

AMSER Case of the Month

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HPI: 32 y/o with presenting with severe R elbow and wrist pain after mechanical fall

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Patient Presentation

- **HPI:** 32-year-old male presented with severe elbow and wrist pain after falling off a horse. Pt fell on his R side and the horse subsequently fell on top of his arm. Pt complained of severe R elbow and wrist pain, and denied fevers, chills, numbness or tingling.
- **MHX:** No pertinent medical hx.
- **Medications:** No anticoagulation or pertinent medication.
- **SurgHx:** No past surgical hx.

Patient Presentation

Physical Exam

Vitals: T: 36.7 °F, Pulse: 74, BP: 147/80, Respirations: 25, Spo2: 96.7%

MSK Exam:

- RUE:
 - Swelling + deformity of wrist, forearm, and elbow
 - Severe tenderness to palpation at wrist and elbow
 - ROM: painless passive motion at shoulder, deferred at wrist/elbow due to pain
 - Compartments: soft + compressible
 - Vascular: Radial pulse intact
 - Motor: AIN/PIN/Radial/Ulnar intact
 - Sensation: Axillary/median/Ulnar/Radial intact
- LUE/RLE/LLE:
 - Unremarkable Exam

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 1:

Acute blunt or penetrating trauma to the hand or wrist. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
Radiography area of interest	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
CT area of interest without IV contrast	Usually Not Appropriate	Varies
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	⊕⊕⊕
US area of interest	Usually Not Appropriate	○



AP/L/Oblique wrist, AP/L forearm, and AP/L Elbow radiographs were ordered and the Orthopaedic Surgery service was consulted

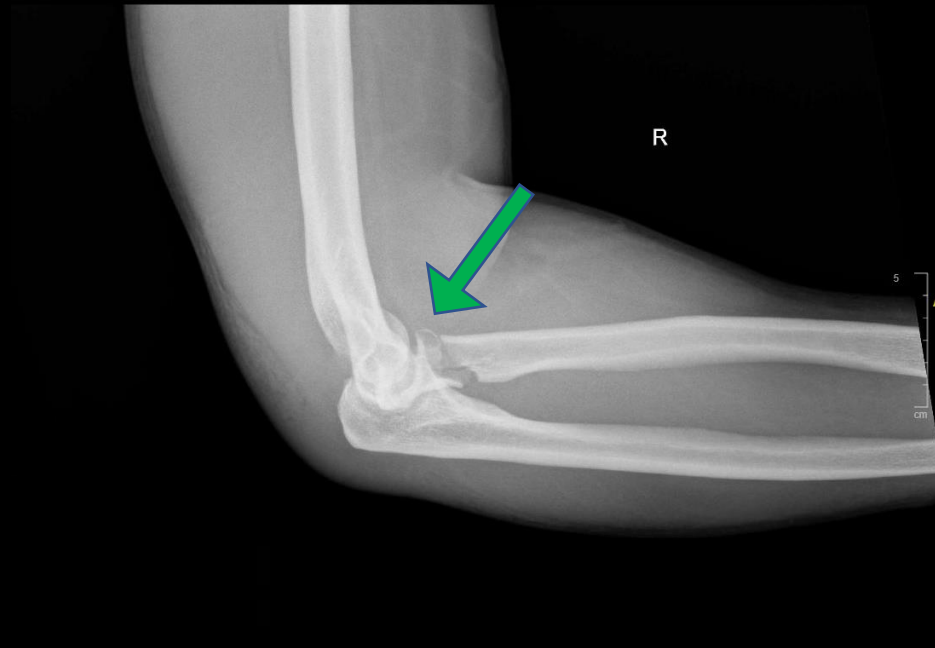
Findings (unlabeled)



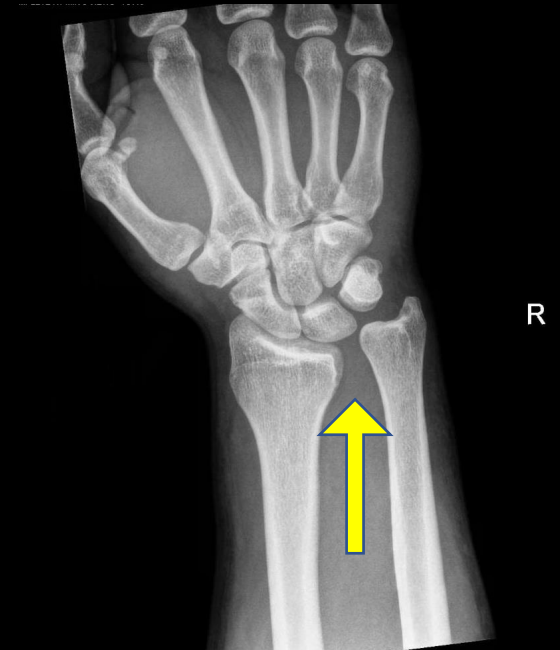
Findings: (labeled)



Arrow demonstrates a posteriorly displaced radial head fragment on forearm AP view



Arrow demonstrates a comminuted, displaced, oblique fracture of the radial head on elbow lateral view



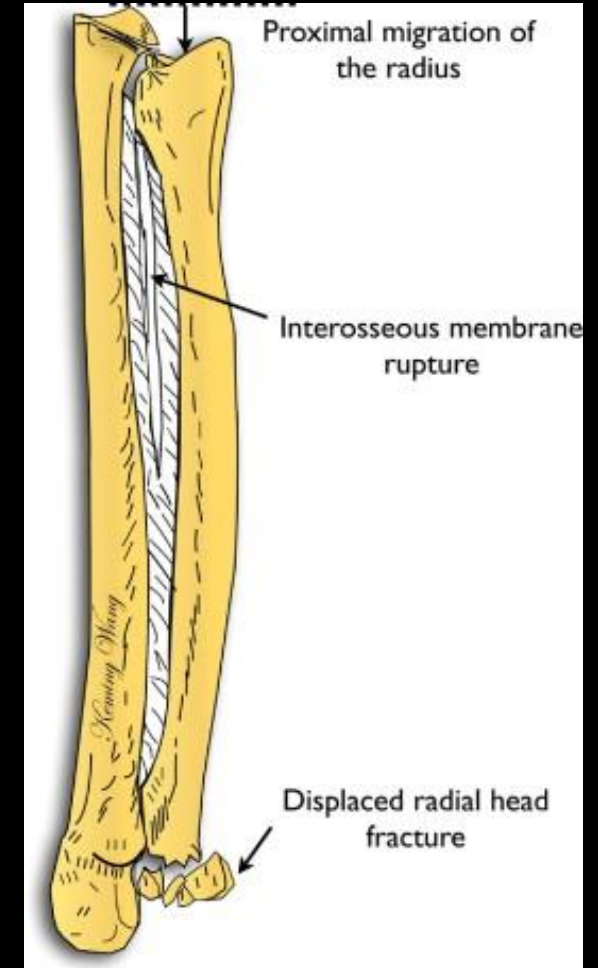
Arrow demonstrates widening of the radioulnar joint on wrist AP view

Final Diagnosis:

Essex-Lopresti Fracture-Dislocation

Case Discussion

- Anatomy
 - Radius
 - Ulna
 - Interosseous Ligament Complex
- Essex-Lopresti Injury Complex
 - Peter Essex-Lopresti, consultant to the Birmingham Accident Hospital, described two cases of this injury in 1951
 - Radial head fracture
 - If missed, can lead to proximal migration of the radius
 - Interosseous ligament complex disruption
 - Leads to instability and widening of the distal radioulnar joint



Case Discussion

- Mechanism of Injury

- Tremendous axial compression force transmitted from wrist to elbow
- Elbow in full extension
- Arm in pronation
- Maximizes contact between the radial head and the capitellum, resulting in radial head fracture and interosseous ligament complex disruption

- Imaging

- Bilateral radiographs of wrist, forearm, and elbow should be obtained
- Findings of radial head fracture and distal radioulnar joint widening
- In delayed diagnoses, proximal radial migration can be seen
- Bilateral radiographs should be performed to compare ulnar variances

Case Discussion

- Treatment
 - Open reduction and internal fixation:
 - Radial head preservation is imperative to prevent proximal migration of radius
 - If unable, a prosthetic replacement should be considered
- Outcomes
 - Essex-Lopresti injuries are commonly missed, with multiple studies reporting over a 60% first presentation missed diagnosis
 - Misdiagnosis and delayed treatment result in worse clinical outcomes
 - Wrist and/or elbow pain
 - Forearm deformity
 - Need for additional surgical procedures

References:

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