Moving up the arm: Common wrist and elbow conditions

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Disclosures

- We have no disclosures that are pertinent to this presentation

Objectives

At the end of this session, learners will be able to

- Identify and initiate care for common traumatic wrist conditions including distal radius fracture, scaphoid fracture, perilunate dislocations
- Identify and initiate care for common nontraumatic wrist conditions including thumb CMC arthritis, Dequervains tenosynovitis and wrist arthritis

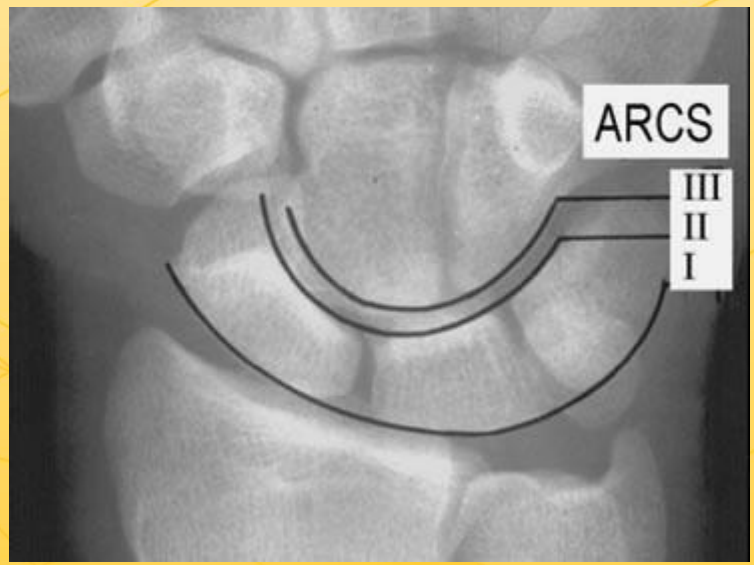
I think I sprained my wrist . . .

- Patient age
- Injury mechanism (low energy or high energy)
- Presence of ecchymosis or swelling

- If there has been trauma, always get xrays
  - AP, lateral, +/- oblique, +/- scaphoid view

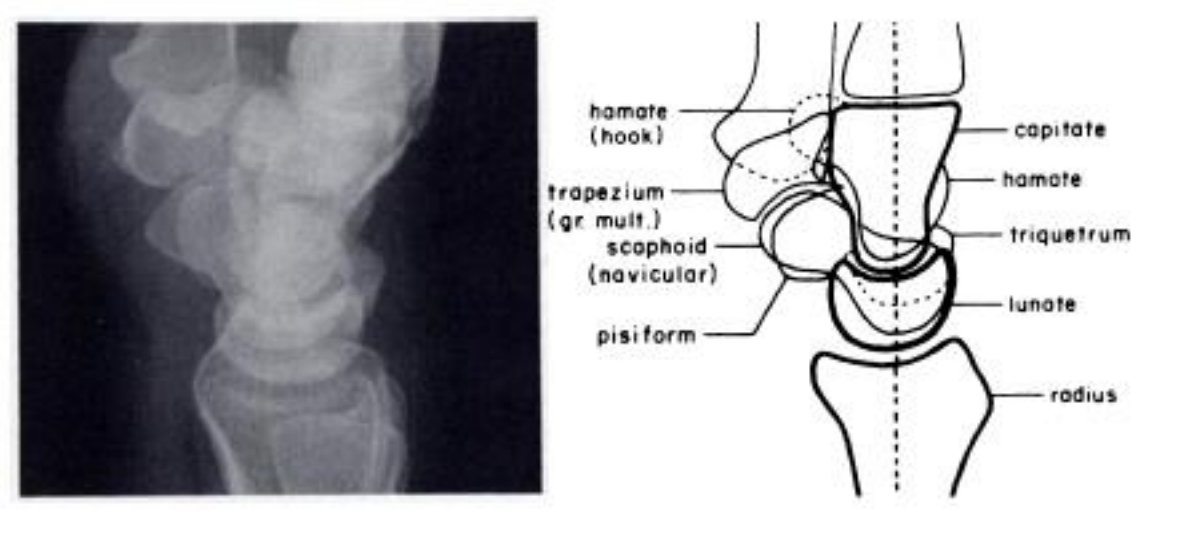
Radiographs

- Gilula's Arcs
  - Seen on AP wrist
  - Broken arc indicates disruption of joint
  - Overlap of two normally parallel articular surfaces suggests subluxation



Radiographs

- Proximal pole of scaphoid, lunate, and triquetrum overlap
- No clear space between pisiform and carpus



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Differential diagnosis

- Distal radius fracture
- Scaphoid fracture
- Triquetral fracture

- Perilunate dislocation

- Scapholunate ligament injury
- TFCC injury. . .

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Distal Radius Fracture

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Epidemiology

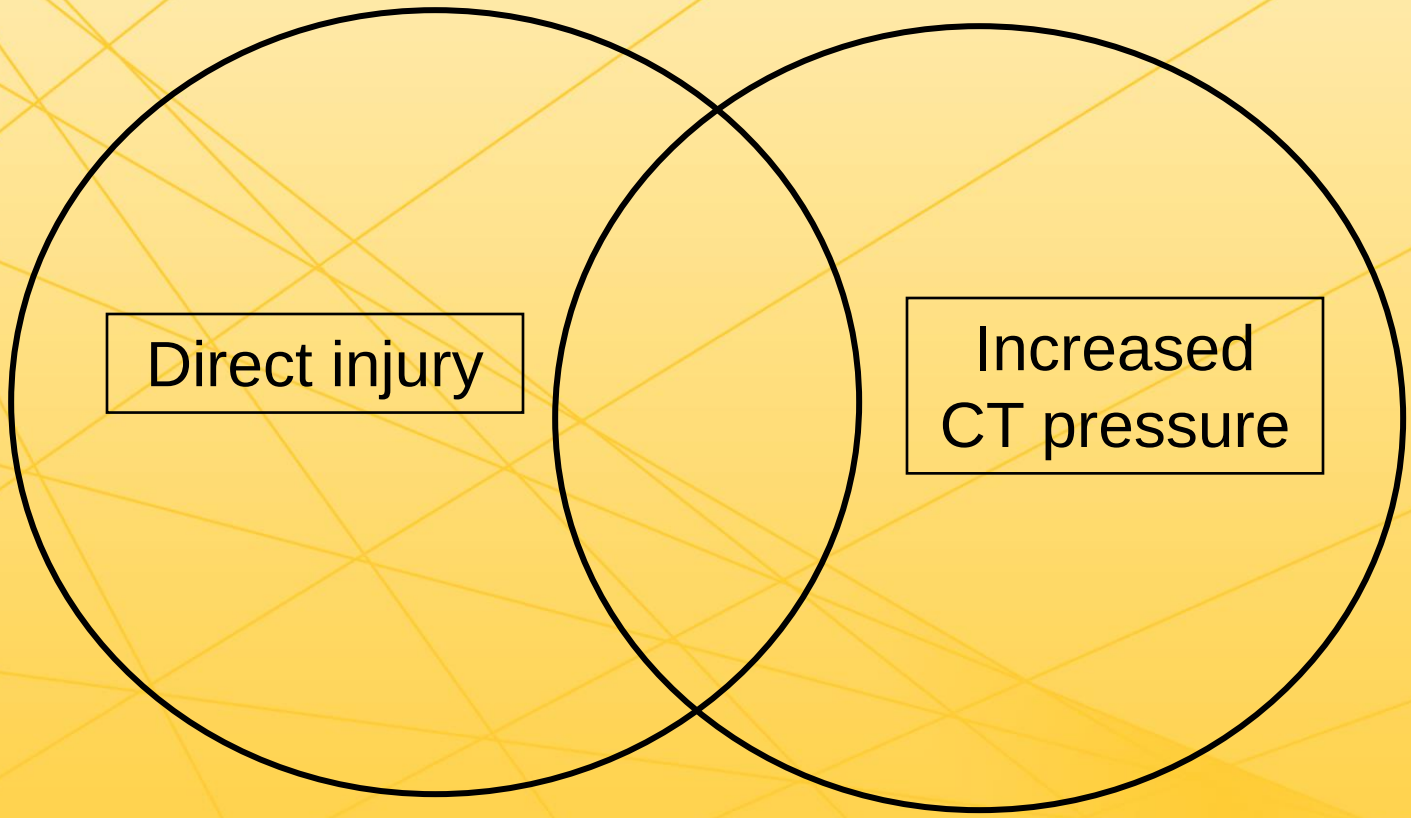
- Wide spectrum of injury
- Most common mechanism is a FOOSH
- Older patients- low energy
- Younger patients- high energy

Physical Exam

- Open vs. closed
  - Skin tears are common in elderly
  - Open fracture skin breach is often on the ulnar side

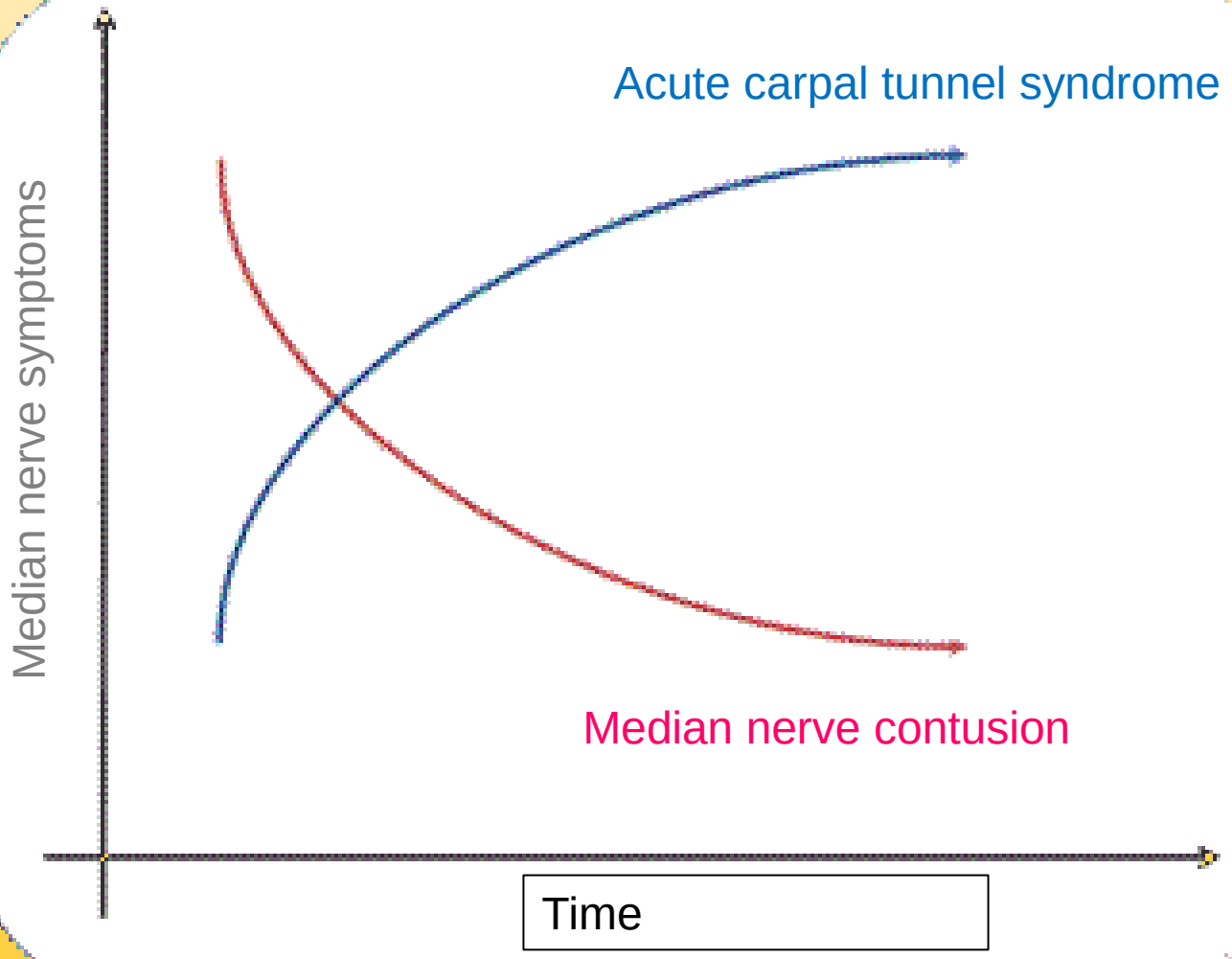
- Document clear neurovascular exam before initiating any treatment
  - Median nerve contusion is common; acute carpal tunnel syndrome is not. But missing an acute carpal tunnel syndrome has severe consequences.

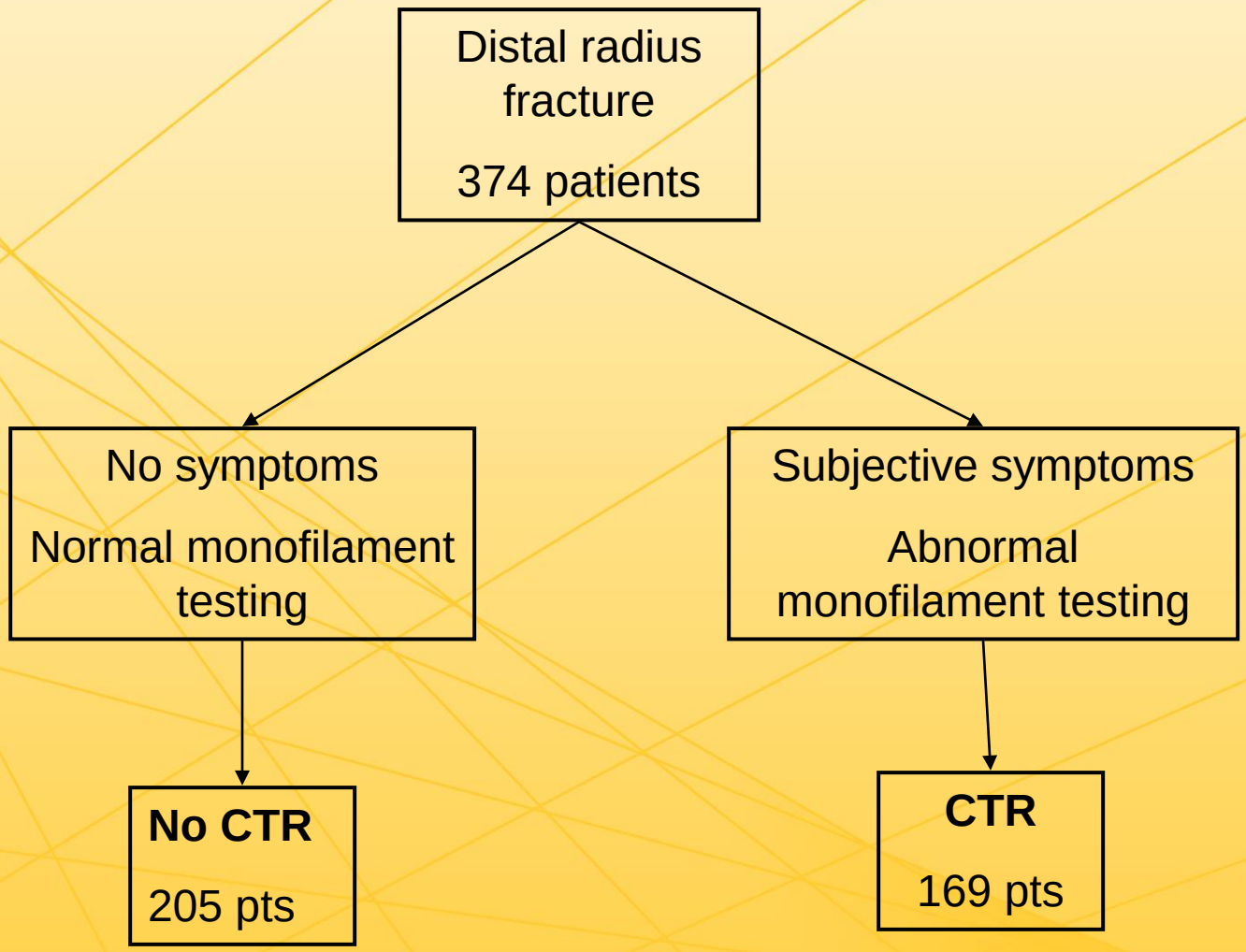
Median Nerve Dysfunction



"We are unable to recommend for or against performing nerve decompression when nerve dysfunction persists after reduction."

-AAOS Clinical Practice Guideline


Acute carpal tunnel syndrome
Median nerve symptoms
Median nerve contusion
Time



No patients with CTS or CRPS during follow-up

- Henry and Stutz, Hand Surgery 2007

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Reduction

- Hematoma block
- Hang in finger traps with 5-10 lbs of weight
- Flexion while pushing distal fragment in distal and volar direction
- Beware elderly patient skin!

Youtube: Zwank distal radius

YouTube

zwank distal radius

Distal Radius Reduction

38,755 views • Jun 24, 2017

223 13 SHARE SAVE

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Sugar tong splint

Avoid placing any splint material distal to distal palmar crease

Avoi
po

Youtube: search “Zwank distal radius”

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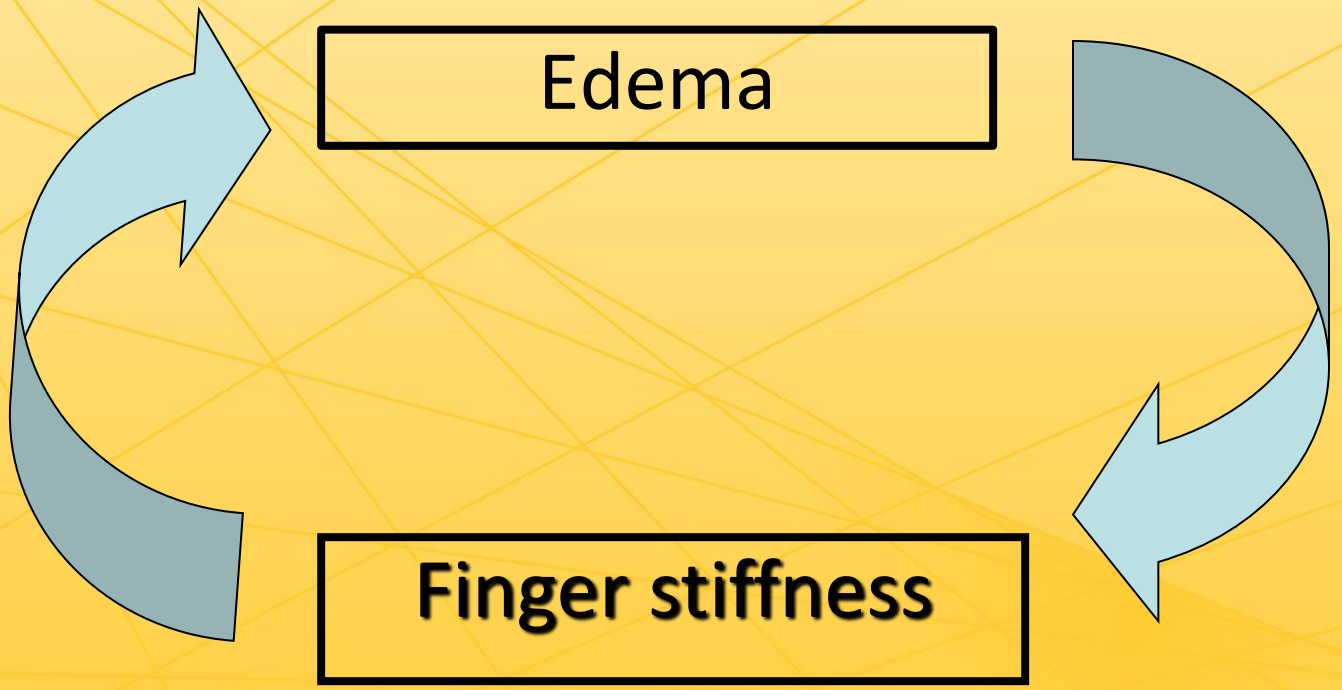
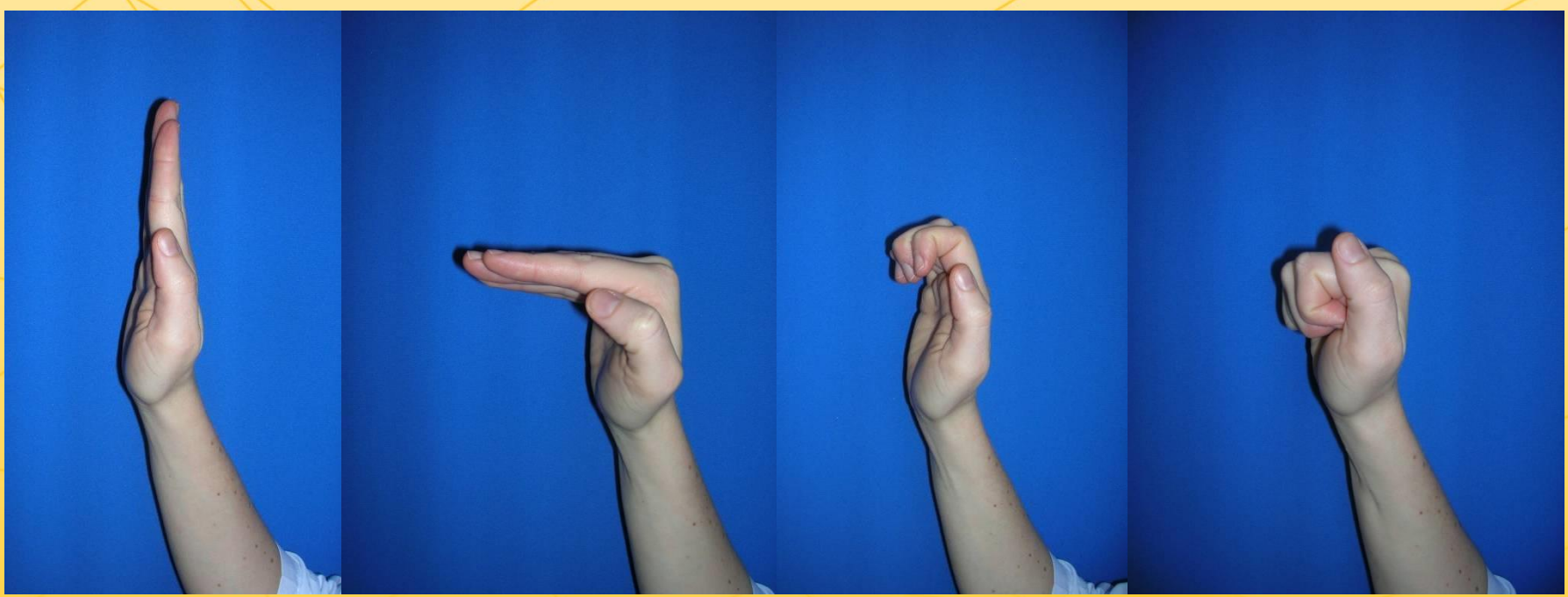
Initiating digital motion



Simple finger motion exercises



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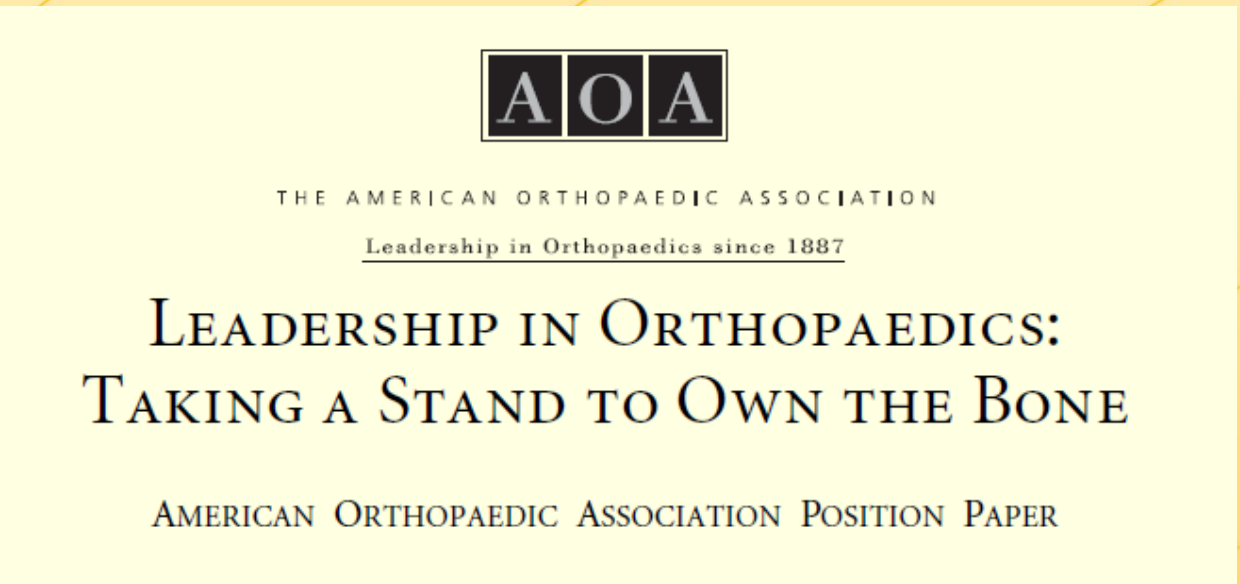
Osteoporosis Evaluation



In 2004 State of Health Care Quality study
only 11.6% of women over 65 who had a fragility fracture
were treated for osteoporosis in the year following the fracture

In 2012, 14.3% of Medicare patients received osteoporosis treatment
within 6 months of a fragility fracture

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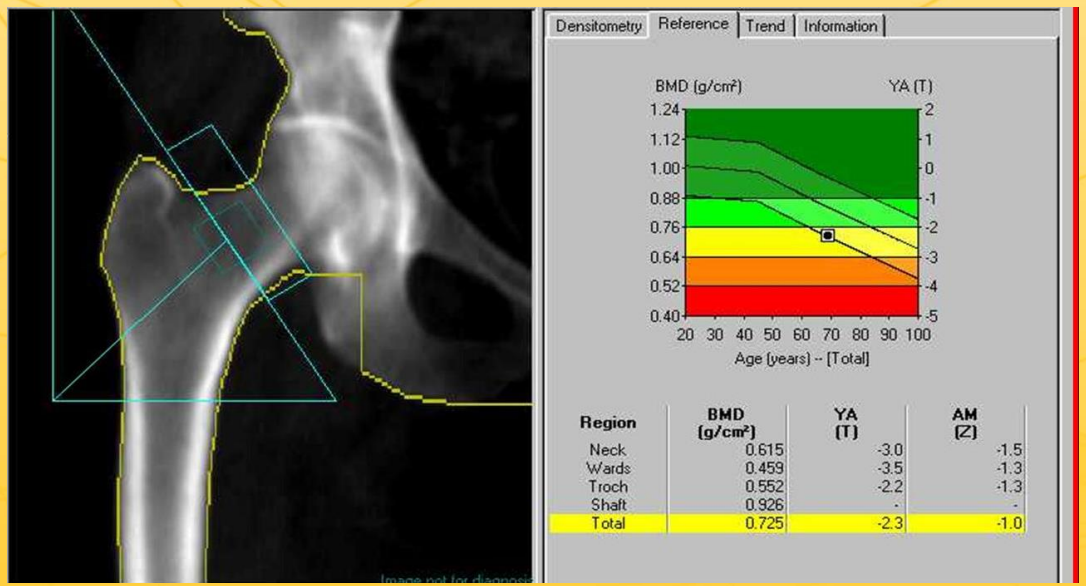
Osteoporosis Evaluation

Who should be screened for osteoporosis?

1. Age over 50
2. Low energy fracture mechanism



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Scaphoid Fracture

- Typically <50 yo
- On exam-
  - Snuffbox tenderness
  - Edema in the snuffbox
  - Pain with thumb axial loading
- Xrays with scaphoid view

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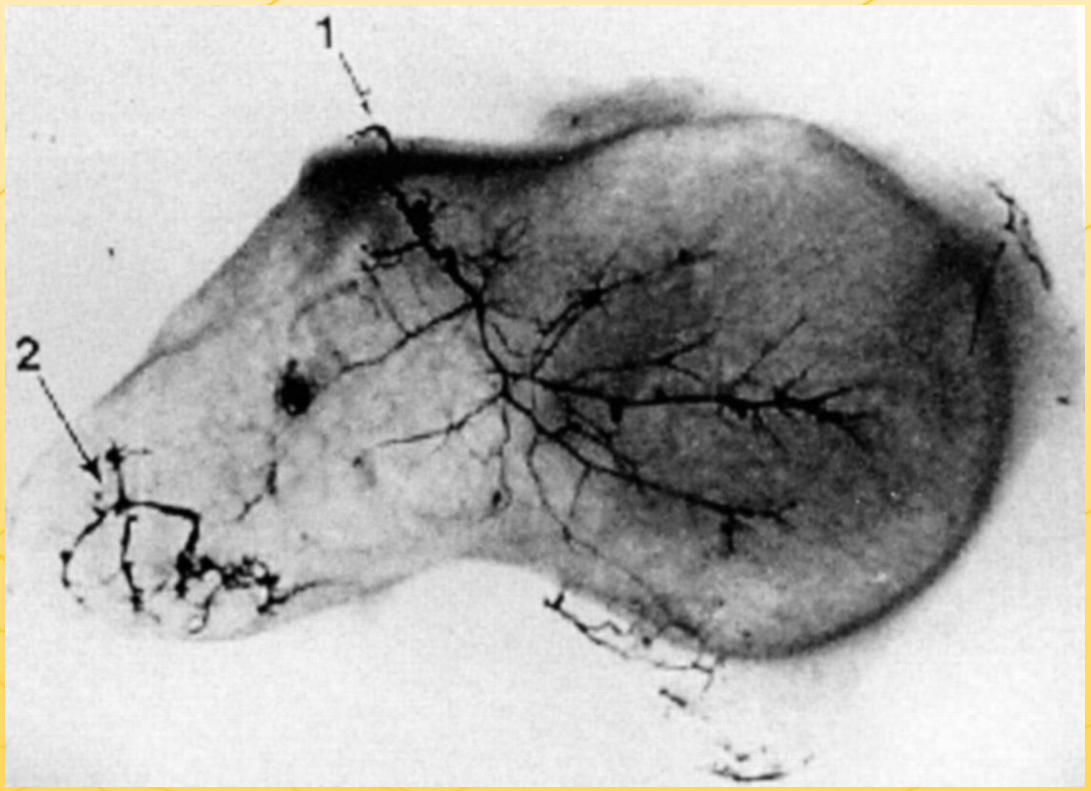
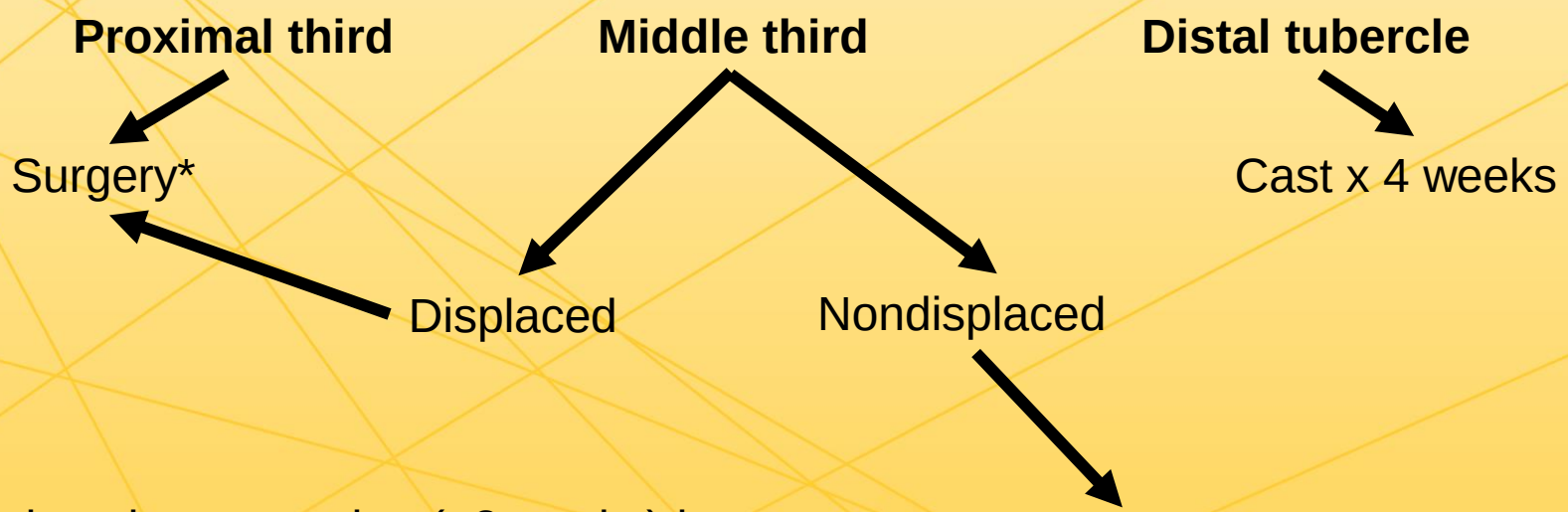
Classification

- Proximal
- Waist
- Distal

- Displaced
- Nondisplaced



Where is the fracture?



*Delayed presentation (>3 weeks) is another potential indication for surgery

CONTROVERSY

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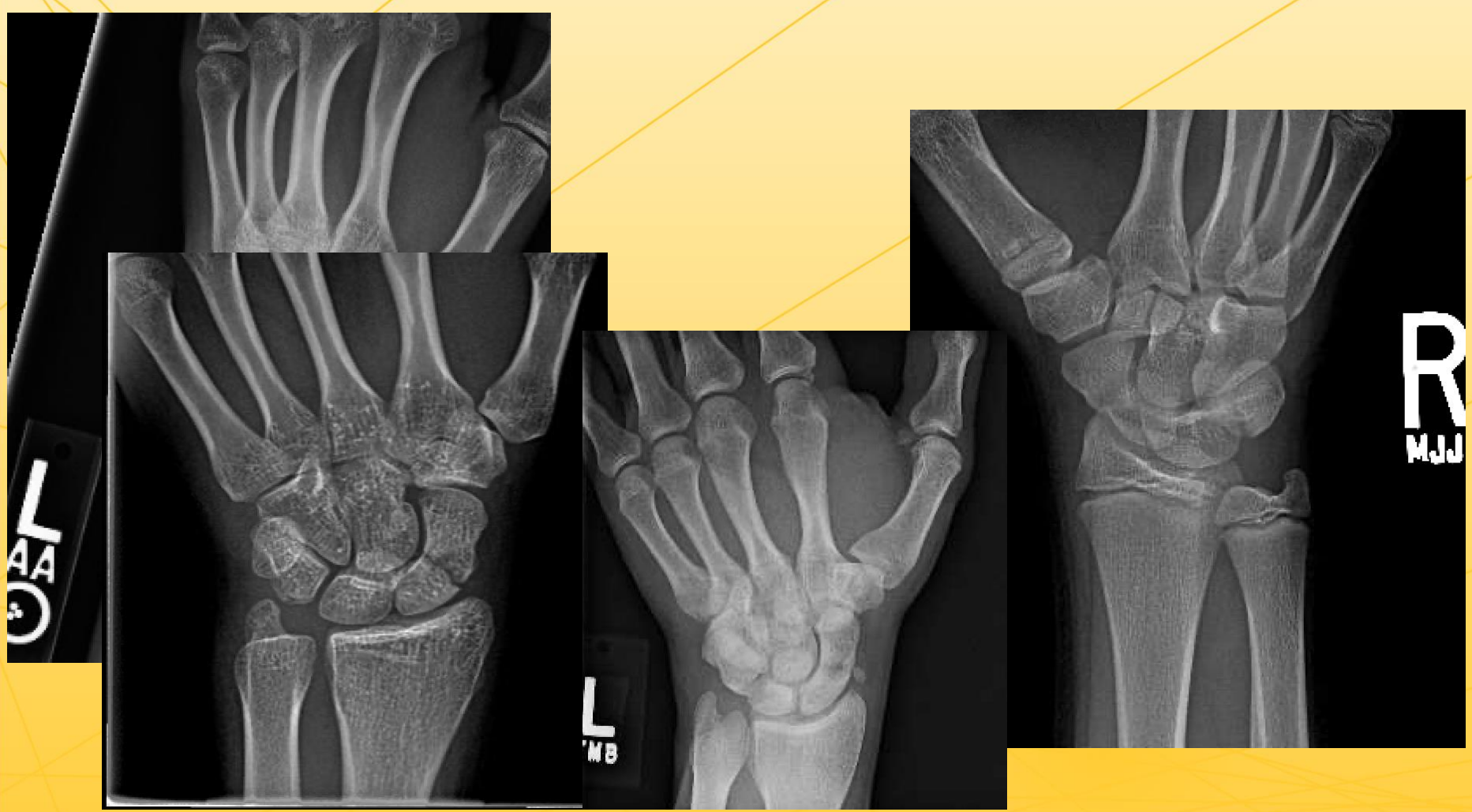
A few words about displacement…

NONDISPLACED

- </=1 mm displacement on CT
- Only seen on MRI
- Have to squint and scrutinize to see on xray

DISPLACED

- Everything else
- …if you are not certain, let the hand surgeon decide



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20's M, fell snowboarding

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Snuffbox tenderness and negative xrays: Should you get an MRI?

- Shows occult fracture in about 40% of cases
  - 19% showed scaphoid fracture

Early MRI in the management of clinical scaphoid fracture

A BRYDIE, BSc, MRCP, FRCR and N RABY, MRCP, FRCR

Department of Radiology, Western Infirmary, Dumbarton Road, Glasgow G11 6NT

- Direct medical costs are nearly equal

Cost-Effectiveness of Immediate MR Imaging Versus Traditional Follow-Up for Revealing Radiographically Occult Scaphoid Fractures

Theodore A. Dorsay[1]
Nancy M. Major
Clyde A. Helms

OBJECTIVE. For suspected scaphoid fractures with no radiographic evidence of fracture, treating symptoms with immobilization and radiographic follow-up has long been the standard of care. Modified MR imaging of the wrist is offered at our institution in screening for radiographically occult scaphoid fractures at the time of initial presentation to the emergency

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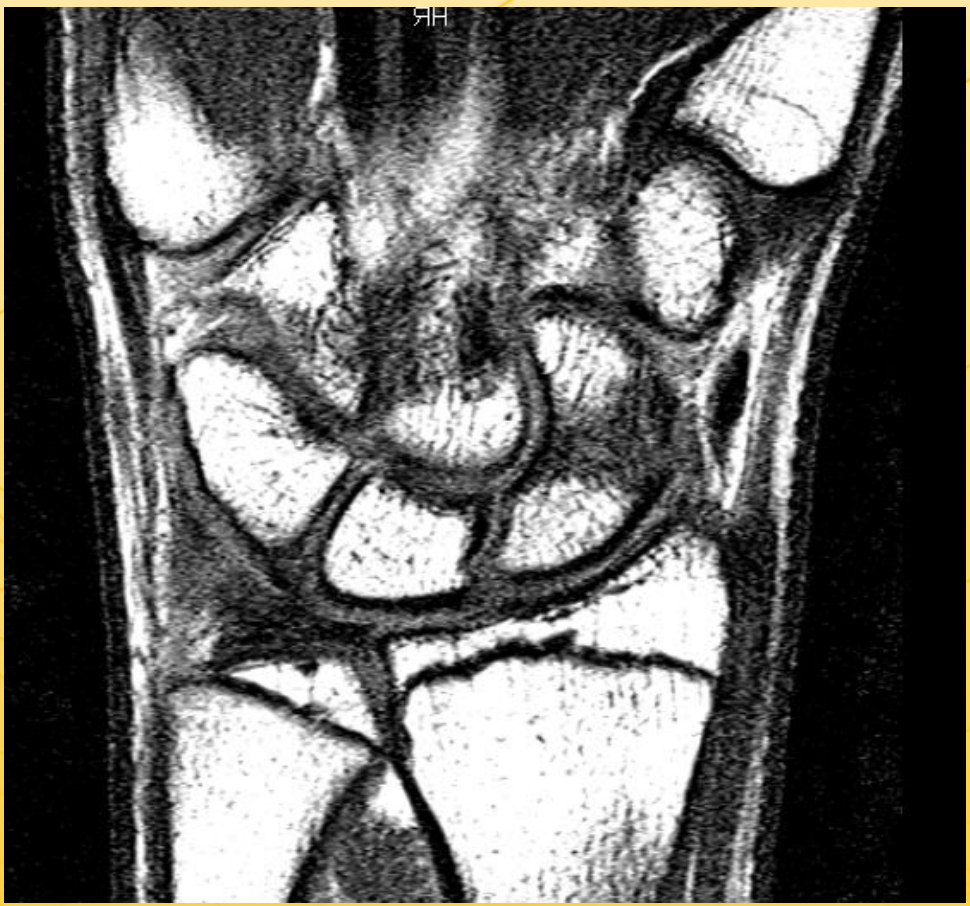

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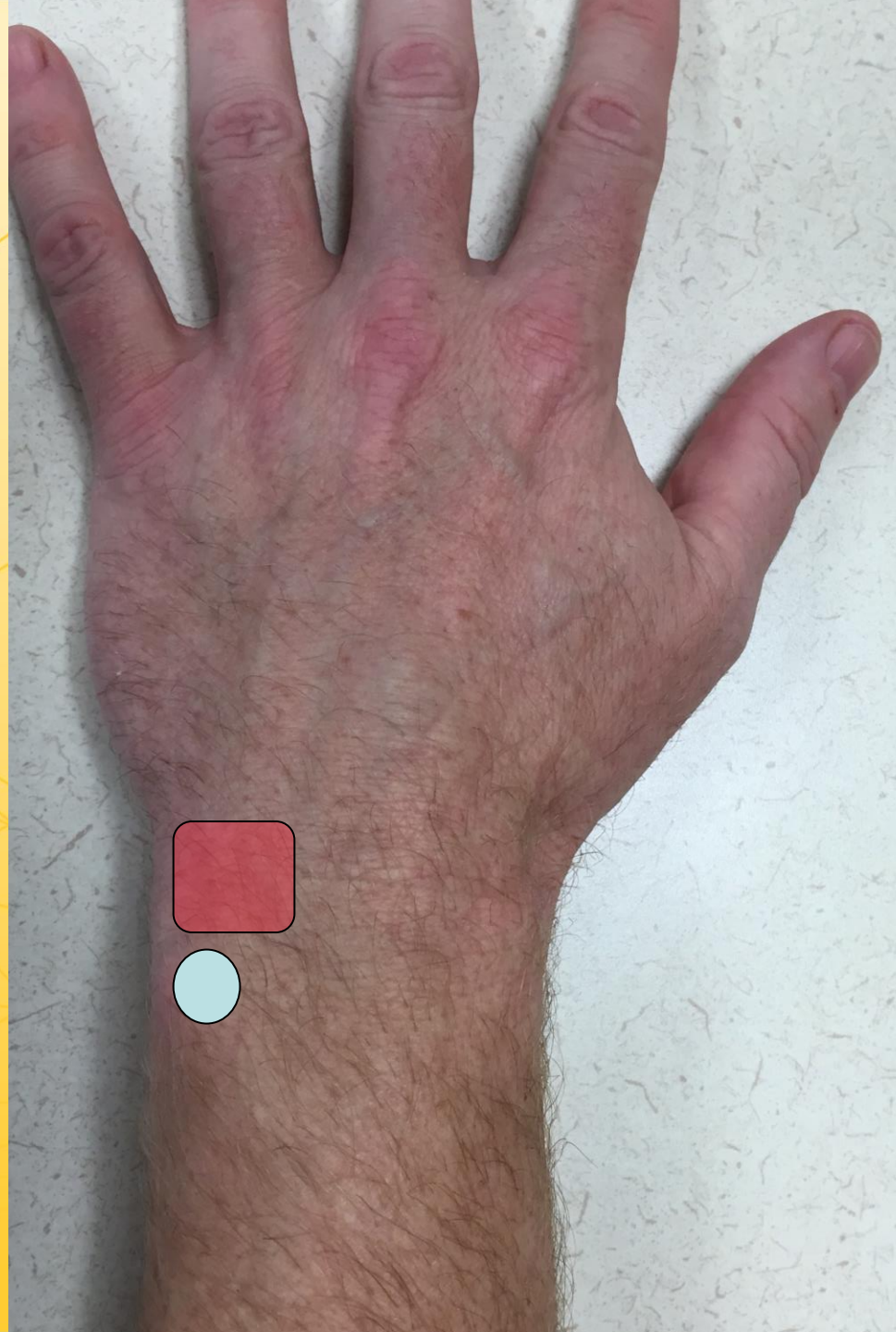
Nondisplaced scaphoid fractures

- Waist
  - union rate 87-100% with casting
  - Time to heal 6-14 weeks

- Distal pole
  - Union rate 100%
  - Time to heal 3-6 weeks

Triquetral “chip” fracture

- FOOSH injuries
- Minimal swelling
- Point tender at dorsal triquetrum
- May or may not see small fleck on xrays



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Triquetral “chip” fracture

- Short arm cast or removable brace x 3-4 weeks
- Should feel better in 2 weeks
- Can be point tender for 3 months

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30’s M, MVA 11 days ago

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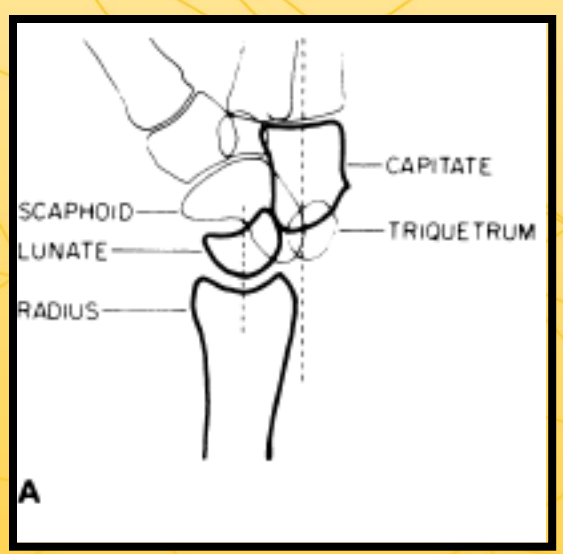
Perilunate dislocation

- Usually high energy mechanism
- Males > females
- Sometimes missed on xrays
- Often causes median nerve symptoms and acute carpal tunnel syndrome
- Needs same day ER visit



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20’s M, motorcycle accident

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Differential diagnosis

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- Scaphoid fracture
- Triquetral fracture

- Perilunate dislocation

- Scapholunate ligament injury
- TFCC injury. . .

Anything else

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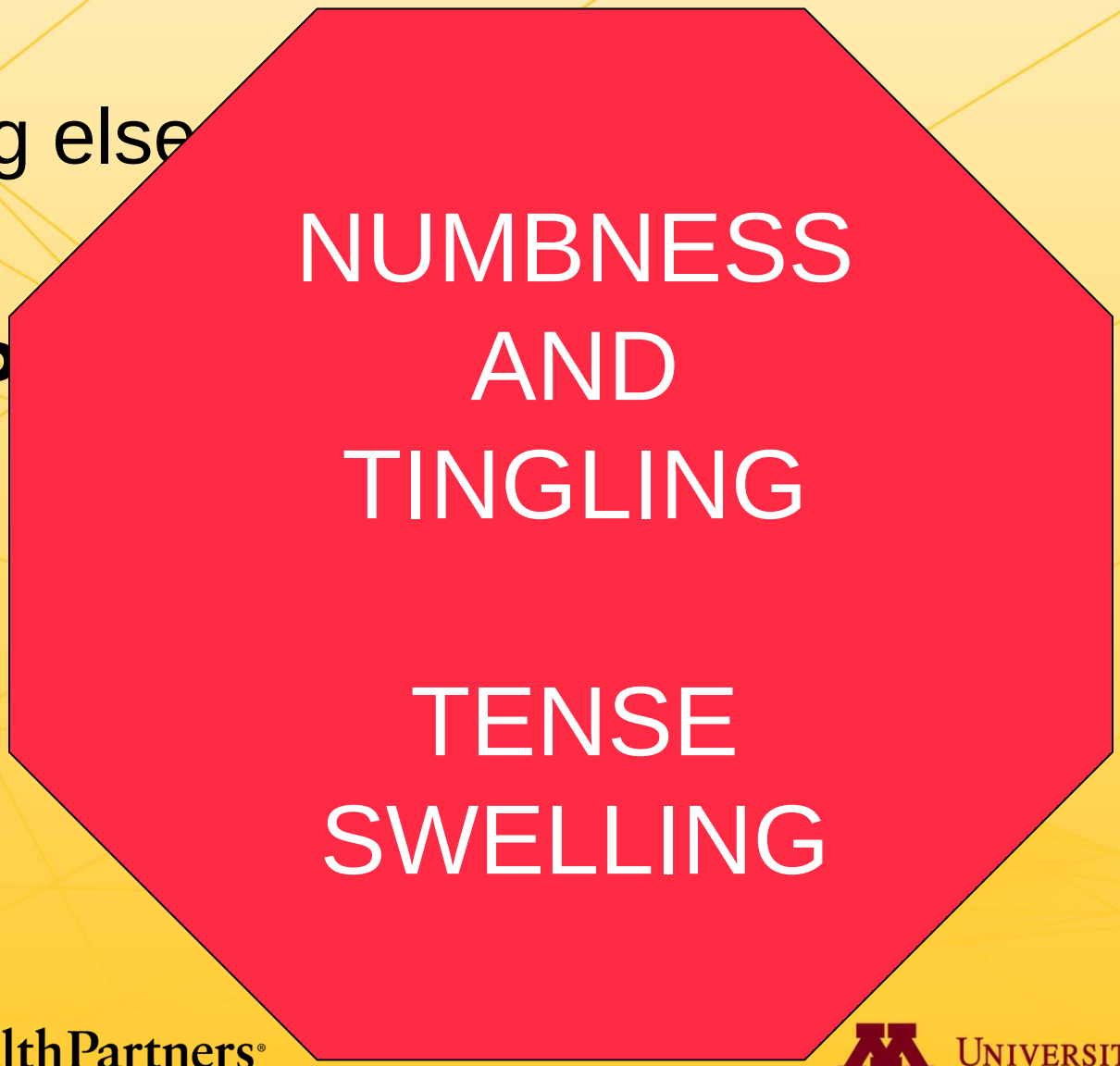

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Chronic/subacute wrist and hand pain

- Thumb CMC arthritis/ aka basilar thumb OA
- Dequervain's tenosynovitis
- Wrist osteoarthritis

Thumb CMC arthritis

- women >> men
- > 50 years old
- Pain with grip, opening jars
- 30% with concomitant CTS

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Thumb CMC arthritis

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Treatment options

- Hand therapy
- Splints or braces
- Steroid injection
- Topical agents
  - Voltaren, CBD cream
- Surgery
  - Variety of techniques
  - 3 to 4 months to recover
  - *(think of it like knee replacement surgery)*

Dequervains tenosynovitis

- New moms, esp if breastfeeding
- SHARP pain

- Tender on 1st dorsal compartment
- Finkelsteins test
- WHAT test- Wrist Hyperflexion Abduction of the Thumb

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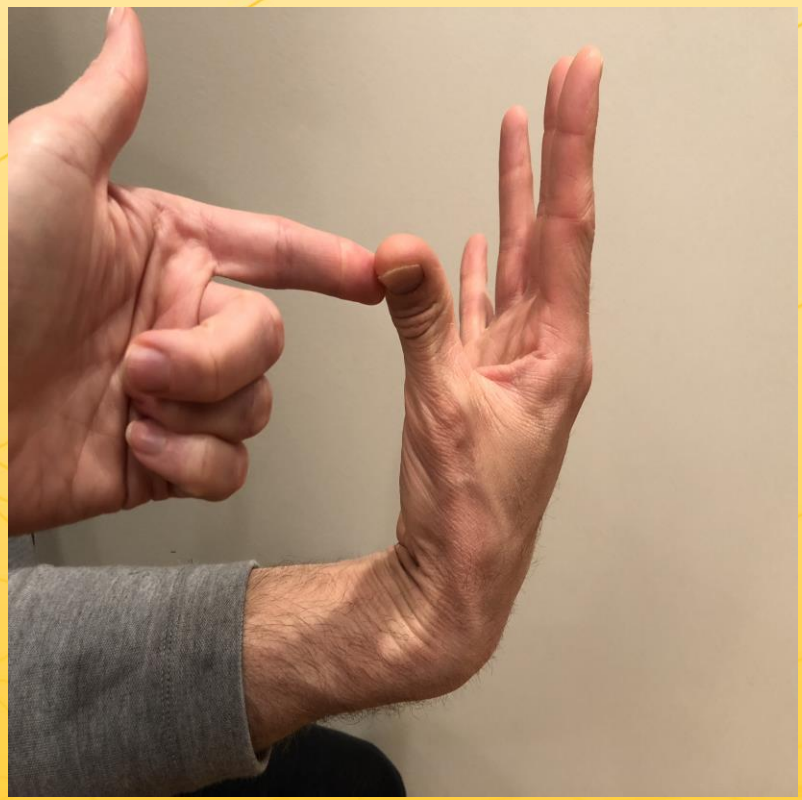
Dequervains tenosynovitis- WHAT test

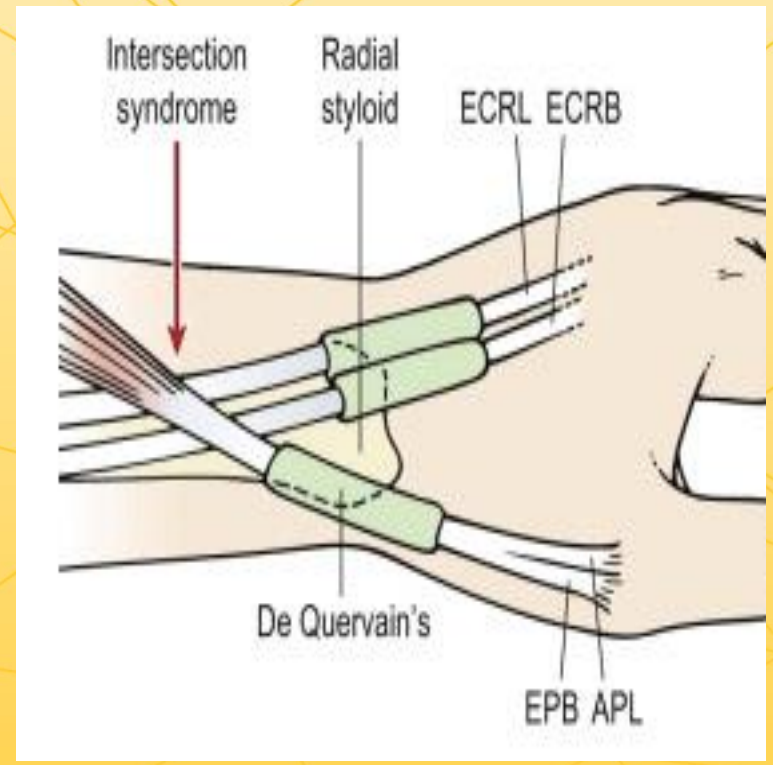
Patient flexes wrist and brings thumb away from palm against resistance.



Dequervains tenosynovitis

- Bracing and NSAIDs
  - 50-60% improve
  - Must include the thumb
- Steroid injection
  - Injection + bracing: 90% improve
  - Steroid atrophy
- Occasionally surgical release

Intersection syndrome



- Pain proximal to wrist where wrist extensor tendons and thumb abduction/extension tendons cross
- Seen with activities such as rowing, ice climbing, hammering

Intersection syndrome

- Usually onset over the course of a few days
- Tenderness and CREPITUS at the intersection
- Finkelsteins will be painful, but tenderness will be more proximal than typical Dequervains
- Often have visible swelling

Intersection syndrome

- Start with the usual . . .
  - Brace with wrist in slight extension (day and night)
  - Ice the area
  - NSAIDS
- steroid injection
- ? Taping
- Rarely surgery

Wrist arthritis

- May have remote or recent history of injury
  - Often exacerbated by recent injury/activity
- Males > females
- Pain with lifting, wrist motion

Wrist arthritis

- Decreased motion
  - Flexion/extension
  - Forearm rotation

Wrist arthritis

- Xray usually diagnostic (do NOT need MRI)
- Splint/NSAIDS
- Intermittent steroid injection
- Partial/complete fusion vs arthroplasty

Common elbow conditions: acute and chronic

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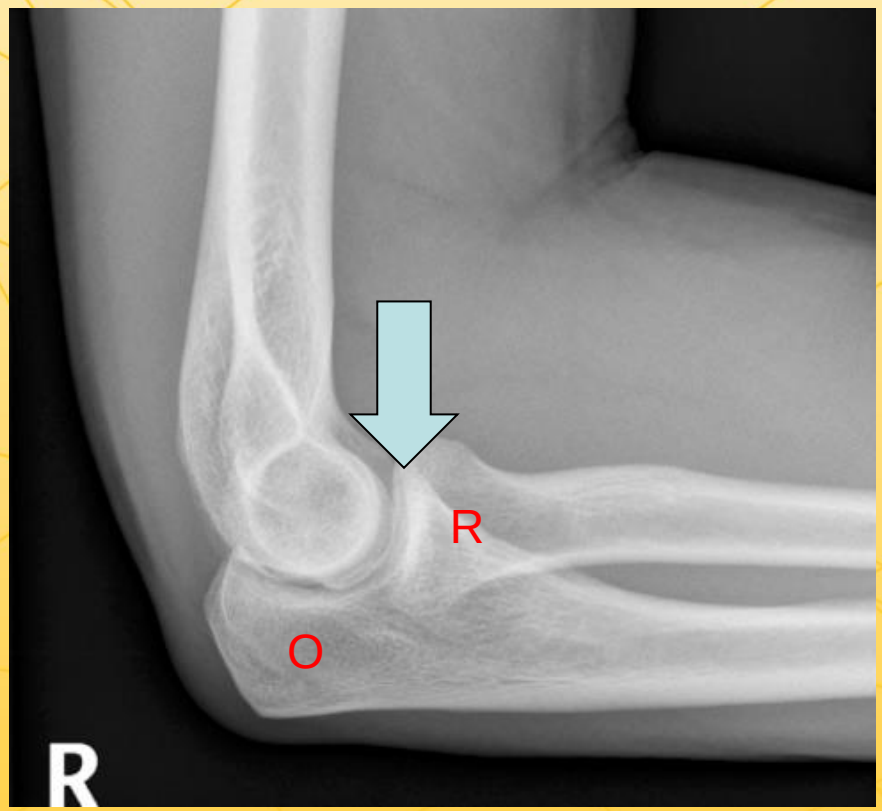
Objectives

At the end of this session, learners will be able to

- Identify and initiate care for common acute elbow conditions including radial head fractures and distal biceps ruptures
- Identify and initiate care for common subacute nontraumatic elbow conditions including lateral epicondylosis, radial tunnel syndrome, and cubital tunnel syndrome

- Anatomy review
- Acute elbow injuries
  - Radial head fractures
  - Distal biceps rupture
  - Everything else...

- Subacute/ Chronic elbow conditions
  - Lateral epicondylitis
  - Radial tunnel syndrome
  - Medial epicondylitis
  - Cubital tunnel syndrome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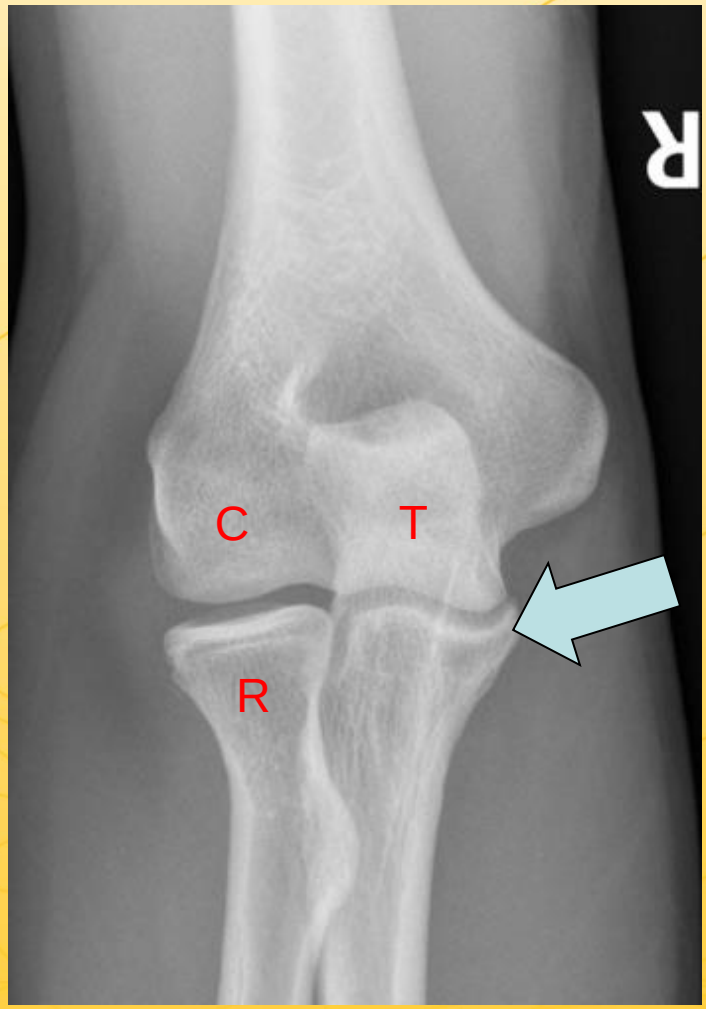
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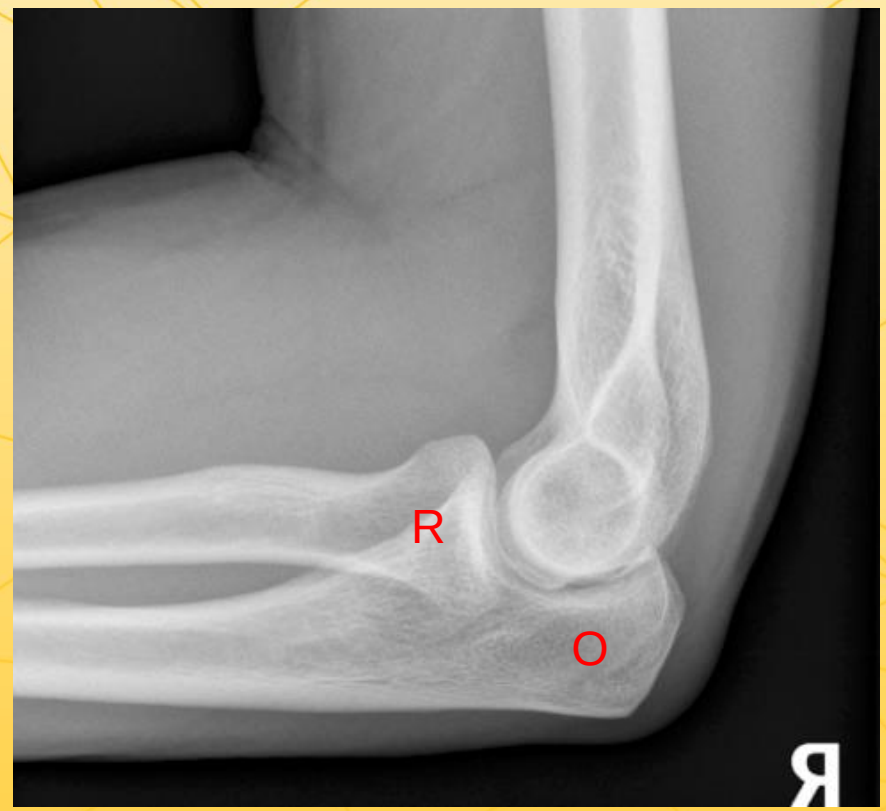
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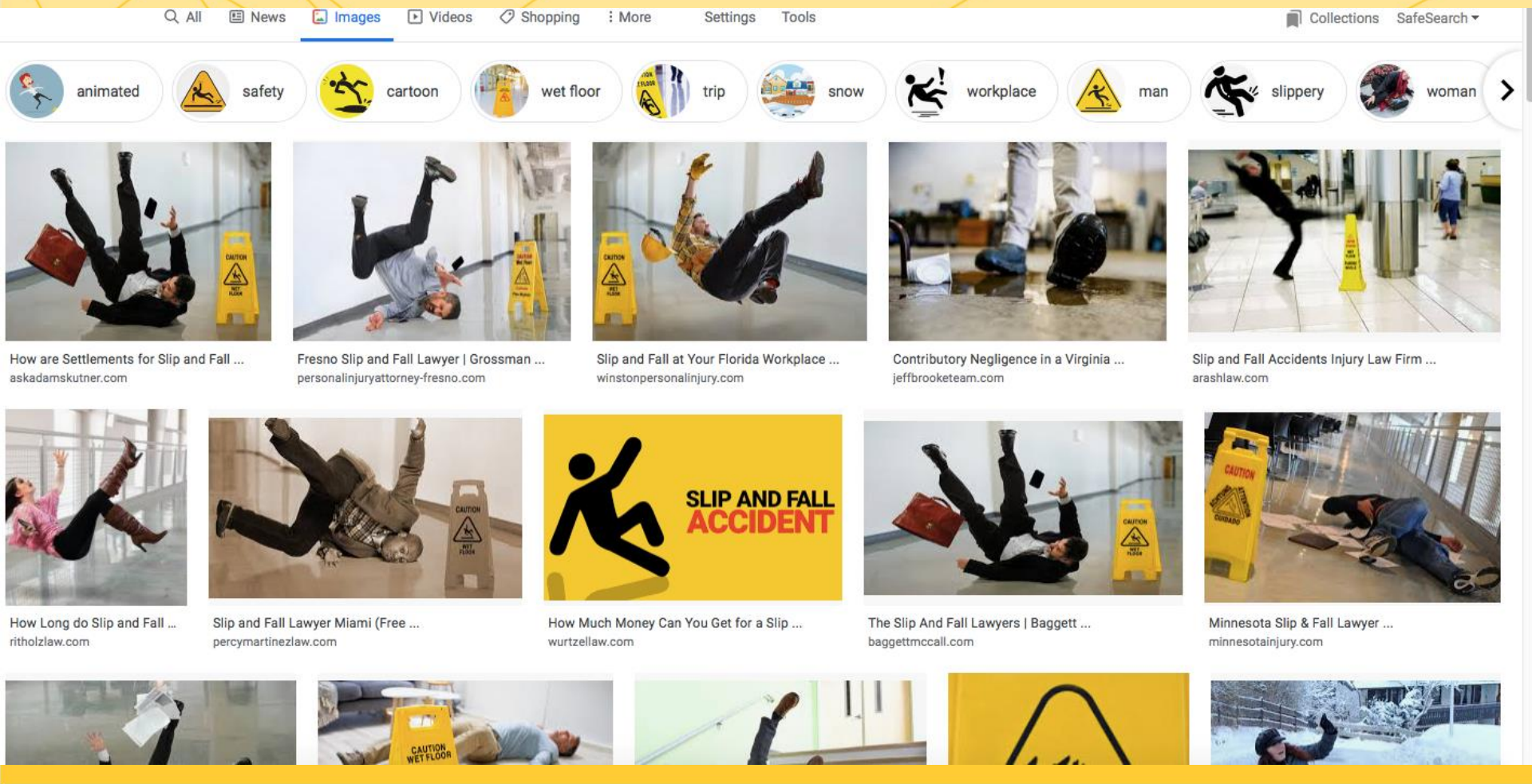
Radial head fractures

- Common result of a FOOSH injury



Radial head fractures: Physical exam

- Moderate elbow swelling
- Difficulty with full active or passive ROM, flexion/extension and rotation
- Tender at the radiocapitellar joint

Radial head fractures: Treatment

- Minimally displaced: sling and early motion
  - Check at one week out to r/o other injuries, make certain no mechanical block to motion (+/- local)
  - CT scan if uncertain of bony injury, MRI if suspect ligamentous injury
- Comminuted or displaced: ORIF or radial head replacement
- Beware of additional injuries
  - Terrible triad

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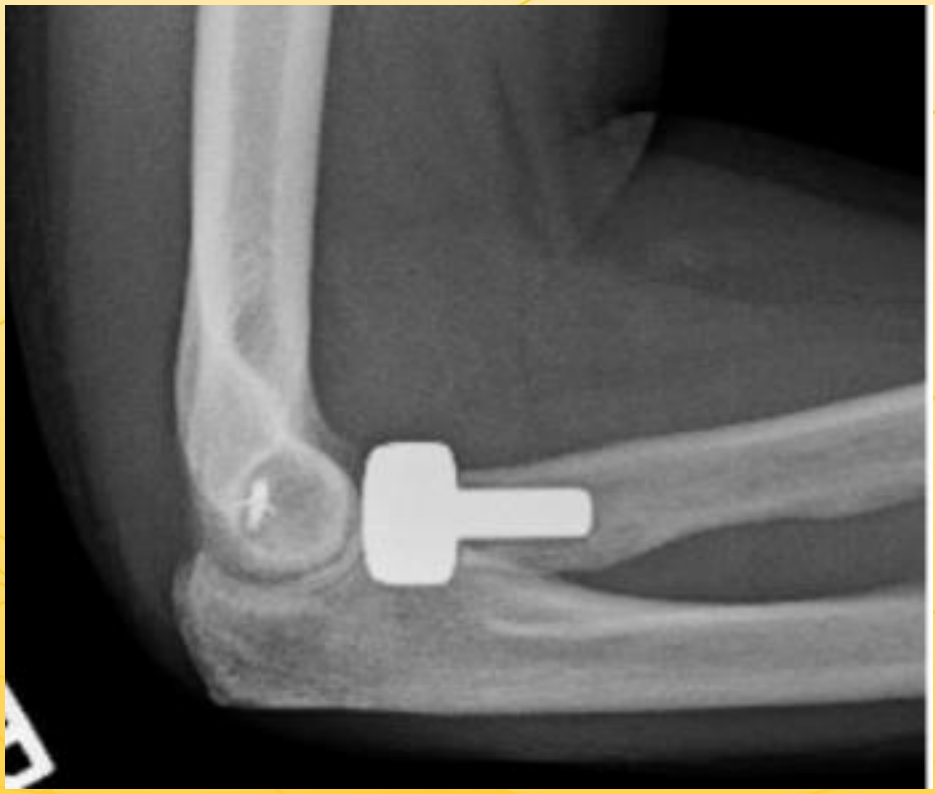
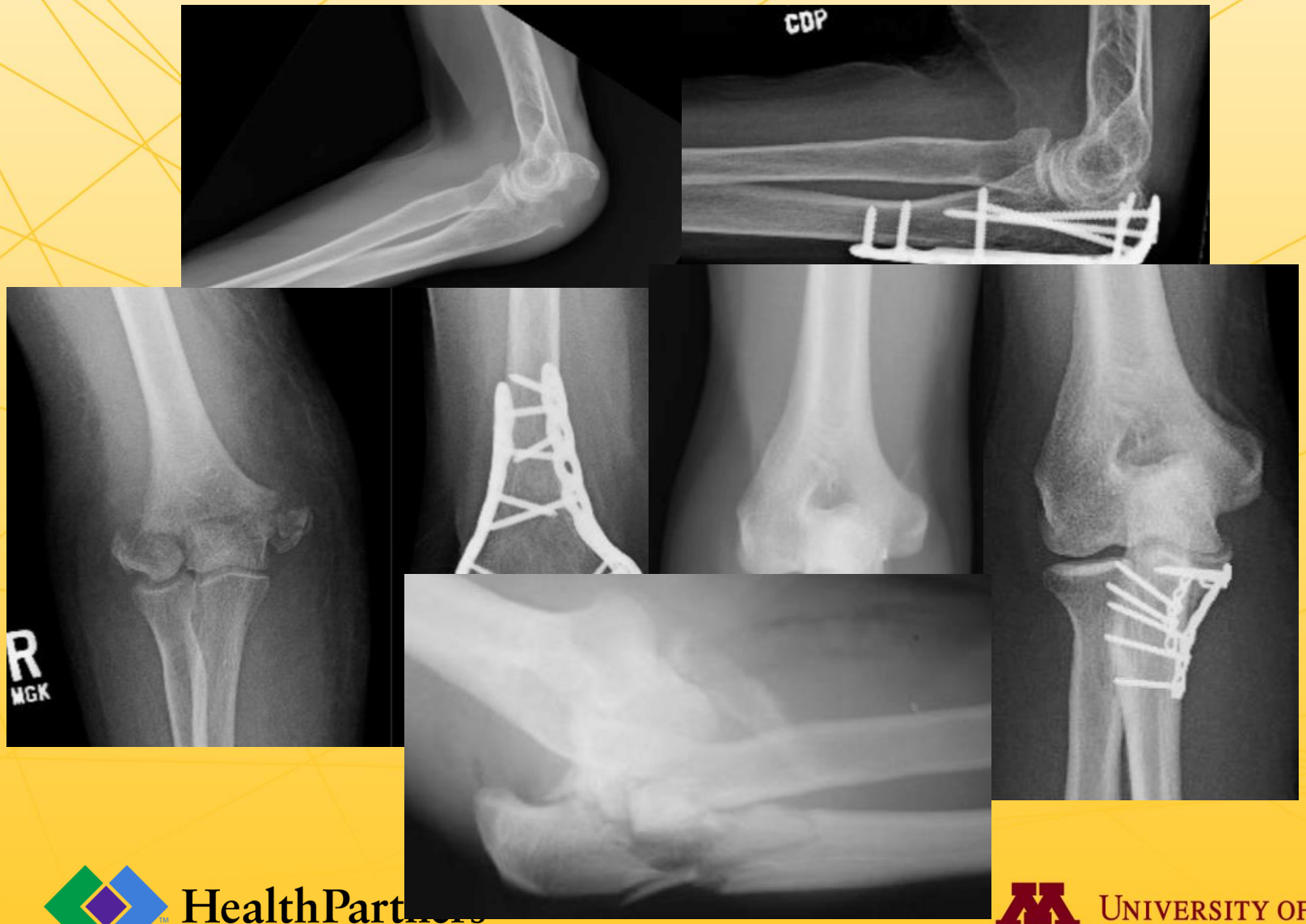


Many patterns of elbow fractures



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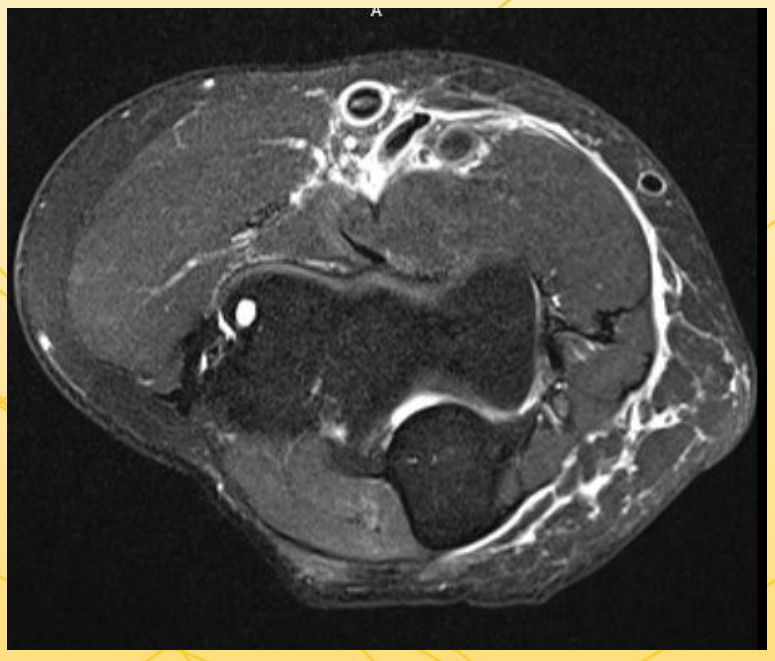
Elbow/ distal humerus fractures

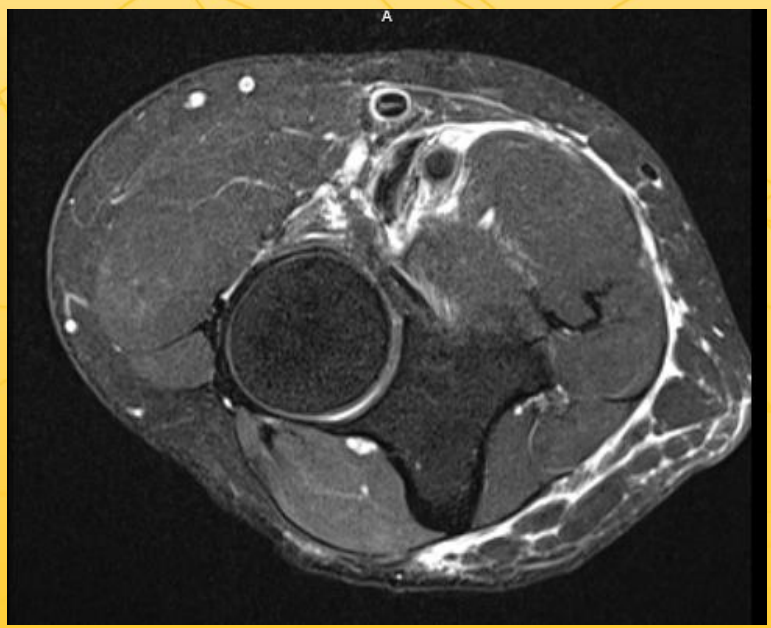
- Ulnar nerve problems
- Stiffness
- Instability

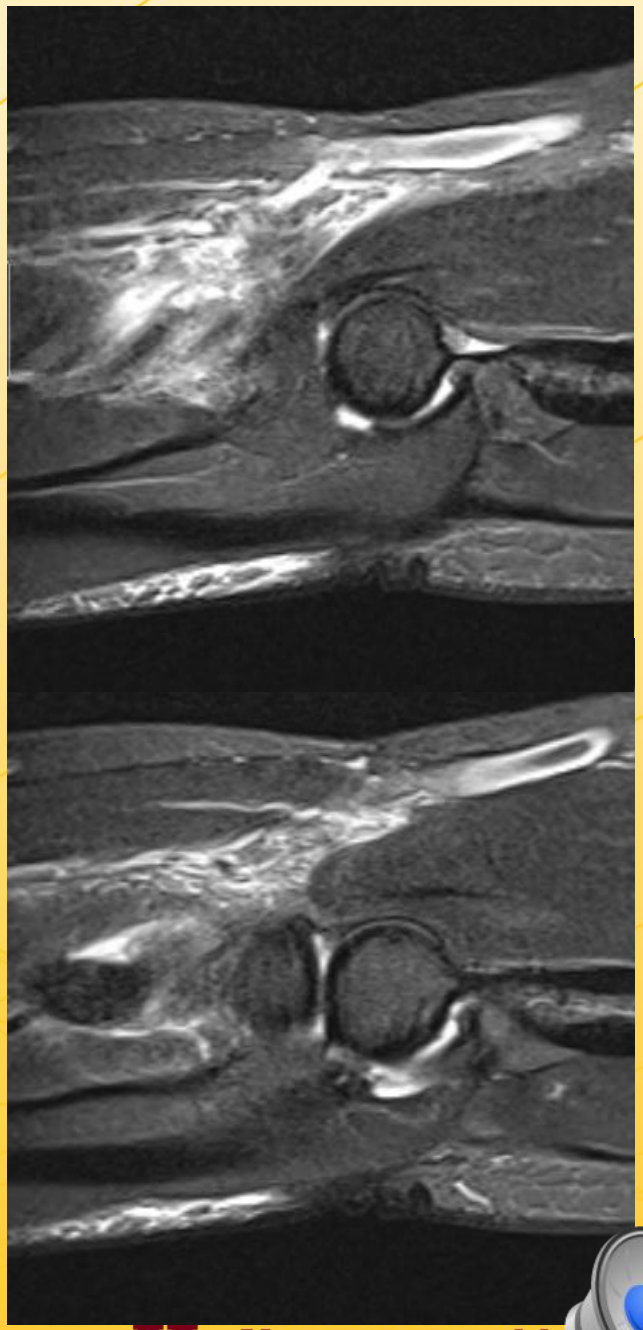
Surgical stabilization followed by early motion

Distal Biceps Rupture

- Males age 40-60 years
- Often carrying or lifting object and
- On exam
  - Bruising in the antecubital fossa
  - “hook test”
  - Weakness of supination (moreso than flexion)
- Xrays typically normal, confirm diagnosis with MRI or ultrasound







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Distal Biceps Rupture

- Nonsurgical treatment associated with some lasting loss of supination strength
- Surgical repair easiest within 3 weeks of injury
  - Possible complications include
    - Synostosis
    - Nerve injury (PIN)
    - Lateral antebrachial cutaneous nerve paresthesias
    - Rerupture

Distal biceps tendinosis

- Can be prodrome to rupture
- Pain with supination AND with pronation
- Tender at distal biceps insertion
- MR will show tendinopathy but fibers in continuity

- Rest? Activity modification? Surgical repair?

Lateral epicondylosis (aka tennis elbow)

- Aka tennis elbow, lateral epicondylitis, enthesopathy of the extensor carpi radialis brevis

- Rarely due to tennis activities
- Patients aged 30-65
- Pain with grip and lifting objects
  - Grip strength can be used to diagnose and to track recovery

Lateral epicondylosis (aka tennis elbow)

- Xrays typically normal
  - No need for MRI
  - MRI changes often present in asymptomatic individuals
- On exam
  - Tenderness at the lateral epicondyle (just anterior)
  - Pain with resisted wrist extension with elbow in extension

Lateral Epicondylosis- treatment

- 80-90% resolve with or without treatment within a year
- Bracing
  - counterforce brace, wrist brace
- Physical therapy
- Nitroglycerin patch
- Injection
  - Corticosteroid, autologous blood, prolotherapy, PRP
- Surgery reserved for those with persistent symptoms
  - about 70% of patients with good to excellent outcomes
  - No clinical difference between open and arthroscopic treatment

Radial Tunnel Syndrome

- Nerve compression as the PIN enters the supinator
- Often vague symptoms of dorsal forearm/dorsal hand and wrist pain
- Can coexist with or be confused with lateral epicondylosis

Radial Tunnel Syndrome

- Tenderness at the radial tunnel (about 5 cm distal to the lateral epicondyle) > than lateral epicondyle
- Pain with passive pronation and wrist flexion
- Pain and weakness with resisted long finger extension

- Treatment options: therapy and/or steroid injection, occasionally surgery

Medial Epicondylitis (aka “golfer’s elbow)

- Pain over medial elbow
- Common in golf, tennis, and throwing athletes

Nirav et al, JAAOS 2015

Medial Epicondylitis

- Xrays to rule out arthritis, UCL calcification
- Tender over medial epicondyle (distinct from cubital tunnel/ulnar nerve)
- Pain with resisted wrist flexion, forearm pronation, grip

Medial Epicondylitis- treatment

- Bracing
  - counterforce brace, wrist brace, elbow splint
- Icing
- Physical therapy
- Injection
  - Corticosteroid, autologous blood, prolotherapy
- Surgery NOT typically recommended, though some reports of successful relief of symptoms.
- Must rule out UCL problems, cubital tunnel syndrome

Cubital tunnel syndrome

- Sensory symptoms in the ring and small finger
  - Monofilament, 2 point discrimination
- Weakness of intrinsic muscles (finger abduction and adduction)
  - Wartenberg's sign (small finger rests abducted)
  - Froment's sign (thumb IP flexion)
  - clawing
- Pain/tenderness/hypersensitivity along the cubital tunnel
- Positive elbow hyperflexion test
- Positive scratch collapse test
- Check for nerve hypermobility

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Cubital tunnel syndrome

Sensory symptoms only

- Non surgical treatment
  - Night time splinting
  - Oral medications (gabapentin, low dose amitriptyline)
- Surgery based on patients wishes and degree of symptoms

Motor symptoms

- EMG/NCV test
- Semi-urgent surgical intervention (don't wait for months)
  - In situ cubital tunnel release
  - Ulnar nerve transposition
- Consider nerve transfer (refer to specialist)

THANK YOU!

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