

# A Pitcher's Penn. A Classic Case of Ulnar Collateral Ligament Injury

Justin Tran

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RAD 3030 Elective

Reviewed by: Manickam Kumaravel MD

# History and Physical Findings

19-year old male presents with pain in the medial aspect of his right elbow after pitching at a baseball game

“Pop” heard at onset

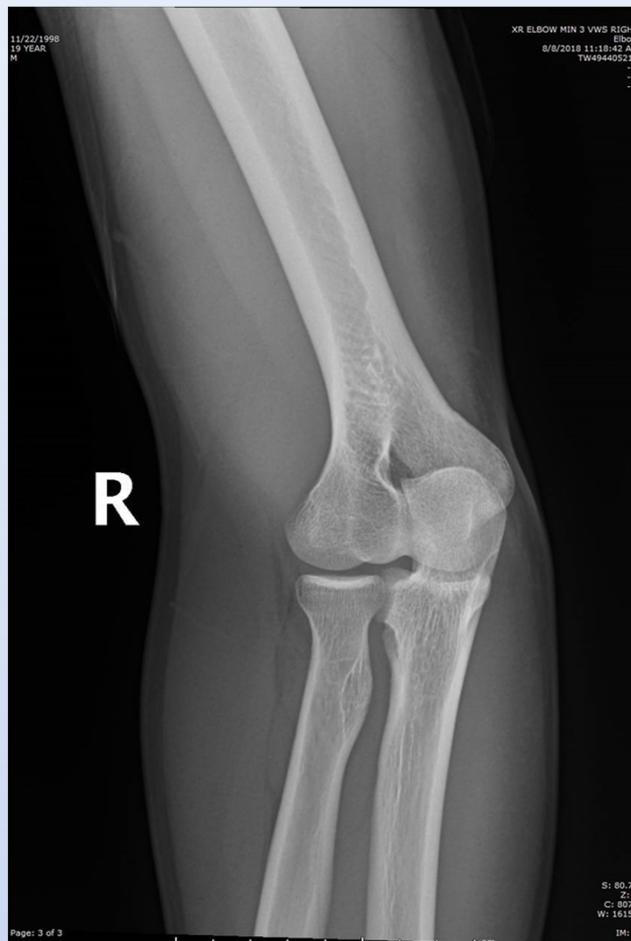
Pain described as burning, tingling, and shooting; worsens with movement; numbness in fingers noted

Right elbow: tenderness along distal ulnar collateral ligament; minor pain noted during resistance to elbow extension; positive milking test; positive valgus stress test

# Differential Diagnosis

- 1) Ulnar collateral ligament injury
- 2) Medial epicondylitis
- 3) Medial epicondyle fracture
- 4) Ulnar neuritis

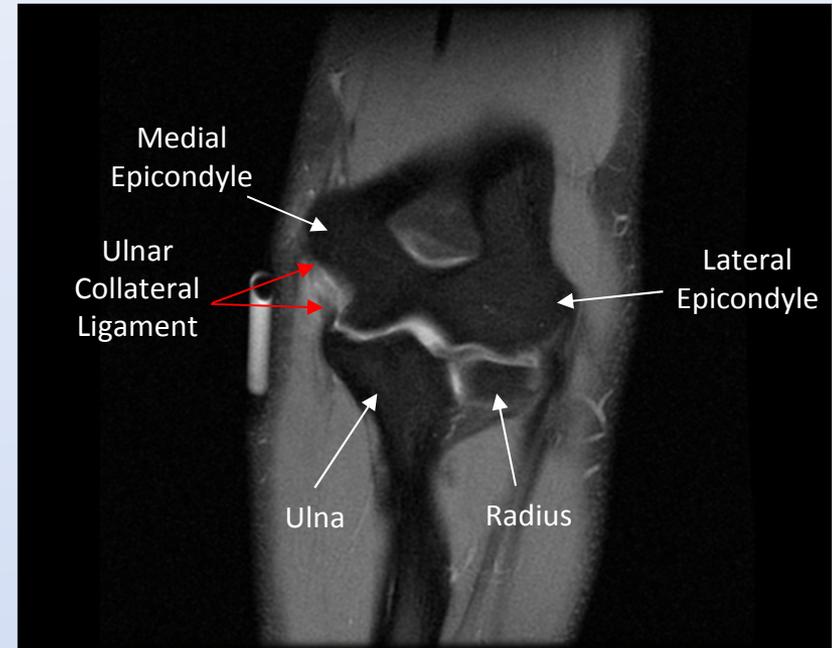
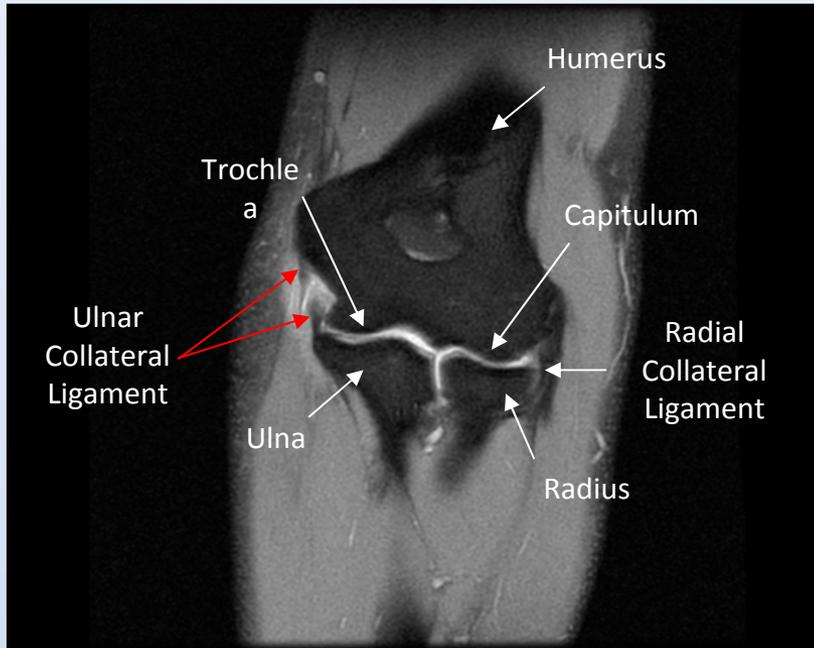
# Imaging



Imaging: 3-view X-Rays of right elbow were taken at an outside facility.

Pertinent findings: No acute bony abnormalities. Normal joint spaces. Normal soft tissues.

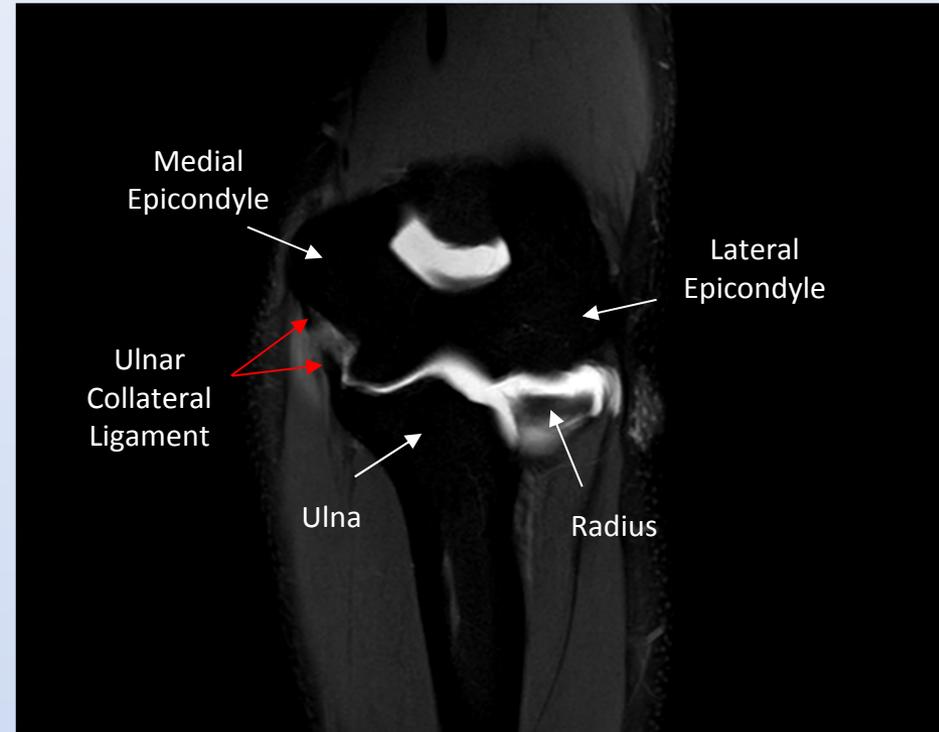
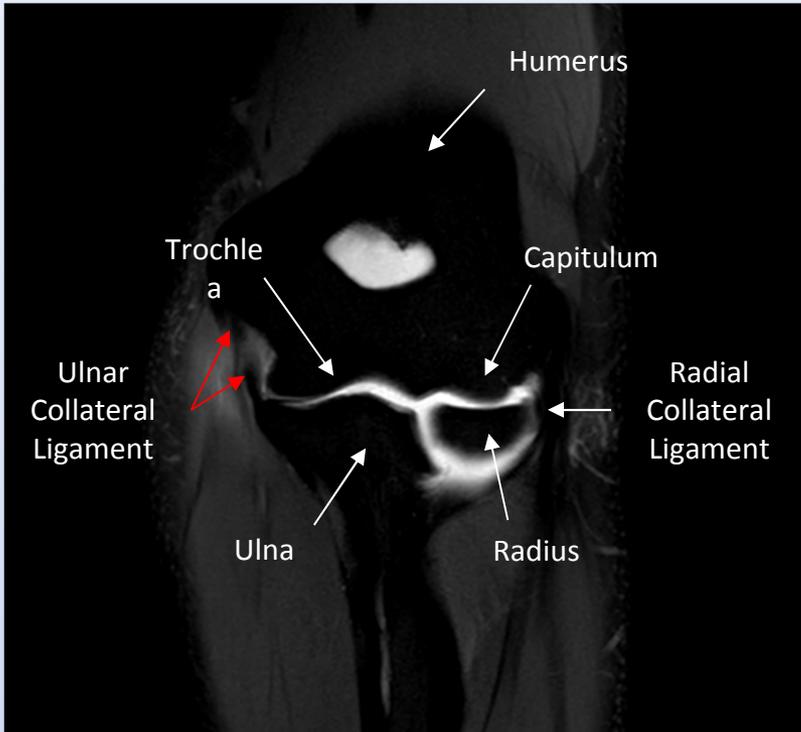
# Imaging



Imaging: MRI of right elbow without contrast

Pertinent findings: Complete disruption of the proximal anterior bundle of the ulnar collateral ligament at the humeral attachment with mild overlying soft tissue inflammatory signal. The posterior bundle of the ulnar collateral ligament appears intact. The lateral ulnar collateral ligament and radial collateral ligament are intact. Ulnar nerve is normal in appearance. Common flexor tendon at the origin is intact.

# Imaging



Imaging: MRI arthrogram of right elbow

Pertinent findings: Disruption of the proximal anterior bundle of the ulnar collateral ligament at the humeral attachment

# Differential Diagnosis

## 1) Ulnar collateral ligament injury

MRI reports consistent of UCL injury. Diagnosis most likely.

## ~~2) Medial epicondylitis~~

MRI did not show thickening or increased intensity of the common flexor tendon; no soft tissue edema noted around common flexor tendon.

## ~~3) Medial epicondyle fracture~~

Plain films did not show any evidence of medial epicondylar avulsion fractures.

## ~~4) Ulnar neuritis~~

Plain films did not show bone spurs or arthritis that could contribute to nerve compression. MRI did not show any signal increases of ulnar nerve. Diagnosis less likely.

# Final diagnosis and Outcome

**Diagnosis:** Full thickness tear of the anterior bundle of the ulnar collateral ligament

**Outcome:** Because this patient expresses a desire to return to playing baseball at a collegiate level, the best course of action for his condition was surgical intervention. The surgery was performed successfully with no complications. During post-surgical, the elbow was placed in a hinged brace that was gradually adjusted in order to increase the range of motion until full extension. The patient will continue with physical therapy sessions throughout the year to help improve arm strength and range of motion.

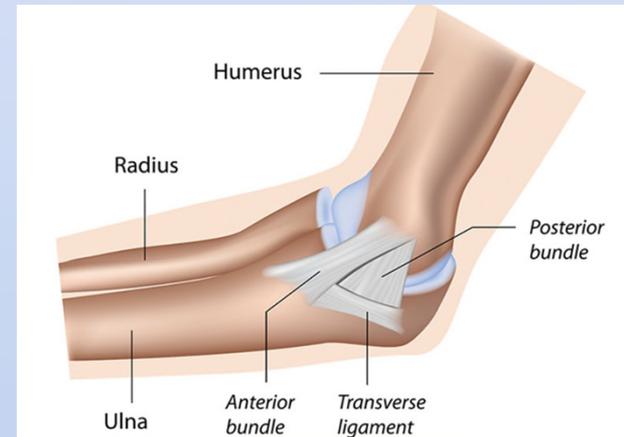
**Follow-up Imaging:** No follow-up imaging was performed, as it is not routine to obtain post-op MRI's in the absence of complications.

# Discussion

UCL injuries are a common concern for pitchers, as they place high valgus force upon their elbows during overhead throwing motions. The anterior bundle of the UCL is at the highest risk during the late cocking and acceleration phases.

Acute UCL injuries occur much less frequently than chronic injuries and are generally caused by a single episode of intense stress, leading to a complete ligamentous tear.

The uniqueness of this case can be appreciated by the fact that this patient was a career non-pitcher and only sustained this injury when he decided to play both pitcher and catcher positions during a summer league game. To decrease the risk and incidence of UCL injury, patients who take on additional roles should consider playing positions that involve less pitch count, such as traditional infield or outfield positions, instead of playing pitcher.



# Discussion

## Why imaging?

Presenting signs and symptoms on a thorough history and physical examination can lead to a high clinical suspicion for UCL injury. Imaging can be used to definitively diagnose the condition. Plain film X-rays can be used to rule out other causes of medial elbow pain. MRI can be used to identify the severity and location of the ligament tear. Additionally, MRI arthrogram can be used to provide more detail than plain MRI and can better differentiate between a partial and full thickness tears.

## Cost of Imaging:

Elbow complete 3+V Unilateral = \$825

MRI Upper Extremity Joint W/O contrast = \$1537

MRI Upper Extremity Joint W/contrast = \$1568

\*Pricing estimates listed for uninsured at Memorial Hermann Hospital Imaging and Diagnostic Services

# ACR Appropriateness Criteria

**Clinical Condition:** Chronic Elbow Pain

**Variant 7:** Suspect collateral ligament tear; radiographs nondiagnostic.

Radiologic Procedure	Rating	Comments	RRL*
MRI elbow without IV contrast	9	Either routine MRI or MR arthrogram is appropriate. Use of this procedure depends on availability, expertise, and local conditions.	O
MR arthrography elbow	9	Either routine MRI or MR arthrogram is appropriate. Use of this procedure depends on availability, expertise, and local conditions.	O

Per ACR recommendation, the initial evaluation of chronic elbow pain should begin with radiography.

For suspected collateral ligament tear, MRI of the elbow without IV contrast and MR arthrography of the elbow both have a rating of 9, denoting them to be the most appropriate imaging modalities.

# Acknowledgements

Special thanks to...



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Department of Orthopedic Surgery

# References

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