

AMSER Case of the Month

August 2026

25 year-old male with left wrist and thumb pain s/p fall
while cycling landing on both wrists 6 weeks ago

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Patient Presentation

- HPI: 25 year old male with left wrist and thumb pain after falling while cycling, landing on both wrists. Has had bruising on the top of hand in addition to numbness and tingling in the left thumb and fingers for the past 6 weeks.
- Presenting to the urgent care due to continued pain
- PMH: None
- Past Surgical Hx: N/A
- Family History: N/A
- Social History: Never smoked

Physical Exam

- Pertinent Exam Findings:
 - Mild bruising over the volar wrist
 - Intermittent paresthesias in the median nerve distribution within the left hand
 - Healing wound on left palm
 - Positive Tinel's sign over radial nerve
 - Negative tenderness in the anatomical snuffbox
 - Full range of motion, strength and sensation intact

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant: 1 Adult. Chronic hand or wrist pain. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
Radiography area of interest	Usually Appropriate	Varies
US area of interest	May Be Appropriate	○
Radiographic arthrography area of interest	Usually Not Appropriate	Varies
MR arthrography area of interest	Usually Not Appropriate	○
MRI area of interest without and with IV contrast	Usually Not Appropriate	○
MRI area of interest without IV contrast	Usually Not Appropriate	○
Bone scan area of interest	Usually Not Appropriate	☢☢☢
CT area of interest with IV contrast	Usually Not Appropriate	Varies
CT area of interest without and with IV contrast	Usually Not Appropriate	Varies
CT area of interest without IV contrast	Usually Not Appropriate	Varies
CT arthrography area of interest	Usually Not Appropriate	Varies

- This imaging modality was ordered by the urgent care physician

Left Wrist X-Ray, PA projection (unlabeled)



Findings XRAY (Labeled)



Left wrist PA x-ray demonstrates a subtle linear lucency/cortical irregularity at the distal scaphoid tubercle, consistent with a nondisplaced scaphoid fracture.

What Imaging Should We Order Next?

Select the applicable ACR Appropriateness Criteria

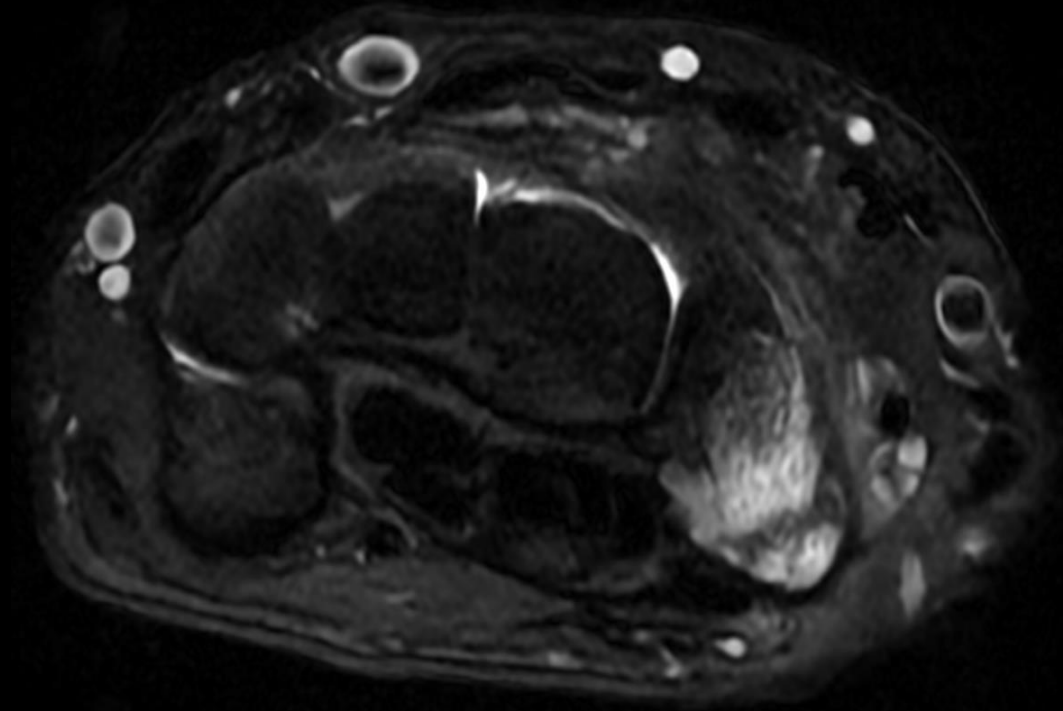
Variant: 4 Adult. Chronic wrist pain. Radiographs show old scaphoid fracture. Evaluate for nonunion, malunion, osteonecrosis, or post-traumatic osteoarthritis. Next imaging study.

Procedure	Appropriateness Category	Relative Radiation Level
MRI wrist without IV contrast	Usually Appropriate	○
CT wrist without IV contrast	Usually Appropriate	☢
MRI wrist without and with IV contrast	May Be Appropriate	○
US wrist	Usually Not Appropriate	○
Radiographic arthrography wrist	Usually Not Appropriate	☢
MR arthrography wrist	Usually Not Appropriate	○
CT arthrography wrist	Usually Not Appropriate	☢
CT wrist with IV contrast	Usually Not Appropriate	☢
CT wrist without and with IV contrast	Usually Not Appropriate	☢
Bone scan wrist	Usually Not Appropriate	☢☢☢

- This was the next study ordered

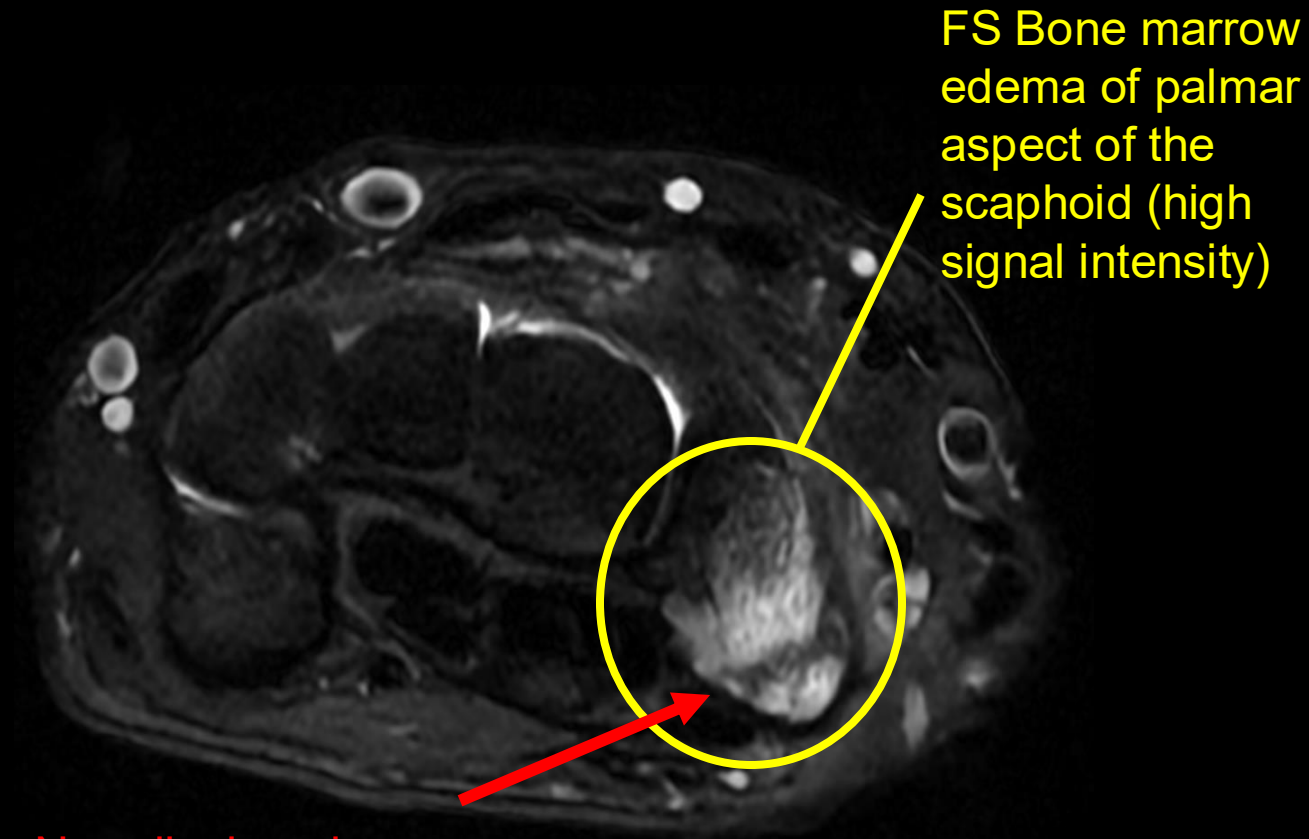
Findings (Unlabeled)

MRI left wrist without IV contrast, axial T2 fat-saturated sequence



Findings (labeled)

Axial T2 FS

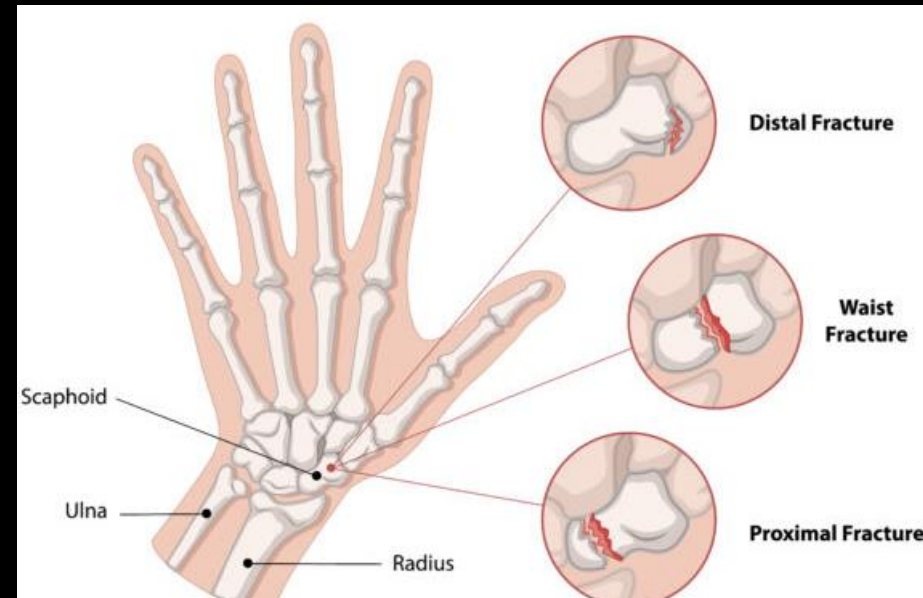
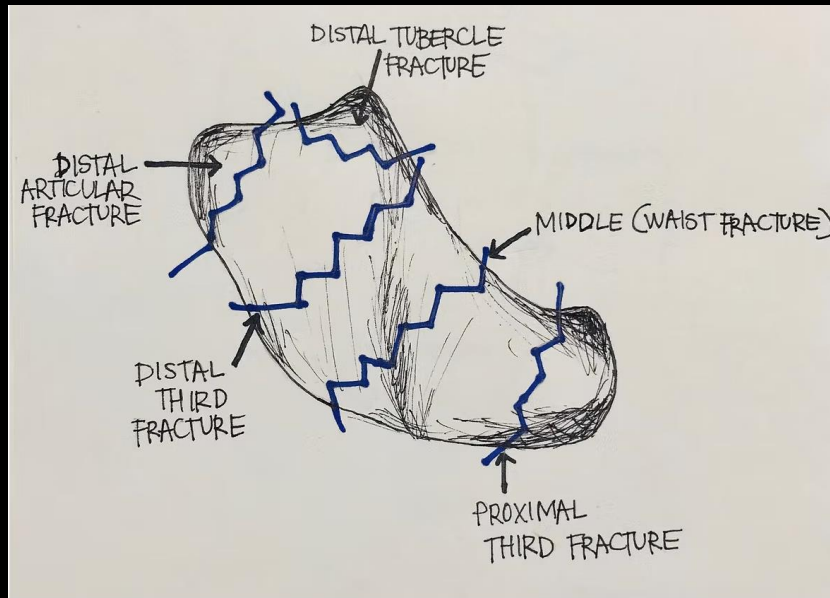


FS Bone marrow
edema of palmar
aspect of the
scaphoid (high
signal intensity)

Non-displaced
fracture of the
palmar aspect of the
scaphoid

Final Diagnosis

Findings/Impression: Nondisplaced fracture through the palmar aspect of the distal scaphoid tubercle with moderate edema of the distal pole of the scaphoid



Case Discussion: Background Info

Epidemiology:

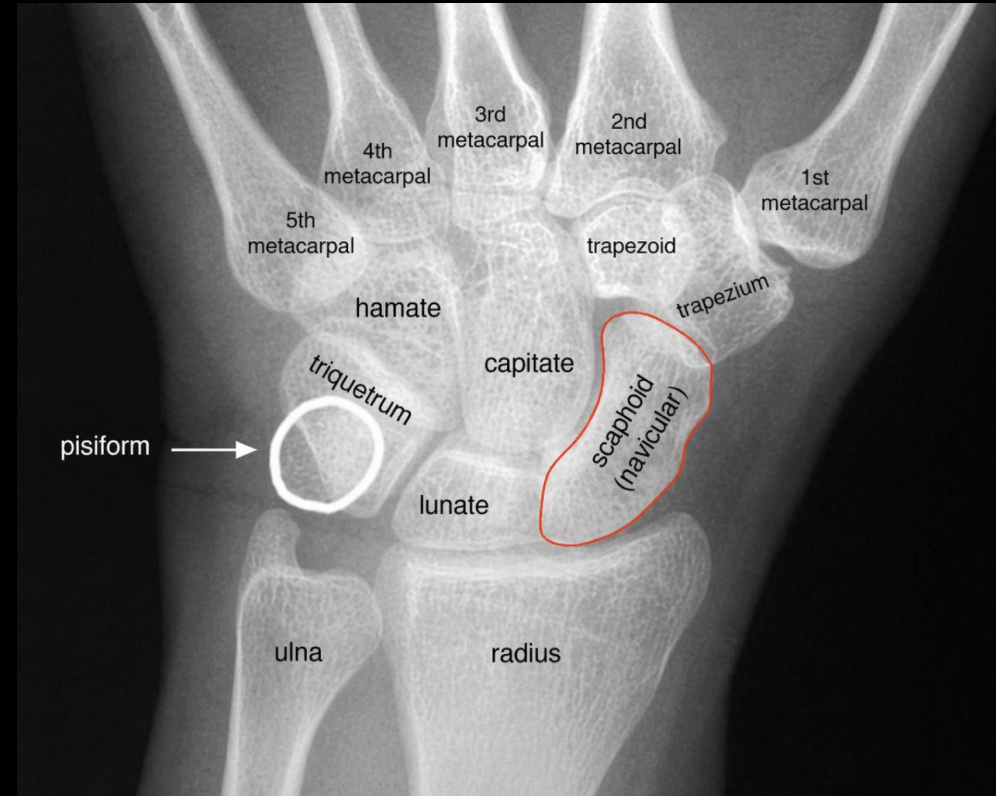
- Most common carpal bone fracture (~60–70%)
- Accounts for ~15% of all acute wrist injuries
- Primarily affects young, active individuals (ages 15–29)
- More common in males with incidence: Incidence: ~8 per 100,000 females; ~38 per 100,000 males

Mechanism:

- **Fall On Outstretched Hand: (FOOSH injury)** creating axial loading or wrist hyperextension

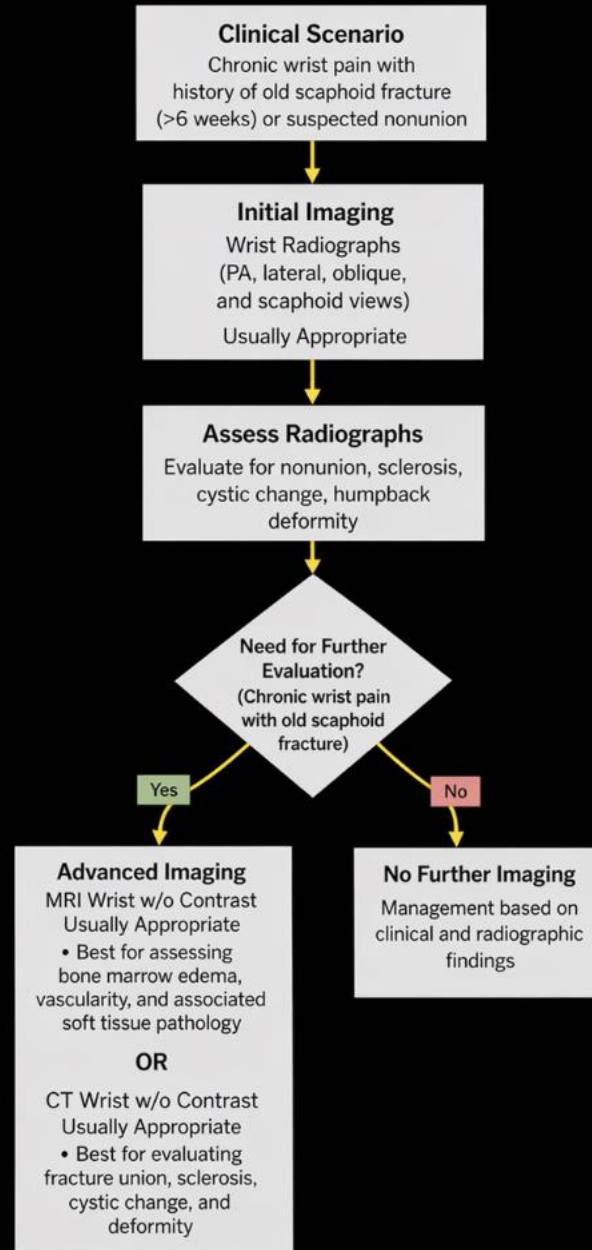
Physical Examination

- **Wrist swelling**, rarely with **ecchymosis** or gross deformity:
- Pain, especially during resisted pronation
- Provocative tests
 - Snuffbox tenderness (dorsal)
 - Scaphoid tubercle tenderness (volar)
 - Scaphoid compression test



Case Discussion- Scaphoid Fracture Work Up

Chronic Scaphoid Fracture ACR Appropriateness Guidelines



ACR Key Points

- Radiographs are the first-line imaging study.
- MRI (non-contrast) is most appropriate for evaluation of nonunion and associated soft tissue injury.
- **MRI (non-contrast) is also the best modality to evaluate for osteonecrosis (avascular necrosis) of the scaphoid.**
- CT is most appropriate for detailed assessment of bony anatomy and preoperative planning.

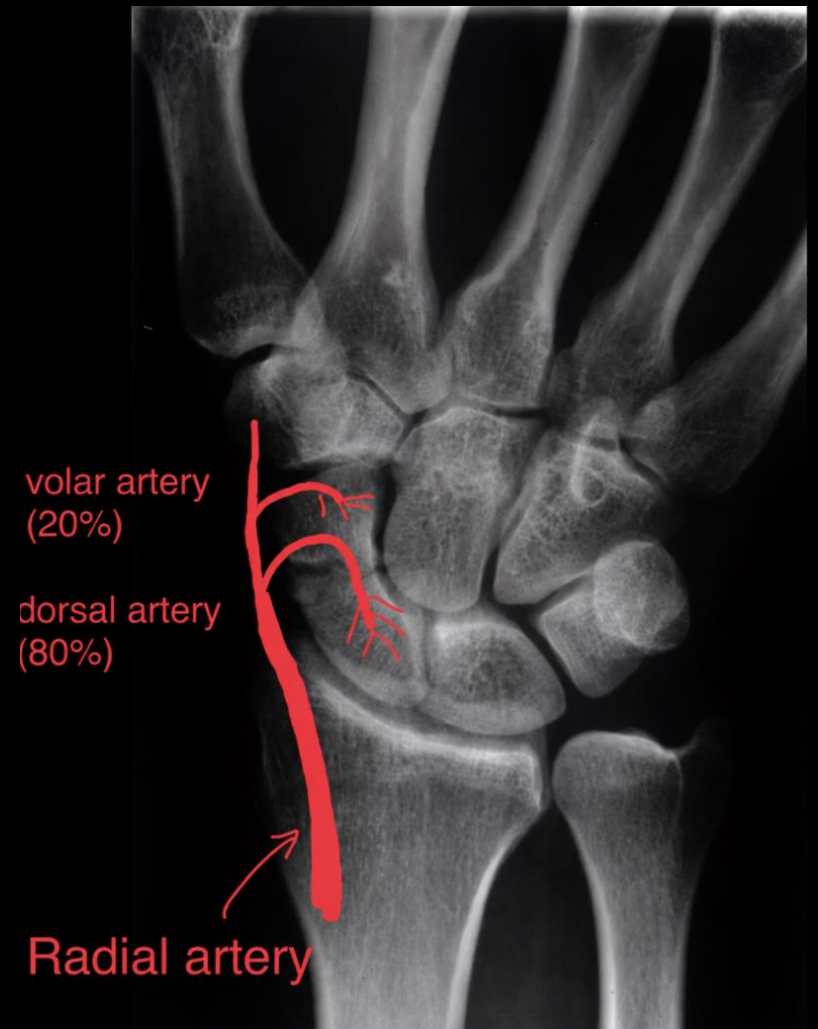
Case Discussion: Complications and Treatment

Complications:

- **Osteonecrosis (avascular necrosis)** 30% (13–50%) of all scaphoid fractures
- Risk of nonunion (5–10%) or improper healing, which can lead to wrist instability/deformity and early osteoarthritis (SNAC: Scaphoid Nonunion Advanced Collapse)
- Location matters: proximal pole/waist fractures carry higher AVN and nonunion risk because scaphoid blood supply is retrograde.
 - In this distal tubercle fracture, AVN risk is lower, but MRI helped assess marrow edema/acuteity and exclude early complications.

Management includes:

- Early immobilization: nonunion rates increase if immobilization is delayed >4 weeks
- Percutaneous screw fixation: screws inserted through the skin into bones
- Open Reduction Internal Fixation (ORIF)



References

1. ACR Criteria of Appropriateness: Chronic Hand and Wrist. Accessed April 15, 2026. <https://acsearch.acr.org/docs/69427/Narrative/>
2. Knipe, H. Scaphoid fracture| Radiology Reference Article| Radiopaedia.org. Radiopaedia. Accessed April 15, 2026. <https://radiopaedia.org/articles/scaphoid-fracture?lang=us>
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6. Radiology Masters. *Scaphoid fracture and imaging explained* [video]. YouTube. Published (Nov 29, 2020). Accessed April 15, 2026. <https://www.youtube.com/watch?v=ZXkD0Zmr>