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Case Report

The Turn of the Spire Sign: Save a Testicle

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Abstract

Testicular torsion is a urological emergency caused by spermatic cord twisting, leading to ischemia and potential testicular loss. We report the case of an 8-year-old boy with mild scrotal swelling and moderate pain but no typical signs of torsion. His TWIST score was 3, indicating an intermediate risk. Ultrasound with color Doppler revealed the "turn of the spire" sign, a highly specific finding confirming torsion despite preserved vascularization. Emergency surgery successfully salvaged the testicle. This case highlights the importance of recognizing subtle sonographic signs for early diagnosis and timely intervention.

Keywords: *Testicle; Emergency; Torsion; Ultrasonography; Turn of Spire*

Introduction

Testicular torsion is a time-sensitive surgical emergency caused by the twisting of the spermatic cord, leading to compromised blood supply. It predominantly affects neonates and adolescents, accounting for approximately 15% of acute scrotal pain cases in children. Prompt recognition and intervention are critical, as testicular viability declines significantly after 6 - 8 hours of ischemia.

In this report, we describe a case of pediatric testicular torsion with an unusual clinical presentation, where the diagnosis was established based on a rare but highly specific ultrasound finding-the turn of the spire sign. Early recognition of this imaging feature allowed for timely surgical intervention, ultimately preserving testicular function.

Case Report and Discussion

Testicular torsion is defined as the twisting of the testicle around the spermatic cord, resulting in an interruption of blood supply, is one of the most serious and urgent genitourinary emergencies in boys [1], and can be difficult to distinguish from other causes of acute pediatric scrotal syndrome [2]. 15% of children presenting with acute testicular pain have findings suggestive of testicular torsion, early management of testicular torsion allows for the preservation of fertility.

The etiology and predisposing factors of testicular torsion remain unclear. At this age, the testicles are either newly positioned or in the final stages of their descent into the scrotum.

Common signs and symptoms of testicular torsion, like those of other causes of pediatric scrotal syndrome, are the sudden onset of severe, persistent unilateral scrotal pain, sometimes nausea and vomiting.

Clinical examination helps rule out other differential diagnoses, such as hydrocele and epididymo-orchitis, which are often bilateral and associated with signs of infection.

All boys with scrotal or abdominal pain, scrotal swelling, nausea and vomiting should be evaluated for testicular torsion. A history and physical examination are sufficient to diagnose torsion in most children.

In 2012, Barbosa and colleagues proposed a scoring system called TWIST [3].

The Testicular Workup for Ischemia and Suspected Torsion (TWIST) score [4] is a clinical decision tool used for the workup and management of acute scrotal emergencies where testicular torsion is suspected. The TWIST score aims to reduce the number of unnecessary ultrasounds in cases of suspected torsion.

Criteria: (TWIST) score [4]:

- Testicular swelling (two points)
- Hard testis (two points)
- Absent cremasteric reflex (one point)
- Nausea or vomiting (one point)
- High riding testis (one point).

Interpretation

- Score 0-2: Low risk
- 100% negative predictive value for torsion
- Generally, no ultrasound or urological consultation required.
- Score 3-4: Intermediate risk
- Ultrasound warranted.
- Score 5 or above: High risk
- 100% positive predictive value for torsion.

The ultrasound is not required; urgent urological consultation and surgery are required to salvage testis.

Ultrasound combined with color Doppler is used to evaluate the vascularization of the testicular parenchyma and to detect the whirlpool sign on the spermatic cord, which is a concerning indicator of testicular torsion, especially when it is found without other signs, such as a heterogeneous appearance of the testicle, which tends to appear later.

It helps orient the diagnosis when the clinical is not obvious, as in our case, ultrasound signs differ depending on the stage:

1. Spermatic cord circumference: This was the most alarming sign for the diagnosis of torsion in our case:

- 95% sensitivity.
- Whirlpool sign.
- Heterogeneous pseudomass or node.

This is the most specific sign of a testicular torsion, it is the sign which referred us in our case to a torsion

2. Vascularization color doppler:

- Total absence of vascular flow (most specific).
- Normal or decreased flow if loosely twisted.
- Torsion/detorsion.

Normal testicular vascularization will not rule out the diagnosis in the hyperacute phase like in our case.

3. Changes in testicular parenchyma: Normal echogenicity of testis the early phase, like the case of our patient Or, hypoechoic after 4-6 hours of torsion Heterogeneous at the necrotic stage.
4. Swollen epididymis and reactional hydrocele it is a non-specific sign, it can be found in other testicular pathologies.

The ultrasound reduces the number of "white" surgical explorations and hospital stays.

It can also be used to diagnose testicular torsion. In our case, the clinical findings were not really consistent with torsion, only the specific ultrasound sign of the turn of the spire, which led to the diagnosis of torsion what saved the left testicle of a 5-year-old child.

Visual case

An 8-year-old with no previous history was brought to the emergency department for sudden minimal swelling of the bursa, a clinical examination objectifying moderate pain with minimal edema in the left testicle, the absence of nausea and vomiting, the absence of abdominal pain, normal vital signs, an absent cremasteric reflex, and no hard testicular, twist score was calculated in this patient at 3.

The surgeon was not sure of the diagnosis, he suspected either a clinically atypical torsion or an epididymo-orchid a testicular ultrasound was performed (Figure 1 and 2).

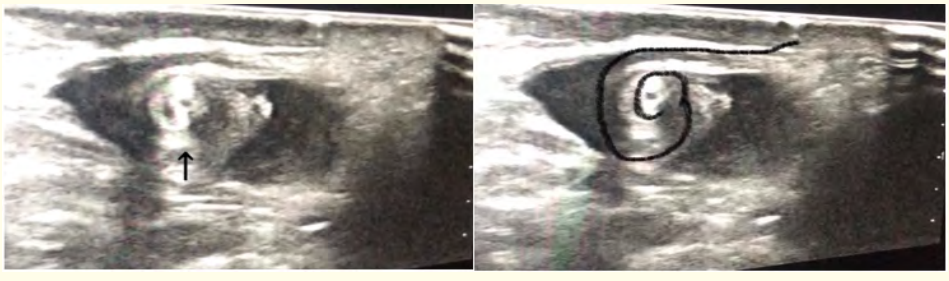

Figure 1: *Turn of the spire: heterogeneous pseudomass or node, infiltration of left spermatic cord with reactional hydrocele.*

Figure 2: *The testis is still viable norm vascularized on color doppler.*

The patient underwent emergency surgery and the testicle was happily saved (Figure 3).

Figure 3: *Operative image of left spermatic cord turns with viable testis.*

Conclusion

Testicular torsion is a true urological emergency that requires prompt recognition and immediate surgical intervention to prevent irreversible testicular damage. While clinical assessment and the TWIST score help guide diagnosis, atypical presentations can pose a challenge. In such cases, ultrasonography with color Doppler is crucial for evaluation.

Radiologists and clinicians should be aware of this imaging feature to improve diagnostic accuracy and optimize patient outcomes, particularly in ambiguous or clinically uncertain cases.

Questions and answers with a brief rationale true and false and/or multiple-choice questions

1. The most sensitive sign of testicular torsion in the acute phase:

a. Hydrocele.

b. The turn of the spire.

c. Changes in testicular parenchyma.

The answer is B the spermatic cord circumference: is the most alarming sign for the diagnosis of torsion This is the earliest sign before the appearance of other signs.

2. Absence of color doppler on ultrasound the acute phase is a sign of torsion

False: The color doppler ultrasound may appear normal in the acute phase, this is not a specific sign of torsion.

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Credit Authorship Contribution Statement

Asmae Guennouni: Writing - review and editing, writing - original draft, visualization, validation, supervision, software, resources, project administration, methodology, investigation, formal analysis, data curation, conceptualization. Chaimae Abourak: Visualization, validation, supervision, resources, investigation, formal analysis. L. Chat: Visualization, validation, software, resources, investigation.

Declaration of Competing Interest

The authors declare no conflict of interest.

Bibliography

1. Karaguzel E., *et al*. "Mechanisms of testicular torsion and potential protective agents". *Nature Reviews Urology* 11.7 (2014): 391-399.
2. Manohar CS., *et al*. "Evaluation of testicular workup for ischemia and suspected torsion score in patients presenting with acute scrotum". *Urology Annals* 10.1 (2018): 20-23.
3. Barbosa JA., *et al*. "Development and initial validation of a scoring system to diagnose testicular torsion in children". *The Journal of Urology* 189.5 (2013): 1859-1864.
4. Sheth KR., *et al*. "Diagnosing testicular torsion before urological consultation and imaging: validation of the TWIST score". *The Journal of Urology* 195.6 (2016): 1870-1876.

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