31 year old male presenting with acute left scrotal swelling & pain radiating to left groin

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Patient Presentation

• 31 year old African American male
  • PMH: schizoaffective disorder, bipolar type
• 1 day of left testicular swelling and pain radiating to left groin
• No history of trauma
• Visited OSH ER day prior and diagnosed with orchitis
  • Pain improved with IV morphine
  • Pt prescribed oral antibiotic, but did not fill prescription
• Patient afebrile, denies dysuria, discharge, hematuria
• ROS otherwise negative
• BP 147/106, otherwise vitals WNL
• PE: left testicle tender to palpation, no palpable hernia
Pertinent Labs

- **CBC**
  - WBC 13, otherwise WNL

- **Urinalysis**
  - 5 RBC/HPF
  - Few bacteria
  - Urogenital flora in culture

- Testing negative for chlamydia, gonorrhea, trichomonas
What Imaging Should We Order?
Select the applicable ACR Appropriateness Criteria

Variant 1: Adult or child. Acute onset of scrotal pain. Without trauma, without antecedent mass. Initial imaging.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
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</thead>
<tbody>
<tr>
<td>US duplex Doppler scrotum</td>
<td>Usually Appropriate</td>
<td>O</td>
</tr>
<tr>
<td>MRI pelvis (scrotum) without and with IV contrast</td>
<td>May Be Appropriate</td>
<td>O</td>
</tr>
<tr>
<td>Nuclear medicine scan scrotum</td>
<td>Usually Not Appropriate</td>
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This imaging modality was ordered by the ER physician.
Findings
Findings

Heterogenous echogenicity in the superior left testicle with hypoechoic rim
Absent vascular flow within this area of heterogeneity on Color Doppler imaging.
Findings (OSH 1 day prior)

Heterogeneic area is less defined, suggesting an acute, evolving process.
Final Dx:
Acute segmental testicular infarction
Case Discussion

• Epidemiology
  • Relative rare condition, often diagnosed following orchiectomy
  • Most often presents in 2\textsuperscript{nd}-4\textsuperscript{th} decades of life

• Presentation
  • Majority of patients have acute scrotum, but may be chronic or asymptomatic

• Predisposing conditions
  • Idiopathic (up to 70\% of cases)
  • Acute epididymo-orchitis (associated with round lesion)
  • Hematologic conditions (sickle cell disease, vasculitis, polycythemia vera)
  • Autoimmune conditions
  • Trauma
  • Pelvic surgery
Case Discussion

• Differential Diagnosis:
  • Testicular neoplasm
    • Must rule out as 95% of intratesticular masses are malignant
    • 4.3% of acute scrotum cases are associated with testicular cancer
  • Granulomatous disease of testicle
  • Testicular hematoma
  • Testicular developing abscess (in the setting of epididymo-orchitis)
Case Discussion

• Imaging Diagnosis
  • Scrotal Color Doppler Ultrasound
    • “Usually Appropriate” first study by ACR Appropriateness Criteria
    • Reduced or absent vascular flow

• Further workup if necessary
  • MRI w/ contrast
    • Has been proposed to further differentiate infarction vs a neoplasm with low flow
    • Features favoring infarction over neoplasm:
      • enhancing halo surrounding infarction
      • hemorrhagic signal (also can be seen with hematoma)
  • Tumor markers to further exclude neoplasm
  • Surgical exploration with testis sparing intent may be used for excisional biopsy
Case Discussion

• Clinical Significance
  • Segmental testicular infarction is a rare entity best diagnosed by lack of vascular flow on scrotal color Doppler ultrasound
  • Testicular neoplasm must be excluded as a differential diagnosis

• Our Patient
  • Low suspicion for neoplasm given lack of segmental infarction on prior study at OSH
  • Discharged with levofloxacin x 2 weeks & urology follow-up
  • Sickle cell workup negative
  • 2-week follow-up scrotal ultrasound revealed slight decrease in size of infarct with continued absence of local vascular flow
References:


