Update on MRI of the Elbow

Russell C. Fritz, M.D.
National Orthopedic Imaging Associates
San Francisco, CA

Valgus stress injury
Medial tension: extraarticular injury
- medial collateral ligament sprain
- flexor-pronator muscle strain
- medial epicondylitis
- ulnar traction spurs
- ulnar neuritis
Lateral compression: intraarticular injury
- bone contusions
- osteochondritis dissecans of the capitellum or radial head
- loose body formation
- degenerative arthritis

Medial collateral ligament injury
- anterior bundle of the MCL is the most important stabilizing ligament to valgus stress
- rupture of the MCL requires reconstruction in throwers
- undersurface partial tears of the distal MCL may occur with distal periosteal stripping
- young throwers may avulse the medial epicondylar apophysis (Little League Elbow)

Medial epicondylitis
- secondary to tendinosis of the common flexor tendon
- may progress to develop partial and complete tears
- often associated with ulnar neuritis

Ulnar neuritis
- anatomic variations of the cubital tunnel retinaculum (CTR) may contribute to ulnar neuropathy
- CTR may be absent in 10%, allowing anterior dislocation of the nerve over the medial epicondyle during flexion with subsequent friction neuritis
- CTR may be replaced by an anomalous muscle, the anconeus epitrochlearis, in 11% resulting in static compression of the ulnar nerve
- thickening of the MCL and medial bony spurring may undermine the floor of the cubital tunnel
**Osteochondritis dissecans**
- commonly occurs at the anteroinferior aspect of the capitellum
- lesions may fragment and result in loose bodies
- adolescent pitchers or gymnasts at risk due to repetitive valgus stress

**Lateral epicondylitis**
- secondary to tendinosis of the common extensor tendon
- primarily involves the extensor carpi radialis brevis (ECRB) tendon
- macroscopic tears of the common extensor tendon in 35% at surgery
- unsuspected tears of the LCL may accompany tendon injury
- LCL injury may be iatrogenic due to an overaggressive extensor tendon release
- LCL injury may result in posterolateral rotatory instability and a “trick elbow”

**Posterior dislocation injury**
- coronoid process fracture suggests posterior dislocation/subluxation
- LCL & MCL rupture, anterior capsular injury, and brachialis muscle strain are typically seen in posterior dislocation of the elbow
- neurovascular injury should be considered in these cases

**Distal biceps impingement syndrome**
- tendinosis from mechanical impingement and poor blood supply
- tendinosis precedes rupture
- rupture typically occurs adjacent to the radial tuberosity
- the lacertus fibrosus usually tears in association with biceps rupture
- partial tears and cubital bursitis are less common than rupture
- enlargement of the bursa adjacent to the radial tuberosity (bicipital radial bursa) may occasionally present as an antecubital fossa mass that may entrap the radial nerve
- fibers from the short head attach distally on the radial tuberosity and flex the elbow, fibers from the long head attach proximally on the radial tuberosity and supinate the forearm

**Triceps tendon injury**
- tendinosis precedes rupture
- rupture typically occurs adjacent to the olecranon
- rupture may follow or accompany olecranon bursitis
REFERENCES


