32-year-old male presents with painless right-sided penile displacement, swelling, and discoloration.
Patient Presentation

HPI: 32-year-old male presented with pronounced right sided penile curvature, swelling, and discoloration, first noticed when he woke up in the morning. He believed he may have had an overnight erection that he “rolled on top of.” He noted numbness of the glans penis but denied significant pain, hematuria, or difficulty voiding. No new sexual activity.

PMHx: ADHD, depression

Meds: None

Allergies: No known Allergies

Physical Exam: Circumferential diffuse and uniform edema with diffuse ecchymosis, particularly on the distal penis. No localized hematoma or palpable defect in the corpora. Scrotal contents palpable without abnormality, edema, or ecchymosis.

Labs: CBC with differential, CMP, and urinalysis all within normal limits.

Consults: Urology was consulted in a timely manner and imaging was ordered based on physical exam.
What Imaging Should We Order?
Select the applicable ACR Appropriateness Criteria

This imaging modality was ordered by the ED physician

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiography area of interest</td>
<td>Usually Appropriate</td>
<td>Varies</td>
</tr>
<tr>
<td>US area of interest</td>
<td>May Be Appropriate</td>
<td>0</td>
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<tr>
<td>CT area of interest with IV contrast</td>
<td>May Be Appropriate</td>
<td>Varies</td>
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<tr>
<td>CT area of interest without and with IV contrast</td>
<td>May Be Appropriate</td>
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<tr>
<td>US area of interest with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>0</td>
</tr>
<tr>
<td>Image-guided biopsy area of interest</td>
<td>Usually Not Appropriate</td>
<td>Varies</td>
</tr>
<tr>
<td>Image-guided fine needle aspiration area of interest</td>
<td>Usually Not Appropriate</td>
<td>Varies</td>
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<tr>
<td>MRI area of interest without and with IV contrast</td>
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<tr>
<td>MRI area of interest without IV contrast</td>
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</tr>
<tr>
<td>FDG-PET/CT area of interest</td>
<td>Usually Not Appropriate</td>
<td>★★★★★</td>
</tr>
</tbody>
</table>

*US was suggestive but indeterminate of penile injury
What follow up imaging should we order?
Select the applicable ACR Appropriateness Criteria

This imaging modality was ordered by the urologist.
MRI T2 Axial sequence
Focal transverse defect in the tunica albuginea of the left corpus cavernosum
MRI T2 Coronal sequence
MRI T2 Coronal sequence, labeled

Focal transverse defect in the tunica albuginea of the left corpus cavernosum.
MRI T2 Axial sequence
MRI T2 axial sequence (labeled)

Adjacent hematoma
Final Dx: Penile Fracture
Etiology:

- Penile fractures result from penetrating or blunt trauma to an erect penis. Most common causes include trauma during penetrative intercourse, injury secondary to orgasm, and falls landing on an erect penis.

Pathophysiology:

- The tunica albuginea of the erect penis thins to approximately 0.25mm on expansion. The engorged corpora under strain generates pressures upwards of 1500 mmHg, exceeding the limit of the thinned tunica, leading to fracture.
Penile Fracture

Epidemiology:
• Injury is isolated to persons with phenotypically male genitalia and occurs most frequently in middle aged males aged 30-50.

Clinical presentation:
• Ecchymosis of the penile shaft with “rolling sign,” angulated penis, flaccid or asymmetric erection, +/- tenderness

Differential Diagnoses:
• Penile contusion, urethral tear, dorsal vein rupture, coagulation disorders
Penile Fracture

Imaging:
• Ultrasound is easily accessible and may delineate the nature and extent of injury, as well as the exact location of the tear (seen as a thin echogenic line).
• If ultrasound is inconclusive, MRI without contrast may be used. It provides soft tissue definition depicting interruption of cavernosal tunica albuginea.

Management:
• Surgical repair upon diagnosis is standard. Conservative management is not recommended due to high morbidity (plaque formation, missed urethral injury, stricture, abscess formation, painful erection, erectile dysfunction).
References:


