Hand/Finger injuries

By Sam Cantori

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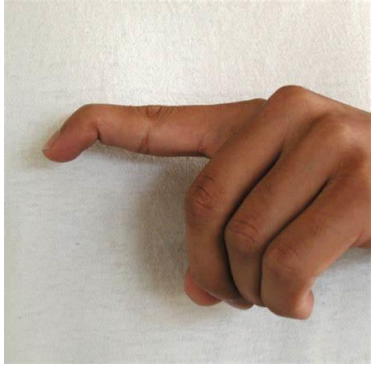
Common mechanisms for injury

- Axial load to finger
- Finger Hyper flexion
- Finger Hyper extension
- Finger Valgus or Varus
- Fall onto flexed vs extended wrist
- Repetitive load injuries (DeQervein's/CTS)

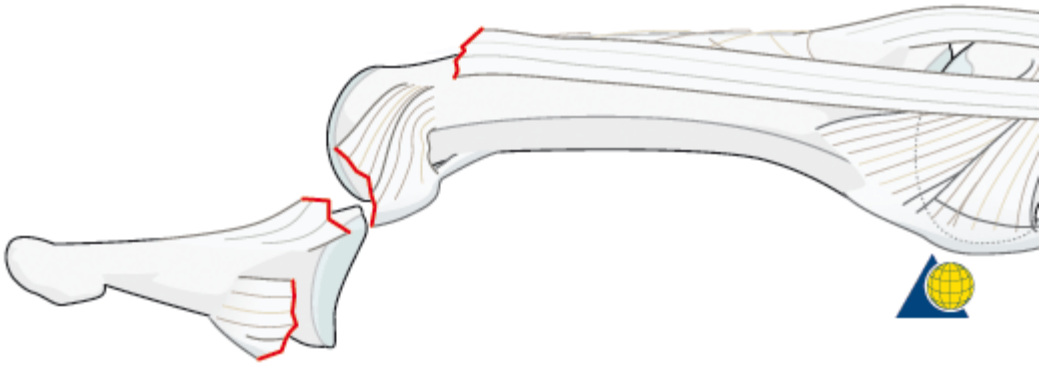
Common hand/finger injuries

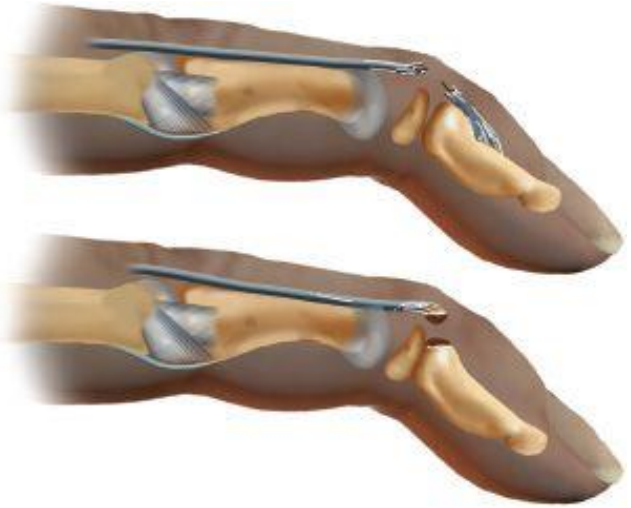
- Bony Mallet finger vs soft tissue
- Volar plate tear vs avulsion
- Central slip injuries
- Jersey finger
- Collateral ligament tears
- Skiers/Gamekeepers thumb
- RCL tear to 1st MCP
- Carpal #/dislocations
- DeQuerveins
- CTS
- Trigger finger
- Serious pathologies: open #s, infections, deglovings etc

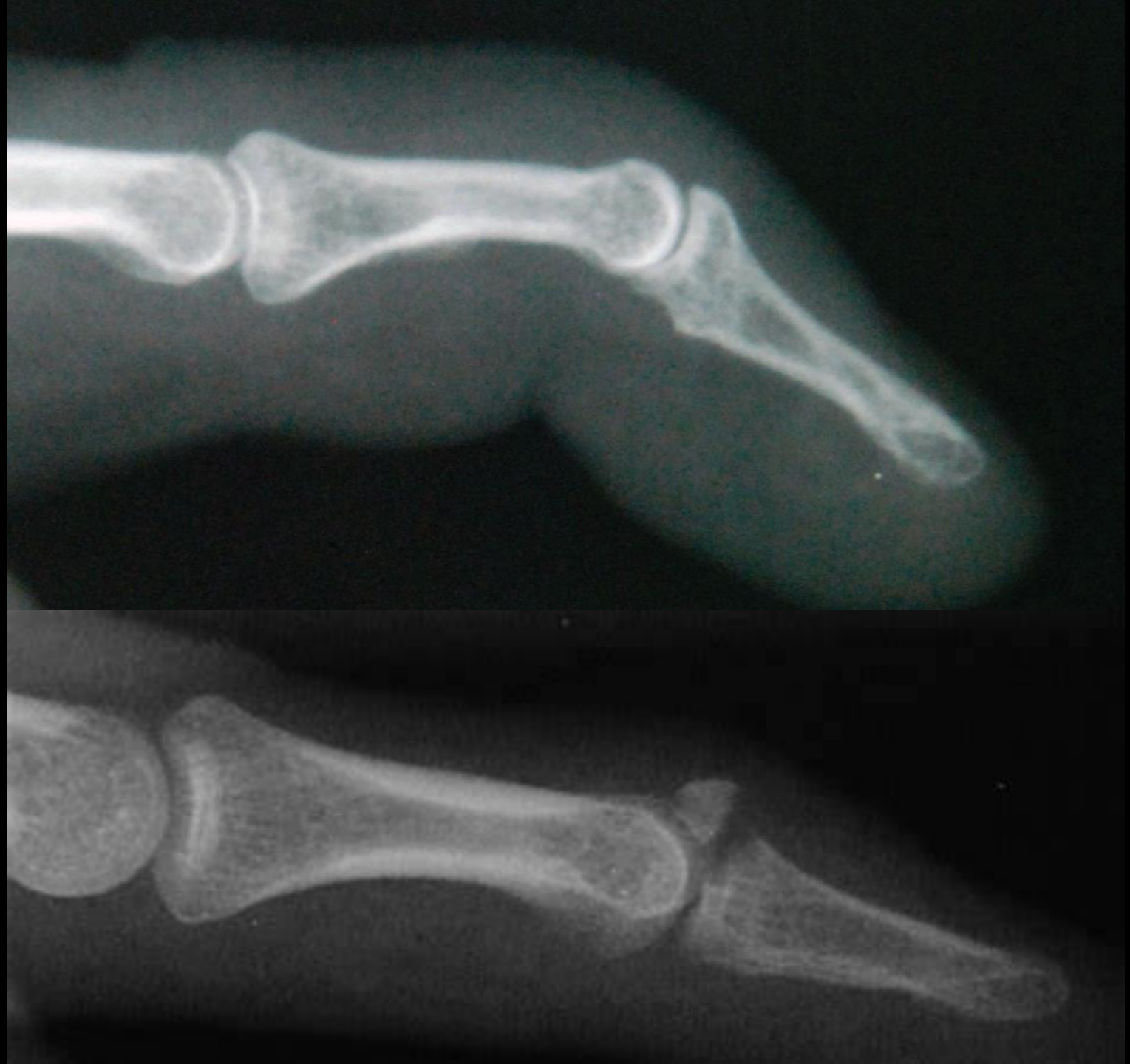
Mallet Finger



- bony vs soft tissue (Extensor Digitorum Communis tendon rupture or avulsion)
- Hyperflexion injury (often catching a ball)
- Other MOI is a volar distal phalanx dislocation
- Unable to actively extend their terminal phalanx
- Bony mallet seen on XR, clinical diagnosis for soft tissue

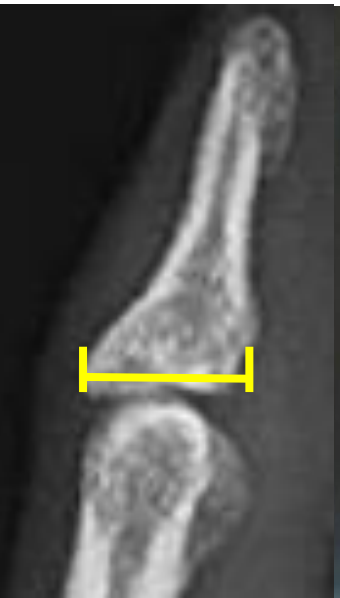


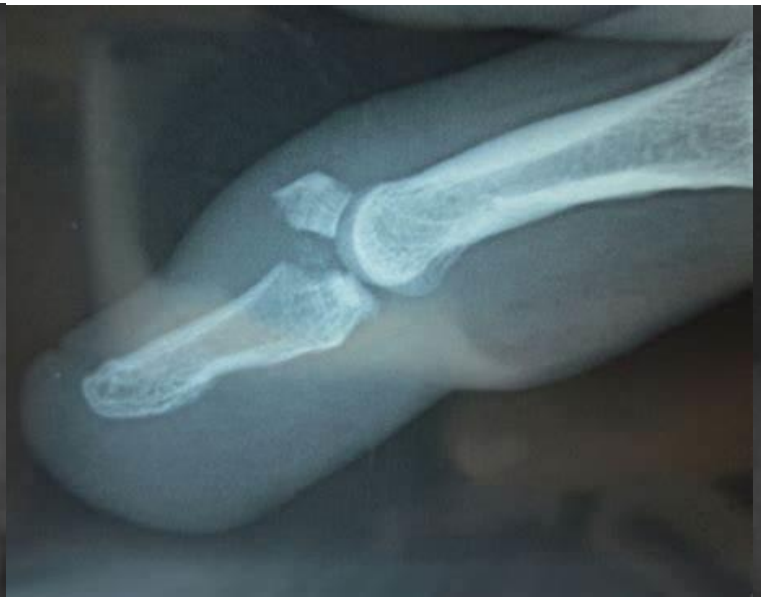


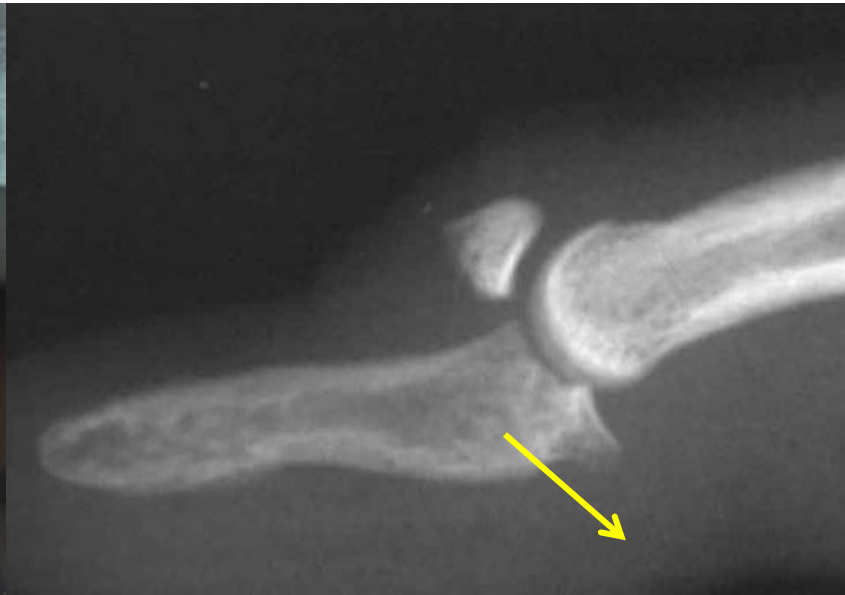


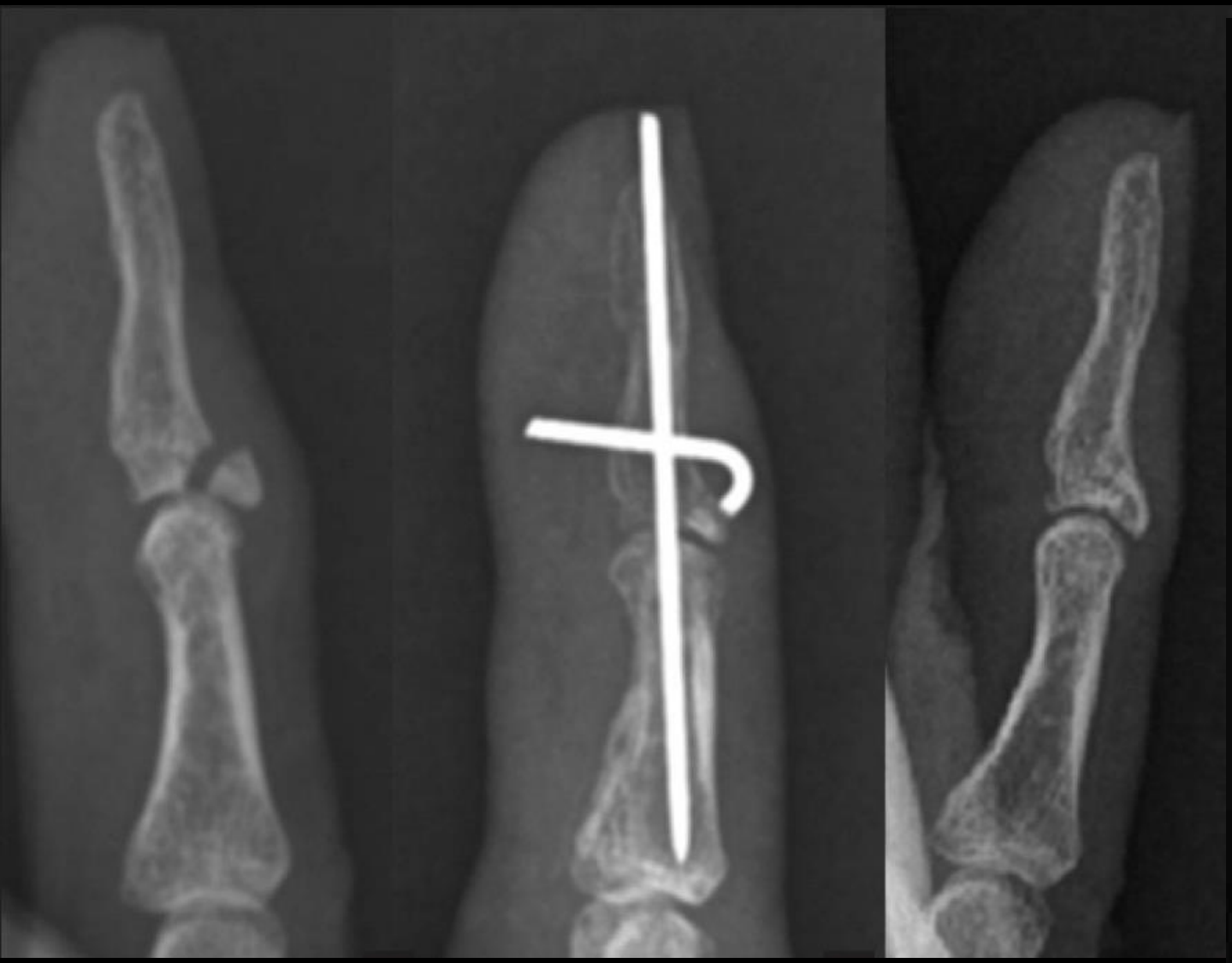
Operative vs Conservative

- All soft tissues are conservatively managed (except tendon lac)
- Bony fragments <25% are for conservative
- If larger than 25% needs a repeat Xray in splint!!!! Potential ORIF (as can sublux volarly)







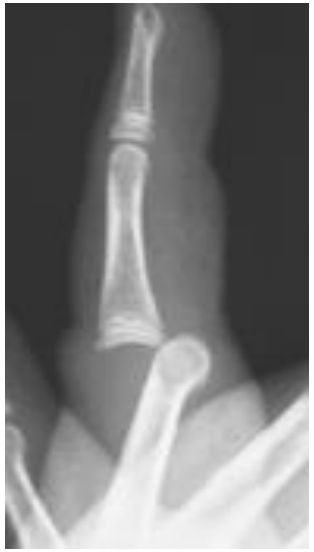


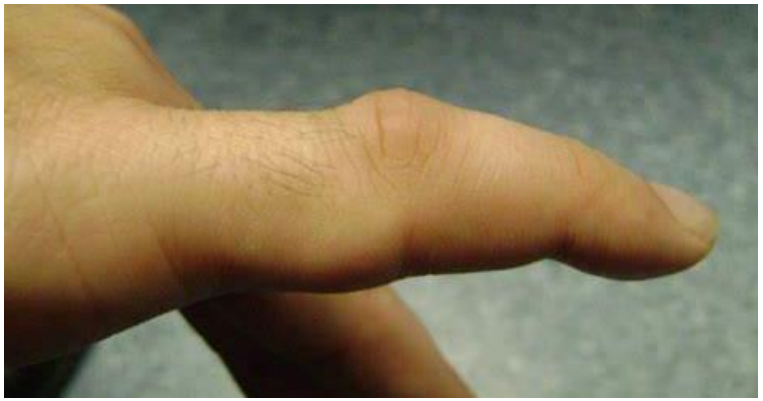
Treatment

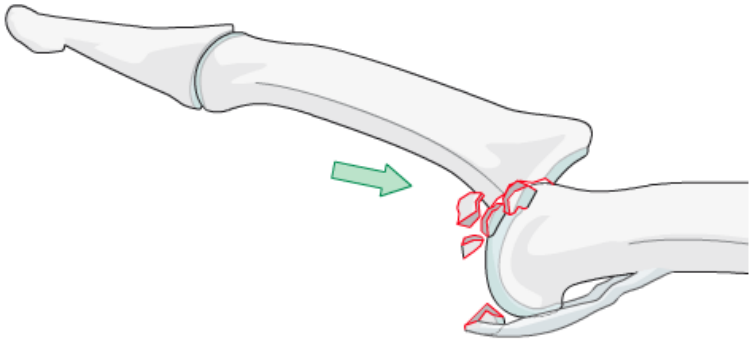
- Extension based finger splint
  - Commonly dorsal (to avoid hypersensitivity)
  - Immobilise DIP only
  - Cons Mx splint 6 weeks bony 8 weeks soft tissue
  - Nil active or passive movement for 6-8!
  - Sydney Hands Referral

Volar Plate injuries

- MOI:
  - Hyperextension of the finger (most common PIPJ)
  - Dorsal dislocation of PIPJ
- Bony seen on Xray, soft tissue clinically diagnosed (assumed on dislocation)

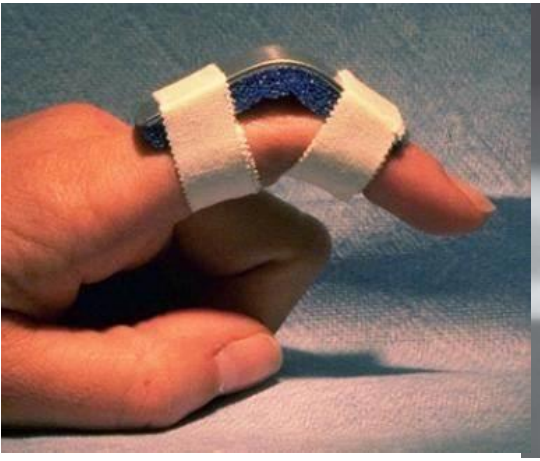


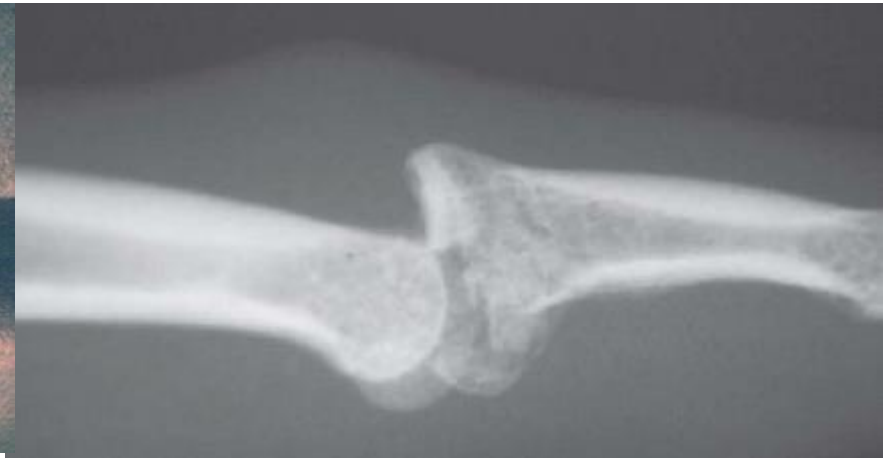




Management

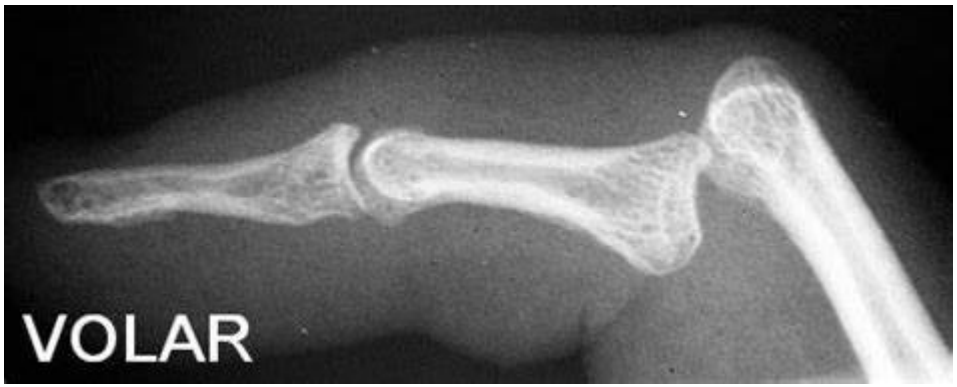
- Soft tissue
  - Needs a dorsal extension based splint + SSEH referral
- Bony
  - Fragment < 25% →splint in ext
  - Fragment >25% → Splint 30 deg flexion (or as per hands reg)
- Repeat Xray rules apply as per mallet if >25% bony fragment

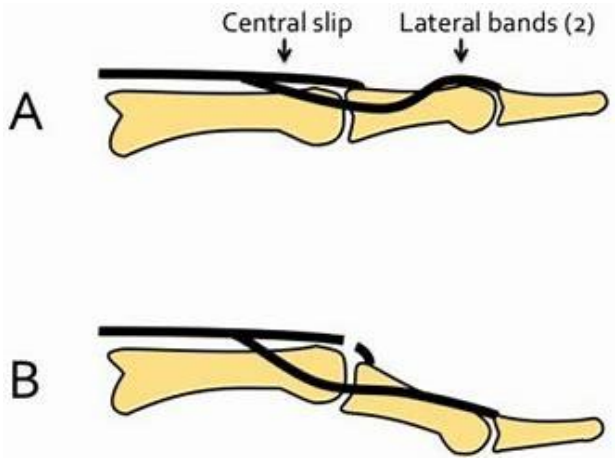


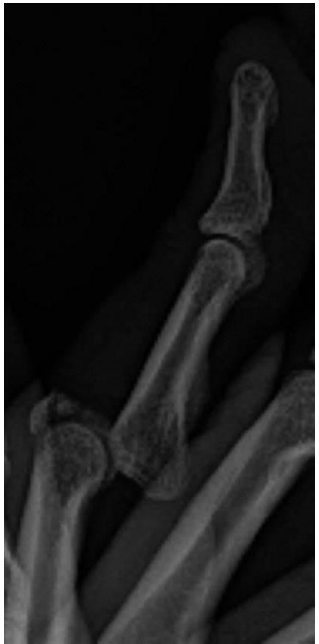


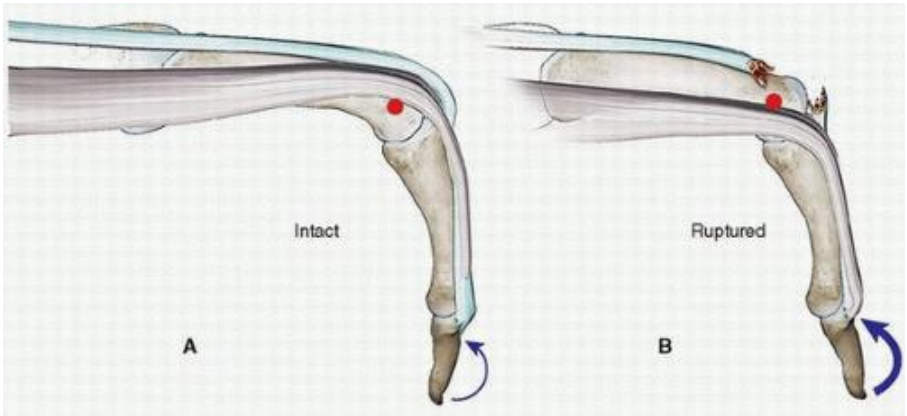
Central slip injury

- MOI
  - lac to dorsum of PIPJ
  - Hyperflexion injury
  - Volar dislocated PIPJ
  - What zone?
  - What deformity?

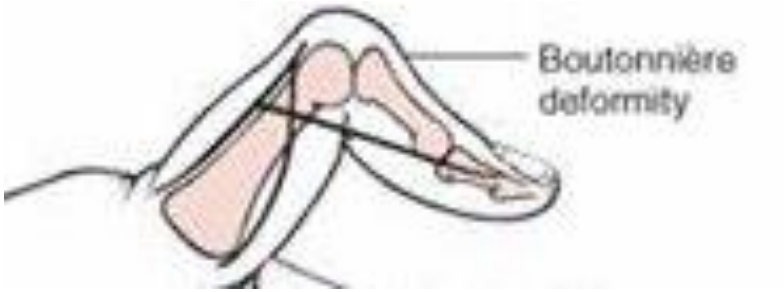








- Mallet = Zone 1&2
- Central slip = Zone 3&4



Diagnosis

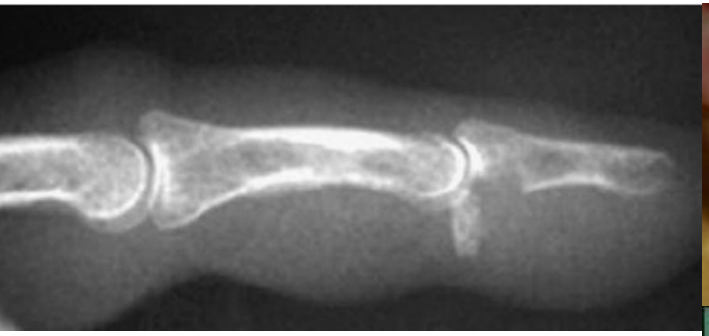
- Bony avulsion → seen on Xray
- Clinically, which test?
- Ultrasound
- Treatment: finger based splint, zimmer or thermoplastic, 0 deg ext at PIPJ (like volar plate)

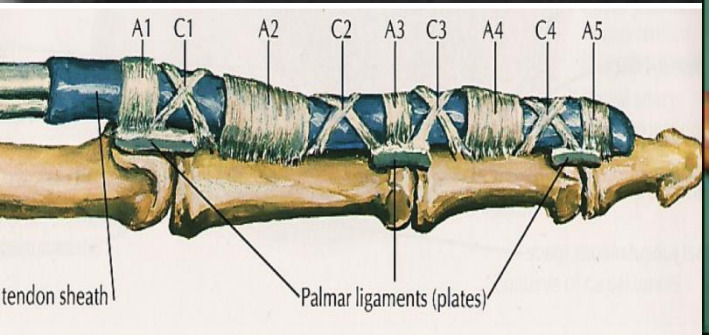
Elson’s/modified Elson’s test

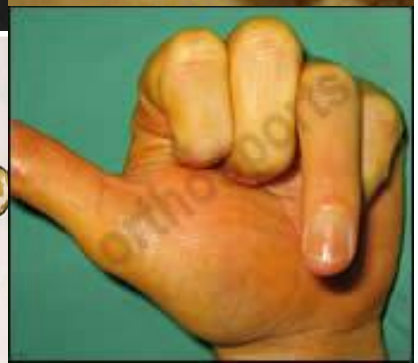
- PIPJ flexion, +ve test if they can actively hyperextend DIPJ (lateral bands pulling through)

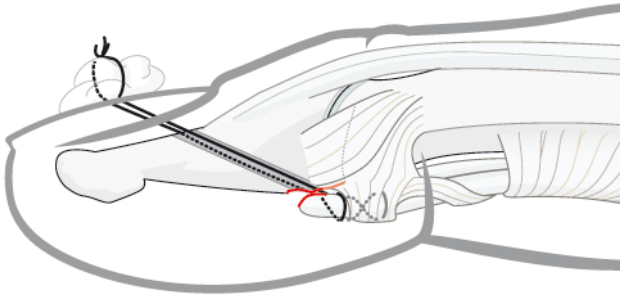
Jersey Finger/Flexor tendon lac

- MOI; forceful contraction of flexor digitorum profundus
- MOI; glass/table saw/angle grinder/knife lac
- Soft tissue vs bony jersey finger
- Rx: dorsal blocking POSI (if open ABX etc)



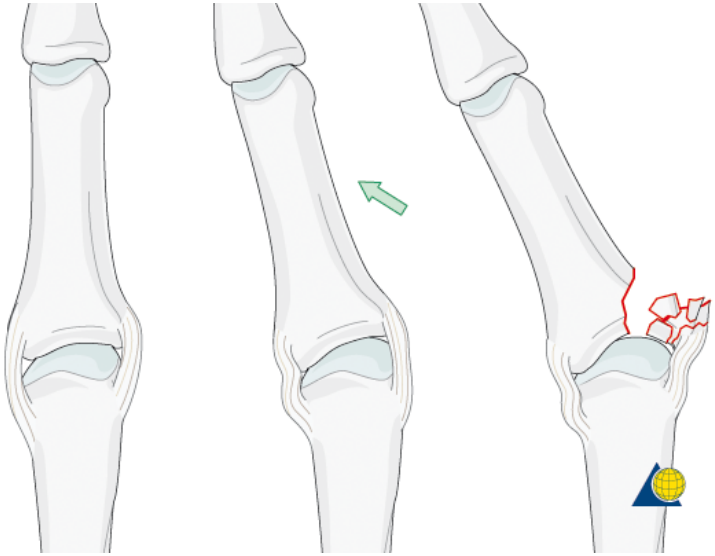


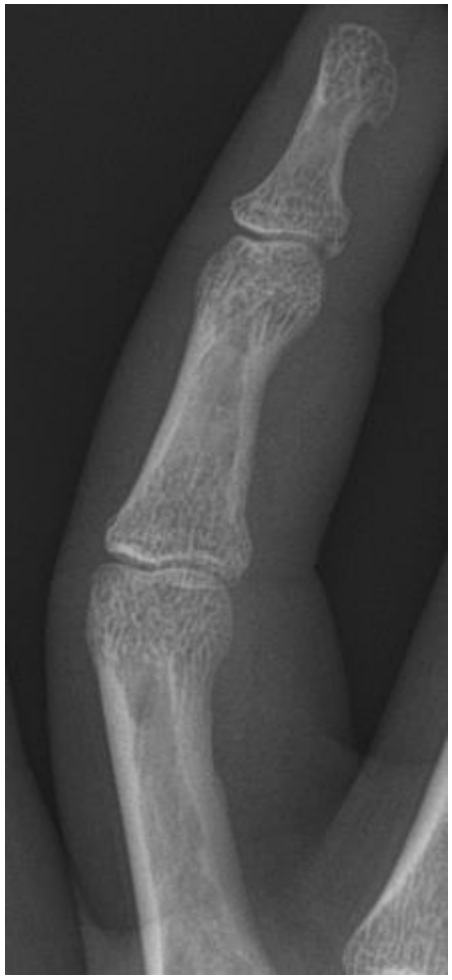




Collateral ligament injuries

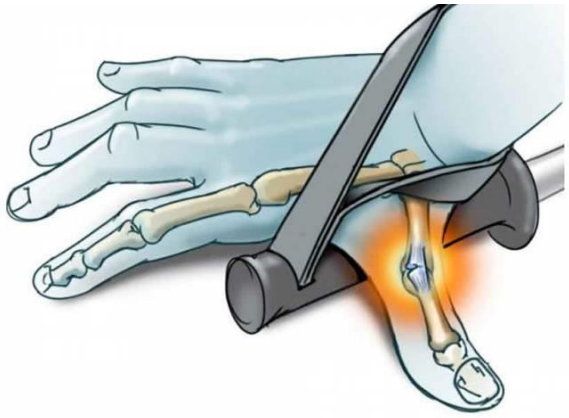
- MOI: dislocation, varus/valgus force to digits
- RCL or UCL avulsion vs ligament
  - Avulsion Dx on Xray
  - Ligament injury Clinical Dx
- Dorsal extension splint → Sydney Hands vs Hand therapy
- Post reduction films if indicated

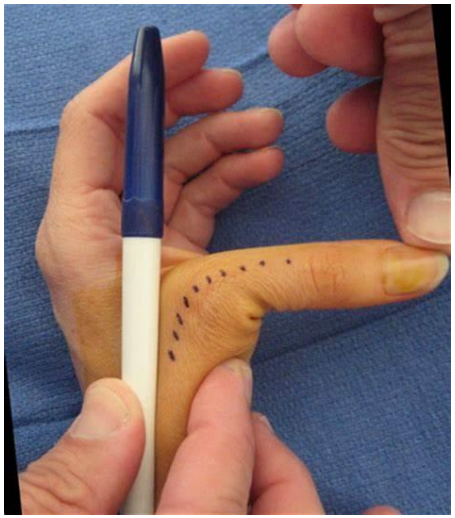


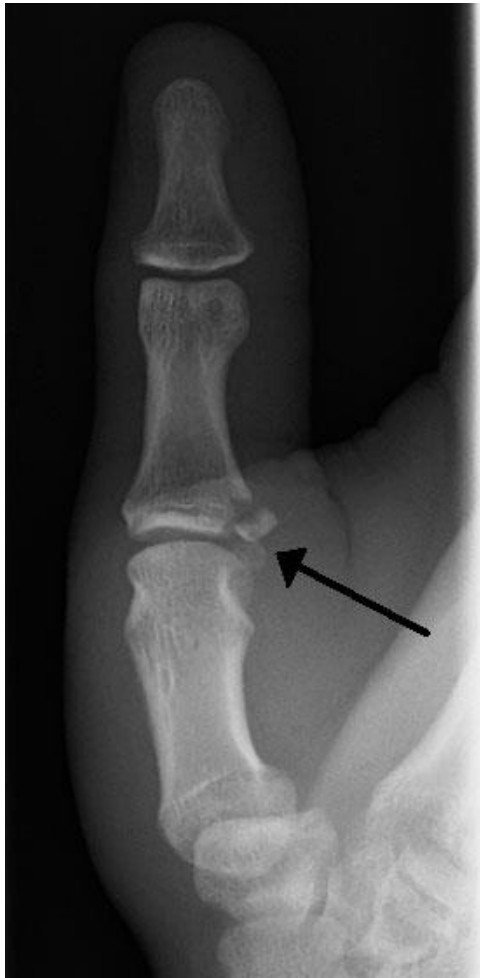


Skiers/Gamekeeper's thumb

- MOI: fall onto ski pole, fall over handle bars
- Bony vs ligamentous
- Dx
  - Xray for #
  - Clinical (stress @ 0 and 30 deg) vs US for soft tissue
- Mx: thumb SPICA slab + Sydney Hands

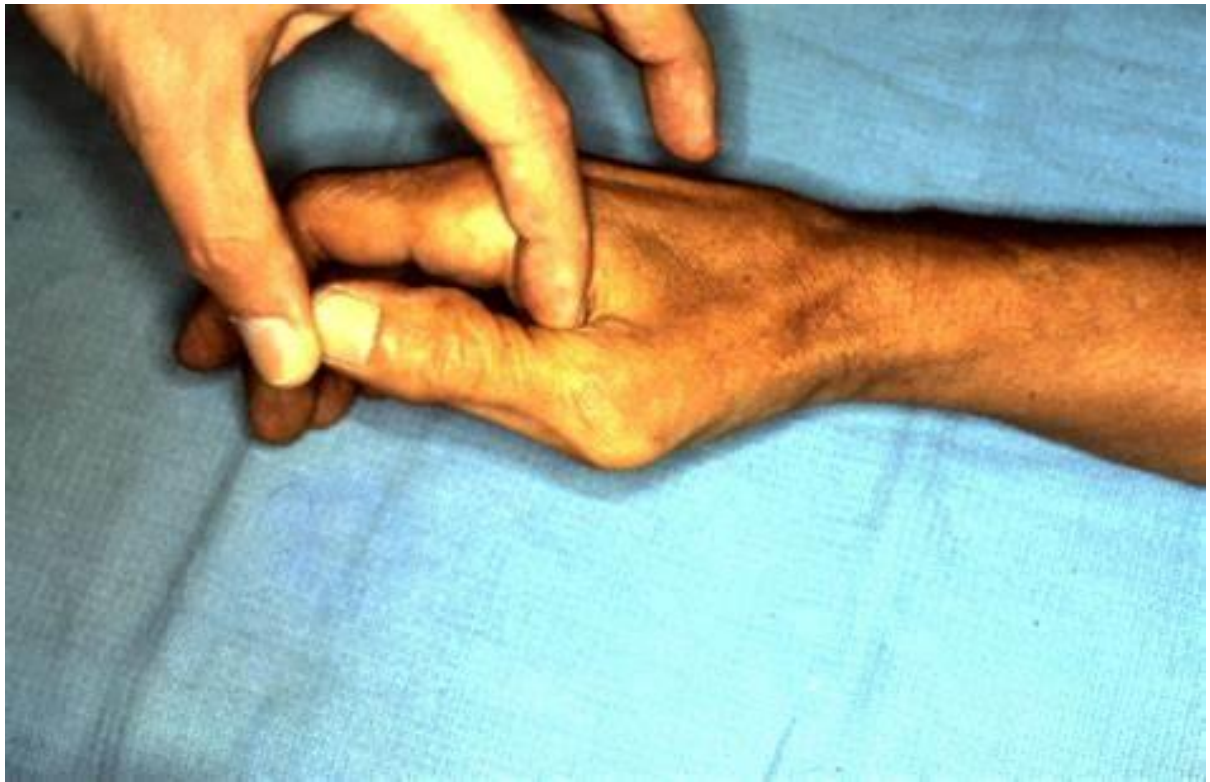


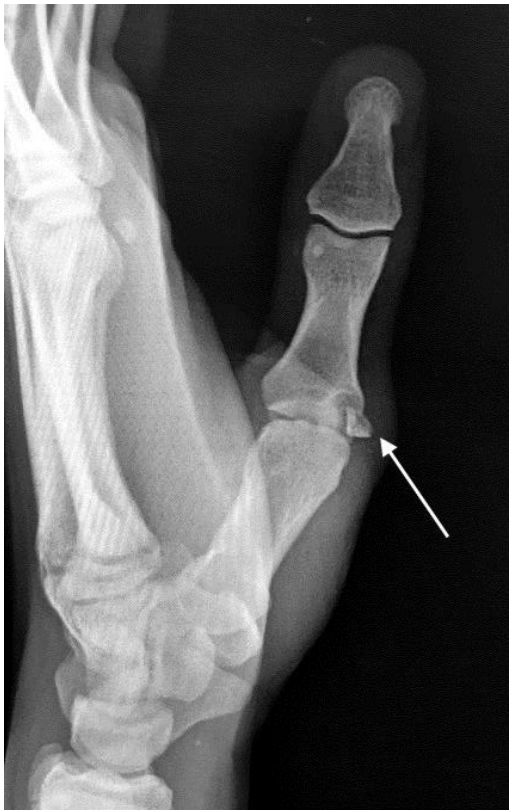




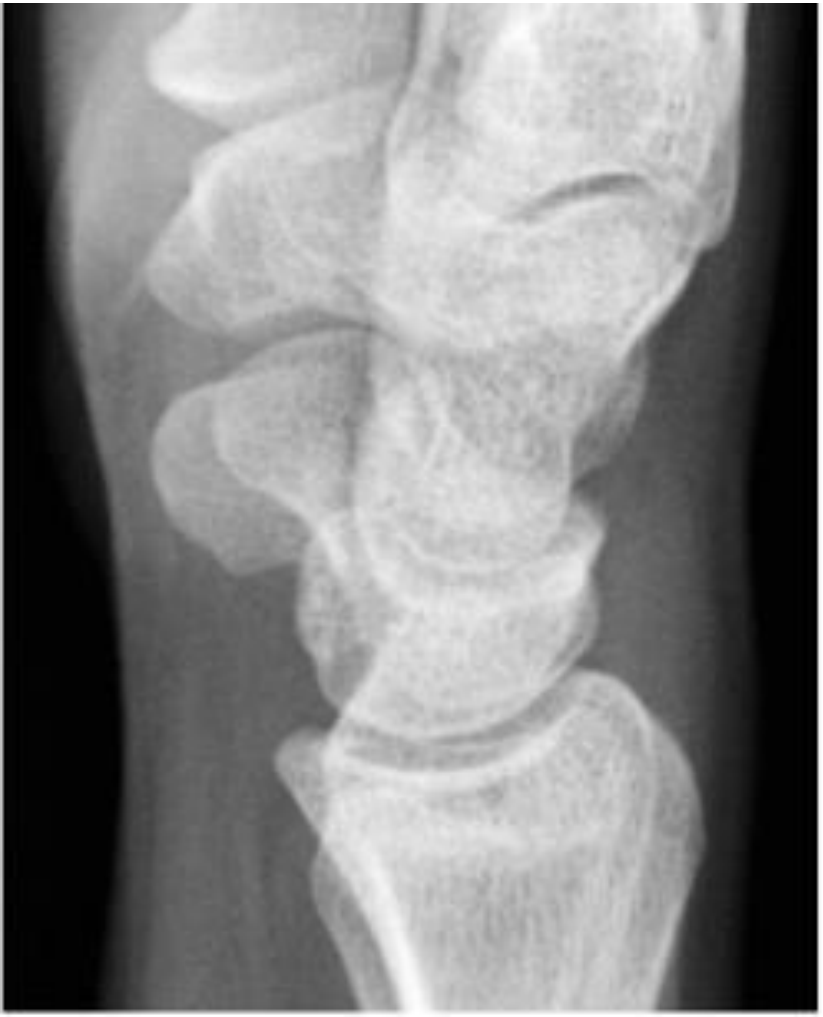
RCL injury

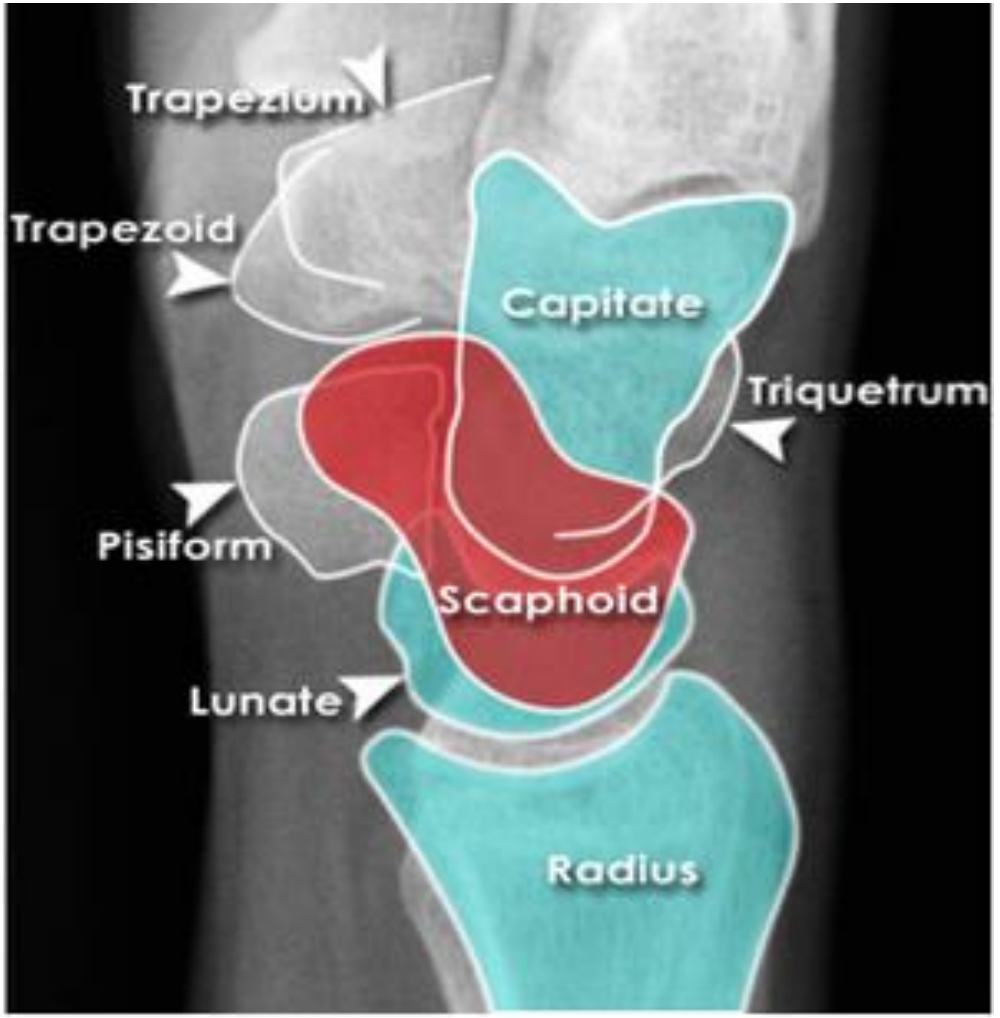
- Less common than UCL
- US/clinical Dx
- Thumb SPICA + Sydney Hands



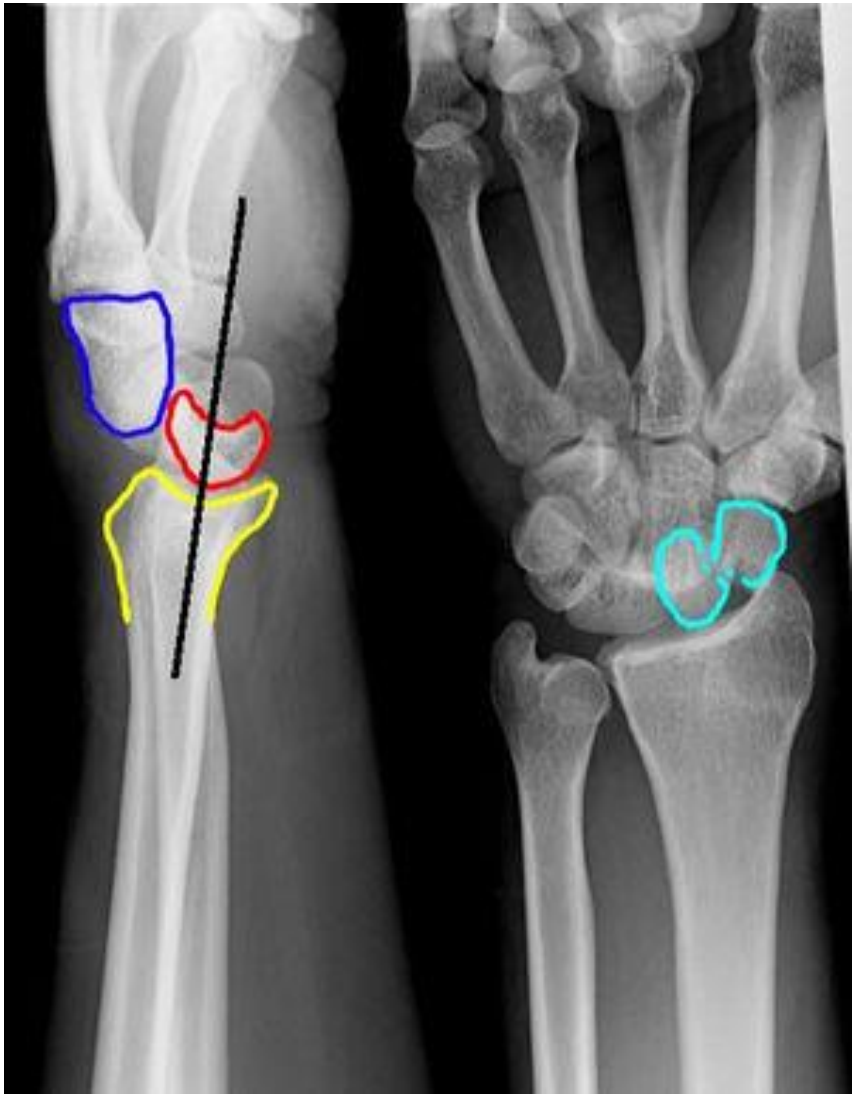


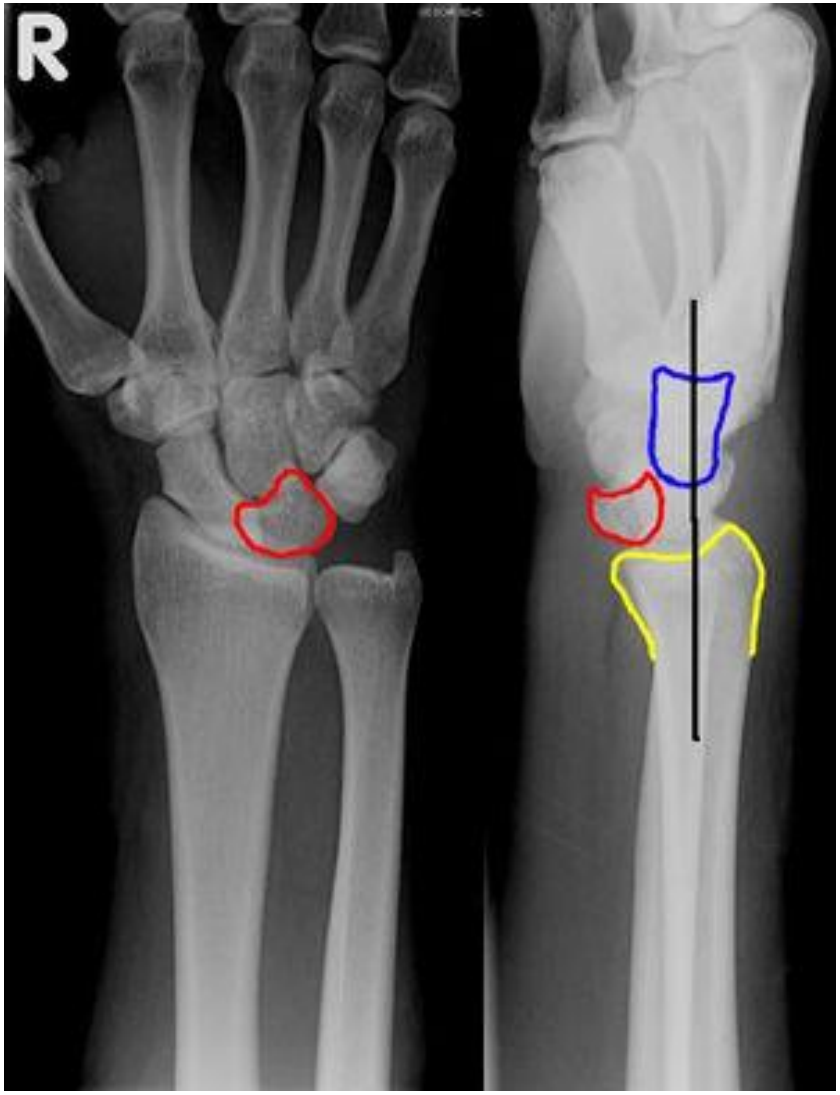
Normal Lateral wrist Xray





Lunate vs Peri lunate dislocation

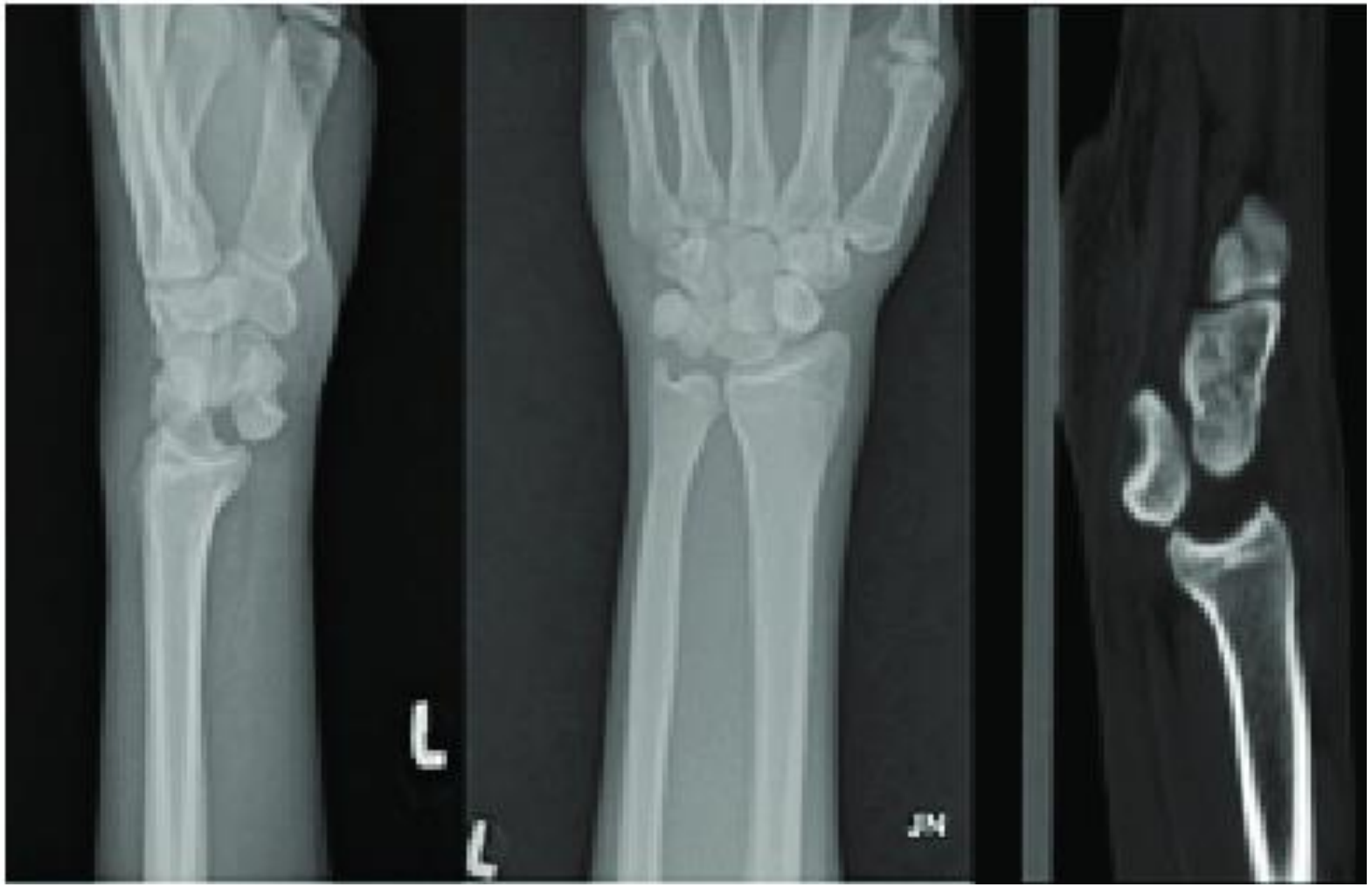




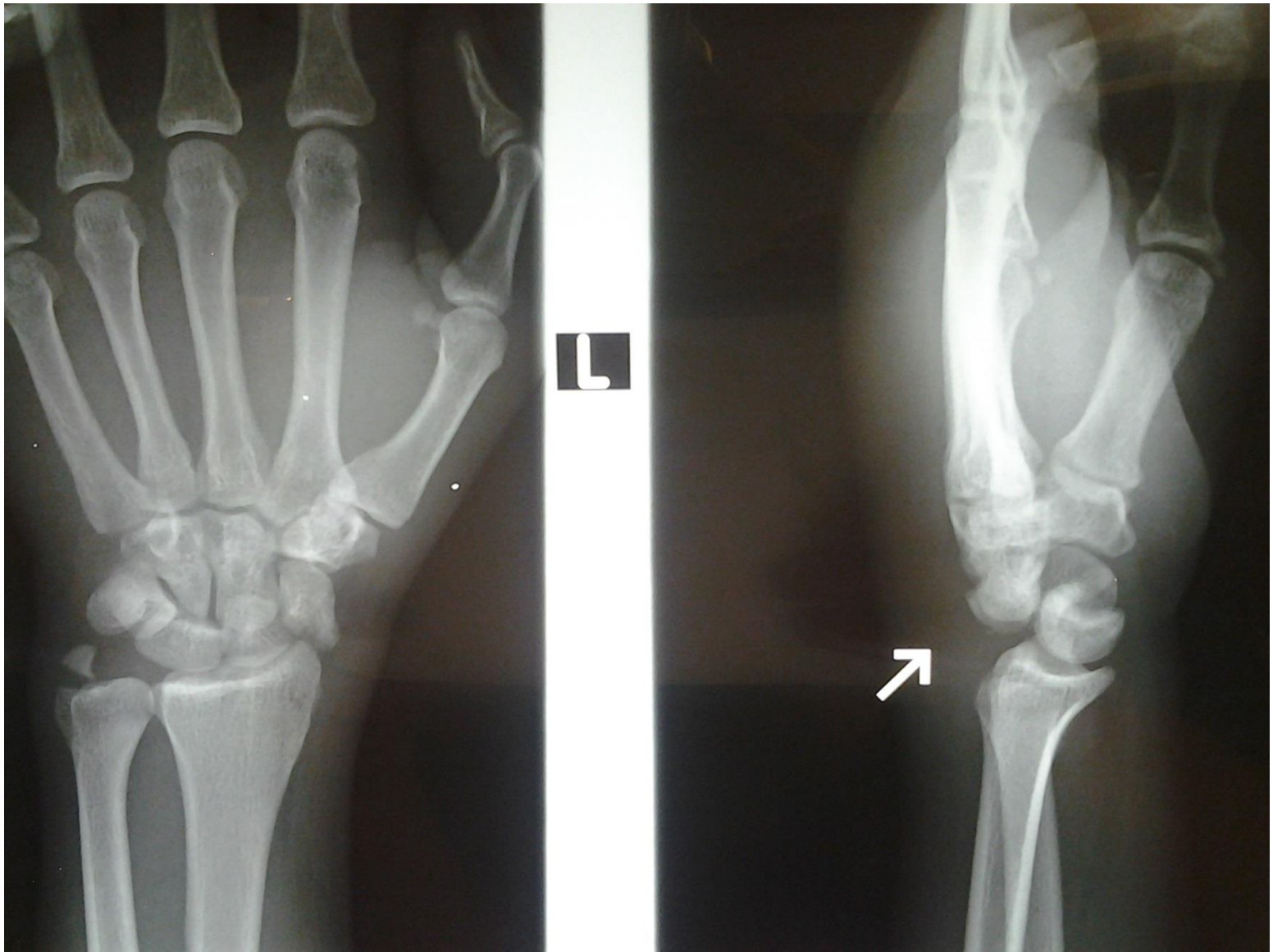
Lunate/Perilunate dislocation

- 25% are missed
- MOI:
  - traumatic/high energy
  - Wrist ext and ulnar dev
- Rx: closed reduction, rpt Xray (likely CT too), ortho rv

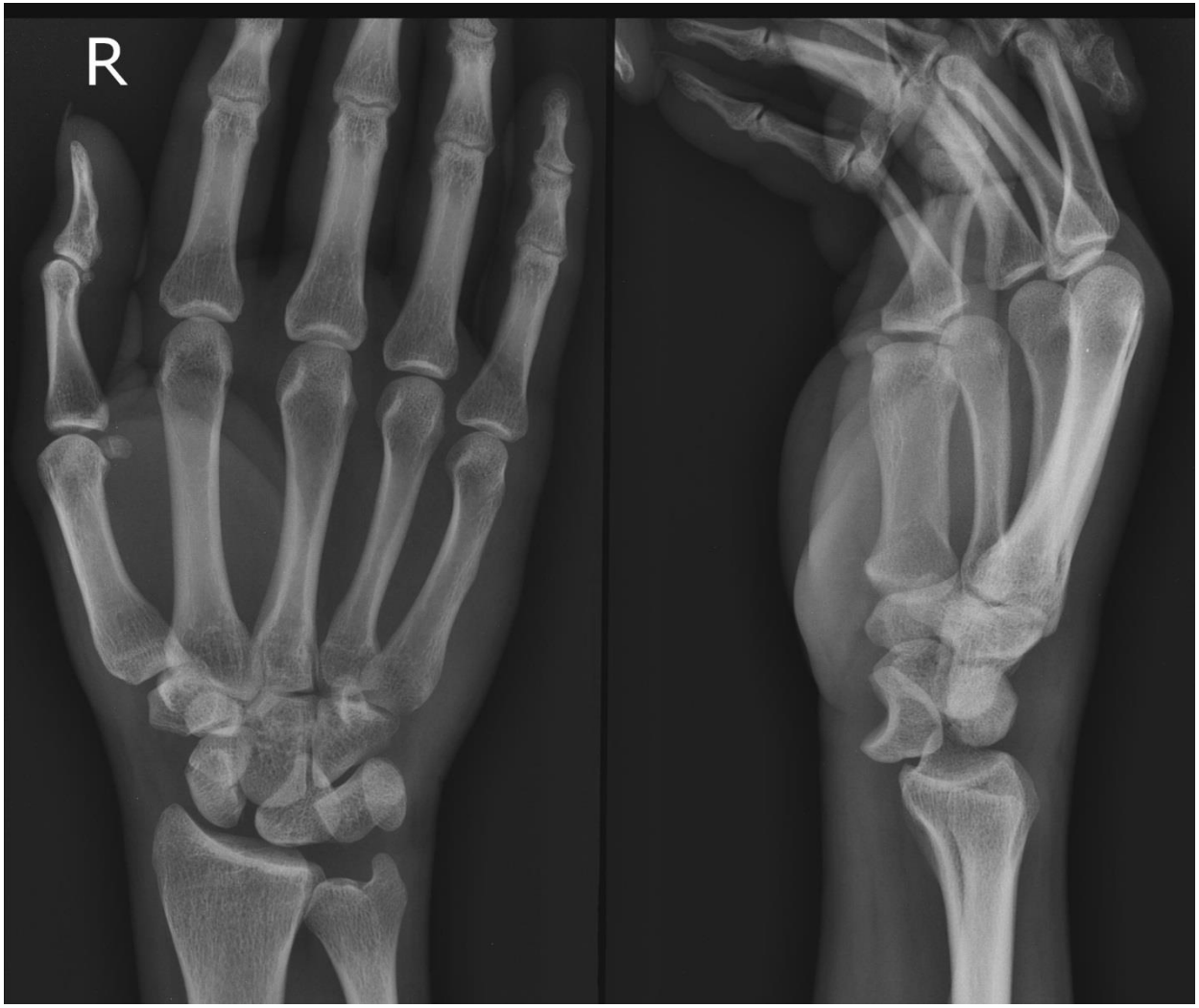
Lunate or peri



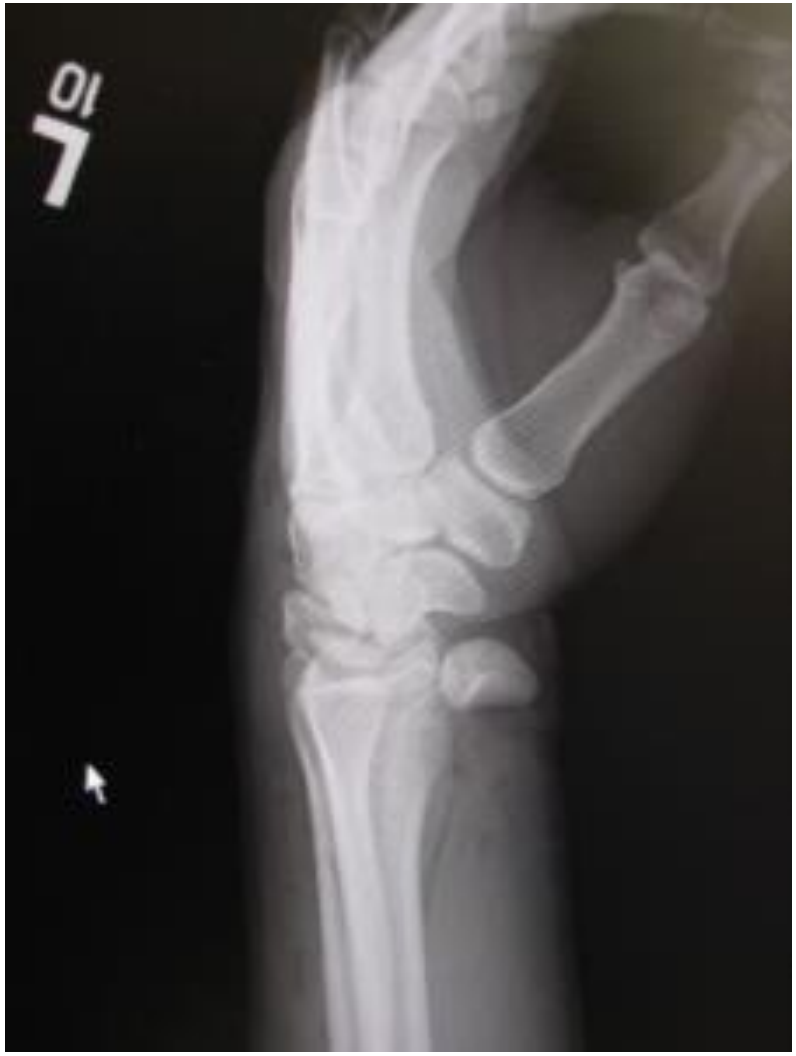
Lunate or peri



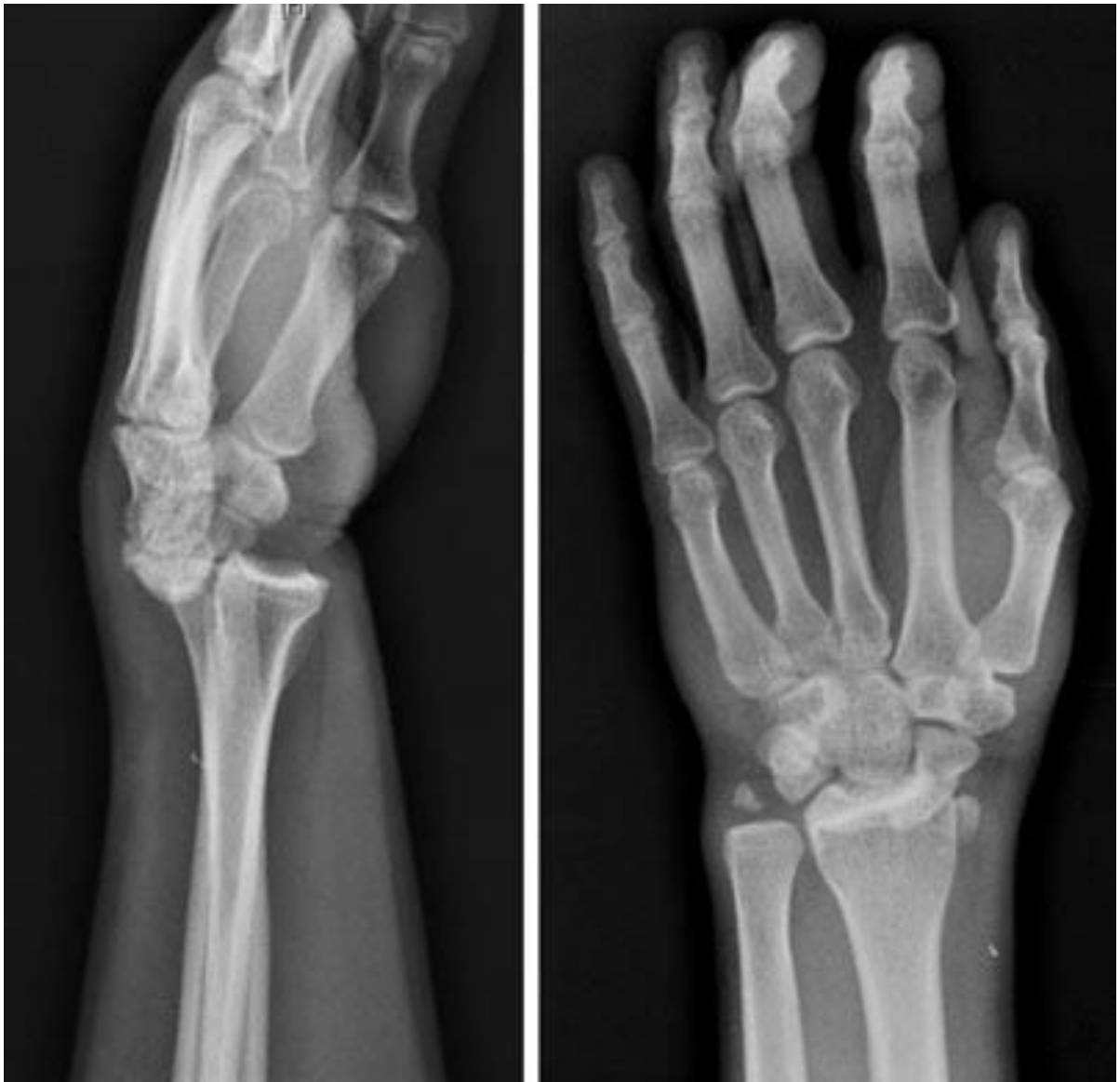
Lunate or peri



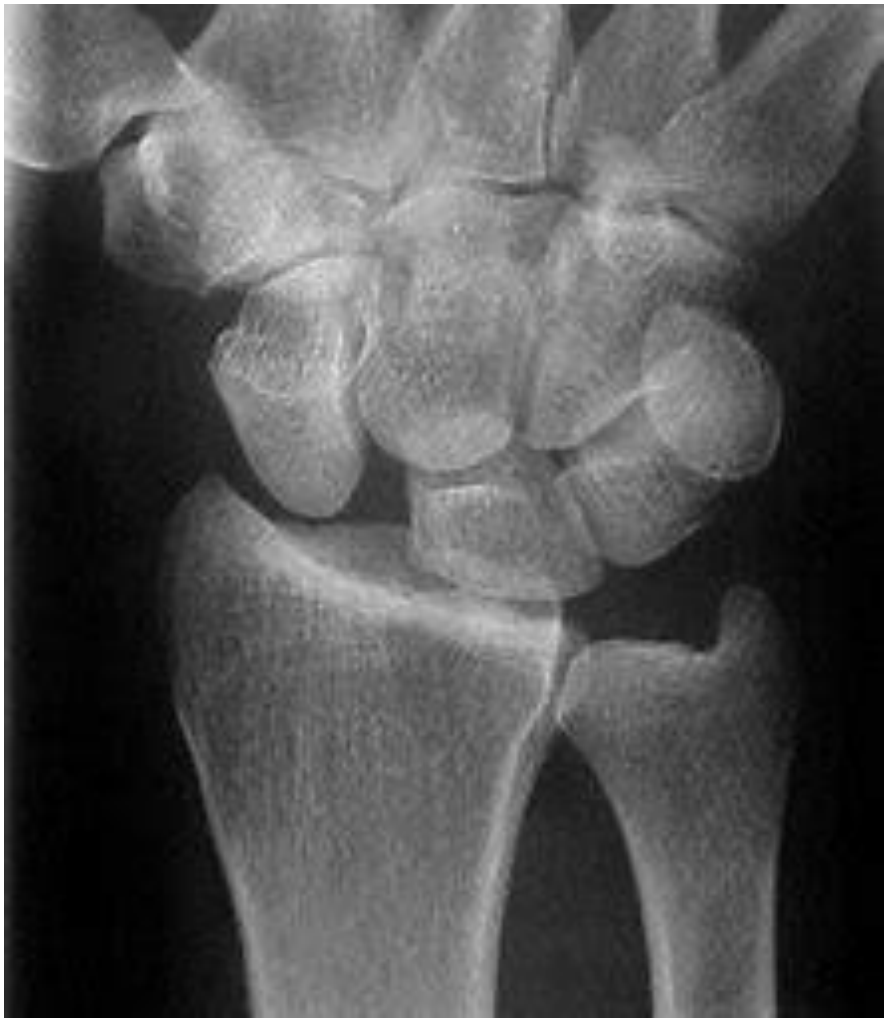
Lunate or peri



What’s going on here

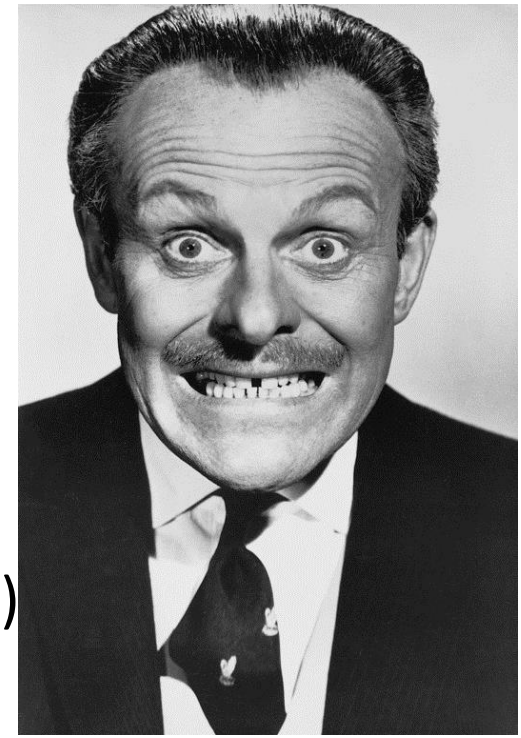


Any Takers?

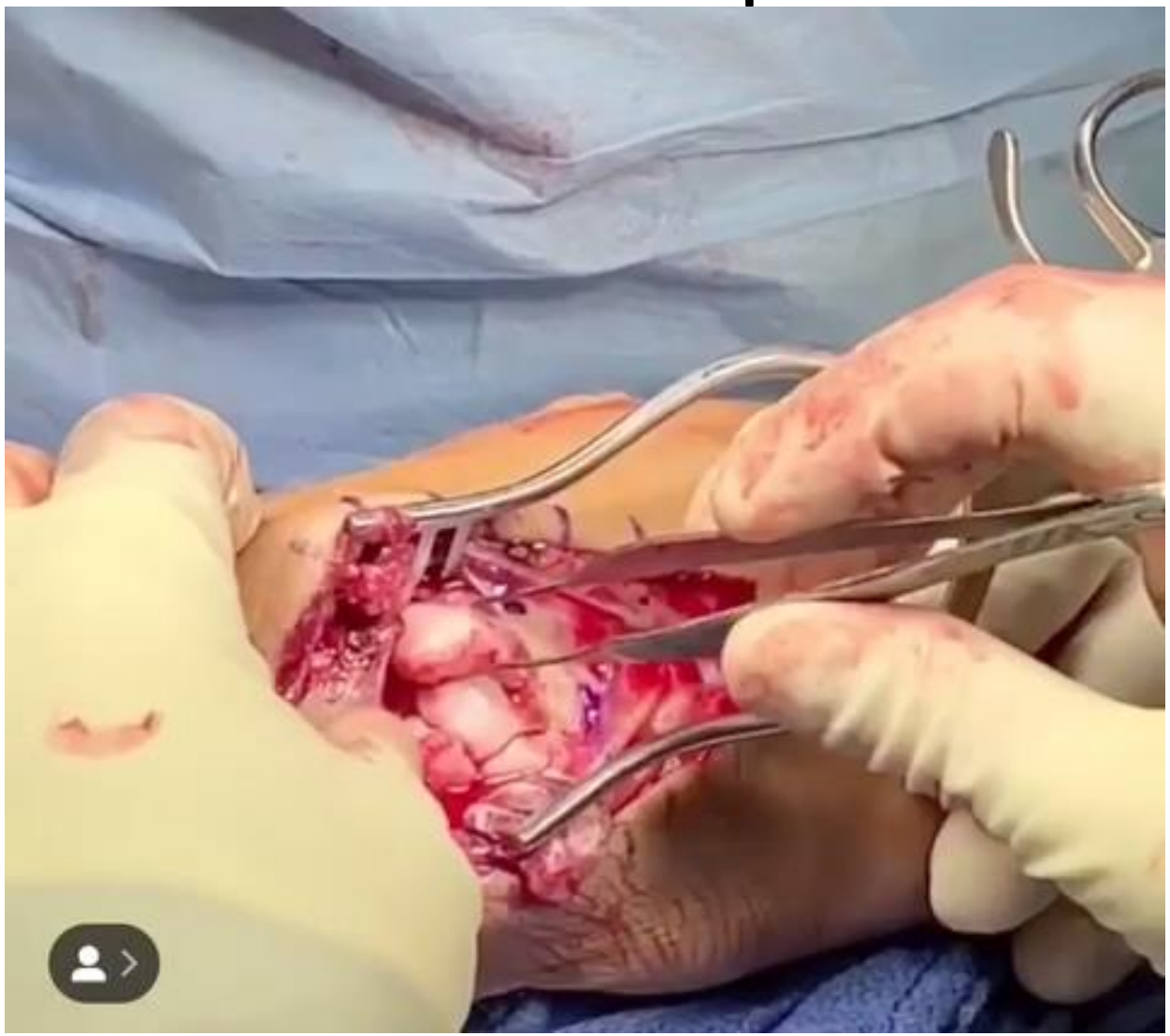


Scapholunate ligament rupture

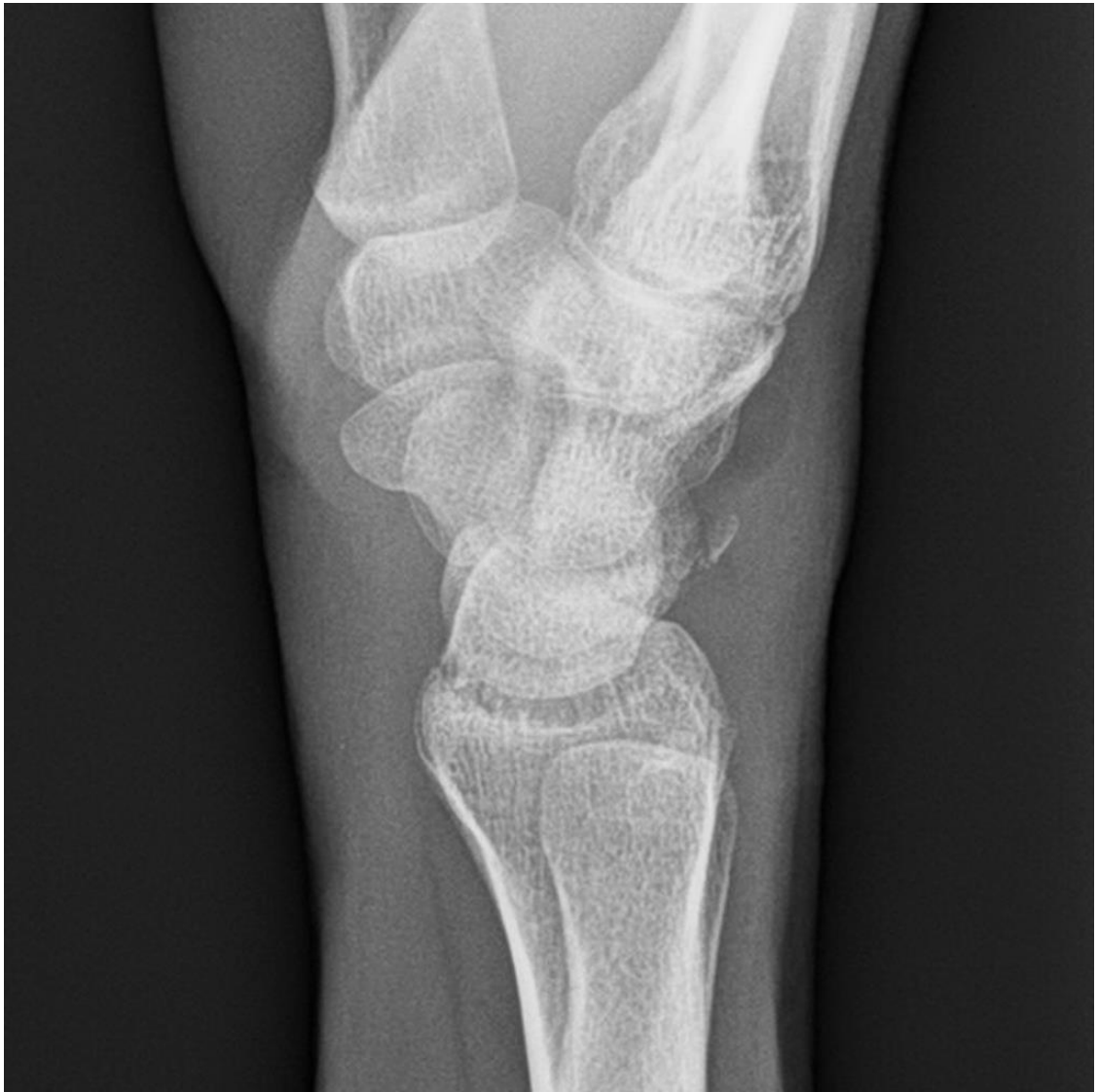
- Occurs in 10-30% of DR or carpal #s
- Can occur in islolation
- Sx: pain in loaded wrist ext
- Name of sign?
- Terry Thomas
- Name of clinical test?
- Watson test (UD to RD, pressure volar scaphoid)
- Xray: AP/Lateral/Clenched fist >3mm is +ve



Example of subluxation of Scaphoid with SLL rupture



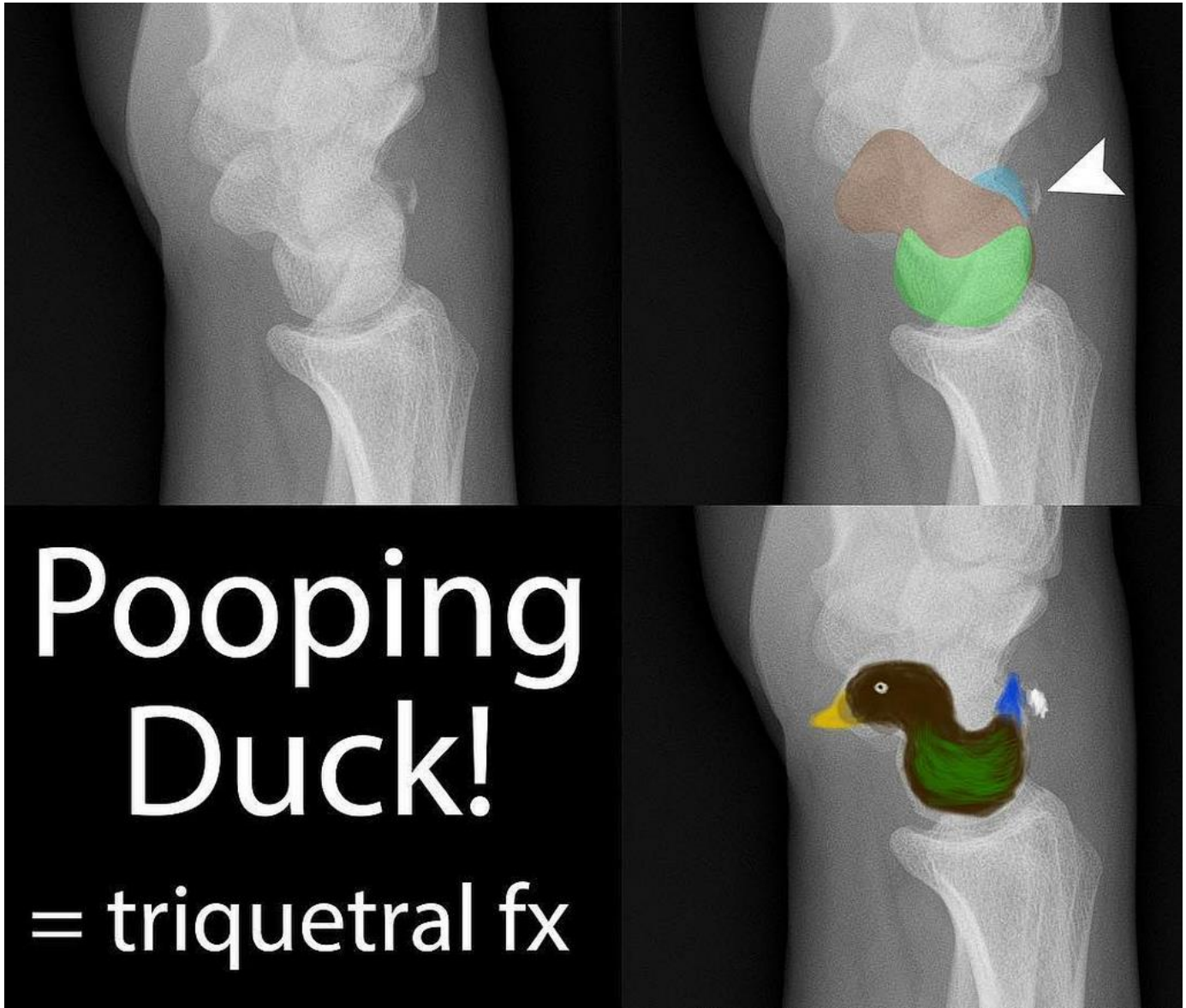
Tender ulnodorsal, Dx?

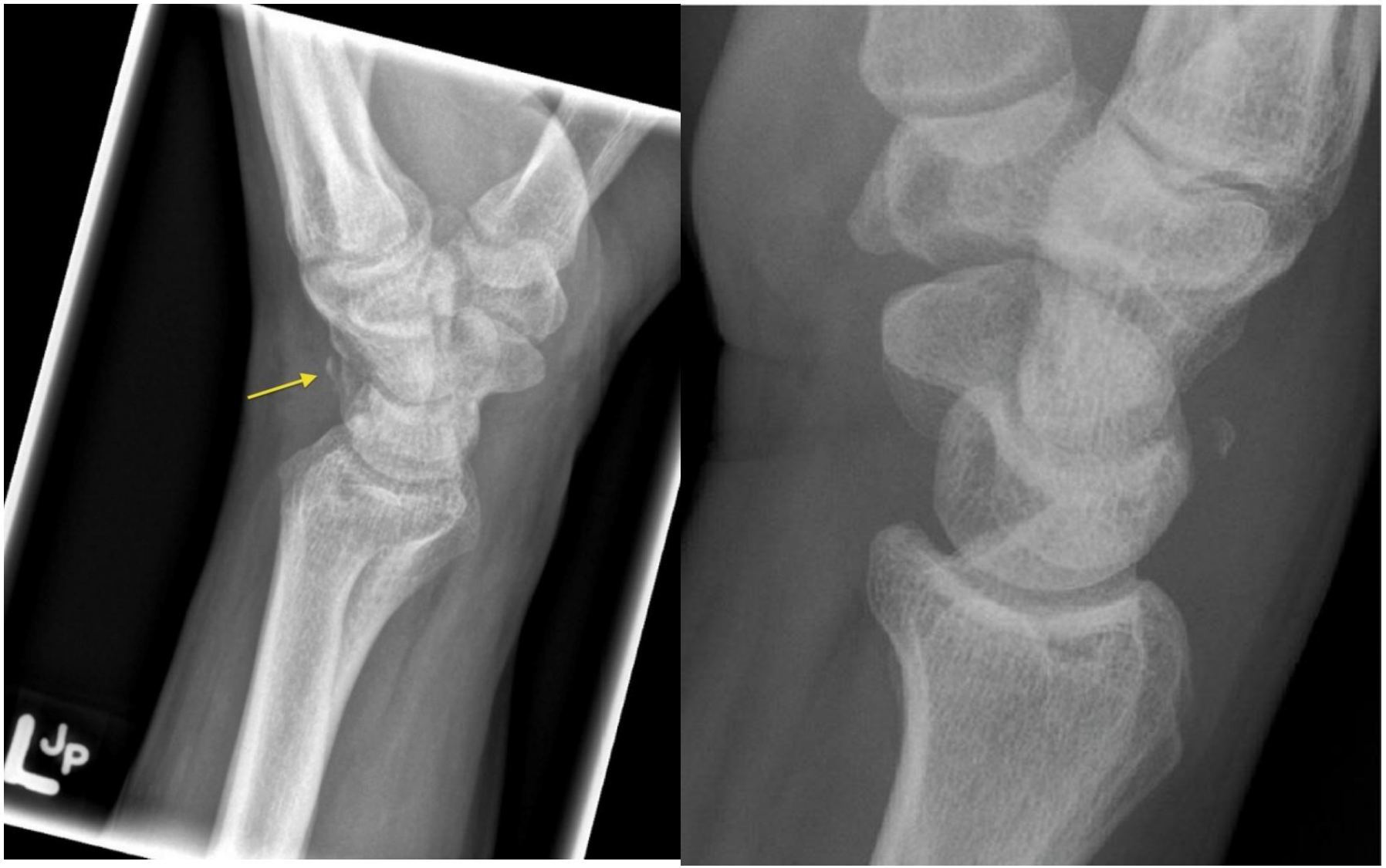


Triquetral

- 2nd most common carpal bone #
- 15% of carpal #s
- Perilunate dislocation associated with 12-25% of triquetral #s
- Dx: Xray (usually lateral veiw), CT
- Mx: s/a slab, hands referral

Triquetral

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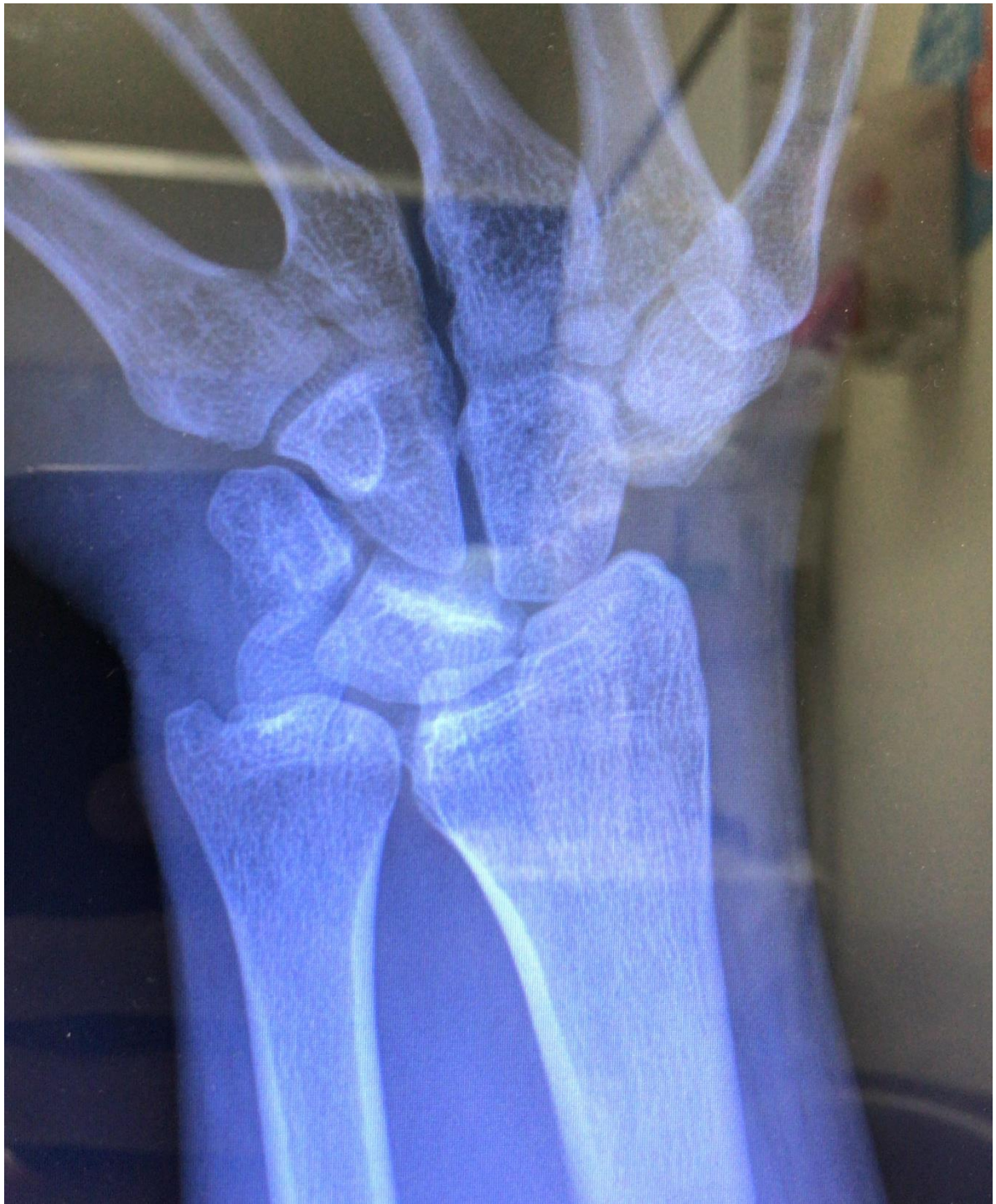
Scaphoid

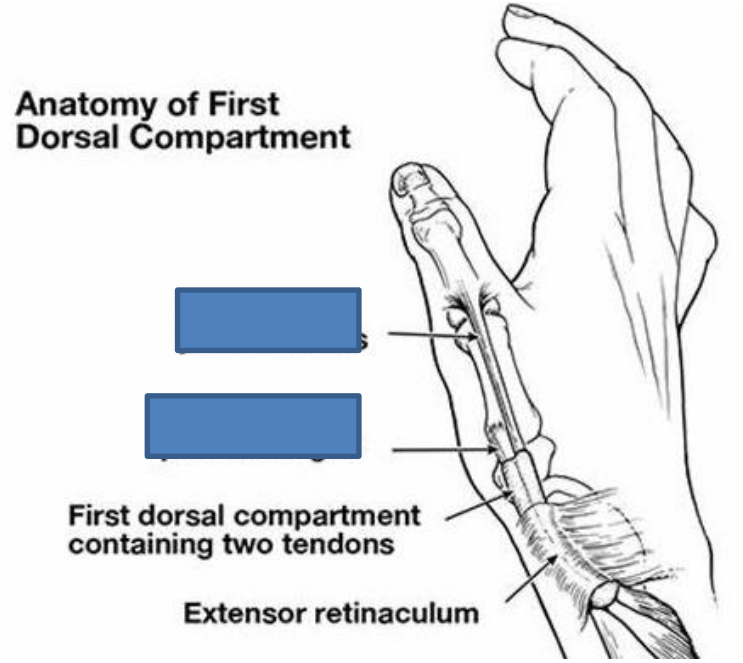
- Most common of carpal bone fractures
- Incidence: Frequently young men, high energy
- Mechanism: FOOSH
- May NOT be evident initially on XR
  - If high suspicion, immobilise and repeat weekly until # becomes visible
  - In ED → CT scaphoid
- Tenderness in anatomical snuffbox
- Tender axial load
- Oedema radial dorsal aspect of wrist
- Decreased grip strength
- Pain with wrist extension



- Interesting case
- 29 yr old male MBA
- Tender snuff box
- No scaphoid…
- Hypoplastic scaphoid (radial ray anomoly)

DeQuervein's

- Tenosynovitis
- MOI:
  - common in new mothers
  - RSI to thumb ext/wrist ulnar/radial deviation
- Pathophysiology: compression/inflammation of which two tendons?
- Rx: ED→SPICA, can have steroid +/- surgery

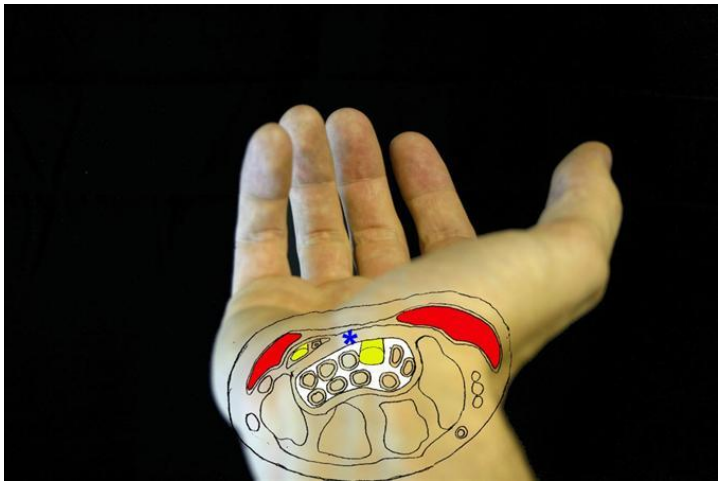


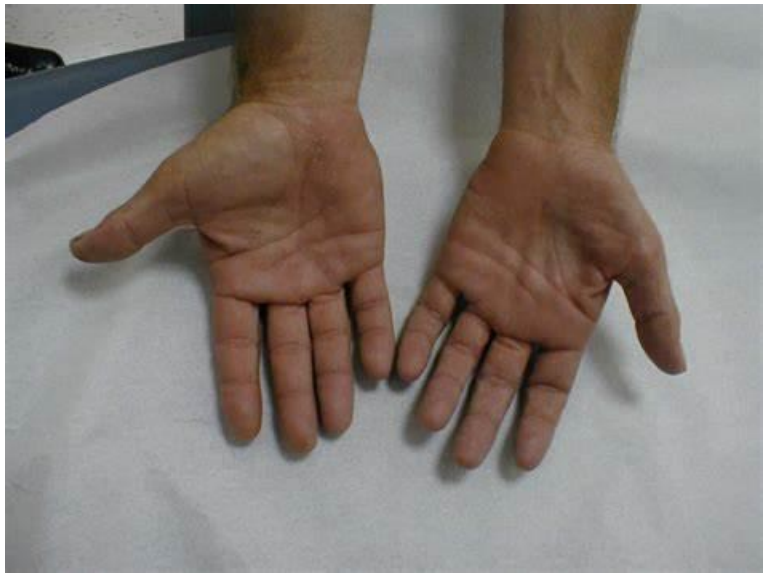
Carpal Tunnel Syndrome

Risk Factors:

- female
- obesity
- pregnancy
- hypothyroidism
- rheumatoid arthritis
- advanced age
- chronic renal failure
- smoking
- alcoholism
- repetitive motion activities
- mucopolysaccharidosis
- Mucolipidosis

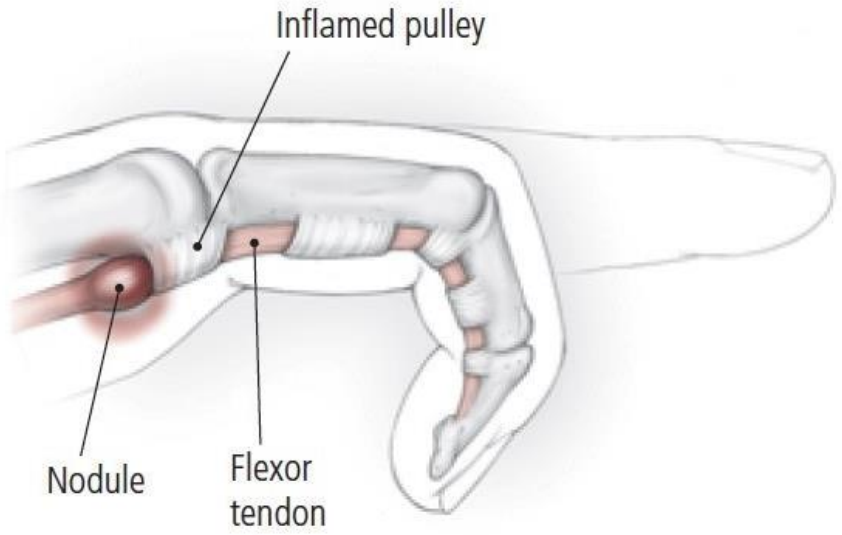
- Ax: Atrophy, medial N Sx, night pain,
- Carpal tunnel compression test: 30s
- Phallen's/reverse phallen's
- Tinel's test
- Rx in ED: Wrist splint/POP slab, analgesia and hands referral.





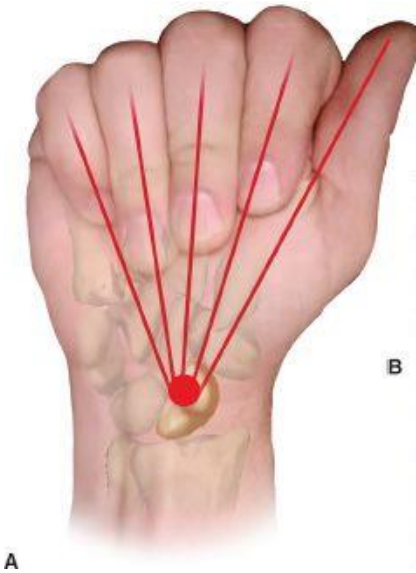
Trigger Finger

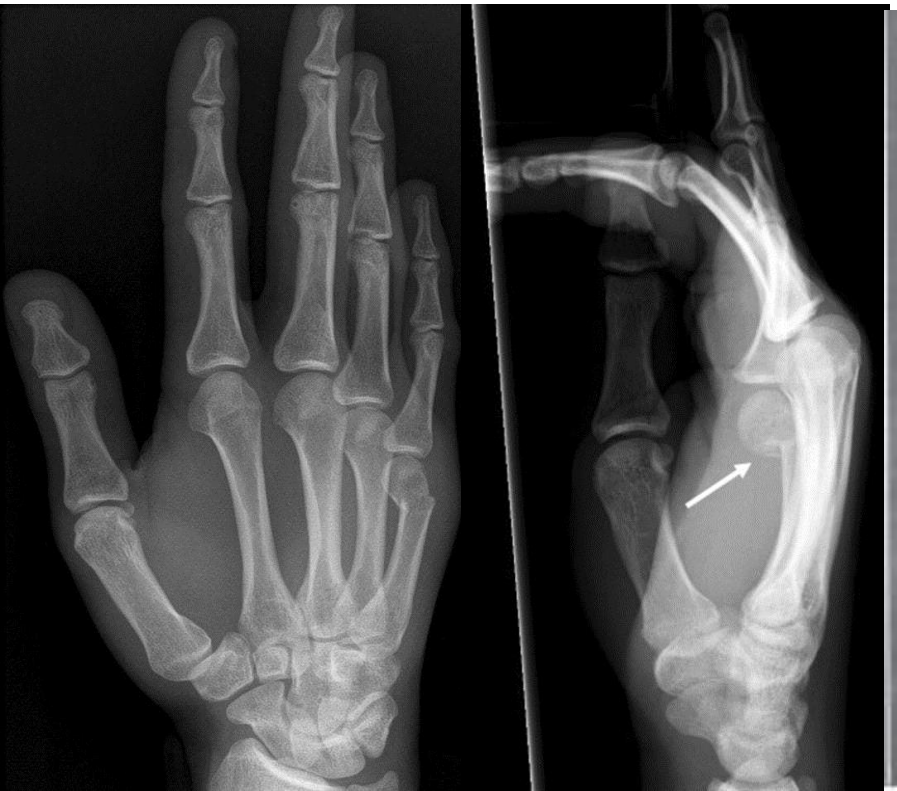
- AKA stenosing tenosynovitis
- Catching/locking, may need to self release
- Pain to palm or knuckles
- Risk factors: Women 40-60yo, diabetes, gout, RA
- Splint to avoid aggravating catching, send to specialist.

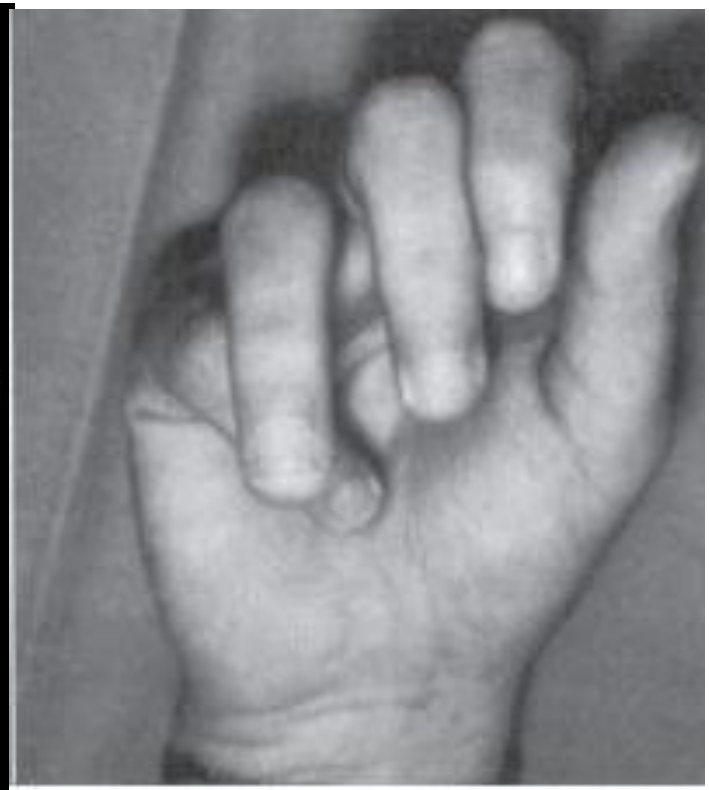


Boxers

- 10% of all hand #
- More common in men
- Closed fist injury, often vs hard surface





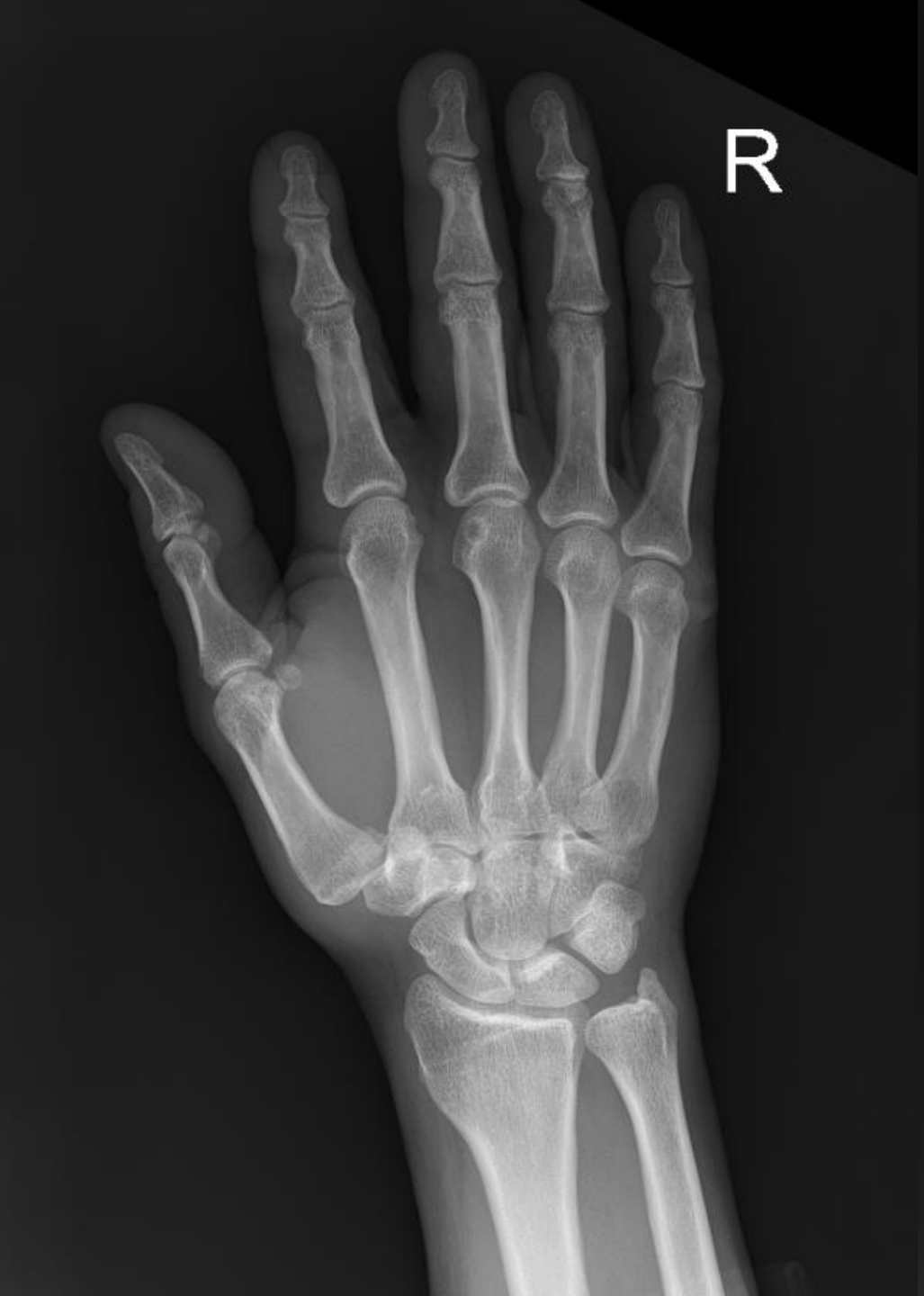
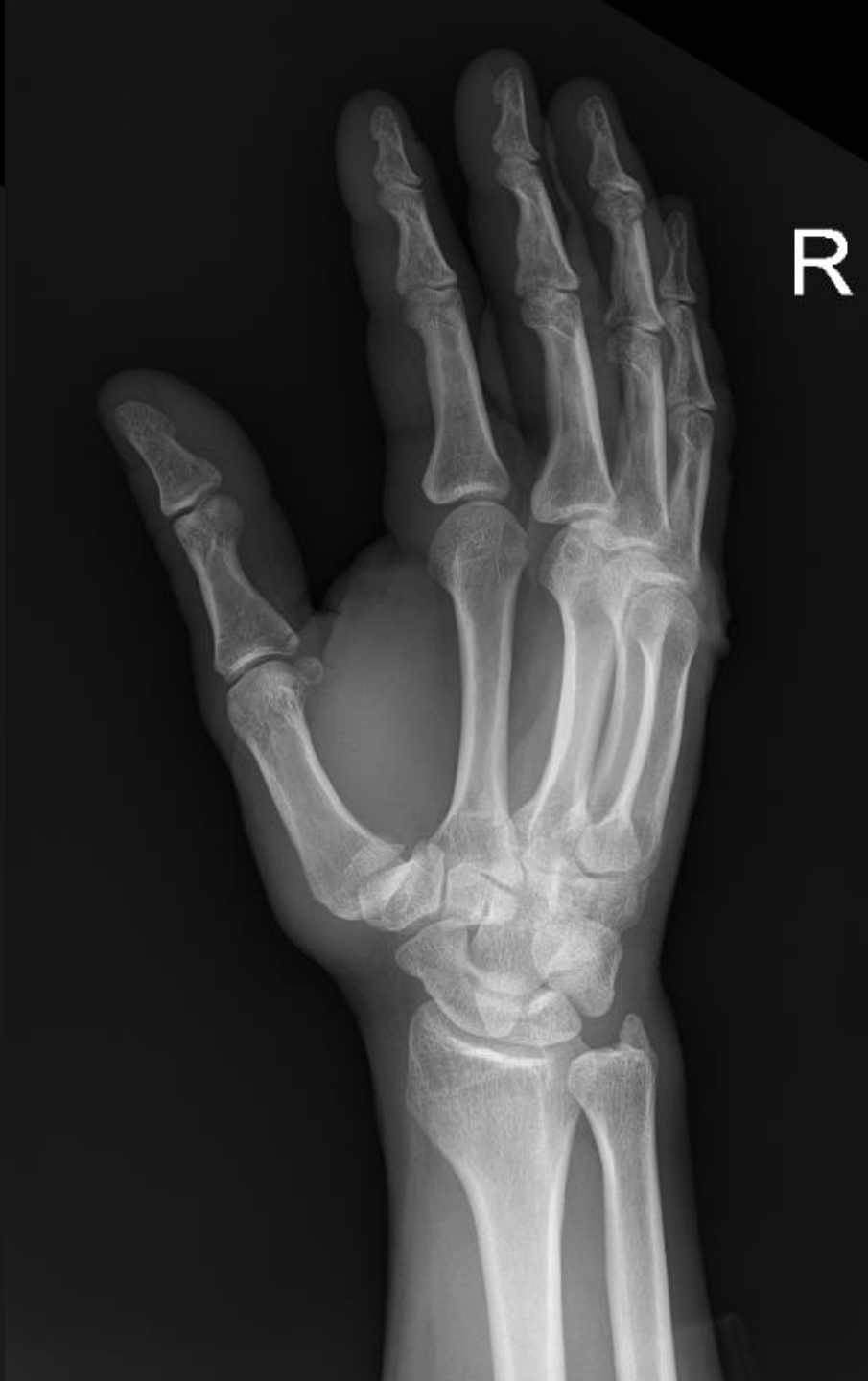


Mx:

- Ulnar gutter POSI (including 3rd finger, why?)
- +/- closed reduction
- Hands referral
- >30 volar angulation
- Malrotation present

MBA ~40 yo male

- Interesting case


R

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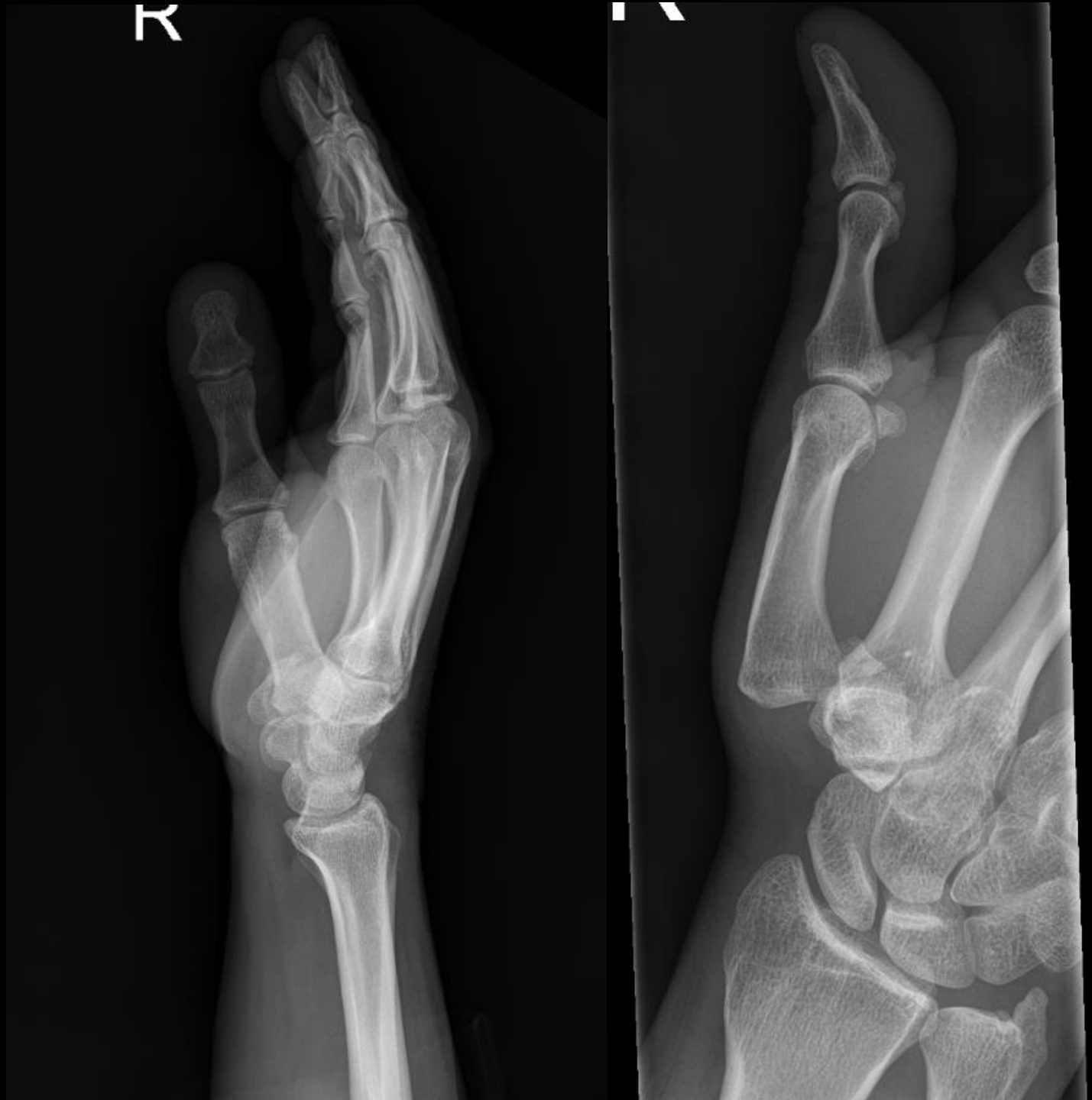
R

Referral

- Distal radius →ortho
- Carpal bone or distal → Sydney Hospital
- Referral on EDIS
  - Patient's phone number!!!!
- Major trauma with other injuries → Admit Ortho/Trauma + Plastics consult for hands

When to call Sydney Hands Reg

Stop: discuss with Hand team

Emergency referrals requiring discussion with or review by the Hand Reg. on call, e.g.:

- De-gloving injuries
- Infections
- Amputations
- Crush injuries
- High pressure injection injures
- Nerve or tendon injury even if closed
- Foreign bodies associated with infection
- Compartment syndrome (or suspected)
- Open Fractures
- Clenched fist injuries
- Lacerations (including bites)

- All emergency/urgent referrals are to be discussed and confirmed with the Hand Registrar/Fellow on call through the Sydney Hospital switchboard on 02 9382 7111.
- Following discussion with the Hand Registrar, the referrer is to book a Hand Clinic appointment (by phoning the Hand Clinic on 93827201 in business hours or the Emergency Department clerks via switch afterhours. (SSEH ED referrers can liaise directly with the ED Clerks at all times).
- The appointment details are to be documented on the eMR order or paper-based referral form

Stop: Proceed with caution

Urgent referrals NOT requiring discussion with the Hand Reg. on call (requiring an appointment within 7 days), e.g.:

- Closed Fractures
- Recent foreign body
- Referrals to be made through the **electronic medical record** system (**eMR**) via consults 'Hand *Clinic Referrals SSEH'*.
- The Hand Clinic will contact the patient with an appropriate appointment.

Go: Refer via eMR

Routine referrals – (non-urgent), e.g.:

- Fractures greater than 6 weeks
- Complex and/or second opinions of:
  - Carpal Tunnel syndrome
  - Dupuytren's contracture
  - Ganglion
  - Trigger Finger
  - Osteoarthritis (hand/wrist)
- All referrals are reviewed daily by the Hand surgical team and allocated a waitlist appointment scheduling time frame of:
  - Within 30 days
  - Within 90 days
  - Within 365 days
- Once an appointment is scheduled, the patient is sent information outlining their appointment details via the postal system from the Hand Clinic

Unsure

When the urgency of the patient's condition is unclear, the Hand Registrar on-call at Sydney Hospital can be contacted

Splinting

- Aluminium zimmer (foam to skin…)
- Thermoplastic

Questions?