Case Report

Intravaginal Testicular Torsion with Ureterocele: A Rare Case Report

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Abstract

Testicular torsion is an emergency clinical situation. It is rarely seen associated with ureterocele. We presented a case report where a 15-year-old adolescent boy presented with severe testicular and vague abdominal pain was found on imaging to have testicular torsion and ureterocele. Ultrasonography Doppler and computed tomography imaging are being described.

Keywords: Case report, colour doppler, testicular torsion, ultrasonography, ureterocele

Introduction

Testicular torsion is considered an acute emergency in which there is rotation of the testis along its spermatic cord which leads to impaired vascular supply culminating in ischemic damage of the testis. The factors affecting the grade of ischemia include time elapsed after insult and severity of cord rotation.[1] An ureterocele is a congenital abnormality in the ureter balloons at its opening into the bladder, forming a sac-like pouch, ureterocele usually occurs in the lower part of the ureter, where the ureter enters the bladder.[2]

Rarely, do these two conditions occur together. We presented a case report of 15-year-old-boy who presented with severe scrotal pain and nonspecific abdominal pain and was found to have testicular torsion and ureterocele containing a large calculus on ultrasonography (USG) and color Doppler.

Case Report

A 15-year-old adolescent boy with no prior significant medical history came with complaints of pain in the right testicle for 48 h associated with vague abdominal pain. He had no history of trauma. On local examination, well-defined swelling was noticed on the right side of the scrotum associated with severe tenderness over the swelling. No local rise in the temperature was noted.

On USG, enlarged right side testis measures 1.1 cm × 2.2 cm × 2.5 cm and shows heterogeneously hypoechoic echotexture. On color Doppler, it does not show any vascularity suggesting testicular torsion leading to ischemia [Figure 1]. Minimal fluid was seen around the right testis. Right-sided epididymis appears bulky, trilobed heterogeneous predominantly hyperechoic [Figure 2]. The left testis and epididymis were normal in size, shape, and echotexture. A large calculus of size 1.4 cm is noted in the distal ureteric cystic lesion ureterocele [Figure 3]. It shows a twinkling artifact on Doppler [Figure 4] intravenous urograms (IVU) shows classic cobra head appearance seen as lucency in the urinary bladder representing left-sided ureterocele [Figure 5]. An imaging diagnosis of right-sided testicular torsion with ureterocele containing a calculus was made. The patient was treated with a high orchidectomy on the right side. The intraoperative specimen revealed a gangrenous right testis [Figure 6]. The postoperative period was uneventful and the patient recovered well.

Discussion

Torsion of the testis is classified into two types: extravaginally and intravaginal. An abnormal fixation of the tunica vaginalis

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Abbreviations

MRI	Magnetic resonance imaging
CT	Computerized tomography
IVU	Intravenous urograms
VUJ	Vesicoureteric junction
USG	Ultrasonography

to the testis causes increased mobility of the testis within the tunica vaginalis caused by bell clapper deformity. Irrespective of the type of torsion of spermatic cord twists initially cause increased venous pressure congestion followed by a decrease in arterial pressure leading to ischemia.[3] Reliable USG feature for the diagnosis of testicular torsion is a whirlpool sign which can be defined as a sudden change in spermatic cord course in the region of the external inguinal ring or within the scrotal sac. Other signs include redundancy of the spermatic cord and horizontal lie of the testis within the scrotum.[4] In etiopathogenesis, Chawala suggested a membrane in the region of the mouth of the ureter embryo and obstruction of this membrane leads to ureterocele. In the case of adult, individual's ureterocele inserts in the trigonal area. Usually, mild dilatation of ureter is seen.[5] Ultrasound characteristics of ureteroceles include the identification of an ectopic cystic mass, typically near the vesicoureteral junction (VUJ). Radiologic characteristics of ureteroceles consist of a round filling defect near the VUJ and the classical "cobra head sign" that resembles a snake's head bulging into the bladder. The "cobra head sign" is typically seen with intravesical ureteroceles and is characterized by dilation of the distal ureter (cobra head) with a surrounding radiolucent halo that is seen within contrast-filled bladders on IVU.[6]

The proliferation of coelomic epithelial cells found on the ventromedial surface of the mesonephros initiates the formation of the genital ridge. The mesonephros contains the mesonephric duct (Wolffian duct). This structure is a primordial urogenital tissue that contributes to the formation of the epididymis, seminal vesicles, and vas deferens after male sex determination. The beginning of testicular development is also associated with the formation of the genital ridge.[7]

The ureteric bud from the mesonephric duct and intermediate mesoderm forms the metanephric blastema. The blastema

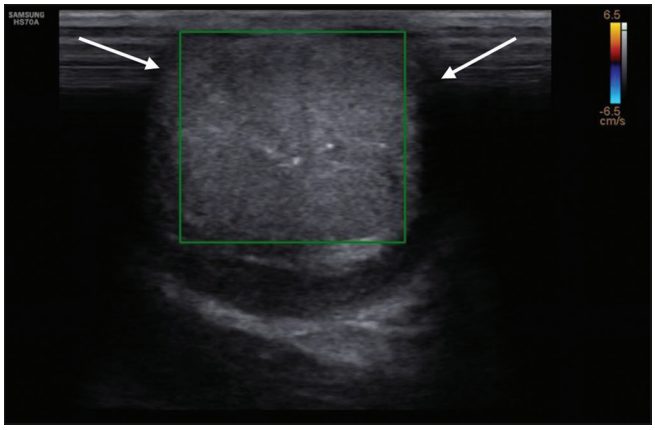

Figure 1: Gray scale ultrasound showing enlarged and hypoechoic right testis which is oriented along the transverse plane. It is not showing any flow on colour Doppler ultrasound, confirming testicular torsion(white arrows)

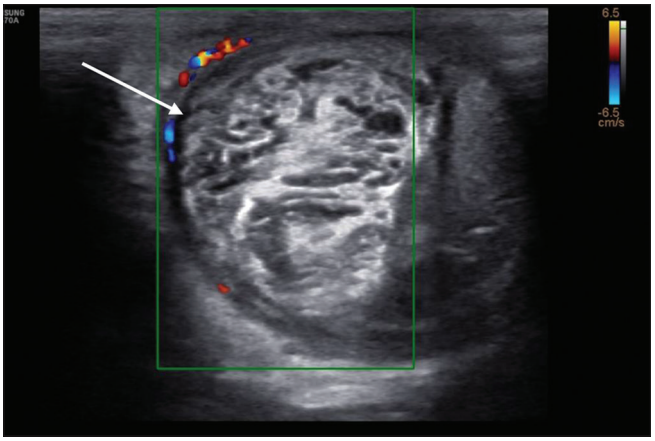

Figure 2: Ultrasound showing bulky, trilobed and heterogenous right epididymis which is predominantly hyperechoic. Colour Doppler showing no vascularity in the bulk of epididymis and very minimal vascularity along the periphery (white arrow)

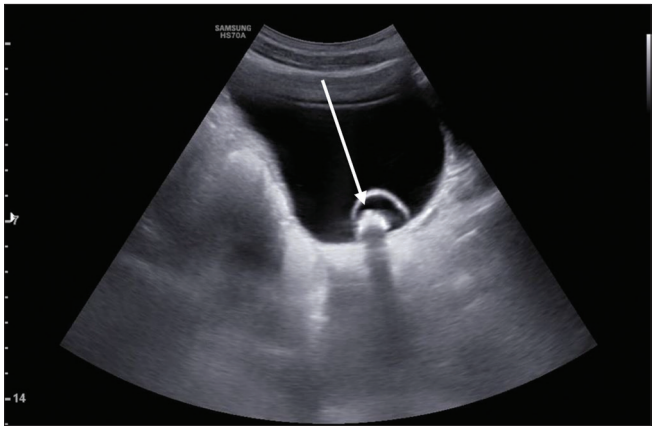

Figure 3: Ultrasound showing ureterocele in terminal part of right ureter with calculus of size 14 mm within the ureterocele (white arrow)

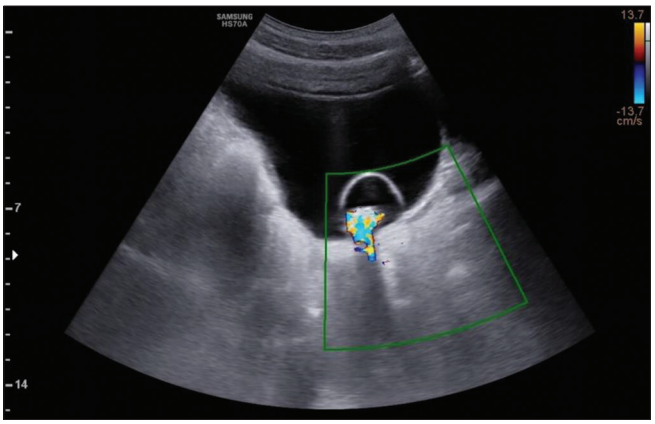

Figure 4: Calculus in ureterocele shows twinkling artifact on colour Doppler

Figure 5: Excretory urography showing typical cobra head appearance of lower ureter (black arrow)

form the metanephric system, which has two components, the collecting system which is derived from the ureteric bud which dilates to create the ureter, renal pelvis, major and minor calyces, and collecting tubules terminating at the distal convoluted tubule.[8]

The testis, epididymis, vas deference, spermatic cord, and ureters have common embryological origin from mesonephros, which may explain the simultaneous involvement of testis and ureter in the form of testicular torsion and ureterocele.

Conclusion

Testicular torsion is an emergency situation where early intervention can help in salvaging the testis before it is ischemic. Ultrasound and Doppler help in the quick diagnosis of the situation helping surgeon in rapid surgical decision and patient care.

Ethics statement

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and its amendments. The authors certify that they have obtained appropriate consent form from the legal guardians of the patient. In the form, the guardians have given the consent for the images and other clinical information of the patient to be reported in the journal. The guardians understand that the name and initials of the patient will not be published and due efforts will be made to conceal the identity, but anonymity cannot be guaranteed.

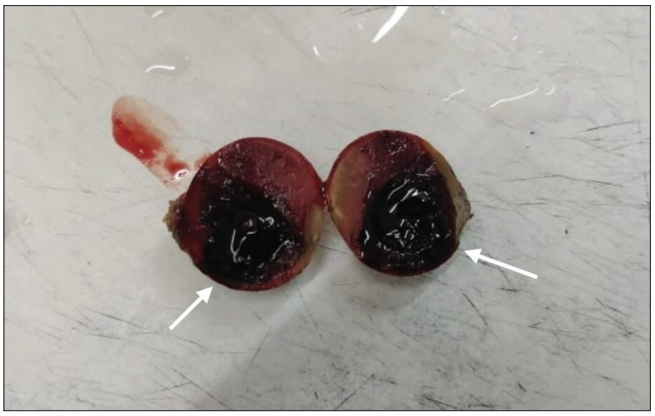

Figure 6: Cut section of the surgical testicular specimen showing gangrenous changes in the right testis (white arrows)

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Conflicts of interest

There are no conflicts of interest.

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