(MP29-04) Annual Renal Ultrasound is Adequate Surveillance to Screen for New Obstructive Uropathy in Adult Patients with Congenital Anomalies of the Bladder

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PURPOSE

Detail our method for surveilling adults with congenital bladder anomalies and describe the incidence of de novo obstructive uropathy in this at risk population.

ABSTRACT

Introduction: Patients with congenital bladder anomalies are surviving into adulthood and transitioning to adult urologic care. Urologists represent a hugely important gate keeper, as traditionally the leading cause of death in patients with spina bifida over 16 years old was renal failure secondary to complications of the urinary tract. Unfortunately, there are no standard guidelines to aid urologists in choosing an appropriate surveillance protocol. The goal of our study was to describe our surveillance patterns and examine renal outcomes among our population with congenital bladder anomalies.
Methods: We identified patients with ICD-9 and ICD-10 codes for spina bifida (SB), posterior urethral valves (PUV) and bladder exstrophy (BE) who had been seen between 2008 - 2019 at our institution, a single tertiary referral academic center with an associated pediatric practice. Data was collected through retrospective chart review. We excluded patients who had chronic kidney disease or clinically significant hydronephrosis upon referral.
Results: We identified 103 subjects (83% SB, 1% PUV, 16% BE). [Table 1] Our surveillance protocol involved annual renal ultrasonography. Routine bloodwork or urodynamics was not completed unless prompted by worsening hydronephrosis. 6% of patient developed new or worsening hydronephrosis during follow up. No patient developed worsening renal function, as measured by creatinine, in the absence of new or worsening hydronephrosis and only one patient had a concomitant rise in creatinine. Of the 6 patients, 2 patients were observed with what was felt to be physiologic hydro, 3 patients required surgery for obstruction at the level of the stoma (1) or ureter (2) and one patient ultimately required transplant. Of note, one of the patients with ureteral obstruction was found to have metastatic adenocarcinoma from his augmented bladder causing obstruction. The final patient, managed with a catheterizable pouch, developed new bilateral hydronephrosis and end stage renal disease after being lost to follow up for 10 years.
Conclusions: Annual renal ultrasounds detected that 6% of patients developed de novo or worsening hydronephrosis. Three required surgical intervention and one went on to require renal transplant. No patients developed renal failure in the absence of hydronephrosis, and the majority of hydronephrosis was iatrogenic and required operative management.

METHODS

- Identified all patients with SB, PUV and BE seen in adult urology clinic 2008-2019
- Excluded those with known hydronephrosis or renal failure at time of referral
- Surveillance protocol: Annual renal US, bloodwork/urodynamics done as indicated if abnormal renal US

Table 1: Demographics, pediatric management, development of hydronephrosis

		Overall (n=103)	SB (n=86)	PUV (n=1)	BE (n=16)
Age at referral (yrs)		27.2	25.6	26	36.2
Gender (% Male)		46%	44%	100%	56%
Mean Length of Follow Up, Months		91.7	88.4 [0-328]	101	108.3[0-326]
Pediatric bladder management	Crede Voiding		5% [4]	--	13% [2]
	CIC		27% [23]	100%	--
	Bladder Augment		40% [34]	--	19% [3]
	Conduit		5% [4]	--	31% [5]
	Catheterizable channel only		9% [8]	--	--
	Ureterosigmoidostomies		--	--	19% [3]
	Other		15% [13]	--	19% [3]
Patients who developed hydronephrosis		6%	3.5% [3]	100%	13% [2]

RESULTS

- 6 patients developed hydronephrosis
  - 1 patient had concomitant rise in Cr
- No patient developed renal failure in the absence of hydronephrosis
- 2/6 patients had significant compliance issues resulting in delayed presentation
- 1/6 ultimately required dialysis
- Average follow up 91 months

<u>Etiology of Hydronephrosis</u>:

- 2 pts: Observed, thought to be physiologic due to reflux
- 3 pts: Developed iatrogenic retention due to ureteral-enteric anastomotic strictures or stomal stenosis
- 1 pt: Obstructive uropathy due to adenocarcinoma of bladder

CONCLUSIONS

- Annual renal ultrasound detected 6% rate of de novo hydronephrosis
- No patient developed renal failure in absence of hydronephrosis
- 83% of hydronephrosis was iatrogenic