

AMSER Case of the Month: October 2022

51 year old with right elbow pain

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Patient Presentation

- **HPI:** 51 year old presents with 1 week history of right elbow pain following an injury sustained while performing martial arts training. Initial XR (R elbow, 3+ views) was negative apart from small elbow effusion
- Patient has had continued swelling and worsening ecchymosis despite rest and ice application; diffuse tenderness is still present
- **PMHx:** Atrial fibrillation
- **No Labs**



What Imaging Should We Order?



ACR Appropriateness Criteria

- “Acute Elbow and Forearm” currently under consideration and with no released ACR Appropriateness Criteria
- Utilizing “Acute Hand or Wrist Trauma” ACR Appropriateness Criteria as the next best criteria
- Variant 2 “Suspect acute hand or wrist trauma. Initial radiographs negative or equivocal. Next Imaging Study”



Select the applicable ACR Appropriateness Criteria

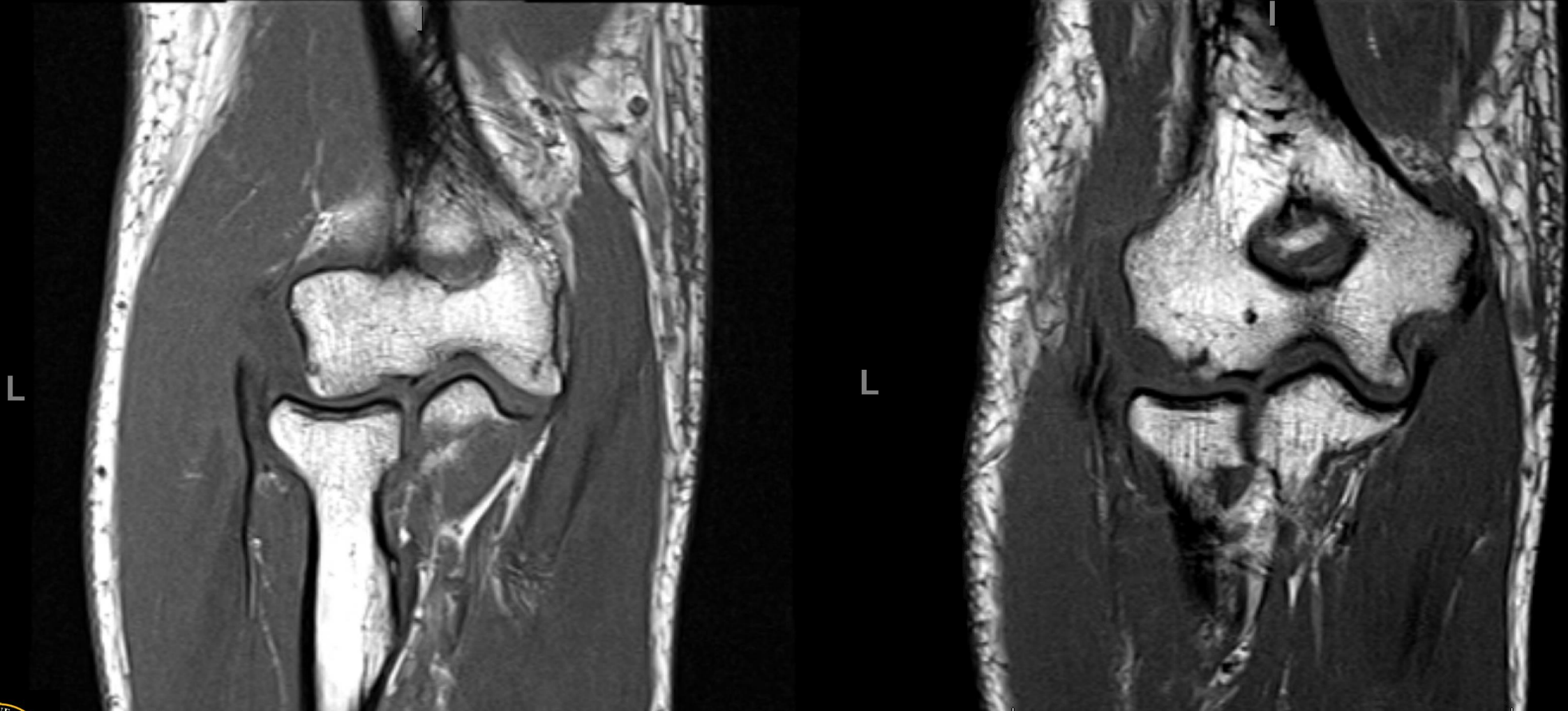
Variant 2: **Suspect acute hand or wrist trauma. Initial radiographs negative or equivocal. Next imaging study.**

Procedure	Appropriateness Category	Relative Radiation Level
MRI area of interest without IV contrast	Usually Appropriate	○
Radiography area of interest repeat in 10-14 days	Usually Appropriate	Varies
CT area of interest without IV contrast	Usually Appropriate	Varies
CT area of interest with IV contrast	Usually Not Appropriate	Varies
CT area of interest without and with IV contrast	Usually Not Appropriate	Varies
MRI area of interest without and with IV contrast	Usually Not Appropriate	○
Bone scan area of interest	Usually Not Appropriate	☢☢☢
US area of interest	Usually Not Appropriate	○

This imaging modality was ordered by the orthopedic specialist

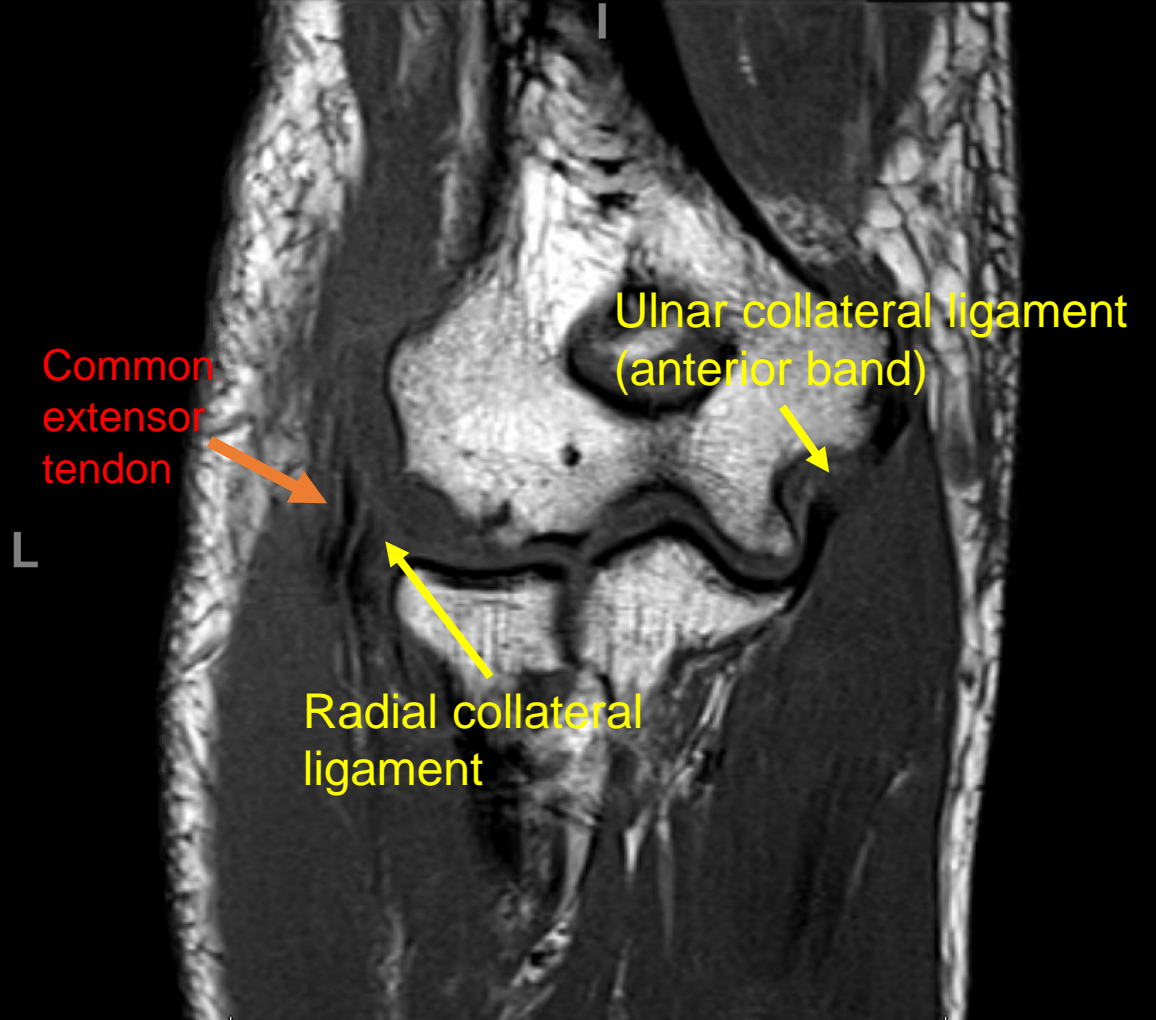
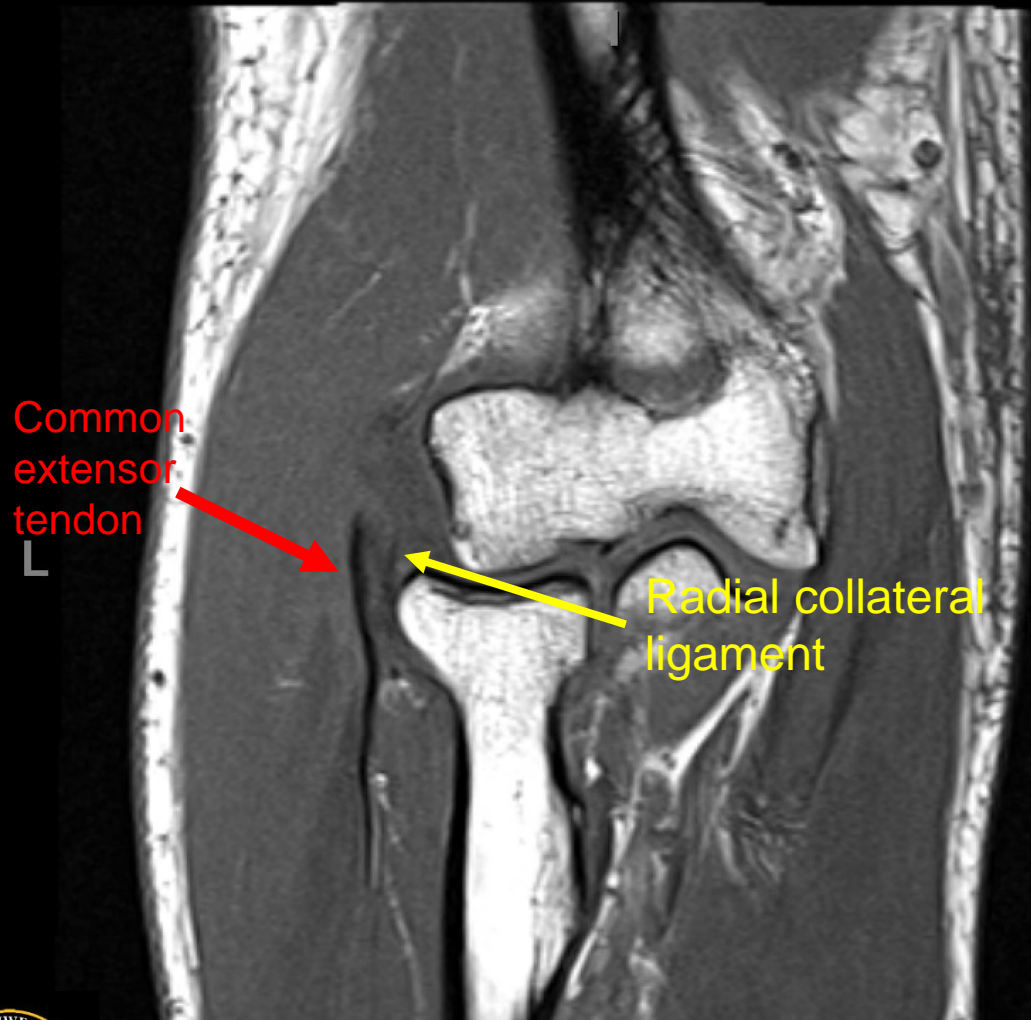


Findings (unlabeled)



Anterior > Posterior

Findings: (labeled)



Anterior > Posterior

Findings

- Complete disruption and tear of common extensor tendon
- Complete disruption and tear of radial collateral ligament
- High grade tear of ulnar collateral ligament (complete disruption of the anterior band)



Final Diagnosis:
Traumatic subluxation of right elbow



Case Discussion: Anatomy

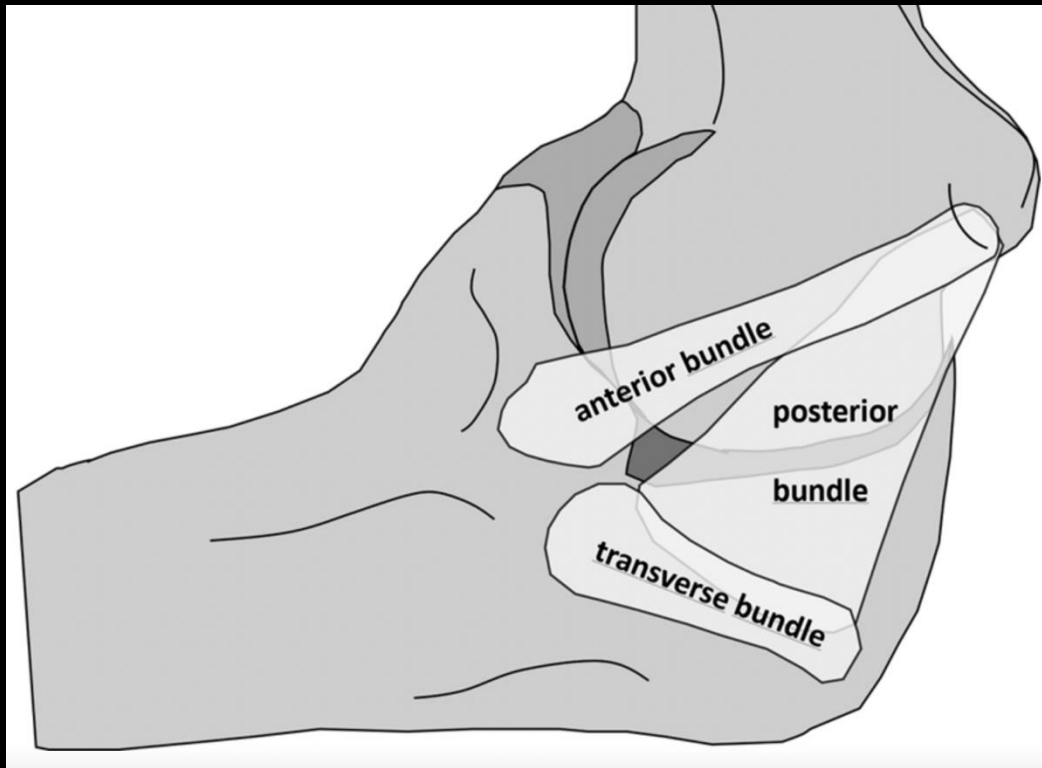


Illustration of the Ulnar Collateral Ligament (UCL)

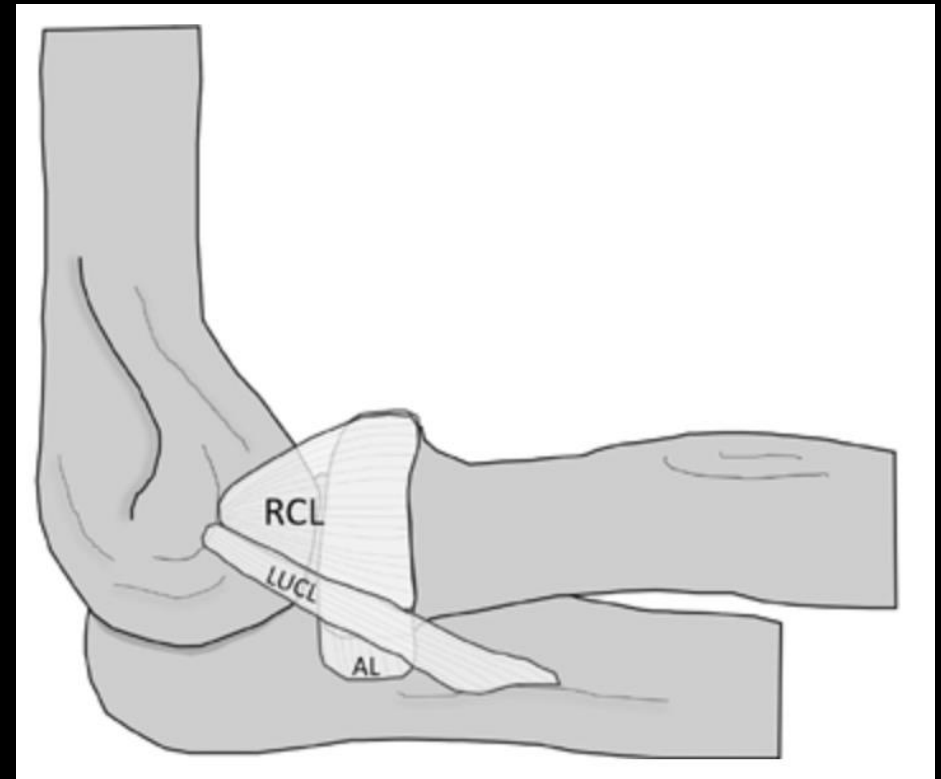


Illustration of the Radial Collateral Ligament (RCL)

Case Discussion:

- **Etiology:** Acute trauma; hyperextension, varus and/or valgus injuries
- **Risk Factors:** Trauma, age, prior trauma to the joint, prior osteoarthritis of the joint
- **Initial XR often negative; MRI required for further evaluation and diagnosis**
- **Complications include:** fracture, nerve impingement, vascular impingement, osteoarthritis
- **Treatment:** Bracing and conservative management; surgery for complicated injuries



References

- Sampath, S. C., Sampath, S. C., & Bredella, M. A. (2013). Magnetic resonance imaging of the elbow: a structured approach. *Sports health*, 5(1), 34-49.
- Acosta Batlle, José, et al. "The elbow: review of anatomy and common collateral ligament complex pathology using MRI." *Insights into Imaging* 10.1 (2019): 1-25.
- Edelmuth, D. G. L., Helito, P. V. P., de Paula Correa, M. F., & Bordalo-Rodrigues, M. (2021, August). Acute Ligament Injuries of the Elbow. In *Seminars in Musculoskeletal Radiology* (Vol. 25, No. 04, pp. 580-588). Thieme Medical Publishers, Inc..
- ACR Appropriateness Criteria for Acute Hand and Wrist Trauma

