Urethra duplication with bladder outlet membrane obstruction

Le-Ye He[1] • Dong Yue[1] • Bo Wan[1] • Zhi-Qiang Jiang[1] • Xian-Zhen Jiang[1] • Chang-Qing Gao[2]

[1]Department of Urology, 3rd Xiang-Ya Hospital, Central South University, Changsha, Hunan 410013, China
[2]Research Center for Medical Sciences, 3rd Xiang-Ya Hospital, Central South University, Changsha, Hunan 410013, China
Correspondence to: Chang-Qing Gao. Email: cgao9@yahoo.com

DECLARATIONS

Competing interests
None declared

Funding
None

Ethical approval
Written informed consent to publish was obtained from the patient or next of kin

Guarantor
LYH

Contributorship
L-YH, DY, BW, Z-QJ and X-ZJ performed the operation; C-QG conceptualized the report, drafted the manuscript, revised it critically and made the final approval of the version to be published

Acknowledgements
None

Reviewer
Shousong Cao

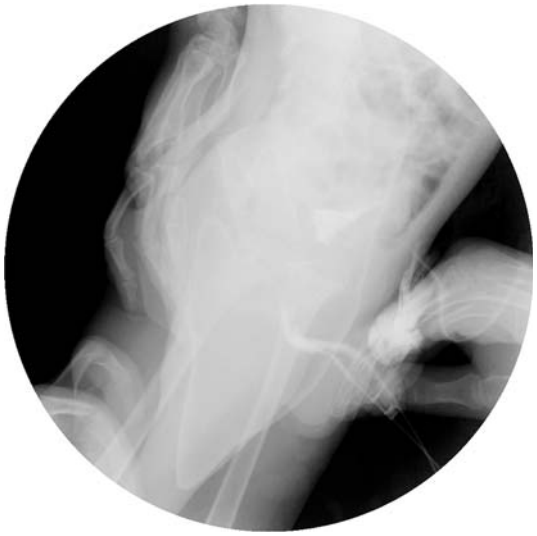
Urethral duplication is rare and procedures of management should be individualized according to each case's anomaly.

Case report

A two-year-old boy presented with voiding through two orifices, with one greater than the other. On physical examination, he had bifid glans penis with a complete foreskin and no other anomaly (Figure 1). The urinalysis and urine culture were normal. It is difficult to find the internal opening of the urethra by cystoscopy through cystostomy. Catheterization through the external openings of the urethras revealed parallel incomplete urethral duplication superimposed with common prostatic urethra (Figure 2). After retreating of the catheter, it was found that in the internal opening of the urethra there was a valve-like membrane. Following removal of the membrane by a holmium laser, one coarse and one small flows were seen. The patient was discharged uneventfully two weeks later.

Figure 1
Penis with bifid glans

Figure 2
Cytoscopy and catheterization revealing two parallel urethras superimposed



Discussion

Urethral duplication is a rare congenital anomaly and is usually associated with other congenital anomalies.[1–7] The forms of urethral duplication are different between men and women. In men, urethral duplication is classified into three types according to Effman *et al*.:[1]

Type I: blind-ending accessory urethra (incomplete urethral duplication):
IA. Distal – duplicated urethras opening on the dorsal or ventral surface of the penis but not communicating with the urethra or bladder (the most common type);

IB. Proximal – accessory urethra opening from the urethral channel but ending blindly in the periurethral tissues (rare).

Type II: completely patent accessory urethra. It is divided into two parts: A (two meatuses) and B (one meatus):

IIA1 Two non-communicating urethras arising independently from the bladder;

IIA2 Second channel arising from the first and coursing independently into a second meatus (Y-type);

IIB Two urethras arising from the bladder or posterior urethra and uniting into a common channel distally.

Type III: accessory urethras arising from duplicated or septated bladders.

According to this classification, our case belongs to Type IIA2 duplication.

Diagnosis of urethral duplication often applies to voiding cystourethrography, sonourethrography, retrograde urethrography and fistulography. Magnetic resonance imaging is an excellent modality for investigation of urethral duplication, and it could find the precise sizes, shapes and positions of the two urethras, as well as other associated genitourinary abnormalities.[8]

Treatment of urethral duplication should be individualized according to each patient's anomaly. Excision of the accessory channel with surgical treatment or the alternative methods of sclerosis or fulguration of the accessory channel has also been reported.[7] Sclerosis may lead to corporal thrombosis, fibrosis, impotency and incontinence, and therefore it should be avoided. In our case a holmium laser was successfully applied to remove the valve-like membrane and achieved excellent results.

References

1 Effmann EL, Lebowitz RL, Colodny AH. Duplication of the urethra. *Radiology* 1976;**119**:179–85

2 Dayanc M, Irkilata HC, Kibar Y, *et al.* Y-type urethral duplication presented with perineal fistula in a boy. *Ger Med Sci* 2010;**8**:33

3 Frederick L, Benson AD. A case of coronal urethral duplication with no other abnormalities. *Can J Urol* 2011;**18**:5557–9

4 Dhabalia JV, Kumar V, Nelivigi GN, *et al.* Duplication of urethra: review of three cases. *Scand J Urol Nephrol* 2010;**44**:357–60

5 Wisenbaugh ES, Palmer BW, Kropp BP. Successful management of a completely duplicated lower urinary system. *J Pediatr Urol* 2010;**6**:315–7

6 Fenster H, Jequier S, Mackie GG. Unusual case of urethral duplication. *Urology* 1980;**16**:80–1

7 Holst S, Peterson NE. Fulguration-ablation of atypical accessory urethra. *J Urol* 1988;**140**:347–8

8 Bhadury S, Parashari UC, Singh R, *et al.* MRI in congenital duplication of urethra. *Indian J Radiol Imaging* 2009;**19**:232–4