

AMSER Case of the Month

November 2023

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

Dimas Palmar MS4, Drexel University College of Medicine



Julie Adhya, DO, PGY-5 Radiology, Allegheny Health Network
Dr. Matthew Hartman, MD, Allegheny Health Network



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

Variant 2: Nonsuperficial (deep) soft tissue mass. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
Radiography area of interest	Usually Appropriate	Varies
US area of interest	May Be Appropriate	0
CT area of interest with IV contrast	May Be Appropriate	Varies
CT area of interest without and with IV contrast	May Be Appropriate	Varies
CT area of interest without IV contrast	May Be Appropriate	Varies
US area of interest with IV contrast	Usually Not Appropriate	0
Image-guided biopsy area of interest	Usually Not Appropriate	Varies
Image-guided fine needle aspiration area of interest	Usually Not Appropriate	Varies
MRI area of interest without and with IV contrast	Usually Not Appropriate	0
MRI area of interest without IV contrast	Usually Not Appropriate	0
FDG-PET/CT area of interest	Usually Not Appropriate	☼☼☼☼

This imaging modality was ordered by the ED physician

*US was suggestive but indeterminate of penile injury

What follow up imaging should we order?

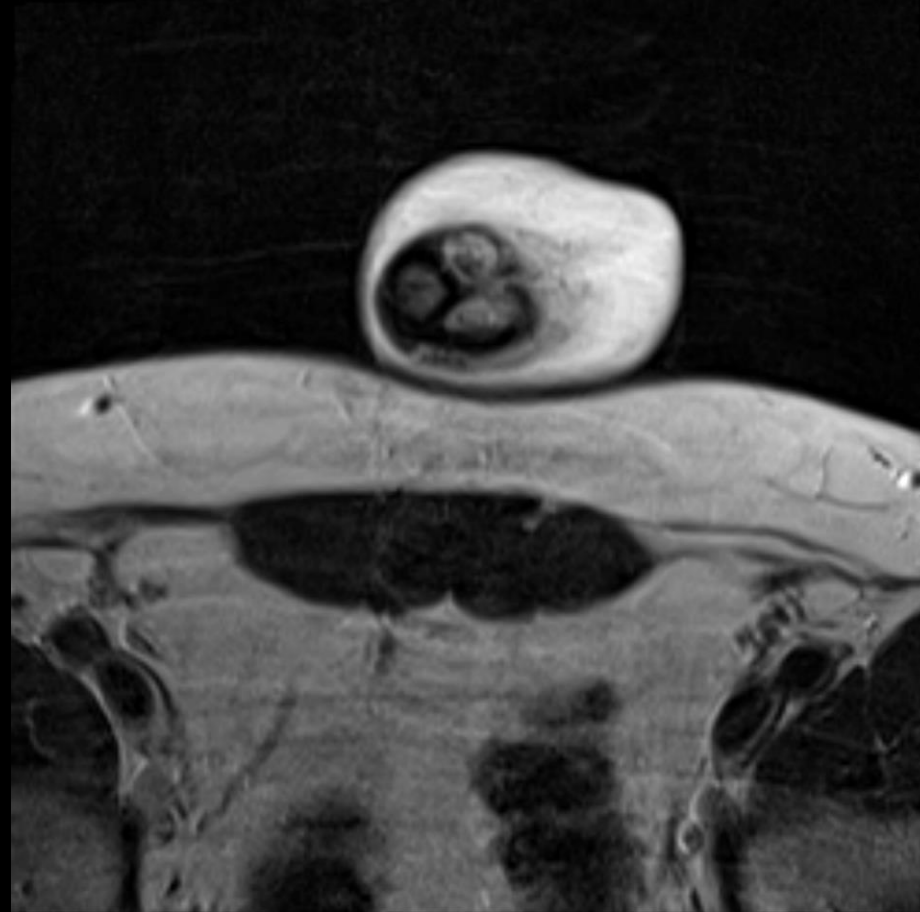
Select the applicable ACR Appropriateness Criteria

Variant 3: **Soft tissue mass. Nondiagnostic radiograph and noncontrast-enhanced ultrasound. Next imaging study.**

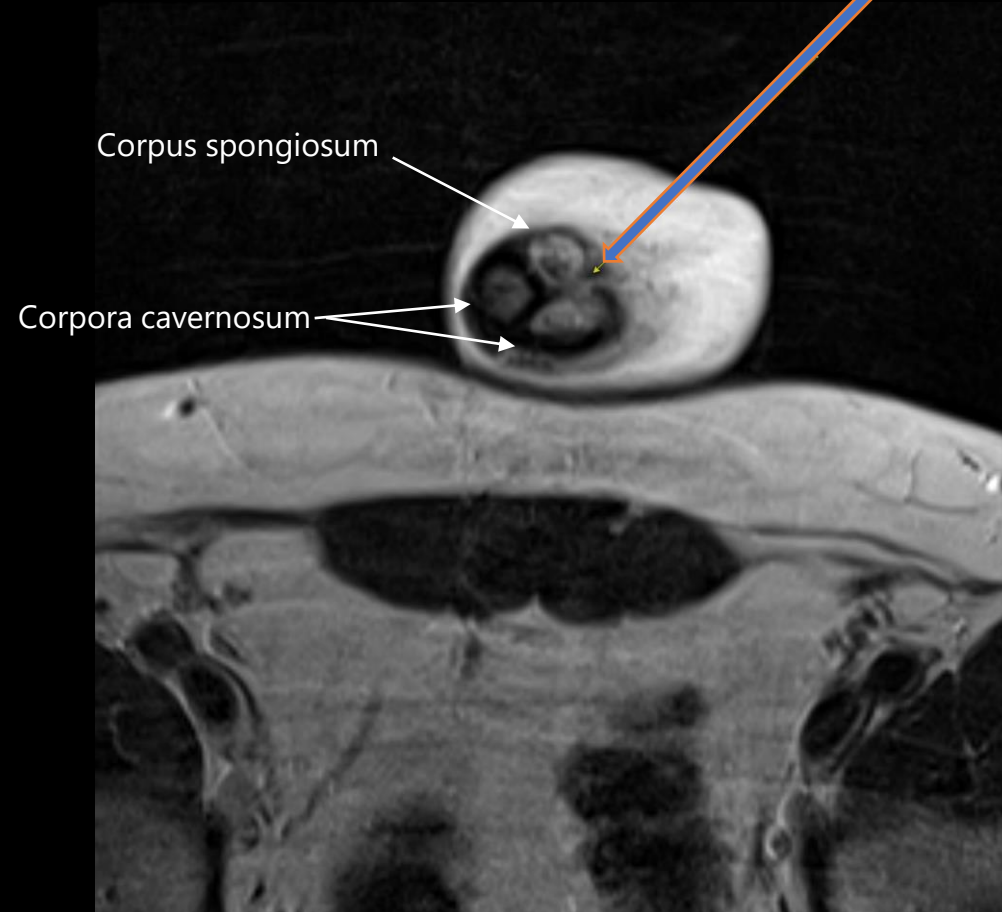
Procedure	Appropriateness Category	Relative Radiation Level
MRI area of interest without and with IV contrast	Usually Appropriate	○
MRI area of interest without IV contrast	May Be Appropriate	○
CT area of interest with IV contrast	May Be Appropriate	Varies
CT area of interest without and with IV contrast	May Be Appropriate	Varies
US area of interest with IV contrast	Usually Not Appropriate	○
Image-guided biopsy area of interest	Usually Not Appropriate	Varies
Image-guided fine needle aspiration area of interest	Usually Not Appropriate	Varies
FDG-PET/CT area of interest	Usually Not Appropriate	☢☢☢☢
CT area of interest without IV contrast	Usually Not Appropriate	Varies

This imaging modality was ordered by the urologist

MRI T2 Axial sequence

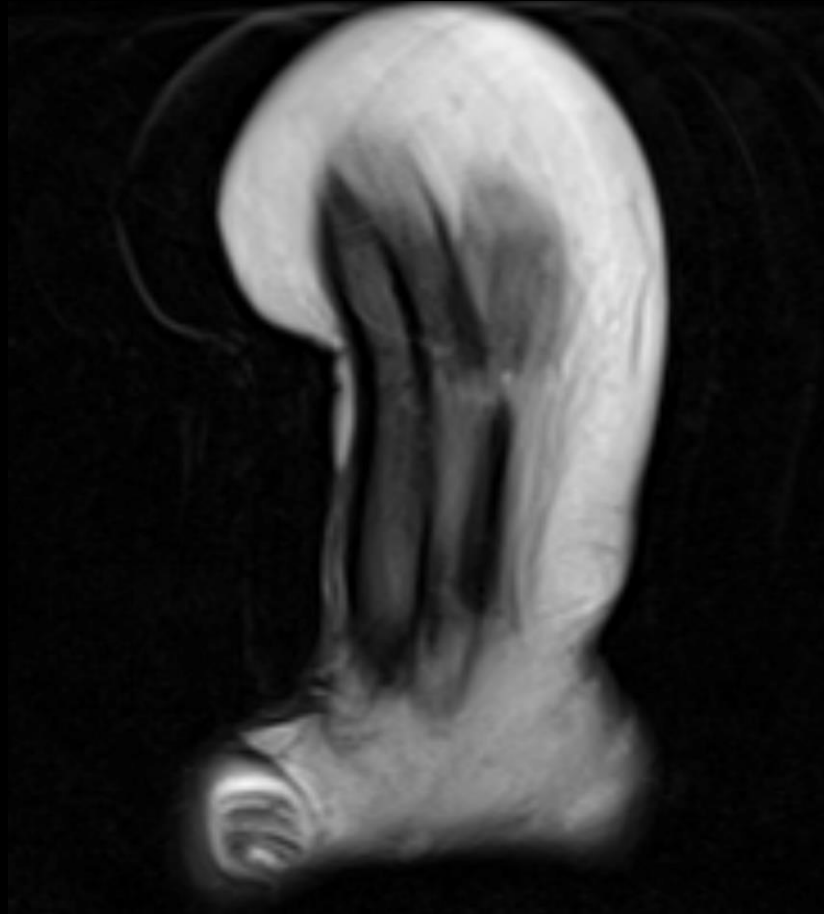


MRI T2 Axial sequence, labeled

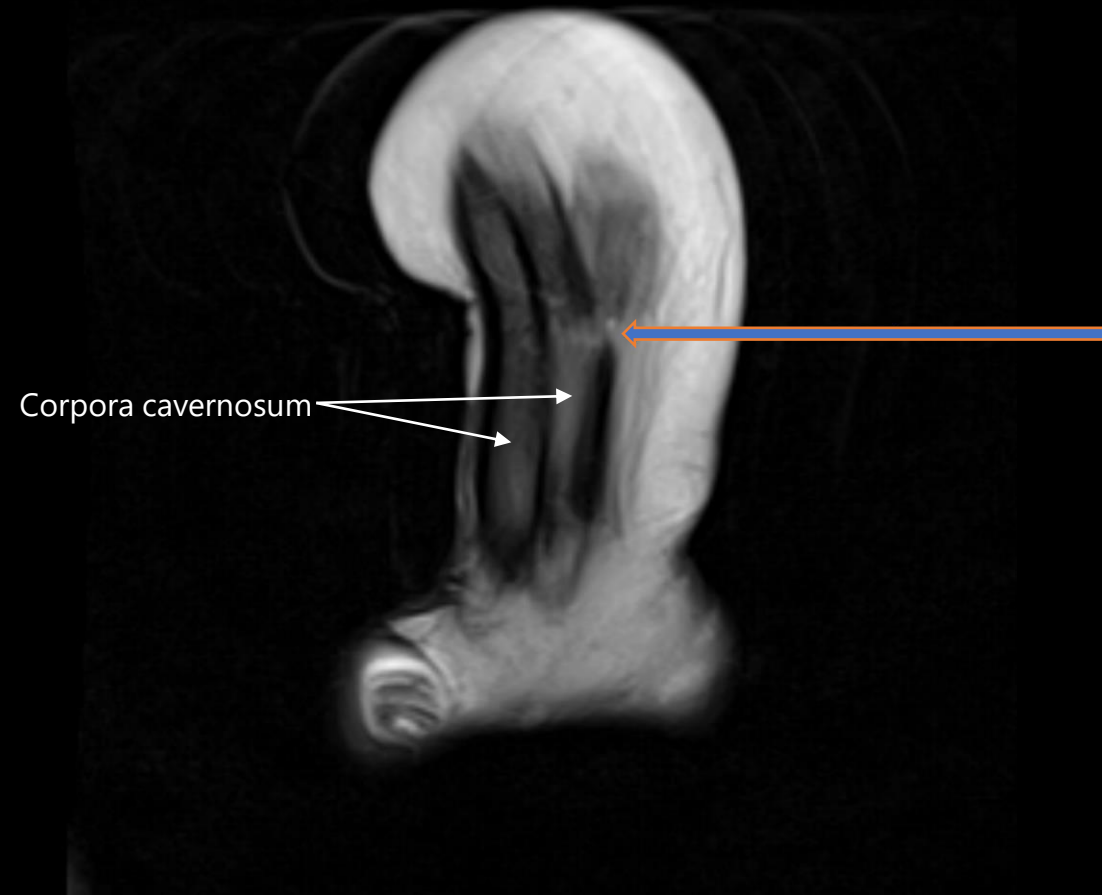


Focal transverse defect in the tunica albuginea of the left corpus cavernosum

MRI T2 Coronal sequence



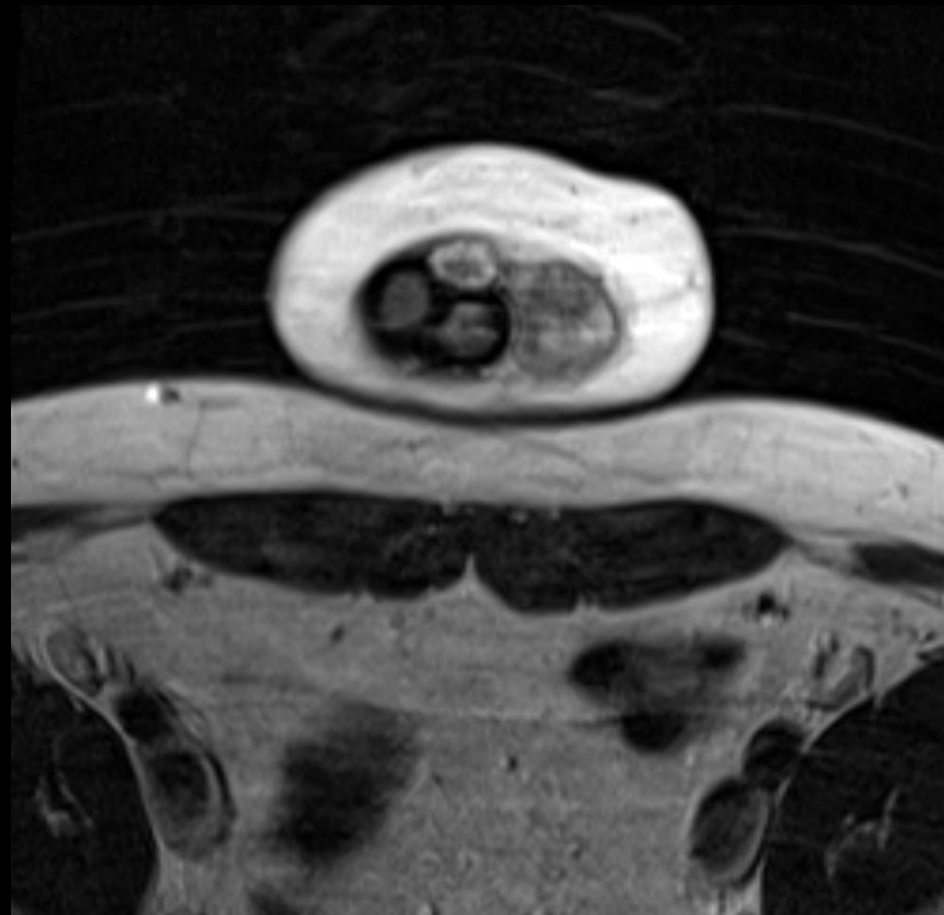
MRI T2 Coronal sequence, labeled



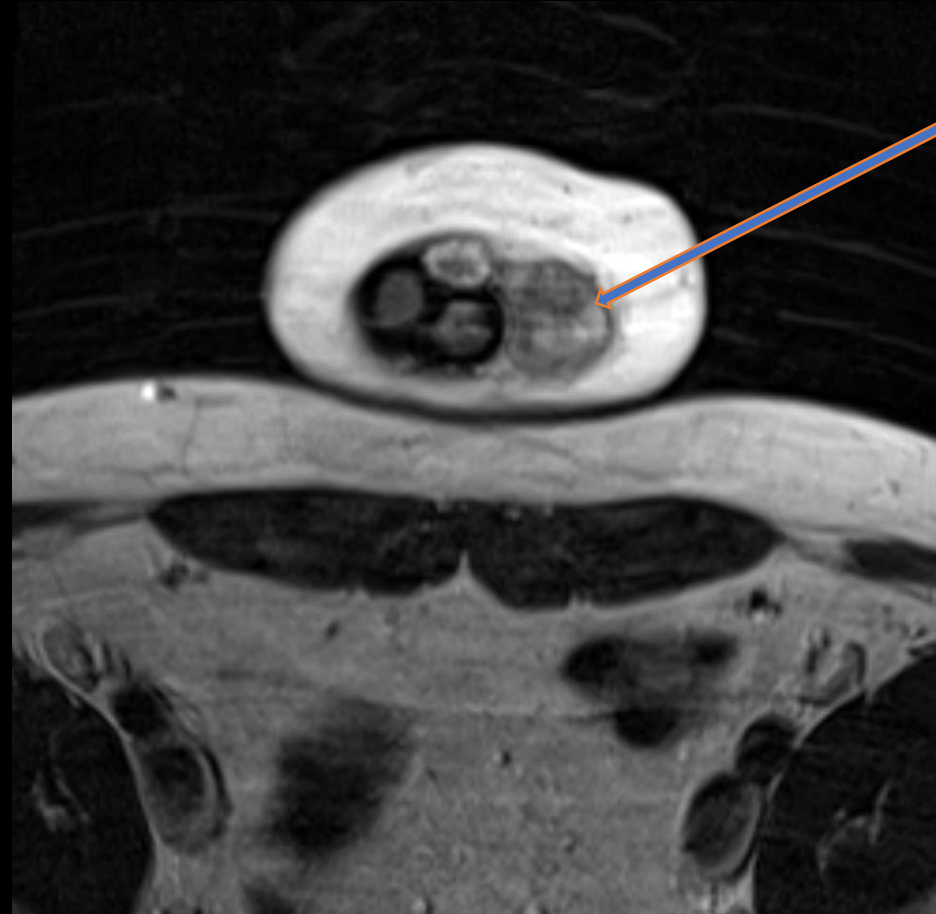
Corpora cavernosum

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

Case Discussion

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:

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Nawaz H, Khan M, Tareen FM, Khan S. Penile fracture: presentation and management. *J Coll Physicians Surg Pak*. 2010;20(5):331-334.