

Variation in Management of Duplex System Intravesical Ureterocele: A Survey of Pediatric Urologists

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Purpose: Controversy exists in ureterocele management and the literature lacks clear management guidelines. We surveyed pediatric urologists to understand practice patterns and perceptions of managing duplicated system intravesical ureterocele.

Materials and Methods: The survey consisted of 3 case scenarios, including upper pole obstruction without reflux, ureterocele without hydronephrosis and reflux after incision. The survey evaluated management at patient age 3 months and used a Likert scale to evaluate management strategies later in life.

Results: We analyzed 233 responses. There was agreement in prophylactic antibiotic use and diagnostic evaluation. When managing a duplicated system intravesical ureterocele with poor upper pole function, 50.6% of respondents advocated puncture at age 3 months. However, when followed conservatively for 18 months, the preference changed to surgical management with partial nephrectomy preferred by 61.8% of respondents. When managing the condition without hydronephrosis, watchful waiting was preferred by 47.2% of respondents while 35.6% chose puncture and another 16.3% chose partial nephrectomy. Most respondents advocated ureteral reimplantation to manage reflux to the upper pole after puncture while some preferred endoscopic Deflux® injection. Continued nonoperative management while off prophylaxis was not preferred. Most respondents viewed the risks of surgery and anesthesia as important factors when weighing options in children younger than 3 months. Preventing symptoms and preserving function of the renal units were significant factors guiding surgical intervention.

Conclusions: We found significant variation in management of duplicated system intravesical ureterocele. Most pediatric urologists see fewer than 10 cases per year, stressing the need for multi-institutional, randomized, controlled studies to evaluate management and long-term outcomes.

Abbreviations and Acronyms

DSU = duplex system ureterocele

Study received approval from the Dartmouth College committee for protection of human subjects.

Supplementary material for this article can be obtained at http://www.dhmc.org/dhmc-internet-upload/file_collection/survey_figures_tables.doc.

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Key Words: urinary bladder, ureter, ureterocele, questionnaires, anomalies

THERE are several options to manage a duplicated collecting system associated with a ureterocele, including nonoperative management,¹⁻³ endoscopic puncture,^{4,5} and primary upper and lower tract surgery.⁶ Surgical options achieve the same long-term outcome but morbidity and the need for

multiple procedures remain important factors in decision making.⁷ The goal of treatment is to preserve overall renal function and prevent symptoms such as urinary tract infections and incontinence. Prenatal ultrasound decreases morbidity and potential adverse outcomes.⁸ The current litera-

ture lacks best management strategies and guidelines. Management is influenced by renal unit function, vesicoureteral reflux, ureterocele type, patient age, febrile urinary tract infection history and surgeon preference.

We hypothesized significant variation in DSU management. To test our hypothesis we designed a survey to determine current management by pediatric urologists.

MATERIALS AND METHODS

Survey

Population. We sent the survey to members of the Society for Pediatric Urology, European Society for Pediatric Urology and Asian Pacific Association of Pediatric Urologists using a Web based questionnaire (www.surveymonkey.com).

Questions. Based on a previous meta-analysis performed by 1 of us (PAM) and a literature review we evaluated management for intravesical ureterocele associated with a duplicated collecting system. We designed the survey to answer certain questions, including how pediatric urologists manage prenatally diagnosed intravesical DSU, their perception and opinion on the various management options, the prevalence of surgical management for prenatally diagnosed ureterocele, the outcome and risks of anesthesia and surgery in neonates, the availability of adequate literature to guide decision making and willingness to participate in randomized, controlled trials.

Design. To improve the validity of this survey (construct validity) we performed cognitive interviews with pediatric urologists and sent a pilot survey to 25 pediatric urologists who agreed to participate. Based on responses and comments from cognitive interviews and the pilot survey we formed the final questionnaire.

Questions. The survey consisted of 3 parts. Part 1 included 3 case scenarios of prenatally diagnosed DSU. Scenario 1 was a male patient with DSU, hydronephrosis of the upper pole with poor function and no vesicoureteral reflux. Scenario 2 was a male patient with DSU, no hydronephrosis and a mildly dilated upper pole ureter without vesicoureteral reflux. Scenario 2 was management 5 years later in a female with DSU that was punctured and showed high grade reflux to the upper pole moiety.

Respondents were asked to answer questions related to the initial evaluation at birth. They were then asked questions on management at age 3 months, including conservative, puncture, partial nephrectomy or other. For management at ages 12 to 18 months respondents were offered multiple management options and asked to respond to each option using a Likert scale of definitely yes, probably yes, probably no and definitely no.

Part 2 included questions on risk benefit, perception and opinions on ureterocele management. All responses were created on a Likert scale of very important, somewhat important and not important. Respondents were also asked about their perception of the available literature in providing evidence-based guidelines, the preva-

lence of surgery for prenatally diagnosed ureterocele, the outcomes of prenatally diagnosed ureterocele and their willingness to participate in randomized, controlled trials. These answers were on a Likert scale of strongly agree, somewhat agree and strongly disagree.

Part 3 concerned respondent demographics, including practice location, years in practice and number of ureteroceles treated per year.

The main outcome measure was variability in pediatric urologists practice for DSU stratified by location and years in practice. We considered a management option favorable when respondents answered definitely yes or probably yes.

Data Analysis

Data were summarized and are shown quantitatively as tables and bar graphs. When comparing groups we used chi-square statistical analysis. Cronbach's α was used to compare responses between similar questions (interitem correlation) using Stata® 10.1.

RESULTS

We received 269 responses for an estimated 40% response rate. We discarded 36 incomplete responses, leaving 233 available for analysis.

Demographics

Most respondents were in the United States (85 or 36.5%), Europe (109 or 46.8%) and Asia (27 or 11.6%) (see table). Of the 233 respondents 190 (81.6%) treated fewer than 10 cases per year. More than 50% of respondents were in practice for longer than 15 years and more than 73% dedicated more than 75% of practice to pediatrics.

Case Scenario 1

In the male patient with DSU, hydronephrosis of the upper pole with poor function and no vesicoureteral reflux there was more than 80% consensus on initial management and evaluation. Prophylactic antibiotics were recommended by 197 of the 233 respondents (84.5%). Voiding cystourethrogram in the neonatal period was done by 205 respondents (88%) and renal scan was done by 200 (85.8%). Circumcision at birth was not advocated by 126 of 203 respondents (67%).

Age 3 months. Of the 233 respondents 118 (50.6%) advocated ureterocele puncture. Partial nephrectomy and conservative management without surgery were recommended by 62 (26.6%) and 53 (22.7%), respectively. Puncture was favored by 22 of 27 respondents (82%) in Asia and 57 of 109 (52.3%) in Europe compared to 21 of 85 (36.5%) in the United States. Partial nephrectomy was recommended by 27% of respondents in the United States, 30.3% in Europe and only 11% in Asia ($p < 0.05$).

Age 18 months. Part A of the figure shows response variability with a less than 20% rate of a definitely

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