Common elbow conditions: acute and chronic

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Disclosures

- I have no disclosures that are pertinent to this presentation

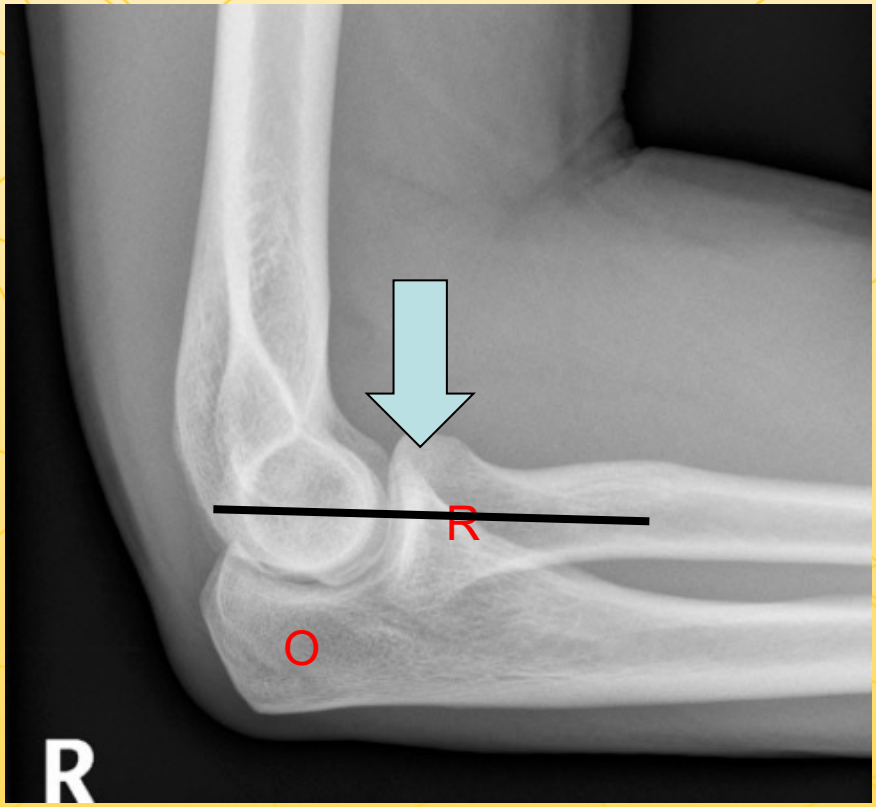
Objectives

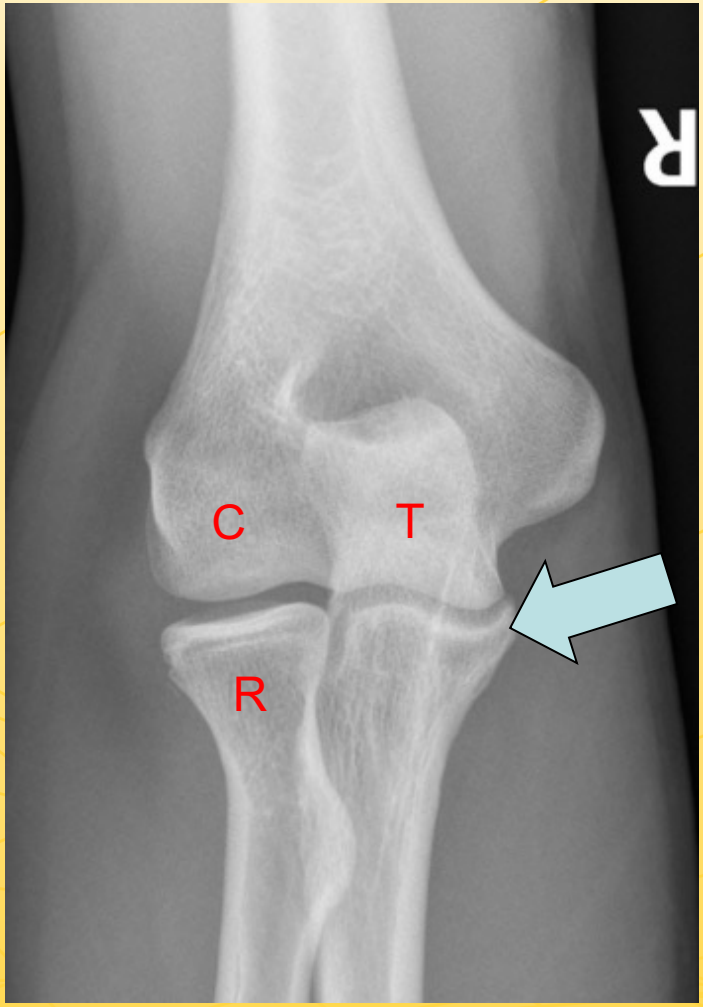
At the end of this session, learners will be able to

- Identify and initiate care for common acute elbow conditions including radial head fractures, ulnar collateral ligament injuries, simple elbow dislocations and distal biceps ruptures
- Identify and initiate care for common subacute nontraumatic elbow conditions including medial and lateral epicondylosis, radial tunnel syndrome, and cubital tunnel syndrome

- Anatomy review
- Acute elbow injuries
  - Distal biceps rupture
  - Ulnar collateral ligament injuries
  - Radial head fractures
  - Simple elbow dislocations
  - Everything else...

- Subacute/ Chronic elbow conditions
  - Lateral epicondylosis
  - Radial tunnel syndrome
  - Medial epicondylosis
  - Cubital tunnel syndrome





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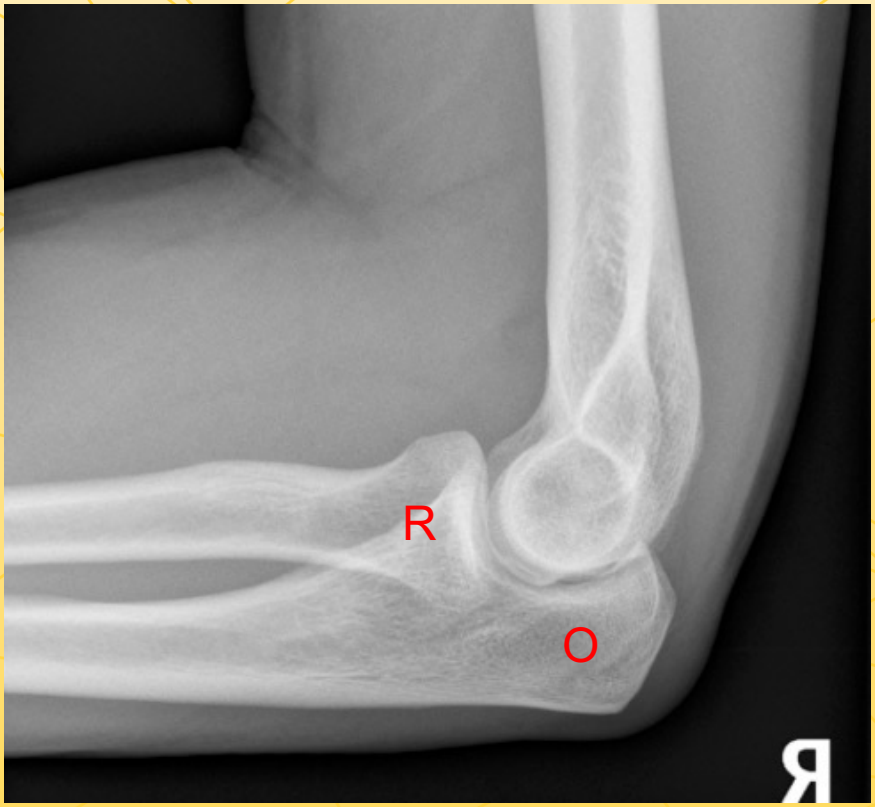

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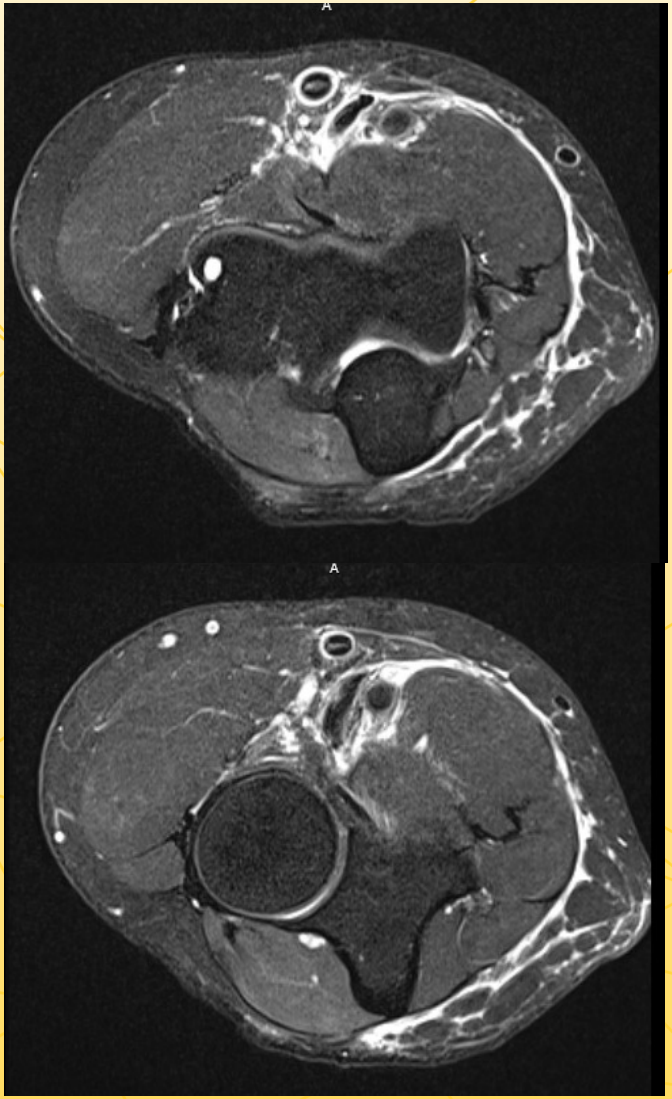
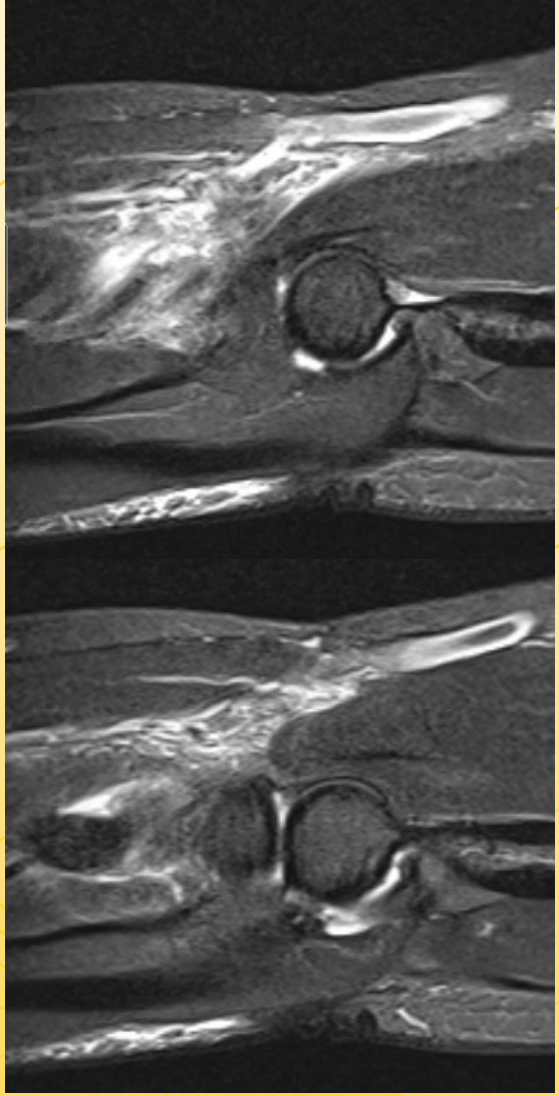
Distal Biceps Rupture

- Males age 40-60 years
- Often carrying or lifting object and feel a pop
- 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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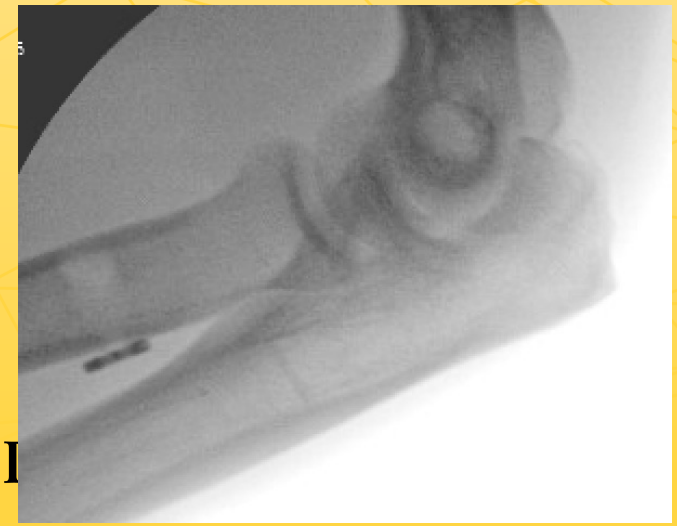
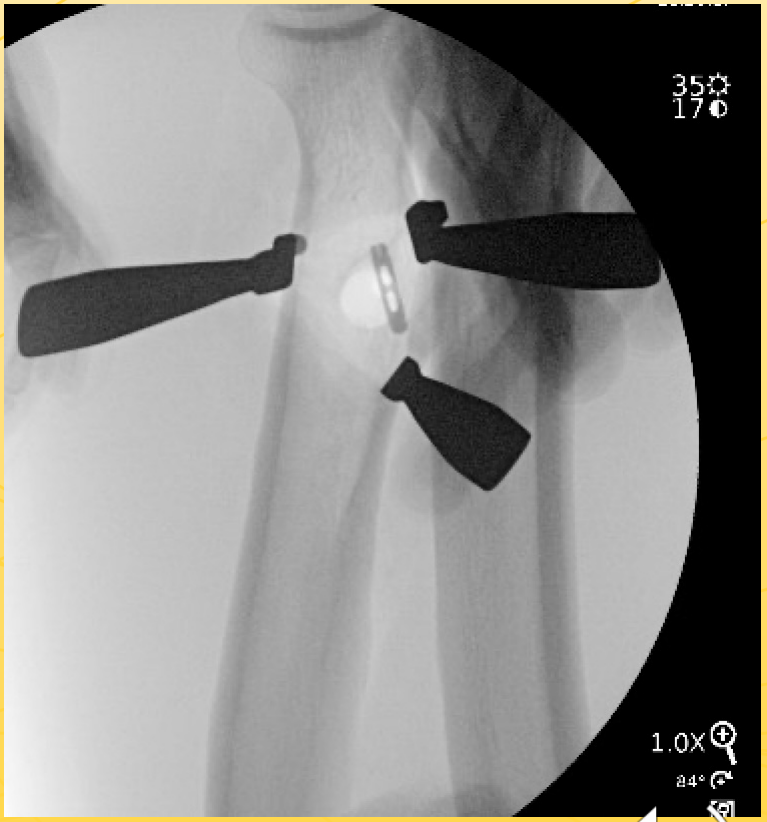
Distal Biceps Rupture

- Nonsurgical treatment associated with some lasting loss of supination strength
  - Pain usually resolves
- Surgical repair easiest within 3 weeks of injury
  - More chronic injuries may require tendon graft for repair

Distal biceps repair

- Single incision or double incision techniques
- Fixation technique varies
  - Suture anchors
  - Interference screw
  - Cortical button
    (lower complication rate)





Distal biceps repair outcomes

- Near full return of strength and elbow motion
- Rehab plans vary by surgeon
  - Sling and ROM as tolerated
  - Elbow brace and gradual extension
- Complications
  - Lateral antebrachial cutaneous nerve neuropraxia (most common, more with single incision)
  - Synostosis
  - Posterior interosseous nerve palsy
  - Rerupture (1-2%)

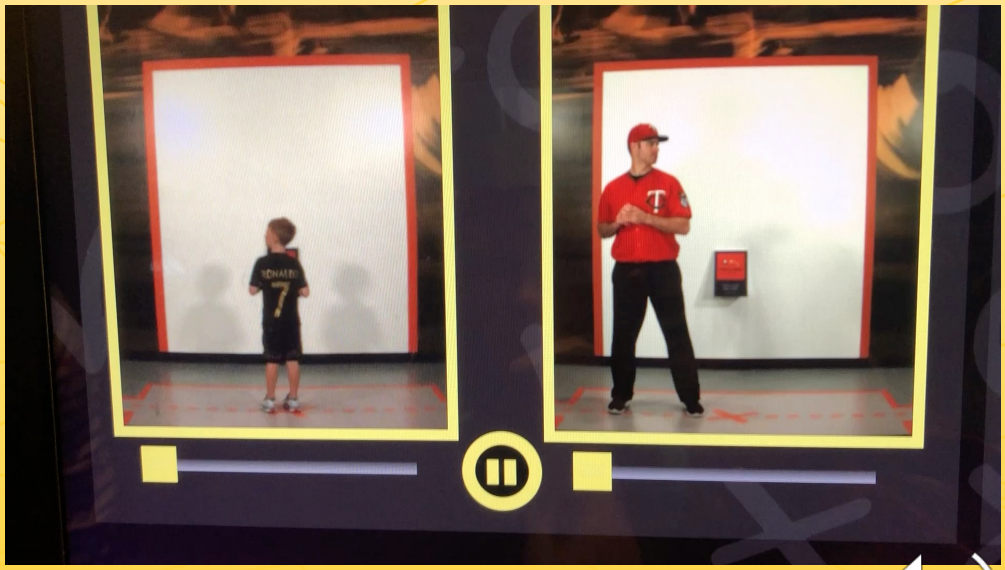
Distal biceps tendinosis

- 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?
  - Surgical repair with satisfactory result in >90% (Behun et al JHS 2016)

Ulnar collateral ligament injuries

- Anterior bundle of the ulnar collateral ligament is the key stabilizer to valgus stress at the elbow
- Common in throwing athletes
  - Youth pitchers who throw >100 innings per year had 3.5x incidence of injury
- May be acute or chronic



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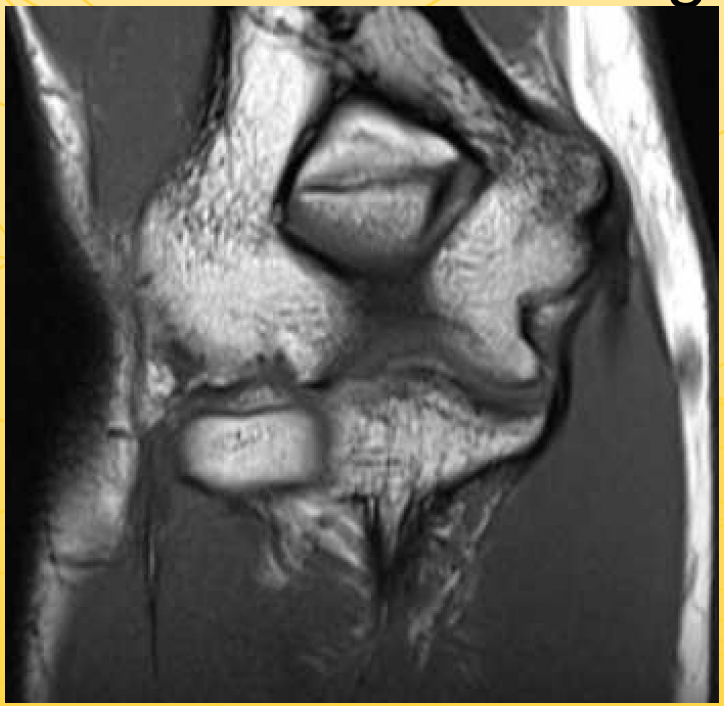
Physical exam

- Valgus stress with elbow flexed 30-60 degrees
  - Poor sensitivity
- Milking maneuver
  - High sensitivity and specificity
  - Pain and/or apprehension
- May have associated ulnar nerve symptoms

Imaging

- Plain radiographs typically normal
  - Calcification of UCL
- MR is most common tool for diagnosis



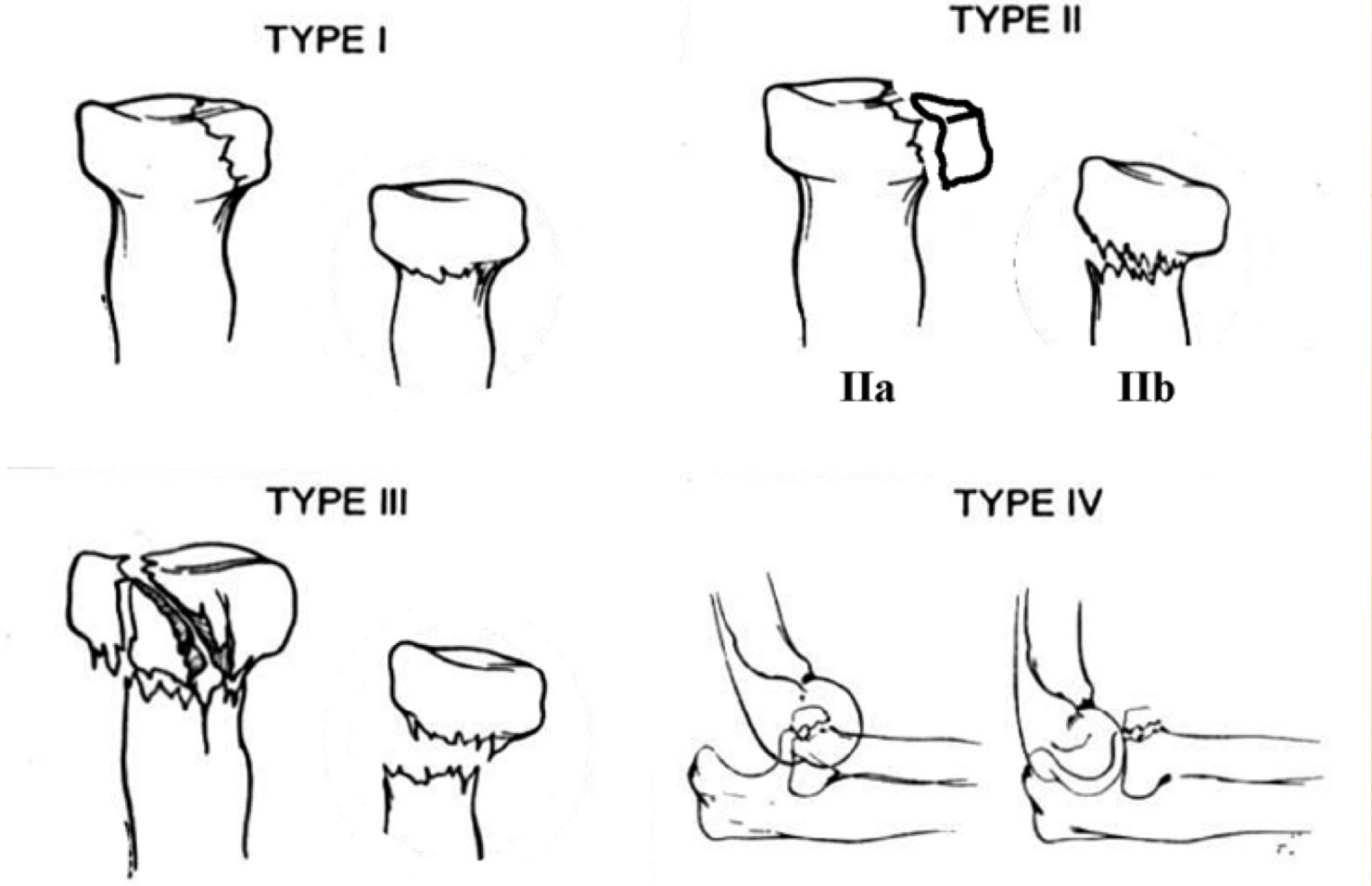
Treatment

- Partial tears: rest and slow return to throwing
- Complete tears/failure of nonop treatment: UCL reconstruction (aka Tommy John surgery)
  - 1 year for full recovery of function
  - >80% return to same level of sport
  - Ulnar nerve symptoms most common complication

Radial head fractures

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

Radial head fractures



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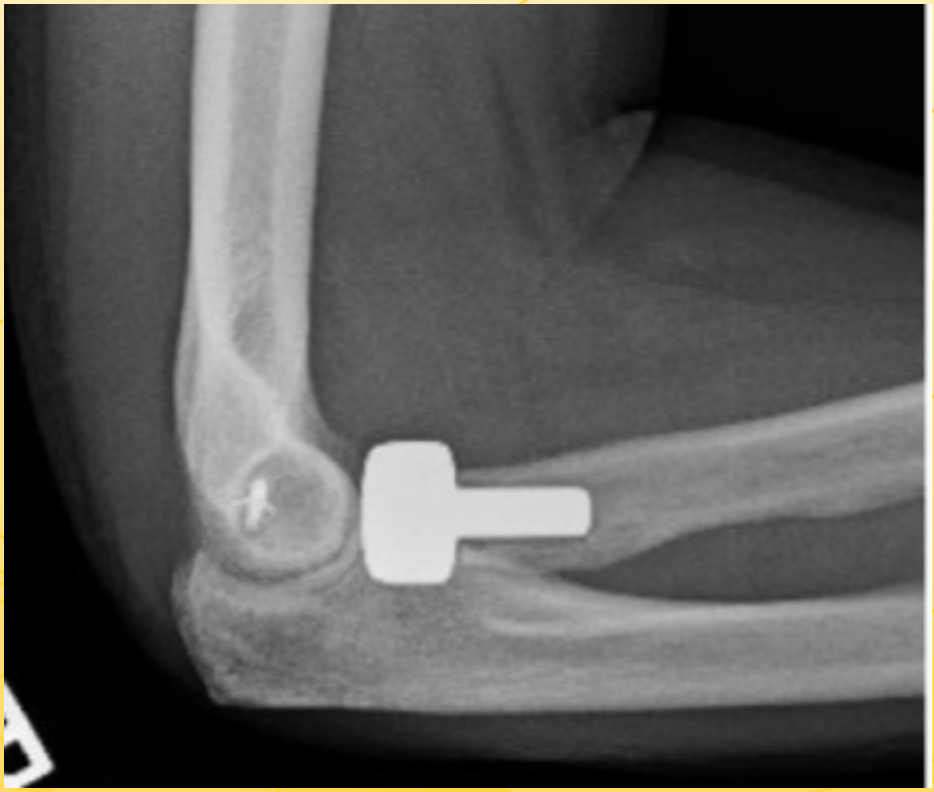
Radial head fractures: Treatment

- 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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Elbow dislocation

- Usually FOOSH
- >90% posterior or posterolateral

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Elbow dislocation: treatment

- Closed reduction
- Splint in 90 deg flexion x 3-5 days, then begin motion
- Repeat xrays 3-5 days and 10-14 days (after starting motion)

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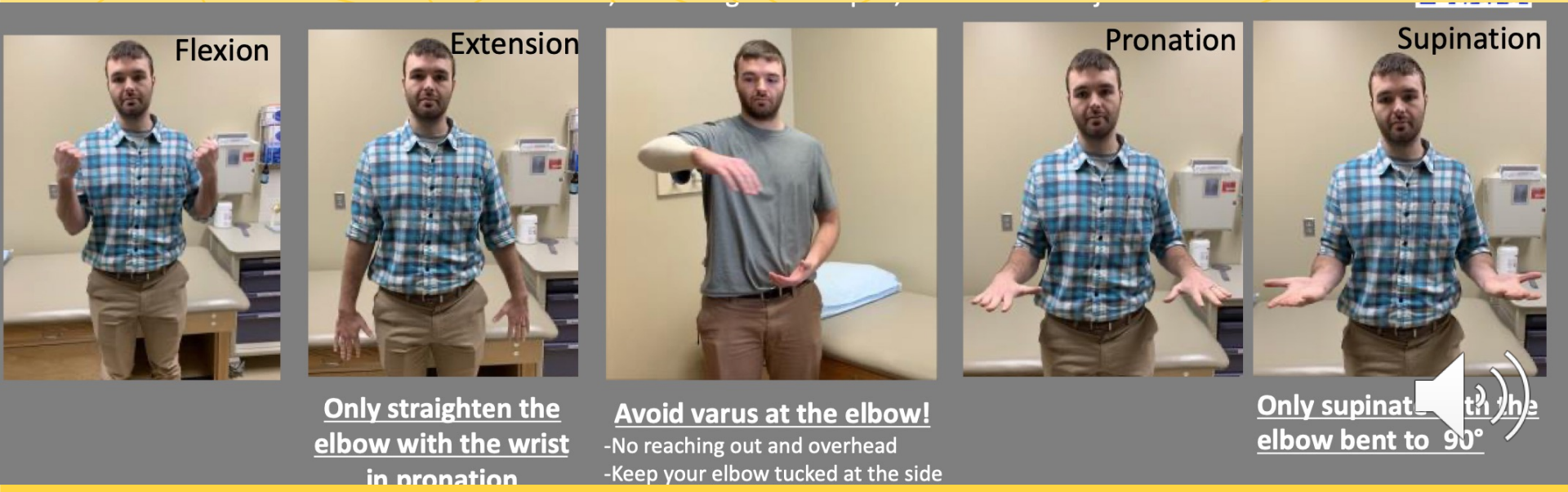
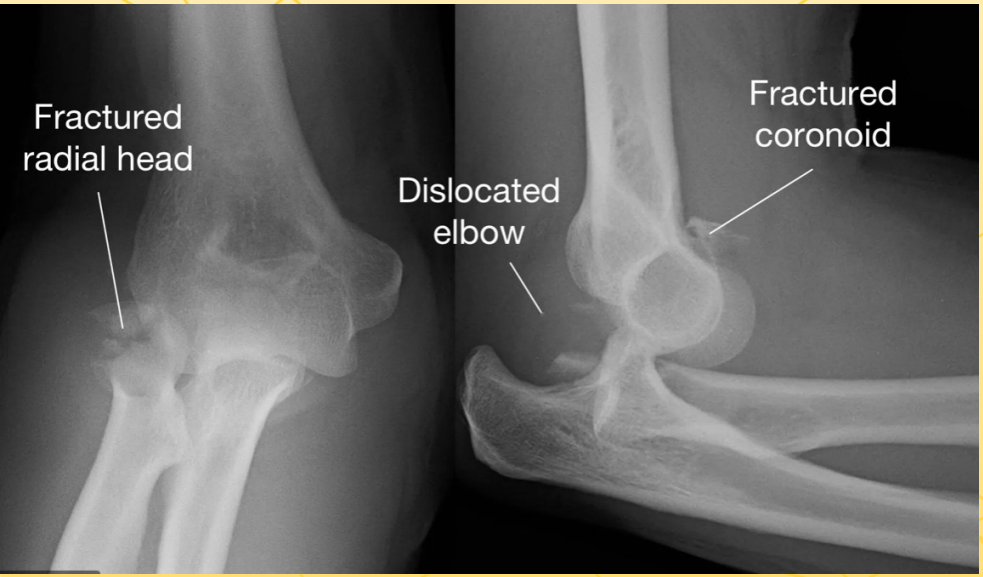
Elbow dislocation: treatment

- Early motion
- Often protective brace with gradual elbow extension
- Beware associated fractures/recurrent instability



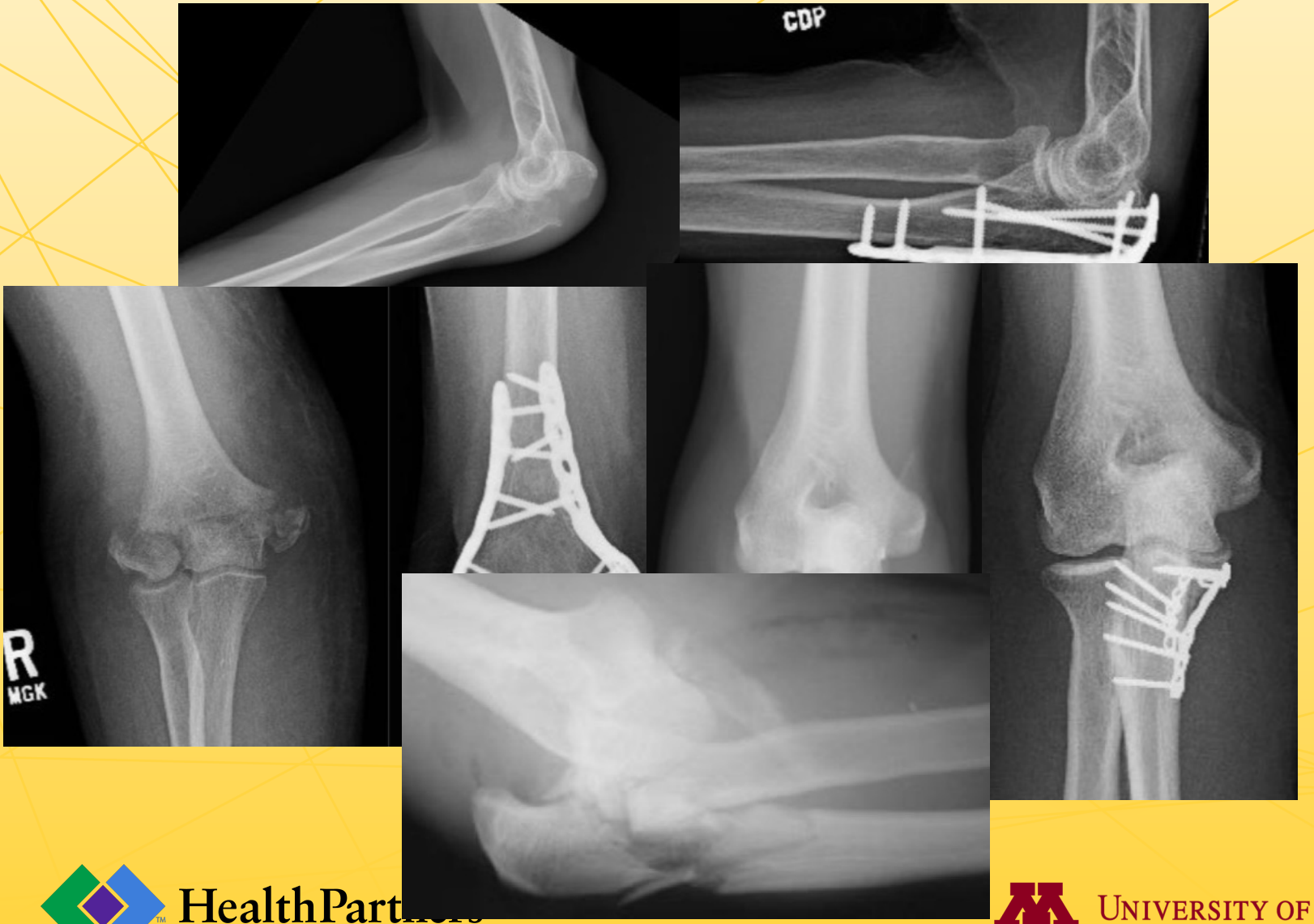
Terrible Triad



- Radial head fracture
- Coronoid fracture
- Lateral collateral ligament disruption

- Require operative fixation
  - Radial head ORIF vs replacement with lateral collateral ligament repair

Many patterns of elbow fractures



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Elbow fractures

- Ulnar nerve problems
- Stiffness
- Instability

Surgical stabilization followed by early motion

+/- indomethacin for HO prevention

Lateral epicondylosis (aka tennis elbow)

- Aka 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

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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

- Can coexist with cubital tunnel syndrome

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

Ulnar nerve exam

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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 patient's wishes and degree of symptoms
  - Changes in 2 PD or SW filament testing→ stronger indication for OR

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)

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Cubital tunnel syndrome

In situ decompression

- Shorter surgical time
- Less postop pain
- ? Higher revision rate

Transposition

- Longer surgical time
- More/longer duration of postop pain
- More numbness at the incision

Cubital tunnel syndrome: outcomes

- Patients with mild symptoms (intermittent numbness, normal or near normal EMG): >80% improve with night time splinting
- After surgery (in situ or transposition), most patients are better (80%+), but many (30-40%) have some residual symptoms for 6 months +
- Overall results from transposition vs in situ decompression are comparable, with conflicting reports regarding revision rates

THANK YOU!

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