM WITH AND WITHOUT HYPOSPADIAS

Shymaa ELRIFAEY<sup>1</sup>, Salah NAGLA<sup>2</sup>, Hend ABDELNABI<sup>3</sup>, Ayman HAGRASS<sup>2</sup>, Waleed DAWOOD<sup>4</sup> and Ahmed ARAFA<sup>1</sup>

1) Tanta University, PEDIATRICS, Tanta, EGYPT - 2) Tanta University, Urology, Tanta, EGYPT - 3) Tanta University, Tanta, EGYPT - 4) ALEXANDRIA UNIVERSITY, Urology, Alexandria, EGYPT

### PURPOSE

The aim of this study was to evaluate the relations between anogenital distance (AGD) and testicular position in males with cryptorchidism with and without hypospadias in comparison to normative data

### MATERIAL AND METHODS

This study included 300 male infants aging 1–24 months, divided to 150 cryptorchidism patients with and without hypospadias and 150 controls with matched age and normal genitalia in the period from March 2017 to October 2018. AGD (the distance from the posterior aspect of the scrotum to the anal verge) and stretched penile length measured using calipers and wooden spatula respectively. Testicular position in the undescended group was graded as high scrotal, inguinal and non-palpable by clinical examination

### RESULTS

Group I: > 1–6 months age, the mean of AGD for patients with cryptorchidism was significantly shorter than controls ( $31.10 \pm 2.19$ ,  $33.27 \pm 3.33$  respectively) ( $p0.024^*$ ). Group II: >6–12 months age, the mean of AGD for patients with cryptorchidism was significantly shorter than controls ( $35.82 \pm 4.18$ ,  $37.95 \pm 5.37$  respectively) ( $p0.001^*$ ). Group III: >12–18 months age, the mean of AGD for patients with cryptorchidism was significantly shorter than controls ( $39.88 \pm 1.16$ ,  $41.33 \pm 1.45$  respectively) ( $p0.003^*$ ). Group IV: >18–24 months age, the mean of AGD for patients with cryptorchidism was significantly shorter than controls ( $40.10 \pm 1.86$ ,  $44.12 \pm 1.68$  respectively) ( $p0.001^*$ ). There was significant difference between the patients group of cryptorchidism with hypospadias and those without hypospadias and controls ( $P = 0.001^*$ ). No significant difference was found between controls and patients group of cryptorchidism without hypospadias ( $P = 0.951$ ). AGD was significantly shorter in patients with upper scrotal positions than inguinal and non-palpable testis

### CONCLUSIONS

Shorter AGD is associated with a higher incidence of cryptorchidism and hypospadias relative to normative data in male. Shorter AGD is related to higher position of undescended testis

17:15–17:18

S18-6 (PP)

## TESTICULAR ATROPHY AFTER ORCHIDOPEXY IN CHILDREN

Ines BEN CHOUCHE, Yosra BEN AHMED, Faouzi NOUIRA, Hajer AHMED, Elhem LATROUS, Awatef CHAREIG, Riadh JUINI and Said JLIDI

*Children's Hospital of Tunis, Pediatric surgery service B, Tunis, TUNISIA*

### PURPOSE

Estimate the incidence of and associated risk factors for post-orchidopexy testicular atrophy

### MATERIAL AND METHODS

We retrospectively reviewed all patients who have had orchidopexy during a period of 5 years. The following variables were captured: age, preoperative testicular position and size, type of procedure, surgical approach, intra-operative and post-operative complications, results (focusing on risk factors for atrophic testes). Follow-up of all patients until the resolution of their testicular problem

### RESULTS

There were 806 attempted orchidopexies involving low type (n = 555), ectopic type (n = 2), and high type testes (n = 249). There were a total of 61 (9,3 %) made atrophic testes, and 27 (41 %) were FOUND atrophic.

The average age at surgery patients whose evolution was glazed by testicular atrophy was 4.6 years against 4.9 years for patients without this complication.

Testicular atrophy was significantly more common in laparoscopic procedures (28 %) than in inguinal orchidopexy (7.5 %) ( $p < 10^{-3}$ ) and was occurred significantly more often in the case of a testicle in the deep inguinal orifice (19.7 % vs. 5.6 %,  $p < 10^{-3}$ ) and intra-abdominal testis (28, 6 % vs 8.1 %,  $p = 0.002$ )

The most significant risk factors associated to the testes made atrophic were high testicle, testicular hypotrophy preoperatively, epididymal abnormalities (23.1 % vs 2.8 %,  $p < 10^{-3}$ ) and vessels problems

### CONCLUSIONS

In this series, the incidence of postoperative testicular atrophy was 31 % in the common type (low) and 68.8 % in the high type.

This complication and the risk factors for its occurrence must be clearly clarified to the parents in preoperative

17:18–17:36

### Discussion

# S19: FUNCTIONAL VOIDING DISORDERS

Moderators: Piet Hoebeke (Belgium), Gundela Holmdahl (Sweden)

ESPU Meeting on Saturday 27, April 2019, 08:00–09:00

08:00–08:03

S19-1 (PP)

## ★ IMPACT OF PEVIC FLOOR INTERFERENTIAL ELECTRICAL STIMULATION ON BLADDER BOWEL DYSFUNCTION IN CHILDREN

Seyedeh-Sanam LADI-SEYEDIAN<sup>1</sup>, Lida SHARIFI RAD<sup>2</sup>, Seyed Mohammad GHOHESTANI<sup>1</sup>, Alireza ALAM<sup>1</sup> and Abdol-Mohammad KAJBAFZADEH<sup>3</sup>

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

### PURPOSE

Bladder bowel dysfunction (BBD) is a spectrum of lower urinary tract symptoms accompanied with bowel complaints. Given the close interaction between the bladder and bowel due to their common innervation as well as associated pelvic floor muscles, patients often present with bowel complaints as well. Efficacy of combined pelvic floor interferential (IF) electrical stimulation and muscle exercises was assessed on BBD in children in this study.

### MATERIAL AND METHODS

A total of 35 children with BBD (17 boys, 18 girls; mean age 7.4±2.2) were included in the study. Children were evaluated with kidney and bladder ultrasounds, uroflowmetry/EMG, and a complete voiding and bowel habit diary before treatment. Exclusion criteria were neuropathic disease, anatomical defects and mental retardation. Participants were randomly allocated into two groups including group A (n=17) who underwent standard urotherapy and PFM exercises and group B (n=18) who received standard urotherapy, PFM exercises in addition to IF electrical stimulation. All children were re-evaluated by kidney and bladder ultrasounds, uroflowmetry/EMG and a voiding and bowel habit diary after end of treatment sessions and 6 months later.

### RESULTS

Constipation was improved in 8/17 and 14/18 of children in groups A and B respectively ( $P < 0.05$ ) after treatment. Daytime incontinence improved in 5/6 children in group B and 3/8 of children in group A after treatment. Significant difference in uroflowmetry measures was not observed between two groups after the treatment.

### CONCLUSIONS

Combination of PFM exercises and IF electrical stimulation is an effective, safe and reproducible modality for treatment of BBD in children.

## MANAGEMENT OF FUNCTIONAL URINARY INCONTINENCE IN CHILDREN WITH PELVIC FLOOR MUSCLES TRAINING

Seyedeh-Sanam LADI-SEYEDIAN<sup>1</sup>, Lida SHARIFI RAD<sup>2</sup> and Abdol-Mohammad KAJBAFZADEH<sup>3</sup>

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### PURPOSE

The pelvic floor muscles (PFMs) have long been recognized as important structural and functional components of the pelvis. Recently, PFMs training with or without biofeedback is widely used as an alternative option for many of refractory lower urinary tract malfunctions in adults and also in children. In this study we compared the efficacy of PFMs training with and without biofeedback on functional urinary incontinence in children with voiding dysfunction.

### MATERIAL AND METHODS

This study included 30 children (6 boys, 24 girls; mean age  $8.3 \pm 2.1$ ) with functional urinary incontinence that underwent pelvic floor rehabilitation. Children were randomly divided into two treatment groups. Group I (n=15) underwent only PFM exercises and group II (n=15) received pelvic floor muscle biofeedback therapy. Prior to starting the study, a 3-day voiding diary, renal and bladder ultrasounds and uroflowmetry/EMG were performed for all participants. Children who had neuropathic disease, anatomical defects and mental retardation were excluded from the study. Renal and bladder ultrasounds, a 3-day voiding diary and uroflowmetry/EMG were performed for evaluating of both groups at 6 months and one year after completion of the treatment.

### RESULTS

Urinary incontinence improved in the both groups after the treatment. Daytime incontinence improved in 9/15 and 8/15 of children in groups I and II respectively. There was no significant difference in uroflowmetry measures between two groups after the treatment.

### CONCLUSIONS

Pelvic floor training with or without biofeedback raises children's awareness regarding abdominal and PFMs function and relaxation. This rehabilitative program is an effective approach for management of non-neuropathic urinary incontinence in children.

08:06–08:09

S19-3 (PP)

## THE PEDIATRIC BLADDER AND BOWEL DYSFUNCTION NETWORK: AN INNOVATIVE INITIATIVE TO IMPROVE THE MANAGEMENT OF BLADDER AND BOWEL DYSFUNCTION IN CHILDREN

Roberto IGLESIAS LOPES<sup>1</sup>, Martha POKAROWSKI<sup>2</sup>, Rebecca ROCKMAN<sup>3</sup>, Niraj MISTRY<sup>3</sup>, Ronik KANANIM<sup>4</sup>, Ivor MARGOLIS<sup>3</sup>, Roushdi AMANI<sup>3</sup>, Leo LEVIN<sup>3</sup>, Manbir SINGH<sup>3</sup>, Walid FARHAT<sup>2</sup>, Martin KOYLE<sup>2</sup> and Joana DOS SANTOS<sup>2</sup>

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### PURPOSE

Most cases of Bladder and Bowel Dysfunction (BBD) improve with bladder retraining and constipation treatment. Increasing numbers of children with BBD in Urology practice results in delays in care. Objectives: 1) Identify barriers preventing BBD care by pediatricians; 2) assess the impact on care from a Pediatric BBD network (BBDN) in which children with BBD who are referred to Urology in a single quaternary center are re-referred to a network of community pediatricians (closer to home).

### MATERIAL AND METHODS

An online survey was answered by 100 community pediatricians. The Dysfunctional Voiding Score System, Bristol stool chart, and anonymous satisfaction survey are completed by families at 0, 3 and 6 months. Results from multiple community pediatric offices and a Urology clinic in a single quaternary center was compared.

### RESULTS

Polyethylene glycol 3350 is recommended by at least 98.9 %, however voiding diaries, increased fluid intake, and bladder retraining were recommended by only 47.9 %, 56 % and 78.6 %, respectively. A total of 123 patients were treated by BBDN since April 2016. Initial DVSS ( $p=0.73$ ), Bristol stool ( $p=0.83$ ) and overall experience ( $p=0.50$ ) were similar in the community compared with Urology clinic. 3 months repeat DVSS at Urology clinic was significantly lower than initial DVSS ( $6\pm3$  vs.  $11\pm4.3$ , respectively,  $p=0.01$ ). Wait times decreased by 40 % in 3 months.

### CONCLUSIONS

Constipation is adequately managed by community pediatricians, however improvement in bladder retraining strategies are needed. Educational initiatives are recommended for improvement of the management of BBD in children.

08:09–08:18

## Discussion

08:18–08:21

S19-4 (PP)

## ★ TOLERANCE PROFILE OF THE INVASIVE URODYNAMIC STUDY (IUDS) IN THE PEDIATRIC PATIENT

March JA<sup>1</sup>, Conca MA<sup>1</sup>, Polo A<sup>1</sup>, Serrano-Durbá A<sup>1</sup> and Domínguez C<sup>2</sup>

1) La Fe Universitario Hospital, Pediatric Urology, Valencia, SPAIN - 2) La Fe Universitario Hospital, Pediatric Urology, Valencia, SPAIN

### PURPOSE

Measure the tolerance of IUDS in children. Create a patient profile according to study tolerance. Assess whether the influence of age in the tolerance.

### MATERIAL AND METHODS

Prospective observational study of 139 patients who underwent an EUDS (2013–2018). Inclusion criteria: patient who could understand and express their experience with IUDS. The visual pain analog scale (VAS) (0–10) was used. Variables: age, gender, etiology (neurogenic/urotopic/functional) and the technique (type of IUDS, difficulty in urethral catheterization, need for urethrostomy/vesicostomy probing, collaboration in the drilling, collaboration during the test, time spent). A VAS score in children >4 (onset of pain) (dependent variable) was considered a painful test. Statistical analysis: descriptive (Chi square and t-Student), multivariate using binary logistic regression. Significance  $p < 0.05$ .

### RESULTS

IUDS was performed in its entirety in 95 % (n=133) of the patients. Mean age  $7.7 \pm 2.4$  years (3–12.5 years). 52 % (n=69) were male. Etiology: neurogenic 42 % (n=56), uropathic 41.4 % (n=55), functional 16.5 % (n=22). Type of EUD: 84 % cystomanometry (n=112), pressure / flow 15.8 % (n=21). Time invested in the test (average):  $25 \pm 3.9$  minutes.

Median VAS: 2 (2–6). VAS >4 in 41.3 % (n=55). Absence of lumbosacral sensory-motor impairment (OR 5 (1.5–16.5)) ( $p=0.008$ ), difficulty in urethral catheterization (OR 31 (3.8–51)) ( $p=0.001$ ) and time invested in the test (OR 1.2 (1.1–1.3)) ( $p=0.020$ ) have been the variables that have influenced obtaining an VAS score of pain onset (>4).

### CONCLUSIONS

The invasive urodynamic study is a well tolerated test by patients of pediatric age. In pediatric patients without lumbosacral sensory-motor alterations, in which the EUD could be performed regardless of their age, it would be important to apply measures both to improve the urethral catheterization and to reduce the total time invested in the test.

08:21–08:24

S19-5 (PP)

## ★ PEDIATRIC BLADDER AND BOWEL DYSFUNCTION WITHIN AN OUTPATIENT PSYCHIATRIC CLINIC

Rebecca ELLENS<sup>1</sup>, Rebecca KLISZ-HULBERT<sup>2</sup> and Yegappan LAKSHMANAN<sup>3</sup>

1) Hurley Medical Center, Pediatrics, Flint, USA - 2) Wayne State University, Department of Psychiatry and Behavioral Neurosciences, Detroit, USA - 3) Children's Hospital of Michigan, Urology, Detroit, USA

### PURPOSE

Co-existing psychiatric conditions may pose problems with the management of bladder bowel dysfunction (voiding dysfunction and hard stool consistency or BBD). We examined BBD symptoms in children presenting to a community-based pediatric psychiatry clinic.

## MATERIAL AND METHODS

Parents of children seen at an outpatient psychiatry clinic were recruited before or after their appointment. Dysfunctional Voiding Scoring System (DVSS) and Bristol Stool Form Scale (BSFS) were completed by the child, with parental collaboration for children under 11 years. Parents also completed a bladder-bowel health history survey and the child's primary and secondary psychiatric diagnoses were collected from the clinic.

## RESULTS

Of 56 pediatric psychiatry patients, 28.6 % of children exceeded clinical cutoffs on the DVSS and 32 % endorsed constipation (Bristol 1–2). DVSS scores were significantly higher than previously reported healthy controls, and BSFS scores were significantly lower than previously reported in either clinical or healthy controls. Among children endorsing clinically significant voiding symptoms (n=28), a minority of parents reported awareness of a bladder or bowel concern (10.7 %) or engagement in related medical care (3.5 %) on the health history survey. Finally, the odds of clinically significant BBD symptoms did not differ between children with and without an ADHD diagnosis.

Comparison of Pediatric Psychiatry patients with Healthy Controls

	Psychiatry Sample	Historically Healthy Controls (Reference)	One Way p-value
Mean $\pm$ SD DVSS Total Score	5.68 $\pm$ 3.92	4.41 $\pm$ 3.76 (Farhat et al, 2000)	p=0.043
Mean $\pm$ SD Bristol Stool Score	2.88 $\pm$ 0.77	4.20 $\pm$ 0.50 (Russo et al, 2013)	p < 0.0001

## CONCLUSIONS

A significant number of children undergoing psychiatric treatment present with BBD symptoms, which are often unidentified and unaddressed. While children within this psychiatric population demonstrate more severe BBD symptoms overall, ADHD may not pose unique risk.

08:24–08:27

S19-6 (PP)

## VIDEO-URODYNAMICS: ADOLESCENT'S PERSPECTIVE

Key WILLMOTT, Anne WRIGHT, Massimo GARRIBOLI and Joanna CLOTHIER

*Evelina London Children's Hospital, Paediatric nephro-urology, London, UNITED KINGDOM*

### PURPOSE

To understand from the adolescent's perspective the discomfort and emotions felt during video-urodynamic investigation (VUD). To identify whether there is a difference in placement of catheter discomfort between those regularly catheterising and those not catheterising and between genders

### MATERIAL AND METHODS

Single-centre, prospective, anonymised questionnaire study performed on consecutive VUD in paediatric patients aged 12–19 years, over 5 month period.

Questionnaire completed immediately following investigation.

Specific questions regarding discomfort related to all aspects of the study recorded and emotions felt during the study, using Likert scale, 1–5 (5 high). Patient asked to rate experience vs expectation 1–5 (5 much worse than expected). Values expressed as median.

Mann-Whitney test used to assess for any differences in discomfort between those regularly catheterising and not, and between genders.

### RESULTS

35 questionnaires completed (14 years, 50 % male, 3 % neuropathic).

Pain score: bladder catheter placement 1.5/5, rectal line 2/5, holding a void 3/5, voiding 1/5, EMG stickers 1/5, removal of bladder catheter 2/5, removal of rectal line 2/5. Overall score 2.0.

Emotions: Anxious 3/5, frightened 2/5, embarrassed 2/5. Overall experience 2/5 (better than expected).

Only 3 patients performing catheterisation in the group so insufficient numbers to compare. No significant difference between males and females for discomfort during bladder ( $p=0.11$ ) and rectal line placement ( $p=0.39$ ).

### **CONCLUSIONS**

Adolescents express low levels of discomfort during VUD. The experience is slightly better than the expectation. Anxiety, fear and embarrassment are regularly experienced at low level and need to be considered. Males and females expressed same level of discomfort with catheter placement.

**08:27–08:30**

**S19-7 (PP)**

## **FREQUENCY VOIDING CHART APPLICATION FOR CHILDREN WITH NON NEUROGENIC LOWER URINARY TRACT DYSFUNCTION, DOES IT INCREASE COMPLIANCE OR NOT?**

Liesbeth Lilian DE WALL, Barbara B.M KORTMANN, Evi VAN KEMPEN, Lisanne A.M KRAGT, Maartje VAN DEN BOSCH, Bob BLANKENSTIJN and Wout F FEITZ

*Radboudumc, Amalia's Children Hospital, Department Of Pediatric Urology, Nijmegen, NETHERLANDS*

### **PURPOSE**

The frequency voiding chart (FVC) is a valuable tool in the diagnosis and treatment of children with non-neurogenic lower urinary tract dysfunction. In general, compliance rate regarding to complete and correctly filled in FVC's is moderate. A digital application might improve this compliance. The aim of the study was to develop a digital FVC application in collaboration with patients and health-care providers and to test its compliance, applicability and feasibility compared to conventional paper FVC's.

### **MATERIAL AND METHODS**

A prospective, observational study of thirty patients between 5–12 years old and their parents was conducted. All subjects received a paper FVC and subsequently a digital FVC between January and April 2018.

### **RESULTS**

The completion rate of the digital FVC was significant lower than the paper version, respectively 47 % versus 76 % ( $p=0.003$ ). The digital FVC was found to be more user friendly (100 % vs 33 %), more appealing (100 % vs 10 %) and more educative (62 % vs 20 %) than the paper version. Child participation was scored in 64 % for the digital FVC versus 40 % for the paper version. Technical problems during downloading and installation of the digital FVC occurred in 68 %.

### **CONCLUSIONS**

Currently the paper FVC is still the best option with a higher compliance rate despite the fact that a digital FVC is considered more user-friendly, more educative and is associated with an increase in the child's participation.

**08:30–08:42**

### **Discussion**

## ONABOTULINUM TOXIN A VS EXTENDED RELEASE TOLTERODINE FOR THE MANAGEMENT OF IDIOPATHIC OVERACTIVE BLADDER IN CHILDREN (OVERT): FEASIBILITY RESULTS FROM A PILOT RCT

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### PURPOSE

Idiopathic overactive bladder (IOAB) in children places a significant socio-economic cost on health-care systems and communities, and is a substantial proportion of paediatric urological practice. There is limited evidence available from well-conducted studies to inform on the methodology of larger RCTs. This pilot RCT aims to inform on the feasibility of larger multi-centre RCTs for refractory IOAB in children.

### METHODS

This prospective single centre pilot RCT invited 98 children aged 7–16 years with refractory IOAB to recruit to the study. Randomisation to tolterodine or Botox<sup>®</sup> followed confirmation of IOAB on urodynamics. Follow-up was undertaken at 1.5, 3 and 6 months. Aims were to determine the eligibility, recruitment, follow-up rates and acceptability of assessment tools. Outcome measures included number of wetting episodes/day and urodynamic parameters.

### RESULTS

The trial ran over 28 months and cost £273,000. 85/98(86.7 %) were recruited, 13/85(15.2 %) children failed eligibility criteria and 23/85(27 %) did not consent to participate. Of 62 screened with urodynamics, only 46(74.1 %) had IOAB and were eligible for randomisation. 2 patients withdrew. Only 35/46(76 %) agreed to post-intervention urodynamics at 1.5 months. Baseline and 1.5month bladder diaries were returned in 42/46(91.3 %) and 41/46(89 %) and were partially completed in another 6.5 % and 8.7 % participants. Feedback on bladder diaries highlighted practical difficulties in data collection. There was 1 serious adverse event, a UTI requiring hospital stay. No urinary retention was seen in either group.

### CONCLUSIONS

47 %(46/98) of children with IOAB proceeded to randomisation. 26 % of presumed refractory IOAB do not have IOAB on urodynamics. We recommend early urodynamic assessment if poor response to oral therapy. A uroflow maybe a more acceptable tool for follow-up. Despite research team oversight, clinical data collection was suboptimal in 35 %, highlighting need for modified tools with built-in patient benefit scales. An RCT to compare oral with intravesical therapies in IOAB in children is safe and feasible, with modifications to improve patient-reported data collection.

08:45–08:48

S19-9 (PP)

## CURRENT PHARMACOLOGICAL MANAGEMENT OF IDIOPATHIC OVERACTIVE BLADDER IN CHILDREN: A NATIONAL STUDY

Charlotte MELLING and Anju GOYAL

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### PURPOSE

Advances in standardising terminology and the publication of guidelines by the ICCS attempt to streamline management of idiopathic overactive bladder (IOAB). Nevertheless, variability in practice is commonplace, with increasing use of newer oral medications and intravesical Botulinum toxin (BtA). Knowledge of current practice amongst paediatric urologists facilitates discussion and directs future research. This study presents the current pharmacological management of IOAB in children in a large western European nation.

### METHODS

54 paediatric urologists attending a 2018 national Paediatric Urology congress responded to a 20-question survey presented at the congress. Respondents could only submit one answer per question, and one survey per respondent using secure software to disable any manipulation. Data were reviewed prospectively by a single reviewer.

### RESULTS

98 % of respondents to this national survey regularly manage children with IOAB. 48 % use 48hr frequency/volume charts, the remainder use 3 or 7-day bladder diaries. Anticholinergics remain the most commonly used drugs for initial therapy: Oxybutynin is first line therapy for 85 %, Second line is tolterodine (53 %) and third line is solifenacin(37 %). Newer medication such as Mirabegron is used either alone or in combination with solifenacin as 4<sup>th</sup> line management in 55 %. 80 % use intravesical BtA, and 84 % perform an invasive urodynamic assessment prior to BtA. Post-BtA, assessment was clinical in 18 %, 24 % use urodynamics and non-invasive uroflow is preferred by 58 %. 76 % believe the most clinically significant outcome of treatment is patient-reported improvement. Treatment success is defined variably: 49 % define as completely dry whereas 35 % accept 90 % improvement as success.

### CONCLUSIONS

IOAB forms a significant proportion of paediatric urological clinical practice. Newer medication, such as mirabegron, is now being used either alone or in combination, by over half of paediatric urologists. In oral therapy resistant IOAB, BtA is being used in 80 %, usually after urodynamic assessment, but post-BtA assessment is variable.

08:48–08:51

S19-10 (PP)

## INCIDENCE OF FEBRILE URINARY TRACT INFECTION IN CHILDREN WITH HIRSCHSPRUNG DISEASE IS INCREASED IN THE FIRST MONTHS OF LIFE

Faten LETAIEF<sup>1</sup>, Anne DARIEL<sup>2</sup>, Benoit TESSIER<sup>3</sup>, Claude BORRIONE<sup>2</sup>, Sarah GARNIER<sup>3</sup>, Christophe LOPEZ<sup>3</sup>, Dominique FORGUES<sup>3</sup>, Hossein ALLAL<sup>3</sup>, Marie-Pierre GUIBAL<sup>1</sup>, Olivier MAILLET<sup>3</sup>, Jean-Michel GUYS<sup>2</sup>, Thierry MERROT<sup>2</sup> and Nicolas KALFA<sup>1</sup>

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### PURPOSE

Dysfunctional voiding is a risk factor for febrile urinary tract infection (FUTI) in children. Patients treated for Hirschsprung disease (HD) may present persistent constipation and postoperative bladder dysfunction. Little data is available regarding the HD as a risk factor of FUTI. This study aimed to find out whether the children with HD are more prone to develop FUTI than controls.

### MATERIAL AND METHODS

A comparative case-control retrospective study included patients with HD from 2005 to 2016. Three controls were included per case and were matched for both sex and age at follow-up.

### RESULTS

555 children were included (129 patients and 426 controls). The overall incidence of FUTI in children with HD was not significantly higher than in controls (3.10 % vs 4.22 %,  $p=0.86$ ). Recurrence of FUTI was not more frequent in the HD group (0 % vs 0.23 %). Neither the length of bowel segment with HD nor the surgical technique were a significant risk factor for FUTI. Patients with soiling did not have an increased risk of FUTI compared to those with normal bowel movement (4.54 % vs 1.06 %,  $p=0.61$ ) and to controls (4.54 % vs 4.22 %,  $p=0.75$ ). FUTI occurred more frequently during the first 3 months of life in the HD group than in controls ( $n=4/4$  vs  $n=2/18$ ,  $p=0.002$ ) and the risk of neonatal FUTI is higher (3.1 % vs 0.4 %,  $p=0.028$ ).

### CONCLUSIONS

HD does not increase the overall incidence of FUTI but the risk of neonatal FUTI is higher in HD patients than in controls. An early optimal bowel management and parental education in the first months of life may be relevant.

08:51–09:00

## Discussion

# S20: ENURESIS

Moderators: Simona Gerocarni Nappo (Italy), L García Aparicio (Spain)

ESPU Meeting on Saturday 27, April 2019, 09:20–09:46

09:20–09:25

S20-1 (LO)

## ★ A NEW DESMOPRESSIN ORAL SOLUTION: A RANDOMIZED, SINGLE-DOSE, OPEN-LABEL, 2-WAY CROSSOVER BIOEQUIVALENCE STUDY

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Montserrat PUNTES<sup>4</sup>, Maria Rosa BALLESTER<sup>4</sup>, Juan MARTINEZ<sup>4</sup> and Rosa  
ANTONIJOAN<sup>4</sup>

1) GP-Pharm, MEDICAL DEPARTMENT, L'Hospitalet De Llobregat, SPAIN - 2) GP-Pharm, L'Hospitalet De Llobregat, SPAIN - 3) Reig Jofre, Sant Joan Despi, SPAIN - 4) Institut de Recerca de l'HSCSP-IIB Sant Pau, CIM, Barcelona, SPAIN

### PURPOSE

Desmopressin is available as oral tablet or lyophilisate for the first-line treatment of nocturnal enuresis in children. A new desmopressin formulation was developed as an oral solution to provide a series of advantages inherent to the nature of its pharmaceutical form: wider therapeutic dose range for dose titration and progressive withdrawal; easy swallowing in comparison to tablet and minimum fluid intake. Besides, desmopressin oral solution is odorless and tasteless, which are desirable for pediatric population.

The study evaluated this new desmopressin oral solution (Test) for bioequivalence versus the desmopressin tablet (Reference).

### MATERIAL AND METHODS

This was a single-center, randomized, single-dose, open-label, 2-way crossover study in 69 healthy volunteers. Subjects received: 0.36 mg in 1 mL of Test (desmopressin base) and 0.4 mg as 2 tablets of 0.2 mg of Reference formulation (corresponding to 0.36 mg of desmopressin base), separated by a minimum of 2-days washout period. AUC<sub>0t</sub> over 12 h in plasma and C<sub>max</sub> were compared by analysis of variance after log transformation.

### RESULTS

All 69 subjects completed the study. Test to Reference drug mean ratios were within the bioequivalence boundaries with mean values of 109.84 (90 % CI: 97.09–124.27) and 108.85 (90 % CI: 97.03–122.13) for AUC<sub>0t</sub> and C<sub>max</sub>, respectively. Both Test and Reference formulations displayed similar PK profile over the course of the study and were well tolerated.

### CONCLUSIONS

The new desmopressin formulation is bioequivalent to the Reference desmopressin tablets 0.2 mg, at equivalent dose. Desmopressin 360 mcg/mL oral solution provides an additional treatment option for enuretic children, which might enable an improved dose-dependent structured withdrawal regimen.

## ★ TOP-DOWN OR DOWN-TOP APPROACH WITH DESMOPRESSIN TREATMENT FOR PRIMARY MONOSYMPTOMATIC ENURESIS IN CHILDREN? A PROSPECTIVE NON-RANDOMIZED STUDY

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### PURPOSE

Desmopressin remains one of the first-line choice for the treatment of enuresis in children. We aimed to evaluate if increasing started dose of desmopressin may improve response rate with no added comorbidities in children with primary monosymptomatic enuresis (PME).

### MATERIAL AND METHODS

Between 2015 and 2018, we prospectively enrolled 243 enuretic children. Patients with PME, nocturnal polyuria, normal bladder reservoir function and no treatment in the last three months were included. Children with comorbidities for enuresis such as constipation, ENT problems, diabetes insipidus, genito-urinary anomalies, urinary tract infection and abnormal psychological evaluation were excluded. Patients were divided into two groups: group A starting with 120 mcg of desmopressin and group B starting with the dose of 240 mcg. All children had general lifestyle advice. Dose change from 120 to 240 mcg or vice versa was done at the third week and continued to a total treatment duration of 3 months. Response rate was defined according to the ICCS guidelines. Response rate was evaluated at the third week and third month from treatment.

### RESULTS

During this 3-year period, 79 patients were included (40 patients in group A and 39 in group B) with a follow-up of 3 months. The two groups were homogenous according to age, sex, weight and severity of enuresis. Complete, partial and non-responders were the same at 3 weeks (50 % vs 69.2 %,  $p=0.31$ , 30 % vs 20.5 %,  $p=0.37$  and 20 % vs 10.3 %,  $p=0.25$ , in group A and B respectively) and 3 months from treatment (45 % vs 54 %,  $p=0.63$ , 30 % vs 28 %,  $p=0.83$ , 25 % vs 18 %,  $p=0.47$ , in group A and B respectively). Side effects such as headache, nausea and abdominal pain were higher in Group B ( $p=0.01$ ).

### CONCLUSIONS

Our study shows no advantages of the Top-Down approach with desmopressin for the treatment of enuresis in children. Physicians should be aware of more common side effects with this strategy.

09:28–09:31

S20-3 (PP)

## PHARMACOKINETIC ASPECTS OF DESMOPRESSINE ORAL LYOPHILISATE ARE DIFFERENT IN YOUNG CHILDREN

Lien DOSSCHE<sup>1</sup>, Anne-Françoise SPINOIT<sup>2</sup>, Elke GASTHUYS<sup>3</sup> and Johan VANDE WALLE<sup>1</sup>

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### PURPOSE

Desmopressin (dDAVP) is indicated for primary enuresis, all start with a dose of 120 micrograms. Nowadays, desmopressin is also administered to younger children aging 5 to 8 years, despite the fact that labelling in most countries begins only from 7–8 years. The aim of this study was to obtain pharmacokinetic data, in order to determine appropriate dosing regimens.

### MATERIAL AND METHODS

An open label, non-randomized, pilot study. 25 children were recruited (age 6 months–8 years, mean age 4.8 years). All needed a urinary concentration test or had nocturnal polyuria with treatment failure on tablet. dDAVP was provided sublingual as one-time age-adapted dose (60 (6 months–2 years), 120 (2–4 years), or 240 micrograms (4–8 years)). Plasma and urinary concentration of dDAVP were measured every 15 minutes during the first hour, and at 1 h, 2 h, 3 h, 5 h, 6 h and 7 h post-dosing.

### RESULTS

A double absorption peak was noted, especially in the plasma concentration-time curves of 60 µg and 120 µg. These observations are probably age/size dependency.

### CONCLUSIONS

The double absorption peak has never been demonstrated in the older children before, probably due to a lack of sampling during the absorption phase. In the current study, richer sampling were applied.

It is our hypothesis that younger children ingest a fraction of the dose will be ingested, followed by absorption in the gastro-intestinal tract. The influence of the double absorption peak on the efficacy and potential toxicity of the desmopressin lyophilisate still needs to be established.

09:31–09:34

S20-4 (PP)

## **SENS-U™: CONTINUOUS HOME MONITORING OF NOCTURNAL BLADDER FILLING IN CHILDREN WITH ENURESIS - A FEASIBILITY STUDY**

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### **INTRODUCTION**

Enuresis is a common problem in school-age children; 5–10 % suffer from this condition. One of the treatment options is alarm therapy which uses a wetting alarm to teach pelvic floor contraction when incontinence occurs. However, a disadvantage of this approach is that the child is still awoken by wet sheets. Recently, a new, wearable ultrasonic bladder sensor became available, the SENS-U™ Bladder Sensor, which has the potential to prevent the enuretic event by waking up the child before the bladder is full. In this study, the aim is to perform a home-based evaluation of the SENS-U during the night in children with nocturnal enuresis.

### **PATIENTS AND METHODS**

In this study, 15 children (6–12 years) with monosymptomatic nocturnal enuresis were included for a monitoring session at home for one night. Before bedtime, the SENS-U was positioned by the researcher. During the night, the SENS-U estimated the filling status (i.e. every 30 s), while notifications were deactivated. In addition, urine volume was collected in a measurement cup (or diaper weight). The next morning, the SENS-U was removed by the researcher and SENS-U data was stored for off-line processing. The total number of measured nocturnal bladder filling cycles was analyzed by descriptive statistics.

### **PRELIMINARY RESULTS**

At this moment, 8 patients (boys/girls: 7/1) [mean age:  $8.4 \pm 1.3$  years, range: 7–11 years] are included in the study. The first results show that the SENS-U is able to monitor the changes in bladder size overnight, due to the increase of bladder volume. Next, none of the patients experienced any difference in their sleep habit's as result of wearing the SENS-U.

### **CONCLUSIONS**

Based on the first results, the SENS-U™ Bladder Sensor is a feasible approach for monitoring the nocturnal bladder filling. Future research will focus on investigating the response to receiving a full-bladder notification during the night.

09:34–09:46

### **Discussion**

# S21: STONES 1

Moderators: Serdar Tekgül (Turkey), MS Ansari (India)

ESPU Meeting on Saturday 27, April 2019, 10:06–10:46

10:06–10:11

S21-1 (LO)

## ★ ESWL IN CHILDREN IN ONE-DAY SURGERY - SAFE AND EFFECTIVE TREATMENT OF UROLITHIASIS IN CHILDREN - A PROSPECTIVE STUDY

Adam Maksymilian HALINSKI and Andrzej HALINSKI

*University Hospital in Zielona Góra, Clinical Department of Paediatric Surgery and Urology, Zielona Gora, POLAND*

### PURPOSE

The development of ESWL equipment over the years has made it safe and effective. Reducing the focus of the ultrasound wave allows avoiding the complications of damage to neighboring organs. The introduction of piezoelectrics also reduced the pain during the procedure and the need to use painkillers. This allowed to perform treatments in almost every age group of patients.

### MATERIAL AND METHODS

The full data evaluation assessed 420 children (aged 1–18; mean 8,7) treated for urolithiasis with the application of ESWL method. The procedures were done since 2010. The treatment was applied to children with stones in the kidney and in the ureter not promising spontaneous expulsion with urine. All surgeries was performed under anesthesia - analgo-sedation. Stone size range 5–22 mm, mean 10.7. The length of the treatment is from 35 to 60 min. The length of stay is from 5–7 hours, in the children's urology department one day. Energy fractionation during the procedure was used. Pulse frequency = 1 / sec. Treatments were carried out under constant ultrasound control. C-arm was used for localization less than 8,1 % of stones. The children were discharged home on the same day. Antibiotic therapy was selected individually.

### RESULTS

None of the children required urgent admission to the hospital during the night. Follow-up ultrasound was performed at the clinic the next morning. No hematoma was found.

Overall efficiency was 89 %. Only 4 % required immediate admission to the hospital to perform URS-L. Stein strasse only in 3 cases. Hematuria in 30 %. Cost of treatment can be reduce up to 60 %.

### CONCLUSIONS

ESWL is the treatment of choice for lithiasis in children. As a one day surgery procedure it can reduce children and parents stress associated with admission to the hospital. It seems, that with good preparation it is effective and safe method of treatment urolithiasis.

## PREDICTING ESWL SUCCESS ON PELVIC STONES BY DETERMINATION OF HOUNSFIELD UNIT ON NON-CONTRAST CT IS CLINICALLY IRRELEVANT IN CHILDREN

Perviz HAJIYEV<sup>1</sup>, Aykut AKINCI<sup>2</sup>, Cagri AKPINAR<sup>2</sup>, Muammer BABAYIGIT<sup>2</sup>, Utku BAKLACI<sup>2</sup>, Murat KARABURUN<sup>2</sup>, Tarkan SOYGUR<sup>1</sup> and Berk BURGU<sup>1</sup>

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### PURPOSE

Adult studies had revealed the relationship between Hounsfield unit (HU) value and ESWL success with different cut-off densities. Generally 1000 HU is accepted as a predictor of unsuccessful ESWL. We aimed to investigate whether it is clinically useful to determine the stone density to predict the ESWL success in children parallel to adult studies.

### MATERIAL AND METHODS

119 patients aged 2–16 years with renal pelvic stone measuring <15 mm were selected for treatment with ESWL between 2008 and 2018. Patients divided into two groups; 38 with performed non-contrast helical CT scan pre-ESWL and 81 patient without CT examination. Both the groups were compared for stone size, stone location, stone free rate (SFR) after a single ESWL session. Also maximum stone density in Hounsfield Units (UH) in CT performed group was noted. Mean radiation exposure for CT scan followed by ESWL and direct ESWL groups were compared. Besides spot urine pH were noted in every patient. Known cystine stones were excluded. All patients underwent ESWL a part from the stone density.

### RESULTS

Median stone size was 13.5 mm (8 to 19 mm) in CT performed group and 12.6 mm (6 to 17 mm) in without CT group. The stone clearance rate in CT and non-CT group at 2 week after ESWL was 78.9 % (30/38) and 81.4 % (66/81) ( $p > 0.05$ ), respectively. There was not statistical significance between groups in terms of stone compositions, stone size. Only 7 (18.4 %) patients had a stone density greater than 1000 HU in total and 3 of these (7.8 %) was stone-free after the first ESWL. Most of the pediatric ESWLs were performed with US scan targeting without any radiation exposure. (23.5 %). Only 28 out of 119 required a fluoroscopic targeting with a mean exposure of 2.6 (1–3.4) mSv.

### CONCLUSIONS

NCCT scan theoretically provides information of stone composition and predict the effectiveness ESWL. However, in clinical practice extra radiation exposure and the limited number of stone densities higher than 1000 HU suggests that this step is unnecessary in the decision making and better be avoided.

## THE IMPACT OF CALCIUM PHOSPHATE (CAPH) CONTENT ON THE EFFICACY OF EXTRA-CORPOREAL SHOCK WAVE LITHOTRIPSY (ESWL) IN CHILDREN

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### PURPOSE

In children, stone-size, multiplicity, location and cystine stone-composition have been shown to affect ESWL outcomes. We examined the effect of calcium-phosphate (CaPh) content of the stone on stone-clearance after ESWL.

### MATERIAL AND METHODS

Data for all children undergoing ESWL between 2007–2017 were prospectively collected, including patient demographics, stone characteristics and outcome. Factors affecting stone clearance were analysed using non-parametric tests (Chi-squared, Mann-Whitney) and multivariate logistic regression.

### RESULTS

167 patients, aged 2 months–17.2 years (median 7.3 years), received a total of 371 ESWL sessions to 297 stones. Stone-composition was available for 160 (53.8 %) stones. 33 stones had >70 %CaPh, 116 <70 %CaPh and 11 were cystine stones. Clearance (stone-free or fragment <2 mm) was achieved for 74.3 % patients and 79.1 % stones. Excluding the 11 cystine stones, 19/33 (57.6 %) stones with >70 %CaPh cleared compared to 92/116 (79.3 %) stones with <70 %CaPh content, 17/19 (vs 70/92) doing so after the first ESWL session. CaPh composition was the only factor affecting clearance in univariate and multivariate analysis.

	Individual stone-clearance (excluding cysteine-stones)			
	Chi-squared	Mann-Whitney	Multivariate	Confidence interval
Age	–	p=0.291	0.670	0.995–1.008
Stone-size	–	p=0.852	0.450	0.520–4.364
Location(Lower pole/other)	0.278	–	0.416	0.322–1.599
CaPh-composition(%)	0.021*	–	0.007*	0.140–0.726
Shocks applied	–		0.105	0.999–1.000

Finally, clearance was similar for stones with >70 %CaPh (19/33;58 %) and cystine stones (6/11;54 %) (Fisher-exact, p=0.566).

### CONCLUSIONS

This prospective study shows ESWL to be less efficacious for stones with high (>70 %)-CaPh content. Expected clearance for these stones is 58 %, similar to cystine stones, although most that clear do so following a single session of ESWL.

10:17–10:20

S21-4 (PP)

## ★ ENDOSCOPIC MANAGEMENT OF PAEDIATRIC URETERIC STONES: COMPARISON OF THE DISINTEGRATION MODALITIES

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### PURPOSE

To compare the safety, efficacy and outcome (stone clearance and complications) between Pneumatic lithoclast VS Low power 30Watt Ho:YAG lasertripsy VS High power 80 Watt Ho:YAG lasertripsy for lower ureteric calculi in children

### MATERIAL AND METHODS

Records of 554 children with lower ureteric stone managed endoscopically using Pneumatic lithoclast (PL), low power 30 Watt Ho:YAG lasertripsy and high power 80 Watt Ho:YAG lasertripsy performed between 2009 and 2016 were reviewed. Clinical records were reviewed for age, gender, stone laterality, location, size, need for ureteric stenting, duration of the procedure, stone clearance, complications and cost. ANOVA and chi-square tests were used for statistical analysis.

### RESULTS

Of the 554 children, 191 were managed by pneumatic lithoclast (PL), 279 by Ho:YAG (low power 30 W) LPH and 99 by high power 80 Watt (HP) Ho:YAG lasertripsy. Mean age and gender ratio in the three groups were comparable 6.4+3.6 VS 6.4+3.8 VS 5.6+3.8 (p=0.90) and 1.4:1 VS 1.5:1 VS 1.8:1 (P= 0.59). Stone laterality was also comparable as well (p=0.59). The mean stone volume (cm<sup>2</sup>) and mean number of session were also comparable, 0.7+0.50 VS 0.73+0.56 VS 0.74+0.45 cm<sup>2</sup> (p=0.65) and 1.2+0.5 VS 1.3+0.7 VS 1.2+0.44 (P=0.24). The operating time was slightly higher in the (HP) Ho: YAG 68.1+72.4 VS 59.2+41.6 VS 83+37. The stone clearance rate was 91 % VS 89 % VS 95 % (P=0.5). Complication (Clavier grade I and III) 37 % VS 25 % VS 27 %. Cost of equipment \$20,000 VS \$36,000 \$80,000. Laser fiber cost was 10–20 dollars per procedure.

### CONCLUSIONS

This study showed excellent stone clearance by all three modalities with acceptable complication rates. Pneumatic lithoclast is the cheapest and HP laser is the most expensive technology among the three.

10:20–10:32

## Discussion

## URINARY CYSTATIN C AND NEUTROPHIL GELATINASE-ASSOCIATED LIPOCALIN: NOVEL BIOMARKERS FOR DETECTION OF EARLY KIDNEY DYSFUNCTION IN CHILDREN WITH UROLITHIASIS

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### PURPOSE

We aimed (1) to screen for the presence of biomarkers involved in tubular injury and kidney damage in children with urolithiasis (RS), and (2) to validate these proteins by ELISA.

### MATERIAL AND METHODS

Initial screening test was done by quantitative proteomic comparison of pooled urine from RS versus age- and gender-matched healthy controls(HC), using liquid chromatography-mass spectrometry. Proteins of interest were selected using the following criteria: 1)  $\geq 5$  spectral counts; 2)  $\geq 2$ -fold difference in spectral counts; and 3)  $\leq 0.05$  p-value for the Fisher's Exact Test. Validation was performed by ELISA testing.

### RESULTS

Proteomic analysis identified five proteins of interest (Cystatin C, neutrophil gelatinase-associated lipocalin-NGAL, kidney injury marker 1, beta2-microglobulin, liver-type fatty acid binding protein) that were significantly over-represented in RS group versus HC. ELISA analysis revealed significantly increased urinary levels of Cystatin C and NGAL in RS group compared to controls (Table).

	Stone group (n=26)	Control group (n=13)
Age(years)	12.2 $\pm$ 4.9	12.4 $\pm$ 3.16
Gender (Male/Female)	12/14	5/8
Serum Creatinine (mg/dl)	0.55 $\pm$ 0.15	0.64 $\pm$ 0.13
Urinary Cystatin C (ng/mg creatinine)	55.3 $\pm$ 37.5**	20 $\pm$ 32.3
Urinary NGAL (ng/mg creatinine)	2.37 $\pm$ 2.7*	1.0 $\pm$ 0.86

Results presented as Mean  $\pm$  SD; \*P<0.05, \*\* P<0.01

### CONCLUSIONS

Children with kidney stone showed significant increase in urinary Cystatin C and NGAL irrespective of their normal serum creatinine. These biomarkers indicate tubular injury and early kidney damage and represent novel tools for early screening when traditional tests are normal. Their presence suggests the need for more aggressive management.

10:35–10:40

S21-6 (VP)

## AN INNOVATION SYSTEM FOR KIDNEY STONE

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### PURPOSE

Surgical treatment of pediatric kidney stones are changing over the years with the tendency to miniaturization of instrument. This however led to make difficult the extraction of the fragments and longer surgical time. PCNL remains first surgical option for renal stone >2 cm, staghorn or multiple stone, but it presents high rate of major complications as blood transfusion and longer fluoroscopy time. The use of minimally invasive percutaneous nephrolithotomy could reduce the complication rate but lengthen the operating time. This video shows the working principles of this system and a procedure performed using a Clear Petra nephrostomy sheath.

### MATERIAL AND METHODS

A 9 years old girl (22 Kg) presented to our department in complete anuria and acute renal failure due to two bilateral staghorn stone. The girl had never complained of any other symptoms before. Initially the girl was underwent to bilateral JJ stent placement and then to PCNL procedure.

### RESULTS

This video shows the use of a Clear Petra nephrostomy sheath A 12 Fr nephroscope was employed and Holmium YAG Laser used for lithotripsy. Lapaxy was performed through the aspiration linked to the lateral arm of the sheath. No baskets or forceps were used.

### CONCLUSIONS

PCNL using CPS is an effective and safe procedure for treating complex kidney stones allowing to treat large stone in not long time. It ensure excellent visibility and low intrarenal pressure thereafter reducing the need to use extraction baskets of fragments.

10:40–10:46

## Discussion

# S22: STONES 2

Moderators: Serkan Dogan (Turkey), Haytham Badawy (Egypt)

ESPU Meeting on Saturday 27, April 2019, 10:46–11:22

10:46–10:49

S22-1 (PP)

## COMPARISON OF RETROGRADE INTRARENAL SURGERY AND MINIATURIZED PERCUTANEOUS NEPHROLITHOTOMY FOR TREATMENT OF 10 MM TO 20 MM SIZE PEDIATRIC KIDNEY STONES

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### INTRODUCTION

Miniaturized percutaneous nephrolithotomy (mini-PCNL) and retrograde intrarenal surgery (RIRS) are generally used for pediatric kidney stones; however, comparative study of these methods are not enough. We aimed to compare our outcomes of mini-PCNL and RIRS for treatment of 10 mm to 20 mm size kidney stones in children.

### MATERIAL AND METHODS

Pediatric patients who underwent mini-PCNL (n=24) and RIRS (n=29) with kidney stones for 10 to 20 mm in size were compared retrospectively. Patients' gender, age, body mass index (BMI), stone laterality, stone size, stone location, operative and postoperative outcomes were reviewed in both groups.

### RESULTS

The mean age was  $7.43 \pm 5.13$  years (1–15.7 years) in the mini-PCNL group and  $5.18 \pm 3.96$  years (0.6–13.7 years) in the RIRS group ( $p=0.07$ ). The mean BMI, mean stone size and gender were similar between the both groups. The stone-free rate (SFR) was 79.2 % in the mini-PCNL group and 65.5 % in the RIRS group after a single procedure ( $p=0.27$ ). The overall SFRs increased to 91.7 % and 89.7 % with additional therapies for mini-PCNL and RIRS, respectively ( $p=0.80$ ). The mean hospitalization, operation and fluoroscopy times were statistically longer in the mini-PCNL group. The mean number of anesthesia requiring intervention related to passive dilation, JJ stent removal and re-treatment was  $1.12 \pm 0.33$  in the mini-PCNL group and  $2.06 \pm 0.37$  in the RIRS group ( $p=0.00$ ). Minor complication rates were 20.8 % and 6.9 % in the mini-PCNL and RIRS group, respectively ( $p=0.13$ ). There was no major complication observed in both groups.

### CONCLUSIONS

This study suggested that RIRS is an effective alternative to mini-PCNL for 10 to 20 mm in size kidney stones in children, with comparable success and complication rates. Patients and their parents should be informed about the alternative available kidney stones treatment options.

10:49–10:52

S22-2 (PP)

## COMPARING MICRO-PERCUTANEOUS NEPHROLITHOTOMY AND FLEXIBLE URETEROSCOPIC LITHOTRIPSY IN TREATING 1–2 CM SOLITARY RENAL STONES IN INFANTS

Wenyng WANG and Jun LI

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### PURPOSE

To compare the effects of micro-percutaneous nephrolithotomy (micro-PCNL) and flexible ureteroscopic lithotripsy (FUL) in treating 1–2 cm solitary renal stones in infants.

### MATERIAL AND METHODS

A retrospective analysis was performed on data from 57 infants who received micro-PCNL and FUL surgery in our hospital from October 2016 to May 2018. The patients were divided into group 1 – micro-PCNL group and group 2 – FUL group. Perioperative data, including surgical time, blood loss, stone free rate, and complications, were analyzed.

### RESULTS

There were 27 patients in group 1 and 30 patients in group 2, and the patients' mean age was 19 and 21 months respectively. The average stone size was  $1.6 \pm 0.3$  cm in group 1 and  $1.7 \pm 0.2$  cm in group 2; the mean surgical time was  $21 \pm 4$  min and  $23 \pm 5$  min; and the stone free rate at 1 month after surgery were 88.9 % and 86.7 %, respectively. The average number of anesthesia sessions for patients was 1.4 in group 1 and 2.7 in group 2. The complication rate was 14.8 % and 16.7 %, respectively. None of the patients needed conversion to the 12–14F mini-PCNL.

### CONCLUSIONS

The results of this study showed that the surgical effects and complications of micro-PCNL and FUL in treating infants with 1–2 cm solitary renal stones were similar. However, micro-PCNL allowed lower anesthesia sessions. Therefore, micro-PCNL is an effective, alternative method for 1–2 cm solitary renal stones in infants.

10:52–10:55

S22-3 (PP)

## A JUXTAPOSITION OF OUTCOMES AFTER PERCUTANEOUS NEPHROLITHOTOMY IN DIFFERENT AGE GROUPS OF CHILDREN

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### 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

The data was collected retrospectively from patient's records (from November 2014 to September 2018). Patient's data including age, gender, stone burden, hemoglobin drop, operative time, complications and hospital stay duration were documented. Successful outcome was a stone free renal unit on postoperative USG KUB. Chi-Square and Kruskal Wallis tests were applied to observe any association of variables with different age groups.  $p$  Value  $\leq 0.05$  was considered significant.

## RESULTS

There were total 357 children enrolled in our study in which 238 (66.7 %) were male while 119 (33.3 %) were female. We divided patients in three groups according to their age. The overall mean age was  $8 \pm 1.6$ . In Group-1 (0–5 years of age) 137 (38.4 %) patient were recruited. 109 (30.5 %) children were in Group-2 (6–10 years of age) while 111 (31.1 %) were in Group-3 (11–15 years of age).

Comparison of continuous lab, clinical and stone parameters was carried out between three age groups and found that almost all variables were significantly different between age groups. Association of Categorical Variables with age group was observed and which showed that site of puncture, family history of stone, complete stone free rate were significantly associated with different age groups.

The overall stone free rate was 84.6 %. The best stone free rate came for the youngest Group 1 96.4 % and the least for eldest Group 3 as 68.5 %.

## CONCLUSIONS

PCNL is a more efficient and safe procedure for the infants and toddlers than for the older age groups of children.

10:55–10:58

S22-4 (PP)

## MINI PCNL: PNEUMATIC LITHOCLAST VS HOLMIUM YAG LASERTRIPSY

Bashir AHMED and Sajid SULTAN

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### PURPOSE

To compare the safety, efficacy and outcome (stone clearance and complications) of Pneumatic lithoclast VS Holmium YAG Lasertripsy for renal calculi in children.

### MATERIAL AND METHODS

Records of children managed by MINI PCNL (Sheath upto 16 Fr) in 132 renal units using Holmium YAG Lasertripsy (LL) and Pneumatic lithoclast (PL) performed between Jan and Dec 2017 were reviewed for age, gender, stone size, duration of procedure, outcome in term of stone clearance and complications. Amplatz sheath upto 16 Fr, paediatric cystoscope and nephroscopes 6/7.5Fr and 12 to 15Fr were used according to the size of the patient, stone location and disintegration technology used.

### RESULTS

Of the 132 renal units 84 were managed by Ho-YAG lasertripsy and 48 by pneumatic lithoclast. Mean age and gender ratio in two groups were comparable  $5.7 \pm 3.5$  VS  $6.26 \pm 3.6$  ( $p=0.3$ ) and  $2.1:1$  VS  $1.27:1$  ( $p=0.1$ ) from laser VS pneumatic lithoclast respectively. The mean stone volume ( $\text{cm}^2$ ) and mean operating time were also comparable  $1.88 \pm 1.1$  VS  $1.87 \pm 1.0$  ( $p=0.9$ ) and  $110 \pm 40$  VS  $105 \pm 46$  ( $p=0.5$ ) respectively. The stone clearance was complete clearance 84.5 % VS 81 % ( $p=0.4$ ). The complication in Ho- YAG lastripsy was 15.8 % VS 16.2 % in pneumatic lithoclast. Blood transfusion requirement were also comparable 10.4 % VS 11.2 %.

## CONCLUSIONS

There was excellent stone clearance with both the modalities with acceptable complication rates.

10:58–11:01

S22-5 (PP)

## A NEW SIMPLE SCORING SYSTEM FOR PREDICTION OF SUCCESS AND COMPLICATION RATES IN PEDIATRIC PERCUTANEOUS NEPHROLITHOTOMY: STONE-KIDNEY SIZE SCORE

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### PURPOSE

To develop a scoring system that predicts preoperative success of percutaneous nephrolithotomy (PCNL) in children.

### MATERIAL AND METHODS

A retrospective analysis was conducted on data from 434 renal units belonging to kidney stone patients who underwent PCNL between 1997 and 2017. Stone kidney index (SKI) was calculated by dividing the length of the stone along its longest axis by the length of the kidney along its longest axis. Factors that predicted success and complications were examined by univariate and multivariate analyses.

### RESULTS

Mean age was 8.3 (1–16) years, and male to female ratio was 236:165. Average stone length and kidney length were 2.41 (0.4–10) cm and 8.5 (6.23–10.93) cm, respectively. When stone-free patients were compared to other patients, there was a statistically significant difference in average SKI (0.266 vs 0.339,  $p < 0.001$ ). In multivariate analysis, factors that predicted success were SKI and the number of stones. The stone-kidney score (SKS) was formed by the sum of points given for SKI (1: SKI<0.3, 2: SKI>0.3) and the number of stones (1: single, 2: multiple) into one value. Success rates for SKS scores of 2, 3, and 4 were 86.4 %, 73 %, and 62.9 % ( $p < 0.001$ ), respectively. Complication rates for SKS scores of 2, 3, and 4 were 13 %, 22.1 %, 23.8 %, respectively.

### CONCLUSIONS

When evaluated together, SKI and presence of multiple stones may predict stone-free rates preoperatively. SKS is an individual-specific method that can be easily used in pediatric clinical practice. Further studies are required to develop and standardize this method.

11:01–11:04

S22-6 (PP)

## RESULTS OF MINI-PNL: CONVERTING FROM PRONE TO SUPINE APPROACH IN A STONE REFERRAL CENTER

Perviz HAJIYEV<sup>1</sup>, Aykut AKINCI<sup>2</sup>, Cagri AKPINAR<sup>1</sup>, Muammer BABAYIGIT<sup>2</sup>, Mehmet Ilker GÖKCE<sup>2</sup>, Tarkan SOYGUR<sup>1</sup> and Berk BURGU<sup>1</sup>

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### PURPOSE

The aim of the study is to assess the success of mini percutaneous nephrolithotomy in supine position alone or combined with flexible ureterorenoscopy which we recently adopted as our routine in recent 2 years and compare this with our most recent 3 year results of previous routine prone position.

### MATERIAL AND METHODS

We retrospectively analyzed the results of our mini percutaneous nephrolithotomies (12–16 Fr) performed in children with a mean age 9.5 years (10 months to 16 years) of age in our department between 2013–2016 for prone and 2016–2018 for supine. We compared, stone-free rates, mean operative time, duration of fluoroscopy and hospitalization and complication rates.

### RESULTS

The data of 57 patients underwent pnl in a 56 months period using mini-perc procedures were analyzed. 36 children underwent prone and 21 children underwent supine pnl procedures. Both the groups were comparable for preoperative parameters. The mean stone size was 16 (12–32) mm. The mean operating time was statistically significantly longer in prone [75±20 min] as compared to supine [61.2±20, ]. Whereas the duration of fluoroscopy were similar. After the first session of PCNL the SFR for supine was 91.2 % and for prone 92.5 %, which was not significantly different. 6 patients had simultaneous RIRS in supine group. Postoperative fever occurred in 5 patients (in prone 3 and in supine 2 p.) No difference was observed between the positions with regard to the hospital stay and complications.

### CONCLUSIONS

As experienced prone miniperc surgeons we believe conversion to Supine as routine procedure is easy thus supine mini-perc offers similar outcomes with even shorter operation time compared to the prone position.

11:04–11:22

## Discussion

# S23: ENDOUROLOGY

Moderators: Rosa Romero (Spain), M. Garriboli (UK)

ESPU Meeting on Saturday 27, April 2019, 11:22–11:42

11:22–11:27

S23-1 (LO)

## ★ EVALUATION OF EFFICIENCY OF CHILDHOOD MICRO-PERCUTANEOUS NEPHROLITHOTOMY AND RETROGRADE INTRARENAL SURGERY: FIRST RESULTS OF SINGLE CENTRE PROSPECTIVE RANDOMIZED TRIAL

Hasan Serkan DOĞAN, Oğuzhan KAHRAMAN, Tariq Jamal ASI, Hakan Bahadır HABERAL and Serdar TEKGÜL

*Hacettepe University Faculty of Medicine, Department of Urology, Ankara, TURKEY*

### PURPOSE

To compare treatment of childhood stone disease with retrograde intrarenal surgery (RIRS) vs micro-percutaneous nephrolithotomy (micro-PNL).

### MATERIAL AND METHODS

Between June 2016 and June 2018, children who had single renal stone, less than 20 mm, were prospectively randomised with envelope method to RIRS and micro-PNL groups were compared. For RIRS 4,9 F flexible ureteroscope and for micro-PNL 4,8 F micro-percutaneous nephrolithotomy device were used. Stone free rates, efficiency coefficient (EC= stone free patients/operations under general anesthesia) and complications were evaluated. 3 mm and less residues were evaluated as clinically insignificant residue and above 3 mm accepted as fail.

### RESULTS

22 patients were randomised to RIRS, 18 patients were randomised to micro-PNL group. Considering the patients who had to be changed from the first plan and took alternative treatment, RIRS was performed to 19 patients and micro-PNL was performed to 21 patients. Pelvis localization was more, patient age was younger, stone size was bigger, Hounsfield unit (HU) was bigger and operation time was longer in micro-PNL group. Pre- and postoperative hemoglobin (Hb) values were statistically different in micro-PNL group (Pre-operative Hb 12,2±1,6, Post-operative Hb 11,8±1,2, Paired sample T test: 0,031). But there was no need for blood transfusion.

	RIRS (n=16)	micro-PNL (n=19)	p
Localization(P/U/M/L)*	2/3/2/9	11/0/2/6	0,026 ( $\chi^2$ )
Pelvis/other than pelvis	2/14	11/8	0,012 ( $\chi^2$ )
Stone size,mm,median,min-max	6 (3–18)	11 (5–16)	0,014 (MWU)
HU, median, min-max	655 (205–1150)	996 (625–1848)	0,011 (MWU)
Operation time, min., mean±SD	48±25	80±32	0,03 (T-test)

\*P: Pelvis, U: Upper pole, M: Middle, L: Lower pole

### CONCLUSIONS

Single, less than 20 mm stones can be treated with RIRS and micro-PNL with similar efficiency and complication rates in childhood stone disease. In terms of stone localization and size, more similar and larger groups of research are needed.

11:27–11:30

S23-2 (PP)

## ENDOSCOPIC TREATMENT OF POM. IS FLUOROSCOPIC GUIDANCE NECESSARY AT THE PROCEDURE?

Ruben ORTIZ, Laura BURGOS, Alberto PARENTE and Jose Maria ANGULO

*University Hospital Gregorio Marañón, Madrid, SPAIN, Pediatric Urology, Madrid, SPAIN*

### PURPOSE

Compare long-term effectiveness, complications and outcomes of endoscopic balloon dilation (EBD) of primary obstructive megaureter (POM) treated under the original technique with fluoroscopic vision VS not radioscopic guidance during the procedure.

### MATERIAL AND METHODS

A comparative study was conducted to compare POM cases treated by endoscopic balloon dilation under fluoroscopic guidance (FG) vs no-fluoroscopic control (NF) between years 2004–2016. From 2004 to 2011 (n=43) POM were treated with the original technique. It consisted on performing a retrograde pyelography before dilation, then a guide-wire is introduced up to the renal pelvis and the EBD of the vesicoureteral junction is performed using high-pressure balloon catheters (2.7FG) with balloon diameter 5–7 mm under fluoroscopic vision. Finally a double J stent is placed between renal pelvis and bladder. Since 2011, (n=36) cases underwent the procedure with no radiological exposure, only under cystoscopic vision leaving double-j stents on the dilated ureter instead. Follow-up protocol included periodical clinical reviews, US and MAG-3 renogram scans.

### RESULTS

Improvement in renal drainage was observed on the MAG-3 diuretic renogram after endoscopic treatment in both groups (T1/2 > 50 min vs 10.4±4 min FG, p<0.001 T-test); (T1/2 > 50 min vs 10.3±5 min NF, p<0.001 T-test), with no differences between them (p>0.05). Both groups showed significant pre/postoperative differences in hydronephrosis grade and ureteral diameter that were maintained in long-term (p<0.001 T-test). Statistical analysis did not revealed differences between groups in initial technical failure (r:-0.021 p>0.05), early postoperative complications (r:-0.028 p>0.05), secondary VUR (r: 0.052 p>0.05), re-stenosis (r: 0.011 p>0.05), long-term ureteral reimplantation (r: 0.032 p>0.05) and final outcome (r:-0.043 p>0.05). Endoscopic treatment of POM had a long-term success rate of 37/43 (86.5 %) in FG with a mean follow-up of 10.5±2.2 years; and 32/36 (88.8 %) in NF with follow-up of 4.8±1.3 years.

### CONCLUSIONS

EBD has shown to be a valid option for the treatment of POM. This procedure could be done radiation free with similar results, effectiveness and outcomes than original endoscopic technique

11:30–11:33

S23-3 (PP)

## FEASIBILITY AND SAFETY OF MAGNETIC-END DOUBLE-J URETERAL STENT (BLACK-STAR® MAGNETIC STENT) INSERTION AND RETRIEVAL IN CHILDREN: PRELIMINARY RESULTS

Marc CHALHOUË, Jules KOHAUT, Nathalie BOTTO, Yves AIGRAIN, Henri LOTTMANN and Thomas BLANC

*Hôpital Necker - Enfants Malades, Department of Pediatric Surgery and Urology, Paris, FRANCE*

### PURPOSE

The 3 most common reasons to leave a Double-J ureteral stent (DJUS) are to ensure urinary diversion, maintain ureteral calibre and maintain anastomotic alignment.

In the adult population, a DJUS can be removed at the clinic under direct vision by flexible cystoscopy.

In contrast, DJUS removal in children requires a second general anaesthetic and cystoscopy.

Our aim is to report the use of Black-Star® and magnetic retrieval device in the paediatric population.

### MATERIAL AND METHODS

The Black-Star® (Urotech [Achenmühle, Germany]) is a 4.8Fr ureteral stent (length 10–24 cm) with a 7Fr magnet fixed with a string at the distal DJUS loop. To remove the DJUS, a customised catheter like retrieval device, lubricated with 2 % lidocaine jelly, with a magnetic Tiemann tip is inserted. Both indwelling magnets connect and the catheter can be removed together with the DJUS.

A total of 47 Black-Star® were placed during robotic pyeloplasty in an antegrade fashion (n=25), open procedure (renal transplant n=13, ureteric reimplantation n=7) or cystoscopy retrograde placement (n=2).

We retrospectively reviewed patient medical files over a 2-year period

### RESULTS

Mean age was 9 years (0,9–18) and mean weight was 30 kg (8–62).

In 9/25 cases of antegrade stenting (36 %), the Black-Star® could not traverse the ureterovesical junction.

Stents were left indwelling for a mean of 32 days (10–129).

The Black-Star® could be successfully removed in the out-patient clinic with the retrieval device in 35 out of 38 patients without needing endoscopy. For the other three patients, removal by cystoscopy was needed.

### CONCLUSIONS

The Black-Star® and its magnetic retrieval device can be safely used in paediatric patients permitting outpatient awake removal of the stent and thus reducing anaesthetic-associated morbidity. The development of a smaller magnet is needed to pass the ureterovesical junction in children. Cost effective analysis is in progress.

11:33–11:42

## Discussion

# S24: MISCELANEOUS

Moderators: Rafal Chrzan (Poland), Jean Paul Capolicchio (Canada)

ESPU Meeting on Saturday 27, April 2019, 11:42–12:16

11:42–11:47

S24-1 (LO)

## ★ EXTENDED EXPERIENCE WITH A SPINAL ANESTHESIA PROGRAM FOR COMMON PEDIATRIC UROLOGICAL PROCEDURES

Venkata JAYANTHI<sup>1</sup> and Emmett WHITAKER<sup>2</sup>

1) Nationwide Children's Hospital, Section of Urology, Columbus, USA - 2) Nationwide Children's Hospital, Columbus, USA

### PURPOSE

Concerns regarding potential neurocognitive effects of general anesthesia (GA) prompted our institution to offer spinal anesthesia (SA) program as an alternative to GA. As a followup to our first report, we wish to present our extended experience with this program for a variety of common pediatric urological procedures.

### MATERIAL AND METHODS

We prospectively collected data on all children undergoing SA at our institution since the inception of the program in Sept 2015. We recorded demographics, procedures, time required for placement of the SA, length of surgery, success of lumbar puncture, success of attaining adequate surgical anesthesia, need for supplemental systemic sedation, conversion to GA, and perioperative complications. We then queried the database for all children who underwent surgery by a pediatric urologist.

### RESULTS

Since Sept 2015, 526 patients at our institution have undergone a procedure under attempted SA. 410 of them were performed by a pediatric urologist and make up this study population. 373/410 (90 %) were able to have the procedure successfully completed under SA while 37 (10 %) required conversion to GA. Reasons for conversion included an inability to place the spinal in 15, poor sensory/motor block in 17 and suboptimal surgical conditions in 5. Mean age at surgery was 7.8 months (0–38). Average anesthesia start time to procedure start was 17.7 minutes. Mean length of procedure was 37.8 minutes (0–100). Intraoperatively 75 % received no supplemental sedation or medications. Cases successfully performed included circ/revision/concealed penis in 233, hypospadias in 38, hernia/orchidopexy in 76, cystoscopic procedures (diagnostic, valve ablation, ureterocele puncture, stent removal) in 19, and miscellaneous (vesicostomy/urachal cyst/ureterostomy) in 7. There were no airway manipulations and no intraoperative anesthetic or surgical complications.

### CONCLUSIONS

Success rates of SA have increased from our prior report (84 % vs 90 %). SA allows for the majority of common urologic procedures to be performed without airway manipulation, GA or systemic sedation.

11:47–11:50

S24-2 (PP)

## COMBINED SPINAL/CAUDAL CATHETER ANESTHESIA: EXTENDING THE BOUNDARIES OF REGIONAL ANESTHESIA FOR COMPLEX PEDIATRIC UROLOGICAL SURGERY

Venkata JAYANTHI<sup>1</sup>, Kristen SPISAK<sup>2</sup> and Emmett WHITAKER<sup>3</sup>

1) Nationwide Children's Hospital, Section of Urology, Columbus, USA - 2) Dayton Children's Hospital, Anesthesiology, Dayton, USA - 3) Nationwide Children's Hospital, Anesthesiology, Columbus, USA

### PURPOSE

Spinal anesthesia (SA) is an established anesthetic technique for short outpatient pediatric urological cases. In order to avoid general anesthesia (GA) we began a program using a combined spinal/caudal catheter technique (SCC).

### MATERIAL AND METHODS

We reviewed the charts of all patients scheduled for surgery under SCC and recorded age, diagnosis, procedure, conversion to GA/airway intervention, surgery time, neuraxial and intravenous medications administered, complications and outcomes. The SCC technique usually involved an initial intrathecal injection of 0.5 % isobaric bupivacaine followed by placement of a caudal epidural catheter. One hour after the intrathecal injection, 3 % chloroprocaine was administered via the caudal catheter to prolong the duration of surgical block. Intraoperative management included either continuous infusion or bolus dosing of dexmedetomidine to optimize surgical conditions.

### RESULTS

Overall, 23 children underwent attempted SCC. SA was unsuccessful in 3 patients and they were converted to GA. The remaining 20 children all had successful SCC placement, and their average age was 16.5 months (range 3.3–43.8 mos.). Surgeries performed included 11 open ureteral reimplantations, 2 first stage hypospadias repairs, 1 second stage hypospadias repair, 2 feminizing genitoplasties for congenital adrenal hyperplasia, and 1 open pyeloplasty. Average length of surgery was 108 minutes (range 68–172 min). 13/17 (76 %) did receive preoperative midazolam and 16/17 (94 %) had continuous infusion of dexmedetomidine intraoperatively with boluses as needed. All SCC patients were spontaneously breathing room air during the operation and there were no airway interventions. Only one SCC patient received opioids intraoperatively. There were no intra or perioperative complications.

### CONCLUSIONS

SCC allows for complex surgeries to be performed exclusively under regional anesthesia, thus obviating the need for airway intervention, minimizing or eliminating the use of opioids, and avoiding known and potential risks associated with general anesthesia.

11:50–11:56

### Discussion

## THE INDICATIONS DETERMINING CRITERIA FOR SURGERY OF RENAL ASYMPTOMATIC SIMPLE CYSTS IN CHILDREN

Rashit BAYBIKOV<sup>1</sup>, Nail AKRAMOV<sup>2</sup> and Aydar ZAKIROV<sup>2</sup>

1) Children's Republican Clinical Hospital of the Ministry of Health of the Republic of Tatarstan, Pediatric urology, Kazan, RUSSIAN FEDERATION - 2) Kazan State Medical University, Pediatric urology, Kazan, RUSSIAN FEDERATION

### PURPOSE

Nowadays, there are no clear indications for surgical treatment of simple asymptomatic renal cysts (SARC) in children.

### MATERIAL AND METHODS

We evaluated changing of the SARC in 145 patients (growth, volume/area/length of the cyst to the corresponding parameters of the kidney) using renal ultrasonography every 6 months from the date of detection throughout 2 years. Considering all the data, we designated a cyst growth ratio of the kidney (CGRK). CGRK can be calculated using the volume or area or length. The statistical processing of the case follow-up data of 145 patients showed no statistically significant differences between using CGRK based on the volume or area or length. Therefore, we have determined that the most simple and efficient way to calculate the CGRK is assessing it according to the length as the easiest measure we can get. The formula:  $CGRK = [LK2/LR2 - LK1/LR1] \times 100\%$ , where CGRK – the ratio of a cyst growth; LK is the size of the cyst length in mm; LR is the size of the kidney length in mm; 1 – baseline; 2 – data 12 or 24 months later. Having analyzed the literature data and present recommendations, we have developed indications for managing patient with renal cysts using CGRK.

### RESULTS

Thus, surgical treatment is indicated if  $CGRK \geq 5\%$  and in case of the symptoms onset (pain, renal lump, infection, hypertension, or hematuria). If  $CGRK < 5\%$  and patient is asymptomatic – observation continues. A computed tomography served as a method of differential diagnosis and was used before the surgical treatment. Using CGRK makes the SARC patients managing easier and more adequate. It shows the valid growing size of the cyst, but not the kidneys growing size.

### CONCLUSIONS

Thus, the indication for the surgical treatment are not the size but the  $CGRK \geq 5\%$ , the symptoms onset and the cysts more than 30 % of the kidney area.

## UROLOGICAL ANOMALIES IN 546 DUTCH PATIENTS WITH ANORECTAL MALFORMATIONS: WHAT CAN WE LEARN FROM SCREENING METHODS?

Liesbeth L. DE WALL<sup>1</sup>, Herjan J.J. VAN DER STEEG<sup>2</sup>, Hilde KOUWENBERG<sup>1</sup>, Barbara B.M. KORTMANN<sup>1</sup>, Robert P.E. DE GIER<sup>1</sup>, Ward J.H. GOOSSENS<sup>1</sup>, Ivo DE BLAAUW<sup>2</sup> and Wout F.J. FEITZ<sup>1</sup>

1) Radboudumc, Pediatric Urology, Nijmegen, NETHERLANDS - 2) Radboudumc, Pediatric Surgery, Nijmegen, NETHERLANDS

### PURPOSE

Screening for urological anomalies is advocated in patients with anorectal malformations (ARM). However, the extent and methods used differ with the complexity and within clinical guidelines. Our aim was to investigate the incidence of urological anomalies, the screening methods used and their urological treatment implications in complex versus less complex ARM-s.

### MATERIAL AND METHODS

The medical records of 546 patients treated between 1983 and 2018 were evaluated retrospectively. ARM classification, screening methods used, implications for urological treatment and long-term outcome were studied. Perineal and vestibular fistula's were considered less complex, all other, previously known as "higher" malformations, were considered complex.

### RESULTS

Urological anomalies occurred in 57 % and significantly more often in complex cases (82 % versus 42 %,  $p = 0.000$ ). The most common anomalies were hydronephrosis (27 %), vesico-uretral reflux (VUR) (23 %), urinary tract infections (21 %) and lower urinary tract (LUT) dysfunction (19 %). A voiding cystography (VCUG) and renal ultrasound were performed in 90 %. VUR without hydronephrosis and with urological treatment implications occurred in 14 %. LUT dysfunction with lumbosacral or spinal anomalies occurred in 28 % of the complex cases versus 3 % of the less complex malformations ( $p = 0.000$ ). Treatment invasiveness increased with the complexity of the ARM

### CONCLUSIONS

Over 80 % of complex ARM-s have associated urological anomalies. In most patients both a renal ultrasound and VCUG were done with 14 % VUR and subsequent implications despite a normal ultrasound. Urodynamic studies should be done in all complex cases with lumbosacral or spinal anomalies to promptly diagnose and treat neurogenic bladder dysfunction.

12:02–12:07

S24-5 (VP)

## ★ ROBOTIC APPROACH TO A RENAL ARTERY ANEURYSM IN AN EIGHT YEAR OLD CHILD

Venkat SRIPATHI<sup>1</sup>, Thirumalai GANESAN<sup>2</sup>, Rajiv PADANKATTI<sup>3</sup> and Margabandhu SARAVANAN<sup>4</sup>

1) Apollo Children's Hospital, Department of Pediatric Urology, Chennai, INDIA - 2) Apollo Hospitals, Urology, Chennai, INDIA - 3) Apollo Children's Hospital, Pediatric Surgery, Chennai, INDIA - 4) Apollo Children's Hospital, Nephrology, Chennai, INDIA

### PURPOSE

This video demonstrates the approach to a renal artery aneurysm in a severely hypertensive child with renal artery stenosis and a defunct kidney.

### MATERIAL AND METHODS

An eight-year old female child presented with severe headache, bilateral papilloedema, MRI evidence of demyelination and accelerated hypertension which needed five drugs for normalisation. There was a bruit over the right renal area with a very high Plasma Renin Activity. Contrast Enhanced CT scan revealed a 4 cms aneurysm of the renal artery with a poorly functioning right kidney. Robotic nephrectomy was planned and the challenge was to access and clip a 5 mm stump of the juxta-aortic renal artery before safely handling the aneurysm. The aneurysm was found to be densely adherent to the anterior wall of the Inferior Vena Cava (IVC) and aorta. To expose the renal artery take off, the IVC had to be lifted after dividing and clipping the first and second lumbar veins. Once the renal artery was clipped the IVC could be rolled away from the aneurysm and renal vein clipped and divided. Residual attachments to the aorta were divided. The procedure was completed in 120 minutes with no blood transfusion. On follow-up eight weeks later, hypertension is under control with one drug and child is symptom free.

### RESULTS

Freeing the IVC to approach the aorta and the renal artery take off involves meticulous dissection. We used the Da Vinci Robot to clip the renal artery stump and thereby safely dissect the aneurysmal attachments.

### CONCLUSIONS

To our knowledge this is the first report of using robotic assistance to free the IVC and gain access to the aorta in a child with a renal artery aneurysm. The video demonstrates the steps employed.

12:07–12:16

### Discussion

# Nurses

# S1: FUNCTIONAL VOIDING DISORDERS 1

Moderators: Alexandra Vermandel (Belgium), Angela Downer (UK)

ESPU-Nurses Meeting on Thursday 25, April 2019,  
09:20–10:00

09:20–09:30

S1-1 (LO)

## SENS-U™: CLINICAL EVALUATION OF A FULL BLADDER NOTIFICATION - A FEASIBILITY STUDY

P.G. VAN LEUTEREN, A.J. NIEUWHOF-LEPPINK, T.P.V.M. DE JONG and P. DIK

*Wilhelmina Children's Hospital UMC Utrecht, Pediatric Urology, Utrecht, NETHERLANDS*

### PURPOSE

Urinary incontinence is a common problem in school-age children. Recently, a new, wearable ultrasonic bladder sensor became available, the SENS-U™ Bladder Sensor. The SENS-U is a small, wearable ultrasound sensor, which continuously monitors the bladder filling and provides a personalized notification when it is time to go to the toilet. In this study, the aim is to examine the performance of the SENS-U as a full-bladder-based notification system in active children during inpatient bladder training.

### PATIENTS AND METHODS

In this study, children (6–16 years) were included who were admitted for an inpatient bladder training program. Parallel to one training-day, the child would wear the SENS-U to estimate the filling status (i.e. every 30 s) and inform the patient when the bladder was almost full. When the child received a full-bladder notification, the child was taught to inform the urotherapist / researcher, in order to determine the level of response.

### RESULTS

15 patients (boys/girls: 7/8) [mean age:  $11.5 \pm 1.7$  years] were included. Based on a personalized volume-based threshold, the SENS-U notified these children of a full bladder with a median notification rate of 92.9 % (IQR: 61.7–100 %). In the remaining cases, children voided before the threshold was reached (e.g. defecation). Children responded positively to the notification of the SENS-U, resulting in a median level of response equal to 100 % (IQR: 100 %–100 %).

### CONCLUSIONS

The SENS-U™ Bladder Sensor was able to monitor the natural bladder filling in active children, while moving freely, and to notify them of a full bladder with a median notification rate of 92.9 % (based on a personalized volume-based threshold) and a median level of response equal to 100 %. Future research will focus on investigating the effect of the SENS-U in clinical practice and in response to training.

09:30–09:40

S1-2 (LO)

## VIDEO-URODYNAMICS: A CHILD'S PERSPECTIVE

Kay WILLMOTT, Anne WRIGHT, Massimo GARRIBOLI and Joanna CLOTHIER

*Evelina London Children's Hospital, Paediatric nephro-urology, London, UNITED KINGDOM*

### PURPOSE

To understand from the child's perspective the discomfort and emotions felt during video-urodynamic investigation (VUD). To identify whether there is a difference in placement of catheter discomfort between those regularly catheterising and those not catheterising and between genders.

### MATERIAL AND METHODS

Single-centre, prospective, age-appropriate anonymised questionnaire study performed on consecutive VUD in paediatric patients aged 5–11 years, over 5 month period.

Questionnaire completed by child immediately following investigation.

Specific questions regarding discomfort related to all aspects of VUD recorded, mean overall score presented. Wong-Baker FACES pain rating scale used for 5–7 years and visual analogue score for 8–11 years, scoring 1–10 (10 most discomfort). Emotions were recorded by use of emoticons in 5–7 years and by visual analogue scale in 8–11 years, scoring 1–10.

Mann-Whitney test used to assess for any differences in discomfort between those regularly catheterising and not, and between genders.

### RESULTS

54 patients completed the questionnaire.

5–7 year group: 14 questionnaires (age 6.14 years, 65 % male, 21 % neuropathic). Pain score 3.2/10. Emotions expressed (more than 1 choice possible): 57 % scared, 43 % worried, 29 % embarrassed, 21 % ok, 29 % happy.

8–11 year group: 40 questionnaires (age 9.3 years, 70 % male, 18 % neuropathic). Pain score 2.1/10. Emotions expressed values: scared 4.3/10, worried 4.3/10, embarrassed 2.4/10, ok 6.6/10, happy 6/10.

No statistical difference was found for discomfort in placement of bladder or rectal line between children regularly catheterising or not ( $p=0.105$  and  $p=0.78$ ) nor between males and females ( $p=0.53$  and  $p=0.51$ ).

### CONCLUSIONS

Despite a natural belief that VUD is an invasive and intrusive test, our result suggest that children between 5 and 11 years of age experience low levels of discomfort.

No difference was found for catheter placement between child's current catheterising status or between genders.

09:40–09:50

S1-3 (LO)

## VIDEO-URODYNAMICS: ADOLESCENT'S PERSPECTIVE

Kay WILLMOTT, Anne WRIGHT, Massimo GARRIBOLI and Joanna CLOTHIER

*Evelina London Children's Hospital, Paediatric nephro-urology, London, UNITED KINGDOM*

### PURPOSE

To understand from the adolescent's perspective the discomfort and emotions felt during video-urodynamic investigation (VUD). To identify whether there is a difference in placement of catheter discomfort between those regularly catheterising and those not catheterising and between genders

## MATERIAL AND METHODS

Single-centre, prospective, anonymised questionnaire study performed on consecutive VUD in paediatric patients aged 12–19 years, over 5 month period.

Questionnaire completed immediately following investigation.

Specific questions regarding discomfort related to all aspects of the study recorded and emotions felt during the study, using Likert scale, 1–5 (5 high). Patient asked to rate experience vs expectation 1–5 (5 much worse than expected). Values expressed as median.

Mann-Whitney test used to assess for any differences in discomfort between those regularly catheterising and not, and between genders.

## RESULTS

35 questionnaires completed (14 years, 50 % male, 3 % neuropathic).

Pain score: bladder catheter placement 1.5/5, rectal line 2/5, holding a void 3/5, voiding 1/5, EMG stickers 1/5, removal of bladder catheter 2/5, removal of rectal line 2/5. Overall score 2.0.

Emotions: Anxious 3/5, frightened 2/5, embarrassed 2/5. Overall experience 2/5 (better than expected).

Only 3 patients performing catheterisation in the group so insufficient numbers to compare. No significant difference between males and females for discomfort during bladder ( $p=0.11$ ) and rectal line placement ( $p=0.39$ ).

## CONCLUSIONS

Adolescents express low levels of discomfort during VUD. The experience is slightly better than the expectation. Anxiety, fear and embarrassment are regularly experienced at low level and need to be considered. Males and females expressed same level of discomfort with catheter placement.

09:50–10:00

S1-5 (LO)

## GOOD PREPARATION AND PROPER PLACEMENT, THE SUCCES OF CORRECT VIDEO URODYNAMICS IN PHYSICAL HEALTHY CHILDREN

Sigrid VAN DE BORNE, Karen DE BAETS, Stefan DE WACHTER and Gunter DE WIN  
*Antwerp University Hospital, Urology, Edegem, BELGIUM*

### PURPOSE

Video urodynamics helps to diagnose OAB, acontractile bladder, bladder-neck dysfunctions in children. Procedure performed in children between 0–17 years old can be stressful due to circumstances. A good diagnose depends on a correct execution of the videourodynamics. In order to prevent useless examination, specific actions can be performed beside a good understanding of the urodynamic technique.

### MATERIAL AND METHODS

Starting with a serene child only has advantages, to divert the child, a film is chosen with participation of the child. Size of catheter is chosen by the age of the child especially with boys. Children <12 years old CH6, 24 cm, and > 12 CH 7, 40 cm. Proper starting position and covered genitals can be helpful. Control of an empty bladder trough the urodynamic-catheter and proper fixation, leaving the meatus open. EMG fixated on the perineum, correct sitting posture to relax the muscles while voiding. Filling rate chosen by age to avoid unnecessary detrusoroveractivity and poor compliance. Knowledge of the pathology for a correct RX position to avoid unnecessary radiation. In traumatic patients we can use Kalinox or suprapubic lines.

## **RESULTS**

Taking into account all aforementioned steps, urodynamics can be successful performed in 90 % of the cases.

## **CONCLUSIONS**

A thorough videourodynamic evaluation starts with a proper preparation and placement of the leads, the radiographic device and a serene and quietly child. A proper therapy can be started.

# S1: FUNCTIONAL VOIDING DISORDERS 2

Moderators: Alexandra Vermandel (Belgium), Angela Downer (UK)

ESPU-Nurses Meeting on Thursday 25, April 2019,  
10:20–11:00

10:20–10:30

S1-1 (LO)

## IMPACT OF HYPNOSIS ON INTERMITTENT CATHETERIZATION AND URODYNAMIC STUDIES IN CHILDREN: A PRELIMINARY STUDY

Eliane JOSSET RAFFET, Lise NATIO, Marie Elise JEREMIE, Alaa ELGHONEIMI and Annabel PAYE JAOUEN

*Robert Debré University Hospital, AP-HP, University Paris Diderot. Centre de référence de Malformations Rares des voies Urinaires (MARVU), Paediatric Urology, Paris, FRANCE*

### PURPOSE

Clean Intermittent catheterization (CIC) and urodynamic studies (UDS) in children could be painful and stressful. Our objective was to assess the impact of hypnosis on acceptance and the realisation of the studies or the CIC.

### MATERIAL AND METHODS

The study was conducted prospectively in our centre between June 2016 and June 2018. Children needing CIC were included. Hypnosis sessions were coordinated by therapeutic education (TPE) team at the outpatient clinic. Children with Mitrofanoff, psychiatric trouble, not speaking English or French were excluded. For CIC: feasibility of the catheterization, number of hypnosis and TPE sessions, anxiety and pain (self or hetero assessment by digital scale) were collected at the first day, one week, one month and six months. For UDS, we assessed feasibility of the study, anxiety and pain, children had only one hypnosis session.

### RESULTS

31 children (9 girls, 22 boys) mean age 9 years (1–17) were included. 14 children had CIC, 57 % were anxious or painful on first session. At one month, CIC was done daily by 100 % of parents or children. Anxiety and pain disappeared in 92 % of patients. Six months later, no patient had pain. 17 patients had hypnosis session during UDS. The study was feasible for all. 35 % were anxious and 41 % had pain.

### CONCLUSIONS

Our preliminary study showed the feasibility of hypnosis in the daily practice of the outpatient clinic of pediatric urology. Hypnosis seems to improve the acceptance rate for CIC. UDS under hypnosis was also feasible. These results need to be validated compared to control groups. In our daily practice, its use is also extended to another indications.

10:30–10:40

S1-2 (LO)

## SELF-PERFORMANCE AND PERCEPTION IN CHILDREN WITH NOCTURNAL ENURESIS

Neeraj DIXIT<sup>1</sup>, Shridhar GHAGANE<sup>2</sup>, Namrata MISALE<sup>3</sup>, Mubashir ANAGOLKAR<sup>3</sup> and Rajendra NERLI<sup>1</sup>

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### PURPOSE

To study the self-performance and perception in children with Nocturnal Enuresis (NE) in the age group between (6 to 9 years).

### MATERIAL AND METHODS

School going children with (NE) between the age of 6 & 9 years were prospectively assessed for self-performance and perception. A detailed history was noted and all children were physically assessed. ESPQ (Early School Personality Questionnaire) test profile was performed in all the children.

### RESULTS

During the period Jan 2017 to Dec 2017, 260 school going children of the age (6 to 9 years) with NE were prospectively assessed using ESPQ test profile. Of the 13 paired parameters 64.74 % of the children were COOL, 94 % had concrete thinking, 97 % were affected by feelings, 91 % were dominant, 97 % were shy and 91 % were guilt prone. When gender differences were done 91 % of the males were warm as compared to 8 % in females. 58 % of the male were dominant as compared to 41 % of the females and 40 % of the males were guilt prone as compared to 60 % females.

### CONCLUSIONS

NE has negative effects on the self-image and performance on children. Perceived competence was lower in girls than in boys with enuresis, and it was significant than in the higher age than in lower. Children with day time and night-time incontinence have a significantly decreased competence on scholastic skills compared to children with nocturnal problems only.

## **SENS-U™: CONTINUOUS HOME MONITORING OF NOCTURNAL BLADDER FILLING IN CHILDREN WITH ENURESIS - A FEASIBILITY STUDY**

W.M.J. KWINTEN<sup>1</sup>, P.G. VAN LEUTEREN<sup>1</sup>, M. VAN DUREN - VAN IERSEL<sup>2</sup>, P. DIK<sup>1</sup> and P. JIRA<sup>2</sup>

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### **INTRODUCTION**

Enuresis is a common problem in school-age children; 5–10 % suffer from this condition. One of the treatment options is alarm therapy which uses a wetting alarm to teach pelvic floor contraction when incontinence occurs. However, a disadvantage of this approach is that the child is still awoken by wet sheets. Recently, a new, wearable ultrasonic bladder sensor became available, the SENS-U™ Bladder Sensor, which has the potential to prevent the enuretic event by waking up the child before the bladder is full. In this study, the aim is to perform a home-based evaluation of the SENS-U during the night in children with nocturnal enuresis.

### **PATIENTS AND METHODS**

In this study, 15 children (6–12 years) with monosymptomatic nocturnal enuresis were included for a monitoring session at home for one night. Before bedtime, the SENS-U was positioned by the researcher. During the night, the SENS-U estimated the filling status (i.e. every 30 s), while notifications were deactivated. In addition, urine volume was collected in a measurement cup (or diaper weight). The next morning, the SENS-U was removed by the researcher and SENS-U data was stored for off-line processing. The total number of measured nocturnal bladder filling cycles was analyzed by descriptive statistics.

### **PRELIMINARY RESULTS**

At this moment, 8 patients (boys/girls: 7/1) [mean age:  $8.4 \pm 1.3$  years, range: 7–11 years] are included in the study. The first results show that the SENS-U is able to monitor the changes in bladder size overnight, due to the increase of bladder volume. Next, none of the patients experienced any difference in their sleep habit's as result of wearing the SENS-U.

### **CONCLUSIONS**

Based on the first results, the SENS-U™ Bladder Sensor is a feasible approach for monitoring the nocturnal bladder filling. Future research will focus on investigating the response to receiving a full-bladder notification during the night.

10:50–11:00

S1-4 (LO)

## SOCIOECONOMIC AND FAMILIAL ASPECTS OF CHILDREN WITH BED WETTING

Neeraj DIXIT<sup>1</sup>, Shridhar GHAGANE<sup>1</sup>, Mubhashir ANAGOLKAR<sup>2</sup>, Veeresh B<sup>2</sup> and Rajendra NERLI<sup>1</sup>

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### PURPOSE

Enuresis is a health problem frequently encountered in childhood. This study was carried out to study the prevalence, socioeconomic and familial aspects of children presenting with Bed wetting (Nocturnal Enuresis) in Urban areas of South India.

### MATERIAL AND METHODS

The study included children (Age 6 to 10 years) presenting with symptoms of bed wetting. A detailed history included questions regarding socioeconomic status of the family.

### RESULTS

During the study period Jan 2017 till Dec 2018, a total of 405 school going children presented to the bed wetting clinic with complaint of nocturnal enuresis. 31 % of the children aged 7 years and 13.3 % were 8 year old. 33.3 % of the children were females and 66.7 % were male. 51.1 % of the children were the first born and 37.8 % were second born in the family. 44 % of the children had fathers who were educated upto secondary school level and the similar number were educated upto graduate level. 97.8 % of the fathers were working as compared to 22 % of the mothers. 46.7 % of the children came from nuclear families as compared to 51 % of the children from joint families. 62 % of the children had Nocturnal enuresis and 37 % of the children had both day and night time enuresis. 60 % of the children had enuresis daily. 13 % of the children also complaint of the constipation. 62 % of the children did not seek treatment previously. 57.8 % of the children performed well in school and 13.3 % performed poorly in school. 62 % of the parents felt that this problem brought extra financial burden and 51 % of the parent complained of stress in the family.

### CONCLUSIONS

Nocturnal enuresis is a source of stress, extra financial burden and a matter of hygiene to the family. There was no relation between education of the father, mother, working status of the parents, type of family with prevalence of bed wetting

# S2: LOWER URINARY TRACT

Moderators: Louiza Dale (UK), Helena Ekdahl (Sweden)

ESPU-Nurses Meeting on Thursday 25, April 2019,  
11:45–12:35

11:55–12:05

S2-1 (LO)

## A FEASIBILITY STUDY OF A UROFLOWMETER POTTY FOR TODDLERS

Lola BLADT<sup>1</sup>, Stefan DE WACHTER<sup>2</sup>, Alexandra VERMANDEL<sup>2</sup> and Gunter DE WIN<sup>2</sup>

1) Minze Health, Antwerp, BELGIUM - 2) Antwerp University Hospital, Department of Urology, Edegem, BELGIUM

### PURPOSE

Uroflowmetry is a simple and noninvasive test to evaluate lower urinary tract function. Since it requires voiding on command, the available data on pediatric uroflows –and especially toddlers- are scarce and varied. In addition, such tests can be affected by the unnatural hospital/study environment and by the lack of a proper posture on the big, currently available uroflowmeter seats. In this study, the feasibility of a novel uroflowmeter potty is assessed to obtain uroflows from toddlers.

### MATERIALS AND METHODS

Uroflowmetry studies with the novel potty were performed on 10 healthy toddlers (mean age 3 years, range 2–4 years, male: 7 female: 3) following their normal potty training routine. Voided volume, maximum flowrate ( $Q_{\max}$ ) and uroflowcurve shape were analysed. Additionally, different potty designs were evaluated on their ergonomics.

### RESULTS

20 uroflows were successfully recorded with a mean voided volume of 50.4 ml (SD 28.8 ml; range 10–147 ml) and a mean  $Q_{\max}$  of 7.8 ml/s (SD 3.0 ml/s; range 4–14 ml/s). Analysis of the curve shape showed 50 % bell-shaped, 30 % interrupted and 20 % plateau curves.

The design of the potty was optimized to enable a proper voiding posture – flat feet on the floor and horizontal pelvis position. An oval-shaped potty design (30x25 cm) with a 18 cm height was found most ergonomic and comfortable.

### CONCLUSIONS

The uroflowmeter design possibly influences representativeness of a child's void. The designed uroflowmeter potty is considered a comfortable and valuable tool to obtain uroflows in toddlers, enabling more research in pediatric uroflowmetry.

## PELVIC FLOOR REHABILITATION IN CHILDREN WITH FUNCTIONAL LUTD: DOES IT IMPROVE OUTCOME?

Anka NIEUWHOF-LEPPINK<sup>1</sup>, Frank-Jan VAN GEEN<sup>2</sup>, Elise M. VAN DE PUTTE<sup>3</sup>, Marja A.G.C. SCHOENMAKERS<sup>4</sup>, Tom. P.V.M DE JONG<sup>5</sup> and Renske SCHAPPIN<sup>6</sup>

1) *Wilhelmina Children's Hospital (Part of UMCU), Medical Psychology and Social Work, Urology, Utrecht, NETHERLANDS* - 2) *Wilhelmina Children's Hospital (Part of UMCU), Medical Psychology and Social Work, Urology, Utrecht, NETHERLANDS* - 3) *Wilhelmina Children's Hospital (Part of UMCU), Pediatrics, Utrecht, NETHERLANDS* - 4) *Wilhelmina Children's Hospital, (Part of UMCU), Physiotherapy, Utrecht, NETHERLANDS* - 5) *University Children's Hospitals UMC Utrecht and Amsterdam AMC, Pediatric Urology, Amsterdam, NETHERLANDS* - 6) *Wilhelmina Children's Hospital (Part of UMCU), Medical Psychology and Social Work, Utrecht, NETHERLANDS*

### PURPOSE

To date little is known about the clinical value of pelvic floor rehabilitation in the treatment of functional voiding disorders. Therefore, we studied the added value of pelvic floor rehabilitation by Biofeedback with Anal Balloon Expulsion (BABE) in the urotherapeutic treatment of standard therapy refractory children, with inadequate pelvic floor control and functional lower urinary tract dysfunction (LUTD).

### MATERIAL AND METHODS

A retrospective chart study was conducted on children who received an inpatient cognitive bladder-training program at our pediatric incontinence university clinic.

All consecutive patients that were referred by the urologist to the physical therapist and urotherapist between 2010–2016 were considered for inclusion. A total of 40 patients were eligible with 19 patients in the study group receiving additional pelvic floor rehabilitation by BABE prior to inpatient bladder-training and 21 patient in the control group receiving solely inpatient bladder-training. Main outcome measurement was inpatient bladder-training success, at three months after completion of training.

### RESULTS

Baseline characteristics demonstrate no major differences between our study and control group. Comparison of treatment outcome showed no statistically significant difference between the study and the control group (Fisher's exact test  $p=0.311$ ). From the 19 children that received additional pelvic floor rehabilitation by BABE, 15 (78.9 %) accomplished a good or improved training result compared to 13 (61.9 %) patients in the control group. Of the children that underwent additional pelvic floor rehabilitation by BABE, 11 (57.9 %) improved pelvic floor function.

### CONCLUSIONS

Children who underwent additional physical therapy, preparatory to inpatient bladder training, did not achieve a significant better training outcome than children who solely underwent inpatient bladder training. Rehabilitation of voluntary pelvic floor mobility by BABE did not influence the bladder training outcome in our institution. We conclude BABE has no additional effect on our bladder-training program.

12:15–12:25

S2-3 (LO)

## VARIABILITY OF UROFLOWMETRIES WITHIN CHILDREN

Sam TILBORGHES<sup>1</sup>, Stefan DE WACHTER<sup>1</sup>, Anna BAEL<sup>2</sup>, Karen DE BAETS<sup>1</sup> and Gunter DE WIN<sup>1</sup>

1) Antwerp University Hospital, Department of Urology, Edegem, BELGIUM - 2) Antwerp Hospital Network (ZNA), Queen Paola Children's Hospital, Antwerp, BELGIUM

### PURPOSE

Single measurement uroflows, obtained in an unnatural environment (hospital) often result in unreliable data, especially in children. The aim of this study is to assess the variability of uroflowmetries in children using Homeflow - a portable home-uroflowmeter, fitting on a normal toilet.

### MATERIAL AND METHODS

Multiple uroflows (177) were assessed in 11 children (boys/girls: 9/2; mean age: 10,36 +/- 5,15). The variability of the maximum flow rate (Qmax) and flow curve were analysed in relation to urge, time of the day and voided volume (Vvoid).

### RESULTS

We found individual ranges of the intra-subject Standard Deviation (SD) of multiple measurements of Qmax between 0,86 and 9,94 ml/sec. With a moderate intra-subject SD of 4 ml/sec, Qmax may vary by up to 12 ml/sec (3SD) due to random fluctuation alone. Variability in Qmax and flow curve shape could be dependent on time of day, urge and/or Vvoid. Qmax-Vvoid correlation of multiple uroflows in one individual are interesting to investigate and compare with conventional nomograms.

### CONCLUSIONS

There was a significant intra-variability in Qmax and flow curve with each successive void. Multiple measurements influence extreme values (either outliers or unrepresentative flows), counteracting the large potential error in a single measurement. Due to this variability, comparison between single in-clinic flows in an individual is less powerful – definitely, considering the psychological effects of the hospital environment on a child. Our results underline the clinical potential of Homeflow. The cohesion of depending factors determining Qmax, Vvoid, flowcurve and urge is complex and needs more research.

12:25–12:35

S2-4 (LO)

## BLADDER INSTILLATIONS WITH SODIUM CHONDROITIN SULFATE SOLUTION AND HYALURONIC ACID CAN BE EFFECTIVE AND SAFE TO TREAT RECURRENT UTIS IN CHILDREN

Katerina PRODROMOU<sup>1</sup>, Maria BOBADILLA<sup>2</sup>, Claire FERGUSON<sup>2</sup>, Helen Fiona MACANDREW<sup>2</sup> and Harriett CORBETT<sup>2</sup>

1) Alder Hey Children's Hospital, Paediatric Urology, Lancaster, UNITED KINGDOM - 2) Alderhey Children's Hospital, Liverpool, UNITED KINGDOM

### PURPOSE

Bladder instillations with Sodium Chondroitin Sulfate (SCS) and Hyaluronic Acid (IHA) are used to treat interstitial cystitis / painful bladder. Benefit is also reported in adults with recurrent urinary tract infections (UTIs) but data for this indication in children is lacking. We evaluate use of bladder instillations in children with recurrent UTIs.

### MATERIAL AND METHODS

Patients identified from specialist nurse records were studied retrospectively. Patients with neuro-pathic bladder or bladder pain alone were excluded.

The patients were divided into two groups: recurrent UTIs (group 1) and with UTIs with bladder pain (group 2). After 5 weekly bladder instillations of SCS or IHA, patients received monthly administrations. Complete response = UTI free, partial response = reduction in UTIs by more than 50 %.

### RESULTS

Nineteen girls (mean age 12 years) were treated with SCS or IHA between April 2015 and March 2018. Mean follow up from last instillation was 10 months (range 3–32). Fourteen received SCS, 4 IHA, one received both.

Group 1 (n=11), complete response in 6 (55 %) and partial in 2 (18 %), no response in 3 patients.

Group 2 (n=8), complete response in 6 (75 %) with no response in 2 patients.

In total, 63 % had a complete response and 11 % a partial response, with no difference between groups nor in the response to SCS vs IHA ( $p>0.05$ , Fishers Exact test). One patient experienced vulvovaginitis, there were no other complications.

### CONCLUSIONS

For selected children bladder instillations can safely resolve or reduce UTIs.

# S3: NEUROPATHIC BLADDER

Moderators: Babett Jatzkowski (Sweden), Anka Nieuwhof-Leppink (Netherlands)

ESPU-Nurses Meeting on Thursday 25, April 2019,

14:00–14:50

14:00–14:10

S3-1 (LO)

## OPTION FOR NON-SURGICAL TREATMENT OF STENOSIS IN CONTINENT CATHETERIZABLE CHANNELS

Laurence HERMSEN-HEILEMA<sup>1</sup>, Pieter DIK<sup>2</sup> and Ellen DE BRUJN-KEMPE<sup>2</sup>

1) *Wilhelmina Children's Hospital, University Medical Center, Pediatric urology, Utrecht, NETHERLANDS* - 2) *Wilhelmina children's hospital, University Medical Center Utrecht, Pediatric urology, Utrecht, NETHERLANDS*

### PURPOSE

Introduction: Children with bladder dysfunction as in neurogenic disorder or bladder exstrophy often have to perform Clean Intermittent Catheterization (CIC). If urethral catheterization isn't possible or desirable, creating a continent catheterizable channel (CCC) can be a good option. A retrospective study done in 2017 in our centre describes the longterm follow-up of different CCC's in children (n=112). It showed e.g. that in 33 % of the patients with a CCC, surgical revision was required because of stenosis.

Purpose is a treatment of stoma-stenosis in a conservative way in order to prevent or to postpone surgical intervention based on best practice.

### MATERIAL AND METHODS

Several children with problems of CIC related to stenosis were treated. When dilatation with the aid of catheters in different sizes doesn't work the CCC was carefully dilated with McCrea probes in different sizes, beginning with the smallest one. If succeeded the patient received an indwelling, small size catheter without coating for one week. A week later the whole procedure was repeated, with an indwelling catheter of bigger size for another week. After three weeks the channel is ready again for CIC. The usage of Clobetasol twice a day on the tip of the catheter or on the corstop is recommended during the first two weeks from the restart of CIC.

### RESULTS

Non-surgical treatment of stenosis was working well in most of the treated children. In some cases it was a temporal solution for several months and surgical treatment was still needed.

### CONCLUSIONS

If you take time and be patient, it takes sense to solve the stenosis in a conservative way.

## COMPLICATIONS AND PATIENT SATISFACTION WITH URETHRAL CLEAN INTERMITTENT CATHETERIZATION IN SPINA BIFIDA PATIENTS: COMPARING COATED VS. UNCOATED CATHETERS

Tariq BURKI<sup>1</sup>, Abdelazim ABASHER<sup>1</sup>, Ahlam ALSHAHRANI<sup>2</sup>, Abdul Wahab AL HAMS<sup>1</sup>, Hanan IBRAHIM<sup>1</sup>, Fayez AL MODHEN<sup>2</sup>, Yasser JAMAL ALLAIL<sup>2</sup> and Ahmed AL SHAMMARI<sup>2</sup>

1) King Abdullah Specialized Children Hospital, King Abdula Aziz Medical City, NGH, Riyadh, Pediatric Urology, Riyadh, SAUDI ARABIA - 2) King Abdullah Specialized Children Hospital, King Abdula Aziz Medical City, NGH, Riyadh, Riyadh, SAUDI ARABIA

### PURPOSE

To assess complications and patient's preference in spina bifida children on CIC comparing coated vs uncoated catheters.

### MATERIAL AND METHODS

We retrospective analyzed spina bifida children (age 0–16 years), who were on urethral CIC for at least  $\geq 6$  months and had no prior bladder surgery. Ethical committee approval was taken. Information was obtained from electronic patient record and telephonic/outpatient interview. Patients were divided into uncoated (UCC) or coated hydrophilic (HCC) catheters using groups. Both groups were exposed to use catheter from other group for variable period when supplies were short. We recorded type/size of the catheter used, duration of use, person performing CIC, complications e.g. UTIs, pain/discomfort, trauma, stones, epididymitis etc. Patients satisfaction was recorded on a scale of 1–10 with their routine catheter used and their preferred catheter if they have choice. P value of  $<0.05$  was considered significant using SPSS for data analysis.

### RESULTS

There were 131 patients, 53 using UCC and 48 using HCC. There was no significant difference between any variable like age, gender, duration of CIC etc. Data analysis showed – mean time to perform CIC UCC 9.7 min (R 3–25) vs HCC 8.8 minutes (R 4–20), discomfort/pain 8(15%) UCC vs 4(8.3%) HCC ( $P=0.16$ ), recurrent UTIs 12(22.6%) UCC vs 17(35.4%) HCC ( $P=0.09$ ), median patient satisfaction UCC 8/10(3–10) vs HCC 10/10(7–10),  $P=0.63$ . When given a choice, 28/53(52.8%) in UCC and none(0%) in HCC group ( $P=<0.0001$ ) preferred to change to the other type of catheter, mainly due to convenience of use of the product. Per year cost of UCC is US\$ 389 vs HCC US\$ 2820/patient which is 7 times costlier.

### CONCLUSIONS

There is no significant difference in complications rate in patients using either UCC or HCC. The patients prefer to use HCC when given a choice mainly for convenience of use of the product but it is seven times costlier than UCC.

14:20–14:30

S3-3 (LO)

## MICTURITION REEDUCATION IN CHILDREN WITH CEREBRAL PALSY

Bieke SAMIJN<sup>1</sup>, Christine VAN DEN BROECK<sup>2</sup>, Frank PLASSCHAERT<sup>3</sup>, Ellen DESCHEPPER<sup>2</sup>, Piet HOEBEKE<sup>3</sup> and Erik VAN LAECKE<sup>3</sup>

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### INTRODUCTION

Urinary incontinence is the most frequently observed lower urinary tract symptom in children with cerebral palsy (CP). The objective of the study was to investigate the effectiveness of urotherapy in children with CP. Being continent can positively influence quality of life and health status of the child.

### MATERIAL AND METHODS

A prospective case-control study including 21 urinary incontinent children with cerebral palsy and 24 typically developing children with urinary incontinence was conducted between 2014 and 2018. Children received treatment for one year with three-monthly examination. Treatment was individualized to every patient. Children started with three months of standard urotherapy. Every three months treatment was adapted to primary problems and pharmacotherapy and/or specific interventions could be added to the initial treatment strategy. Time-effects were analyzed by means of multilevel modeling.

### RESULTS

Seven children with CP became dry during the day and 5 children became dry during the night. Significant time-effects ( $p < 0.05$ ) in children with CP were found with a higher voided volume, lower frequency of daytime incontinence, lower amount of urine loss, lower frequency of enuresis, less lower urinary tract symptoms, better micturition pattern and less fecal incontinence after training. In general, results demonstrate effectivity rate of urotherapy is lower and changes occur slower in time in children with CP compared to typically developing children.

### CONCLUSIONS

Urotherapy can be an effective long-term treatment for urinary incontinence in children with CP. Therapy should be multidisciplinary, individually adapted to child and feasible for the child and social environment.

14:30–14:40

S3-4 (LO)

## VOLUME-DEPENDENT CATHETERIZATION WITH A WEARABLE ULTRASONIC BLADDER SENSOR – A FEASIBILITY STUDY

G DE WIN<sup>1</sup>, S EERENS<sup>2</sup>, K DE BAETS<sup>1</sup> and Paul VAN LEUTEREN<sup>3</sup>

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### PURPOSE

Time-dependent intermittent catheterization (TDIC) is an established method for voiding regulation in patients who are not able to empty their bladder properly. However, literature suggests that volume-dependent intermittent catheterization (VDIC) may be beneficial by avoiding unnecessary catheterizations (i.e. relatively empty bladder) and preventing urinary leakage (i.e. bladder over-filling). Recently, a new, wearable ultrasonic bladder sensor became available, the SENS-U™ Bladder Sensor. The SENS-U is a small, wearable ultrasound sensor, which continuously monitors the bladder filling and provides a personalized notification when the bladder is almost full. The aim of this study is to evaluate the clinical and economic feasibility of the SENS-U in VDIC in children with a neurogenic bladder, compared to TDIC.

### PATIENTS AND METHODS

We are currently including 15 children (6–12 years) with a neurogenic bladder who are on a TDIC program. The patients are submitted for a two week protocol; one week of TDIC, followed by one week of VDIC using the SENS-U (personalized notification threshold based on maximum bladder capacity). During the program, the patient keeps a voiding diary, recording fluid intake, catheterization attempts, urinary volume and periods of incontinence. The protocol starts and ends by quality of life questionnaire.

### PRELIMINARY RESULTS

The study is on-going. Based on a first case report, the SENS-U allowed the patient to stay dry during the period of use and reduce the number of catheterizations (similar volumes), compared to TDIC. In addition, this patient reported satisfaction due to the appropriateness of catheterization and the degrees of freedom he experienced while wearing the SENS-U (i.e. going to school, no monitoring of fluid-intake).

### CONCLUSIONS

Preliminary results suggest that the SENS-U is a feasible approach to assist in volume-dependent intermittent catheterization by monitoring the bladder filling and providing a personalized notification when the bladder is almost full.

14:40–14:50

S3-5 (LO)

## TRANSANAL IRRIGATION EFFECTIVENESS IN THE MANAGEMENT OF NEUROGENIC BOWEL DYSFUNCTION: IS A CAREFUL FOLLOW-UP USEFUL?

Giovanni MOSIELLO<sup>1</sup>, Ludy LOPES DE CONCEICAO<sup>1</sup>, Francesca MUSCIAGNA<sup>1</sup>, Elena BERNARDI<sup>1</sup>, Francesca DEL CONTE<sup>1</sup>, Maria Luisa CAPITANUCCI<sup>1</sup>, Antonio ZACCARA<sup>1</sup>, Alberto LAIS<sup>1</sup>, Barbara Daniela IACOBELLI<sup>2</sup> and Giuseppina DI SERIO<sup>1</sup>

1) Bambino Gesù' Pediatric Hospital, Urology-Neuro-Urology, Rome, ITALY - 2) Bambino Gesù' Pediatric Hospital, Surgery, Rome, ITALY

### PURPOSE

Today is evident that the continence management of children with spina bifida (SB) or spinal cord injury (SCI) must be a complete management of both neurogenic bladder and bowel dysfunction (NBBB). Transanal irrigation (TAI) has been successfully reintroduced in the past years for the management of bowel dysfunction. Actually TAI is considered the first line treatment, before more invasive procedure as sacral neuromodulation or Malone. TAI effectiveness has been related to a correct training and a careful follow-up. aim of our study is to investigate retrospectively the success of TAI on a long-term follow-up.

### MATERIAL AND METHODS

From January 2009 to december 2016, 70 patients, aged 3–17 years, have been treated with TAI, using Peristeen system, Coloplast Denmark, according a defined protocol approved by our Scientific/ethical Committee. All patients presented a bowel dysfunction due to: anorectal malformation (ARM) 16, SB 18, SCI 9, other causes of NBBB 4. 53 patients are in follow-up in our center, while 17 were only trained to a correct use of TAI. TAI training have been performed in a 3 days module, where first irrigation have been always performed by our specialist nurse team, while the second one by the caregiver, in inpatient regimen. Patients have been evaluated using a 10 domains questionnaire, on bowel function, satisfaction, QoL (CHQ and SF 36). Data were evaluated by statistician.

### RESULTS

About 70 patients, 6 refused to participate to the study, 17 are actually in treatment in other Institutions, while 47 are in follow-up in our center. TAI has been performed for 2,5–10 years, mean 4 years. About our series 35/47 patients are still in treatment. Evaluating the questionnaires and the scores 29/35 are highly satisfied, and 27 reported an high effectiveness of bowel function.

### CONCLUSIONS

TAI is safe and effective in the treatment of bowel dysfunction on long-term. A correct training and a careful follow-up seem to be important for increasing success and reduce drop-out.

# S4: MISCELLANEOUS

Moderators: Jens Larsson (Sweden), Hanny Cobussen (Netherlands)

**ESPU-Nurses Meeting on Friday 26, April 2019, 09:35–10:35**

09:35–09:45

S4-1 (LO)

## **NURSING CARE AFTER CONGENITAL ADRENAL HYPERPLASIA (CAH) SURGERY: A RETROSPECTIVE EVALUATION OF 28 CASES**

Mathilde BRANDAO DOS SANTOS, Fatiha BACHIR, Marion GOUJET, Marie-Flore LECOINTRE, Chloé FIX, Tatiana BERNA, Marion BOUCAUD MAITRE, Marine GRONLIER, Anne-Claire BOUVIER, Daniela GORDUZA and Pierre MOURIQUAND

*Hospices Civils de Lyon- Hopital Femme Mere Enfants, Service Urologie Pédiatrique, Bron Cedex, FRANCE*

### **PURPOSE**

To describe and evaluate a post-operative nursing care for genital surgery in CAH patients.

### **MATERIAL AND METHODS**

Twenty eight patients with CAH, whose average age was 6 months, were submitted to genital reconstruction between 2008 and 2018 including: vaginoplasty, clitoral reduction for some and perineoplasty. All patients had a mermaid immobilization of the legs keeping a good access to the wound. A CH8 Foley bladder catheter was left in place for 10 days. Nursing care using aqueous chlorhexidine and saline was repeated 4 times daily. Antibiotic prophylaxis with Trimethoprim was maintained for 10 post-operative days.

### **RESULTS**

All patients achieved a complete healing of the wound although a short dehiscence of the tip of the labia major was common, but without late consequences. Mid-term and late outcome was evaluated in all cases.

### **CONCLUSIONS**

Informing parents on the current managements of CAH and accompany parents through this critical period with a team of paediatric nurses experienced in genital surgery along with a multidisciplinary medical team, is one essential part of this post-operative follow-up.

## EFFECT OF CASTOR OIL AND PENILE PUMP ON COMPLICATION RATES IN CHILDREN UNDERGOING TWO-STAGE HYPOSPADIAS SURGERY

Halil TUĞTEPE<sup>1</sup>, Arzu CANMEMİŞ<sup>1</sup>, Ahsen KARAGÖZLÜ AKGÜL<sup>1</sup>, Zeynep ÇALIKLI<sup>2</sup>, Nicat VALIYEV<sup>2</sup>, Tülay GÜRAN<sup>3</sup>, Abdullah BEREKET<sup>3</sup> and Tolga DAĞLI<sup>2</sup>

1) Marmara Pendik eğitim araştırma, Department of Paediatric Surgery-Division of Paediatric Urology, Istanbul, TURKEY - 2) Marmara Pendik eğitim araştırma, Department of Paediatric Surgery, Istanbul, TURKEY - 3) Marmara Pendik eğitim araştırma, Department of Paediatrics, Division of Paediatric Endocrinology, Istanbul, TURKEY

### PURPOSE

Two-staged free preputial graft has recently increased in popularity for use in severe hypospadias repair. In this study, the aim was to evaluate the effect on complications of using castor oil and penile pump after 1<sup>st</sup> stage of two-stage repair with free preputial graft.

### MATERIAL AND METHODS

Patients undergoing two-stage hypospadias repair between April 2013 and August 2018 were included in the study prospectively. In the study group, 14 days after 1<sup>st</sup> stage, castor oil was applied on the graft 3 times a day until 2<sup>nd</sup> stage in addition to use of penile pump. castor oil and pump was not used in the control group. Complications were compared between the two groups and Odds ratio was calculated.

### RESULTS

There were 30 patients in study group and 21 patients in control group. The average age in study group at 1<sup>st</sup> and 2<sup>nd</sup> stage was 21.7 months and 28.7 months, and in control group 31.3 months and 39 months respectively. There were 3 patients with midshaft, 27 with penoscrotal, 18 with scrotal and 2 with perineal hypospadias. There was no statistical difference between ages, follow up times and hypospadias types between the two groups. Complications were seen in 11 patients (55 %) in the control and 8 patients (26.6 %) in the study group ( $p=0.07$ ). Use of Indian Oil and penile pump had an Odds ratio of 0.38 (%95 CI 0.10–1.35).

### CONCLUSIONS

Use of castor oil and penile pump in patients undergoing two-staged hypospadias repair reduces the complication rates and protects from complications but this outcome did not reach statistical significance. Further studies with larger population are required.

## THE IMPACT OF URINARY DIVERSION ON OUTCOMES IN PEDIATRIC RENAL TRANSPLANTATION PATIENTS WITH POSTERIOR URETHRAL VALVES

Mandy RICKARD<sup>1</sup>, Fadi ZUBI<sup>2</sup>, Martin KOYLE<sup>2</sup>, Armando LORENZO<sup>2</sup> and Walid FARHAT<sup>2</sup>

1) The Hospital for Sick Children, Division of Urology, Toronto, CANADA - 2) The Hospital for Sick Children, Toronto, CANADA

### PURPOSE

Up to one third of patients with posterior urethral valves (PUV) will require a renal transplant (RT), however bladder function may be unpredictable. Assuring bladder drainage via a continent catheterizable (Mitrofanoff) channel may be indicated. Herein we review our series of patients with PUV and RT, comparing those with and without a Mitrofanoff.

### MATERIAL AND METHODS

We reviewed our transplant database and extracted PUV patients (n=37) from 1995–2018, excluding 15 who underwent RT at our institution but were followed elsewhere. Variables included: late (>6 m) vs. early presentation, symptomatic presentation (SP) (after urinary tract infection [UTI]), management of PUV, incontinence, UTIs, dialysis, donor type, and Mitrofanoff. Posttransplant variables included graft function, eGFR, creatinine, incontinence and UTIs.

### RESULTS

Most children (77 %) had an early/prenatal diagnosis and 23 % a SP. Most (59 %) were managed with ablation, 15 % vesicostomy and 27 % with ablation + vesicostomy. Follow up was 63+/-45 months, 36 % developed a pretransplant UTI and 14 % had incontinence. Mitrofanoff was performed in 38 %, all prior to RT and 22 % had an augmentation. When patients were divided into those with vs. without Mitrofanoff, we found significantly more SP children developed UTI and had a Mitrofanoff (67 %) vs. 15 % of prenatal patients (p=0.03), however there was no difference in posttransplant UTIs (Table 1).

	Mitrofanoff (n=9)	No Mitrofanoff (n=13)	p value
Age (years)	12 +/- 4	9 +/- 6	.30
BSA	1.19 +/- 0.30	1.08 +/- 0.46	.52
PUV management			
Ablation	4 (44)	9 (70)	.32
Vesicostomy	1 (12)	2 (15)	
Ablation+vesicostomy	4 (44)	2 (15)	
LateDx	3 (33)	2 (15)	.61
SP	6 (67)	2 (15)	.03
PreTx UTI	6 (67)	2 (15)	.03
PostTx UTI	4 (44)	1 (8)	.12
Dialysis	5 (56)	7 (54)	1.00

### CONCLUSIONS

More PUV patients with SP required Mitrofanoff regardless of age at presentation, however post-transplant outcomes were the same. This finding may suggest that symptom development prior to diagnosis may have a more detrimental effect on bladder function.

10:05–10:15

S4-4 (LO)

## COMMUNICATION ABOUT SEXUAL HEALTH IN RADBOUD AMALIA UNIVERSITY CHILDREN'S HOSPITAL

Jacqueline KNOLL, Karen KWAK, Barabara KORTMANN and Wout FEITZ

*University hospital Radboud, Pediatric Urology, Nijmegen, NETHERLANDS*

### PURPOSE

The aim of our project was to describe the current situation concerning communication with youngsters with a chronic disorder about sexual health (SH) and to study how it can be improved

### MATERIAL AND METHODS

Qualitative research; data were collected by:

1. Online focus groups with youngsters and parents
2. Interviews with healthcare professionals (HP) in our and other Dutch hospitals, online questionnaires for pediatric nurses and nurse practitioners
3. Literature review

### RESULTS

#### Youngsters and parents:

Both have the need to communicate and to receive information about SH in relation to the chronic disorder. They don't receive information about SH on a regular base. They search on the internet, but there is less information available of SH in relation to the disorder. They expect that the HP will take the initiative, both don't feel comfortable to initiate a conversation on the subject. Parents are aware of the influence of a chronic disorder on SH, but they find medical issues more important to discuss.

#### Healthcare professionals:

HC are aware that there's a need to talk about SH, but don't discuss it on a regular base. They like to pay more attention, but some find it a taboo, feel uncomfortable and irresponsible to discuss it and some are not always aware of the expectations of youngsters and parents.

### CONCLUSIONS

Youngsters with a chronic disorder have the need to discuss SH and parents and HP's are aware of it, but there appear to be obstructing factors for implementation of regular communication about SH. Tools are needed to resolve these factors.

10:15–10:25

S4-5 (LO)

## CAN THE GASTROCOLIC REFLEX FACILITATE TOILET TRAINING FOR STOOL IN DIAPER DEPENDENT TODDLERS?

Tinne VAN AGGELPOEL<sup>1</sup>, Hedwig NEELS<sup>1</sup>, Stefan DE WACHTER<sup>2</sup> and Alexandra VERMANDEL<sup>1</sup>

1) *University Hospital Antwerp, Urology - Pelvic Floor Physiotherapy, Edegem, BELGIUM* - 2) *University Hospital Antwerp, Urology, Edegem, BELGIUM*

### PURPOSE

The aim of this study was to make use of the gastrocolic reflex in toddlers to facilitate defecation on the potty.

### MATERIAL AND METHODS

Parents signed an informed consent and filled in a questionnaire about the health of the child and the progress of toilet training. During two weeks, once a day, parents were asked to let their toddler sit on a potty for 15 minutes after a randomly chosen meal.

### RESULTS

29 toddlers (18 boys and 11 girls) participated, with a mean age of 24 months (SD=4). Parents tried on average 12 days to keep their child on the potty. Defecation happened on average 13 minutes after the meal (SD=8). All the attempts considered, only 41 % (n=12) of the children defecated on the potty, on average 3 times (SD=2,0). If a child had already defecated earlier that day, a significant relation with 'not making stool' during the attempt on the potty was found ( $p=0,032$ ). The most frequent shape of the feces was Bristol stool scale type 4. The odds of defecating were 0,45 less if the child was tested after dinner compared to breakfast and lunch.

### CONCLUSIONS

Training the child after breakfast increases the chances of defecating on the potty. It is recommended to put the child 5 to 20 minutes after the meal on the potty in order to use the gastrocolic reflex. Introducing the potty to the child at an earlier age could facilitate the toilet training process for stool, but the moment of training needs to be chosen according to the moment that their child defecates mostly, not when parents have time. Testing the toddler after breakfast was favourable. Parents must be educated that eating or drinking could provoke the gastrocolic response in some toddlers and be informed about stool withholding behaviour, stool toileting refusal and functional constipation so toilet training can proceed smoothly.

10:25–10:35

S4-6 (LO)

## CELL PHONE CAMERA URINE COLORIMETRIC ANALYSIS TO ESTIMATE HYDRATION STATUS: PILOT STUDY OF A POTENTIAL INEXPENSIVE, WIDELY AVAILABLE, ON-DEMAND TOOL

Mandy RICKARD<sup>1</sup>, Jessica HANNICK<sup>2</sup>, Darius BAGLI<sup>1</sup>, Anne-Sophie BLAIS<sup>1</sup>, Kristine TOMCZYK<sup>1</sup> and Armando LORENZO<sup>1</sup>

1) *The Hospital for Sick Children, Urology, Toronto, CANADA* - 2) *McMaster University, Surgery, Hamilton, CANADA*

### PURPOSE

Increased fluid intake has been shown to have a prophylactic effect against recurrent urine infections. In the pediatric population, however, it is difficult to measure and enforce adequate hydration. Herein we present pilot data using cell phone technology to assess pediatric hydration status.

### MATERIAL AND METHODS

Random urine samples (n=12) obtained in a pediatric urology clinic from healthy individuals were placed in identical sterile containers. Equal volumes were photographed with a 12MP f/1.8 aperture 28 mm camera at a standardized distance with a white background. RGB values were captured with a free app (BoxColor) in triplicate and converted to CIELAB color space values ([www.nixsensor.com](http://www.nixsensor.com)). Color difference (dE) between samples and reference (water) were calculated based on the 2000 International Commission on Illumination formula ([brucelindbloom.com](http://brucelindbloom.com)). Values were correlated with specific gravity (SG) determined by dipstick (Clinitek-50).

### RESULTS

Sample specific gravity ranged 1005–1025, with minimal variation on repeat measures (equal RGB and CIELAB values). There was a strong positive correlation between SG and dE (correlation coefficient = 0.95). When compared to water, dE values were lowest with dilute urine (0.37–2.58; SG=1005) and largest with concentrated specimens (22–24.1; SG=1025). Average sample analysis took 57 seconds.

### CONCLUSIONS

The use of free, widely-available software may allow health care providers and patients to employ cell phones to analyze body fluids for specific goals. This pilot study provides evidence that urine colorimetric assessment correlates with SG, which can be used as a surrogate for hydration status. If independently confirmed, these findings may generate innovative options to target recurrent infections in children.

# S5: CASE REPORTS

Moderators: Karen Kwak (Netherlands), Lynne Bartlett (UK)

**ESPU-Nurses Meeting on Friday 26, April 2019, 11:00–11:20**

**11:00–11:10**

**S5-1 (LO)**

## **SUCCESSFUL EXSTROPHY SURGERY ON ADOLESCENT SOMALIAN GIRL**

Babett JATZKOWSKI<sup>1</sup> and Gillian BARKER<sup>2</sup>

*1) Akademiska Barnsjukhuset Uppsala, Pediatric urology, Uppsala, SWEDEN - 2) Uppsala Akademiska Barnsjukhus, Pediatric urology, Uppsala, SWEDEN*

### **BACKGROUND**

We present a rare case of successful and complication free surgery on an adolescent girl with bladder exstrophy from Somalia. The patient did not receive any treatment in her home country and was kept hidden from others by her family. The family came to Sweden in 2014 as refugees.

### **PATIENT AND METHODS**

A now 18 year old girl with bladder exstrophy from Somalia. The patient was uncircumcised, probably because of smaller defect in clitoris area, with normal labia. She underwent surgery for bladder exstrophy in 2014 at Uppsala University Hospital at the age of 14. Due to very small bladder capacity, the patient underwent bladder augmentation with a Mitrofanoff channel in 2015. She also suffered from cervix prolapse and received surgery (sacrospinous fixation).

### **OUTCOME**

The now 18 year old girl lives a relatively normal life in Sweden. Although surgery was performed late, the patient has very few complications and a well functioning bladder without leakage. She attends school and has a normal social life.

### **CONCLUSION**

Even though exstrophy surgery in Sweden is normally carried out in infancy at an age of 4 to 6 weeks, this report presents a case of successful surgery in a girl at 14 years of age with very few complications and excellent outcome.

**11:10–11:20**

**S5-2 (LO)**

## **HOW DO WE TREAT STRESS INCONTINENCE IN GIRLS AND YOUNG WOMEN INDUCED BY PHYSICAL ACTIVITY? – A CASE REPORT**

Charlotte ARFWIDSSON

*The queen Silvia Children Hospital, Paediatric, Goteborg, SWEDEN*

### **BACKGROUND**

Physical activity is important for the health and well-being. But, exercise that stresses the pelvic floor muscles can lead to incontinence also in young women, where stress incontinence otherwise is unusual. We want to highlight this in a case report.

**PATIENT**

A healthy 14-year-old girl is referred from the gynecology department. In the last two years, she has been suffering from urine incontinence in conjunction with gymnastics training. She also leaks during other physical effort. The problems increased when she started training with jump on the trampoline.

**Investigations**

Gynecological examination and uro-neurological status were normal. In repeated visits at the urotherapy unit the uroflowmetry and residual measurements were normal. Cystometry showed no signs of overactive bladder.

**Treatments**

Micturition advises were given together with information about the function of the pelvic floor. Biofeedback was performed and instructions were given to continue exercise of the pelvic floor at home. Anticholinergics resulted in increased incontinence. Use of tampon gave minor effect. A vaginal aid was proposed, which reduced the incontinence to a certain extent. Referral was sent to a physiotherapist to continue pelvic floor training.

**DISCUSSION**

As it is not appropriate to operate young women with stress incontinence who has not given birth, we wish to start a discussion on how to best help young women with incontinence due to physical activities.

# S6: POSTERS SESSION

ESPU-Nurses Meeting on Friday 26, April 2019, 11:20–11:50

11:20–11:27

S6-1 (PP)

## SHOULD UPPER LIP GRAFT (ULG) BE THE FIRST OPTION FOR REDO HYPOSPADIAS IN CHILDREN?

Tariq Osman ABBAS, A ELKADHI, Bruno LESLIE, Santiago VALLASCIANI and Joao PIPPI SALLE

*Sidra Medicine, Urology, Doha, QATAR*

### PURPOSE

Buccal mucosa from Lower lip and cheek are commonly used for urethroplasty. In recent years, aiming to improve the donor site morbidity our preference has changed to the use of Upper Lip Graft (ULG). The aim of our study is to evaluate the oral outcomes of ULG.

### MATERIAL AND METHODS

Prospectively non validated questionnaires were administered during clinic visits to parents of 24 patients who underwent ULG between January, 2016 and August, 2018 in order to assess the short and mid-term of ULG donor site outcomes. All grafts were taken from one side of the upper lip (sparing the frenulum), defatted and then applied over the recipient site with the standard technique. No specific oral antiseptics/analgesics were applied. Demographic data and morbidity of ULG harvest, including oral pain, sensation and intake and donor site contraction were assessed postoperatively.

### RESULTS

Answers of 24 boys' families with a median age of 19 months (range 8–42) related to 25 ULG were analyzed with a mean followup of 14 months. One patient had local pain for more than 12 hours. All others resumed normal diet within 48 hours. None developed perioral numbness, difficulty with mouth opening, contraction or abnormal salivation. Donor site showed full mucosal regeneration in all patients within 3 weeks and neither local contraction nor ulceration.

### CONCLUSIONS

ULG harvest is well tolerated and most patients resume normal diet shortly after surgery. As no oral complications were observed and thin suitable grafts were obtained, we suggest ULG as a first option in cases of distal urethral complications.

11:27–11:34

S6-2 (PP)

## POSTERIOR URETHRAL VALVES IN PATIENTS WITH TRISOMY 21: A FREQUENT ASSOCIATION WITH DIVERSE PRESENTATION

Harriet CORBETT<sup>1</sup>, Charlotte KANE<sup>2</sup>, Anna-May LONG<sup>2</sup> and Helen Fiona MCANDREW<sup>1</sup>

1) Alder Hey Children's NHS Foundation Trust, Regional Department of Urology, Liverpool, UNITED KINGDOM -

2) Alder Hey Children's NHS Foundation Trust, Department of Surgery, Liverpool, UNITED KINGDOM

### PURPOSE

The UK live-birth prevalence of Posterior Urethral Valves (PUV) was recently estimated at 2.84/10,000 boys with 35 % detected antenatally. Between 1998 and 2013 the live-birth prevalence of Trisomy 21(T21) in England and Wales was 10.4/10,000 [95 % CI: 10.2–10.6]. We review the incidence and presentation of T21 among our PUV population.

### MATERIAL AND METHODS

Hospital coding data was used to identify boys with PUV and T21 presenting to a single institution between January 2000 and September 2018. Medical records were reviewed.

### RESULTS

Of 186 boys with PUV, seven had T21, (3.8 % [95 % CI 1.5–7.6 %]). Notes were unavailable for one. Two had antenatal hydronephrosis. One of these had post-natal respiratory distress requiring ventilation and PUV was suspected from birth. The other had unilateral hydronephrosis and developed urosepsis at two-months leading to diagnosis of PUV. Four boys presented postnatally. One infant with congenital cardiac disease and IUGR required neonatal intensive care. PUV was diagnosed due to poor renal function at one week (creatinine >400). Three boys presented late; two with poor bladder function at seven and ten years and one with haematuria secondary to UTI at 15 years.

### CONCLUSIONS

We note a high proportion of boys with PUV and T21 in our population. Their presentation is varied and clinicians should consider early investigation for valves in boys with T21 who present with urinary tract symptoms.

## EFFECTS OF A 2-STEP MOBILE APPLICATION PROGRAM ON SELF-MANAGEMENT AND QUALITY OF LIFE OF CHILDREN WITH SPINA BIFIDA

Eun Kyoung CHOI<sup>1</sup>, Eunjeong BAE<sup>2</sup>, Eunyoung JUNG<sup>2</sup>, Yong Ju LEE<sup>3</sup>, Yoonhye JI<sup>4</sup> and Sang Won HAN<sup>5</sup>

1) Yonsei University, College of Nursing, Seoul, REPUBLIC OF KOREA - 2) Yonsei University Graduate School, Department of Nursing, Seoul, REPUBLIC OF KOREA - 3) Hallym University, Kangnam Sacred Heart Hospital, Department of Pediatrics, Seoul, REPUBLIC OF KOREA - 4) Severance Children's Hospital, Yonsei University Health System, Department of Pediatric Urology, Seoul, REPUBLIC OF KOREA - 5) Yonsei University College of Medicine, Department of Urology and Urological Science Institute, Seoul, REPUBLIC OF KOREA

### PURPOSE

Children with spina bifida (SB) who spend most of their time at school should be able to perform self-management behaviours independently. Mobile applications could be effectively used for that purpose. The aim of this study was to evaluate the effects of the mobile application program on self-management and health related quality of life (HRQOL) of children with SB.

### MATERIAL AND METHODS

This quasi-experimental study was conducted on school-aged children with SB. Both experimental and control group (n=24) went through the half-day integrative educational program (IEP). The experimental group participated in the mobile application program which had been developed at our previous study, 4 weeks additionally. They were assessed at baseline and 1, 5, and 9 weeks after IEP completion. Outcomes were assessed through children's self-management behaviour and HRQOL estimated by their parents.

### RESULTS

In the experimental group, 99.1 % of the participants completed the 4-week mobile application program. Their satisfaction with mobile application was rated with 4, while 5 was the highest rank. Experimental and control groups had the same group assignments. Self-management behaviours and HRQOL were increased after intervention, interactions between groups and time did not differ significantly.

### CONCLUSIONS

This was the first study that used combination of IEP and mobile application to foster self-management behaviours of children with SB. Adherence to the mobile application of the children was high for an intensive mHealth intervention. However, short-term effectiveness could not be demonstrated. Additional clinical trials are needed, which include large samples and examination of short-term and long-term effects.

## A LOWER D2/D4 DIGIT RATIO AND SCROTAL BASE DISTANCE IN MALE INFANTS WITH HYPOSPADIAS AND/OR CRYPTORCHIDISM THAN NORMAL BOYS

Tariq Osman ABBAS<sup>1</sup>, A ELKADHI<sup>2</sup> and Joao PIPPI SALLE<sup>3</sup>

1) Hamad General Hospital, Pediatric Surgery, Doha, QATAR - 2) Hamad Medical Corporation, Pediatric Surgery, Doha, QATAR - 3) Sidra Medicine, Urology, Doha, QATAR

### PURPOSE

In humans, the ratio of the index finger to the ring finger is sexually dimorphic, as the mean ratio was found to be shorter in men than in women. It has been suggested that this difference is related to prenatal androgen exposure in men. This has been also demonstrated in children with severe hypospadias and congenital adrenal hyperplasia. We have shown previously that scrotal base distance is lower in patients with Hypospadias and undescended testes. We therefore aimed to determine if the 2D:4D digit ratio was correlating with scrotal base distance (SBD) in this group of patients.

### MATERIAL AND METHODS

We prospectively enrolled prepubertal patients with cryptorchidism or hypospadias between September 2016 and January 2018. We then compared their D2:D4 digit ratio with SBD in two control groups made up of normal boys and with Hypospadias or undescended testes.

### RESULTS

57 boys with hypospadias or cryptorchidism, 79 boys undergoing circumcision we included. The mean D2:D4 ratio for left hands was significantly different between the two groups, and correlating with SBD ( $p < 0.05$ ).

### CONCLUSIONS

It appears that boys with cryptorchidism or hypospadias have a lower D2:D4 digit ratio than boys without genital anomalies. This ratio is correlating with the newly described genital anthropometric measure "scrotal base distance". This validate the utilization of this measure as an a physical reflection to male fetal underverlization.

# W1: WORKSHOP – NOT MYSTIC AT ALL: PLANNING AND DOING PATIENT EDUCATION IN UROTHERAPY

Moderators: Louiza Dale (UK), Helena Ekdahl (Sweden)

ESPU-Nurses Meeting on Thursday 25, April 2019,  
11:00–11:45

11:00–11:45

W1-1 (LO)

## NOT MYSTIC AT ALL: PLANNING AND DOING PATIENT EDUCATION IN UROTHERAPY

Doris SCHOLT<sup>1</sup> and Ellen JANHSEN-PODIEN<sup>2</sup>

1) Klinikum Links der Weser, Education department, Bremen, GERMANY - 2) Klinikum Links der Weser, Children's clinic, urotherapy, Bremen, GERMANY

### PURPOSE

Knowledge about the underlying aspects and behavioral modification are important steps in coping incontinence. Education of the child and the family is therefore an inherent part of urotherapy. Many authors have proofed its positive outcome on incontinence in children and the familys QoL (Bachmann et al. 2006 / 2008, Hoebeke et al. 2006 / 2011; Van den Broeck et al. 2016; Hellström & Lindehall).

Because nurses are not educated more in-depth in pedagogic principles they experience planing educational offers as a challenge.

In this workshop we will introduce didactics and methods in urotherapists education. Our aim is to do an interactive lecture mixing theoretical input and practical exercise.

### MATERIAL AND METHODS

Step-by-step-instruction, including: analysis of the problems, collection of information needed, determine contents, formulate learning objectives, methodological considerations, choosing teaching material, phase model of lessons and documentation of planning. We will use a case study and do some self-experience regarding methods

### RESULTS

Workshop participants understand basic considerations in education planning and are able to plan an educational offer within urotherapy.

### CONCLUSIONS

Pedagogical knowledge and strutured planning is the only way to succed in patient education.

# XVI | ESPU EDUCATIONAL COURSE

[in English language]

JUNE 21-22, 2019

MANNHEIM, GERMANY



European  
Society for  
Paediatric  
Urology



Online registration:  
[espu.org/registration/mannheim](https://espu.org/registration/mannheim)

## FRIDAY 21 JUNE 2019

- 07:00 **Registration**
- 08:00 **Introduction and welcome**  
B. Burgu & R. Stein
- 08:15 **Live surgery**
- Standard operative procedures e.g.
  - Orchidopexy [laparoscopic, inguinal, scrotal]
  - Reflux surgery [endoscopic / open]
- 12:30 **Lunch & Exhibition**
- 13:30 **Genitalia**
- Undescended testis
  - Hypospadias
  - DSD
  - Varicocele
  - Acute scrotum
- Case discussion**
- 15:45 **Coffee Break & Exhibition**
- 16:15 **Upper Urinary Tract**
- PUJ-Obstruction
  - Megaureters
- Case discussion**
- 17:30 **Workshop •**
- Daytime lower urinary tract conditions and enuresis
- **Definitions**
  - **Diagnostic evaluation**
  - **Management**
  - **Behavior therapy**
  - **Pharmacotherapy**

## SATURDAY 22 JUNE 2019

- 08:30 **Lower Urinary Tract I**
- **Urinary tract infection**
  - **Vesicoureteral reflux**
  - **Posterior urethral valves**
- Case discussion**
- 10:00 **Coffee Break & Exhibition**
- 11:00 **Lower Urinary Tract II**
- **Basic urodynamic studies**
  - **Neurogenic bladder**
  - **Exstrophy-Epispadias-Complex**
- Case discussion**
- 12:15 **Stones & Tumors**
- **Stones**
  - **Tumors**
- Case discussion**
- Closing remarks**
- 13:30 **Lunch & Adjour**

### FACULTY

Anna Bujons, Spain; Berk Burgu, Turkey; Marco Castagnetti, Italy; Rafal Charzan, Poland; Marcel Drlik, Czech Republic; Anju Goyal, United Kingdom; Gundela Holmdahl, Sweden; Nina Huck, Germany; Matthieu Peycelon, France; Yazan Rashdeh, Denmark; Wolfgang Rösch, Germany; Alexander Springer, Austria; Maximilian Stehr, Germany; Raimund Stein, Germany; Serdar Tekgül, Turkey; Erik van Laecke, Belgium; Katrin Zahn, Germany





