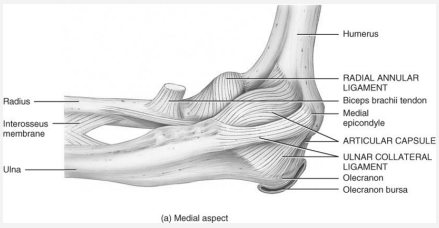
## Anatomy



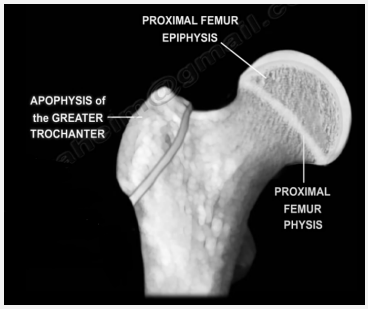

- In LLE, MCL is affected (binds ulna to humerus, consists of : Anterior oblique, posterior oblique and transverse) - provides support against valgus stress woith the flexor-pronator muscles

## MCL




- LLE is a traction apophysitis, meaning a traction injury of the tendon/ligament occurs at the apophysitis due to excessive loading and repetitive microtrauma

## Terminology




**Physis:** Cartilaginous growth plate - near end of a long bone

**Epiphysis:** Cap of a bone - located between growth plate and joint cartiliage

**Apophysis:** Outgrowth - attachment for tendons/ligaments - attached to the host bone via growth plate

## Growth plates of the elbow

**Capitellum:** appears at 1-2 years old, fuses at 10-15

**Radial Head:** Appears at 2-5 years old - fuses at 12-16

**Trochlea:** Appears at 8-10 years old - fuses at 10-18

**Olecranon:** Appears at 8-10 years old - fuses at 13-16)

**Lateral epicondyle:** Appears 8-13 years old - fuses at 12-16

**Medial Epicondyle:** Appears at 2-8 years old - fuses at 15-17 (last to close)



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## Causes

- Usually child athletes (throwers)
- Overhead pitching (compressive stress on lateral elbow and valgus stress on medial)
- Softball, tennis, racquetball, handball, javelin, water polo, gymnastics and weight lifting

## Presentation

- Young athlete complaining of medial elbow pain in their throwing arm
- often mid-late season - busy
- Point tenderness over medial epicondyle
- Swelling, elbow stiffness, inability to achieve full extension
- +ve valgus stress test (Apprehension/discomfort)
- Neuro should be normal - Ulnar nerve should be checked
- Core and hip instablity can affect biomechanics of elbow
- Check - scapular dyskinesis, dysfunction breathing, spinal instability, hip abductor weakness

## Imaging

- Imaging only if unresponsive to conservative care/ another pathology is suspected, signigicant swelling and fixed flexion positioning should be imaged (avulsion/epicondylar f#)
- MRI - occult osteocartilaginous pathology, ligament injury, and myotendinous findings

## DDx

- F#
- Avulsion
- Infection
- Neoplasm
- Exotosis
- Osteochondritis Dissecans
- Meniscoid Lesion
- Cx radiculopathy (C8)
- Ulnar neuropathy (CTS)
- Posteromedial impingement
- Sprain/strain - flexor/pronator tendon, MUCL, joint capsule



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## Management

- Rest from offending activity - 4-6 weeks
- Encourage remaining active
- Splinting/wrist braces
- Ice for 10 minutes , 4 times per day
- NSAIDs/creams
- Neurodynamic technique for ulnar and median nerves
- Early strengthening of extension and supination until pt can tolerate flexion and pronation
- Progress to isotonic strengthening of wrist flexors, extensors, pronators and supinators (low resistance/high reps)
- Reverse Tyler Twist
- Strengthening of FCU and FDS
- Scpula stabilisation exercises (lower traps and serratus anterior)
- Shoulder external rotation and retraction exercises (Brugger, low row and lawmower)
- Core and hip exercises (Bridging, posterior lunges, semi-stiff deadlift, clams,)
- Gradual return to throwing when there is no longer point tenderness over medial elbow (no more than 10%)
- Proper coach communication is important
- Pitchers should not : pitch on consecutive days/multiple games per day/on multiple teams with overlapping seasons
- Players should have 2-4 months breaks with no throwing
- Consider surgical intervention if: Conservative care fails, MCL disruption, >2mm of medial epicondyle separation, avulsion f# >5mm



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