Acute Scrotal Pain - Role of Sonographic Evaluation in Solving Diagnostic Dilemma

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Section 2 – Answer

Interpretation

A grayscale and Doppler ultrasound of the scrotum was performed and revealed hyperemic right testis [Figure 1] as compared to the left side. Otherwise, both testicular parenchymal are intact and normal excluding the concerning diagnosis of testicular fracture or rupture. There is also a thickened spermatic cord with increased vascularity and minimal intervening free fluid possibly due to underlying inflammation [Figure 2]. Further assessment shows thickened and enlarged right epididymis as compared to the left side [Figure 3a]. Note the increase in vascularity as well [Figure 3b]. A constellation of the findings with clinical correlation is in keeping with acute epididymo-orchitis. The intact testicular parenchymal has excluded the testicular fracture or rupture given recent history related to trauma.

Discussion

Acute scrotal pain is among the most common presentations in pediatric urology practice with acute epididymitis attributed as the most common cause encountered in the emergency department.[1] A thickened epididymis and spermatic cord with increased vascularity are the features of acute epididymo-orchitis. It also may show heterogeneity in testicular parenchyma and may be related to testicular abscess as well. The treatment is usually antibiotic coverage and repeat sonographic evaluation after completion of the treatment.

In the case of testicular torsion, a grayscale study supported by Doppler evaluation helps make the diagnosis. The absence of blood flow or vascularity within the testis with hypoechoic parenchymal echogenicity is the sonographic feature to look for during the assessment. In addition, the "whirlpool sign" from the twisting spermatic cord supported by the avascular testicular is no doubt finding in clinching the diagnosis of testicular torsion.[2]

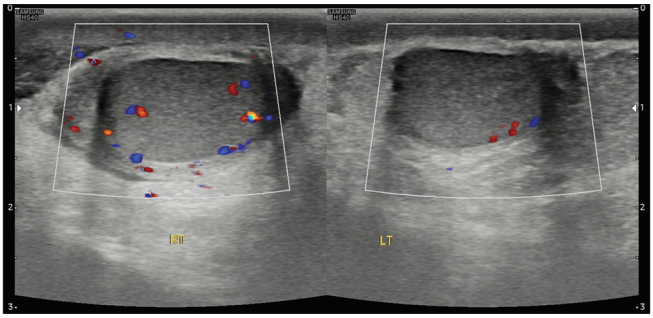

Figure 1: A color Doppler ultrasound of both testes in the longitudinal plane. RT: Right; LT: Left

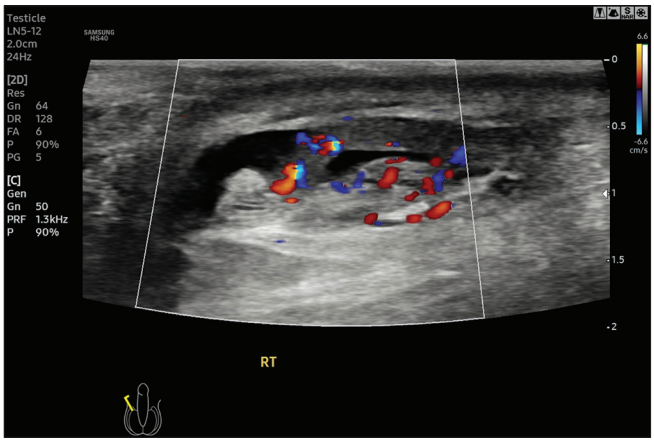

Figure 2: A color Doppler ultrasound of the right epididymal head and spermatic cord in the longitudinal plane. RT: Right

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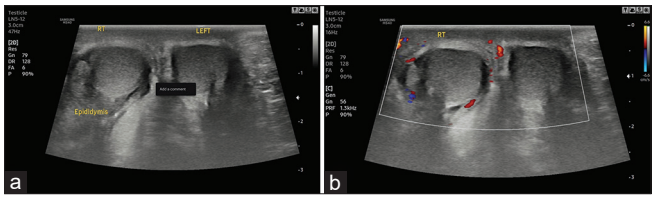

Figure 3: Further assessment using a grayscale (a) and color Doppler (b) ultrasound of both testes in the axial plane. RT: Right

Orchidopexy is a known testicular salvage method given the prompt diagnosis within the time frame before it may end up with orchiectomy.[3] In the case of blunt scrotal trauma, sonographic features include the presence of hydrocele, hematocele, testicular hematoma, testicular fracture, testicular rupture, compromised perfusion/testicular torsion, and testicular dislocation.[4] Ultrasound evaluation has shown 100% sensitivity, 97.9% specificity, and 98.1% diagnostic accuracy for testicular torsion.[5] Thus, referral for the sonographic assessment in diagnostic dilemmas, especially between surgical and nonsurgical interventions, is necessary for the patient's well-being.

In conclusion, a complete sonographic evaluation with the aid of a Doppler study and supported by clinical evaluation is crucial in diagnosing causes of acute scrotal pain in children. The most important is to differentiate the emergency surgical cause such as testicular torsion.[2]

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the legal guardian has consented for images and other clinical information to be reported in the journal. The guardian understands that the name and initials will not be published and due efforts will be made to conceal the identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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