

AMSER Case of the Month

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59-year-old female presenting with worsening hip pain

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Patient Presentation

HPI: 59-year-old-female presents with acute exacerbation of chronic right hip pain and stiffness that is refractory to physical therapy.

PMHx/PSHx: None

Vitals: HR 80, BP 122/80, SaO2 97% on RA, Height 5'4", Weight 147lbs, BMI 25.2

PE: Right hip tender to palpation, gluteus medius pain with passive range of motion. Remainder of the hip with normal AROM.

Labs: None

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 1: Chronic hip pain. Initial Imaging.

Procedure	Appropriateness Category	Relative Radiation Level
Radiography pelvis	Usually Appropriate	☼☼
Radiography hip	Usually Appropriate	☼☼☼
US hip	Usually Not Appropriate	○
Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	Usually Not Appropriate	Varies
MR arthrography hip	Usually Not Appropriate	○
MRI hip without and with IV contrast	Usually Not Appropriate	○
MRI hip without IV contrast	Usually Not Appropriate	○
Bone scan hip	Usually Not Appropriate	☼☼☼
CT arthrography hip	Usually Not Appropriate	☼☼☼
CT hip with IV contrast	Usually Not Appropriate	☼☼☼
CT hip without and with IV contrast	Usually Not Appropriate	☼☼☼
CT hip without IV contrast	Usually Not Appropriate	☼☼☼
Fluoride PET/CT skull base to mid-thigh	Usually Not Appropriate	☼☼☼



This imaging modality was ordered initially by the PM&R physician

Select the applicable ACR Appropriateness Criteria

Variant 2: Chronic hip pain. Suspect noninfectious extra-articular abnormality, such as tendonitis or bursitis. Radiographs negative or nondiagnostic. Next imaging study.

Procedure	Appropriateness Category	Relative Radiation Level
US hip	Usually Appropriate	○
MRI hip without IV contrast	Usually Appropriate	○
Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	May Be Appropriate	Varies
MR arthrography hip	Usually Not Appropriate	○
MRI hip without and with IV contrast	Usually Not Appropriate	○
Bone scan hip	Usually Not Appropriate	☢☢☢
CT arthrography hip	Usually Not Appropriate	☢☢☢
CT hip with IV contrast	Usually Not Appropriate	☢☢☢
CT hip without and with IV contrast	Usually Not Appropriate	☢☢☢
CT hip without IV contrast	Usually Not Appropriate	☢☢☢
Fluoride PET/CT skull base to mid-thigh	Usually Not Appropriate	☢☢☢

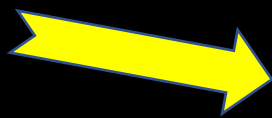
← This imaging modality was ordered after the radiographs

Findings (unlabeled)



Findings (labeled)

Large homogeneous oval shaped calcification adjacent to the right greater trochanter indicated by the yellow arrow. This area correlates to the insertions of the gluteus medius tendon.

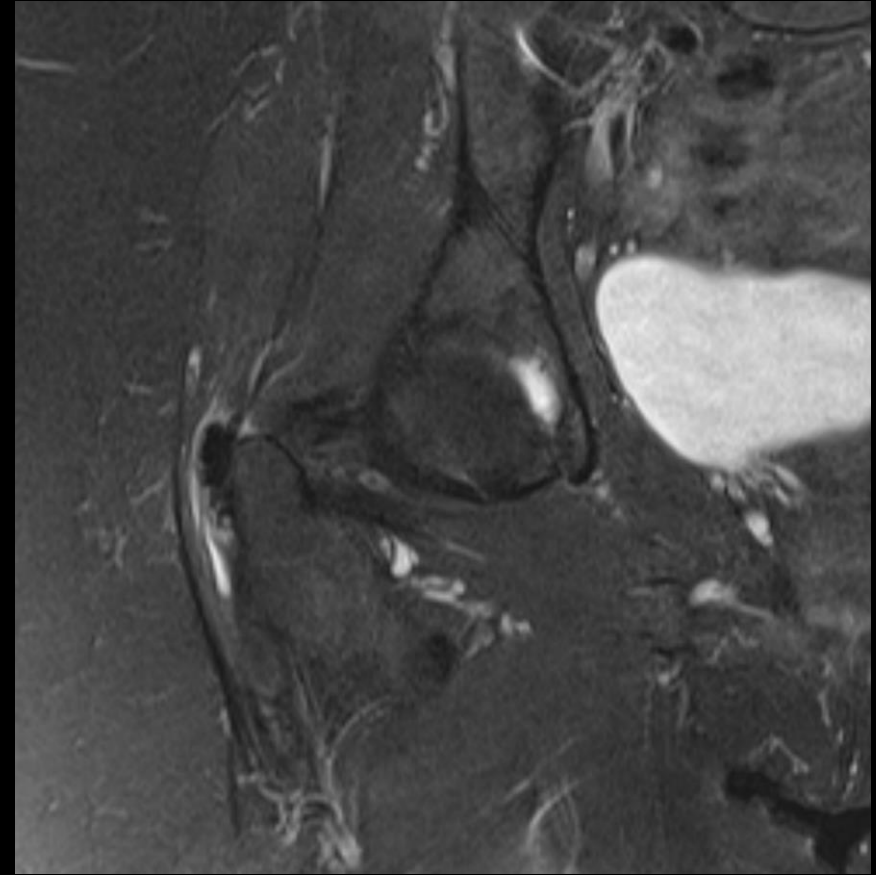
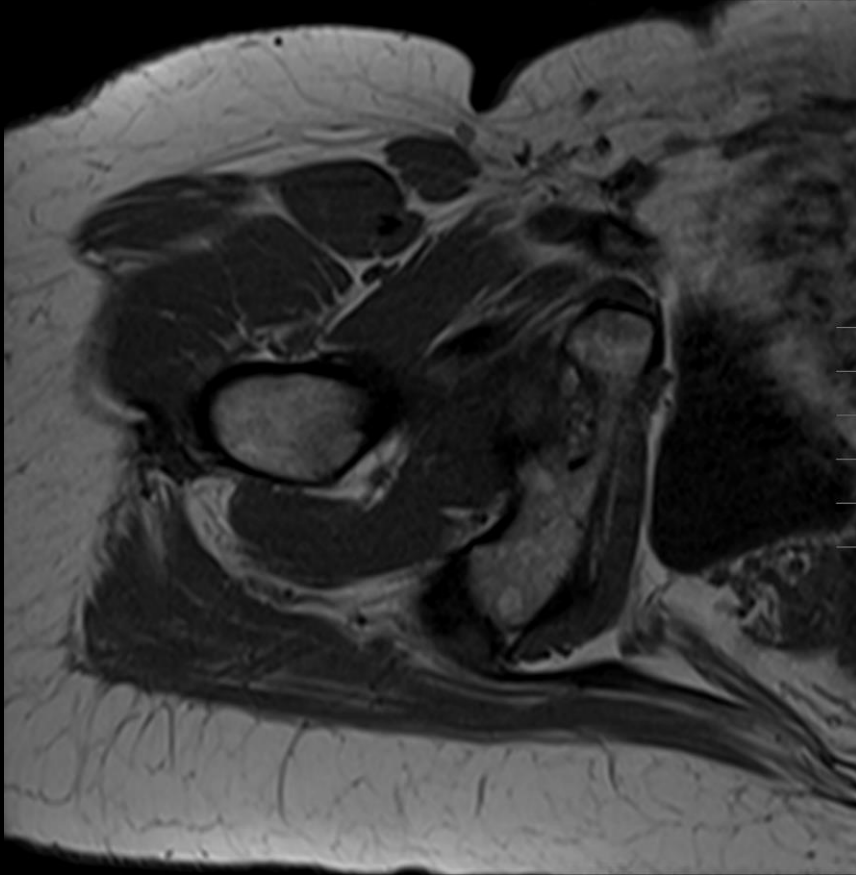


Similar smaller calcification adjacent to the contralateral asymptomatic left greater trochanter.

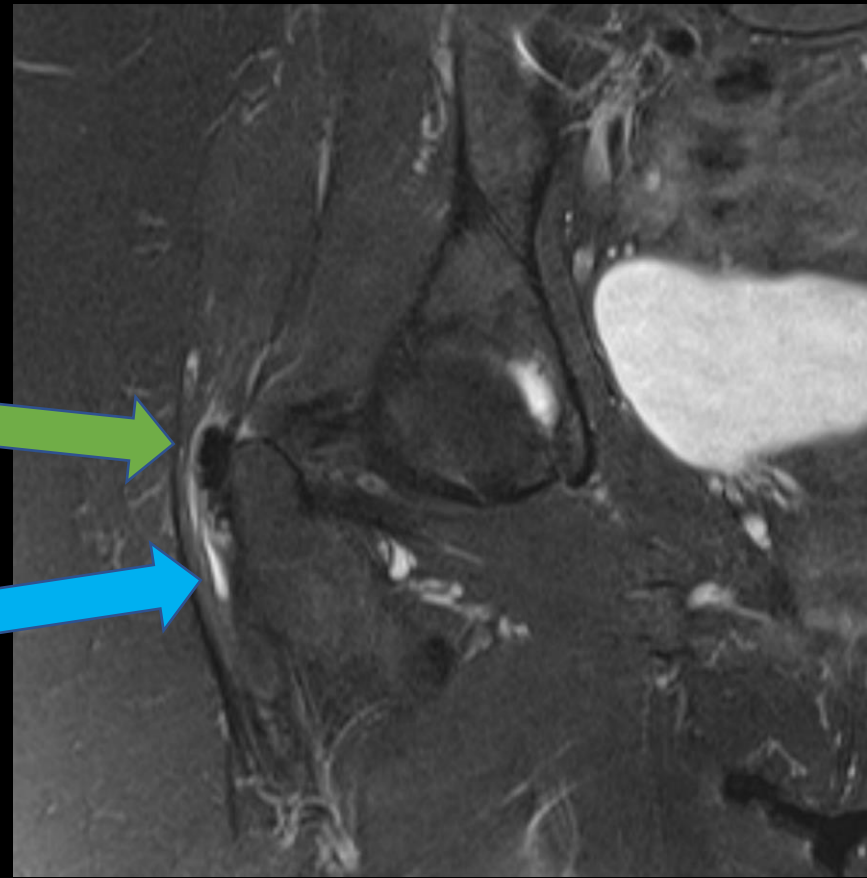
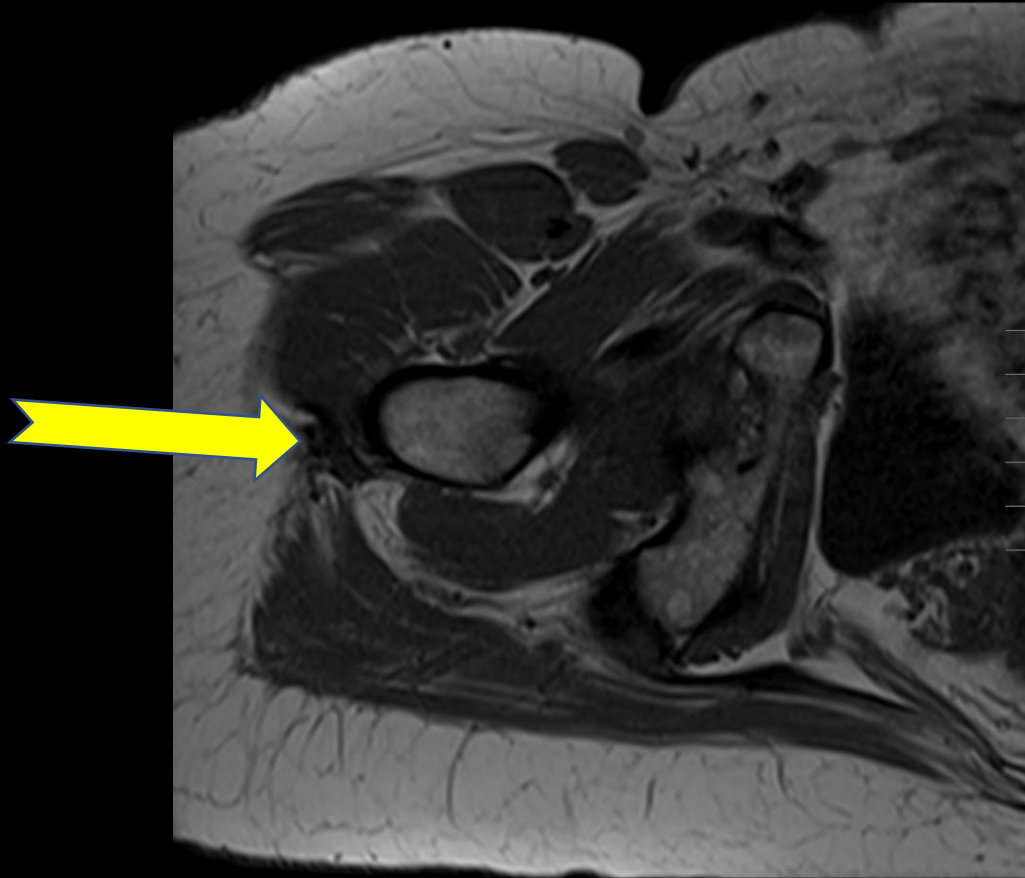


AP radiograph of the pelvis

Findings (unlabeled)



Findings (labeled)



T1 axial and T2 coronal fat saturation right hip MRI sequences: Globular focus of T1 (yellow arrow) and T2 (green arrow) signal hypointensity within the right gluteus medius tendon measuring 2.3 x 1.3 cm. T2 signal hyperintensity around the low signal focus. Trace fluid signal in the greater trochanteric bursa (Blue arrow).

Final Dx:

Gluteus medius calcific tendinitis due to
Hydroxyapatite Deposition Disease (HADD).
Reactive greater trochanteric bursitis.

Case Discussion: Hydroxyapatite Deposition Disease

- **Epidemiology**

- Broad spectrum of MSK pathologies due to hydroxyapatite crystal deposition (HADD)
- Commonly develops between the ages of 40-70
- Deposits occur in tendons, peritendinous tissues, bursae, and ligaments
- Most commonly found in the shoulder (69%), then the hip

- **Symptoms**

- Pain, erythema, swelling, and limited range of motion.
- May also be asymptomatic

- **Pathology**

- Pathogenesis remains uncertain
- Possible etiology for deposits include local trauma, ischemia, and necrosis of tendons
- Diabetes, thyroid/estrogen metabolism disorders and HLA-A1 genotype are predisposing risk factors

Case Discussion: Hydroxyapatite Deposition Disease

- **Differential Diagnosis**

- Tendinopathy/tenosynovitis, tumor, dystrophic or degenerative calcification

- **Imaging**

- Monoarticular homogeneous globular calcifications located at the site of tendon or bursa
- Becomes denser with time but does not develop cortication.
- Globular focus of low signal on all MRI sequences
- Adjacent soft tissue hyperintense signal due to reactive inflammation such as myositis or bursitis

Case Discussion: Hydroxyapatite Deposition Disease

- **Treatment**

- Generally conservative - NSAIDs, corticosteroid injections
- Aspiration/lavage may accelerate recovery in lengthy, painful courses
- Shock wave therapy or surgical removal for recurrent deposits

- **Prognosis**

- Self limiting in most patients with symptoms resolving in 2-3 weeks
- Some clinical and imaging finding may take 1-3 years for resolution

References:

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Mudgal P, Silverstone L, Sharma R, et al. Hydroxyapatite deposition disease. Reference article, *Radiopaedia.org* (Accessed on 9 Apr 2023) <https://doi.org/10.53347/rID-26978>