

# AMSER Case of the Month

## October 2025

Glenoid Avulsion of the Glenohumeral Ligament  
(GAGL) with Glenoid Chondral Defect

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College of  
Osteopathic  
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# Patient Presentation

- 18-year-old male who comes in today referred by his athletic trainer. He is a high school football player. He notes last Friday night in the game he injured his shoulder as he is going to make a tackle, he left his arm out in an abducted and extended position and felt a pop in his shoulder. He is not sure if he subluxed or dislocated.

# Exam Findings

- Range of Motion – extension to 170 degrees, external rotation to 60 degrees
- Strength - Supraspinatus, Infraspinatus, Subscapularis, Abduction all 5/5
- Special Tests -
  - Positive – Speed's, O'Brien's, Apprehension, Relocation
  - Negative – Jerk Test
- AC Joint - Non-Tender

What Imaging Should We Order?

# Select the applicable ACR Appropriateness Criteria

**Variant 1:** Adult. Acute shoulder pain. Any etiology. Initial imaging.

| Procedure                                 | Appropriateness Category | Relative Radiation Level |
|---|--------------------------|--------------------------|
| Radiography shoulder                      | Usually Appropriate      | ☢                        |
| US shoulder                               | Usually Not Appropriate  | ○                        |
| MR arthrography shoulder                  | Usually Not Appropriate  | ○                        |
| MRI shoulder without and with IV contrast | Usually Not Appropriate  | ○                        |
| MRI shoulder without IV contrast          | Usually Not Appropriate  | ○                        |
| Bone scan shoulder                        | Usually Not Appropriate  | ☢☢☢                      |
| CT shoulder with IV contrast              | Usually Not Appropriate  | ☢☢☢                      |
| CT shoulder without and with IV contrast  | Usually Not Appropriate  | ☢☢☢                      |
| CT shoulder without IV contrast           | Usually Not Appropriate  | ☢☢☢                      |
| CT arthrography shoulder                  | Usually Not Appropriate  | ☢☢☢☢                     |
| FDG-PET/CT skull base to mid-thigh        | Usually Not Appropriate  | ☢☢☢☢                     |

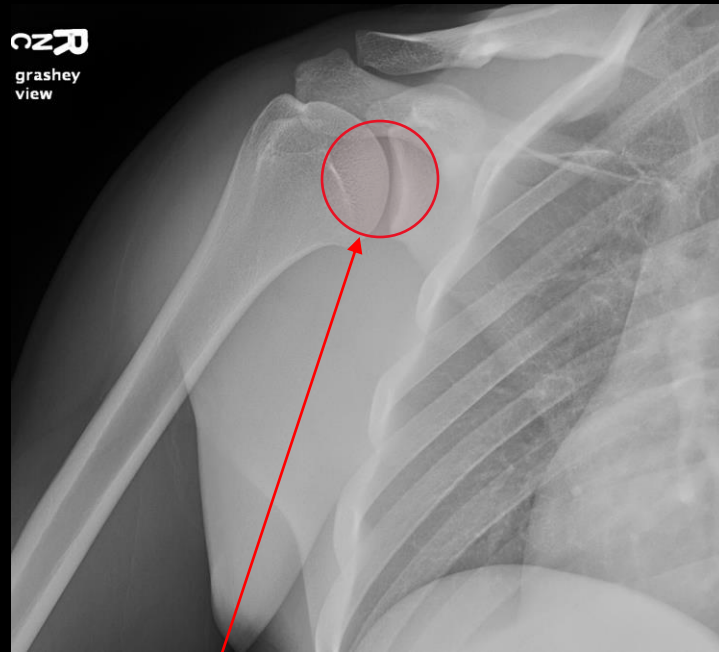
This imaging modality was ordered by the orthopedist



# X-Ray Findings (unlabeled)



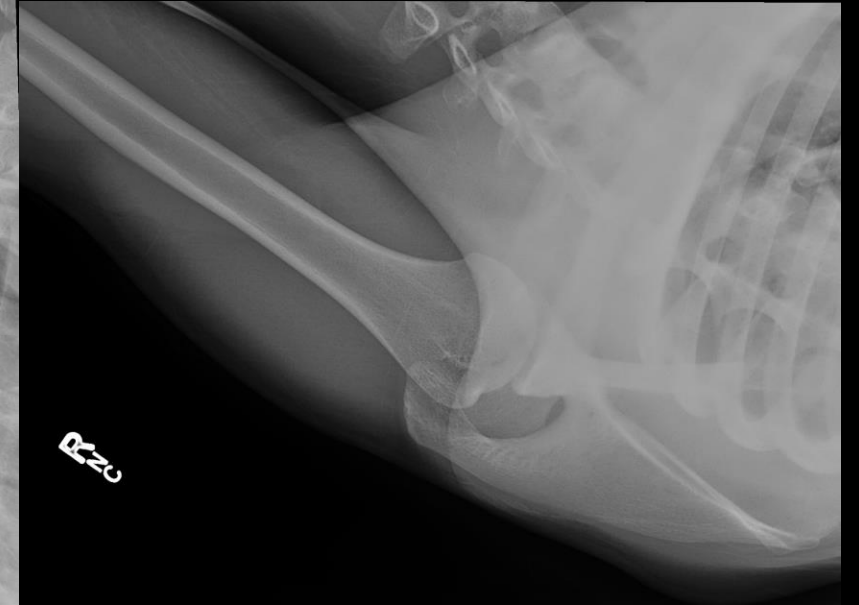
# X-Ray Findings: (labeled)



No Bankart  
Fracture



Note - No acute Fracture or  
Dislocation



# Select the applicable ACR Appropriateness Criteria

## **Variant 5:**

**Adult. Acute shoulder pain. Physical examination consistent with labral tear. Radiographs negative or indeterminate. Next imaging study.**

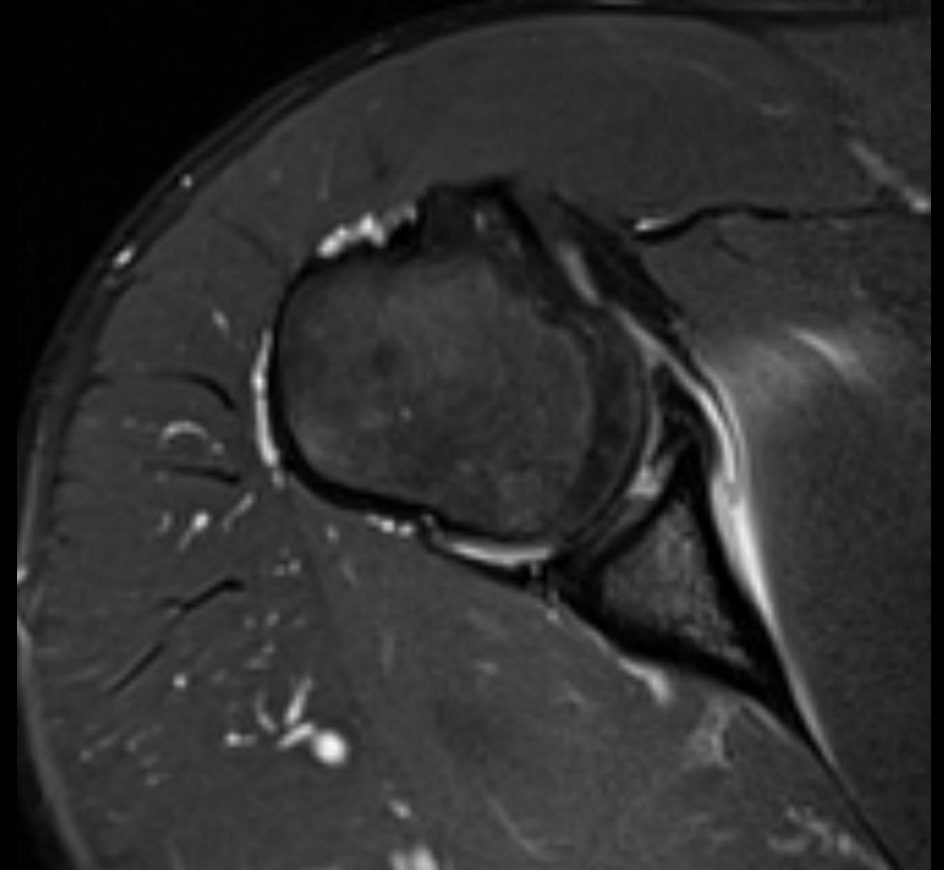
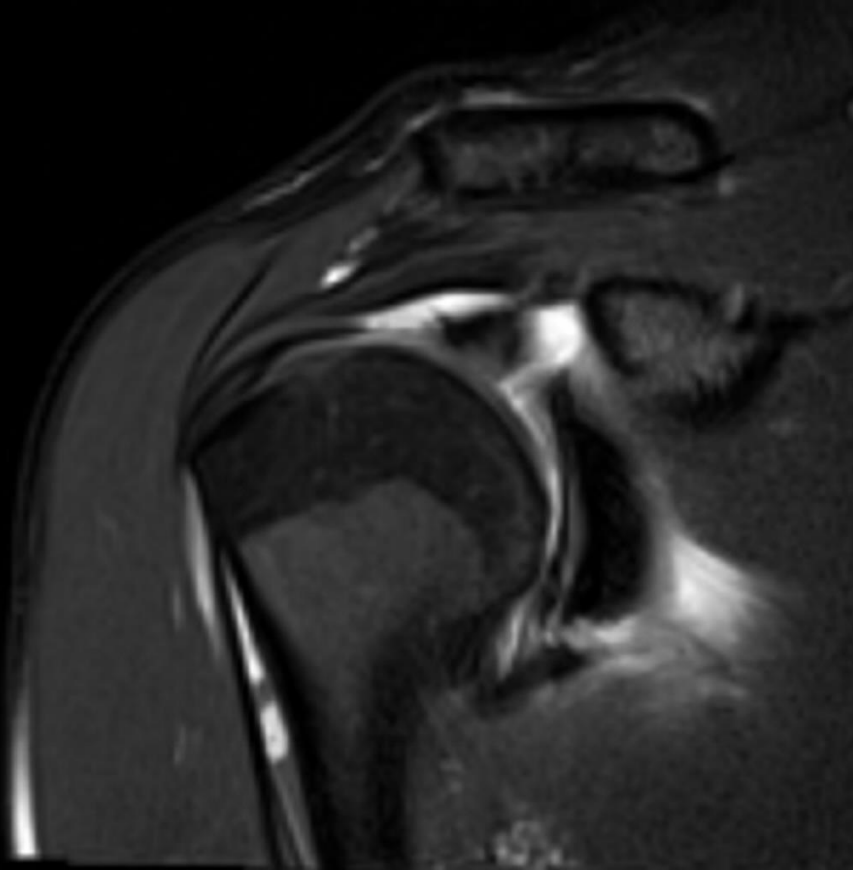
| Procedure                                 | Appropriateness Category | Relative Radiation Level |
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| MR arthrography shoulder                  | Usually Appropriate      | ○                        |
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| CT arthrography shoulder                  | Usually Appropriate      | ☢☢☢☢☢                    |
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| FDG-PET/CT skull base to mid-thigh        | Usually Not Appropriate  | ☢☢☢☢☢                    |

This imaging modality was ordered by the ER physician

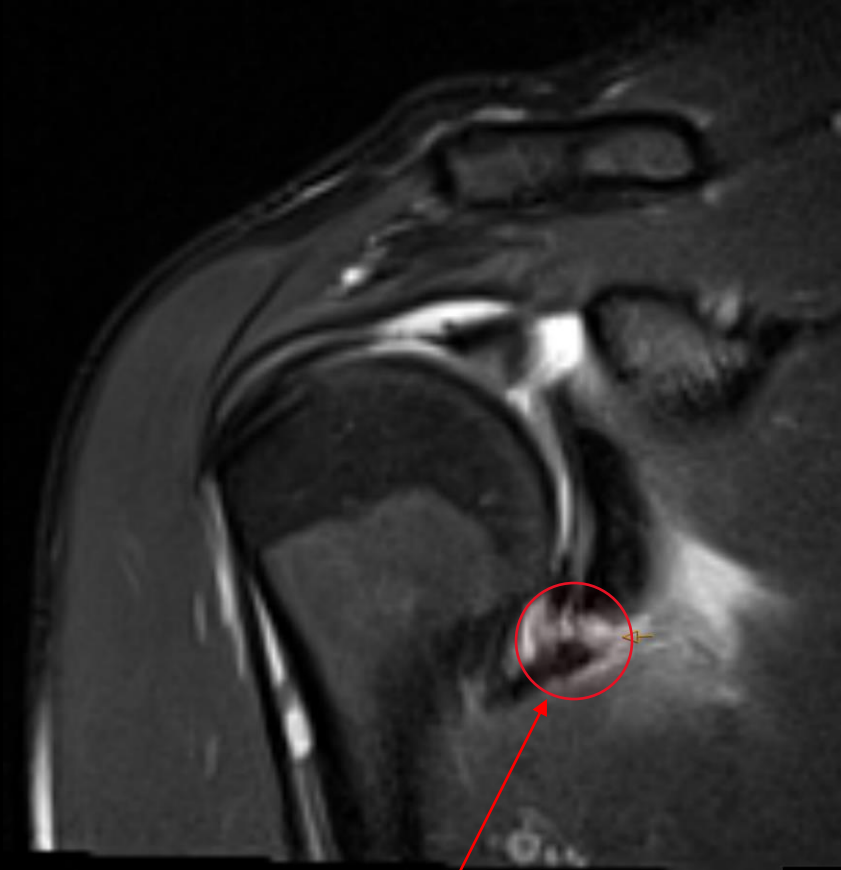




## MRI Findings (unlabeled)



# MRI Findings: (labeled)



Reverse "J sign", Avulsed inferior glenohumeral ligament (IGHL) from inferior glenoid



Full thickness cartilage defect from the glenoid.

Final Dx:

Right Shoulder GAGL Legion (Glenoid Avulsion of IGHL)

# Key Points

- GAGL -
  - Rare cause of Instability (~1-2% of cases) <sup>1,2</sup>
- Often missed because the labrum appears intact <sup>1</sup>
- MRI Hallmark -
  - Intact Labrum
  - Detached IGHL
  - Reverse “J-Sign” <sup>1,3</sup>
- Chondral Defects (GLAD-type) often accompany traumatic instability<sup>3</sup>

# Clinical Relevance

- Untreated -
  - Recurrent Instability
  - Pain
  - Cartilage Degeneration
- Surgical Repair -
  - Arthroscopic reattachment of IGHL  $\pm$  Chondroplasty <sup>2,4</sup>

# Teaching Points

- Maintain suspicion in young athletes with instability & normal-appearing labrum <sup>1</sup>
- Always evaluate IGHL attachment on MRI, not just labrum <sup>1,3</sup>
- Look for associated cartilage injury on axial MRI <sup>3</sup>
- Report Explicitly: “Findings consistent with GAGL Legion” <sup>2,4</sup>

# References:

1. Mannem R, DuBois M, Koeberl M, et al. *Skeletal Radiol.* 2016;45(10):1443-1448.
2. Wolf EM, Siparsky PN. *Arthroscopy.* 2010;26(9):1263-1267.
3. Jana M, Gamanagatti S, et al. *World J Radiol.* 2011;3(9):224-232.
4. O'Reilly OC, Andrews KA, Siparsky PN. *Arthrosc Tech.* 2019;8(10):e1153-e1158.