UCSF
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Orthopaedic Trauma Institute
UCSF + SAN FRANCISCO GENERAL HOSPITAL

Monteggia & Galeazzi Fractures: Getting Them Right

20th Annual International San Francisco Orthopaedic Trauma Course

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4/18/2026

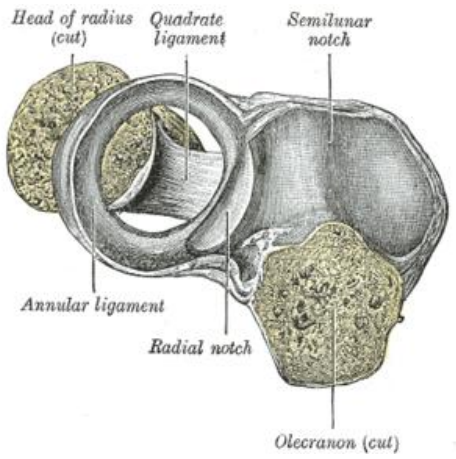
Learning Objectives

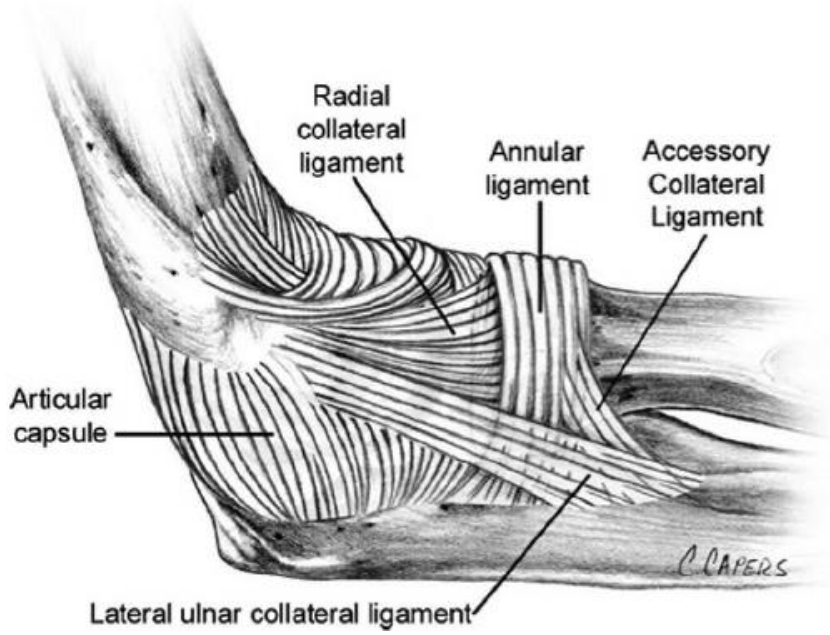
- Review key components of forearm stability
- Reinforce treatment principles for bony fixation
- Discuss approaches to managing radioulnar instability

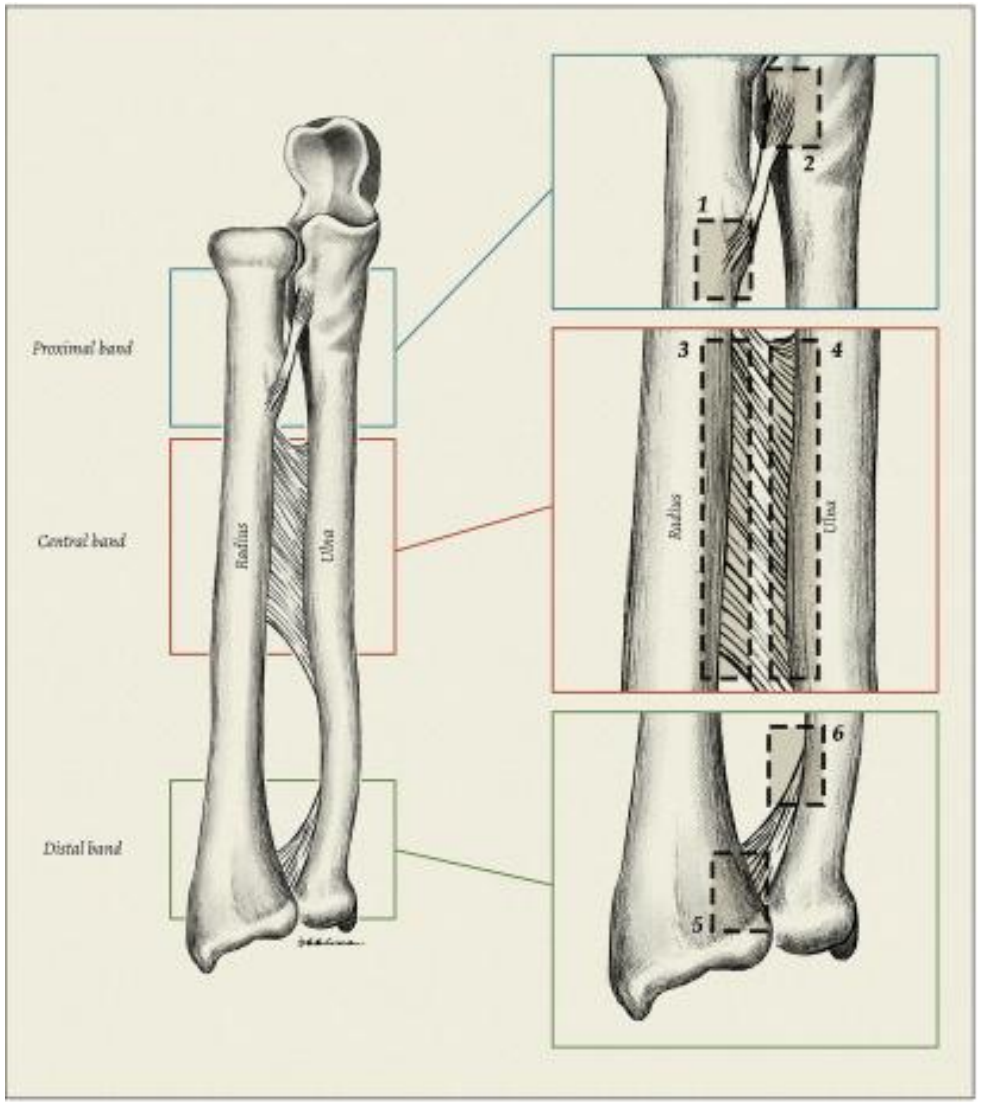
Elbow Stability: PRUJ

Primary Stabilizers

- Annular Ligament
- LCL Complex
- Sigmoid Notch
- IOM (Proximal Oblique Cord)



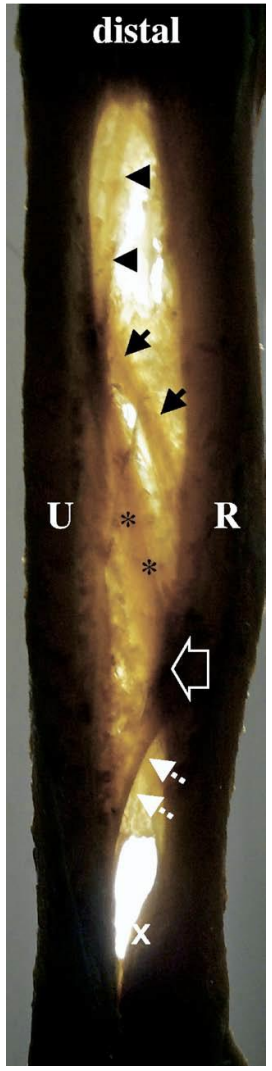


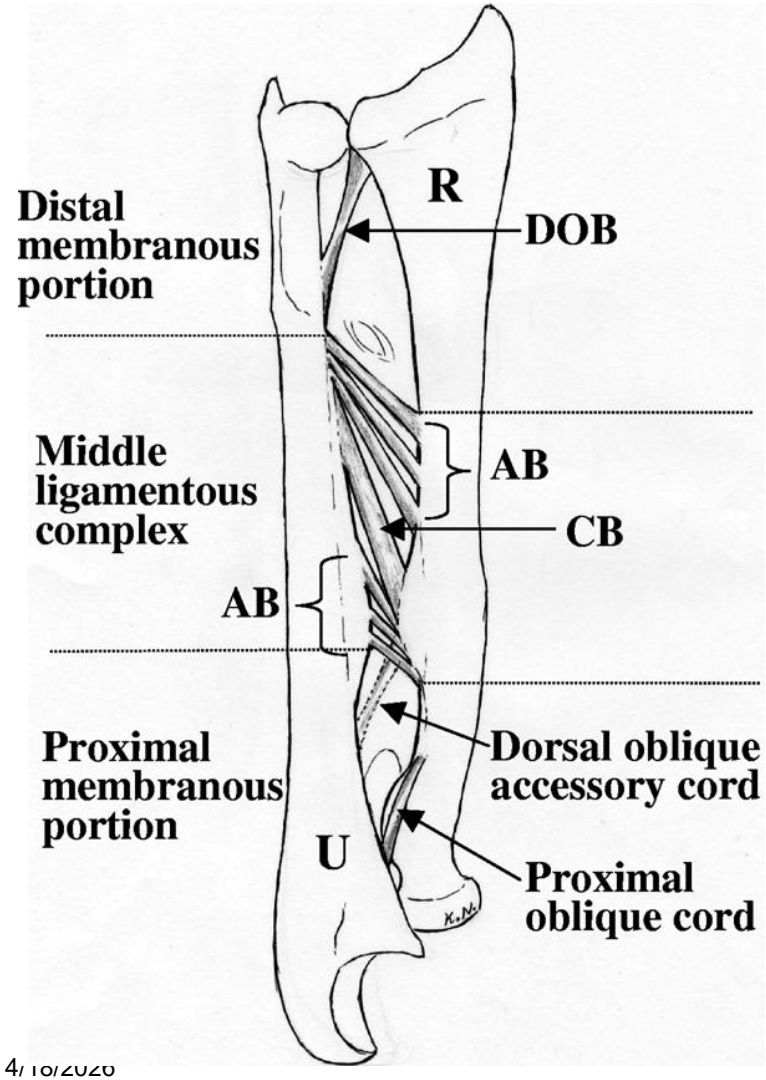


Elbow/Forearm Stability: IOM

Relevant Anatomy

- Longitudinal stability
- Load Transfer (radius➔ulna)
- Central band is stoutest
- Proximal oblique cord stabilizes PRUJ
- Distal oblique bundle supplements DRUJ stability
  - 87.5% prevalence

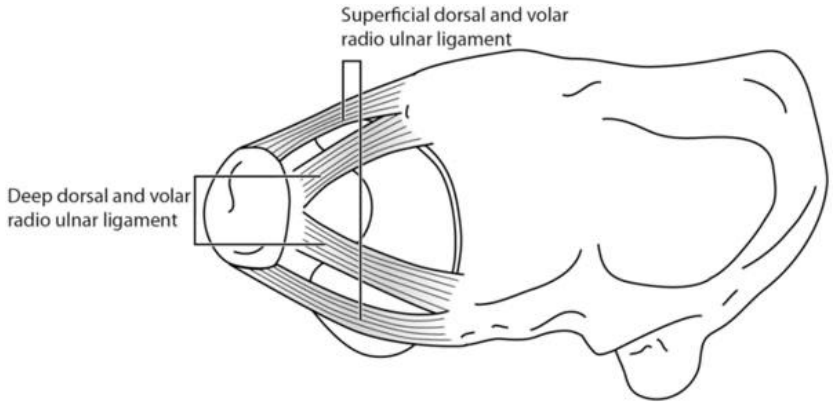


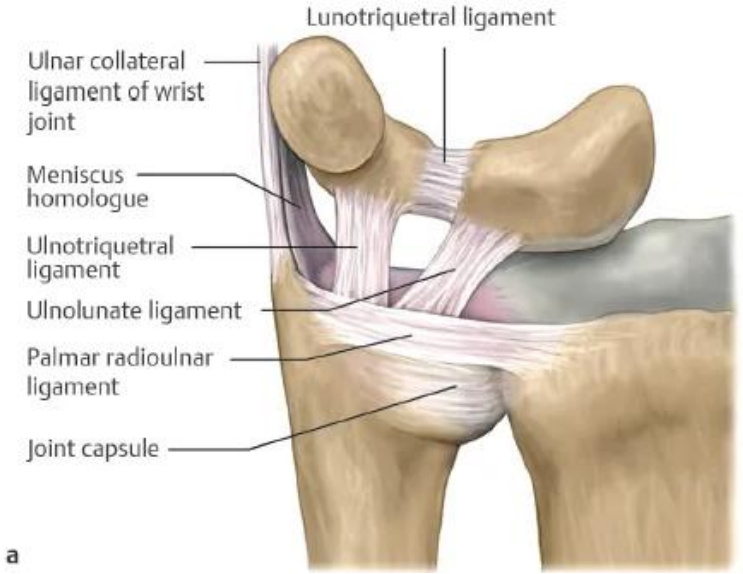


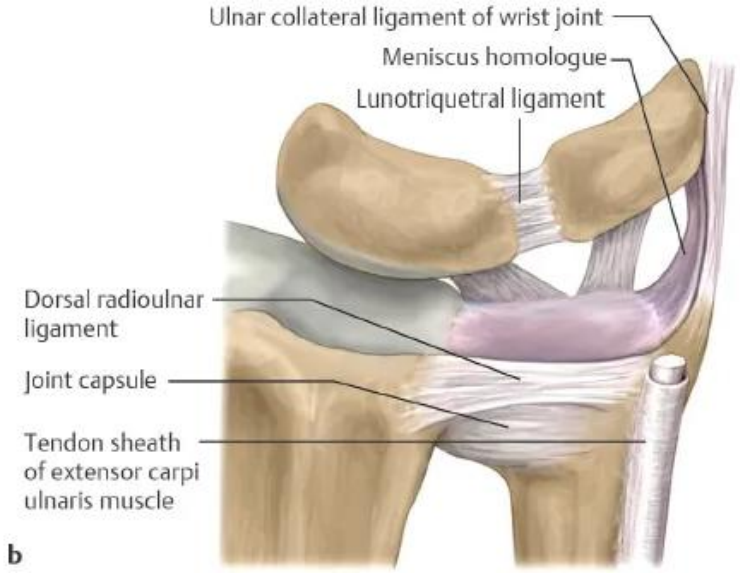
Wrist Stability: DRUJ

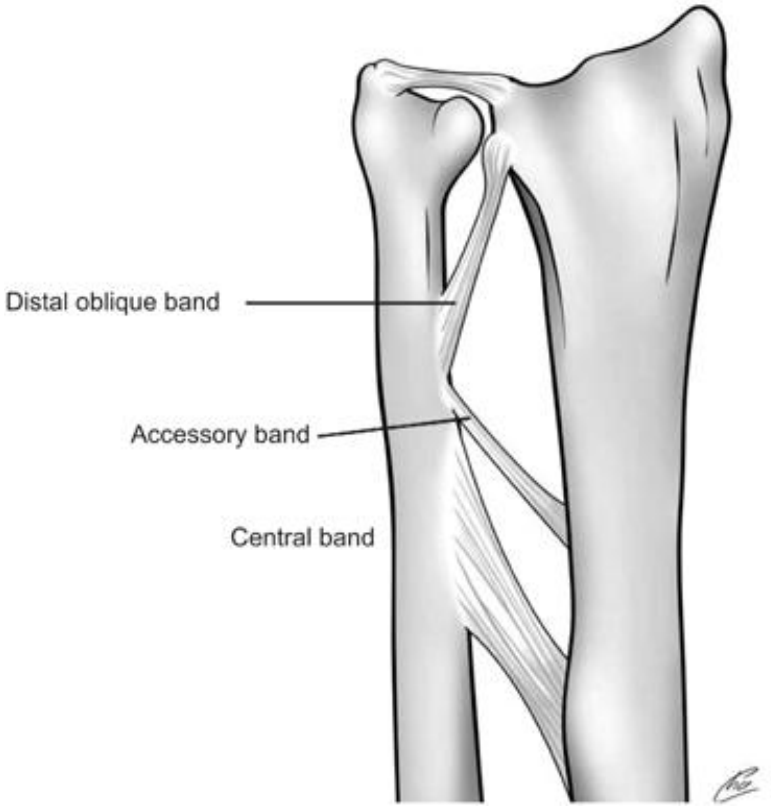
Relevant Anatomy

- Distal radioulnar ligaments
- TFCC
- Distal oblique bundle of IOM



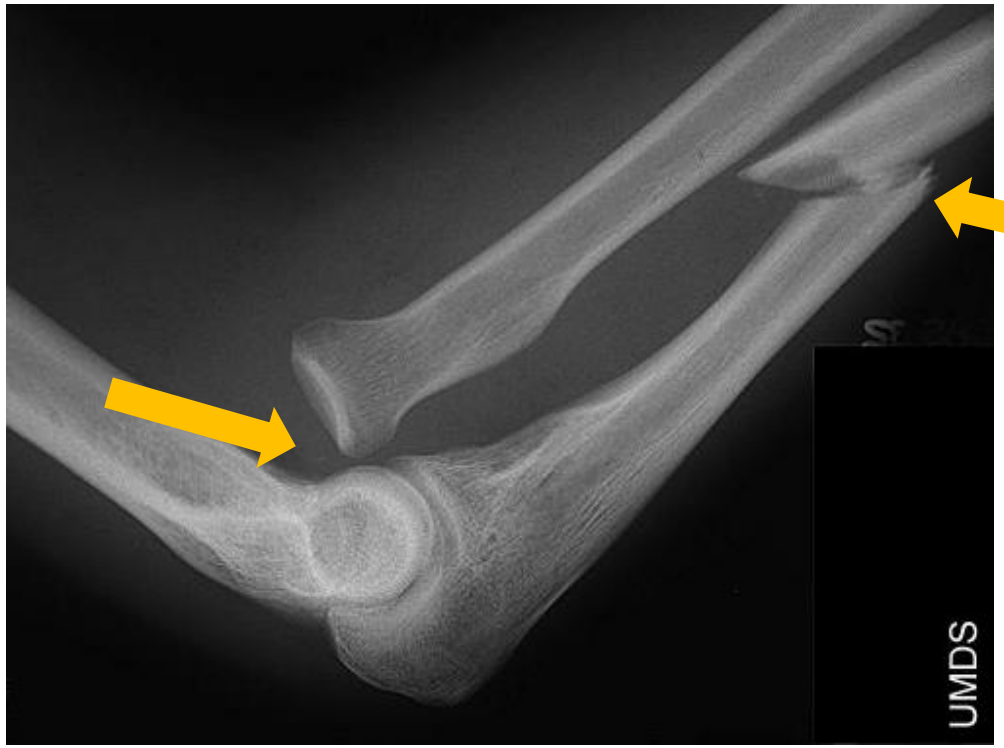




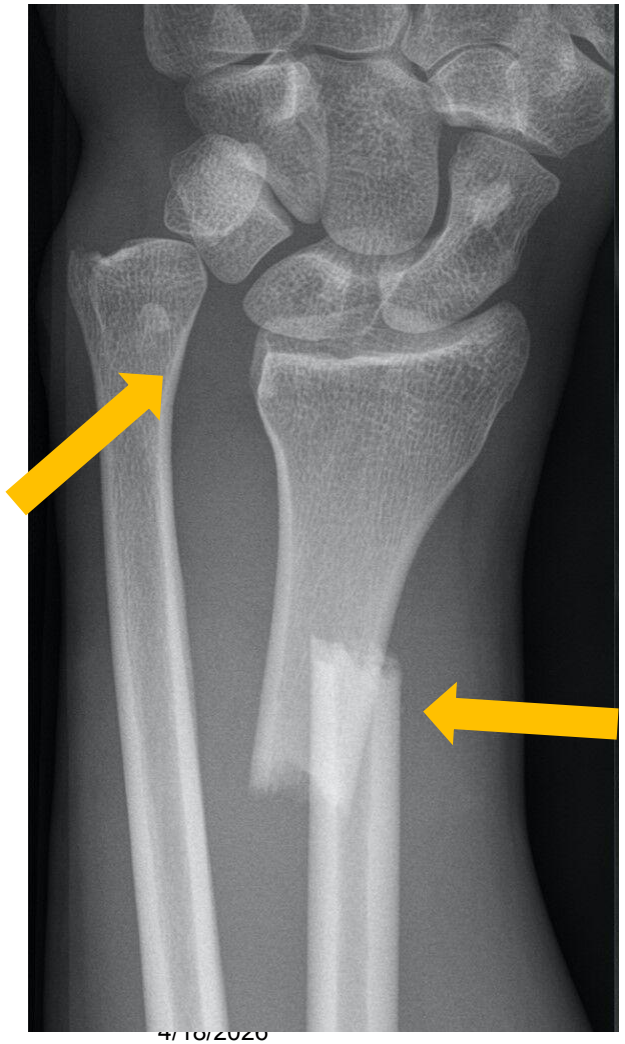


Instability Patterns

Monteggia



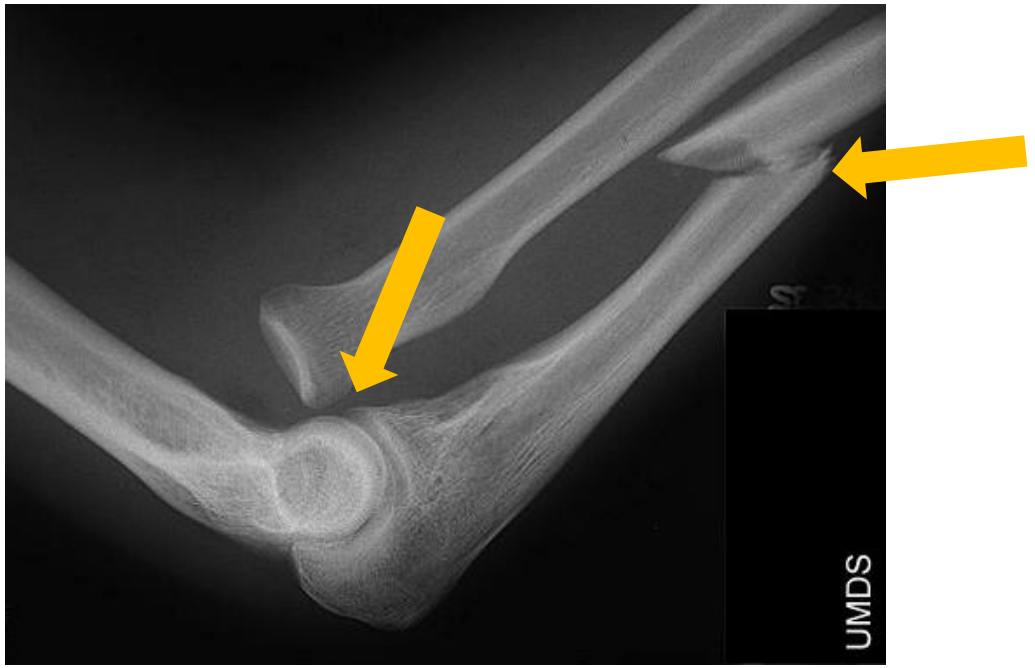
Galeazzi



Monteggia Fracture Dislocation

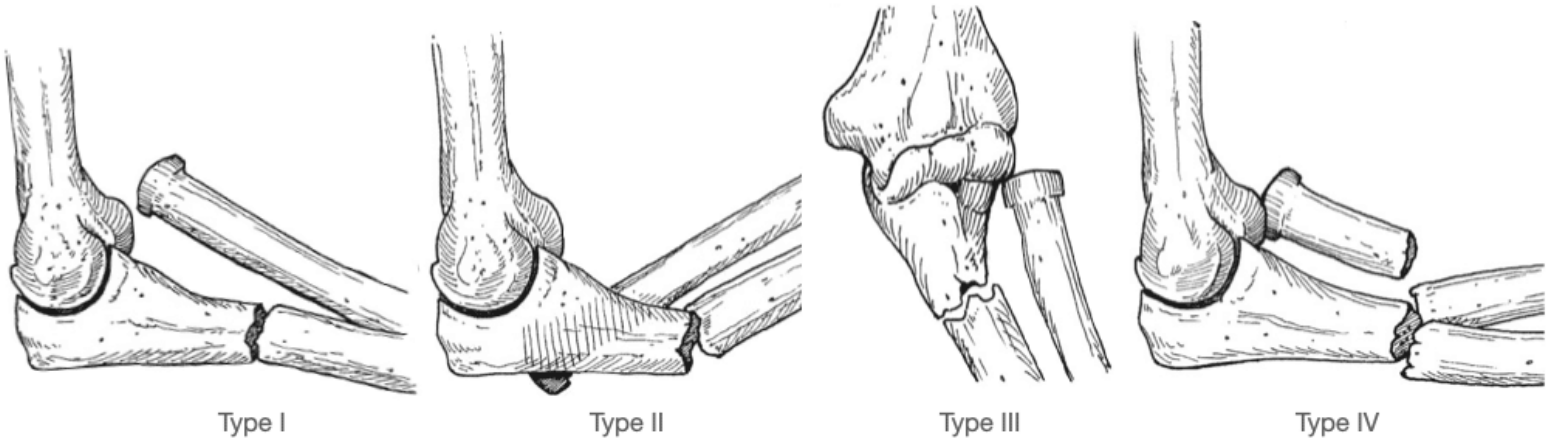
KEY Features

- Proximal ulna fracture
- Radiocapitellar dislocation
- PRUJ Disruption



Bado Classification

- Direction of dislocation
- +/- radial shaft fracture



Monteggia Fracture Dislocation

Treatment Principles

- **Anatomic Reduction of proximal ulna fracture**
  - If radiocapitellar joint still unstable – check reduction
  - If still unstable – check reduction
  - If still unstable – check reduction
- If RC still unstable – Check joint for entrapped annular ligament

*** In peds – be aware of plastic deformation in absence of obvious fracture ***

Case AK

HPI: 44 yo M fell from height

Case AK

HPI: 44 yo M fell from height

Galeazzi

KEY Features

- Distal radial shaft
- DRUJ instability

Galeazzi: Predictors of Instability?

Historical Guidelines moderately sensitive

Table 4
Predictors of DRUJ instability (non-GSW-associated injuries).

Predictor	Sensitivity	Specificity	PPV	NPV
>5 mm radial shortening	86%	63%	29%	96%
Fracture < 7.5 mm from wrist	71%	56%	20%	93%
Ulnar styloid fracture	57%	80%	31%	92%

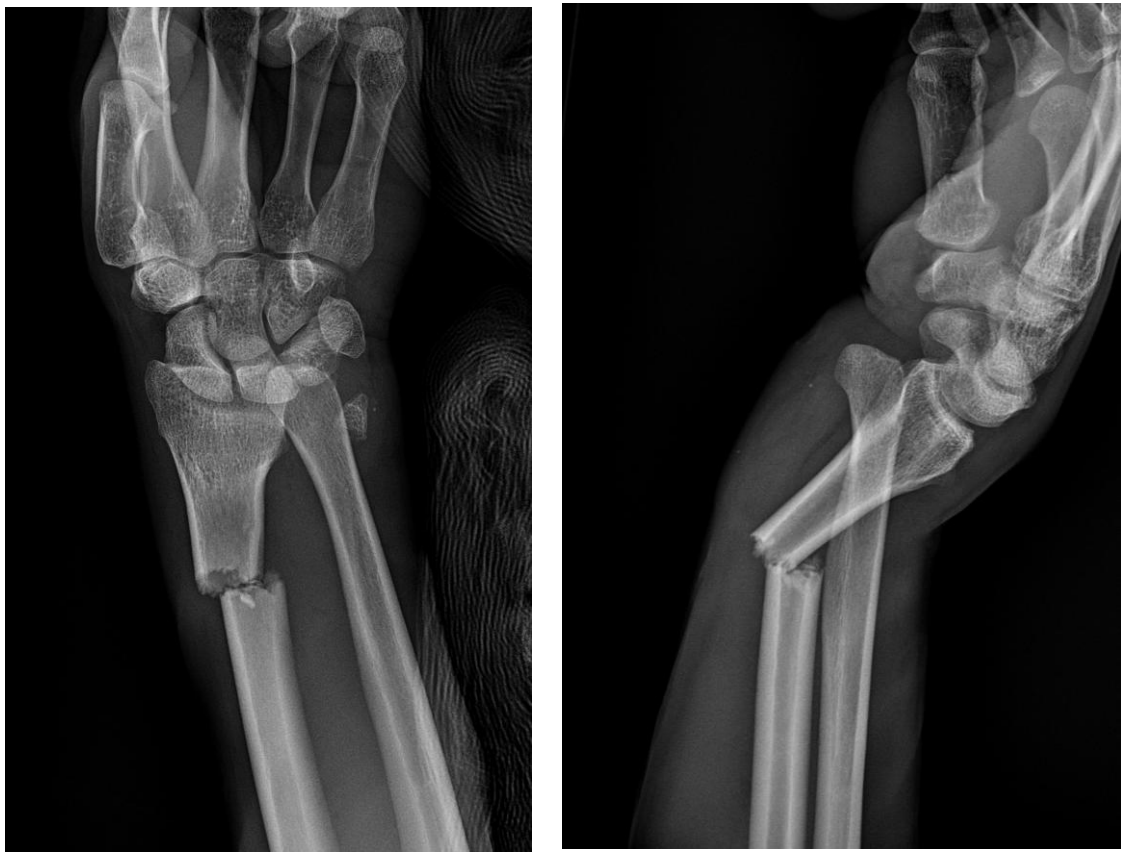
PPV, positive predictive value; NPV, negative predictive value.

Determination of instability should be made intraop

Galeazzi

Treatment Principles

- **Anatomic ORIF of radial shaft**
- DRUJ Stabilization?
  - Cast Immobilization
  - Pinning
  - TFCC Repair



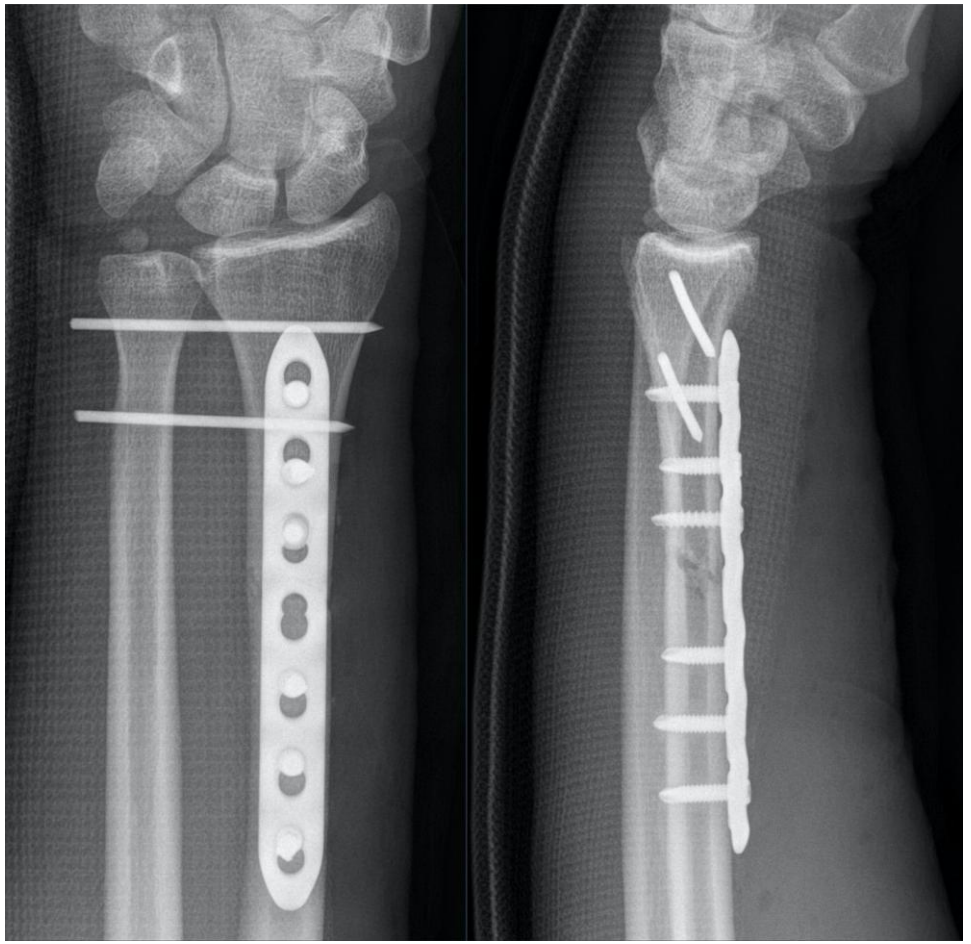
Galeazzi: DRUJ Pinning

Surgical Technique

- Two 1.6mm K-wires, 4-cortices
- Neutral Rotation
- Remove in 4-6 wks

Complications

- Pin migration, loosening, breakage
- Stiffness



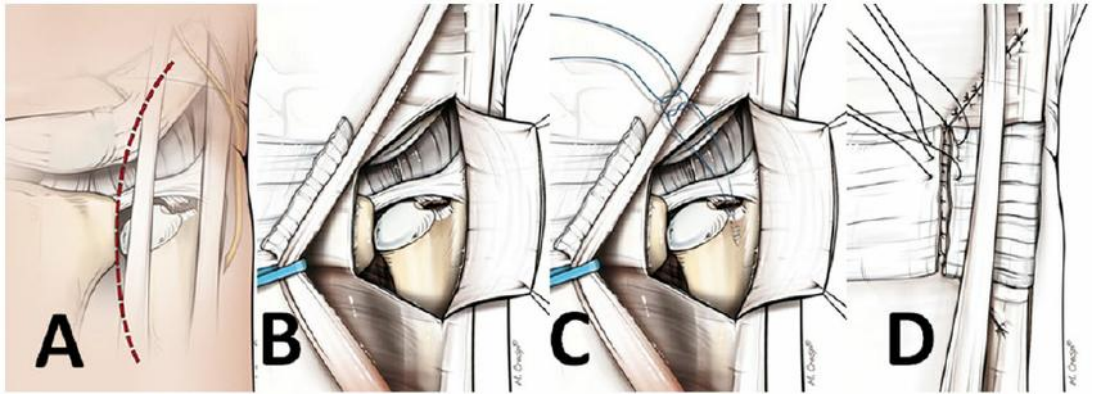
Galeazzi: Open TFCC Repair

Surgical Technique

- Direct ulnar vs 5th compartment
- Styloid ORIF vs CRPP
- Suture repair of TFCC to fovea
- Imbricate dorsal capsule

Complications

- Stiffness
- Ulnar wrist pain/hardware issues



Case JY

HPI: 28 yo M fell while skateboarding p/w BUE injuries.




Case JY

9/8/22: ORIF R radius, ORIF ulnar styloid and TFCC Repair

- DRUJ unstable after radius ORIF

Take Home Points

PRUJ and DRUJ stabilized by IOM, notches and ligament complexes

- Energy exits forearm ring through bone and radioulnar joint

Anatomic reduction critical to surgical treatment

- RC should usually reduce after ORIF
- DRUJ may require additional stabilization after ORIF

DRUJ stabilization depends on degree of instability

- Laxity but located → cast immobilization
- Dislocating DRUJ → CRPP vs TFCC repair

Thank You