AMSER Case of the Month October 2023

HPI: 43 y/o F with L shoulder pain

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Patient Presentation

HPI: 43-year-old female presents to sports medicine with a 2-month history of persistent left shoulder pain following excessive rowing. Patient states the pain is located over the top of her shoulder, and into her deltoid region. It is worse with all motions and while laying on it at night. She denies trauma, numbness, and tingling.

PMHx: SLE, pulmonary HTN

Labs: none

Physical Exam: significant pain in all motions, no limitations in ROM

What Imaging Should We Order?

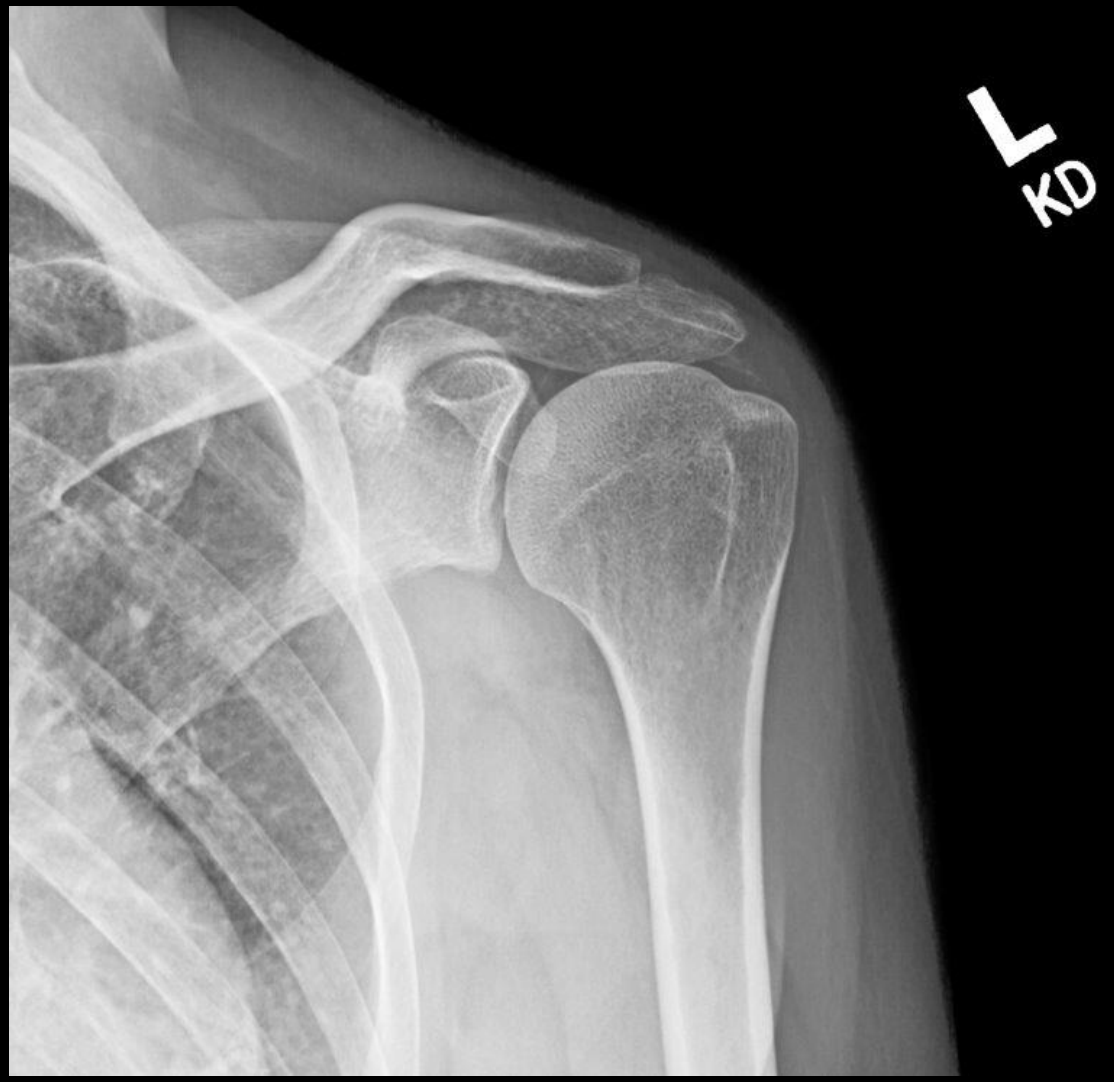
ACR Appropriateness Criteria

Variant 1: **Chronic shoulder pain. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
Radiography shoulder	Usually Appropriate	☢
US shoulder	May Be Appropriate	O
Image-guided anesthetic +/- corticosteroid injection shoulder or surrounding structures	Usually Not Appropriate	Varies
MR arthrography shoulder	Usually Not Appropriate	O
MRI shoulder without and with IV contrast	Usually Not Appropriate	O
MRI shoulder without IV contrast	Usually Not Appropriate	O
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.

Findings (unlabeled)



Findings: (labeled)

Shoulder radiograph showing an amorphous calcification above the humeral head.

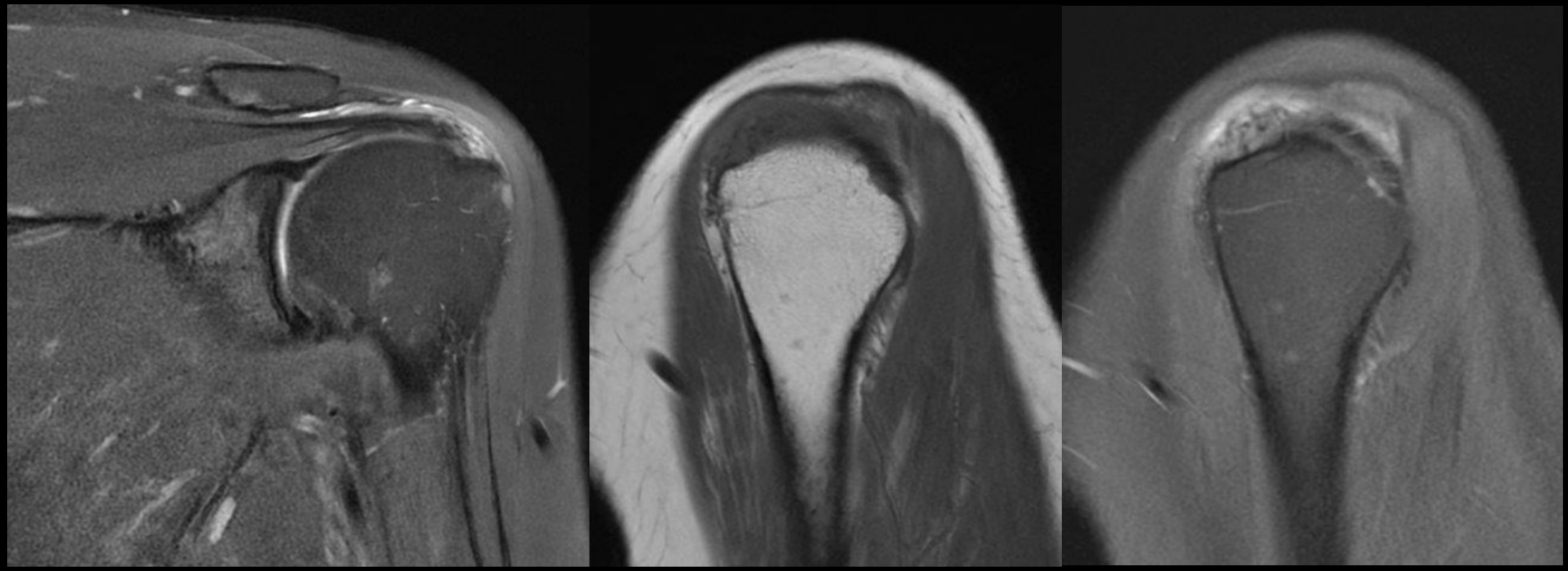
ACR Appropriateness Criteria

Variant 3: **Chronic shoulder pain. Radiographs demonstrate calcific tendinopathy or calcific bursitis. Next imaging study.**

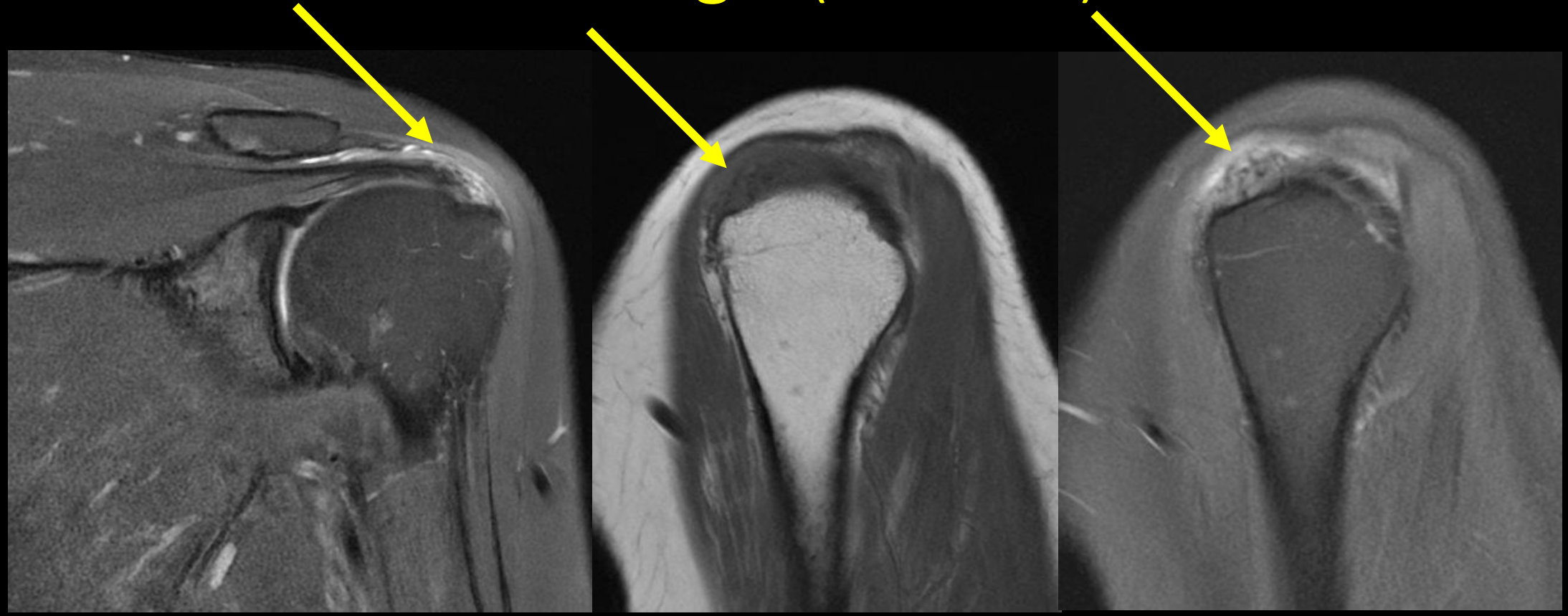
Procedure	Appropriateness Category	Relative Radiation Level
Image-guided anesthetic +/- corticosteroid injection shoulder or surrounding structures	Usually Appropriate	Varies
US shoulder	May Be Appropriate	O
MR arthrography shoulder	May Be Appropriate	O
MRI shoulder without IV contrast	May Be Appropriate	O
Radiography shoulder additional views	Usually Not Appropriate	☢
MRI shoulder without and with IV contrast	Usually Not Appropriate	O
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. Additionally, image guided corticosteroid injection and barbotage done in office by sports medicine.

Findings (unlabeled)



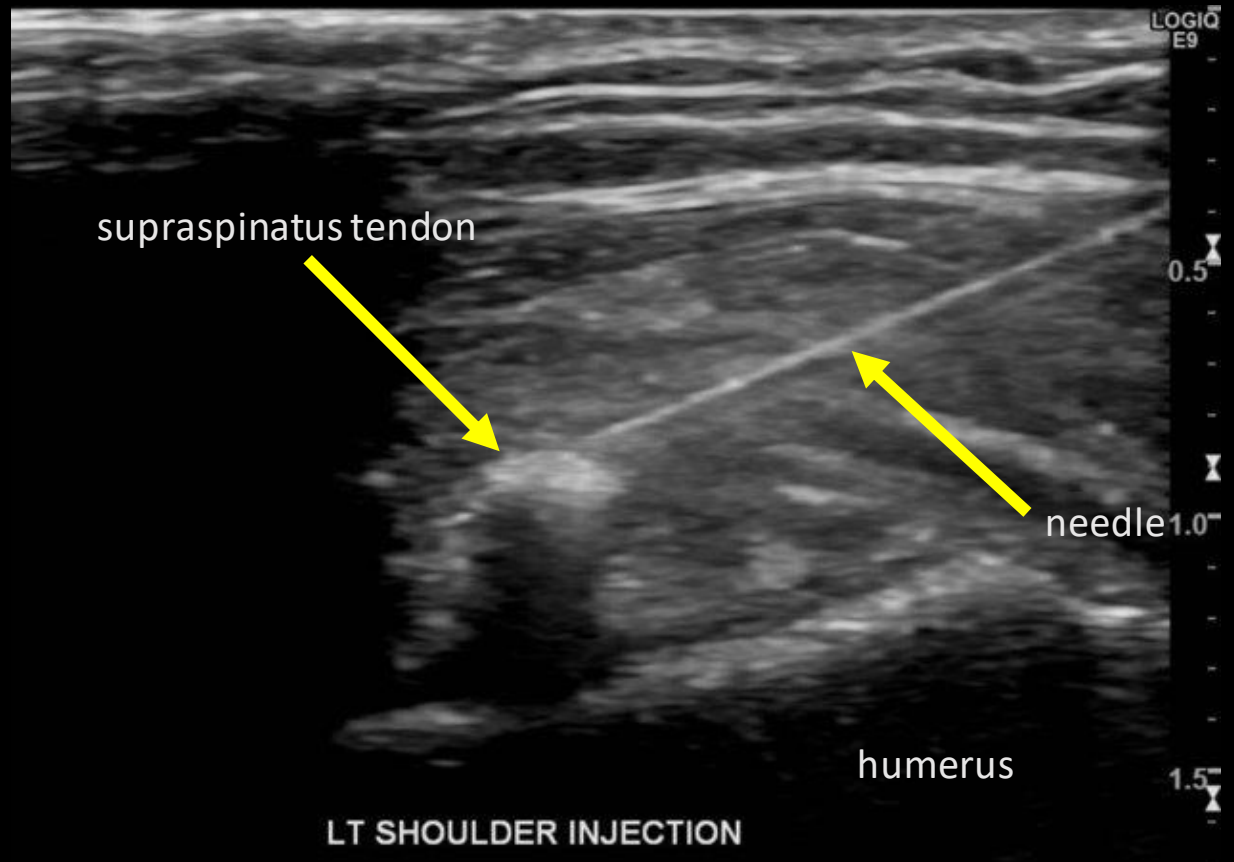
Findings: (labeled)



MR coronal T2, MR sagittal T1, and MR sagittal T2 showing tendinopathy centered in the supraspinatus, with tiny stippled foci consistent with calcification.

Findings (unlabeled)

Findings: (labeled)



Ultrasound showing barbotage of supraspinatus calcification.

Final Dx:
Calcific tendinopathy of the supraspinatus

Case Discussion

Overview: formation of deposits of calcium crystals in one or several of the rotator cuff tendons

Etiology: unknown, no correlation to trauma or overuse

Symptoms: gradual, atraumatic pain localized on the top or lateral aspect of the shoulder with radiation to the deltoid, often inability to lay on the affected shoulder

Physical exam: pain in all planes of motion with preserved ROM

Case Discussion

Disease Course:

- Formative Phase: calcific deposits form in tendons
- Resting Phase: stable calcific deposits +/- pain
- Resorptive Phase: macrophages and giant cells resorb deposits, may have pain due to leakage into the subacromial bursa and inflammatory response
- Post-Calcific Phase: fibroblasts reconstitute the normal collagen pattern of the tendon

Case Discussion

Initial Management: Conservative, focused on symptom relief. May include oral anti-inflammatory/analgesic medication, glucocorticoid injection, and physical therapy.

Refractory Disease: Extracorporeal shockwave therapy (ESWT) or barbotage. If ineffective, surgery.

Our Patient: Extensive treatment including formal physical therapy, injections, and multiple ultrasound barbotage procedures. Still limited and decreased function. Arthroscopic surgery is planned.

References:

Chronic shoulder pain - ACR. American College of Radiology. (n.d.). Retrieved August 24, 2023, from https://acsearch.acr.org/docs/3101482/Narrative/

Cullinane, B. (2022, November 23). Shoulder anatomy on ultrasound: Radiology case. Radiopaedia Blog RSS. Retrieved August 24, 2023, from https://radiopaedia.org/cases/shoulder-anatomy-on-ultrasound-1

Moosmayer, S. (2022, November 9). Calcific tendinopathy of the shoulder. UpToDate. Retrieved August 24, 2023, from https://www.uptodate.com/contents/calcific-tendinopathy-of-the-shoulder?search=calcific+tendinosis&source=search_result&selectedTitle=1~25&usage_type=default&display_rank=1#H4131419496

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