CASE REPORT

Subtotal urethral duplication

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Urethral duplication is considered a rare congenital anomaly. The exact embryology is still controversial. A patient with subtotal urethral duplication is presented and the technique utilized to excise the anomalous structure is detailed.

Key Words: urethra, duplication, anomaly, penis

Urethral duplication is a rare congenital abnormality with less than 300 cases reported.[1] It usually occurs in the sagittal plane with a single urethral channel lying dorsal to the other.[2] The ventral urethra is usually more functional and contains the sphincteric mechanism as well as the verumontanum.[3] Numerous classifications have been described to clarify the variants of urethral duplication.[4]

Case presentation

A 15-month old boy presented with an intermittent purulent discharge from an accessory orifice located on the glans penis dorsal to the orthotopic meatus. He also had bilateral vesicoureteral reflux, and was receiving prophylactic antimicrobials. The VCUG did not visualize the accessory urethra. Intermittently it was noted that the epithelium adjacent to the accessory meatus was erythematous and inflamed. Patient voided intermittently with a normal stream via the ventral urethra. There was no history of dribbling incontinence.

Management

A decision was made to excise the accessory urethra. Endoscopy was not performed. An 8 Fr feeding tube was placed in each of the ventral and dorsal urethrae, Figure 1. A circumferential incision was made at the line of neonatal circumcision and the penis was degloved to its base. The accessory urethra was dissected along its sub-symphyseal course to the level of the symphysis, Figure 2. The proximal extent was identified and mobilized, Figure 3. The urethra was noted to lie below Buck's fascia and superficial to the connective tissue supporting the neurovascular bundle. Proximally it ended blindly just below the deep margin of the symphysis pubis with no connection to the bladder or to the orthotopic urethra. Distally the accessory meatus was circumferentially incised and the dorsal urethra was excised en toto. At 6 weeks examination, the patient had healed well and was voiding normally.

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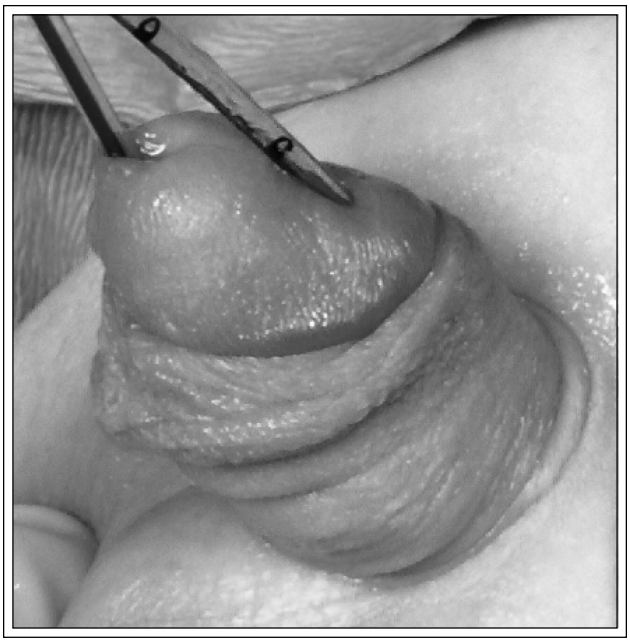

Figure 1. Catheters in normal and accessory (dorsal) urethra.

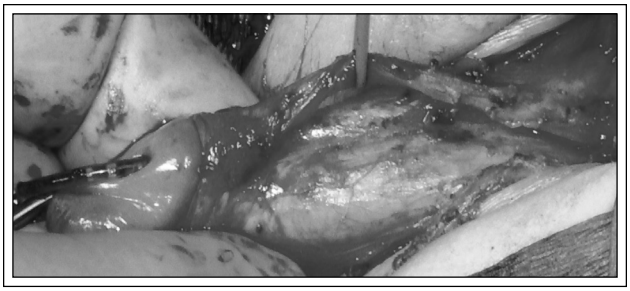

Figure 2. Dissection of accessory urethra from corpora cavernosa.

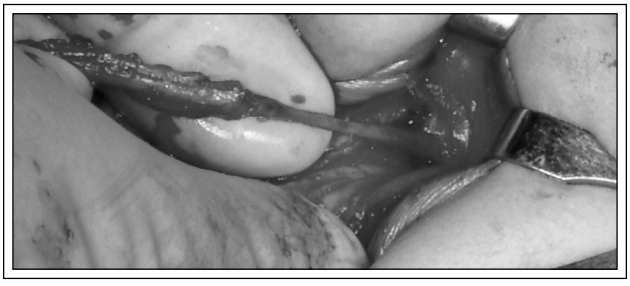

Figure 3. Proximal extent of accessory urethra.

Discussion

Urethral duplication is an extremely rare anomaly, with approximately 300 cases reported.[1] The most extensive series is described by Salle et al, reporting 16 cases of urethral duplication.[5] Several theories have been proposed to explain urethral duplication, including misalignment of the termination of the cloacal membrane with the genital tubercle.[5] Stephens described three types of dorsal urethral duplication. Type 1 is a complete or incomplete channel that courses parallel to the normal urethra from the glans to the bladder and then enters the urethra. Type 2 is an epispadiac type of channel from the dorsum of the penis to the bladder or one that joins the urethra at the same point. Type 3 is a dermoid sinus that simulates an accessory urethra but tracks from the base of the penis in front of the pelvic urethra and bladder behind the pubic symphysis to or towards the umbilicus.[6]

Salle et al[5] retrospectively reviewed the records of 16 male patients treated for urethral duplication. Six patients had associated vesicoureteral reflux. They concluded that surgical management should be planned individually according to the anatomical findings of the abnormality.[5] Subsequently, in 2001 they reported the association of complete urethral duplication and bladder exstrophy in five males.[3] They concluded that excision of the dorsal urethral plate and maintenance of the ventral urethra is the treatment of choice, resulting in continence and normal voiding.

A careful examination of the urethral meatus in the male patient is required to identify the often occult accessory urethral opening.[7] □

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