



University of California
San Francisco



Proximal Radius Fractures: Avoiding Pitfalls

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Overview

- Choose appropriate approach
- Choose appropriate implant
- Recognize underlying injury patterns

Surgical Approach

**DORSAL
THOMPSON**

To Radius

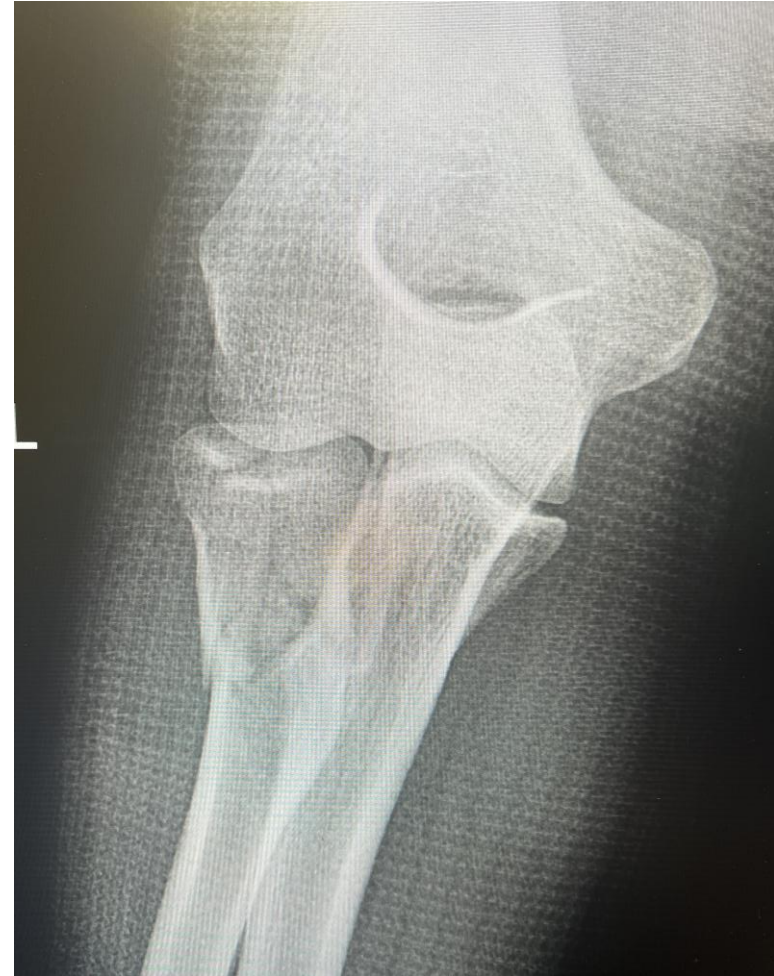
VOLAR HENRY



Proximal Radius Surgical Approach

DORSAL THOMPSON

- EXTENSILE – exposes entire radius
- NEEDED for radial neck fractures
- ECRB-EDC Interval
- Watch out for PIN!



Proximal Radius Surgical Approach

DORSAL THOMPSON

- Skin Incision Landmarks
 - Lateral Epicondyle
 - Lister's



Proximal Radius Surgical Approach

DORSAL THOMPSON

- Skin Incision Landmarks
- Incise Fascia



Proximal Radius Surgical Approach

DORSAL THOMPSON

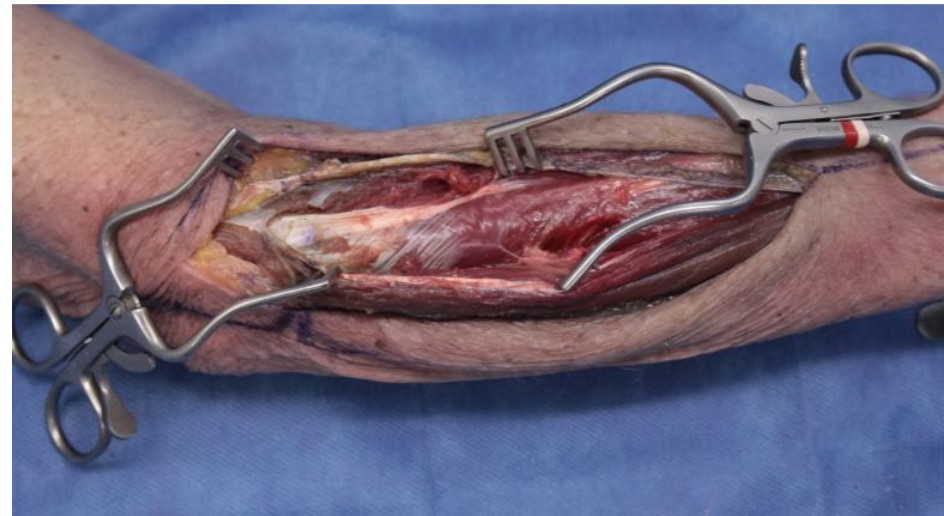
- Skin Incision Landmarks
- Incise Fascia
- Identify ECRB-EDC Interval



Proximal Radius Surgical Approach

DORSAL THOMPSON

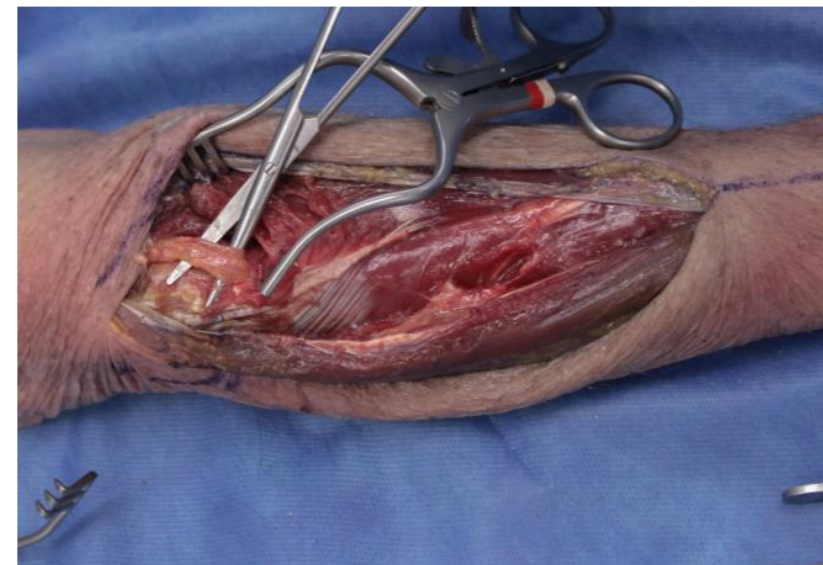
- Skin Incision Landmarks
- Incise Fascia
- Identify ECRB-EDC Interval
 - Split aponeurosis
- Identify Supinator
 - Direction of fibers



Proximal Radius Surgical Approach

DORSAL THOMPSON

- Skin Incision Landmarks
- Incise Fascia
- Develop ECRB-EDC Interval
- Identify Supinator
- Identify PIN
 - Nerve stimulator
 - NO paralysis



Proximal Radius Surgical Approach

DORSAL THOMPSON

- Skin Incision Landmarks
- Incise Fascia
- Develop ECRB-EDC Interval
- Identify Supinator
- Identify PIN
- Expose Radius



Proximal Radius Surgical Approach

DORSAL THOMPSON

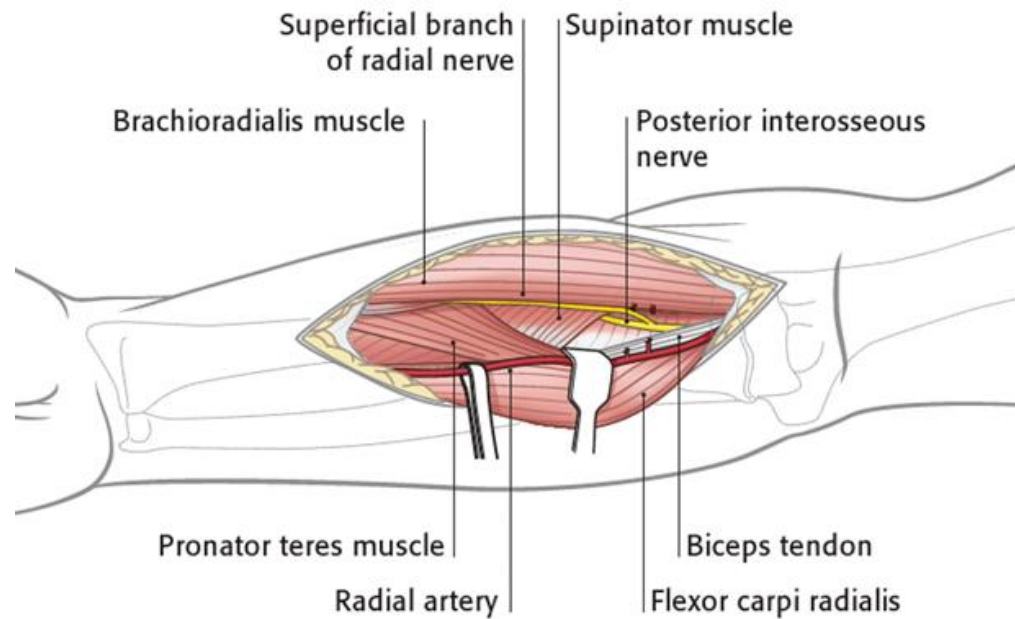
- Skin Incision Landmarks
- Incise Fascia
- Develop ECRB-EDC Interval
- Identify Supinator
- Identify PIN
- Expose Radius



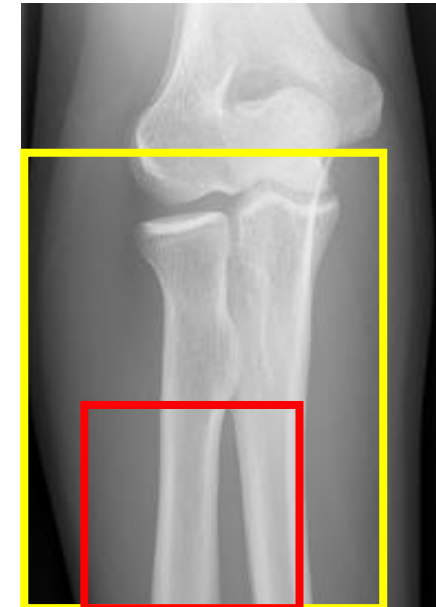
Proximal Radius Surgical Approach

VOLAR HENRY

- Proximal extension limited to radial tuberosity
- Still usable in proximal shaft fractures



AO



Proximal Radius Surgical Approach

VOLAR HENRY

- Proximal extension limited by leash of Henry
- Still usable in proximal shaft fractures
- **TIP #1:** 2.7mm plate → closer screw density



Proximal Radius Surgical Approach

VOLAR HENRY

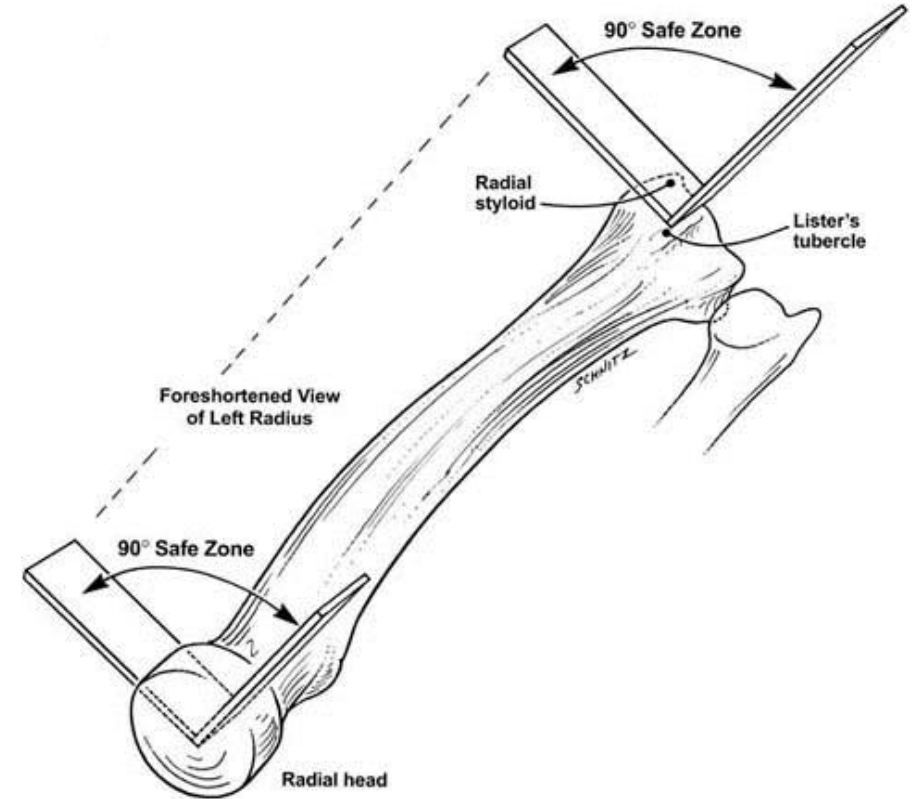
- Proximal extension limited by leash of Henry
- Still usable in proximal shaft fractures
- **TIP #1:** 2.7mm plate → closer screw density
- **Tip #2:** Orthogonal mini plates



Radial Head/Neck Implants

Plate Fixation

- Rigid fixation with distal extension
- Head placement limited by “safe zone”
- Biologic cost?



Radial Head/Neck Implants

Headless Screw Tripod

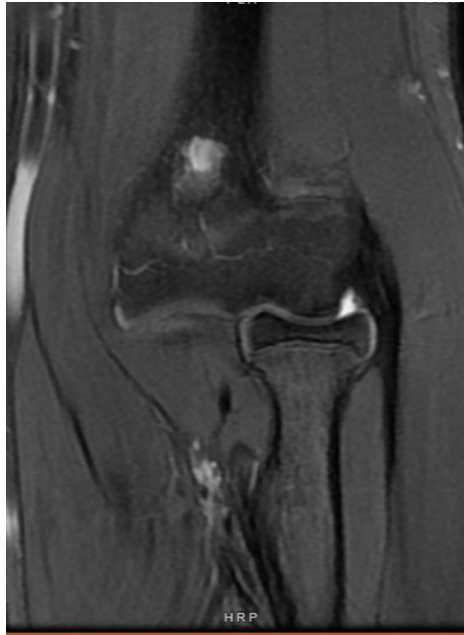
- Stable configuration
- Best for head fractures
- Cannot use in isolation with distal extension



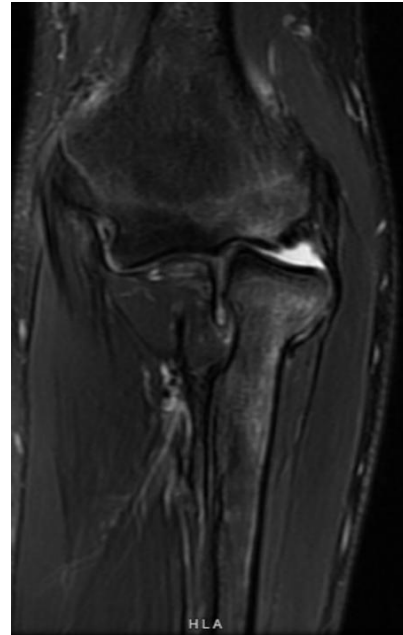
Injury Patterns

Angulation

- PRUJ alignment
- Radiocapitellar alignment



Normal



Angular Malunion



Angular Malunion

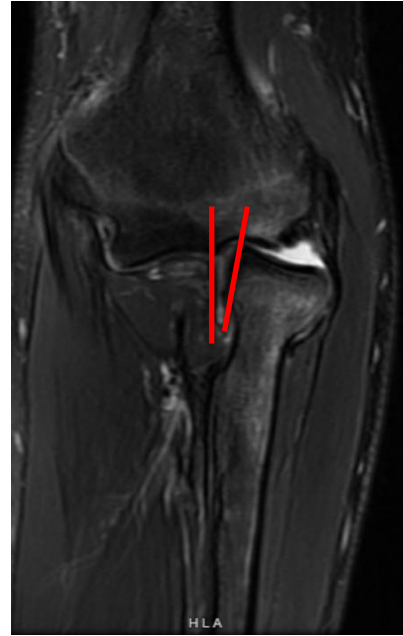
Injury Patterns

Angulation

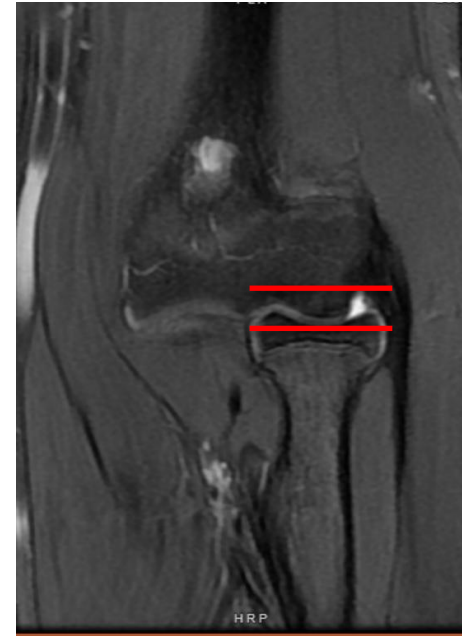
- PRUJ alignment
- Radiocapitellar alignment



Normal



Angular Malunion



Normal



Angular Malunion

Injury Patterns

Impaction



Injury Patterns

Instability



Case Example

41 yo F involved in MVC on 10/13/23.



Interview:

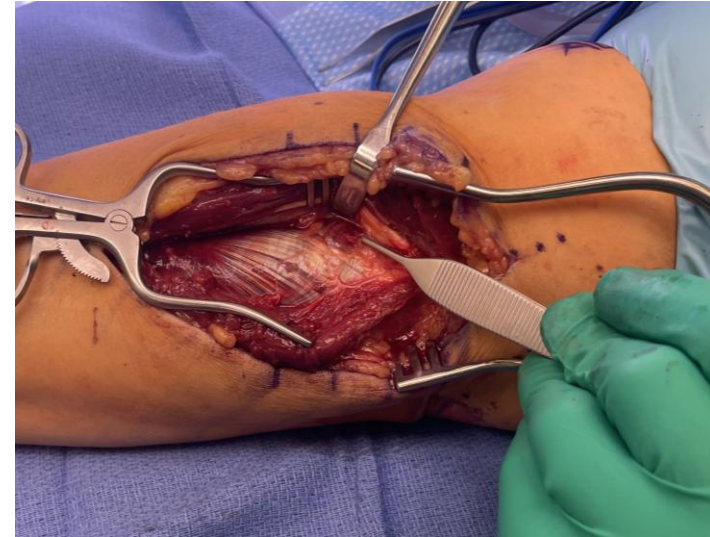
- Works as ICU nurse in the same hospital
- Wishes for a quicker recovery
- Understands risk to PIN and stiffness with surgery
- Discussed nonop and op treatments

Physical Exam:

- No wrist pain, no wrist swelling
- Pain focal to elbow
- Radial nerve intact

Case Example

41 yo F involved in MVC on 10/13/23.



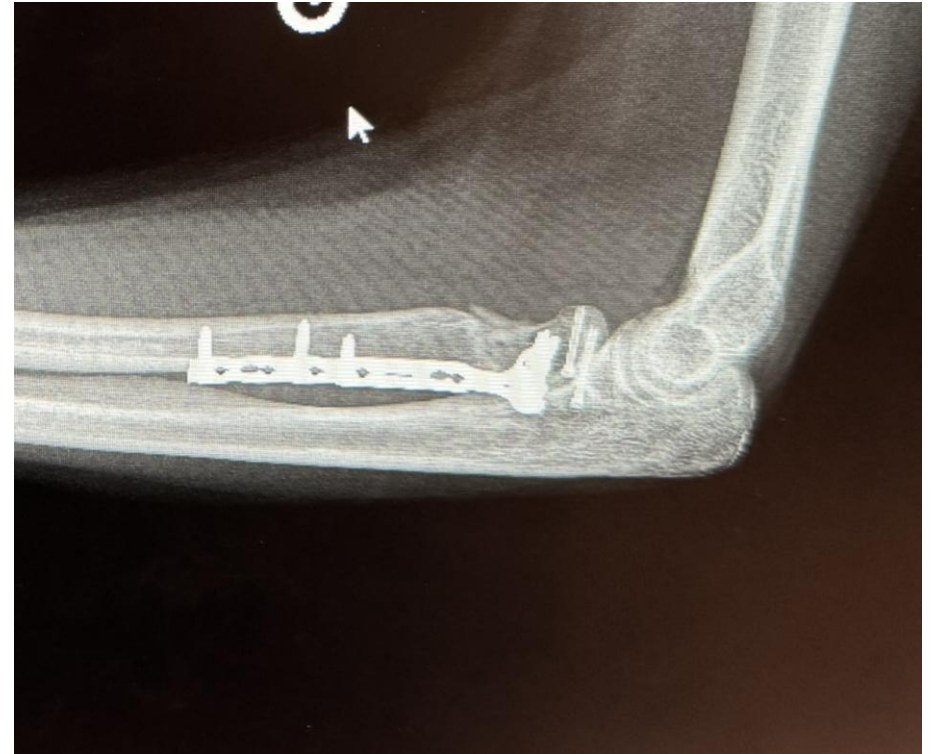
Case Example

41 yo F involved in MVC on 10/13/23.



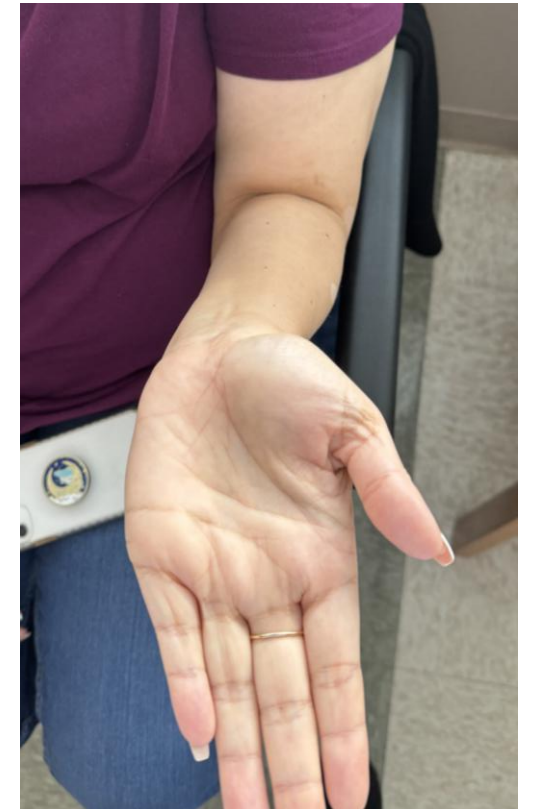
Case Example

4 mos postop



Case Example

4 mos postop



Summary

Choose approach based on fracture location

- Always worry about the PIN

Choose implant based on fracture pattern

- Radial head/neck – tripod, plate
- Distal extension – plate
- Proximal shaft – plate

Recognize underlying injury patterns

- May clue you in to associated injuries
- Inform preoperative planning

Thank You



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Case AM

HPI: 18 yo RHD M sustained multiple GSW, including to LUE

PE: GSW proximal forearm

Intact sensation in median, radial and ulnar nerves

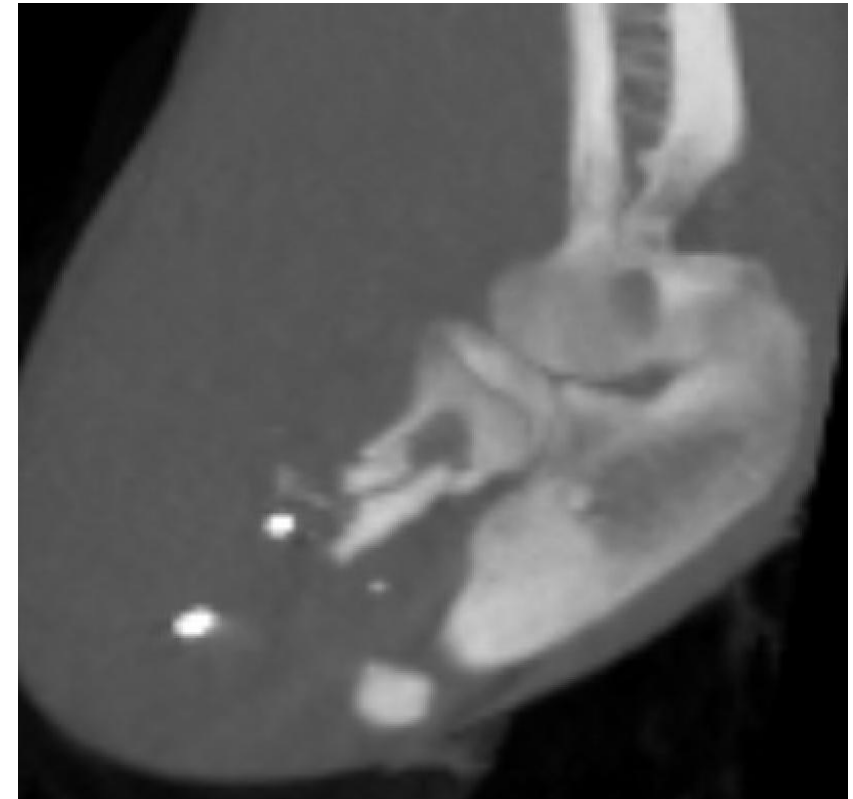
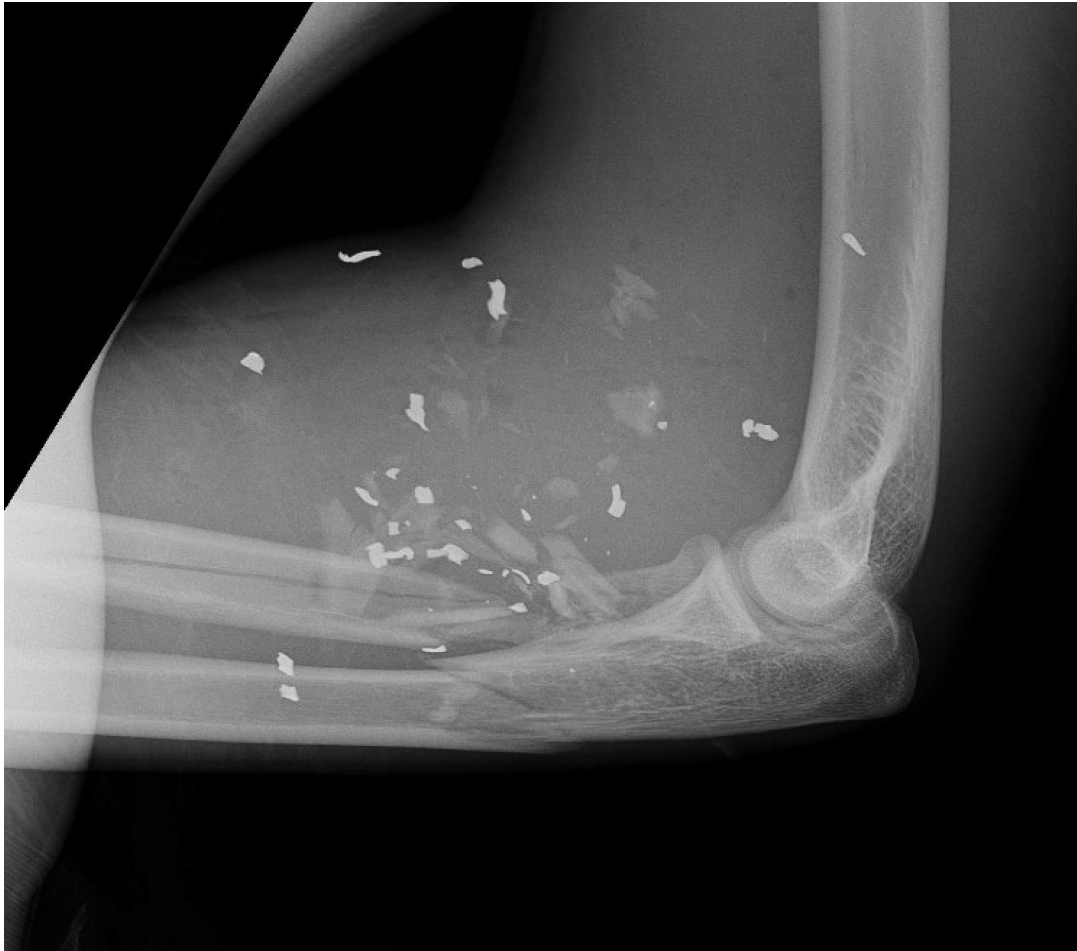
Unable to extend fingers or wrist

Compartments compressible, no pain with passive finger extension

2+ radial pulse

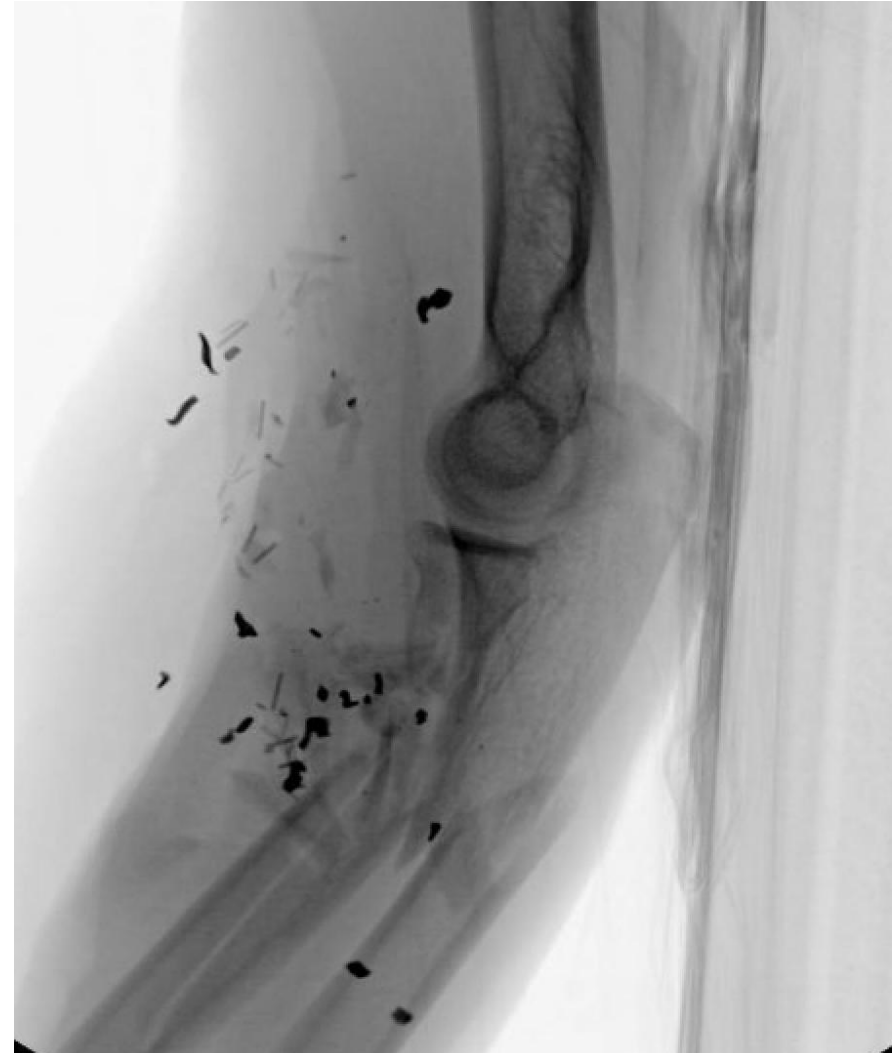
Case AM

Injury Films



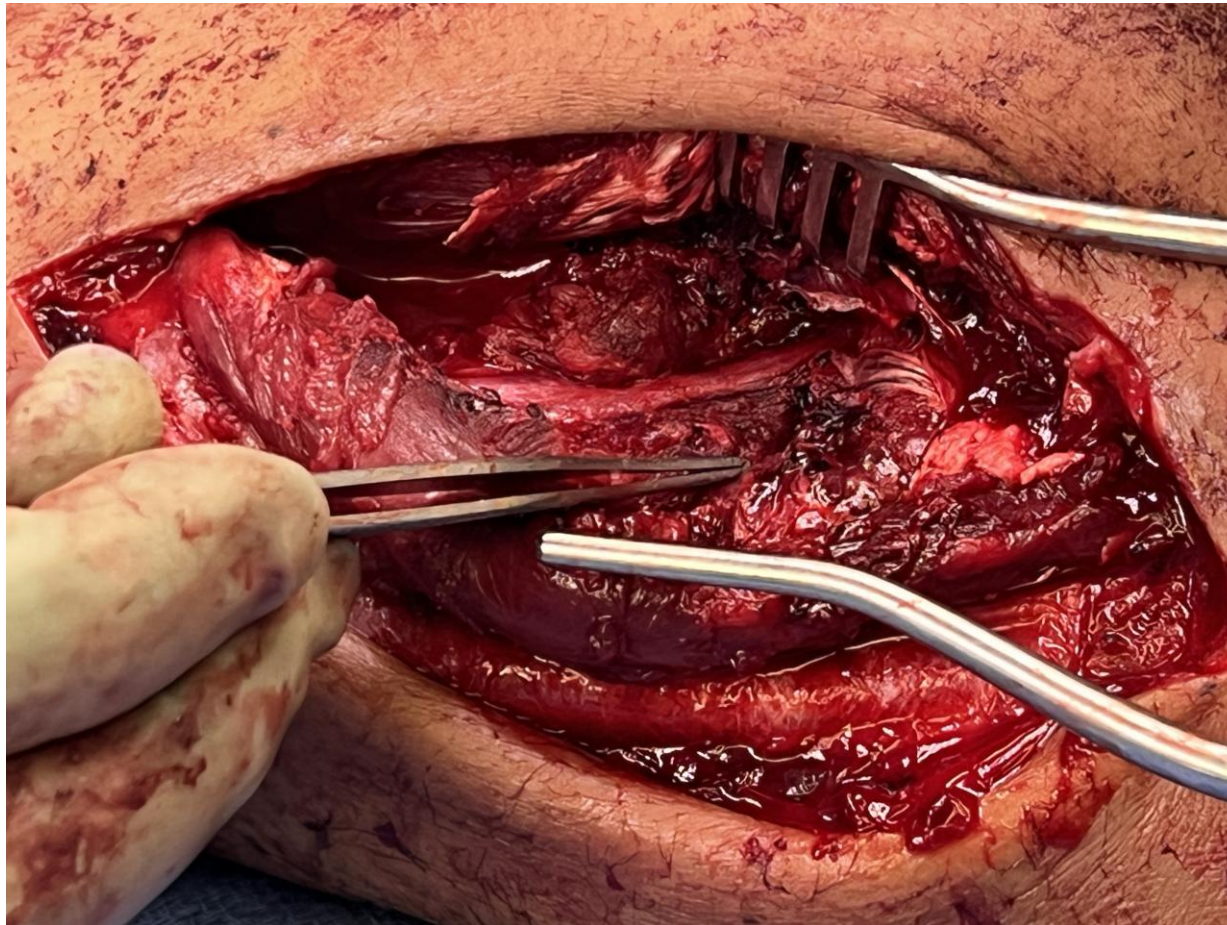
Case AM

2/27: OR for I&D



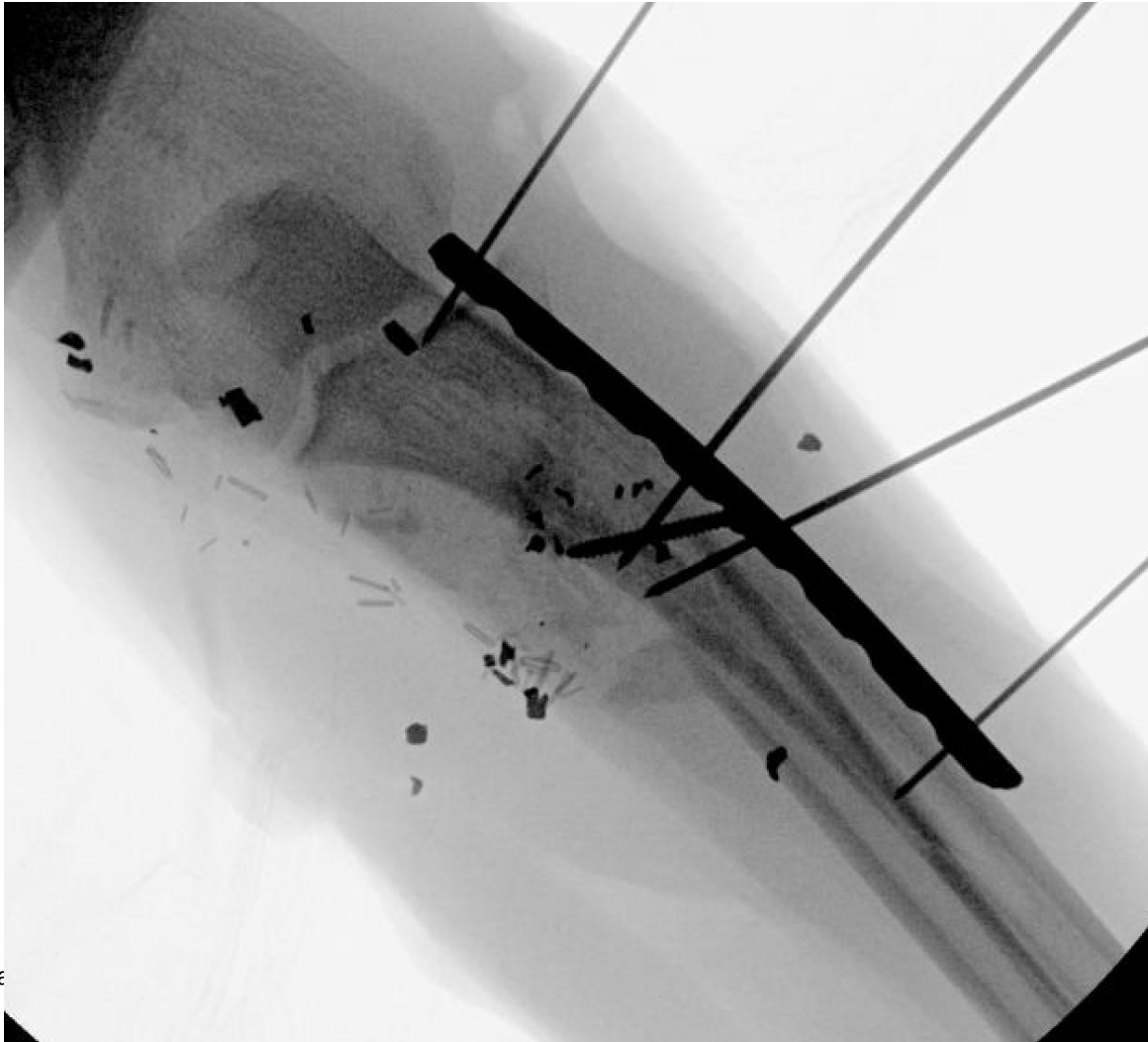
Case AM

3/2: OR for I&D, PIN exploration, ORIF proximal ulna



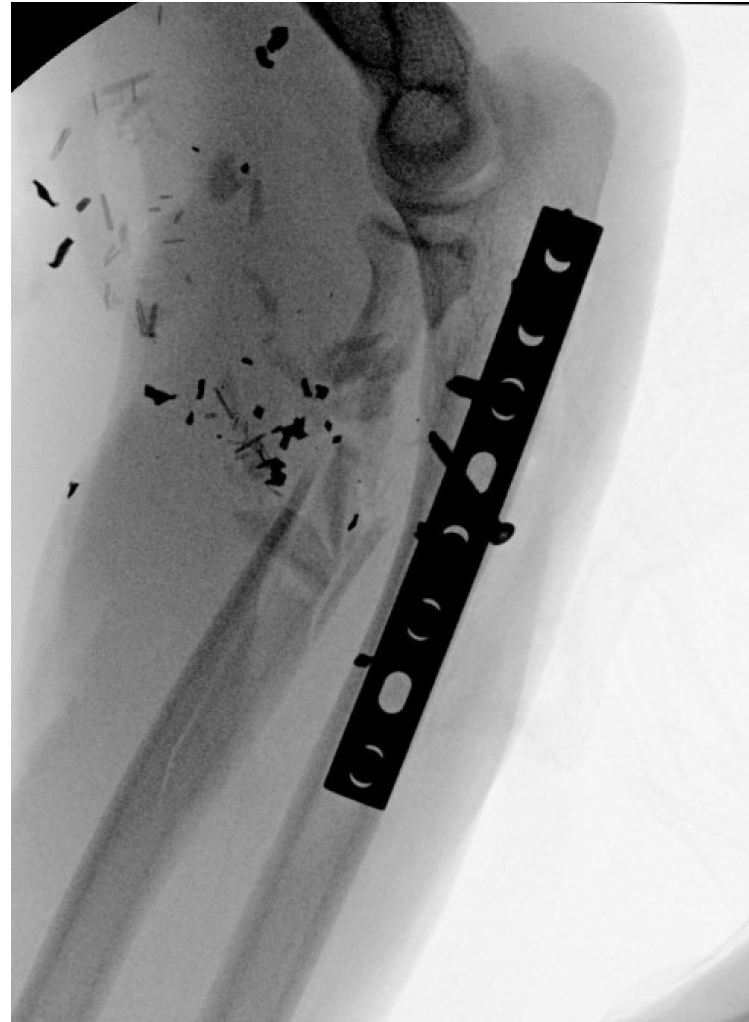
Case AM

3/2: OR for I&D, PIN exploration, ORIF proximal forearm



Case AM

3/2: OR for I&D, PIN exploration, ORIF proximal forearm



Case AM

What about proximal radius?

3/2: OR for I&D, PIN exploration, ORIF proximal forearm



Case AM

Nonoperative Treatment for Proximal Radius

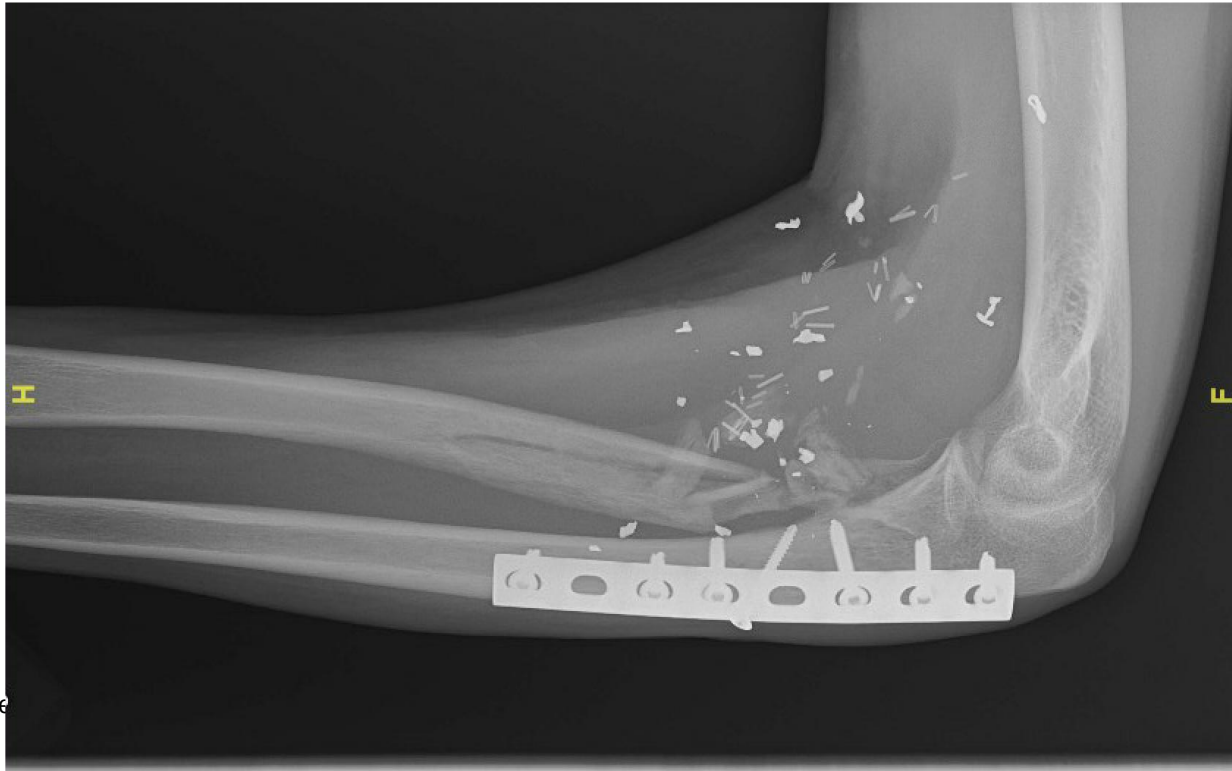
- Wks 0-2: Posterior long arm splint in supination
- Wks 2-6: Munster cast in neutral
- Wks 6-12: Active forearm rotation



Case AM

5/17 Clinic Follow-Up

- Munster cast x6wks then active rotation
- Improving forearm rotation and pain
- PIN recovering



Case AM

8/30 Clinic Follow-Up

- Near full pronation/supination
- No pain
- PIN recovering (4/5 strength)

