

Anterior Urethral Valves

K.L. Narasimhan
S.K. Choudhary
Balpinder Kaur

Posterior urethral valves (PUV) are the most frequent cause of obstructive uropathy in boys. Rarer causes of obstructive uropathy include bladder diverticulae, meatal stenosis and urethral or bladder stones. Anterior urethral valves are rare causes of urinary obstruction in boys and are ten times less frequent than PUV in the literature(1-6). This paper highlights our experience with 5 patients with anterior urethral valves.

Cases

Of 264 boys with obstructive uropathy presenting at this center between 1989-2004, 246 had PUV. Five patients had anterior urethral valves (*Figs. 1,2*). The clinical details of these patients are given in *Table I*.

One patient presented with antenatally diagnosed bilateral hydronephrosis and oligohydramnios (Pt. 4). One patient had associated perineal bulge and urethral diverticulum with anterior urethral valves (*Fig. 2*, Pt. 5). Two patients had associated grade V vesicoureteric reflux. The site of obstruction was the penoscrotal junction in 4 and root of penis in one patient. All cases were successfully treated endoscopically.

From the Department of Pediatric Surgery, Post Graduate Institute of Medical Education and Research, Chandigarh 160 012, India.

Correspondence to: Dr. K.L. Narasimhan, Associate Professor, Department of Pediatric Surgery, Post Graduate Institute of Medical Education and Research, Chandigarh 160 012, India.

*Manuscript received: November 30, 2004;
 Initial review completed: December 24, 2004;
 Revision accepted: February 9, 2005.*

Discussion

Anterior urethral valves are rare causes of obstructive uropathy in boys with only three large series(1,2,5). They are an important cause of urinary tract obstruction in children and can be easily missed by an unaware clinician(3,4,6). They occur less frequently than PUV. Anterior urethral valves are congenital in nature and can be located anywhere in the anterior urethra *viz.*, approximately 40% in the bulbar urethra, 30% at the penoscrotal junction and 30% in the penile urethra. Some of them exist without an associated diverticulum(2). Four of the 5 patients in this report presented without an associated diverticulum.

The clinical presentation of anterior urethral valves is similar to that of PUV. The spectrum ranges from mild urethral dilatation to bilateral hydronephrosis with renal insufficiency. Anterior urethral valves can cause histological changes in the bladder similar to PUV and produce valve bladder like picture(1-6). The presentation in the developed countries is usually as an antenatally diagnosed hydronephrosis because of routine antenatal screening. However, in our country the presentation is usually seen in older children with obstructive urinary symptoms, and/or urinary tract infections. It is estimated that one third of patients with anterior urethral valves have an associated diverticulum, which presents as a swelling in the root of the penis after voiding and compression of which results in dribbling of urine from the meatus(2). Fewer than 5% of the patients with anterior urethral valves progress to renal failure. Patients with significant upper tract deterioration present at a younger age(2). It is recommended that a MCU be done for diagnosis, since the valves are likely to be missed on retrograde urethrography, as they remain open with retrograde flow(1-3). The whole of the anterior urethra must be included in the

CASE REPORTS

TABLE I—Clinical features and outcome in patients with anterior urethral valves

| Age at presentation | Symptoms | Signs | MCU | Site of obstruction | Treatment | Postoperative creatinine (mg/dL) |
|---------------------|--|---|--|---------------------|--|----------------------------------|
| 3 months | UTI, poor stream | Bladder palpable, no perineal bulge | NO VUR AUV | Penoscrotal | Endoscopic fulguration | 0.8 |
| 9 months | UTI, poor stream | - do - | Left grade V VUR (Fig.1) | Penoscrotal | Endoscopic fulguration | 1.2 |
| 1½ years | UTI, poor stream | - do - | NO VUR AUV | Penoscrotal | Endoscopic fulguration | 1.2 |
| Newborn | Antenatal diagnosis and bilateral hydronephrosis | - do - | Bilateral | At root of penis | Initial vesicostomy and endoscopic fulguration | 0.6 |
| Newborn | Dribbling of urine, poor urinary stream | Bladder palpable, perineal bulge on micturition | No VUR; AUV with diverticulum (Fig. 2) | Penoscrotal | Endoscopic fulguration | 0.8 |



Fig. 1. Micturating cystourethrogram (Patient no.2) showing left grade V vesicoureteric reflux with dilated urethra up to the penoscrotal junction (arrow),



Fig. 2. Micturating cystourethrogram (Patient no.5) showing a diverticulum in association with anterior-urethral valves (arrow).

CASE REPORTS

field of exposure while doing MCU in order to avoid missing the site of obstruction.

Baseline renal functions and follow up must be done like PUV. Approximately one-half of all patients can be treated with simple transurethral fulguration. Savage, *et al.* have proposed an algorithm for treatment based on the severity of disease(2), which recommends vesicostomy in infants with high grade reflux and poor emptying of the urinary tract. If the urethra is of sufficient caliber and support, transurethral fulguration is recommended. Open urethroplasty is useful in patients with a large urethral diverticulum and thin urethra.

Contributors: KLN, SKC, BK worked up the case and collected the literature; KLN will act as guarantor.

Funding: None.

Competing interests: None.

REFERENCES

1. Williams DI, Retik AB. Congenital valves and diverticula of the anterior urethra. *Br J Urol* 1969; 41: 228-234.
2. Van Savage JG, Khoury AE, Mclorie GA, Bagli DJ. An Alogorithm for the management of anterior urethral valves. *J Urol* 1977; 158: 1030-1032.
3. Firlit RS, Firlit CF, King LR. Obstructing anterior urethral valves in children. *J Urol* 1978; 119: 819-821.
4. Kolte SP, Joharpurkar SR. Anterior urethral valves- a rare cause of urethral obstruction. *Indian J Pediatr* 2001; 68: 83-85.
5. Huang CJ, Bai JW, Liang RX, Sun N. Congenital anterior urethral valves and diverticula-analysis of 50 cases. *Ann Acad Med Singapore*, 1989; 18: 665-668.
6. Paulhac P, Fourcade L, Lesaux N, Alain JL, Colombeau P. Anterior urethral valves and diverticula. *BJU Int* 2003; 92: 506-509.