

A Rare Variant of Urethral Duplication: Type-3 Bladder and Complete Urethral Duplication

Üretra Duplikasyonunun Nadir Bir Formu: Tip-3 Mesane ve Üretranın Komplet Duplikasyonu

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Abstract

Urethral duplication is a rare congenital anomaly with several anatomical variations. Persistence of duplicated urethra and related sphincter mechanism are mainly the reasons for the symptoms. We here present a 9-month-old boy with a rare form of duplication with each portion of the duplicated bladder having its own urethral opening.

Keywords: Urethra duplication, Bladder duplication, Effmann classification

Öz

Üretral duplikasyon, farklı anatomik varyasyonları olan nadir bir konjenital anomalidir. Semptomlar genellikle duplike üretranın devamlılığı ve sfinkter mekanizması ile olan ilişkisine bağlıdır. Bu olgu sunumunda, 9 aylık bir erkek çocuğunda üretra duplikasyonunun nadir bir formu olan her biri kendi üretral açıklığına sahip, duplike mesane anlatılmaktadır.

Anahtar Kelimeler: Urethra duplikasyonu, Mesane duplikasyonu, Effmann klasifikasyonu

Introduction

Congenital urethral duplications present with two urethral meatus; one orthotopic and one ectopic (1). Wide range of anatomical variants of urethral duplications may be asymptomatic or may show a double urinary stream during micturition. However the range of described urinary symptoms is wide and includes incontinence, urinary tract infection (UTI), urinary retention and outflow obstruction. This rare case presents a normal orthotopic bladder and urethra, with an additional abortive vesical duplication connected to a second passive urethra.

Case Report

A 9-month-old boy with double urethra was referred to our clinic. Physical examination revealed a retractable foreskin and double urethra with functional ventral urethra and hypoplastic

dorsal urethra. There was no medical history of UTI or antenatal hydronephrosis that may be associated with urinary tract anomalies.

Initially, endoscopic surgery was performed using a 0° optic 9.5 Fr pediatric urethro-cystoscope with the patient under general anesthesia. Placing a guide wire and a 4 Fr urethral catheter through the dorsal and ventral urethra helped easy identification (Figure 1). Cystoscopy was performed. A zebra guide wire was placed into the dorsal urethra and the guide wire was not seen in the ventral urethra due to complete urethral duplication. Fluoroscopic images of the dorsal and ventral urethra revealed vesical duplication, dorsal urethra connected to an atrophic bladder and a ventral urethra connected to a normal orthotopic bladder (Figure 2). Finally, a circumcision was performed. The patient was asymptomatic during the 1-year follow-up period.

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Figure 1. A passive dorsal meatus and an active ventral meatus of double urethra

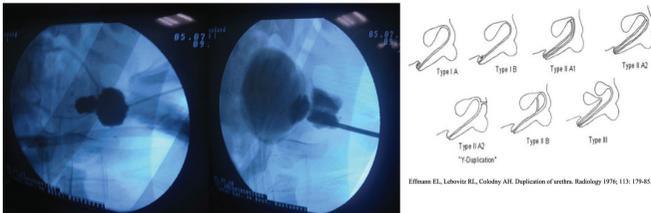


Figure 2. Fluoroscopic images of bladders connected to ventral (active) and dorsal (passive) urethras

Discussion

Urethral duplication is a rare congenital anomaly, usually with more functional ventral urethra. Effmann et al. (2) classified the anomaly into three types depending on the completion of the duplication (partial/accessory blind tract-type 1, complete-type 2), and association with bladder duplication (type 3) (2). The Y-subtype duplication constitutes 6-30% of all urethral duplications (3). The Effmann classification is the most known functional classification and covers most of the anomalies; however, it does not differentiate sagittal from coronal duplication (4). Various duplications that differ in terms of clinical picture, anatomy and management of the disease could be described by the definition of "urethral duplication" (5). This type of case has been reported previously in the Effmann classification. Similar to our case, most patients have no symptoms or may have the main symptom such as double urinary stream during micturition, incontinence, UTI and urinary retention or obstruction. Urethral duplications may include a wide spectrum of anomalies and recent reports presented various urethral duplications that were not listed in previous classifications (6,7).

The management of urethral duplications is decided based on urological symptoms and cosmetic deformities. If surgery is necessary, functional urethra should be preserved after identification of the active or passive urethra.

Ethics

Informed Consent: Informed consent was obtained from the patient.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: O.T., A.S., B.H., Concept: O.T., Design: A.C.Ç, Data Collection or Processing: T.Ö., Y.K., Analysis or Interpretation: O.T., E.D., Literature Search: M.B., Writing: O.T., B.H

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