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CASE REPORT

Ectopic ureter, renal dysplasia, and recurrent epididymitis in an infant: case report and review of the literature

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Key Clinical Message

The most common etiologies of acute scrotum in boys <1 year of age are torsion of the testis or an appendix, urogenital anomalies, and epididymitis. We report an infant with recurrent epididymitis associated with single-system ectopic ureter opening into the seminal vesicle and dysplastic right kidney. Treatment included nephroureterectomy.

Keywords

Acute scrotum, ectopic ureter, epididymitis, nephrectomy, renal dysplasia.

Introduction

Differential diagnosis of acute scrotum can be difficult and includes infectious and noninfectious etiology. Torsion of the spermatic cord should be ruled out in all boys with acute scrotal pain. Testicular torsion requires emergency surgical intervention. Epididymitis is a rare clinical entity in the pediatric population and is caused mainly by broad spectra of bacterial (*Chlamydia trachomatis*, *Neisseria gonorrhea*, *Escherichia coli*, *Brucella*), viral (mumps, cytomegalovirus), and parasite (*Enterobius vermicularis*) infection [1–3]. Noninfectious etiology includes Behcet's disease, Henoch–Schonlein purpura, and treatment with amiodaron [4]. In young boys less than 5 years of age, acute epididymitis can be associated with genitourinary abnormalities with a pathological connection between the urinary tract and genital duct system, such as ureteral ectopia into the seminal vesicle [5].

Case Report

A 5-month-old male infant was admitted to the hospital because of anxiety, persistent crying, and tender right testicle. Doppler ultrasonography of scrotum revealed normal

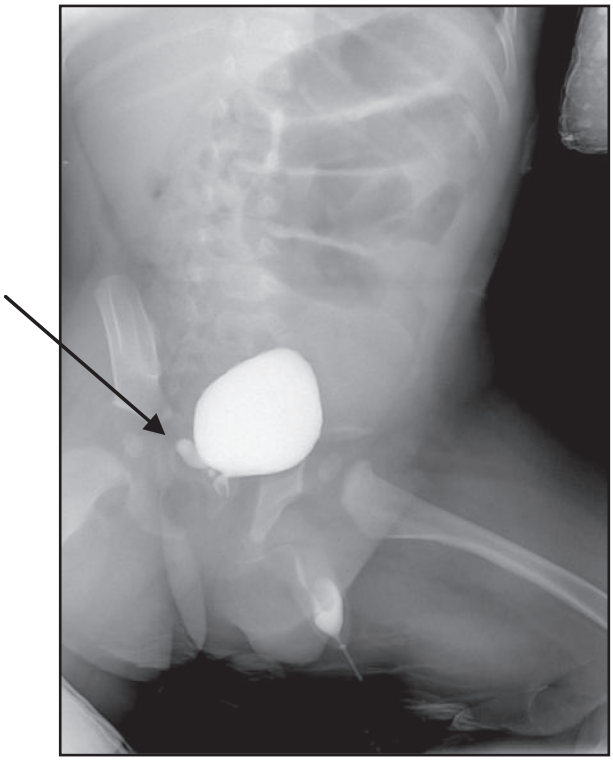

Figure 1. Voiding cystourethrography: reflux into ectopic orifice of right ureter (arrow).

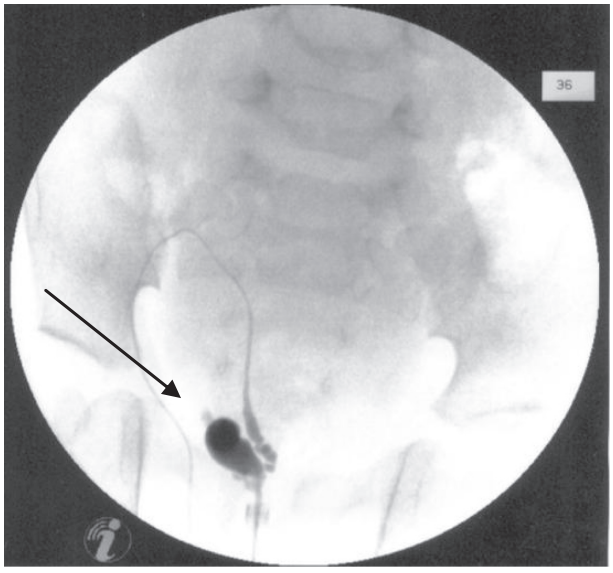

Figure 2. Contrast examination during cystoscopy: reflux to the ectopic ureter draining into the seminal vesicle (arrow).

testicular vascularization. During surgical exploration, epididymitis was found and the patient was treated with antibiotics. Two months later the child was admitted to the hospital again with recurrent epididymitis. Ultrasound examination showed single-system dysplastic right kidney (18 mm in longitudinal diameter), dilated right ureter (up to 9 mm in diameter), and normal left kidney. Renal scintigraphy, using ^{99m}Tc-ethelenodicysteine (^{99m}Tc-EC), showed extremely diminished function of the right kidney (0% vs. 100% left kidney), voiding cystourethrography suggested reflux into ectopic right ureteral orifice (Fig. 1). To confirm the diagnosis of the ectopic ureter, cystourethroscopy with rigid cystoscope 6F was performed, which revealed a connection between right ureter and seminal vesicles (Fig. 2). Because of poor function of the right kidney (dysplastic kidney) nephroureterectomy was performed (Fig. 3).

Discussion

Incidence of ectopic ureter is about 1:2000 and is more common among girls than boys. Approximately, 80% of ectopic ureters drain the upper pole of duplicated collecting system, especially in girls. In boys, most ectopic ureters are associated with a single collecting system. The most common location of ureteral ectopia include: urethra, urethrovaginal septum, and vestibule of vagina in girls and posterior urethra, seminal vesicle, prostatic utricle, and ejaculatory duct in boys [6]. The degree of ectopia has its influence on kidneys – the more ectopic ureteral orifice exists, the kidney is more severely changed (hypoplastic or dysplastic) [7]. In patients with duplicated collecting system and ectopic ureter, dysplasia of the upper pole of the kidney can be found. In male patients with single-system ectopic ureter, the kidney is often small (dysplastic) or even difficult to visualize on imaging studies [8]. Therefore, in many cases, there is suspicion of kidney aplasia in such cases [9]. An ectopic ureter is usually dilated and obstructed. Clinical symptoms differ between genders. The most common symptoms in male patients are urinary tract infection, acute and recurrent epididymitis, abdominal and back pain, and infertility in adulthood [10–12]. Epididymitis is a rare pediatric problem, especially during the first year of life. Bacterial infection in the epididymis in prepubertal boys can be associated with anatomical defects, and therefore in all boys with epididymitis, urological evaluation including ultrasound examination and voiding cystourethrography should be performed. Magnetic resonance imaging, computed tomography, and cystoscopy can be helpful to establish the diagnosis. In our patient with recurrent epididymitis, dysplastic right kidney with dilatation of ureter was found using ultrasonography. ^{99m}Tc-EC scanning revealed poor function of the kidney. Voiding cystourethrography and cystoscopy confirmed diagnosis of ureteral ectopia into the seminal vesicle. Because of nonfunctioning, dysplastic kidney nephroureterectomy was performed.

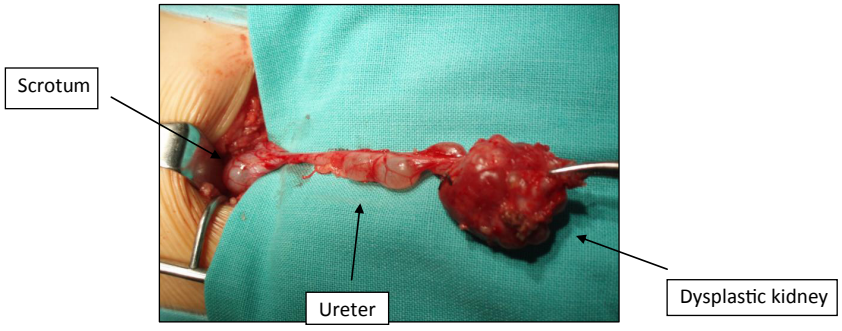

Figure 3. Intraoperative photography showing dysplastic kidney with dilated ureter connected to seminal vesicle.

In conclusion, in prepubertal boys with recurrent epididymitis and dysplastic kidney, anatomical defects of the genitourinary tract such as ureteral ectopia into the seminal vesicle should be ruled out.

Conflict of Interest

None declared.

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