Everything From the Knees to the Nipples

DALHOUSIE UNIVERSITY Inspiring Minds

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David's Case

A 14-year-old boy presents with lower abdominal pain and vomiting. His vital signs are within normal limits and his abdominal examination is "benign." He settles after analgesics and anti-nauseant treatment and is pleased to go home with his mother in the early hours of the morning.

The following day, he is brought back complaining of pain and swelling in his right testicle. He is referred emergently for urological exploration, but is found to have a gangrenous testicle, which is removed.

Questions & Answers

1. How could this have happened?

In a series of medico-legal claims involving testicular torsion, 28% of patients presented with only abdominal pain. The assessment of the abdomen includes a consideration of pathologies in the chest and genitalia. A good "cognitive forcing strategy" is to remember the adage that your examination of a patient with an abdominal complaint should include everything "from the knees to the nipples." This is not to say that you should examine the genitalia of every patient with dyspepsia, but you should consider it and would be advised to do so if the cause of pain is not certain.

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2. What are the key points to remember when dealing with the acute scrotum?

Sudden testicular pain should be considered testicular torsion until proven otherwise. A common dilemma in the ED is differentiating torsion from epididymo-orchitis, as their features overlap in many ways. A broad comparison is given in Table 1. Surgical detorsion within six hours of symptoms usually saves the testicle. In clinically "obvious" cases of torsion, surgical exploration should not be delayed by further diagnostic modalities. In many cases, a definite diagnosis will be difficult to make, so emergent Doppler ultrasound examination (or empiric exploration) is indicated. The risks of undertreatment often outweigh those of exploration; thus, only about 50% of scrotal explorations for suspected torsion actually confirm the diagnosis.

Table 1

Comparison of "typical" features of torsion and epididymo-orchitis (Please note that none of these alone have enough power to exclude or confirm either diagnosis)

	Testicular torsion	Epididymo-orchitis
Age	Peaks at 14-years-of-age, but also common in neonates and not infrequent in men up to 30-years-of-age	Most common in 19- to 40-years-of-age. May occur in both older and younger men
Onset	Usually sudden, at rest or following physical exertion. May report previous short-lived episodes	Discomfort develops over 24-72 hours with steady progression of pain and inflammation. History includes sexual activity, urological abnormalities, urethral instrumentation or UTI
Fever	Absent	Low grade fever may be present
Urinary symptoms	Urinalysis normal	Dysuria, frequency urgency, urethral discharge (10%)—pyuria in most patients
GI symptoms	Nausea, vomiting common	None
Appearance	Scrotum initially may appear normal, becoming more inflamed as time passes	Red and swollen on affected side
Palpation	Exquisitely tender, testis difficult to differentiate from epididymis. Testis may "ride high" and lie horizontally	Epididymis and testis usually distinguishable, with epididymal tenderness often localized
Cremasteric reflex	Absent (presence of cremasteric reflex does not exclude torsion)	Present
Elevation of scrotum (Prehn's sign)	No relief of pain	Relieves symptoms

UTI: Urinary tract infection

3. *What about testicular cancer?*

Although testicular cancer is an uncommon presentation in the ED, it should be considered, especially in younger men with solid testicular swelling. Although classically painless, one-third of patients with testicular malignancy will complain of an aching sensation and 10% of acute severe pain. Swelling outside of the body of the testicle is very unlikely to be cancerous. Any patient with a testicular lump should see a urologist within two weeks. Patients > 55-years-old are unlikely to have cancer and urology referral may be avoided by an early ultrasound in these cases.

4. *What about "detorsion?"*

As with any ischemic syndrome, the chance of cell death increases with time since the onset. Manual detorsion may be attempted, especially if there will be a delay to definitive treatment. Gently (the testicle will be very tender), with the thumb on the medial side and the tip of the index finger on the lateral

side of the involved testicle, rotate the testicle to bring the medial edge forward and toward the inner thigh—like opening a book. In some cases, the testicle may have twisted more than once, so the procedure may need to be repeated. Success will be evidenced by dramatic relief of pain. Surgical fixation of the testis is still urgently indicated, considering the high rate of recurrence.

5. *What other diagnostic lessons can we learn from the above case?*

In any case where we discover a diagnostic error, it is important for us to examine how our thinking process might have led to the wrong diagnosis. This amounts to a "cognitive autopsy" aimed at uncovering faulty thinking, mistaken assumptions, biases, *etc.* Sometimes, we can avoid such cognitive failures by using cognitive forcing functions; in this case, reminding ourselves of the "knees to nipples" adage might have avoided restricting the diagnostic search to the abdomen.

It is appropriate that we should be comfortable with discharging patients without a diagnosis. The concept of describing the cause of the visit by listing the presenting symptom followed by the letters "NYD" (not yet diagnosed) is appropriate to avoid assigning disease "labels" to patients after a hurried ED visit, where the amount of information available to the physician is deficient. These "labels" may follow the patients for some time, leading to inappropriate treatment and delay in making the correct diagnosis. It is important, however, that in writing NYD after a symptom, that we ask ourselves and then ask again, "Is there anything that I can't afford to miss that this might be?" This is referred to as the rule out worst-case scenario strategy. Another strategy, once a diagnosis is established, is to ask the question, "If I was told that the diagnosis I just made was definitely wrong, then what would I think it was?"

We should recognize, too, that certain patients might be more likely to withhold some clinical details that might be critical in establishing a correct diagnosis. In this case, a 14-year-old boy may have withheld information due to embarrassment. Often, the presence of a family member or friend may limit what the patient will divulge, so some diplomatic maneuvering may be necessary to ensure that you are getting information that is needed. Dx

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