

NSAUA 2024 Annual Meeting Abstracts – Pediatrics

Cite as: *Can Urol Assoc J* 2024;18(9Suppl3):S204-8. <http://dx.doi.org/10.5489/auaj.8977>**Abstract 92****Prone to stones? Associations between food insecurity, psychiatric comorbidity, and increased pediatric stone management***Lucille Cheng¹, Esther Liu², Elyse Mark¹, Rajeev Chaudhry², Kathleen Hwang³*¹University of Pittsburgh School of Medicine, Pittsburgh, PA; ²Department of Urology, UPMC Children's Hospital of Pittsburgh, Pittsburgh, PA; ³Department of Urology, University of Pittsburgh Medical Center, Pittsburgh, PA

Introduction: Pediatric stone disease incidence has increased steadily over the last several years. Several interrelated factors have been proposed to contribute to these epidemiologic trends including increased ambient temperature, body habitus, and food insecurity. Given the significant cohort of children living with food insecurity in the United States, the aim of this study is to explore the relationship between food desert residence and surgical intervention for stone disease in a cohort of pediatric patients. We also discuss a potential new association with pediatric stone disease: psychiatric comorbidity and the medical management of such diagnoses.

Methods: Records of pediatric patients who presented to a single tertiary pediatric medical center for nephrolithiasis between 2009 and 2023 were retrospectively reviewed. Patients were included in the study if they were older than five years of age, lacked anatomical predispositions for stone formation, and were regularly consuming a solid diet. Variables studied included demographics, body mass index (BMI), medical comorbidities and family history, procedures performed, and stone burden. Patients' likelihood of living in a food desert was approximated using the United States Department of Agriculture Food Access Research Atlas.

Results: Of 572 patients reviewed, 191 pediatric patients (88 male and 103 female) were included in our analysis. Of these, 69.1% (n=132) had undergone ureteroscopy. Fifty-seven patients (28.6%) had a documented psychiatric comorbidity at time of presentation, with attention-deficit/hyperactivity disorder (ADHD) being the most common psychiatric comorbidity treated via medical management (n=25, 43.9%). Our analysis demonstrated a significant association between surgical intervention and medical history of urinary tract infections (UTI) (p=0.038), food desert residence (p=0.002), or increased stone size (p<0.001). Factors associated with longer time between discharge and surgery decision were past medical history of stones (p=0.015), food desert residence (p=0.047), and psychiatric comorbidity (p=0.050). Among patients with psychiatric comorbidities, ADHD diagnosis and stimulant therapy were also significantly associated with longer mean time before procedural intervention (p=0.009 and p=0.02, respectively).

Conclusions: In this study, we found a significant association between food desert residence and surgical intervention for pediatric nephrolithiasis. To our knowledge, our study is among the first to assess association between food insecurity and surgical intervention for pediatric nephrolithiasis, as well as a possible relationship between ADHD and surgical management for stones. Given the importance diet plays in medical management of stone development, clinicians should take care to assess food security status of pediatric nephrolithiasis patients. Further research to determine association between ADHD, pediatric nephrolithiasis, and food insecurity is warranted.

Funding: N/A**Abstract 93****Utility of surgical antimicrobial prophylaxis in hypospadias repair: Results from NSQIP-Pediatrics***Michael Basin, Maitihili Gopalakrishnan, Nicole Ackerman, Matthew Mason, Anthony Tracey, Ahmed Souid, Jeffrey Villanueva*

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Introduction: Literature supporting surgical antimicrobial prophylaxis (SAP) for hypospadias repairs is lacking, with larger studies including at most several hundred subjects. We sought to evaluate the effect of SAP in hypospadias repairs on post-operative outcomes using data from the National Surgical Quality Improvement Program Pediatric (NSQIP-P).

Methods: The 2021–2022 NSQIP-P database was used to categorize all hypospadias repairs into three groups: (1) 1-stage distal hypospadias repairs, (2) 1-stage proximal hypospadias repairs and second/third stage urethroplasties, and (3) repair of hypospadias complications. Patients with missing data regarding SAP administration were excluded. We evaluated the risk of wound complications (wound infection or dehiscence) and urinary tract infections (UTI). Binomial logistic regressions were performed controlling for age, race, prematurity, relative value unit (RVU), operative time, ASA score, and SAP.

Results: There were 5026 patients in group one, 1428 patients in group two, and 1159 patients in group three. A total of 6392 (84.0%) patients received SAP. The rates of UTI and wound complications were 0.6% and 1.6%; 1.2% and 4.8%; and 0.8% and 3.0% in groups one, two, and three, respectively. On multivariate analysis, receiving SAP did not decrease risk of wound complications or UTIs. Older age was associated with increased risk of wound complications in group one and group two, while longer operative time was associated with increased rates of wound complications in group one and group three. SAP did not reduce UTIs or wound complications in these higher risk patients, such as peripubertal patients and patients with longer operative times.

Conclusions: To our knowledge, this is the largest study of SAP in hypospadias repairs. Despite SAP use in most of these surgeries, SAP was not associated with decreased rates of wound complications or UTIs, even in higher risk patients.

Funding: N/A**Abstract 94****How common is bowel and bladder dysfunction in children with type 1 diabetes?***Joseph Visingardi¹, Paul Feustel², Kristen Charbel³, Nancy Jones³, Kristine Wohlfahrt², Daniela Sima³, Linda Riddick³, Barry Kogan⁴*¹Albany Medical College, Albany, NY; ²Albany Medical College, Department of Neuroscience and Experimental Therapeutics, Albany, NY; ³Albany Medical Center, Department of Endocrinology, Albany, NY; ⁴Albany Medical Center, Department of Urology, Albany, NY

Introduction: Bowel and bladder dysfunction (BBD) has been reported in adults with type 2 diabetes (T2DM). Studies in children are limited, as are studies of patients with type 1 diabetes (T1DM). The goal of this investigation is to evaluate the incidence of BBD in children with T1DM.

Methods: We prospectively studied 71 children seen at our pediatric endocrinology clinic and compared them with 72 patients seen in our pediatric urology clinic without complaints of BBD. We used the slightly modified Swedish Brunnsvikens Brief Quality of Life Questionnaire (BBQ) and collected demographic data, as well as clinical information about the state of their diabetes (DM), including duration of DM and HbA1C. Exclusion criteria were: duration of DM less than three months, known neurogenic bladder, lower urinary tract obstruction, active bowel or bladder infection, or on medication that affects BBD. BBQ score was compared using a Mann-Whitney test. Categorical variables were compared by chi-squared test or Fisher's exact test if frequency was less than five.

Abstract 94. Table 1. Differences noted between those with and without diabetes

	Age (years) mean ±SD	Duration DM in months (median IQR)	HbA1C (median IQR)	BI storage score (median IQR)	BI emptying score (median IQR)	Constipation score (median IQR)	Total BBQ score (median IQR)	Bother score (median IQR)	ADHD (number of patients)	Voids/day >7 (number of patients)
Control population	10.8±4.3	-	-	0 (0–2)	0 (0–0)	0 (0–1)	2 (0–4)	0(0-0)	3	2
Diabetes population	11.5±3.6	31.5 (17–61.8)	8.1% (7.1%–8.9%)	1 (0–3)	0 (0–1)	1 (0–2)	3 (1–5)	0(0-0)	8	16
Mean or median difference (95% CI or IQR), p	-0.74 (-2.056, 0.579) 0.269	-	-	0 (-1,0) 0.06	0 (0,0) 0.37	0 (0,0) 0.203	-1 (-1,0) 0.03	0(0,0)0.66	0.208	<0.001

ADHD: attention-deficit/hyperactivity disorder; BBQ: Brunsviken Brief Quality of Life Questionnaire; CI: confidence interval; DM: diabetes mellitus; IQR: interquartile range; SD: standard deviation.

Results: Sixty-six patients had T1DM and five had T2DM. No controls had DM. Ages of both groups were comparable, but the control group had a much higher number of males ($P<0.001$). Also, there was no difference between groups in number of participants with ADHD ($P=0.208$). There was an increase in total BBQ scores for those with DM ($P=0.03$) along with an increased number of children with >7 voids per day ($P<0.001$). There was no correlation with HbA1C or duration of DM and total BBQ score (R-squared 0.91% and 0.98% respectively.)

Conclusions: Children with DM for a median of 31.5 months demonstrate mostly normal bladder function. However, 23% void more than seven times per day and, as a group, they have a statistically higher BBQ score. It is important to both follow these children longitudinally and to recognize the early outliers, as they warrant close observation.

Funding: N/A

Abstract 95

Is an intraoperative culture necessary during pediatric stone surgeries if the preoperative urine culture is sterile? Results from NSQIP-Pediatrics

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Introduction: During pediatric endourologic procedures, urologists may obtain intraoperative urine cultures to guide future treatment. However, there is a paucity of data evaluating whether this practice improves outcomes. We sought to answer this question using data from the National Surgical Quality Improvement Program Pediatric (NSQIP-P).

Methods: The 2022 NSQIP-P dataset was used to identify all patients who underwent ureteroscopy or percutaneous nephrolithotomy (PCNL) who had a negative preoperative urine culture with or without an intraoperative urine culture. We then evaluated the risk of postoperative urinary tract infections (UTIs) and readmissions in this group. Fisher's exact test was performed to evaluate the associations between demographic and clinical factors and the development of post-procedure UTI or readmission.

Results: There were 118 patients who underwent ureteroscopy and five that underwent PCNL. There were three postoperative UTIs and three readmissions (0.2% each) and these occurred in females who underwent ureteroscopy. There was no variable that predicted UTI or readmission in our population. Additionally, we found that of the 63 intraoperative cultures, only one was positive. The patients who did not receive an intraoperative culture were found to be at the same risk of developing a UTI ($p=0.63$) or being readmitted following the procedure ($p=1.00$) as compared to those who did receive an intraoperative culture.

Conclusions: This study looked at the utility of an intraoperative urine culture for common pediatric endourologic stone surgeries with a negative preoperative urine culture. This practice was not associated with lower rates of UTIs or readmission. Therefore, clinicians can consider foregoing intraoperative urine cultures if the preoperative urine culture is negative.

Funding: N/A

Abstract 95. Table 1. Baseline and clinical characteristics of patients undergoing endoscopic surgeries (n=123)

Characteristic	# of occurrences (%)
Median age	15.0 (IQR 11.8–16.8) years
Race	
White	98 (79.6%)
Black	7 (5.7%)
Other	18 (14.6%)
Gender	
Male	56 (45.5%)
Female	67 (54.5%)
Puberty	
Pre-pubertal	15 (12.2%)
Post-pubertal	108 (87.8%)
Primary procedure	
Ureteroscopy	118 (95.9%)
PCNL	5 (4.1%)
Median operative time	100 (IQR 66–138) minutes
Preoperative antibiotics	120 (100%)
Intraoperative culture obtained	
No	60 (48.8%)
Yes	63 (51.2%)
Intraoperative culture growth	
No	62 (98.4%)
Yes	1 (1.6%)
Postoperative UTI	3 (0.2%)
Readmission	3 (0.2%)

Pre-pubertal defined as less than 9 years old. IQR: interquartile range; PCNL: percutaneous nephrolithotomy; UTI: urinary tract infection.

Abstract 95. Table 2. Demographic and clinical factors associated with postoperative UTI and readmission utilizing Fisher's exact test

	Postoperative UTI	Readmission
	p	p
Intraoperative culture	0.63	1.00
Gender	0.25	0.59
Race	1.00	1.00
Puberty	1.00	0.33
Primary procedure	1.00	1.00

UTI: urinary tract infection.

Abstract 96**Percentage worsening of antero-posterior renal pelvic diameter: A metric to quantify worsening hydronephrosis**Abdullah Alahmari¹, Amr Hodhod², Iman Sadri¹, John-Paul Capolicchio¹¹Division of Urology, Department of Pediatric Surgery, Montreal Children's Hospital, McGill University, Montreal, QC; ²Pediatric Urology Division, King Abdullah Specialized Children's Hospital, Riyadh, Saudi Arabia

Introduction: Worsening hydronephrosis (HN) is a common marker of congenital ureteropelvic junction obstruction, yet no objective criteria exist for defining significant worsening HN. Our aim was to study the evolution of the antero-posterior renal pelvic diameter (APD) in a cohort of initially conservatively managed high-grade HN and report on the percentage worsening (PW-APD).

Methods: Patients presenting with isolated prenatal HN from 2008 to 2023 were retrospectively reviewed. Cases with Society for Fetal Urology (SFU) grade 3 and 4 HN in their first year of life who underwent at least two ultrasounds (US) were included. A subset initially under active surveillance underwent pyeloplasty due to worsening HN and was labelled "pyeloplasty group" (PG). Another subset with at least two years of conservative followup was labelled "control group" (CG). All US were reviewed by two investigators to record APD and SFU grade. APD was measured at the renal contour in the mid-renal transverse plane in supine

Abstract 96. Table 1. Percentage worsening of APD in both groups

Parameter	Pyeloplasty group	Control group	p
	First-last ultrasounds		
n of units	65	31	
Median time interval in months (range)	6.5 (1.4–103.8)	16.4 (8.4–33.3)	<0.001
SFU grade progression n (%)			<0.001
Stable grade 3 and 4	36 (55.4)	18 (58.1)	
Stable grade 3	8 (22.2)	16 (88.9)	
Stable grade 4	28 (77.8)	2 (11.1)	
Upgraded	29 (44.6)	0	
Downgraded	0	13 (41.9)	
Median PW-APD (range)			
All renal units	69% (-1.1–471.4)	-31.2% (-100–28.6)	<0.001
SFU stable grade	56.6% (-1.1–176.4)	-18.1% (-54–28.6)	<0.001
SFU upgraded	79.3% (8.6–471.4)	--	--
SFU downgraded	--	-37.2 (-100–13.2)	--
Previous-last ultrasounds			
n of units	35	31	
Median time interval in months (range)	5.5 (1.3–30.5)	7.5 (4.2–26.5)	0.008
SFU grade progression n (%)			<0.001
Stable grade 3 and 4	21 (60)	20 (64.5)	
Stable grade 3	5 (23.8)	15(75) [^]	
Stable grade 4	16 (76.2)	2(10) [^]	
Upgraded	14 (40)	1 (3.2) [#]	
Downgraded	0	10 (32.3)	
Median PW-APD (range)			
All renal units	38.7% (5.9–218.8)	-12.2% (-100–40)	<0.001
SFU stable grade	36.4% (5.9–141.4)	-9.4% (-53.3–22.2)	<0.001
SFU upgraded	49.8% (18.7–218.8)	-37.5%	--
SFU downgraded	--	-27% (-100–40)	--

[^] Three units not included were stable at lower grades (SFU 2 or 1) in previous ultrasounds and did not change over the last 2 ultrasounds. [#] This renal unit was upgraded from grade 2 to grade 3. APD: antero-posterior renal pelvic diameter; PW: percentage worsening; SFU: Society for Fetal Urology.

position. For PG, we reviewed the last two US before surgery in addition to the initial one. For CG, we reviewed the last two US before 24 months of age or the last two US before resolution in addition to the initial one. PW-APD was calculated by comparing APD at two time points; first-last US and previous-last US. **Results:** Sixty-five patients in PG and 31 patients in CG were included. Patients in PG deteriorated at a median age of 6.5 months. There was no difference in the initial APD between the two groups. In the first-last US, SFU upgrading was noted in 45% of PG. In PG, median PW-APD was 79% for SFU upgraded patients and 57% for those with stable SFU grades. In the previous-last US, median PW-APD in PG was 50% for SFU upgraded patients and 36% for those with stable SFU grades.

Conclusions: In the last two consecutive US preceding pyeloplasty, upgraded cases demonstrated a PW-APD greater than 50% on average, whereas cases managed without surgery averaged less than 36%. This range of PW-APD could be an indicator of severity and could be used to tailor the frequency and intensity of followup. Further studies in other cohorts are needed to validate these findings.

Funding: N/A

Abstract 97

Factors predicting opioid requirements of children undergoing outpatient circumcision

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Introduction: Healthcare providers are increasingly focused on minimizing opioid exposure to reduce the risks associated with opioids and further dependence. There is limited data about analgesic requirements and factors predicting opioid use in children undergoing outpatient urologic surgery. We aimed to identify factors that can predict the first 24-hour postoperative opioid requirements of prepubertal children undergoing outpatient circumcision.

Methods: We used prospectively collected data from our previous study comparing ultrasound-guided blocks on prepubertal males aged one to twelve years old undergoing elective circumcision. Operative characteristics were collected. Pain severity was recorded using validated pain scores Face, Legs, Activity, Cry, Consolability (FLACC score) and Parents' Postoperative Pain Measurement (PPPM) in the first 24 hours. Acetaminophen and ibuprofen were systematically given. Five doses of morphine were prescribed at home if needed. The time to the first dose of narcotics in postanesthesia care, data on analgesic consumption during the first 24 hours postoperative, and parents' satisfaction on pain management were collected.

Results: A total of 155 patients were included for analysis. Forty-seven patients (30.3%) did not require any opioids in the hospital or at home. Most patients (63.2%) did not receive morphine after discharge during the first 24 hours post-circumcision. Among the 25 patients who were administered opioids during hospital stay, 13 patients (52%) sustained a necessity for continued opioid use at home during the first 24 hours. A Youden threshold value was found to be significant at 45 minutes post-surgery for patients who used opioids. Of the 25 patients with hospital requirements, 10 patients (40%) received their first opioids <45 minutes post-surgery and among them, two (20%) sustained the need for continued opioid use at home during the initial 24-hour period ($p < 0.0147$). In contrast, from the 15 patients (60.0%) who received their first dose of opioids more than 45 minutes after surgery, 11 of them (73.3%) subsequently required opioids at home. The cumulative FLACC score 4 was found to be statistically significant ($p = 0.0154$) for the consumption of narcotics in the first 24 hours.

Conclusions: The consumption of non-opioid analgesia on a scheduled basis with regional block for the first 24 hours in the postoperative period of pediatric circumcision seems to be sufficient for most patients in pain management. Receiving a narcotic dose in the immediate postoperative period seems to influence the subsequent narcotic consumption at home.

Funding: N/A

Abstract 98

Bilateral asynchronous neonatal testicular torsion

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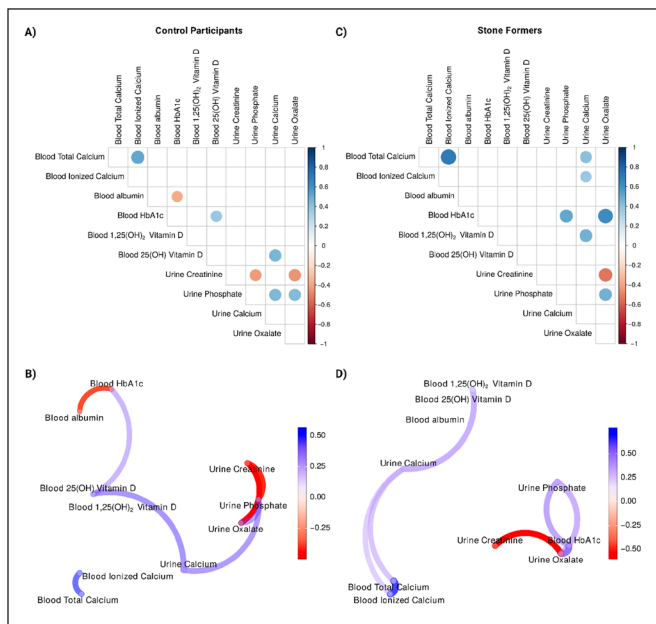
Introduction: Treatment of neonatal testicular torsion remains controversial. Incidence is just 6.1 per 100 000 live births and only 25% of such torsions occur postnatally, with even fewer being bilateral and just a fraction of those asynchronous. Many argue for nonoperative management and do not routinely explore given low salvage rates. Herein, we discuss a case which emphasizes the importance of prompt exploration of unilateral presentations to protect the contralateral side.

Methods: Medical records were reviewed for a patient treated at our children's hospital. A structured literature review was performed.

Results: The patient is a male infant delivered vaginally at 41 weeks weighing 10 lb 6 oz to a G2P1011 mother. Bilateral hydroceles were present at birth and gradually improved. He presented to our emergency department on day of life 13 after his mother noted fussiness with increased left scrotal swelling and discoloration. He was afebrile, vitally stable, and urinalysis was negative. On exam, there were bilateral firm hydroceles, worse on the left, with purple skin discoloration. Ultrasound showed no blood flow to the left testis and normal blood flow to the right, with bilateral hydroceles. The patient was taken urgently to the operating room for bilateral scrotal exploration. On the left, a 360-degree counterclockwise extravaginal torsion of the entire spermatic cord was identified. After opening the tunica, the left testis was completely infarcted and there was no bleeding with capsular incision. There was no return of vascularity throughout the case and left orchiectomy was ultimately performed. While observing the detorsed left testis, exploration of the right hemiscrotum identified a fresh 360-degree counterclockwise extravaginal torsion. The right testis was 14 mm in length and generally pink with mild discoloration, which promptly resolved after detorsion. Right orchiopexy was performed and the scrotum was closed. Intraoperative images are presented below (Figure 1). At six-week followup there was no evidence of atrophy and at six months perfusion remained normal on ultrasound.

Conclusions: Neonatal bilateral asynchronous testicular torsion is an exceedingly rare condition and can be difficult to diagnose even with ultrasound imaging. Bilateral exploration is warranted when unilateral torsion occurs in a neonate.

Funding: N/A



Abstract 98. Figure 1. Intraoperative images from a case of asynchronous bilateral extravaginal testicular torsion in a neonate. (A) Left spermatic cord, torsed and infarcted. (B) Right spermatic cord, torsed and viable. (C) Left testicle with tunica opened.

Abstract 99

Improving time to treat for testicular torsion: A QI initiative

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Introduction: Management of testicular torsion is time-sensitive and relies on efficiency and coordination of a healthcare system to maximize the potential for testicular salvageability. The use of quality improvement (QI) methods to boost this efficiency within a healthcare system can offer real world utility and prevent testicular loss.

Methods: We sought to implement a clinical care pathway to standardize the evaluation of pediatric male patients presenting to our pediatric emergency department (ED) with testicular, scrotal, or groin pain to expedite the treatment of testicular torsion and prevent testicular loss. Pre- and post-pathway implementation data were retrospectively collected and analyzed.

Results: Pre-pathway (2014 to 2020), 75 pediatric patients were taken to the operating room (OR) for acute testicular torsion. Pre-pathway median time from ER check-in to patient in the OR was 141 minutes (IQR 93–220 minutes), with 15 patients taking >4 hours to get to the OR. Post-pathway (October 2022 to December 2023), 31 pediatric patients were taken to the OR for acute testicular torsion with median time to OR of 114 minutes (IQR 93–139 minutes), with zero patients taking >4 hours to get to the OR.

Conclusions: Implementation of a clinical care pathway for the treatment of testicular torsion decreased time to the OR by 27 minutes over a 15-month period. This QI initiative can easily be adopted at any institution. Education and counselling of patients, families, and staff on signs of testicular torsion remains a high priority to decrease time to presentation to the ER.

Funding: N/A