EM CASE OF THE WEEK.

BROWARD HEALTH MEDICAL CENTER
DEPARTMENT OF EMERGENCY MEDICINE

Care Warriors

Author: Melvin Thomas, MS IV | Editors: Andrea Sarchi, DO ; Jason Mansour, MD

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Testicular Pain

A 19-year-old male with no past medical history presents to the ED with right-sided testicular pain that began 2-3 weeks ago, but has worsened in the past few days. He states that it began as a dull ache, but has progressed to a constant 8/10 "pulling" sensation that becomes 10/10 with movement. The pain does not radiate and is temporarily relieved by the use of marijuana. He denies any fevers, recent trauma, dysuria, or urethral discharge; however, his wife states that his semen has looked "brownish" recently.

On exam, he appears extremely uncomfortable but is afebrile. The right side of his scrotum seems somewhat more swollen than the left, but there is no visible discoloration. His right testicle is easily palpable and tender, with no perceived deformity. His cremasteric reflex is intact.

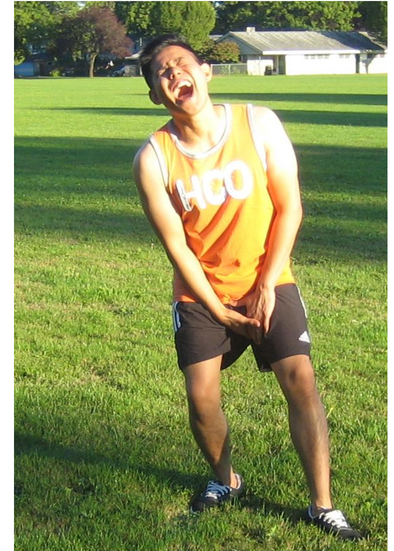
Which of the following is the next best step in the evaluation of this patient?

A. Send him home with NSAIDs for pain relief

B. Rush him immediately to the OR for surgical exploration

C. Perform Doppler ultrasonography

D. Wait and see if the pain goes away on its own



When a patient presents to the ED with testicular pain, it is vital to have the correct differential diagnosis. This can often be a true urological emergency, and making the diagnosis is key to get the patient into the OR in time!

EM Case of the Week is a weekly "pop quiz" for ED staff.

The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.

BROWARD HEALTH MEDICAL CENTER

Department of Emergency Medicine
1625 SE 3rd Avenue
Fort Lauderdale, FL 33316

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The correct answer is: **C. perform Doppler ultrasonography.**

The most concerning diagnosis in the evaluation of testicular pain is that of testicular torsion, which is a true urologic emergency. In evaluating these patients, the first step is the history and physical. Although our patient's pain has worsened in the last few days, he has been experiencing symptoms for over 2 weeks, which lowers our suspicion of an acute torsion. The physical exam, while concerning for tenderness, reveals an intact cremasteric reflex with no visible deformations and minimal swelling. These findings are not consistent with the diagnosis of testicular torsion, so **Doppler ultrasonography** would be the next best step in evaluation. This patient's ultrasound revealed "*increased color flow detected to the right epididymis…*," confirming a diagnosis of **acute right-sided epididymitis.**

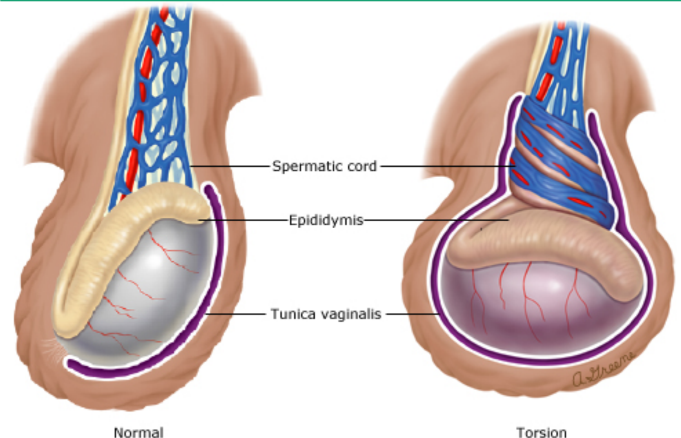
<u>Discussion</u>

As mentioned above, the most important goal in evaluating a patient with acute testicular pain is determining whether immediate operative care is required. The history should include key points such as timing of the pain, recent trauma, and any history of surgeries or urologic issues. During the physical exam, the abdomen, inguinal area, and genitals must be carefully examined, making sure to test for the cremasteric reflex. This involves elevation of the testes after stroking the skin of the ipsilateral upper thigh. Urinalysis and urine culture can be helpful, and Doppler ultrasonography is key in confirming many diagnoses.

<u>Differential Diagnosis</u>

There are many causes of testicular pain – only two will be reviewed here. The first and most concerning diagnosis is that of **testicular torsion**. This is a true surgical emergency; if there is a high suspicion of torsion, surgical exploration should not be delayed.

Torsion of spermatic cord



Abnormality of testicular fixation permits torsion of spermatic vessels with subsequent infarction of the gonad.

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Torsion involves a twisting of the testis on the spermatic cord, leading to a lack of blood flow and subsequent infarction. The main features of testicular torsion include acute onset of severe pain with profound swelling and a "high-riding" testicle. In addition, the cremasteric reflex will often be missing in these patients, making it unique among the pathologies discussed here. When the diagnosis is not clear from the history and physical, Doppler ultrasonography can be extremely useful. Studies have shown the sensitivity and specificity of ultrasound in the diagnosis of torsion to be as high as 100% and 97%, respectively.[2]

The other diagnosis, and the one discovered in the case of this patient, is **acute epididymitis**. This inflammation of the epididymis can be infectious or due to other causes such as trauma. An acute bacterial epididymitis can be accompanied by systemic signs and symptoms such as fevers and chills, but this presentation is not typical. Instead, patients present more like this case – with pain, some mild swelling, and no real voiding symptoms. On exam, the cremasteric reflex is positive.

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All are welcome to attend!

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Treatment

The definitive treatment for testicular torsion is immediate detorsion and fixation, usually in the operating room. If surgical exploration is delayed or not available, manual detorsion may be attempted. This process involves rotating the testicle away from midline, as though one were to "open a book." Sedation or local anesthesia can be used as needed, and a successful detorsion should provide immediate pain relief for the patient.[3] Even still, surgical fixation will be needed to prevent future re-torsion.

For epididymitis, the treatment is not quite as urgent. Most cases tend to be infectious, and the etiology varies by age group. For the young, sexually active male (such as this patient), the most common culprits are sexually transmitted infections, usually due to *Chlamydia trachomatis* and *Neisseria gonorrhoeae*. For the older male, bacteria that frequently affect the urinary tract are identified, such as *E. coli* and *Pseudomonas* species. Thus, treatment will be targeted towards the age group in question. In this case, the patient's condition likely stems from one of the sexually transmitted organisms, so he should be treated with Ceftriaxone (one dose, 250 mg IM) and either Doxycycline or Azithromycin for 10 days. NSAIDs can be used as needed for pain relief.

Take Home Points

- There are a number of causes of testicular pain, but the most important (and emergent) diagnosis to look out for is testicular torsion.
- Torsion will have an acute onset of pain with profound swelling and a negative cremasteric reflex.
- Treatment for torsion includes immediate surgical exploration for detorsion and fixation.
- Another common cause of testicular pain is acute epididymitis.
- This condition is usually characterized by a more drawn out onset, with less swelling and a positive cremasteric reflex.
- In younger men, this is usually caused by sexually transmitted bugs such as *Chlamydia* and *Gonorrhoeae.* In those over 35, it is more likely enteric bacteria (i.e. *E. coli*).
- Patients can be sent home with oral antibiotics and do not need to be admitted to the hospital.

ABOUT THE AUTHOR

This month's case was written by Melvin Thomas. Melvin is a 4th year medical student from FIU HWCOM. He did his emergency medicine rotation at BHMC in October 2016. Melvin plans on pursuing a career in Psychiatry after graduation.

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