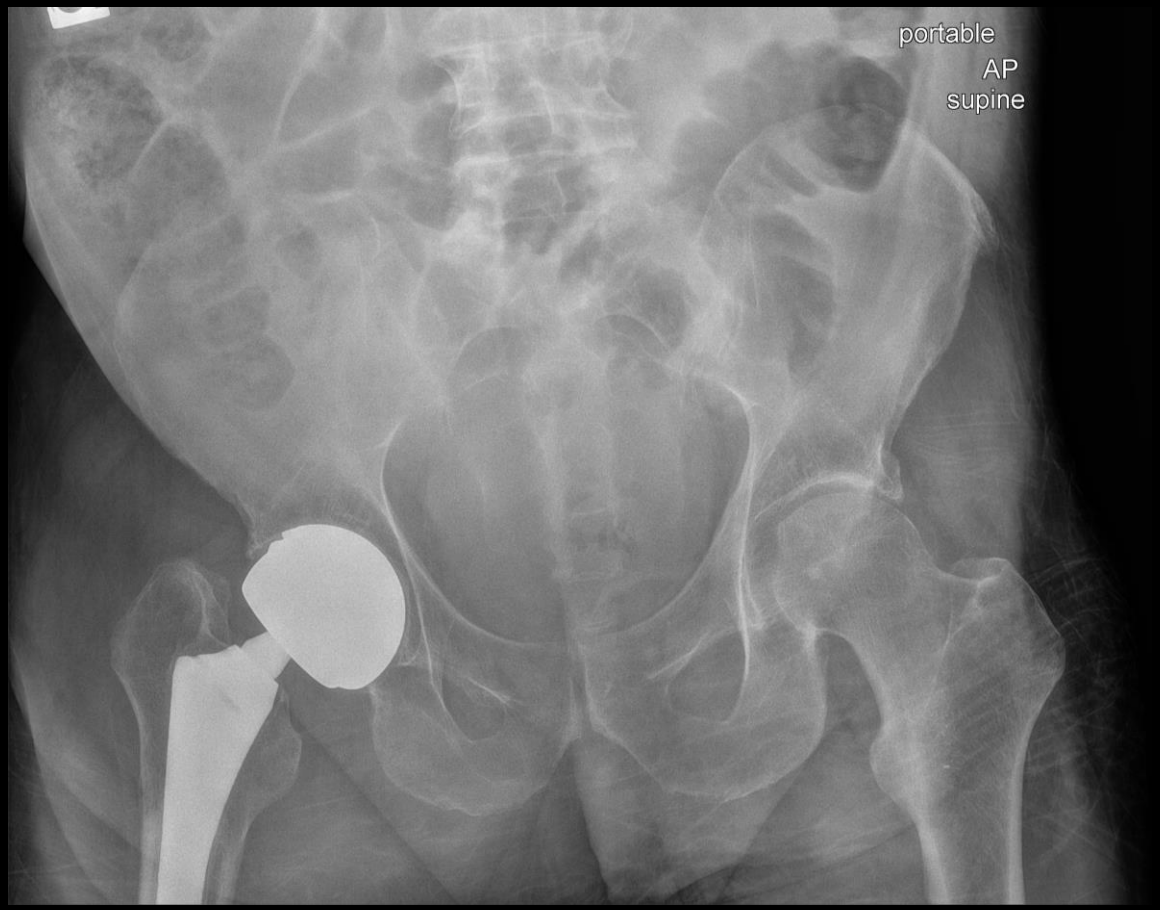
61 year old male with increasing right hip pain.
-Hx of Right THA


portable
supine
JP


portable
supine
JP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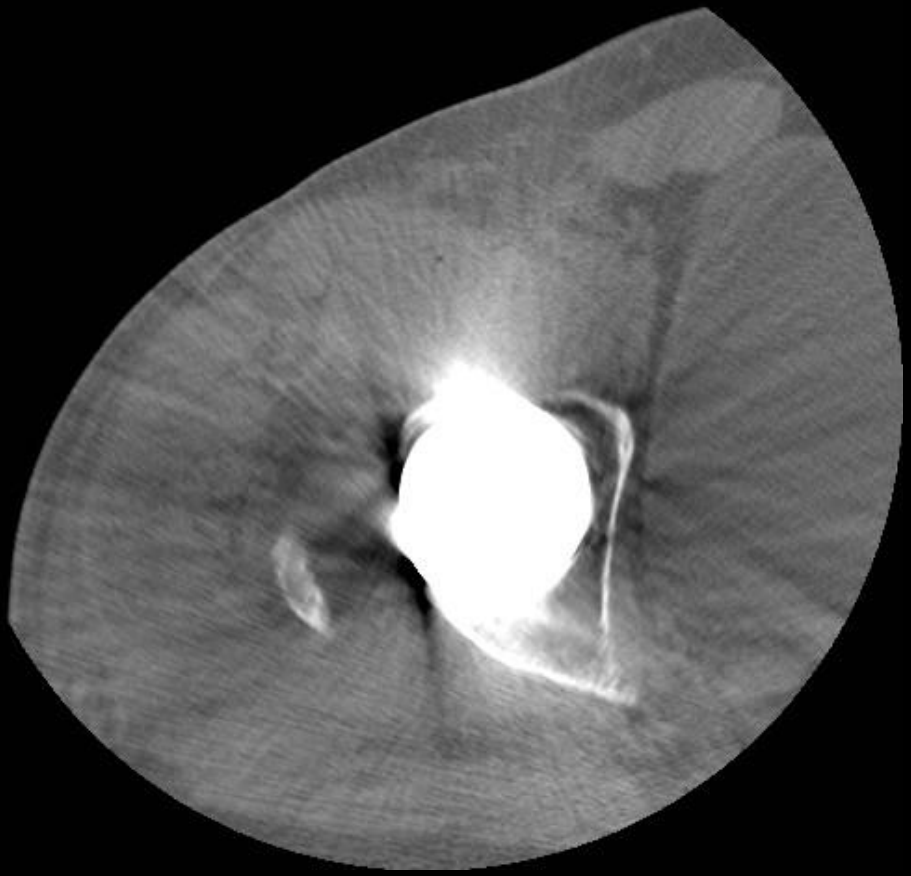

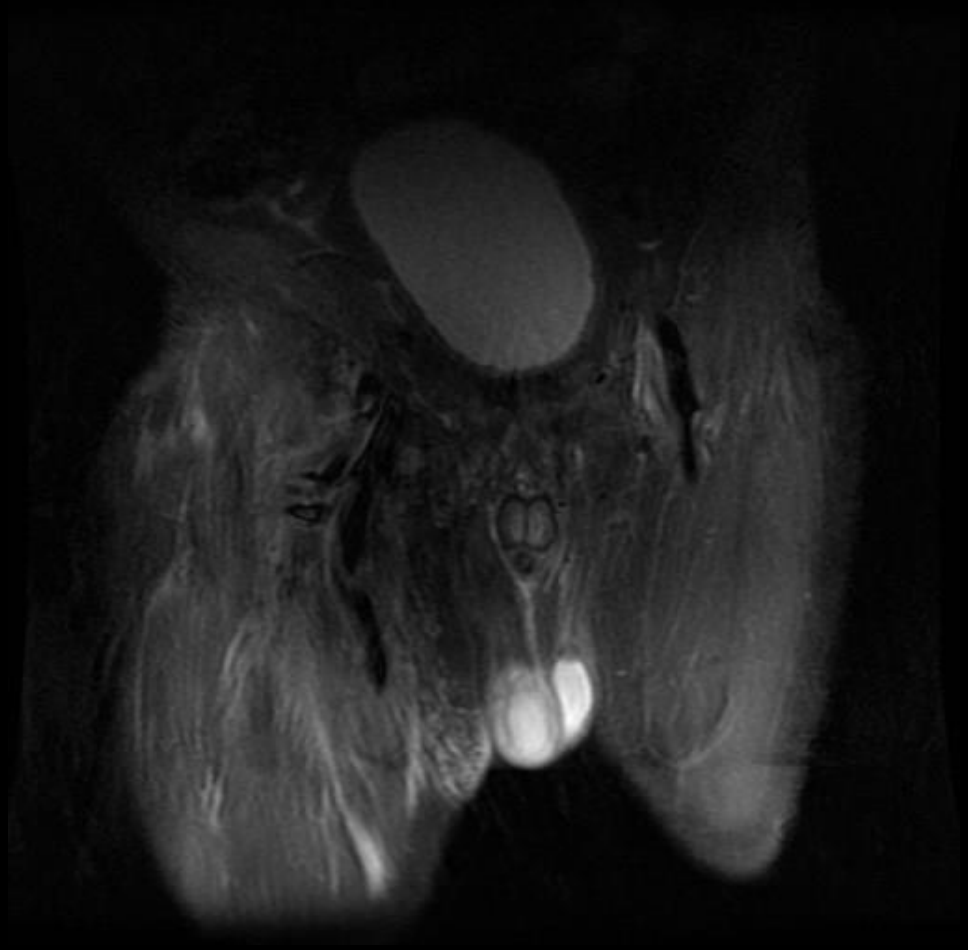

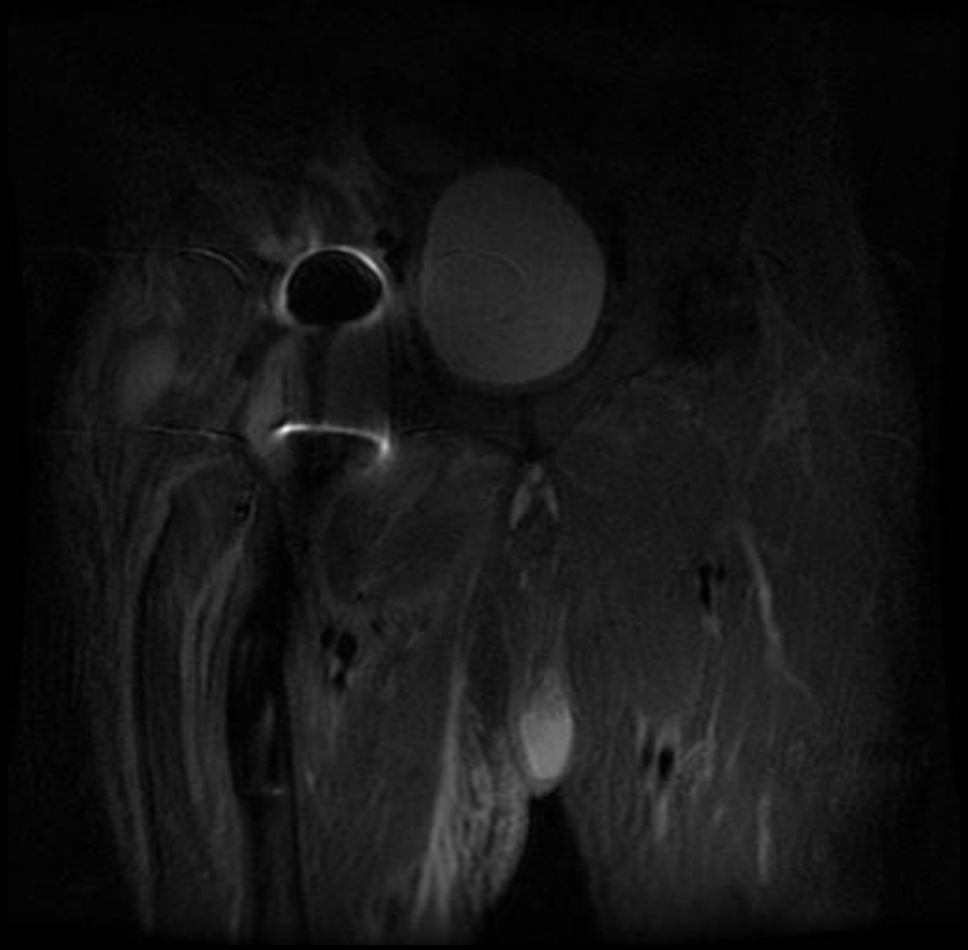

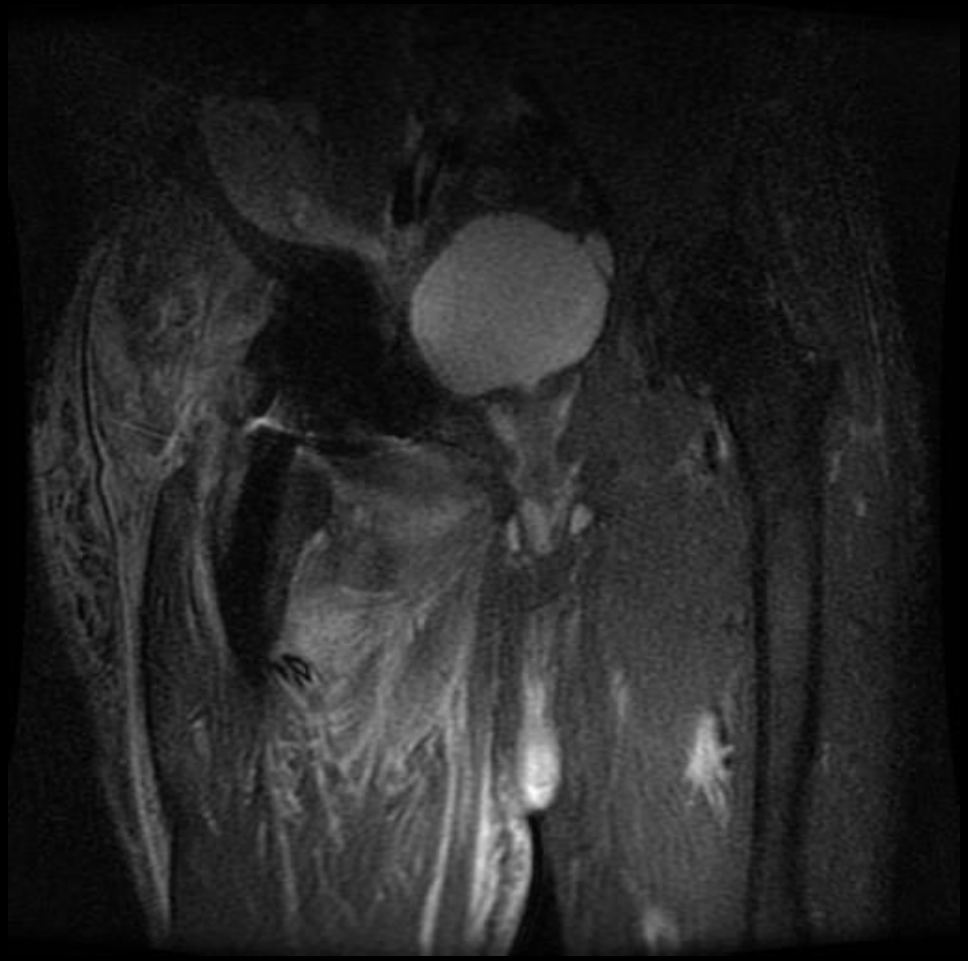

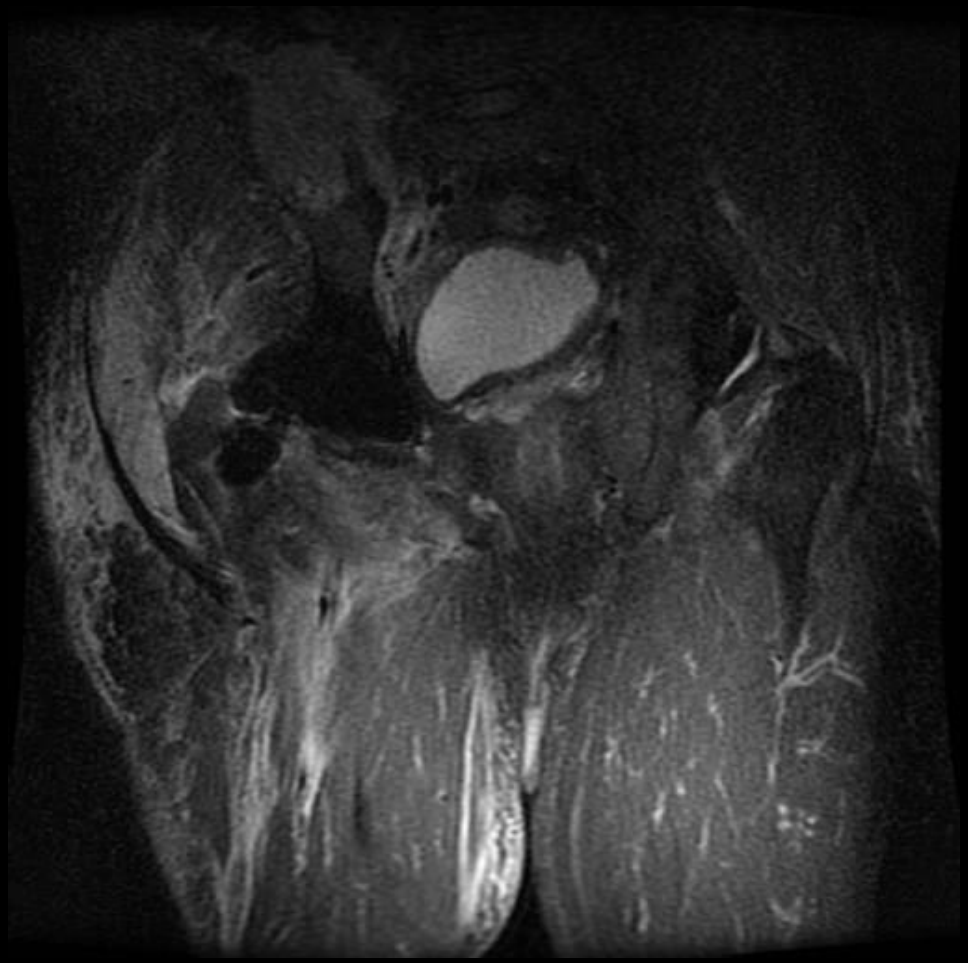

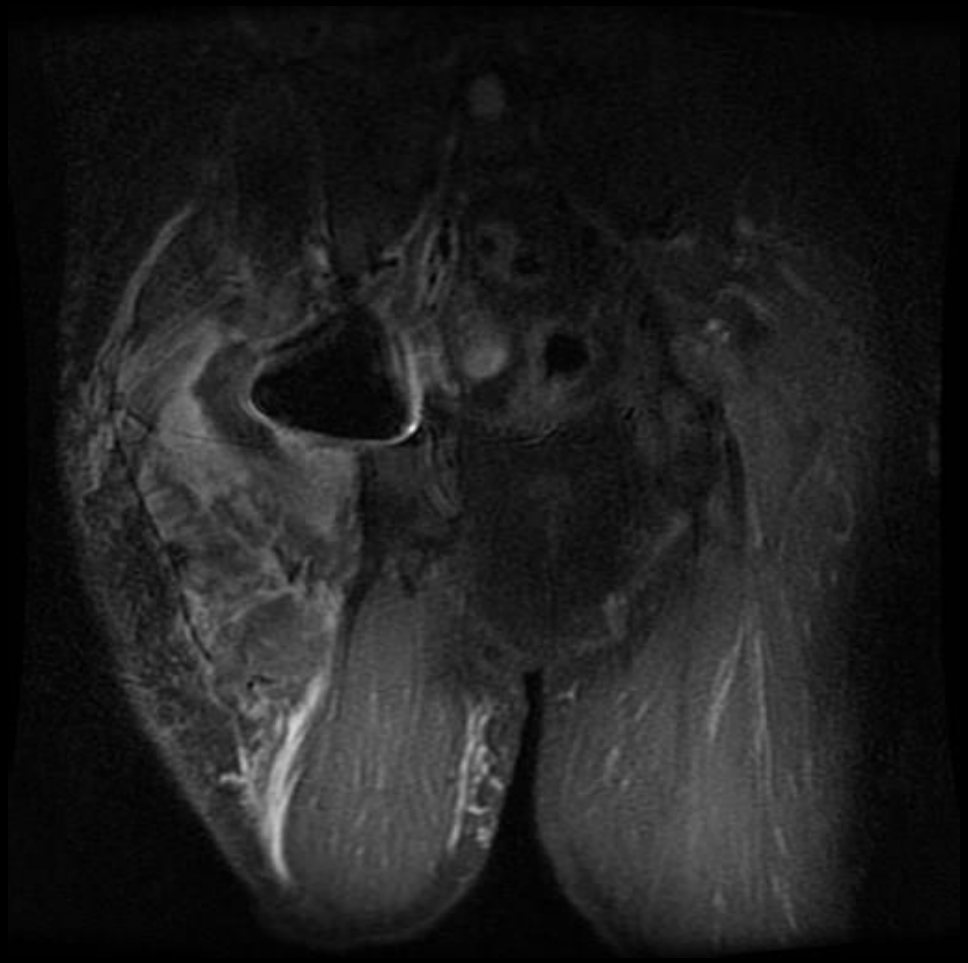


FLUORO TIME 30s

- 10 cc of pus aspirated
- Staph aureus

ALVAL

- **metal-on-metal pseudotumour** (also known as **aseptic lymphocyte-dominant vasculitis-associated lesion** (ALVAL)) is a mass-forming tissue reaction around a metal-on-metal hip or knee replacement.

ALVAL

- Incidence of symptomatic pseudotumours following metal-on-metal hip arthroplasty is in the region of 5%.
- Patients with bilateral resurfacing total hip replacement who develop a pseudotumour in one hip have a 1 in 3 chance of having a lesion on the contralateral side.
- more common in females.

- pathophysiology is poorly understood. Metal-on-metal pseudotumours are sterile inflammatory lesions.
- Excessive wear is considered the initiating process, leading to the release of particles (nanometer sized).
- Cytoxic to macrophages once phagocytised, therefore leading to necrosis within the lesions.
- Reactive masses are related to high serum and joint fluid ion levels, and a delayed type IV hypersensitivity rxn

- **Posterolateral lesions**
- Greater troch
- Cystic fluid collection with layering of contents, and a low signal intensity wall
- foci of susceptibility artifact due to metal content
- representing extension through posterior capsular defects (typical surgical approach in hip arthroplasty
- **Anterior lesions**
- less common
- typically involving the iliopsoas bursa
- solid components are more likely
- contiguous with the joint capsule (representing distension of the iliopsoas bursa)

Pseudotumors vs Infection

- infected fluid collections tend to be less well defined than pseudotumors, and they lack a low signal intensity rim
- Soft-tissue edema may be seen with either infection or pseudotumor, but extensive, ill-defined perifascial fluid is more suggestive of infection.

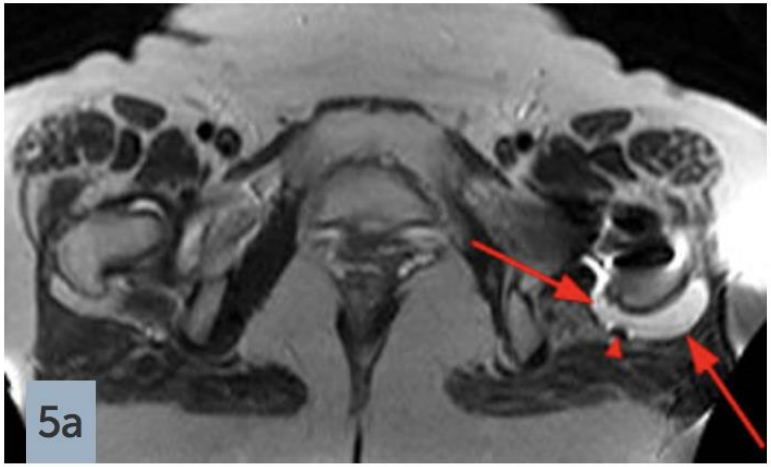

Figure 5:
An effusion distends the posteroinferior joint (arrows) in this 46 year-old female with recurrent pain one year following left hip arthroplasty. Note the small focus of susceptibility artifact (arrowhead) within the posterior aspect of the effusion, suggesting the presence of metal debris.

http://radsource.us/hip-arthroplasty/

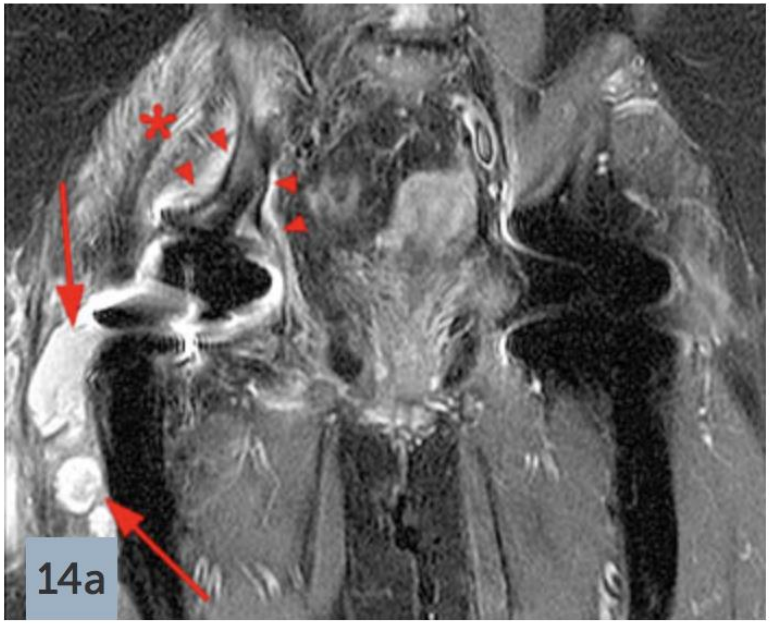

Figure 14:
A 56 year-old female presented with clinical signs of infection 5 years s/p bilateral total hip arthroplasties. A STIR coronal image is provided. Lobulated fluid (arrows) is seen lateral to the proximal femur, with surrounding edema and fluid extending into subcutaneous fat. Soft-tissue edema is present within the adjacent gluteal muscles (asterisk), and ill-defined fluid extends about the acetabular and iliac regions (arrowheads). Note the lack of a low signal intensity rim surrounding the largest fluid collection. Infected fluid was confirmed at the time of revision surgery.

http://radsource.us/hip-arthroplasty/

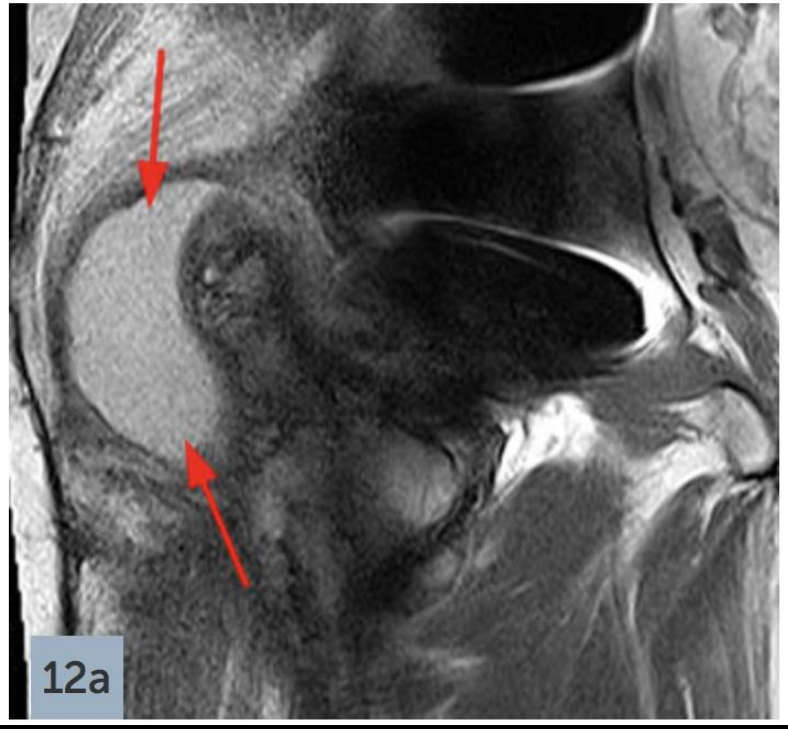

Figure 12:
Despite extensive metal artifact in this patient 1.5 years following placement of a Depuy ASR metal-on-metal hip resurfacing implant, a pseudotumor at the posterolateral aspect of the greater trochanter (arrow) is readily apparent on the fast spin-echo proton density-weighted coronal view.

http://radsource.us/hip-arthroplasty/

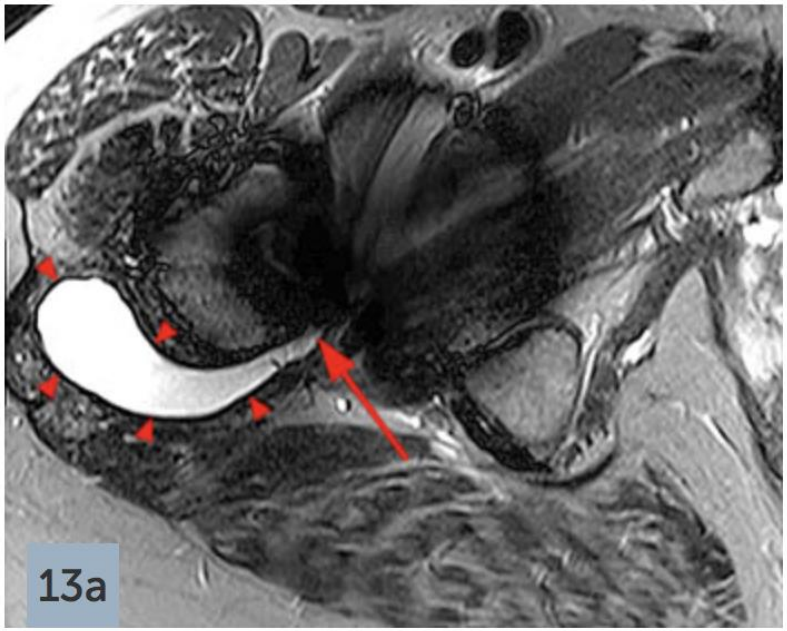

Figure 13:
Communication with the joint (arrow) and the surrounding low signal intensity rim (arrowheads) are demonstrated on the corresponding fast spin-echo T2-weighted axial image.

http://radsource.us/hip-arthroplasty/

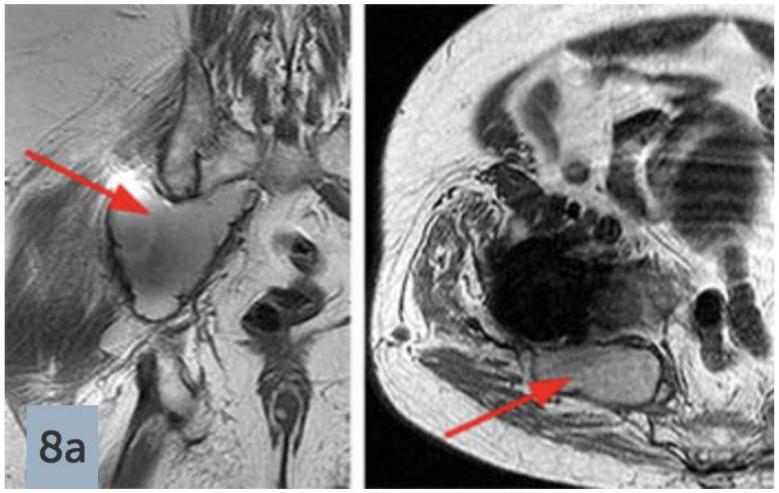

Figure 8:
A more posterior coronal (left) and an additional, more inferior axial (right) image in the same patient reveal a large, mass-like, extraosseous component (arrows) that extends through the sciatic notch, with resultant sciatic nerve impingement.

http://radsource.us/hip-arthroplasty/

Fig. 6—63-year-old man with aseptic lymphocytic vasculitis–associated lesions. Sagittal T2-weighted MR image of right uncemented large-bearing metal-on-metal total hip replacement shows disease extending into iliopsoas bursa with typical thick low-signal-intensity rim (*arrowheads*) and filled with debris (*arrow*). Despite use of metal artifact reduction sequences, marked susceptibility artifact is present because of use of large bearing.

http://www.ajronline.org/doi/pdf/10.2214/AJR.11.7504

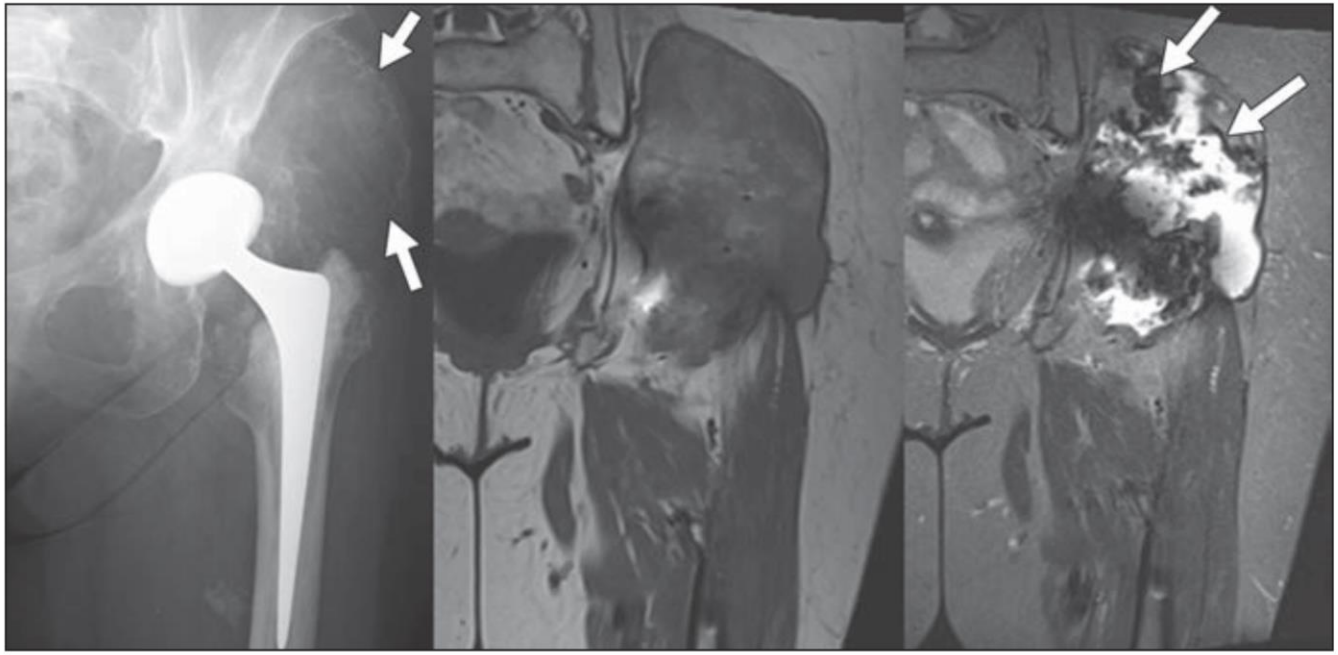

Fig. 7—73-year-old woman with aseptic lymphocytic vasculitis–associated lesions. Anteroposterior radiograph (*left*) of hybrid left metal-on-metal total hip replacement shows cloudlike opacification (*arrows*) projected over gluteal muscles. Opacification is caused by macroscopic metal debris, visible as black oily sludge at revision surgery, and is correctly described as metallosis. Metallosis is separate entity from aseptic lymphocytic vasculitis–associated lesions, and mixed presentations such as this are uncommon. T2-weighted MR image (*right*) shows opacification (*arrows*) correlating with peripheral signal voids where TE is long but is not evident on images obtained with short-TE sequences, such as corresponding T1-weighted image (*center*).

http://www.ajronline.org/doi/pdf/10.2214/AJR.11.7504

References

- RadSource MRI Hip Arthroplasty Web Clinic: http://radsource.us/hip-arthroplasty/
- Yanny et al. MRI of Aseptic Lymphocytic Vasculitis–Associated Lesions in Metal-on-Metal Hip Replacements American Journal of Roentgenology. 2012;198: 1394-1402. 10.2214/AJR.11.7504