

Ulnar Collateral Ligament Reconstruction “Tommy John Surgery”

By

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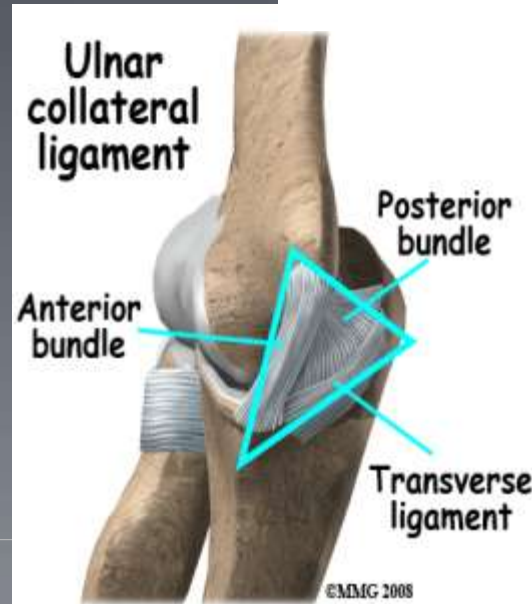
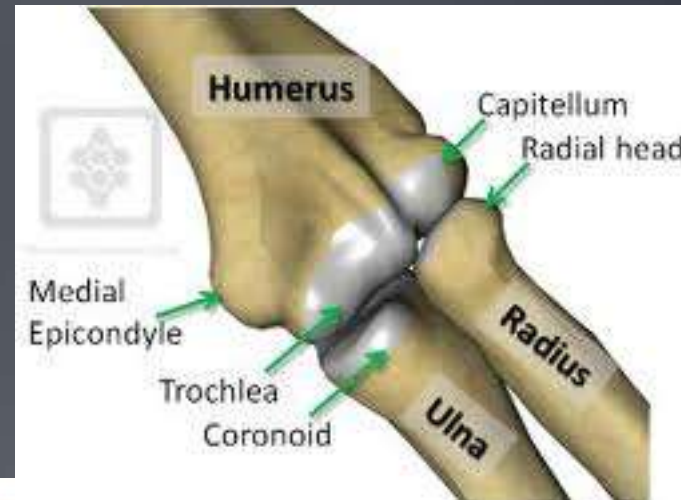
Case Study

- 21 y.o. Male
- Collegiate Baseball Pitcher
- Right elbow preoperatively diagnosed:
 - UCL rupture – Anterior Bundle
 - Loose body
- Patient choose operative treatment
 - Ulnar collateral ligament reconstruction



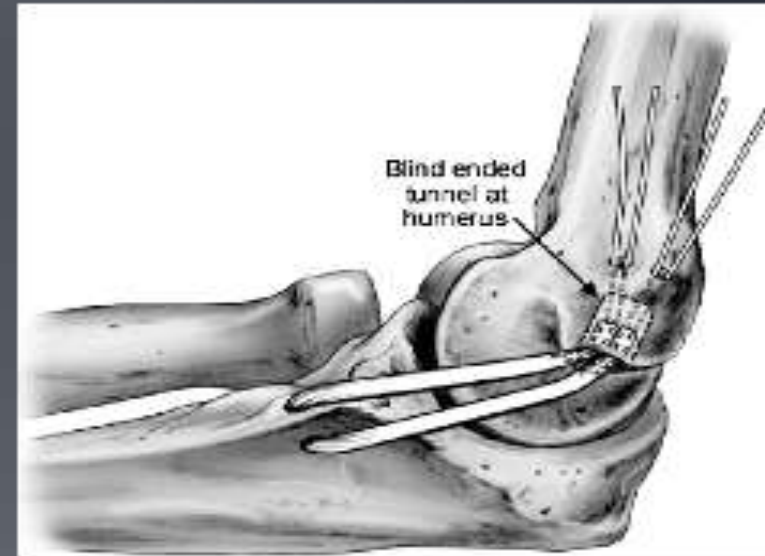
Elbow Anatomy

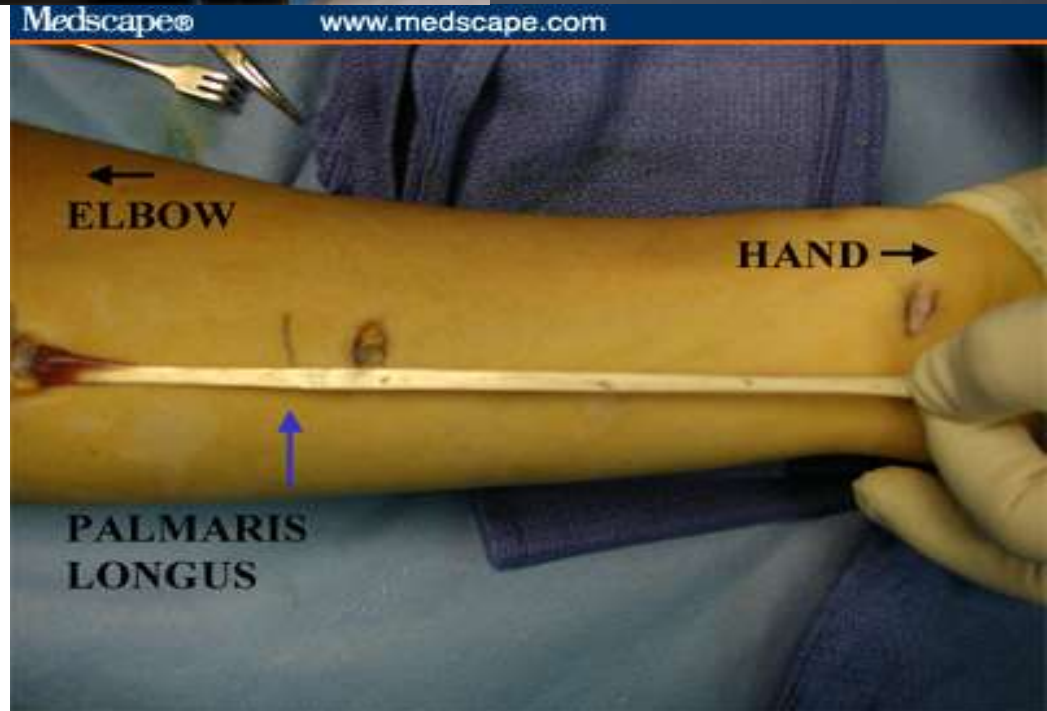
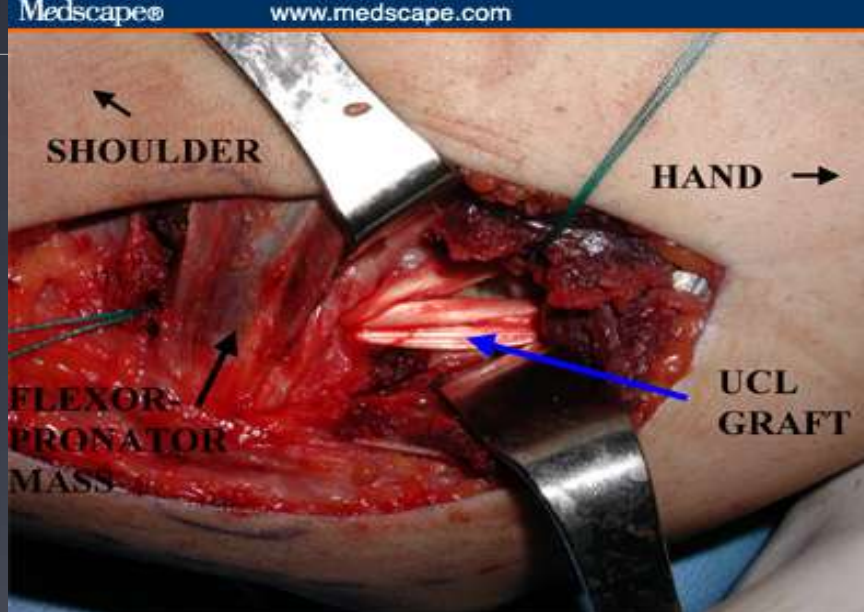
- Three joint articulation
- Elbow joint movement
- Epicondyles: muscle attachment site
- Ligamentous



Surgical Intervention

- Docking Technique
- Muscle Splitting Technique
- Autograft
- Palmaris Longus





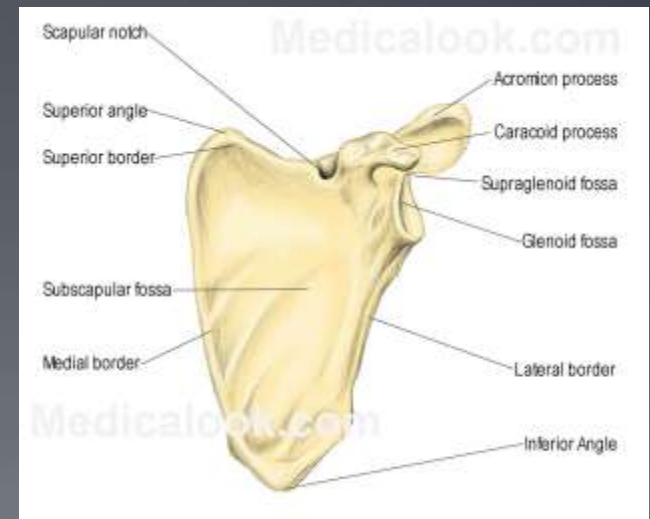
Post-Operative Management

- 7-10 days → 90° Posterior arm splint
 - Compression wrap
 - Avoid pronation
- 1 month → Double locking brace
 - Limited Flexion and Extension
- Medication
 - Oxycodon
 - Percocet
- ADL
 - No driving



Post-Operative Management

- Considerations
 - 4-5 times a week patient compliance
 - Avoid 90° ER until week 6
 - Stress on graft
 - Avoid scapular dyskinesia
 - Decreased scapulohumeral rhythm



Goals

Short Term

- NO Inflammation → Week 2
- NO Pain → Week 2
- Full Elbow and Wrist ROM → Week 7

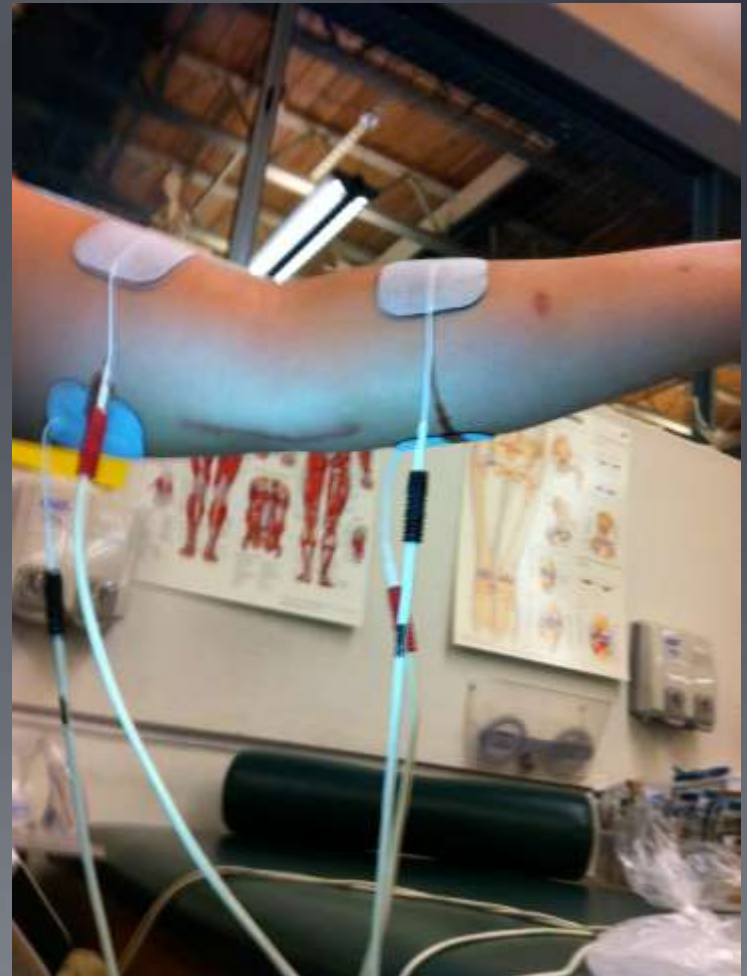
Long Term

- Full Strength U.E. → Week 18
- Interval Thrower's Program → Week 19
- RTP → Week 52



Rehabilitation

- Modalities
 - Cryotherapy
 - Electrical stimulation
 - Ultrasound
- Medications
 - Oxycodon
 - Percocet
 - Acetaminophen
 - Ibuprofen



Rehabilitation

- Goals
 - Cardiovascular endurance
 - Stationary Bike → Elliptical → Poles
 - Core strengthening
 - Endurance
 - Psychosocial
 - Mental endurance
 - Team cohesion
 - Flexibility
 - Hip flexor
 - Posterior Shoulder capsule
 - Hamstrings
 - Triceps Surae



Week 1 and 2

- Goals
 - Decrease pain & swelling
 - Rehabilitation
 - Medications
 - 90° Posterior splint → 7–10 days → Functional brace
 - Wrist ROM
 - Monitor for surgery complications
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Week 3 - 5

- Goals
 - Decrease swelling
 - Increase ROM
- Rehabilitation
 - Functional brace
 - Mobilizations
 - Modalities
 - Pronation/supination
 - Shoulder sagittal/frontal
 - L.E. flexibility program
 - Core workout
 - Cardiovascular training



Week 5 - 6

- Goals
 - Increase ROM & strength
- Rehabilitation
 - Theraband
 - Increase weight
 - Gravity dependent exercises



Week 7 - 10

- Goals
 - Elbow & wrist FROM
 - Increase strength
- Rehabilitation
 - E.R. exercises
 - Diagonal shoulder exercises
 - Multiple elbow flexion exercises



Week 11 - 15

- Goals
 - Increase Strength Demands
- Rehabilitation
 - Periscapular
 - Glenohumeral
 - Elbow
 - Wrist
 - Lower Extremity
 - Core



Week 16 - 17

- Goals
 - Increased valgus stress and compressive forces
- Rehabilitation
 - Plyometrics
 - CKC



Week 16 - 17

- Goals
 - Increased valgus stress and compressive forces
- Rehabilitation
 - Plyometrics
 - CKC



Plyometrics



* Supine chest pass



* Trampoline Toss



Week 18 - 19

- Goals
 - Neuromuscular control
 - Correct throwing mechanics
 - Full strength
- Rehabilitation
 - PNF
 - D₁, D₂, rhythmic stabilizations
 - Towel drills



Thrower's Program

- To begin must have:
 - Full strength
 - No pain
- “Warm-up”
 - Arm bike intervals, scapular mobilizations, FMR, PNF D1 & D2 patterns.
- SOAP DOCUMENTATION!!
 - Before & After throwing
- 3 days a week non-consecutive days



Thrower's Program

- Post Practice Protocol
 - Foam roll
 - Massage if needed
 - Modalities if needed
 - Ice pack 20'



Thrower's Program

Week 19

○ Throwing at 50%

# of Throws	Distance (ft.)
20	20 (warm-up phase)
25-40	30-40
20	20 (cool-down phase)

Thrower's Program

Week 20 - 24

○ Throwing at 50%

# of Throws	Distance (ft.)
10	20 (warm-up)
10	30-40
30-40	50
10	20-30 (cool-down)

Thrower's Program

Week 25 - 28

○Throwing at 60%

# of Throws	Distance (ft.)
10	30 (warm-up)
10	40-45
30-40	60-70
10	30 (cool-down)

Thrower's Program cont.

Week 29 - 30

○ Throwing at 60%

# of Throws	Distance (ft.)
10	40 (warm-up)
10	50-60
15-20	70-80
10*	50-60
10	40 (cool-down)

* Throwing at 70%

Thrower's Program

Week 31-32

○ Throwing at 75%

# of Throws	Distance (ft.)
10	40 (warm-up)
10	50-60
20-30	80-90
20	50-60
10	40 (cool-down)

Thrower's Program

Week 33 - 34

○ Throwing at 75%

# of Throws	Distance (ft.)
10	40 (warm-up)
10	60
15-20	100-110
20*	60
10	40 (cool-down)

* Throwing at 80%

Thrower's Program

Week 35-36

○ Throwing at 75%

# of Throws	Distance (ft.)
10	40 (warm-up)
10	60-150
15-20	120-150
20*	60
10	40 (cool-down)

* Throwing at 90%

Thrower's Program

Week 37 - 40

- Goals
 - Throwing off mound
 - Fastballs only
 - Spot location
 - 50%-90% velocity
 - Game scenarios
 - Pitch count 60 → 90 in a week



Thrower's Program

Week 41 - 48

- Goals
 - Bullpen workout
 - Pitch Count → 90 – 110
 - Game scenarios
 - All pitches
 - 100% velocity
- Constant communication with pitching coach



Functional Testing Week 49-51

- Goals
 - 120 pitches/3 innings
 - Rehabilitation appearances
 - Normal recovery time



Thrower's Program

Week 52

- Competitive Return to Play
- RTP Criteria
 - No pain
 - Full ROM
 - Strength = contralateral side
 - (-) special tests
 - Completed throwing program
 - Readiness of athlete



References

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 5. Vitale MA, Ahmad CS. The outcome of elbow ulnar collateral ligament reconstruction in overhead athletes. *Am J Sports Med.* 2008; 36:1193-1205.
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