

Commons Sports Related Hand and Wrist Injuries

Doug Carlan, MD

Hand and Upper
Extremity Surgery

Eaton Orthopaedics



Injuries

- Bone, joint, ligament, tendon, cartilage, neuro, vascular
- Small Joint injuries
 - Collateral ligaments
 - Subluxation
 - Dislocation
 - Fracture (isolated or with above)
 - Arthritis/Tendonosis



Finger Injury

- History
 - Mechanism of injury, pop?, paresthesias
- Exam
 - Neurovascular status
 - Angular or Rotational Deformities
 - Overlap or scissoring, nailbeds
 - Joint step off on exam
 - Functional status of tendons
 - Isolate FDS/FDP
 - Lacerations

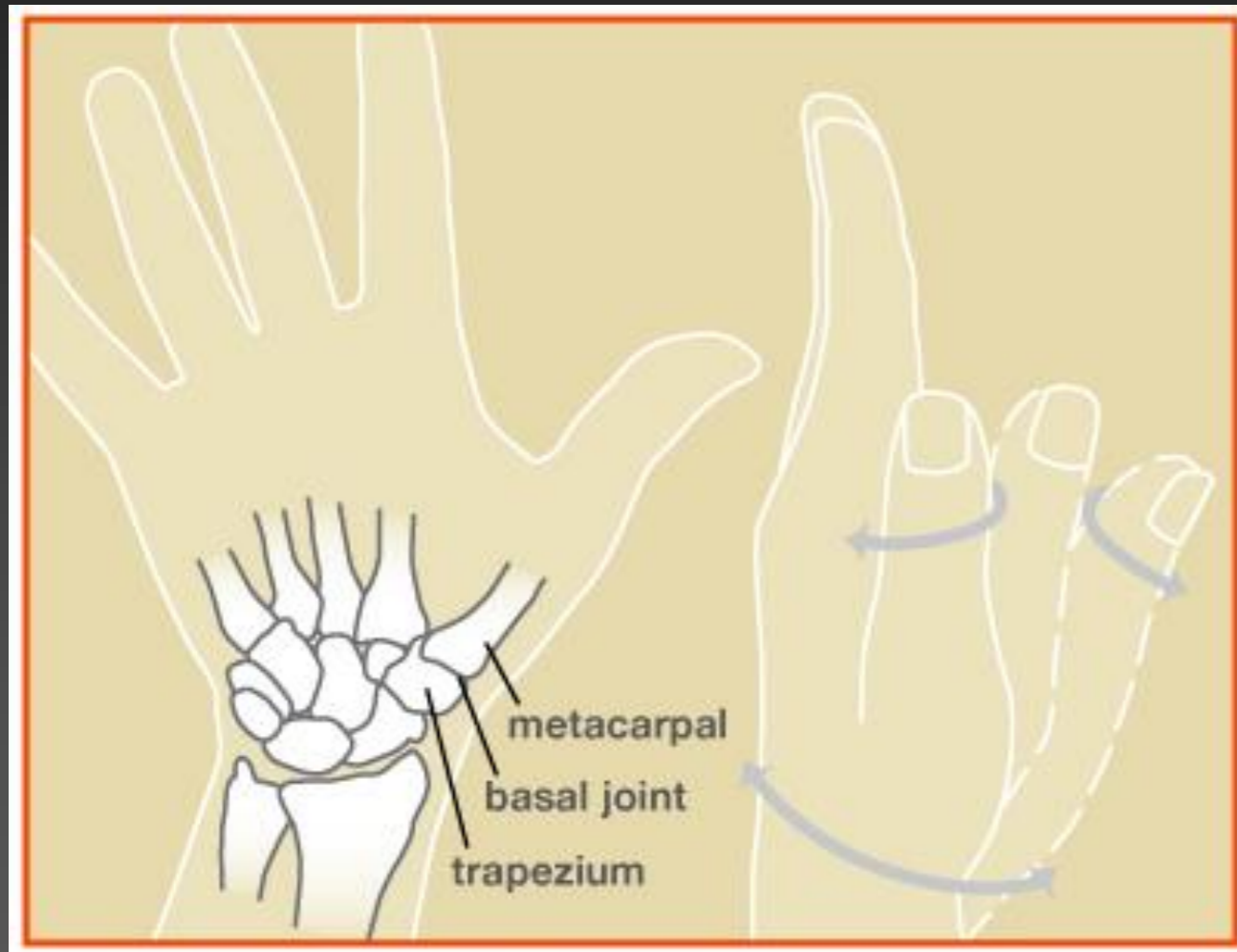


Basilar Thumb Arthritis

- CMC - carpometacarpal joint of thumb
- Allows wide ROM of thumb
- Most common arthritis in body
- Prevalence = woman's age
 - Not all painful
- Pain with opening jars, pinching, keys, door knobs, writing
- Develop "bump" over time



CMC joint



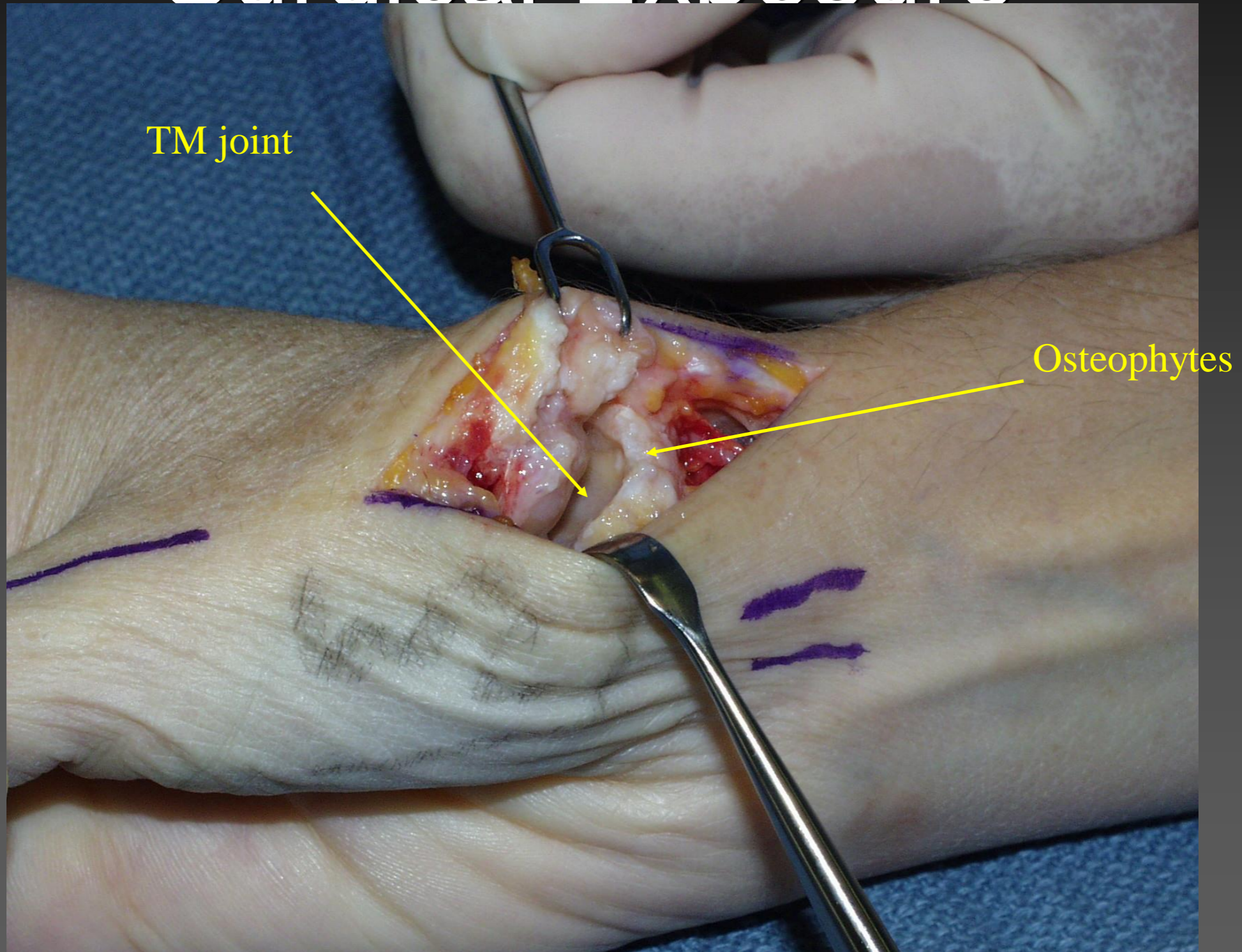


Treatment

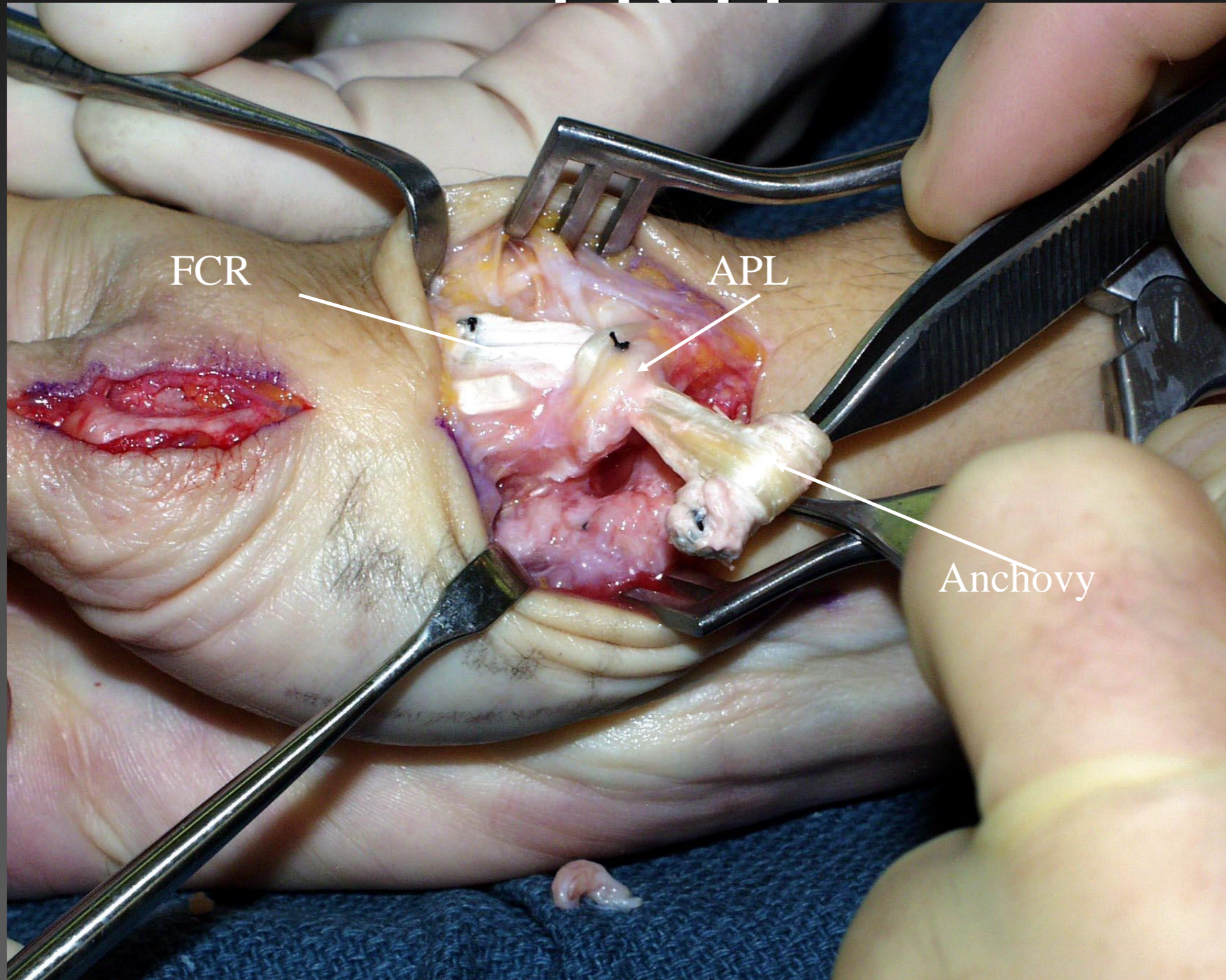
- » NSAID's
 - Better for mild dz
- » Splinting
- » Injection
 - Permanent relief in Stage 1 dz
- » Surgery
 - $\geq 80\%$ relief of pain
 - May improve pinch



Surgical Exposure



I RTI

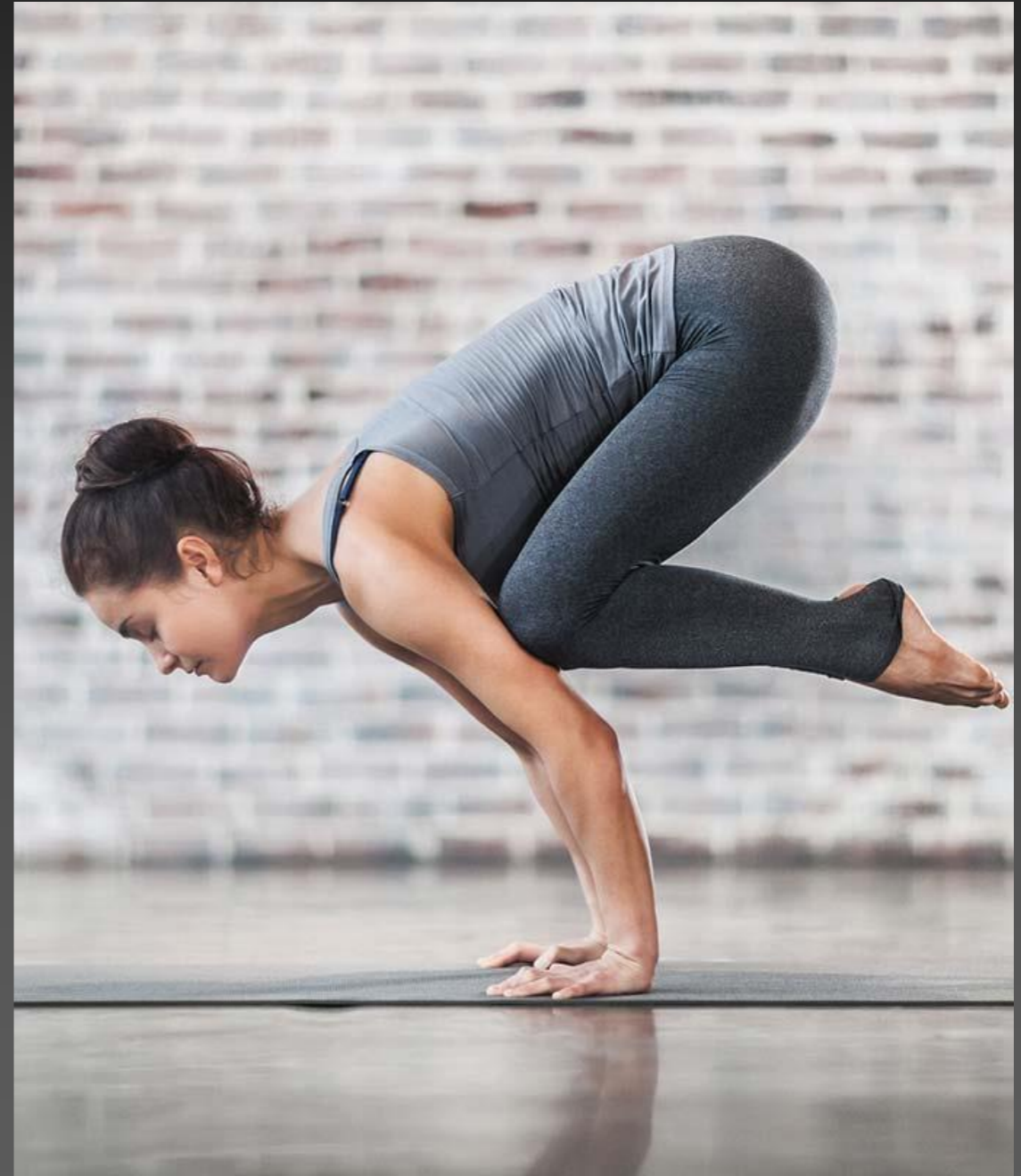


Post - Surgical



Dorsal Wrist Pain

- Dorsal Wrist Syndrome
- Dorsal Wrist Impingement
- Predynamic Instability
- Static Instability



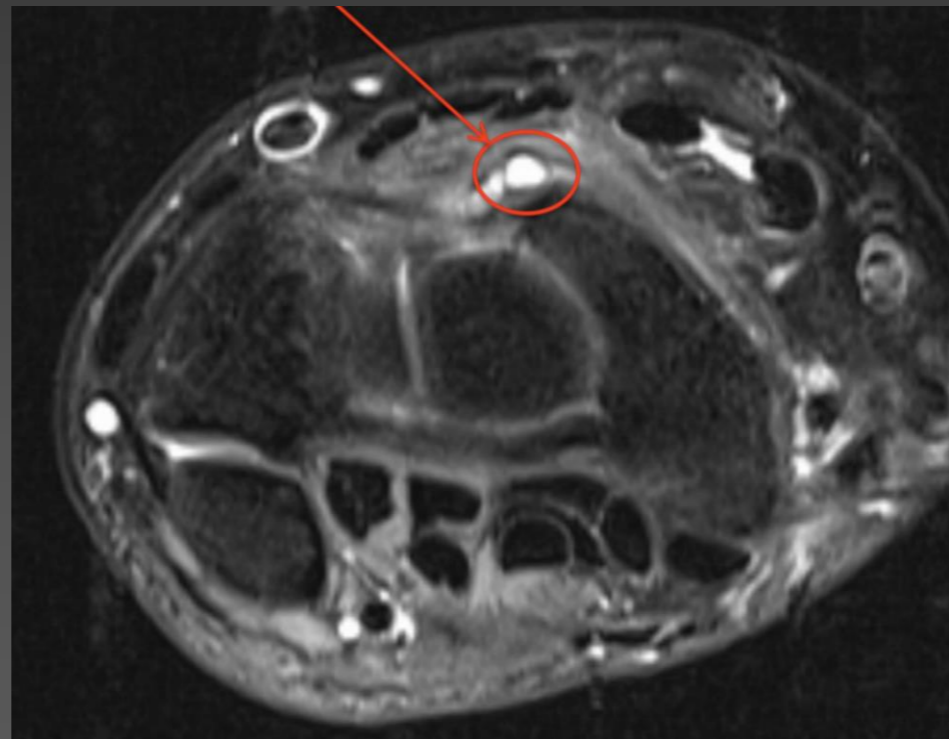
Etiology

- Ganglion
- Synovitis
- Capsular Thickening
- Impingement
- Instability



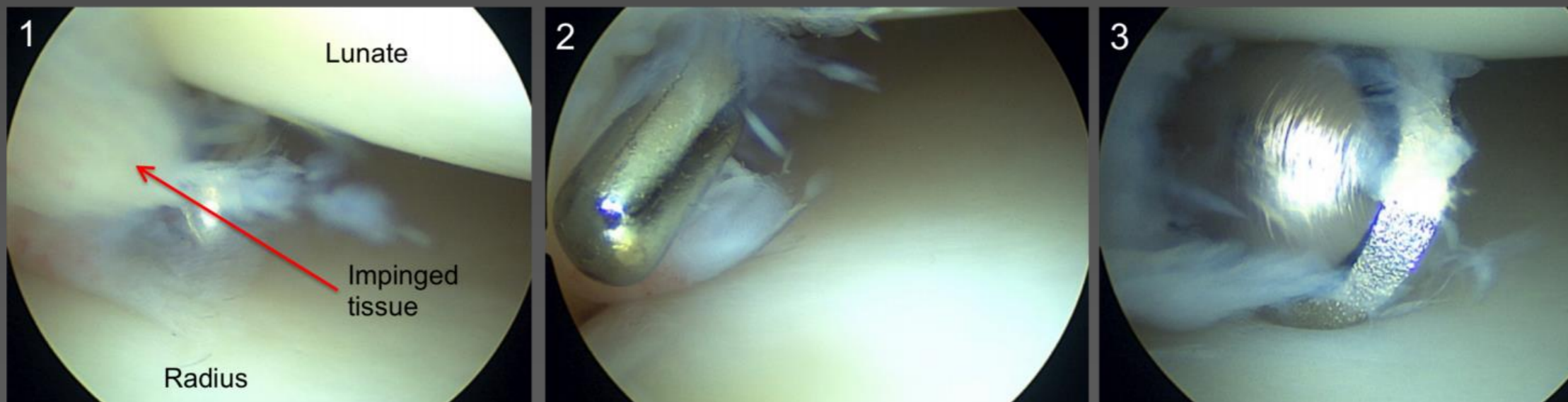
Workup

- History (atraumatic)
- Physical Exam
- X-rays
- MRI



Treatment

- Activity Modification
- Splinting
- Injection
- Surgery (Ganglionectomy vs Scope)



1. Diagnosis and Arthroscopic Management of Dorsal Wrist Capsular Impingement
Matson, Andrew P. et al.
Journal of Hand Surgery, Volume 42, Issue 3, e167 - e174

Case

- 44yo female CrossFit athlete
- Several months of wrist pain
- Felt an acute pop with minimal trauma





Ulnar-sided wrist pain - Differential Diagnosis

- Osseous Processes
 - Sequelae of Fractures
 - Nonunion
 - Malunion
 - Degenerative Processes
 - Ulnar Impaction Syndrome
- Ligamentous Processes
 - Triangular Fibrocartilage Complex
 - Intrinsic Injury
 - Lunotriquetral
 - Capitoamate
 - Extrinsic Injury
 - Ulnolunate
 - Triquetrocapitate
 - Triquetroamate
- Tendinous Processes
 - Extensor Carpi Ulnaris
 - Flexor Carpi Ulnaris
- Vascular Processes
 - Ulnar Artery Thrombosis
 - Hemangiomas
- Neurologic Processes
 - Entrapment Ulnar Nerve at Guyon's Canal
 - Neuritis Dorsal Sensory Branch Ulnar nerve
 - Complex Regional Pain Syndromes
- Tumors
 - Aneurysmal Bone Cyst
 - Osteoid Osteoma
 - Chondroblastoma

ECU - Extensor Carpi Ulnaris

- Inflammatory: Tenosynovitis
- Mechanical: Bowstringing, Subluxation, Dislocation
- Tendinopathy: Intrinsic damage, Tendinosis
- Rupture

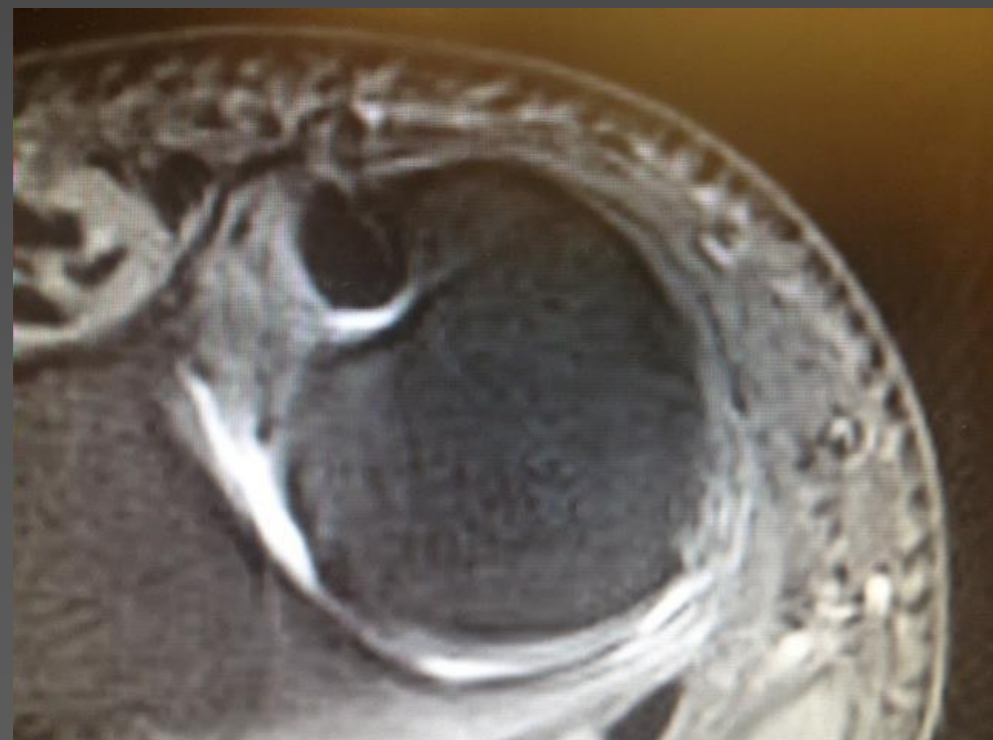
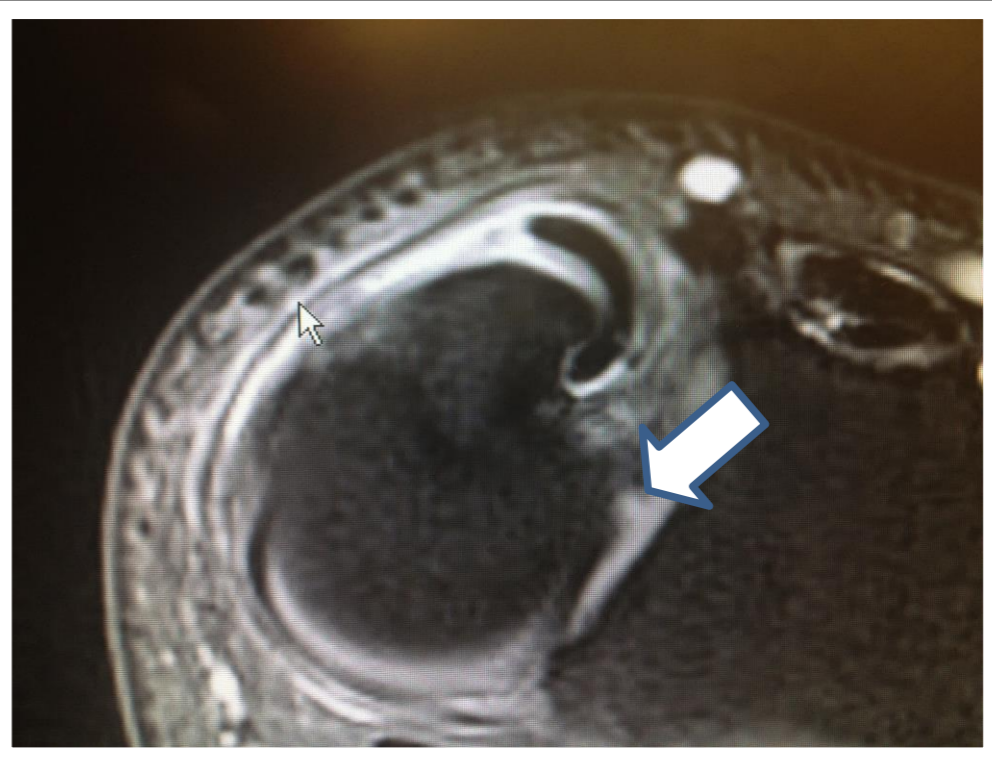
ECU - Exam

- Inflammatory and Mechanical can be determined on exam.
- fullness in sheath
- stenosing or “squeaking”
- prominence of tendon in UD with resistance (compare to other side)
- “rolling over” may trap tendon “out”



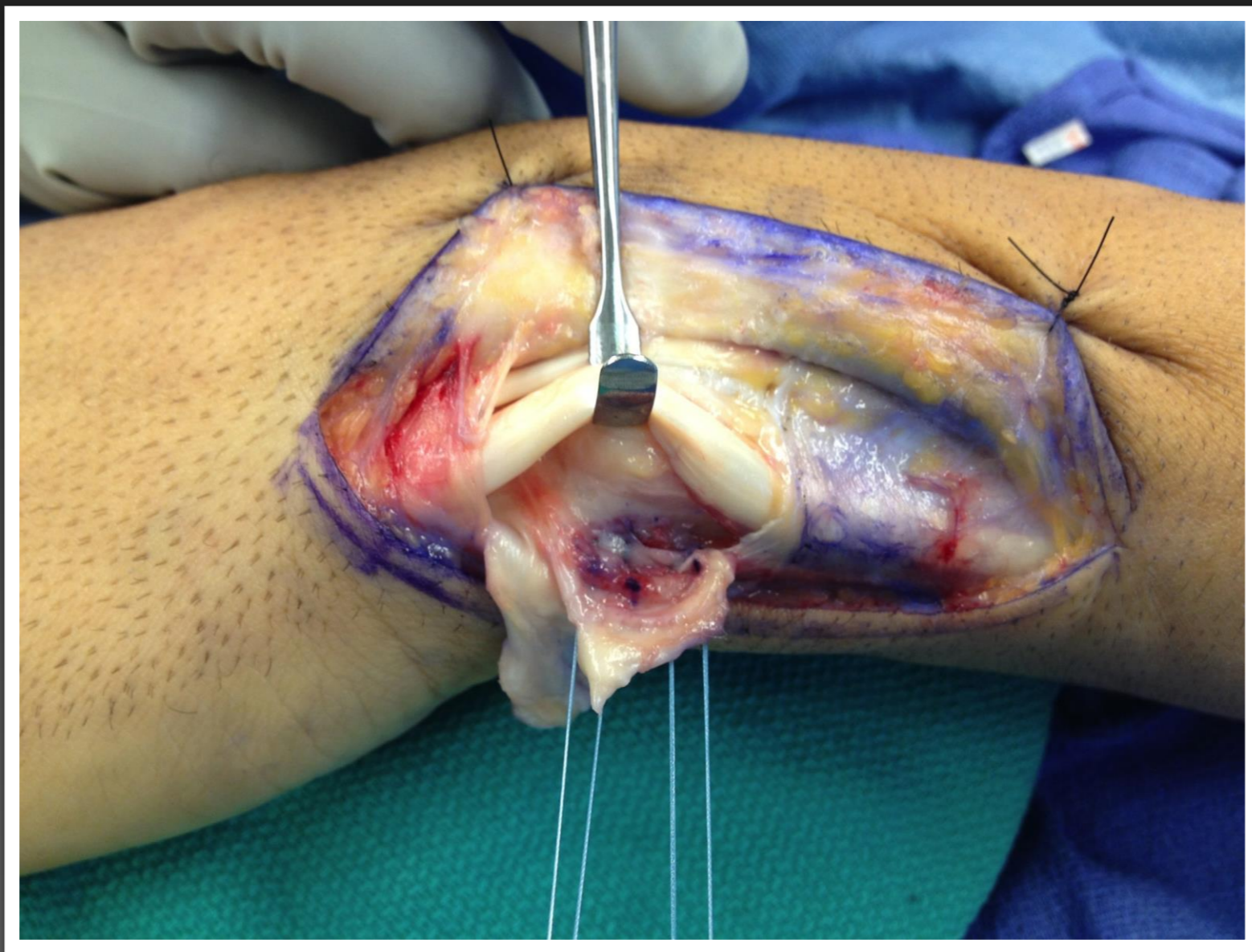
ECU - Treatment

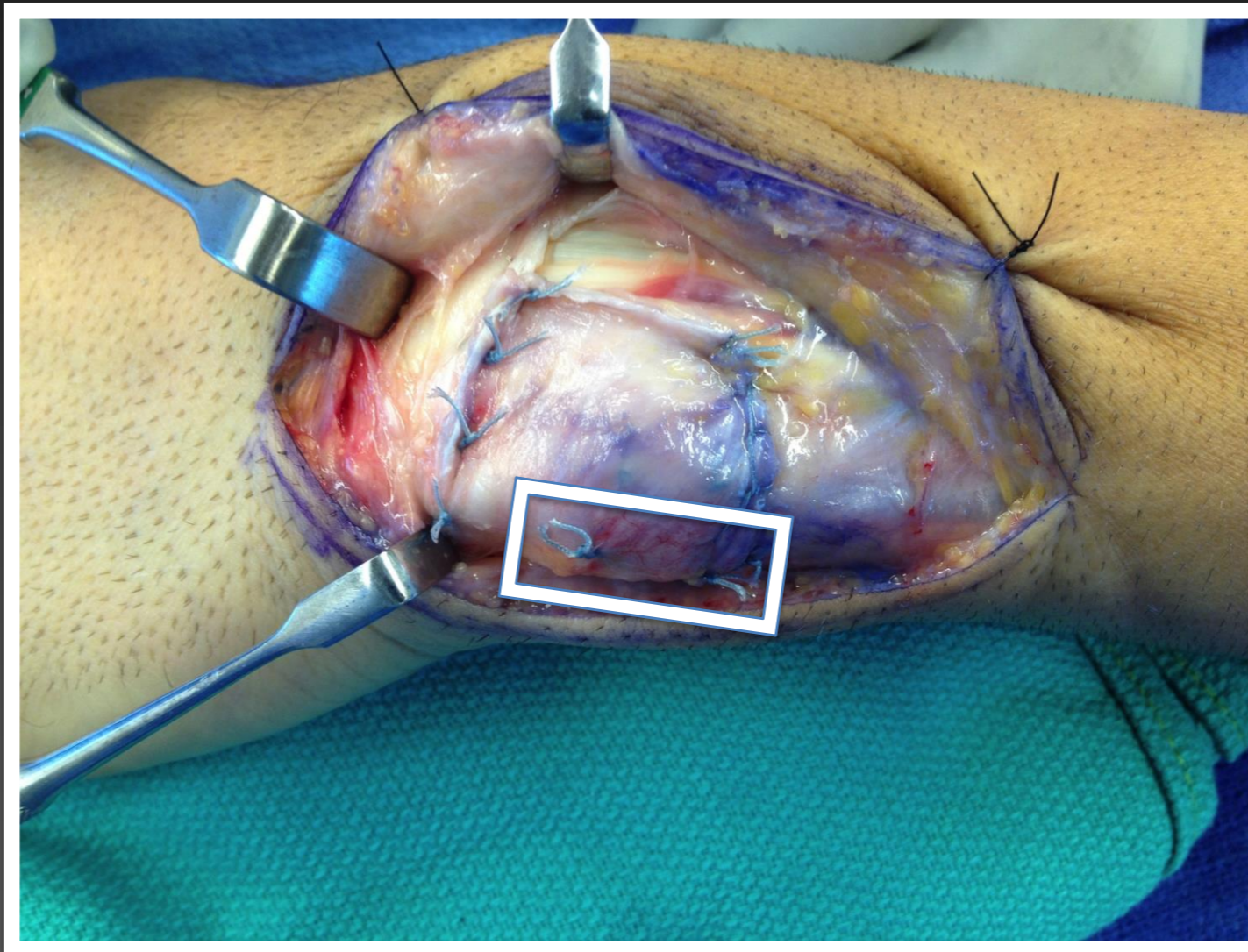
- Nonoperative: complete or incomplete resolution of symptoms. Play vs IR
 - Immobilize: 5-14 days with modalities
 - Motion recovery: 10-14 days
 - Strength recovery
 - Sport recovery
 - Return to play

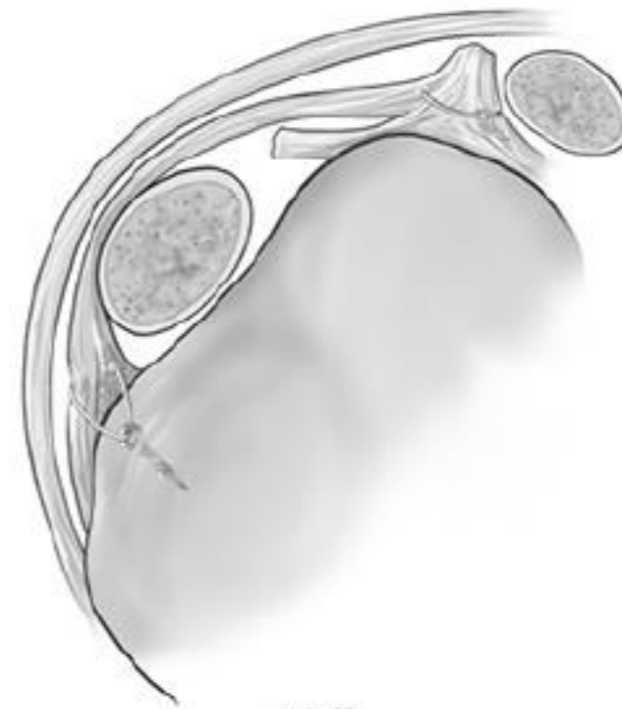
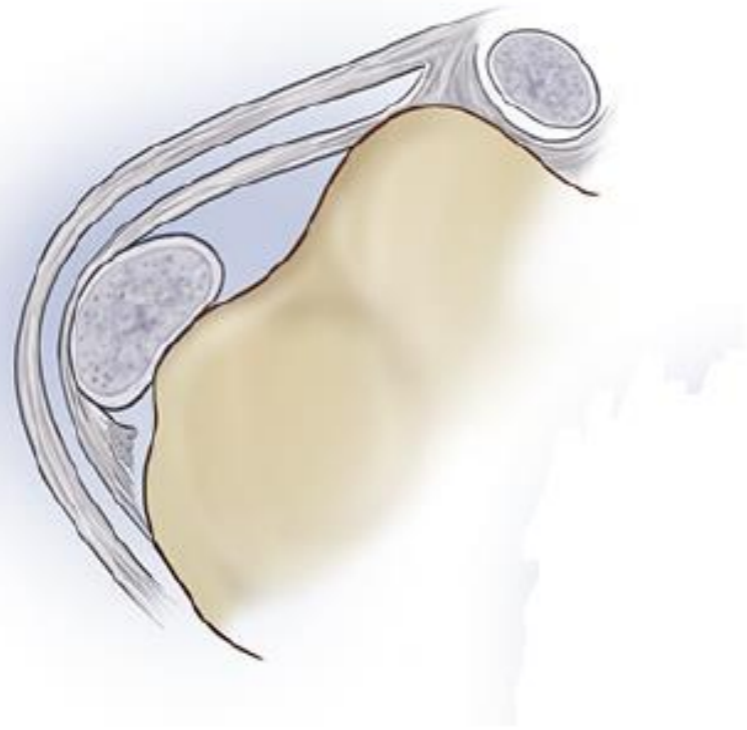


ECU

- Operative
 - Same repair early vs delayed
 - Repair ulnar leaf of subsheath to recreate barrier to ulnar subluxation of ECU
 - Advance retinacular flap





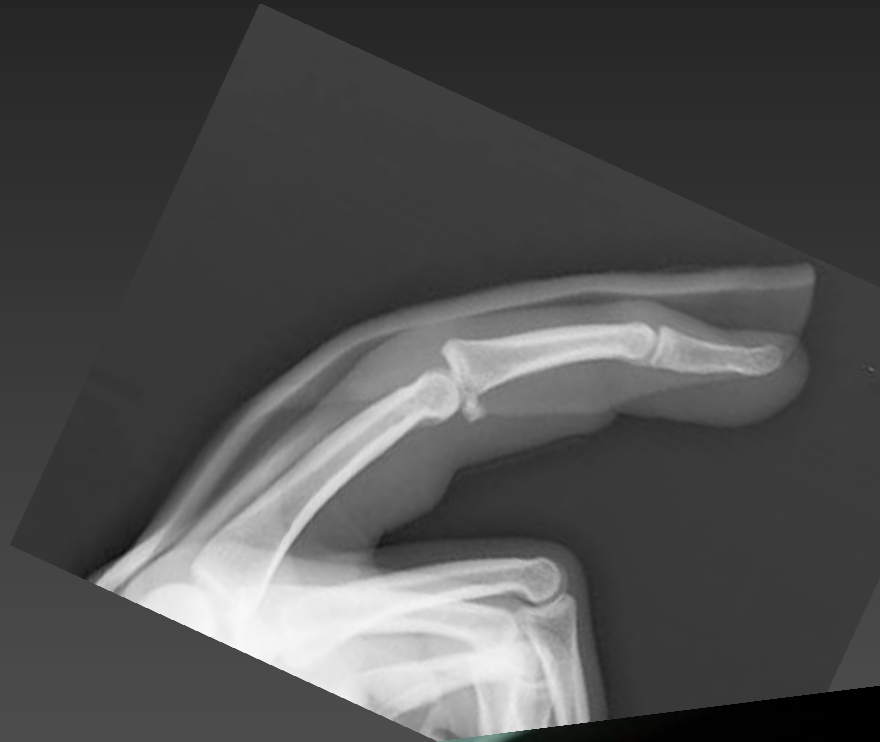


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PIP Joint Injuries

“Jammed my finger”

- Fractures
- Dislocations
- Combo
- Reduced?
- Stable?
- Motion?



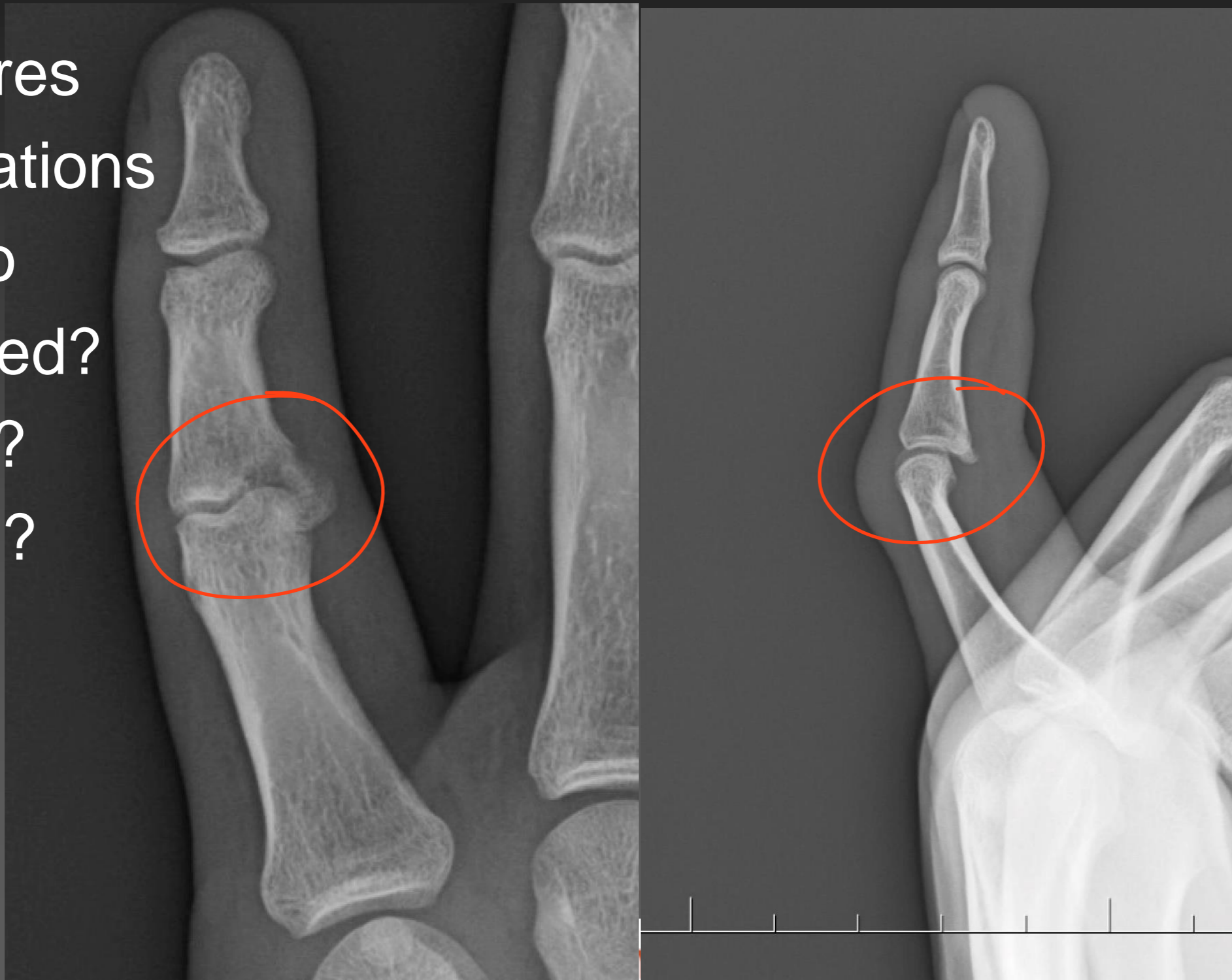
It's not "Just jammed"

- Fractures
- Dislocations
- Combo
- Reduced?
- Stable?
- Motion?



PIP fractures

- Fractures
- Dislocations
- Combo
- Reduced?
- Stable?
- Motion?



PIP fractures





- Fractures
- Dislocations
- Combo
- Reduced?
- Stable?
- Motion?



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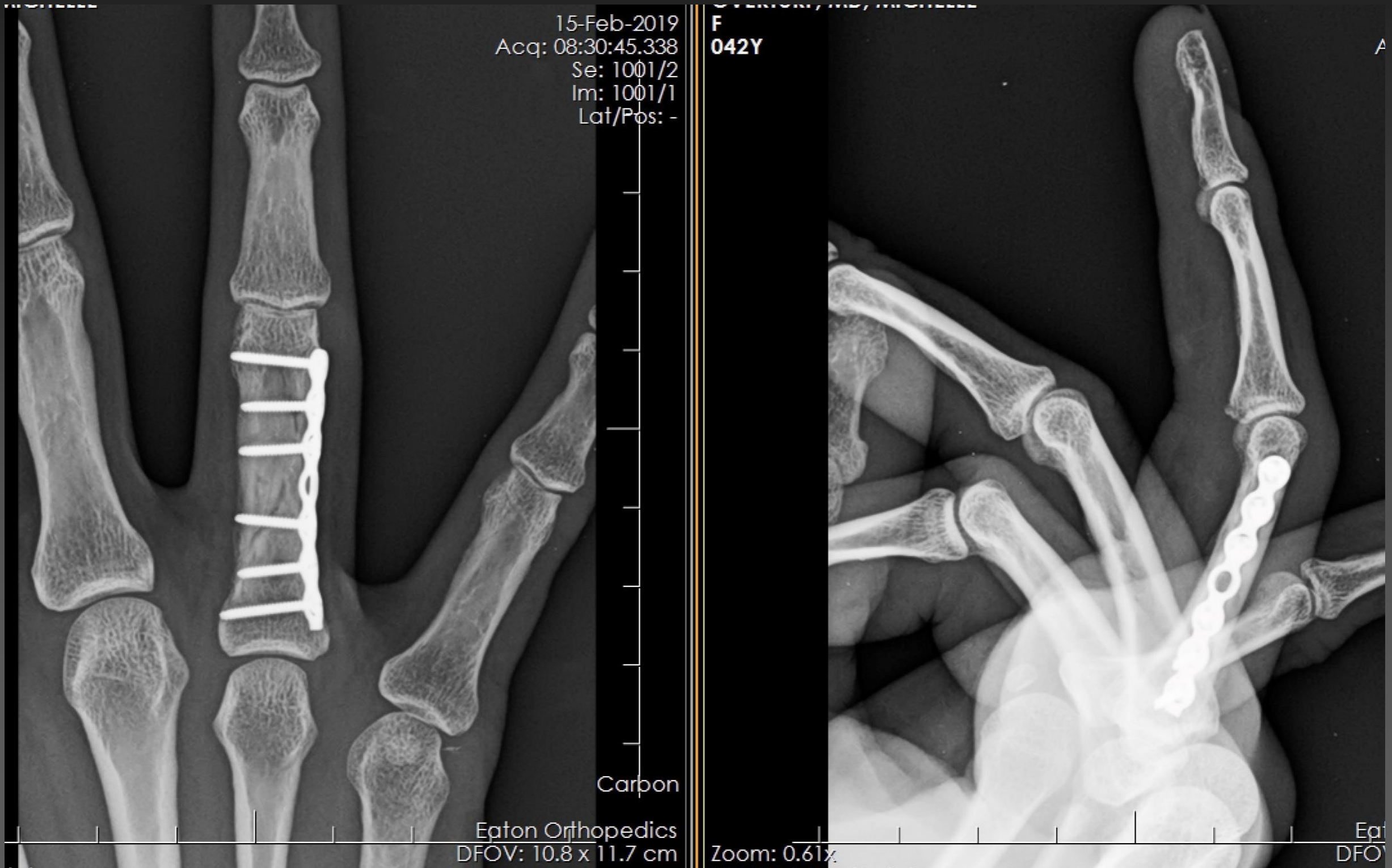
It's not “Just a jam”

Phalanx Fx's



- Angulation ?
- Rotation?
- Stable?
- Motion?

Phalanx Fx's



Metacarpals



=



Metacarpal

- Angulation ?
- Rotation?
- Stable?
- Motion?



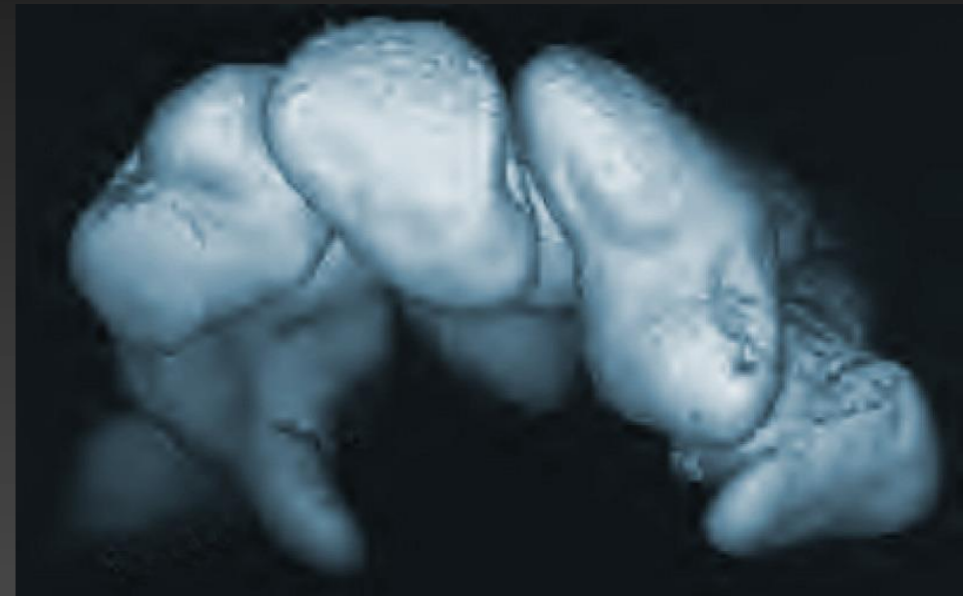
Hook of Hamate

- Bony prominence in ulnar palm
- Ulnar wall of Carpal Tunnel
- Pulley for sf flexors
- Intimate with ulnar nerve



Hamate Treatment

- Diagnosis
 - History, Pain, Tenderness (palmar / dorsal), X-ray, CT, MRI
- Closed treatment, casting <50% union
- Surgical excision
 - Return to play in 6 weeks



Return to Play and Complications After Hook of the Hamate Fracture Surgery

Anchal Bansal, BS,* Douglas Carlan, MD,† John Moley,* Heather Goodson,† Charles A. Goldfarb, MD*

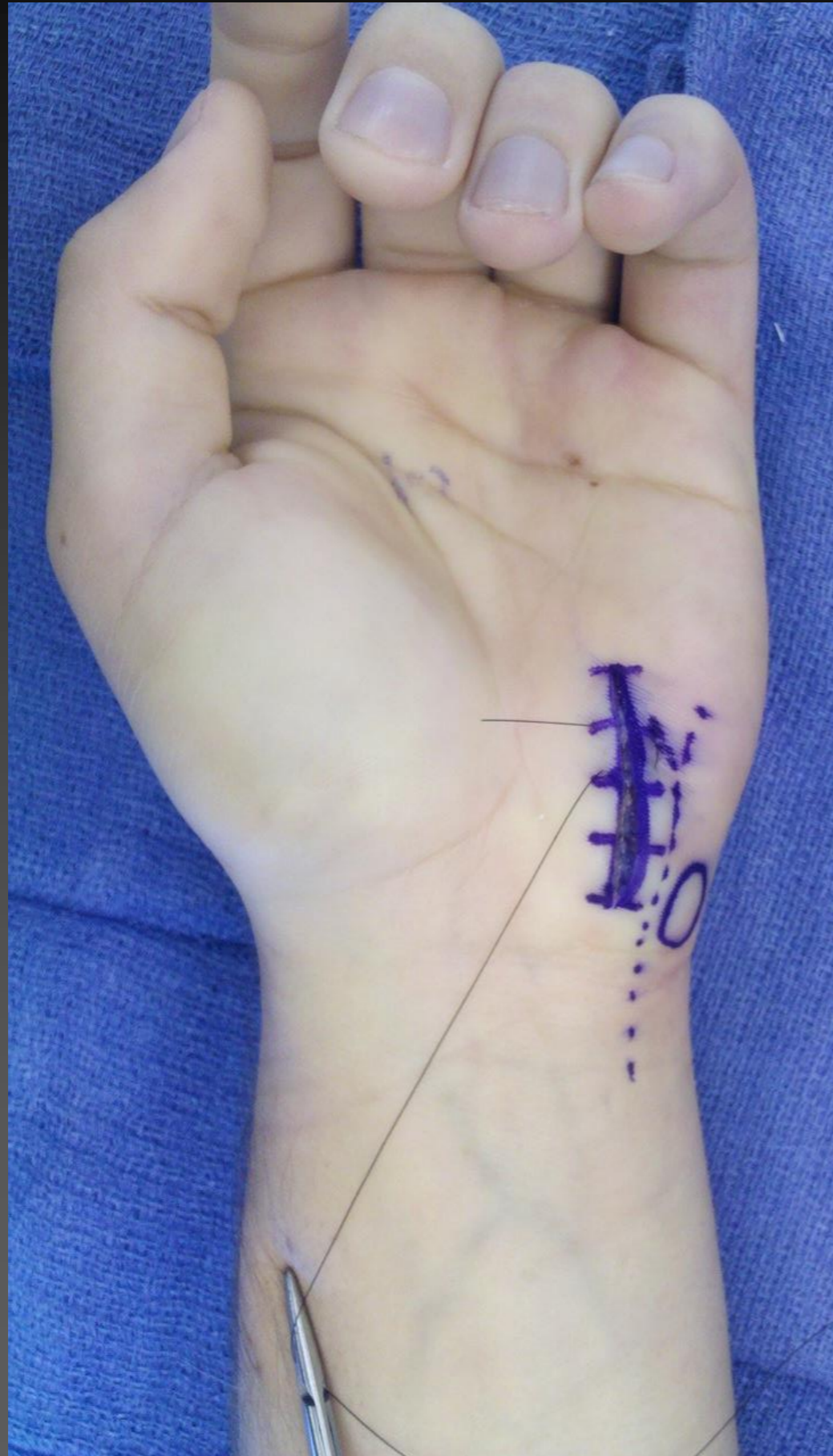
Purpose The purpose of this study was to evaluate the efficacy of hook of the hamate excision for fracture in a large cohort of patients to better understand recovery time and complications.

Methods We retrospectively reviewed the medical records of patients treated with surgical excision for hook of the hamate fractures at 2 different centers. We collected information on demographics, clinical presentation, and postoperative complications. Continuous outcome variables included time to surgery, return to play, and return to activity.

Results Our cohort of 81 patients had a median age of 22 years and was composed of 74 athletes including 57 baseball players and 8 golfers. The median time to return to play was 6 weeks (range, 1–36 weeks) after surgery; 11 patients (14%) had a return at 12 weeks or longer. Seventy-eight patients returned to preinjury activity levels. Twelve patients with a full recovery continued to experience some level of intermittent, nonspecific pain in the affected hand, although this was not severe enough to require additional treatment. We observed a 25% incidence of postoperative complications with the majority consisting of transient ulnar nerve dysfunction. Complications were more common among nonathletes, those presenting with nonunions, and those experiencing longer intervals between injury and surgery.

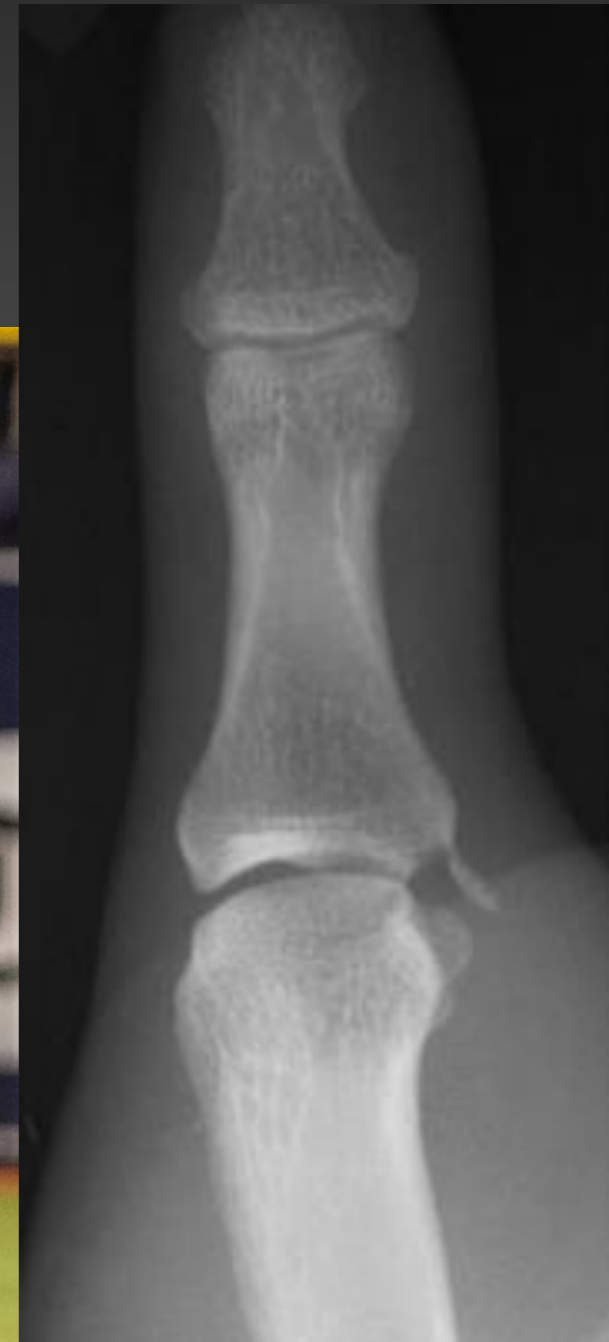
Conclusions In most cases, surgical excision as treatment for hook of the hamate fractures is safe and allows a relatively rapid return to play. However, we found a higher incidence of complications, including transient ulnar nerve dysfunction, than has been previously reported. In addition, there is a group of patients with delayed return to play and continued discomfort after surgery. These findings should inform the discussion with surgical candidates. (*J Hand Surg Am.* 2017;42(10):803–809. Copyright © 2017 by the American Society for Surgery of the Hand. All rights reserved.)





Thumb Ulnar Collateral Ligament Injuries

- Skier's Thumb
- Gamekeeper's Thumb



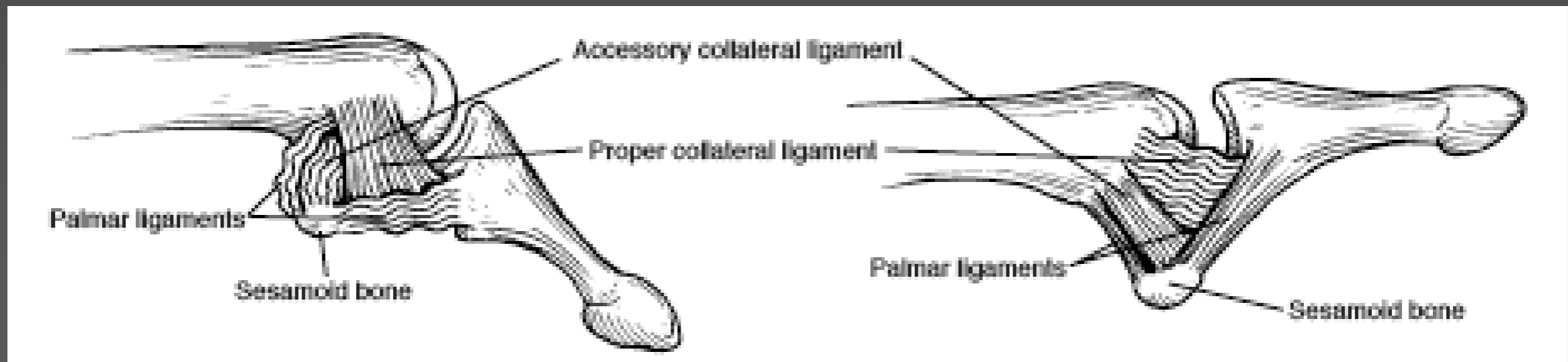
Mechanism

- Valgus force on abducted thumb
- Grade 1 - stretch
- Grade 2 - partial tear
- Grade 3 - complete tear



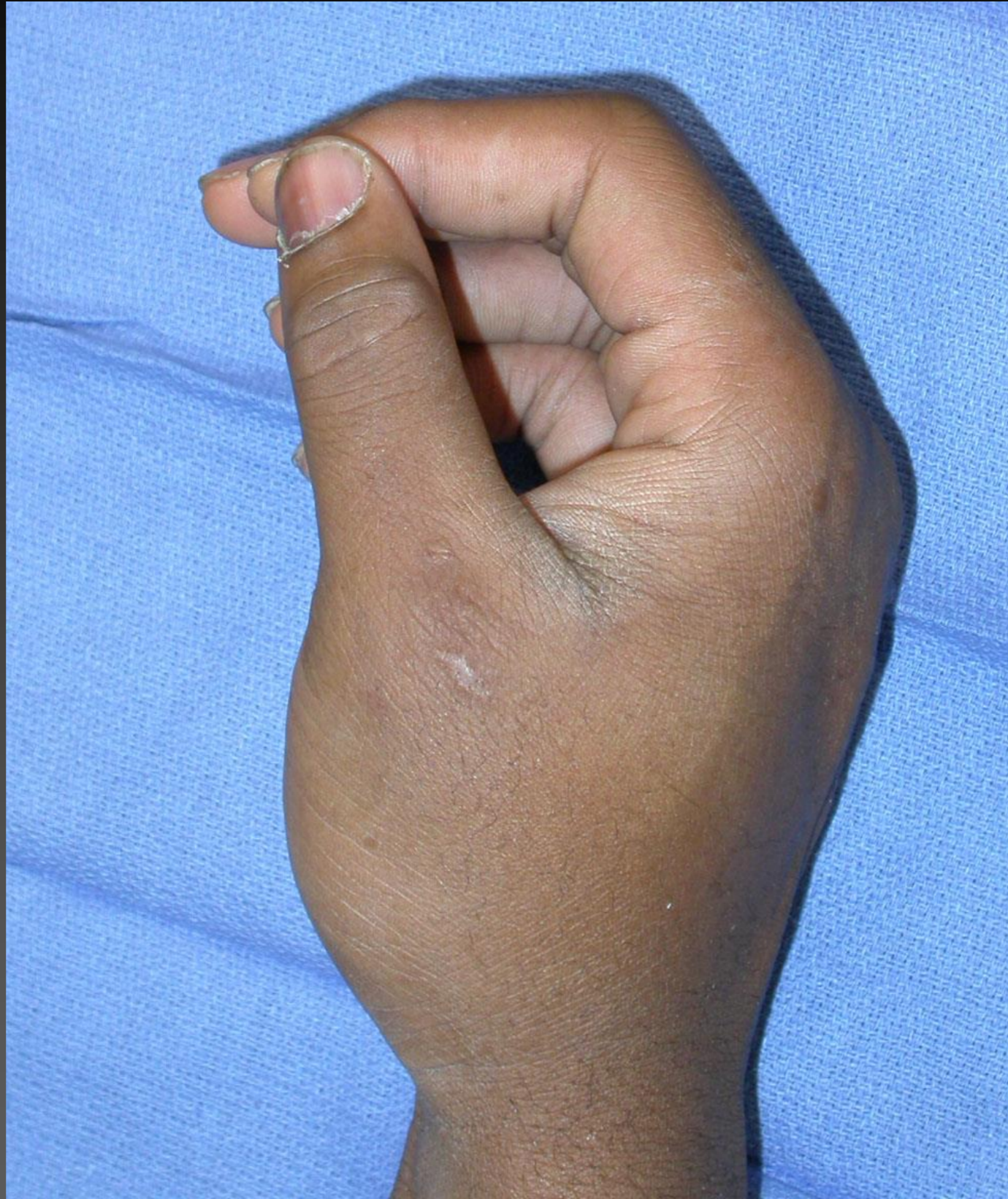
Anatomy

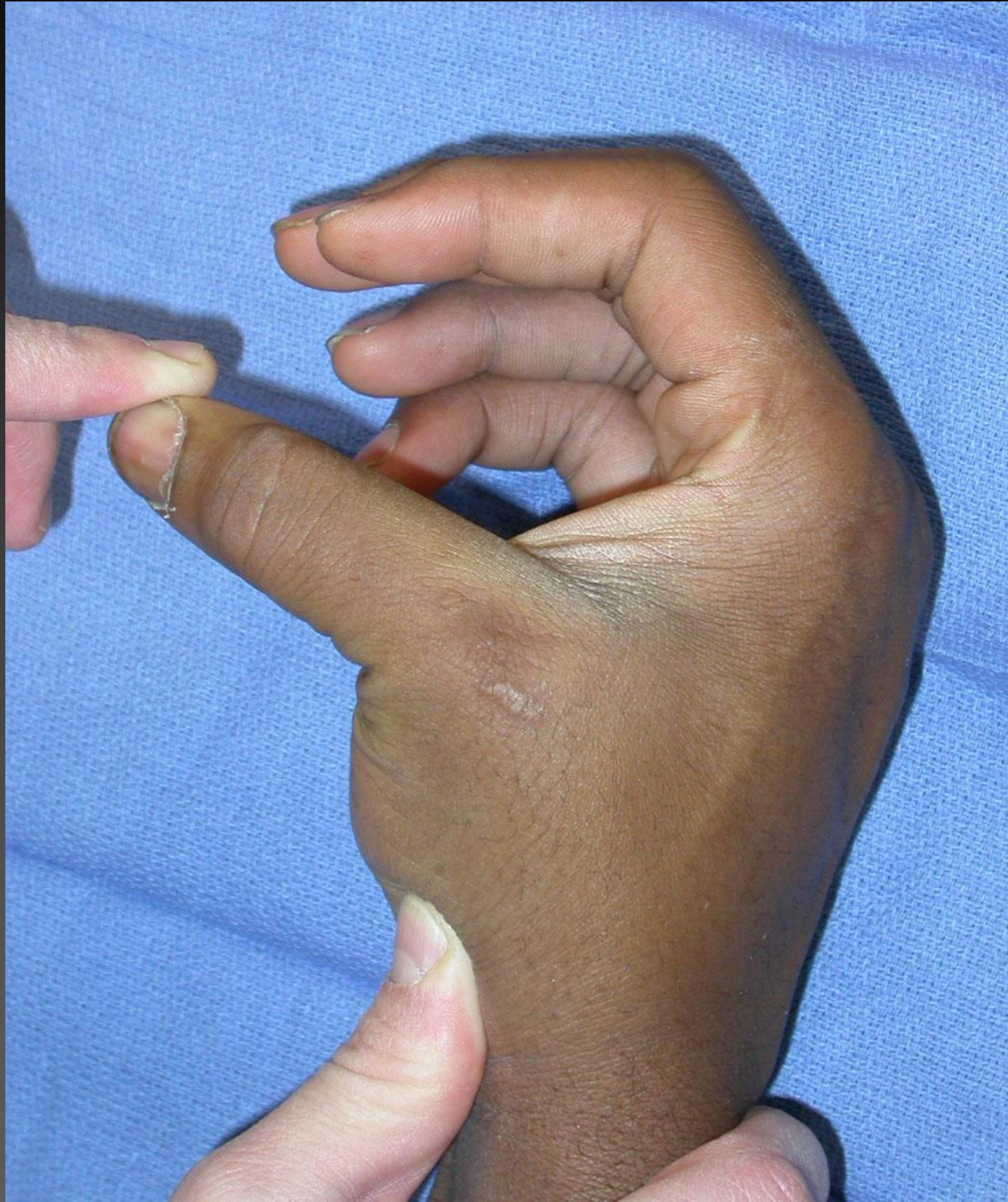
- MCP
 - flexion, extension, rotation, abduction, and adduction
- ROM - variable
 - Normal from 5 - 115 degree flex/ex arc



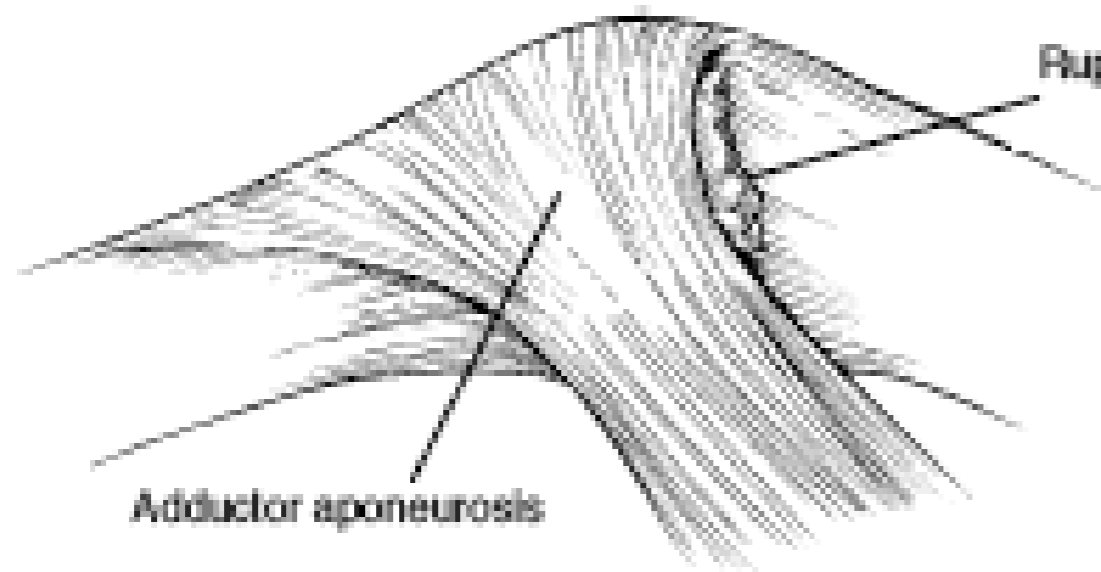
Treatment

- Stable in full extension -
Nonop
 - Thumb spica 4-6 weeks
 - Return to sport in cast
- Unstable “complete”
injury - operative
 - Incise add. Aponeurosis
 - Expose ulnar collateral
 - Pin MPJ if subluxated
 - ORIF fracture and/or
reduce and repair ligament
 - Return to play in cast



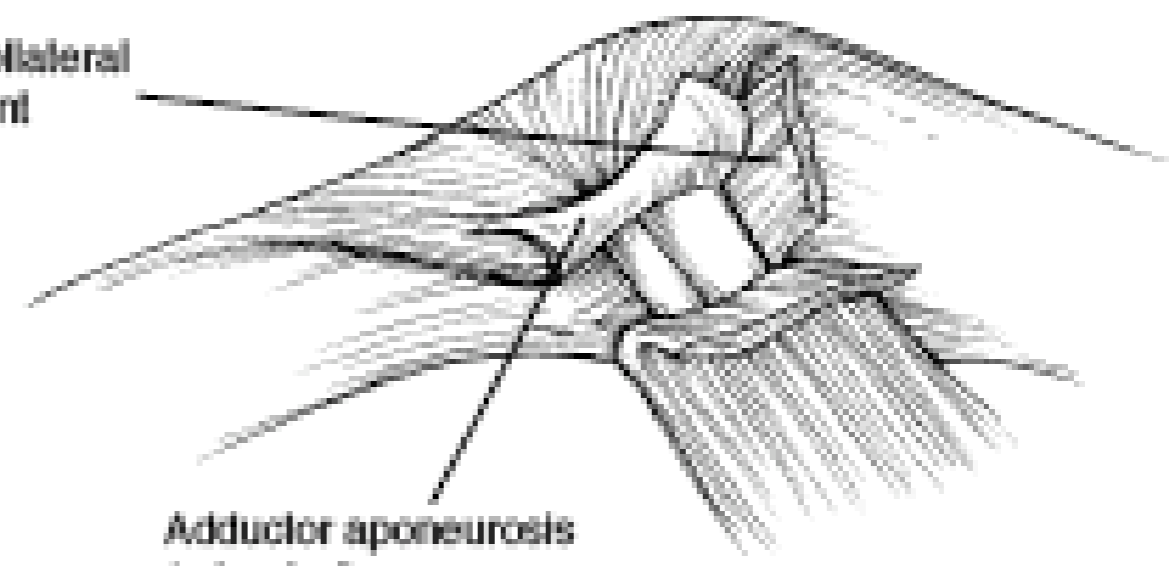




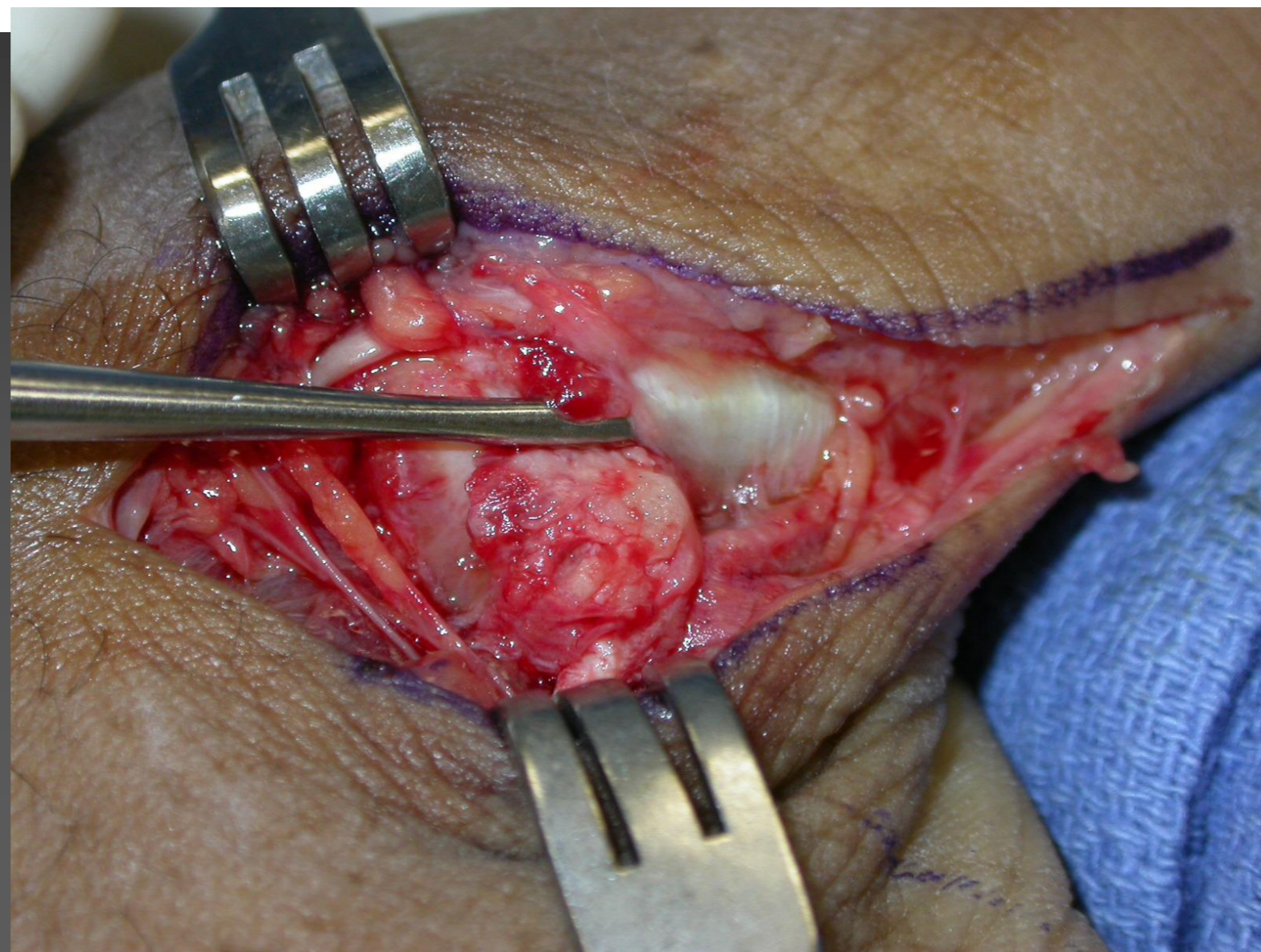


Ruptured collateral ligament

Adductor aponeurosis



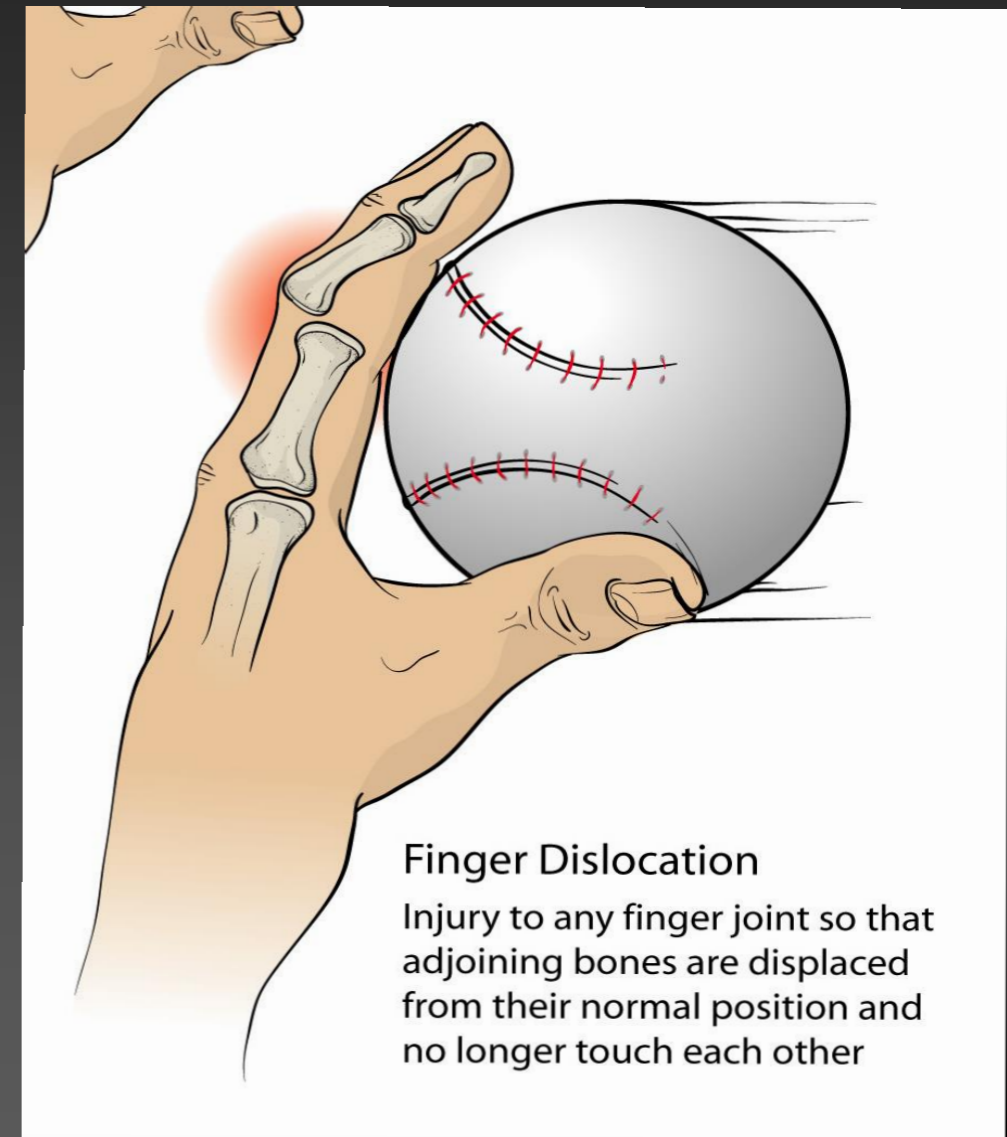
Adductor aponeurosis (retracted)





Finger Injury Review

- History
 - Mechanism of injury, pop?, paresthesias
- Exam
 - Neurovascular status
 - Angular or Rotational Deformities
 - Overlap or scissoring, nailbeds
 - Joint step off on exam
 - Functional status of tendons
 - Isolate FDS/FDP
 - Lacerations



Finger Injury

- Irrigate and cleanly cover lacerations
 - topical Abx
- Immobilize
 - Buddy tape
 - Splint
- Triage appropriately by severity
- Never Return to play with deformity or step off

Ulnar Sided Wrist Pain (Triangular Fibrocartilage Complex)

- Injuries to TFCC are common causes of ulnar wrist pain in athletes
- Often delayed dx, and chronic symptoms



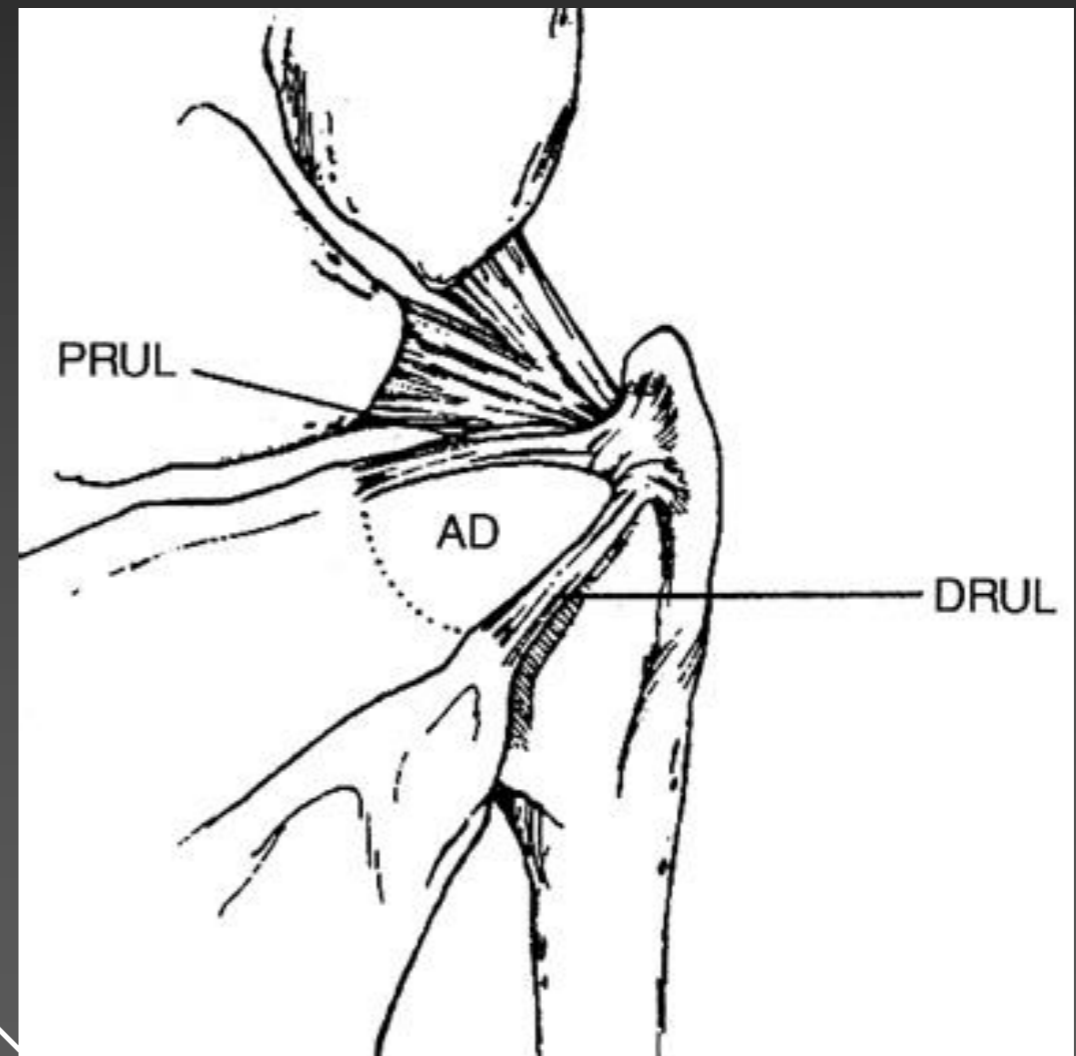
What is the TFCC?

- Group of structures that stabilizes the distal radioulnar joint



Radioulnar Ligaments

- Peripheral thickening of articular disk
- Insertion at base of ulnar styloid



TFC Disk



- Cartilagenous thickening suspended between dorsal and palmar RUL's.
- Dual ulnar insertion

Mechanisms of Injury

- Forced pronation - dorsal peripheral detachment
- Axial load - central perforation or avulsion from sigmoid notch
- Forced hyperextension and radial deviation - avulsion of volar UC ligaments proximally or distally

Exam



- Point of Maximum Tenderness
- Foveal sign: between ulnar styloid and pisiform

DRUJ Stability



Exam

- Ulnocarpal impaction maneuver



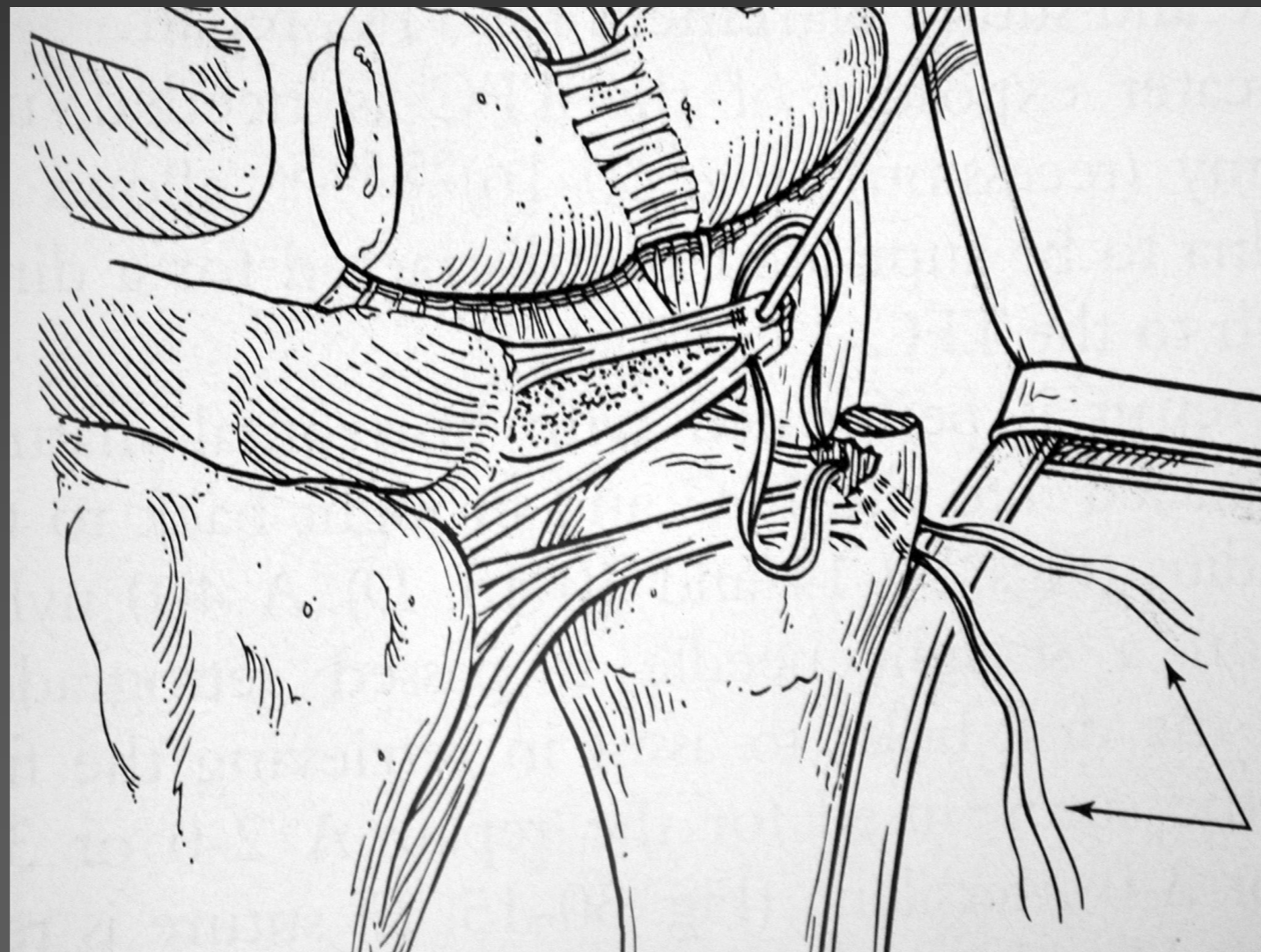
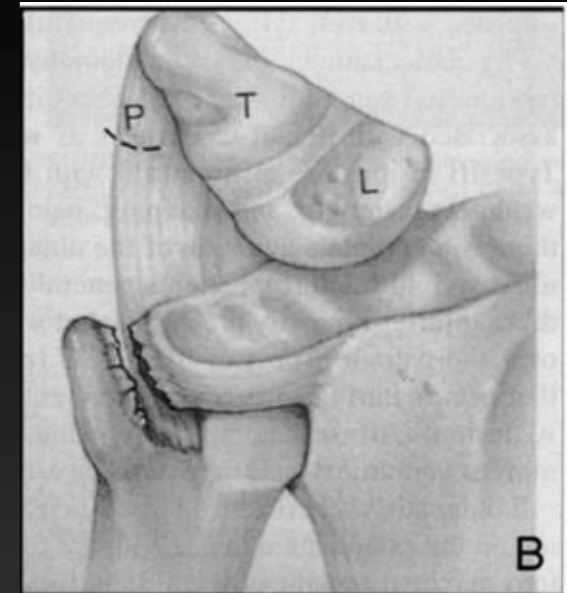
Management

- Initially, conservative management usually applies: Rest, splint / cast, NSAIDS.
- Immobilization alone may be enough (peripheral tears). ~4 weeks.
- Steroid injection for local synovitis.
- Arthroscopy



IB Lesions

Open Repair



Repair



