

Distal Radius Fractures: From Simple to Complex

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Distal Radius Fractures

- Most common single bone broken in the human skeletal system
- Often treated with closed reduction and casting
- Objectives:
 - Quick anatomic review
 - Treatment options
 - Case Examples

What to consider

- Intra or Extra-articular:
- Displacement
- Angulation
- Shortening
- Are there any other associated fractures or ligamentous injuries in the wrist

Surgical Decision Making

- *Trumble et. al & Fernandez et. al* - Step-offs or Gaps 1 mm
- Alignment of articular surfaces a priority
- Radioulnar Length Priority
- Restoration of Palmar Tilt
 - Restore Radial Length & avoid ulnar impaction or DRUJ incongruity
 - Prevent subsequent problems w/ midcarpal instability

Surgical Decision Making

- When to operate:
 - Articular mal-alignment $>1\text{mm}$ (Knirk and Jupiter)
 - Dorsal Angulation > 10 degrees (>20 degrees from normal anatomic volar tilt)
 - DRUJ extension
 - Loss of radial height/foreshortening $> 10\text{mm}$
 - Open Injury
 - Neurovascular compromise

Open Reduction Internal Fixation

- Modern mainstay of treatment
- Gives reproducible results with early return to function
- This was not always the case
 - Prior to volar plating and locking screw technology, dorsal plating was difficult and had a high complication rate

Locked Volar Plating

- Current standard of care
- reduces the extensor tendon irritation (flexor?)
- Very commonly done orthopaedic procedure
- Has quicker return to work and function, similar outcomes at 6 months
- The way I prefer to treat these

Volar Distal Radius Plating

- Has become the dominant approach to distal radius fracture fixation



Case Example – Volar Plate

- 34 yo female
- Mvc, Airbag deployed













What Happens When a Volar Locked Plate Won't Work?

- Some fractures don't suit volar plating
 - Location of fracture (Distal fragments)
 - Pattern of Fracture (Dorsal Barton's)
 - Need to supplement fixation of standard volar plate

Case Example

- 26 yo Male
- IT professional
- Fell from standing height
- Minimally Displaced partial articular fracture right distal radius
- Subsequent radiographs showed loss of reduction and translation of the carpus

Injury Films



One Week Post Injury



Two Weeks Post Injury







Case Example

- Treated with ORIF of the partial articular fragment
 - Extended carpal tunnel approach
- Used fragment specific plate
- Dorsal L Plate used, bent to fit the volar distal radius

















Case Example

- 55 yo male
- Injury 5 weeks ago
- Here for "second opinion"



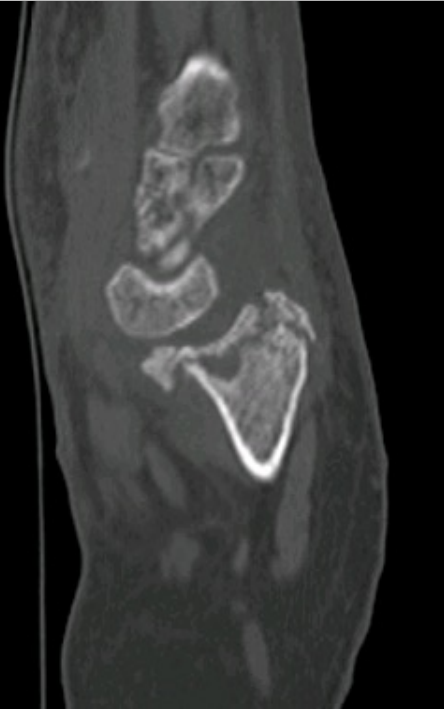
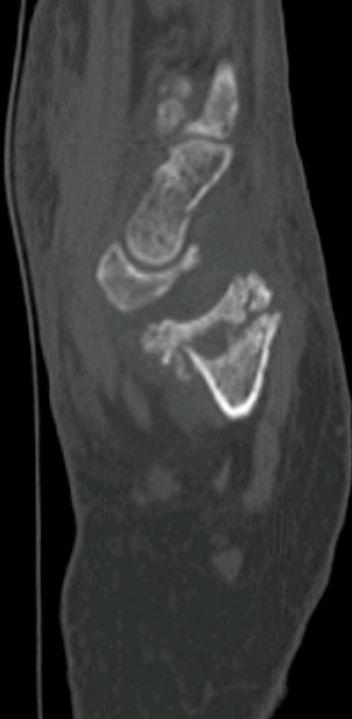
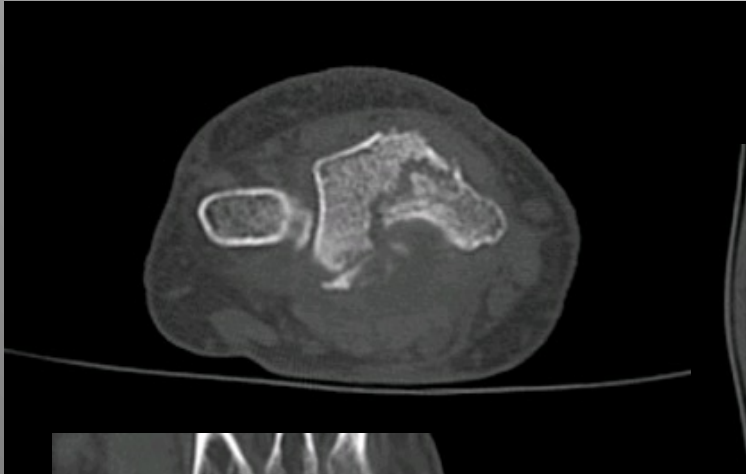


And Finally.....

- If treating distal radius fractures closed, follow them closely
- Beware even the most benign appearing injuries
- Remember early referral when things seem to be a little “off”









Levy





Conclusion

- Distal radius fractures are a commonly encountered pathology
- Treatment with ORIF, when indicated, shows good results

Questions?

- Thank you very much!