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Abstract 106

Comparison of operative outcomes for pediatric robotic pyeloplasty between the Da Vinci Si and Xi surgical systems

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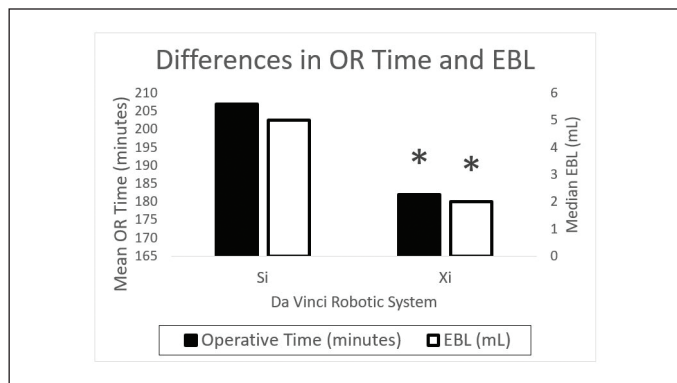
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Introduction: Robotic-assisted laparoscopic pyeloplasty (RALP) has gained momentum in the treatment of pediatric ureteropelvic junction obstruction (UPJO), with similar outcomes compared to open and laparoscopic approaches; however, robotic surgery has been associated with longer operative time, which is major determinant of total surgery cost. The Da Vinci Xi system is the successor to the Si system that provides better robotic arm ergonomics, a mobile boom, and a targeting system designed to streamline robot docking. We hypothesized that these enhancements would reduce overall operative time and the total cost of RALP. Thus, our aim was to compare operative outcomes for pediatric RALP with the Da Vinci Si and Xi systems at our institution.

Methods: We performed a retrospective cohort study of all pediatric patients undergoing RALP at our institution from 2019–2022. We compared the final 24 months of the Da Vinci Si system to the first 12 months of the Xi system. Bilateral or re-do pyeloplasty, and patients undergoing multiple procedures were excluded. Primary outcomes were operating room (OR) time, estimated blood loss (EBL), and length of inpatient stay. Secondary outcomes included change in hydronephrosis post-operatively. We controlled for surgeon experience, patient age, sex, laterality, reason for presentation, and imaging characteristics.

Results: A total of 101 patients were included with a median age of 6 years (IQR 2–12) and median followup of six months (IQR 3–14). There were no differences in age at surgery, laterality, sex, reason for presentation, or imaging findings between both cohorts. Most (92%) patients demonstrated improvement in hydronephrosis postoperatively, with no difference based on robotic system. Mean operative time and EBL were lower in the Xi cohort (mean OR time 182 min vs. 207 min, $p=0.02$; median EBL 2 ml vs. 5 ml, $p=0.02$). Length of inpatient stay was similar in both cohorts ($p=0.13$).

Conclusions: For pediatric robotic-assisted laparoscopic pyeloplasty, the Da Vinci Xi has a similar high success rate and is associated with shorter operative time and lower EBL compared to the Si system. This reduction in OR time may increase the cost-effectiveness of using a robotic approach.



Abstract 106. Figure 1. Difference in OR time and EBL.

Abstract 107

Adolescent erectile dysfunction: A proposed questionnaire for the pediatric urology patient

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Introduction: Pediatric urologists have seen an increase in adolescent male patients presenting with erectile dysfunction (ED). An extensive literature review reveals a lack of publications, creating a challenging discordance among providers. We propose using a questionnaire for these patients, serving as a resource to aid in evaluation and treatment.

Methods: A retrospective, single-practice chart review over eight years from 2014–2022 was conducted in 129 males aged between 14 and 21 who presented to pediatric urology with a primary complaint of ED. Potential causes of ED were identified based on the patient's note, including mental health, prior trauma/surgeries, pornography use, signs of delayed puberty, libido, performance anxiety, the ability to ejaculate, and stress. A questionnaire was designed to augment the identification of organic and psychogenic causes of ED.

Results: The questionnaire should be completed without parental oversight for the best results. After obtaining a full history and focused physical exam, the questionnaire is used to help indicate a psychogenic or organic cause for ED. Questions 1–6 target an organic cause, while questions 7–11 target a psychogenic origin. Questions 1 and 2 screen for patients that may have hormone dysfunction/delayed puberty and would benefit from lab testing (testosterone, prolactin, TSH) and/or a referral to endocrinology. If screening is positive for excessive pornography use, stress, or mood changes, a psychiatry/psychology referral is indicated. For patients with excessive masturbation or pornography use, counselling should be provided on reducing these behaviors. If hormone levels are normal or psychiatry treatment does not improve ED, a trial of 2.5 mg tadalafil is reasonable prior to further referral to adult urology.

Conclusions: Using the proposed questionnaire, clinicians can better identify the organic or psychogenic origin of adolescent ED, allowing for targeted treatment. Considering the personal nature of these questions, this approach better serves patients who are less likely to share intimate information in front of a parent. Based on questionnaire responses, patients can receive the proper referral, lab testing, and/or a trial of 2.5 mg tadalafil more efficiently, improving patient outcomes/satisfaction and reducing referrals to adult urology.

Abstract 108

Prospective characterization of entrance skin dose of radiation during abdominal radiographs in pediatric urology patients

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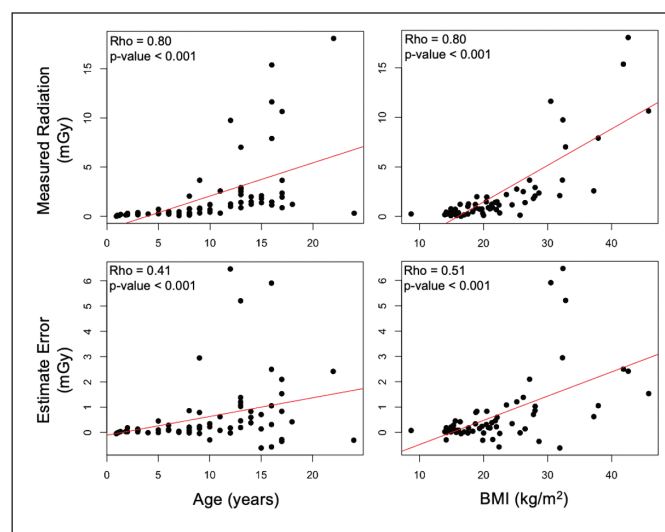
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Introduction: Abdominal radiograph (AR) is used in the evaluation of bowel-bladder dysfunction in urology. A true radiation dose per exam is not known, as current methods estimate doses from X-ray outputs. This study aims to characterize true skin entrance doses of radiation for AR ordered by urologists and identify targets for radiation reduction.

Methods: Urology patients undergoing AR were prospectively recruited. A dosimeter was fixed to the patient's navel to measure skin entrance doses. Estimated doses were subtracted from measured doses to calculate an estimate error.

Results: Sixty-nine patients were included. Average age was 9.96 years (SD 5.4), median height was 142.6 cm (IQR 110.9–159.8), and median body mass index (BMI) was 19.8 (IQR 15.7–26.1). Lower urinary tract dysfunction and concern for bowel-bladder dysfunction was the reason for 89.9% of exams performed. Patients underwent a median of two images (range 1–4) and 25.7% of exams used medium- or high-dose strength. The median measured and estimated doses of radiation absorbed at skin level were 0.77 mGy (IQR 0.3–2.0) and 0.63 mGy (IQR 0.3–1.2), respectively; this difference was significant on paired comparison ($p < 0.001$). The median estimated whole-body dose was 0.12 mSv (IQR 0.05–0.24) per exam. Estimated and measured radiation dose, as well as estimate error, all showed a significant positive correlation with age, height, and BMI ($p < 0.001$) (Figure 1). Increasing age, height and BMI carried significant risk of more than one image being obtained higher dose strengths being used ($p < 0.01$).

Conclusions: Measured radiation dose was significantly greater than estimates but remained within safe limits. Older, larger patients experienced more images and higher dose strengths leading to higher radiation exposure and greater deviation from estimated exposure. Further study could evaluate protocols limiting image number and dose in these children.



Abstract 108. Figure 1. Radiation exposure metrics increase with patient age and size. Patient age and BMI were positively correlated with increasing measured radiation dose but also estimate error.

Abstract 109
Did a USNWR metric mitigate healthcare disparities in children with testicular torsion?

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Introduction: In 2015, the U.S. News and World Report (USNWR) included a Speed in Treating Testicular Torsion metric in its ranking of U.S. children’s hospitals. Hospitals with partial scoring on this metric were incentivized to change practice patterns to achieve a complete score. These changes may have been associated with improved surgical salvage rates and health equity. We compared the pre- and post-metric salvage rates in both the general cohort and in those with barriers to care.

Methods: The Pediatric Health Information System was queried to identify cases of testicular torsion based on CPT, ICD-9, and ICD-10 diagnostic and procedure codes across 52 hospitals between January 2010 and December 2019 in patients 1–18 years of age. The inclusion of CPT codes was a broader definition than previous analyses. Data from hospitals with non-continuous reporting were excluded. Only cases associated with an Emergency Department visit were included. Any case with orchiectomy was considered a failed testicular salvage

surgery. Salvage surgery rates before and after the publication of the USNWR metric on June 15, 2015, were compared for statistical significance with Chi-squared analysis. Subgroup analysis was performed based on Child Opportunity Index (COI), income, urban flag, complexity flag, and payor type.

Results: We identified 4922 surgical cases of testicular torsion: 2335 in full-scoring and 1615 in partial-scoring hospitals. Partial-scoring hospitals had increased rates of torsion salvage surgeries after the metric (61.0% vs. 67.5%, $p = 0.007$). Among patients treated at an initially partial-scoring hospital, statistically significant improvement after the metric was limited to those with the lowest COI (56.0% vs. 65.4%, $p = 0.005$), urban residence (61.6% vs. 68.1%, $p = 0.008$), annual income $< \$30,000$ (46.7% vs. 69.4%, $p = 0.023$), public insurance (54.4% vs. 63.8%, $p = 0.010$), and a medical complexity flag (35.3% vs. 61.1%, $p = 0.031$). None of these groups had statistically significant improvement in complete-scoring hospitals, and complete-scoring hospitals had a non-significant improvement in salvage rate (65.5% vs. 69.1%, $p = 0.075$).

Conclusions: Rates of testicular torsion salvage surgeries have increased after the implementation of a USNWR metric. The improvements are most pronounced in patients with socioeconomic barriers to care who presented to hospitals who improved on this USNWR metric.

	Partial Scoring (1,615 cases)	Complete Scoring (2,335 cases)
COI		
Less than 50	Pre: 56.0% Post: 65.4% Δ 9.4%* (848 cases)	Pre: 62.1% Post: 67.3% Δ 5.3% (1,250 cases)
Greater than 50	Pre: 66.6% Post: 70.0% Δ 3.3% (767 cases)	Pre: 70.1% Post: 70.9% Δ 0.7% (1,085 cases)
Urban		
Yes	Pre: 61.6% Post: 68.1% Δ 6.5%* (1,524 cases)	Pre: 66.0% Post: 69.1% Δ 3.1% (2,156 cases)
No	Pre: 50.0% Post: 57.5% Δ 7.5% (91 cases)	Pre: 60.8% Post: 68.8% Δ 8.1% (179 cases)
Complex		
Yes	Pre: 35.3% Post: 61.1% Δ 25.8%* (70 cases)	Pre: 43.4% Post: 54.6% Δ 11.2% (108 cases)
No	Pre: 62.2% Post: 67.8% Δ 5.7%* (1,545 cases)	Pre: 66.8% Post: 69.9% Δ 3.3% (2,227 cases)
Payor		
Public	Pre: 54.4% Post: 63.8% Δ 9.4%* (733 cases)	Pre: 63.6% Post: 61.8% Δ -1.8% (993 cases)
Other	Pre: 60% Post: 65.5% Δ 5.5% (135 cases)	Pre: 61.3% Post: 64.2% Δ 2.9% (156 cases)
Private	Pre: 67.4% Post: 71.6% Δ 4.2% (747 cases)	Pre: 67.6% Post: 76.1% Δ 8.5%* (1,196 cases)
Income		
Less than \$30,000	Pre: 46.7% Post: 69.4% Δ 22.8%* (147 cases)	Pre: 65.8% Post: 68.2% Δ 2.3% (356 cases)
More than \$30,000	Pre: 62.5% Post: 67.4% Δ 4.8% (1,468 cases)	Pre: 65.5% Post: 69.3% Δ 3.8% (1,979 cases)

Table 1: The salvage rates pre- and post-metric along with the absolute change. Statistically significant changes ($p < 0.05$) are highlighted in pink and are followed by an asterisk.

Abstract 109. Figure 1. The salvage rate pre- and post-metric, along with absolute change. Statistically significant changes ($p < 0.05$) are highlighted in pink and followed by an asterisk.

Abstract 110
Timing of gonadectomy in patients with Turner syndrome with Y chromosome material is related to malignancy risk: A systematic review

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Introduction: Current guidelines suggest patients with Turner syndrome with a genetic Y component (TSY) have an increased tumor risk and are recommended to undergo gonadectomy; however, the proper timing of gonadectomy to prevent malignancy while promoting patient autonomy has been debated. In this preliminary analysis from a larger systematic review on intersex testicular cancer, we aim to evaluate the quality of existing evidence on this topic.

Methods: A search was conducted in MEDLINE, Embase, CINAHL, and Web of Science. Eligible studies were appraised for quality and relevant data were extracted by independent reviewers. Patients from eligible studies were sorted into pre-pubertal and post-pubertal gonadectomy cohorts. The two cohorts were evaluated for malignancy rate, type of testicular neoplasms, and whether radiotherapy/chemotherapy was required. The quality of evidence was evaluated using the GRADE approach.

Results: Forty-eight studies were included in this review: nine cross-sectional studies and 39 case reports/series. These studies identified 177 patients with TSY, of which 78 had pre-pubertal gonadectomy and 99 had post-pubertal gonadectomy. The rate of malignancy was lower in patients who had pre-pubertal gonadectomy compared to post-pubertal gonadectomy (RR 0.05; 95% CI 0.01–0.34). There were 21 cases of malignant dysgerminoma or non-seminomatous germ cell tumor (GCT) among the post-pubertal gonadectomy cohort, while only one case was reported in pre-pubertal gonadectomy patients. Six patients with post-pubertal gonadectomy required radiotherapy or chemotherapy for management of their malignancy, with none required in patients with pre-pubertal gonadectomy. Using the BMJ tool for evaluating the quality of case reports/series, these studies scored an average of 2.91/5 points, indicating the case reports included were of low average quality. Using the JBI tool for evaluating cross-sectional studies, included studies scored an average of 4.91/8 points, indicating included cross-sectional studies were also of low quality.

Conclusions: The rate of testicular malignancy appears to be lower in gonads extracted from patients pre-pubertally based on this preliminary data. Patients with delayed gonadectomy may require further management with chemotherapy/radiotherapy; however, the quality of the existing literature in this analysis is low; 81% of included studies are case reports/series, which provide poor clinical guidance. Overall, further research is needed to provide recommendations for gonadectomy timing in this vulnerable population.

Abstract 110. Table 1. Patients with pre-pubertal gonadectomy may have a lower risk of malignant germ cell tumors

Outcomes	No of participants (studies)	Quality of evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with post-pubertal gonadectomy	Risk difference with pre-pubertal gonadectomy (95% CI)
Malignancy	177 (48 studies)	LOW	RR 0.05 (0.01–0.34)	273 per 1000	260 fewer per 1000 (from 351 to 169 fewer)
Germ cell neoplasms	177 (48 studies)	LOW	RR 0.55 (0.34–0.90)	394 per 1000	176 fewer per 1000 (from 309 to 43 fewer)
Gonadoblastoma	177 (48 studies)	LOW	RR 0.72 (0.43–1.20)	303 per 1000	85 fewer per 1000 (from 214 fewer to 44 more)
Dysgerminoma	177 (48 studies)	LOW	RR 0.11 (0.01–0.80)	121 per 1000	108 fewer per 1000 (from 177 to 39 fewer)
Non-seminomatous GCT (embryonal, yolk sac, teratoma)	177 (48 studies)	LOW	RR 0	91 per 1000	91 fewer per 1000 (from 147 to 34 fewer)
Chemotherapy/radiotherapy	52 (20 studies)	LOW	RR 0	154 per 1000	154 fewer per 1000 (from 267 to 41 fewer)

Patients with pre-pubertal gonadectomy had significantly decreased rates of overall malignancy, dysgerminoma and non-seminomatous GCT, although the evidence for this was low-quality. GRADE working group grades of evidence: High quality: Further research is very unlikely to change our confidence in the estimate of effect. Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate. Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate. Very low quality: We are very uncertain about the estimate.

Abstract 111
Are adult males concerned about the appearance of their newborn circumcision?

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Introduction: Male circumcision is a common procedure performed in the U.S., most often done during the newborn period. Circumcision revisions are often requested by parents during childhood for concerns about the cosmetic appearance (redundant foreskin, penile adhesions, penoscrotal webbing or hidden penis). The driving force for parental request for circumcision revision is concern about how their child will feel about their penile appearance when they are older. We sought to survey adult men about their feelings regarding their penile appearance in high school and as an adult.

Methods: Adult males presenting to the urology clinic for vasectomy consultation were provided an anonymous questionnaire on their feelings regarding their penile appearance. Circumcised and uncircumcised males were included. Males with any other urologic concern other than request for sterilization were excluded. The provider completed a questionnaire on the objective penile appearance (redundant skin, webbing, skin bridges, adhesions).

Results: Seventy-three men were recruited: 60 were circumcised as newborns, 13 were uncircumcised. None of the 60 circumcised males had a revision procedure as a child. Nine circumcised males (15%) were concerned about penile appearance in high school, of which four (44%) remained unhappy with the appearance as an adult. On physical exam, 20 circumcised males (33%) had redundant foreskin, but only three (15%) of these males were unhappy with their penile appearance in high school and only one was unhappy with the appearance as an adult. Of the 13 uncircumcised males, three were unhappy with the appearance in high school but none were unhappy with the appearance at time of the survey.

Conclusions: Very few circumcised males are concerned with penile appearance especially in the setting of redundant foreskin. Despite inherent limitations with this small survey study, this information can be used to help counsel families requesting circumcision revision in childhood.

Abstract 112
Bowel bladder dysfunction in control children in a pediatric urology office

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Introduction: Bowel bladder dysfunction (BBD) is common in children. Risk factors for BBD include age, gender, obesity, and behavioral issues, such as ADHD. We sought to determine if children without bowel/bladder symptoms have similar risk factors.

Methods: All English-speaking patients/parents in our pediatric urology practice >3 years old who were reportedly toilet trained were provided the validated Swedish Bowel Bladder Questionnaire (BBQ). Total scores as well as subscores for storage, emptying, and constipation were prospectively collected. Presenting diagnosis, gender, BMI, and ADHD history were retrospectively collected. Controls were a) those with genital problems (e.g., hydrocele/undescended testes); and b) those with urinary abnormalities (e.g., hydronephrosis). All patients with likely voiding dysfunction (e.g., UTIs, enuresis) were excluded from the final analysis of the controls but were analyzed separately. BBQ scores were analyzed as a continuous variable vs the potential risk factors (ADHD, obesity, age, and gender) using univariable/multivariable regression analysis.

Results: The median BBQ score for the 336 control patients (101 urinary and 235 genital) was 3 with an IQR 1–6 (in contrast, the median BBQ for those with likely voiding dysfunction, n=285, was 9 with an IQR 5–15). Total BBQ score exceeded 6 in 16% (54/336) of control patients. Total BBQ and all three subscores decreased with age (p<0.001 for total and storage; p=0.016 for emptying; and p=0.016 for bowel) on univariable basis. On multivariable analysis, age-adjusted total BBQ scores increased with ADHD in our controls (p=0.017) but were unaffected by gender or BMI. On multivariable analysis of the voiding dysfunction group, total BBQ scores similarly decreased with age (p<0.001) and increased with ADHD (p<0.001) but were also significantly affected by gender (p=0.024). BMI had no significant effect in either cohort.

Conclusions: Using the validated BBQ score we showed that in American children presenting to a pediatric urology office without complaints of BBD, there is improvement in bladder storage and emptying symptoms with age. Additionally, 16% of children with genital or urinary abnormalities and no voiding complaints have noticeable BBD uncovered by the BBQ. Hence, we conclude that the Swedish BBQ is a sensitive indicator of BBD even in children not complaining of those problems.

Abstract 113
Examining the impact of socioeconomic factors in posterior urethral valve presentation and outcomes

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Introduction: Despite improvements in urologic care, posterior urethral valves continue to have high rates of progression to renal failure. Socioeconomic status has been linked to several medical outcomes but has not been evaluated in the outcomes of congenital urologic anomalies. The aim of this study was to evaluate the effect of socioeconomic status and community disadvantage on renal outcomes in posterior urethral valves patients.

Methods: A retrospective review of posterior urethral valve patients receiving urologic care between 1998 and 2018 at a tertiary care center was performed. Measures of socioeconomic status in the form of an area deprivation index (ADI) were collected for each patient and correlated with renal outcomes. The primary outcome was renal transplant with secondary outcomes including chronic kidney disease, dialysis, and early valve diagnosis.

Results: We identified 145 patients diagnosed with posterior urethral valves during the study period. The median area deprivation index for the sample was 74th percentile of disadvantage nationally, with 41 patients at severe disadvantage as categorized by an ADI over the 85th percentile. Seventy-one percent of the population had private insurance. The disadvantaged population had a higher rate of diagnosis prior to six months of age (74.6% vs. 54%, p=0.03). Otherwise, they had similar presentations and urologic care for their posterior urethral valves. Dialysis was significantly more common in the disadvantaged population (24.4% vs. 9.6%, p=0.02). The only predictor of renal transplantation on multivariable analysis was serum Cr >1 within one year of valve ablation (OR 92.7, p<0.001). Outcomes did not vary with insurance status.

Conclusions: Severe community disadvantage as measured by the ADI was associated with higher rates of dialysis and an early diagnosis of posterior urethral valves while insurance status was not associated with renal outcomes. Consideration of socioeconomic status may draw attention to patients with severe disease that would benefit from social support as a part of their care.

Abstract 114
Urodynamic effects of tethered cord release in the modern era of neurosurgical techniques

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Introduction: In the modern era, there have been significant advancements in neurosurgical approaches to tethered cord release including intraoperative monitoring and more meticulous dissection of the neural placode to avoid resection. This study's objective was to evaluate for improvements in urodynamic profile and symptoms following tethered cord release over the years that these improved techniques have been in use.

Methods: This study retrospectively reviewed all patients undergoing primary tethered cord release at our tertiary care center over the years 2001–2021 for urodynamic and symptom reports before and after surgery. Our primary outcomes included urodynamic measurements of capacity and compliance.

Secondary outcomes included symptoms and imaging findings. Normal expected bladder capacity was calculated with an age-based formula. Abnormal compliance was assessed by a detrusor leak point pressure greater than 40 cm H₂O.

Results: This study identified 40 patients who underwent tethered cord release with a median age of six years at surgery (IQR 2.7–9.2). Urodynamics data was available for 34 patients, with a median followup of seven months (IQR 4.3–18.8) at the time of postoperative studies. Abnormal bladder capacity was seen in 21 children (61.8%) and abnormal compliance was seen in 11 patients (32.4%). Postoperatively, 13 patients (38.2%) improved in one or both urodynamic parameters, 12 (35.3%) remained similar, and nine (26.5%) deteriorated. Most patients were maintained on intermittent catheterization regimen, of which 14 (46.7%) reported leakage between catheterizations preoperatively. Postoperatively, leakage resolved in six patients (20%) but worsened in six patients as well (20%). Similar patterns were present with urinary tract infections. Imaging findings were abnormal in seven patients preoperatively (18.9%), with four improving and four presenting with new hydronephrosis or VUR (10.8%) postoperatively. In general, most patients (60%) experienced no change in capacity, compliance, or symptoms after tethered cord release.

Conclusions: Despite new neurosurgical advances, historical dogma overall holds that similar proportions of children will improve and decline following tethered cord release though the majority remain unchanged. Urodynamics appear to be a more sensitive measure of changes than symptom report.

Abstract 114. Table 1. Resulting change in outcome measures following tethered cord release

Variable	Patients with data available	Abnormal preoperatively	Postoperative change		
			Improved	Unchanged	Deteriorated
Bladder capacity	34	21 (61.8%)	7 (20.6%)	21 (61.8%)	6 (17.7%)
Bladder compliance	34	11 (32.4%)	8 (23.5%)	21 (61.8%)	5 (14.7%)
Overall urodynamic profile	34	22 (64.7%)	13 (38.2%)	12 (35.3%)	9 (26.5%)
Leaking between catheterization	30	14 (46.7%)	6 (20.0%)	18 (60.0%)	6 (20.0%)
Urinary tract infections	36	10 (27.8%)	6 (16.7%)	22 (61.1%)	8 (22.2%)
Radiographic abnormalities	37	7 (18.9%)	4 (10.8%)	29 (78.4%)	4 (10.8%)

Abstract 115
Knowledge and awareness of testicular torsion and outcomes in boys and their families

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Introduction: Delays in diagnosis and management of testicular torsion (TT) can result in higher rates of orchiectomy and atrophy. In order to identify barriers to the TT treatment pathway, this study examined patient and parental knowledge of the topic, as well as capturing the impact on time delays and testicular salvage.

Methods: This study prospectively identified 12 patients presenting to the ER with acute scrotal pain from August 2022 to March 2023 at a single institution. A separate cohort of 10 patients who presented to shared multidisciplinary clinics and did not have a scrotal condition were included as a control group. Both groups completed a survey to evaluate their knowledge of TT and sources of health information. Clinical data was recorded from those patients who presented to the ER, as well as perioperative data and surgical outcome from those who underwent surgical exploration.

Results: Of 12 patients participating in the study, two ultimately were diagnosed with TT and underwent scrotal exploration, with 1/2 resulting in orchiectomy; 4.5% (1/22) of patients had heard of TT in the past, while 18.2% (4/22) of parents had heard of the condition from a medical professional or through their own medical background. The most common source of health information for both parents and patients was their general practitioner or the internet. The most common reason identified in seeking treatment was that patients were worried

that they were having testicular torsion or that it represented an infection (25%, 3/12). When first experiencing the pain, 25% (3/12) thought the pain would improve on its own, and another 25% (3/12) felt embarrassed and wanted to keep the pain private.

Conclusions: Public awareness of testicular torsion is lacking and may be a barrier for testicular salvage.