Torsion of appendix testis with blue dot sign

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Section: Uroradiology & genital male imaging
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Patient: 12 years, male

Clinical History:

A 12-year-old boy came to the emergency department with swelling and left-sided testicular progressive pain that had started the day before with a trauma while playing. He localized the pain in the upper testis pole where we identified a well-defined, palpable nodule under a blue dot and a varicous vein.

Imaging Findings:

A scrotal ultrasound study was performed which showed a round, well-defined and hypoechoic extratesticular nodule of 7mm between the head of the epididymis and the upper testis pole which was the twisted appendix testis, located exactly under the blue dot on the skin. The Doppler ultrasound study revealed no signal in the twisted appendage and the left epididymis and scrotal tunics were hypervascularized and slightly enlarged. There was no reactive associated hydrocele.

Both testis had normal polarity. The size and ecogenicity of the testis, spermatic cords and right epididymis were also normal.

Discussion:

Torsion of appendix testis is the major cause of acute scrotum syndrome in children [1]. The testicular appendages are embryonic remnants of mesonephric and paramesonephric ducts and are formed of vascular connective tissue. There are four testicular appendages: the appendix testis (remnant of the paramesonephric duct), the appendix epididymis (remnant of the mesonephric duct), the paradidymis (organ of Giraldes) and the vas aberrans (organ of Haller) [2]. The prevalence rate of appendixes testis in children is 83.3% and of appendixes epididymidis, 20% [3]. The appendages are sessile structures, which predispose them to torsion.

Although torsion of the appendix testis is a benign condition the clinical presentation is a major challenge to clinicians. It occurs mainly in prepuberal boys (aged 7-14 years) and is more frequent on the left side, as in our case. The patient suffers from an acute scrotum syndrome, but present gradual and less sharp pain than torsion of testis, which is a sudden intense pain. The pain is often localized in the upper testis pole and in approximately one-third patients, a nodule of the upper scrotum with bluish skin discoloration (blue dot sign) is palpated, as in our patient. This is a pathognomonic feature of this entity [1, 4].

It is necessary to perform an immediate testicular exploration and ultrasound study. The ultrasound reveals a round
or oval extratesticular mass with high or mixed echogenicity depending on the evolution time. The Doppler sonography shows no flow in the twisted appendage because the inflammatory syndrome occurs only in 18.2% of children with torsion of hydatid, unlike in torsion of testis, 45.5% [1]. Hypervascularized adjacent tissues are seen, as in our case. Associated ultrasound findings include an enlarged epididymal head, reactive hydrocele and scrotal skin thickening [3, 4].

If there is no complication (most of cases including ours) the treatment is conservative and consists of rest, ice packs and nonsteroidal anti-inflammatory drugs (NSAIDs). In our case, the patient took some rest and NSAIDs and improved until the urological follow up 1 week later. Within a few days the necrotic tissue is reabsorbed without any sequelae or the twisted appendix may calcify leaving a scrotal calcification known as a scrotolith [2, 4].

**Differential Diagnosis List:** Torsion of appendix testis (hydatid of Morgagni), Torsion of testis, Torsion of epididymis appendix, Orchiepididymitis, Testicular hematoma, Testicular tumour

**Final Diagnosis:** Torsion of appendix testis (hydatid of Morgagni)

**References:**


Figure 1

Description: Physical examination showed a blue dot sign (arrow) and a congestive vein (arrowheads) in the upper left scrotum pole. Origin: Vicente I, Department of Radiology, HGU J.M. Morales Meseguer, Murcia, Spain
Description: Longitudinal views sonogram showing a hypoechogenic, well-defined nodule (between calipers) between the upper pole of left testis (T) and epididymal head (E), related to twisted hydatid of Morgagni (H). Origin: Department of Radiology, HGU J. M. Morales Meseguer, Murcia, Spain
Description: Longitudinal view Colour Doppler sonogram reveals that the nodule is avascular (arrows) and the tissue rounded the nodule is hypervascularized. Origin: Department of Radiology, HGU J. M. Morales Meseguer, Murica, Spain