

Prepubic Sinus as a Variant of Dorsal Urethral Duplication in a 14-Month-Old Boy: A Case Report

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Abstract

Case Report

Introduction: Urethral duplication is a rare congenital anomaly with diverse presentations. Prepubic sinus is considered a variant, possibly representing incomplete dorsal urethral duplication. **Case presentation:** A 14-month-old boy presented with a dorsal penile opening associated with intermittent purulent and urine-like discharge. Imaging demonstrated a sinus tract extending toward the pubic symphysis without communication with the native urethra. Surgical excision of the tract was performed. Histopathology revealed a tract lined by both stratified squamous epithelium and urothelium. **Discussion:** The presence of urothelial lining supports the diagnosis of urethral duplication rather than a simple dermoid or epidermoid sinus. Complete excision is curative. **Conclusion:** Prepubic sinus should be considered a variant of dorsal urethral duplication. Accurate diagnosis requires imaging and histopathology, and surgical excision yields excellent outcomes.

Keywords: Urethral duplication; Prepubic sinus; Pediatric urology; Congenital anomaly; Dorsal urethra.

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INTRODUCTION

Urethral duplication is a rare congenital anomaly predominantly seen in males, with an incidence estimated at less than 1 in 5.5 million births. It presents with a wide spectrum of anatomical variations, commonly classified using the Effmann system. Prepubic sinus is a rare entity that has been proposed as a variant of dorsal urethral duplication, characterized by a tract extending toward the pubic symphysis without communication with the orthotopic urethra.[1,2]

CASE PRESENTATION

A 14-month-old male child presented with a swelling over the dorsal aspect of the penis since birth, associated with intermittent purulent and urine-like discharge for 15 days. There was no history of dysuria, urinary retention, or abnormal urinary stream. On examination, a small opening measuring approximately 0.5 × 0.5 cm was noted at the dorsal root of the penis. Minimal discharge was present. External genitalia were otherwise normal, and abdominal examination was unremarkable.



Opening noted at radix of penis

Laboratory investigations were within normal limits.

Ultrasonography revealed a well-defined cystic lesion adjacent to the shaft of the penis without internal vascularity. A fistulogram demonstrated a sinus tract extending from the dorsal root of the penis toward the pubic symphysis. Micturating cystourethrogram showed

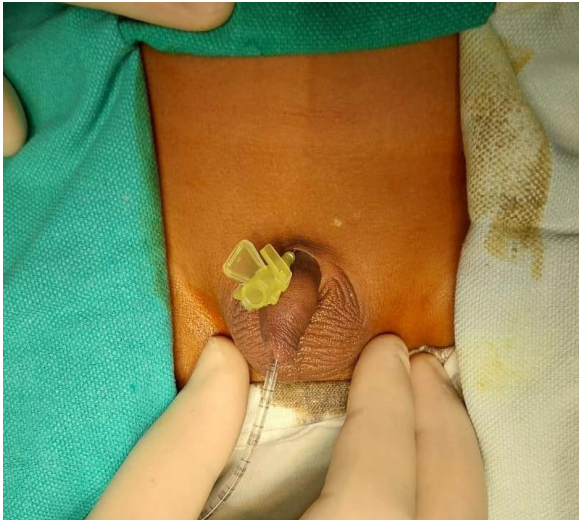
a normal bladder and urethra without communication with the sinus tract.

MANAGEMENT

Under general anesthesia, a urethral catheter was inserted. The sinus opening was cannulated, and methylene blue dye was injected to delineate the tract. An elliptical incision was made around the opening, and

the tract was carefully dissected proximally toward the pubic symphysis.

The tract was excised in toto. No communication with the native urethra or bladder was identified intraoperatively. Hemostasis was achieved, and the wound was closed in layers.



**Tract passing beneath pubic symphysis
Opening cannulated with intracath**



5.5 cm long tract

RESULTS

The postoperative period was uneventful. The child voided normally through the orthotopic urethra with no leakage from the surgical site.

Gross examination of the specimen showed a fibrous tract measuring approximately 5 cm in length.

Histopathological examination revealed a tract partially lined by stratified squamous epithelium and partially by urothelium, with areas of epithelial transition. The surrounding stroma showed mild lymphocytic infiltration, along with muscle and nerve bundles.

DISCUSSION

Urethral duplication is a rare anomaly with varied presentations. Dorsal duplication is less common than ventral forms. Prepubic sinus has been described as a variant of dorsal urethral duplication or as a remnant of embryologic cloacal structures.[3]

The key diagnostic feature in this case was the presence of urothelial lining within the tract, confirming its urethral origin. The absence of communication with the orthotopic urethra suggests an incomplete duplication.

Differential diagnoses include dermoid cyst, epidermoid cyst, and urachal remnants. However, these entities lack urothelial lining.

Complete surgical excision is the treatment of choice and is associated with excellent prognosis.

CONCLUSION

Prepubic sinus represents a rare variant of dorsal urethral duplication. Recognition of this entity is important for appropriate surgical planning. Histopathological confirmation is essential for definitive diagnosis.

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