**P67**

**TIP Urethroplasty in Primary Hypospadias Repair: A Series of 161 Patients**

Marie-Pier Deschênes Rompré, Katherine Moore, Stéphane Bolduc
Laval University, Québec, QC, Canada

**Introduction and Objective:** The incidence of abnormal meatal position is in constant augmentation and the surgical techniques to correct them are continuously evolving. The tubularized incised plate urethroplasty (Snodgrass) has gained in popularity in the last decade and has now a widespread acceptance for all degrees of hypospadias. We present the outcomes of this technique.

**Materials and Methods:** We reviewed all cases (213) of primary hypospadias repairs performed by a single pediatric urologist using TIP urethroplasty between July 2002 and January 2009. Cases without a minimum follow-up of two months were excluded. Therefore, we collected clinical data for 161 patients with consideration of their age, meatal position, presence of chordee, the use and duration of a urethral stent and blood loss. We looked for association between complication rate and each of the previously mentioned characteristics of our population.

**Results:** Over a 6-year period, 161 patients aged between 5 month and 49 years old (median 1.2 years old) underwent primary hypospadias repair by TIP urethroplasty. The median follow-up was 14.6 months. Distal hypospadias (54.4%) was the most common presentation (78.3%). Mid-shaft hypospadias (7.5%) and proximal hypospadias (14.3%) were also encountered. Fifty-seven patients (36%) had a cutaneous chordee and 10 patients (6%) had an intrinsic chordee that required a dorsal plication. A urethral stent was used for a mean of 11 days in 141 patients (87.5%). Mean estimated blood loss was 15 ml. Fifty-one patients (31.6%) presented 67 complications during follow-up: 12 infections (7.5%), 16 meatal stenosis (9.9%), 15 urethrocystogenous fistulas (9.3%), 13 coronal meatal migrations (8.1%), 1 peno-scrotal complete wound dehiscence (0.6%), 4 esthetical imperfections (2.5%) and 6 others complications (3.7%). Of those patients, 32 required surgical revision (19.8%). No patient in our cohort experienced a recurrence of chordee after primary repair. Although data collection is still ongoing, we noticed a trend for an association between the occurrence of complications and a more proximal initial meatal position, presence of an intrinsic chordee and patient age at surgery.

**Conclusion:** The TIP urethroplasty is a frequently used technique which has proved to be safe and effective. Among the factors influencing the results, initial meatal position, presence of an intrinsic chordee and age at surgery seem to have an impact on the occurrence of complications. A significant proportion of patients (23%) in our series had insufficient follow-up. Since long-term follow-up will help for definitive outcome evaluation, we should put effort to correct this issue in the future.

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**Assessing Ureteropelvic Junction Obstruction (UPJO) Using Original Renographic Criteria for a Decade Proves to be Reliable**

J Letendre, D Barrières, AM Houle, K Keu, R Lambert, S Turpin, J Franc-Guimond
CHU Sainte-Justine, Montréal, QC, Canada

**Introduction and Objective:** The incidence of UPJO has proved to be safe and effective. Among the factors influencing the outcome of this technique, the use and duration of a urethral stent and blood loss. We looked for association between complication rate and each of the previously mentioned characteristics of our population.

**Materials and Methods:** We reviewed all cases (213) of primary hypospadias repairs performed by a single pediatric urologist using TIP urethroplasty between July 2002 and January 2009. Cases without a minimum follow-up of two months were excluded. Therefore, we collected clinical data for 161 patients with consideration of their age, meatal position, presence of chordee, the use and duration of a urethral stent and blood loss. We looked for association between complication rate and each of the previously mentioned characteristics of our population.

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**Conclusion:** The TIP urethroplasty is a frequently used technique which has proved to be safe and effective. Among the factors influencing the results, initial meatal position, presence of an intrinsic chordee and age at surgery seem to have an impact on the occurrence of complications. A significant proportion of patients (23%) in our series had insufficient follow-up. Since long-term follow-up will help for definitive outcome evaluation, we should put effort to correct this issue in the future.

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**Study Comparing the Applicability of Dorsal Lumbotomy in Children**

Jonathan Cloutier, Nadim Hairad, Marie-Pier Rompré, Maryse Grimard, Stéphane Bolduc
Laval University, Québec, QC, Canada

**Introduction and Objective:** Dorsal lumbotomy for the correction of ureteropelvic junction obstruction is mainly performed successfully in children less than 5 years old for technical reasons. We compared the results of 108 children who underwent dorsal lumbotomy by age group (< 5 vs. ≥ 5 years old) to determine if the surgical success and long term results were comparable.

**Materials and Methods:** We retrospectively reviewed the charts of 108 children undergoing a dismembered pyeloplasty by a single paediatric urologist from 2002 to 2008. Data were obtained from hospital records. The study population was divided into two groups. Group 1 consisted of children ≤ 5 years old (n= 77) and Group 2 consisted of older children, ≥ 5 years old (n=31). Patients’ characteristics as well as hospital stay, narcotic use, mean decrease in postoperative ultrasound anteroposterior diameter and success rate were compared. Success was defined by absence of symptoms and reduction of renal pelvis anteroposterior diameter and/or decrease of hydronephrosis on ultrasound and/or scintigraphic improvement of the drainage T1/2 when indicated. Univariate analysis was performed to compare the two groups on different factors.
Study on Hydrophilic-Coated Catheter Appreciation in a Pediatric Population

Andréeane Boucher, Jonathan Cloutier, Sylvie Lebel, Micheline Hamel, Pascale Lamontagne, Stéphane Bolduc
Laval University, Québec, QC, Canada

Introduction and Objective: To compare the satisfaction of hydrophilic-coated catheters (SpeediCath) versus uncoated catheters in a pediatric population presenting with myelomeningocele or spinal cord injury, in order to identify a target group for this hydrophilic-coated catheter. The main hypothesis was that patients who will benefit the most would be females using the Speedicath compact catheter.

Materials and Methods: A comparative prospective study was initiated, with an objective of recruiting 30 pediatric patients with neurogenic bladders. These patients accepted to try for one week the SpeediCath catheter and to answer a satisfaction questionnaire. The catheters and the questionnaire were supplied to the patients for free. Thirty one patients accepted to participate and their medical records were reviewed for age, neurologic disease, intellectual deficit, impaired dexterity and method of catheterization (Mitrofanoff/urethra).

Results: The mean age for the 31 patients was 14 years old. Of these patients, 19 were females (61%), 26 were self-sufficient (84%), 4 had a significant intellectual deficit (16%), 9 had impaired dexterity (29%), 8 had spinal cord injury (26%) and 6 had Mitrofanoff (19%). Twenty-three of the 31 patients completed and returned the satisfaction questionnaire.

Conclusion: The majority of the children prefer their uncoated catheter and would not change for SpeediCath hydrophilic-coated catheter. A female patient catheterizing per-urethra with a Speedicath compact catheter seems to benefit the most from hydrophilic-coated catheter.

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Solifenacin for Overactive Bladder in Children: A Prospective Open-Label Study

Stephanie Bolduc, Katherine Moore
CHUL, Hébert, QC, Canada

Introduction and Objective: Paediatric urologists frequently encounter children presenting symptoms of bladder overactivity. Optimal anti-cholinergic pediatric dosage is not well known. Historically, oxybutinin has been effective in treating overactive bladder but is poorly tolerated. Tolterodin has been shown to be as effective as oxybutinin with fewer side effects (S/E). Newer agents, such as solifenacin, could be an alternative but their use in children as never been reported. Therefore, we aimed at optimising medical therapy in a select group of children which failed to improve under oxybutinin or tolterodin by using solifenacin and evaluating its efficacy, tolerability and safety.

Materials and Methods: Paediatric patients presenting refractory overactive bladders with incontinence were offered to enter a prospective open-label protocol using adjusted-dose regimens (solifenacin 1.25 to 10 mg). Inclusion criteria were: absence of correctable neurological anomalies (MRS), failure of symptoms improvement under intensive behavioural and medical (oxybutinin or tolterodin) therapies and/or significant S/E with other agents. The follow-up consisted of voiding diaries, phone calls and urine cultures every 3 months and ultrasound and UDS every 6 months. Families were regularly questioned for continence, S/E, compliance, change in behaviour and quality of life. Blood samples and EKG were obtained to detect potential toxicity. The primary end-point was efficacy toward continence; the secondary end-points were tolerability and safety.

Results: A total of 66 patients (37 girls, 29 boys) were enrolled. Twenty-six patients with neurogenic bladder (10 CIC) and 40 with overactive bladder completed a minimum of 3-months follow-up. Mean age at initiation was 8.8 years. They were on solifenacin for a mean of 12 months. Urodynaminc capacity improved from 151±66ml to 325±135ml and uninhibited contractions decreased from 71±29 to 22±18cmH₂O. Continence improved in all (24 dry, 36 significantly and 6 moderately improved).
P73
Percutaneous Management of Urolithiasis in Children and Adolescents with Spinal Cord Lesions

Bishoy A. Gayed, Marc C. Smaldone, Michael C. Ost
University of Pittsburgh, Pittsburgh, PA, US

Introduction and Objective: Children and adolescents with spinal cord anomalies and nephrolithiasis represent an endourologic management challenge. We report our early institutional experience with PCNL in this complex patient population.

Materials and Methods: We identified all patients with spinal cord lesions undergoing percutaneous management of urolithiasis at our institution between January 2002 and February 2009. Patient demographics, preoperative imaging, stone characteristics, peri-operative outcomes, stone free rates, and progression to adjunct procedures were reviewed. Our technique for obtaining percutaneous access is similar to what has previously been described in pediatric and adult populations. Stone free status was defined as no radiologic evidence of recurrent stone burden on repeat imaging.

Results: We identified 11 patients (63.6% female) with spinal cord anomalies (64% myelomeningoceles, 9% traumatic spinal cord injuries, 27% other), undergoing percutaneous nephrolithotomy for nephrolithiasis. The mean age in our cohort was 16.2±4.1 years (range 10-22 years), and the mean calculus burden was 1.78±1.0 cm (complete staghorn 45.5%, partial staghorn 27.2%). Percutaneous access was urologist obtained in 81.8% of patients, and two children underwent preoperative nephrostomy tube placement in interventional radiology. A 30 Fr access sheath through a single tract was utilized following balloon or amplatz dilation in 63.6% and 27.3% of patients respectively, and a “mini perc” 11 Fr access sheath was used in one patient. There were no intraoperative complications, and one child required an intra-operative blood transfusion. Post operative complications included urosepsis (9.1%), hemorrage requiring transfusion (18.2%), and one child required angiographic embolization for persistent post operative bleeding. Following PCNL monotherapy, four patients (36.3%) required second look nephroscopy for stone clearance and additional adjunct procedures (ureteroscopy 27.2%, shock wave lithotripsy 27.2%) were utilized in four patients to treat residual post operative stone burden. With a mean follow up of 13.9±13.3 months, 54.5% of patients are radiographically stone free while 45.5% have small (<5mm) non-obstructive residual stone burden being managed conservatively.

Conclusion: Our early experience indicates that single tract percutaneous management of urolithiasis in children and young adults with spinal cord anomalies is a feasible option for pediatric endourologists. Families must be counseled that multiple procedures may be necessary to achieve stone free status. Familiarity with complex anatomy and prompt clinical recognition of post operative sequelae are necessary to optimize stone free and complication rates.

P74
Ethical Considerations in the Management of Cryptorchidism in the Profoundly Disabled

University of Rochester Medical Center, Rochester, NY, US

Introduction and Objective: A seven year-old severely disabled boy, who functions at the level of a five month-old and is completely dependent on others for all aspects of care, has bilateral inguinal testes. His adoptive parents requested that bilateral orchiectomy be performed in order to prevent him from going through puberty, thereby facilitating their ability to care for him in the family home. This request raised numerous medical, ethical, and legal questions.

Materials and Methods: Ethics consultation was obtained to discuss the therapeutic spectrum available to this child. An interdisciplinary team reviewed the medical facts of the case, pertinent literature, relevant state law and hospital policy, and urologic standards of care. Options discussed included observation with periodic testicular ultrasounds to screen for malignancy, orchiectomy with testosterone replacement, orchiectomy with additional endocrinologic manipulation to promote early closure of bone growth plates resulting in smaller stature, and orchiectomy alone. Consideration was given to the potential and expected side-effects associated with each treatment option, the impact on overall as well as urologic health, the need for concomitant or future therapy/interventions, testicular cancer risk and screening, and the role of parental decision making in the selection of non-standard of care treatments for their children. Fertility concerns were not an issue.

Results: All of the treatment options listed above were discussed in detail with the patient's parents. The final consensus recommendation, although not unanimous, was to suggest that bilateral orchiectomy be performed. The morbidity associated with this surgery, which is the current standard of care, is small and the metabolic sequelae of being anorchic are likely to increase his already heightened risk of osteoporosis and bony complications. Although androgen replacement could be given, this would require serial blood work, which would be distressing for the patient. Post-orchiectomy testicular examinations to screen for cancer should be possible despite his contracted state. It was unclear how preventing puberty would significantly increase the family's ability to care for their child in the home. Lastly, state regulatory provisions prohibit the involuntary sterilization of mentally handicapped persons for non-medically indicated reasons.

Conclusion: Ethics consultation was a valuable method to gain additional insights into the treatment options available to this patient and his family. Additional longitudinal studies are needed to evaluate the urologic health and needs of disabled children as they grow into adulthood.
Conclusion: Annual ultrasounds to detect a >20% testicular size discrepancy are expensive and there are very limited data that earlier versus later adolescent varicocele repair improves paternity in adulthood. In an era of rising health care costs, the cost of ultrasound to evaluate for size discrepancy is significant and ultrasound should be used sparingly in these circumstances.

P76 Can We Avoid Removing the Adrenal Gland at the Time of Radical Nephrectomy in Children with Wilms Tumor?  
Armando J. Lorenzo¹, Katherine Moore¹, Bruno Leslie², Stephane Bolduc²  
¹Hospital for Sick Children, Toronto, ON, Canada, ²Centre Hospitalier Universitaire de Québec, Québec, QC, Canada  
Introduction and Objective: Risk factors for adrenal involvement and indications for adrenalectomy with renal cell carcinoma have been well studied. However, for Wilms tumor, the indications and needs for adrenalectomy are not well defined. Current protocols lack specific guidelines and leave the option to the surgeon. Following the rationale for preserving the adrenal gland during radical resection of other renal malignancies, we sought to determine predictors for adrenal involvement and the impact of adrenalectomy on retroperitoneal recurrence.

Materials and Methods: We retrospectively reviewed all the charts of the patients who underwent surgical resection for Wilms tumor between 1990-2008 in two large Canadian paediatric referral centers. Children who underwent preoperative chemotherapy or partial nephrectomy were excluded. Patients’ characteristics were reviewed, including findings on preoperative diagnostic imaging and pathology reports to determine their potential link with adrenal involvement. Recurrence was evaluated as a time-dependent variable based on follow-up duration.

Results: One hundred and eighty patients were diagnosed with Wilms tumor during the study period. Of those, 91 underwent initial radical nephrectomy as primary treatment. The mean age at diagnosis was 46.7 +/- 38 months and follow-up 108.3 +/- 219.9 months. The disease was stage 1 in 28 patients, 2 in 31, 3 in 24 and 4 in 8. Adrenalectomy was performed, according to surgeon’s judgement, in 57 patients (62.2%) during nephrectomy. Only one adrenal gland was reported positive for Wilms tumor invasion, while periadrenal fat involvement was described in 3 patients (overall incidence 4.1%). None of the studied tumor characteristics (stage, length, location) were predictive of a higher risk of involvement (Fig. 1). On a time-to-event analysis looking at the possible relation between adrenalectomy on retroperitoneal recurrence, no statistically significant difference was found between the groups for which the adrenal gland was removed or not (Mantel Cox p=0.997).

Fig. 1. Effect of adrenalectomy on retroperitoneal recurrence in children with Wilms tumor.

Conclusion: Adrenal involvement in patients with Wilms tumor appears rare and difficult to predict. In this study preserving the adrenal gland was not associated with an increased risk of local recurrence. Thus, it seems prudent to avoid performing an adrenalectomy at the time of radical nephrectomy if technically feasible, attempting to otherwise remove peri-adrenal fat with the specimen.

P77 Are There Risk Factors for Perinatal Torsion?  
Lei Chu, Michael C. Ost, Steven G. Docimo, Mark F. Bellinger, Francis X. Schneck  
University of Pittsburgh, Pittsburgh, PA, US  
Introduction and Objective: Perinatal torsion of the testis has a poor salvage rate of only 5%. Bilateral torsion comprises 11-33% of all perinatal torsions, the vast majority being synchronous torsion with a rate of 50-89%. Due to low salvageable rate and the real concern for bilateral torsion, risk factors that can predict occurrence of perinatal torsion may be of use.

Materials and Methods: We retrospectively identified nine neonates who were diagnosed with perinatal torsion and underwent bilateral scrotal exploration between 2000-2008. This cohort was compared to neonates with normal bilateral descended testes in terms of birth weight, gestational age, method of delivery, and maternal age to determine if any of these parameters placed a neonate at risk for testicular torsion.

Results: In these nine neonates, physical examination was consistent with unilateral perinatal torsion. No contralateral torsion was discovered at the time of exploration. The mean gestation time, birth weight, maternal age, and the rate of caesarian section between those with perinatal torsion and those without was 38.3 vs. 39.1 weeks (p=0.31), 3313.7g vs. 3482.4g (p=0.51), 25 vs. 29 years of age (p=0.42), and 67% vs. 32%, respectively.

Conclusion: In this study, there is a greater incidence of perinatal torsion with caesarian delivery, although not statistically significant. There is no statistically significant difference between the group with perinatal testicular torsion and those without in terms of gestational time, birth weight, and maternal age. To date there are no proven risk factors for perinatal torsion.

P78 Evaluation of Hydronephrosis in Pediatric Kidney Transplants and its Clinical Relevance  
Lei Chu, MD, Bruce L. Jacobson, Michael C. Ost, Mark F. Bellinger, Steven G. Docimo, Francis X. Schneck  
University of Pittsburgh, Pittsburgh, PA, US  
Introduction and Objective: The causes of hydronephrosis in renal transplant allografts remain elusive. We evaluated children with either living-related or cadaveric kidney transplants to determine the clinical significance of hydronephrosis in the transplanted kidney.

Materials and Methods: We retrospectively reviewed 54 pediatric patients at The Children’s Hospital of Pittsburgh who had received kidney transplants between 1993-2008. Patient demographics and parameters such as renal function, degree of hydronephrosis based on the Society of Fetal Urology (SFU) grading scale, and incidence of kidney rejection and allograft failure were recorded. Complete urologic evaluation was documented, including type of ureteral reimplantation or any underlying urologic abnormalities such as bladder dysfunction.

Results: End-stage renal disease was caused by a variety of diseases, with posterior urethral valves and neurogenic bladders comprising 52% of those with hydronephrosis and 38% of those without hydronephrosis (p=0.41). Of the 54 patients (37% male), 25 (45.5%) developed hydronephrosis (median SFU grade II), with 8 patients (16%) developing high grade hydronephrosis (SFU grade III or IV). 4 patients have no available ultrasounds. In all but one case, hydronephrosis developed for reasons other than anatomical obstruction such as from ureteral stricture or kinking. Thirteen patients had low grade hydronephrosis (SFU grade I or II) compared to 8 with high grade hydronephrosis detected at a mean of 82±121 months after transplantation. In comparing patients with low grade and high grade hydronephrosis, mean nadir serum crea...
obviates morbidity related to vascular access for hemodialysis.

Materials and Methods:
RPN should be considered the gold standard in patients on PD, as it is the technique, which preserves peritoneal integrity in children requiring immediate postoperative PD. In the absence of data to the contrary, we performed the fibroblast sheets before their superposition. Urothelial cells are then seeded onto this cellular construction. The VE are characterized in histology, immunohistochemistry, electron microscopy, western blot and cell viability. Moreover, mechanical resistance is estimated by uniaxial tensile tests, and the tissue absorption is verified with 14C-urea, which quantifies the degree of impermeability of our VE.

Results:
A total fusion of the fibroblast layers and a pluristratified urothelium were observed on the in vitro engineered VE. Positive markers for cytokeratin 8/18 in immunohistochemistry and western blot confirmed the presence of a urinary epithelium. Electron microscopy confirmed the presence of normal aspect urothelial cells. Our VE permeability to 14C-urea was statistically similar to porcine bladder. Mechanical resistance indicated that our product would be suitable for grafting since its ultimate tensile strength is higher than the native porcine bladder.

Conclusion: This method to produce VE seems very promising to meet the needs in the urological field. Our substitute has proven its efficiency as a barrier to urea and has a sufficient mechanical resistance to support physiological pressures. Additionally, this model is completely autologous, and its possible endothelialization could promote the early vascularization process after grafting and it would significantly reduce inflammation and possible rejection.
P82
Serosal Lined Extramural Tunnel Principle in the Creation of a Catheterizable Channel in Bladder Augmentation: The Video
Mohamed T. El Sherbiny, Waleed Eassa
Montreal Children Hospital, Montreal, QC, Canada

Introduction and Objective: The serous-lined extramural-tunnel technique has been introduced into reconstructive surgery of the urinary tract by Abol-Enein and Ghoneim and its value is now well-appreciated. In this study, we evaluate the versatility of this principle and its aptness to various situations in pediatric reconstructive surgery and we provide a video showing the fine technical details.

Materials and Methods: Over the past 7 years, serous-lined extramural-tunnel technique has been applied in 11 patients with a mean age of 11 years (6-17). Indications for surgery were conversion from ileal loop conduit to continent catheterizable stoma in 2 patients with posterior urethral valves (PUV) and pelvic rhabdomyosarcoma and creation of catheterizable channel in bladder augmentation in 9 patients with PUV (n=1), spina bifida (n=3) and bladder exstrophy (n=5). Concomitant procedures included bladder neck closure in 1, sling in 2, Mitchell bladder neck reconstruction in 5, Malone pyelocutaneous fistula in 2. The appendix was used as an outlet in 7 while Monti was used in 4 patients. The technique is detailed in the video.

Results: In all patients the stoma was successfully matured to the umbilicus. There were no postoperative complications or difficult catheterization. In the first 3 months all patients were completely continent. Three patients developed secondary incontinence 3-6 months after surgery. Injection of Macroplastique in 1 and Deflux in 2 was tried unsuccessfully. Surgical revision revealed a de-susception of the tunnel in the 3 patients. All of whom had Monti as an outlet where the mesentery was left outside the tunnel. The remaining 8 patients remained totally continent with a mean follow up of 2.4 years (2-4).

Conclusion: This technique is very versatile and can be used as primary or salvage surgery. The stoma can always be brought to the umbilicus. The appendix is the preferred continent outlet. Fine surgical details are crucial for success, including fixation of the outer pouch wall of the tunnel to the anterior abdominal wall surrounding the stoma, the use of interrupted non-absorbable sutures in the posterior wall of the tunnel. One disadvantage of the technique is that injection of bulking agent is not useful in treatment of secondary incontinence.

P83
Dextranomer/Hyaluronic Acid Copolymer (Deflux) Injections in a Teaching Center: The Real Picture
Julie Franc-Guimond, Julien Letendre, Diego Barrières, Anne-Marie Houle
CHU Sainte-Justine, Montreal, QC, Canada

Introduction and Objective: In the medical literature, injection of bulking agents has demonstrated good success rates for endoscopic treatment of vesicoureteral reflux (VUR) but the best results are reported by those who do many, operate themselves and often modified the technique using larger amounts of injected material. At our institution, we use a modified sting procedure and allow all team members to participate. We hereby evaluate the long-term effectiveness of endoscopic treatment of VUR performed at our teaching hospital.

Materials and Methods: Between 2005 and 2008, 23 males and 56 females (median age of 5.8 years) underwent endoscopic correction of primary VUR with Deflux. Reflux was unilateral in 30 cases and bilateral in 49, affecting 128 ureters. Reflux was grade I in 13 (10%) cases, grade II in 49 (38%), grade III in 53 (42%) and grade IV in 13 (10%). All patients underwent endoscopic correction as a day procedure. A modified sting procedure was used and surgery was either conducted by attendings or residents/fellows under attending’s supervision. In addition to routine parameters, patients have been followed with initial cystograms performed late at an average of 11 months.

Results: A total of 128 refluxing ureters were initially injected with Deflux. The reflux was corrected in 86/128 ureters (67%) after a single injection with a success rate by patient of 58%. Second injections increased those numbers to 82% and 75% respectively. An average bolus volume of 0.75 ml was used for first and second injections. Successful results by grade (I to IV) after the first injection were 84.7%, 75.5%, 58.5% and 53.8%. We found a statistical difference between grades I-II (77.4%) vs. grades III-IV (57.6%) (p=0.0235).

Conclusion: Our results are comparable to others reported in the literature showing that endoscopic treatment of VUR can be done in a teaching setting using moderate volumes of bulking agents especially for low grade VUR.