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

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
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</thead>
<tbody>
<tr>
<td>MRI area of interest without IV contrast</td>
<td>Usually Appropriate</td>
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<tr>
<td>Radiography area of interest repeat in 10-14 days</td>
<td>Usually Appropriate</td>
<td>Varies</td>
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<tr>
<td>CT area of interest without IV contrast</td>
<td>Usually Appropriate</td>
<td>Varies</td>
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<tr>
<td>CT area of interest with IV contrast</td>
<td>Usually Not Appropriate</td>
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<td>MRI area of interest without and with IV contrast</td>
<td>Usually Not Appropriate</td>
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<tr>
<td>Bone scan area of interest</td>
<td>Usually Not Appropriate</td>
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<tr>
<td>US area of interest</td>
<td>Usually Not Appropriate</td>
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This imaging modality was ordered by the orthopedic specialist.
Findings (unlabeled)

Anterior > Posterior
Findings: (labeled)

- Anterior > Posterior
- Radial collateral ligament
- Common extensor tendon
- Ulnar collateral ligament (anterior band)
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


• ACR Appropriateness Criteria for Acute Hand and Wrist Trauma