

DECISIONS

Painful testicle in a young boy

Stephen M. Graham MD, John M. Gatti MD

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A 12-year-old boy presents to his primary care physician with a three-hour history of severe pain on the right side of his scrotum. Examination shows the right side of the scrotum to be swollen, red and very tender. The right cremasteric reflex is absent.

What diagnosis should be considered?

The primary diagnoses to consider are testicular torsion, torsion of a testicular appendage and epididymitis.¹⁻³ Other less common diagnoses include a hernia or hydrocele, scrotal cellulitis and idiopathic scrotal edema¹⁻³ (Box 1). Testicular torsion must be identified quickly, because there is only a four- to eight-hour window before serious ischemic damage occurs that can potentially affect production of sperm and viability of the testicle.⁴

Does the patient have testicular torsion?

Clues to the diagnosis can be found in the patient's history and on physical examination. Timing is important: most patients with torsion of the testicle or appendage (60%–70%) present within 12 hours after the onset of pain, whereas those with epididymitis present after 12 hours.³ There could be a history of episodes of similar pain with all three conditions. Nausea and vomiting are usually associated with torsion of the testicle or appendage, whereas dysuria and fever are more common with epididymitis.^{2,3}

A swollen and erythematous hemiscrotum could occur with all three conditions, depending on how long the symptoms have been present. With testicular torsion, tenderness is usually diffuse, and the testis may lie in a horizontal or elevated position. The cremasteric reflex (created by lightly stroking the superomedial aspect of the thigh to detect elevation of the ipsilateral testis within the scrotum [normal response]) is one of the more accurate predictors of testicular torsion, but its absence or presence is not diagnostic.^{2,3} With epididymitis, tenderness is often localized to the epididymis; the cremasteric reflex is typically intact. The “blue dot sign” — a blue mass seen through the scrotal skin and usually palpable early — can be detected about 23% of the time in a patient with torsion of a testicular appendage.³

What tests are required?

Additional testing may be necessary if the diagnosis is unclear from the patient's history and the results of physical examination (Table 1). A urinalysis showing pyuria and

Box 1: Differential diagnosis of acute testicular pain in a boy

Torsion of:

- spermatic cord (testicular torsion)
- testicular appendage
- epididymis

Infection:

- epididymitis (viral or bacterial)
- orchitis
- cellulitis

Trauma:

- blunt (e.g., sports injury)
- sexual abuse

Other:

- hernia
- hydrocele
- testicular tumour
- vasculitis (e.g., Henoch-Schönlein purpura)
- noninfectious/chemical epididymitis
- abnormality in vas deferens or ejaculatory duct
- idiopathic scrotal edema

bacteria is more diagnostic of epididymitis than of either form of torsion.³ A urethral swab should be taken for culture from sexually active males, especially if urethral discharge is present.

High-resolution colour-flow Doppler ultrasonography has replaced radionuclide imaging for patients with acute scrotal pain because it is more available, has a shorter testing time, can determine blood flow, and eliminates exposure to ionizing radiation. The results typically show no blood flow within an enlarged, often heterogenous testicle in testicular torsion; a discrete appendage (early) or increased blood flow to the testis or epididymis (late) in torsion of an appendage; and increased blood flow to an enlarged epididymis, often with thickening of the scrotal wall in epididymitis. In experienced hands, this type of ultrasonogra-

From the Department of Urology (Graham), University of Kansas Medical Center; and the Department of Pediatric Surgery, Section of Pediatric Urology (Gatti), Children's Mercy Hospitals and Clinics, Kansas City, USA

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Table 1: Guide to acute testicular pain in a boy

Diagnosis	Usual duration of pain before evaluation, h	Location of pain	Results of urinalysis (pyuria and/or bacteria)	Results of ultrasonography	Management*
Testicular torsion	< 12	Testis	Negative	No blood flow to testis	Referral to urologist
Torsion of a testicular appendage	< 12	Localized to appendage (early) Diffuse (late)	Negative	Normal to increased blood flow to testis with enlarged testis appendage	NSAIDs Scrotal support Limited activity
Epididymitis	> 12	Epididymis	Positive	Normal to increased blood flow to testis with increased flow to epididymis	NSAIDs Scrotal support Limited activity Antibiotics if indicated

*Note: NSAIDs = nonsteroidal anti-inflammatory medications.

phy has a sensitivity of 89.9%, a specificity of 98.8% and a false-positive rate of 1%.¹

If testicular torsion is suspected on the basis of the clinical history and the results of physical examination, one should avoid imaging because it will delay surgical exploration.¹ A patient with suspected testicular torsion should immediately be referred to a surgeon.

What if the patient doesn't have testicular torsion?

Management of nonbacterial epididymitis and torsion of a testicular appendage includes nonsteroidal anti-inflammatory medications, scrotal support and limited activity. In epididymitis, antibiotics should only be given if there is a high suspicion of bacterial involvement (e.g., urinalysis shows pyuria or bacteria, or urethral discharge).⁵ Patients eight years of age or older in whom gonococcal or chlamydial epididymitis is suspected should be given one 250-mg dose of intramuscular ceftriaxone and 100 mg of doxycycline, twice daily for seven days. Treatment for epididymitis when a gonococcal culture or a nucleic acid amplification test yields negative results or when the disorder is caused by enteric organisms (*Escherichia coli*) is levofloxacin, 500 mg a day for 10 days.⁶ Patients with epididymitis or torsion of a testicular appendage should be counseled to phone or return if the symptoms become worse or last more than one week. In these conditions, however, the pain, is generally self-limited.

The case revisited

The urologist was consulted for suspicion of testicular torsion. The patient was taken to the operating room within the next hour; exploration of the scrotum revealed an ischemic right testicle with a bell-clapper deformity (i.e., testis attached to a free-hanging vascular pedicle). Manual detorsion (rotation of the testicle to untwist the spermatic cord) restored blood flow, and the testis was saved. The testis was fixed to the scrotum in three places, as was the contralateral testis, which also shared the bell-clapper deformity, to prevent torsion.

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