Department of Radiology
UNIVERSITY OF WISCONSIN
SCHOOL OF MEDICINE AND PUBLIC HEALTH

Musculoskeletal Imaging and Intervention Section Procedures

Hip Aspiration or Corticosteroid Injection

INDICATIONS

• MR arthrography – typically ordered in evaluation of a labral tear.
• Diagnostic anesthetic injection – typically ordered in patients with both lumbosacral and hip joint disease to differentiate the pain generator. May be combined with corticosteroid for a therapeutic arthrogram.
• Aspiration to rule out septic arthritis, including periprosthetic.

RISKS

• Bleeding
• Infection
• Pain

MODALITY

• Fluoroscopy

PRE-OPERATIVE WORKUP

• Informed consent

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MATERIALS

- Alcohol, ChloraPrep applicator, sterile drape
- 10 mL syringes for skin anesthetic and steroid/anesthetic mixture
- 20 mL syringe for arthrogram mixture or aspiration
- 5 mL syringe for Omnipaque 300
- 1% lidocaine (for skin numbing); buffered with 8.4% sodium bicarbonate
- 1 mL triamcinolone acetonide (Kenalog 40 mg/mL)
- Ropivacaine HCL 0.5% (Naropin 5 mg/mL)
- 1% preservative-free lidocaine HCL (10 mg/mL)
- Dotarem (Gadoterate Meglumine 0.5 mmol/mL)
- Preservative-free normal saline
- 30G 0.5", 22G 1.5", & 22G 3.5" needles

TECHNIQUE

1. Place the hip in internal rotation with the patient supine, either taping the feet together or with a sandbag placed against the lateral aspect of the foot. Padding under the knee may be considered for patient comfort.
2. Identify the femoral artery – consider marking the skin to remain lateral for your needle entry site.
3. With fluoroscopy, mark the skin a few millimeters inside the lateral junction of the femoral head and neck.
4. Prep and drape the site as per usual and perform local anesthesia.
5. MR arthrogram or therapeutic corticosteroid injection:
    a. Place the tip of the 22G 3.5" needle directly down to the cortex at the marked spot.
    b. Confirm intra-articular needle placement with a small injection of Omnipaque 300 (or air). Save the image.
    c. Inject:
        i. MR arthrogram – 12-15 mL of the standard dilute gadolinium MR arthrogram solution (5 mL 1% preservative-free lidocaine, 5 mL Omnipaque 300, 5 mL 0.5% ropivacaine, 5 mL 0.9% preservative-free NaCl, and 0.1 mL Dotarem).
        ii. Anesthetic injection – Inject 8 mL of a mixture containing equal parts 2% lidocaine and 0.5% ropivacaine.
        iii. Therapeutic injection – Inject 5 mL of a mixture containing 1 mL Kenalog, 2 mL 1% preservative-free lidocaine, and 2 mL 0.5% ropivacaine.
6. Aspiration:
    a. An 18G needle should be used to rule out infection, including periprosthetic.
    b. Be sure to use preservative-free lidocaine for local anesthesia, as it has antimicrobial properties that may affect culture results. Similarly, be sure to only anesthetize the soft tissues superficial to the joint capsule.
    c. Aim for the lateral edge of the prosthesis from a slightly lateral approach. Advance the needle tip slightly past the prosthesis after you feel it touch metal, and aspirate as you pull back with a 20 mL syringe.
    d. The joint pseudo-capsule can be heavily calcified, so be sure to feel true metal.
    e. Discuss with your referring orthopods if they desire a saline lavage if the tap is dry.
    f. Distribute the aspirated joint fluid into the appropriate tubes (i.e., culture, gram stain, cell count, crystal analysis, etc.).

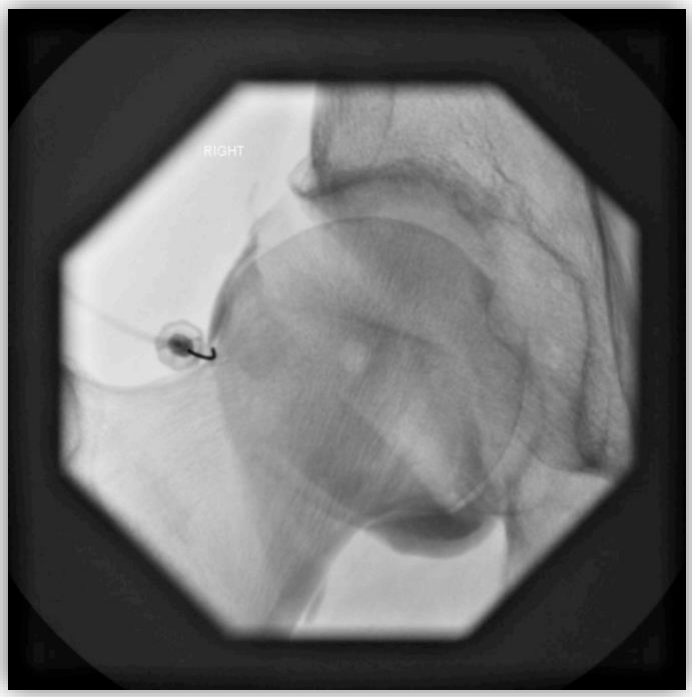

Fig 1. AP view of a right hip arthrogram with appropriate needle placement and presence of intra-articular contrast.

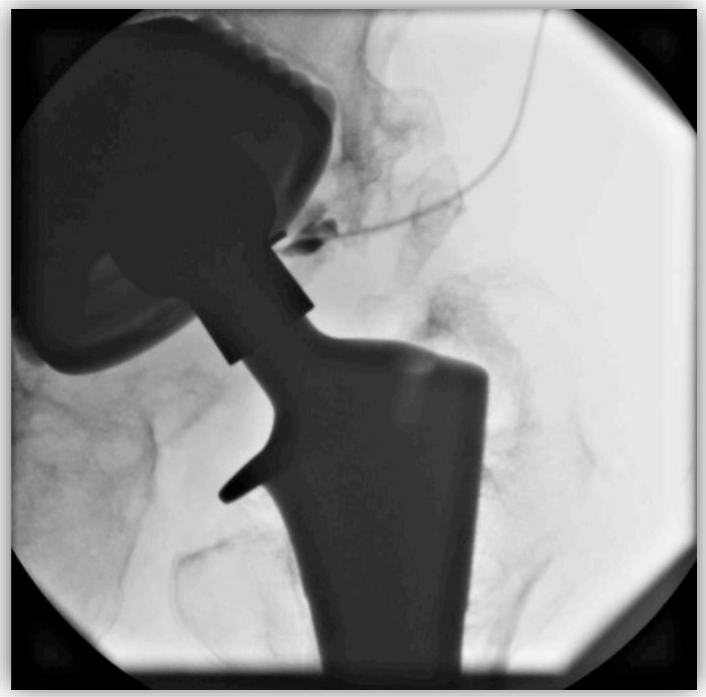

Fig 2. AP view of a left periprosthetic hip aspiration. A small amount of contrast was injected to confirm intra-articular positioning.

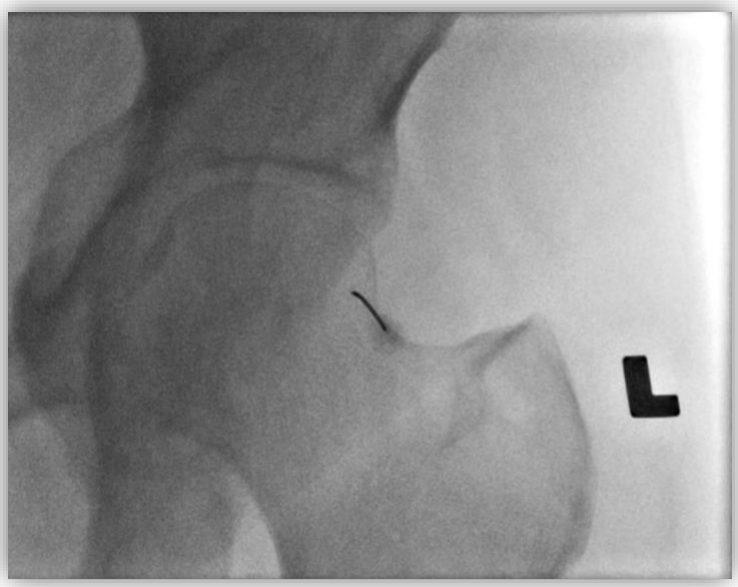

Fig 3. AP view of a left hip arthrogram with appropriate needle tip positioning.

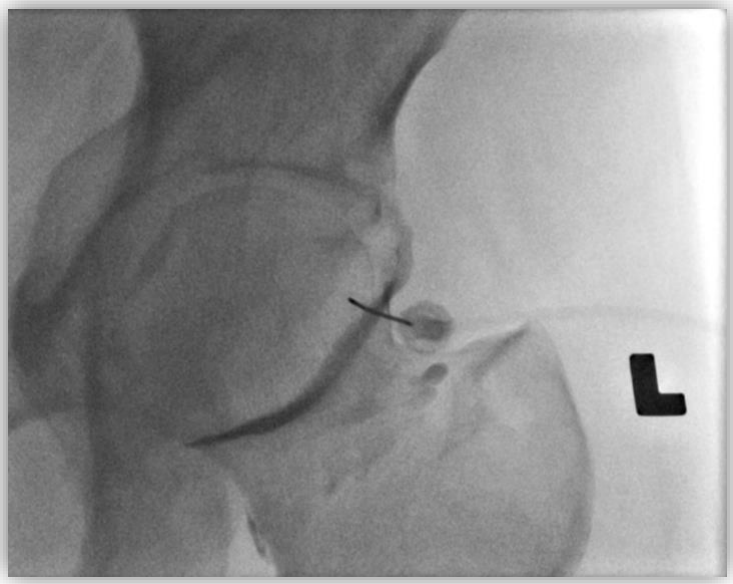

Fig 4. AP view demonstrating presence of intra-articular contrast.

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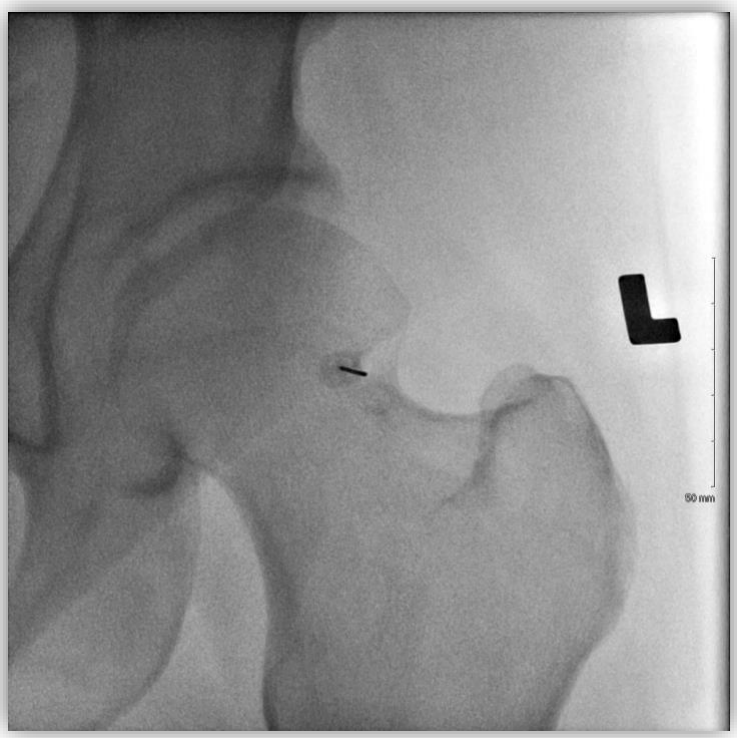

Fig 5. AP view of the left hip demonstrating appropriate needle positioning.

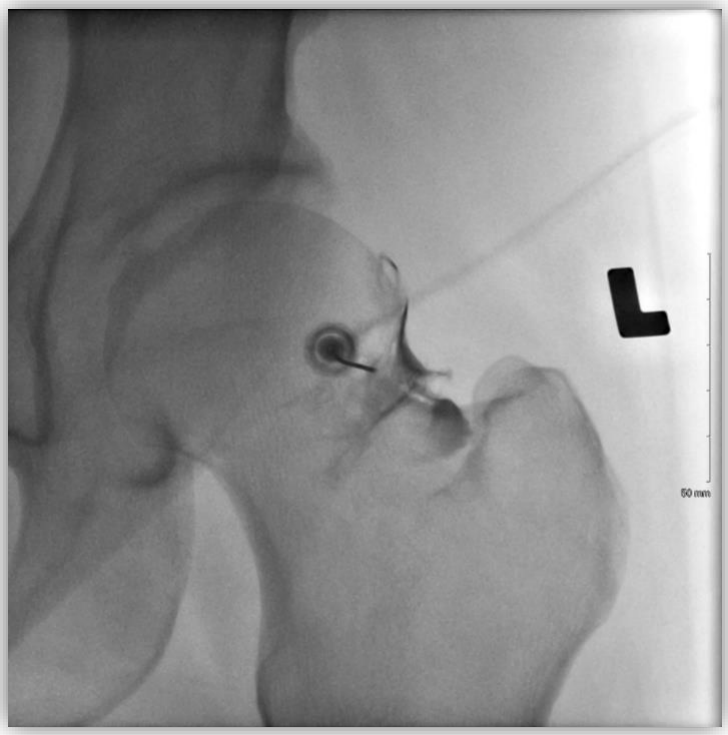

Fig 6. AP view demonstrating presence of intra-articular contrast.

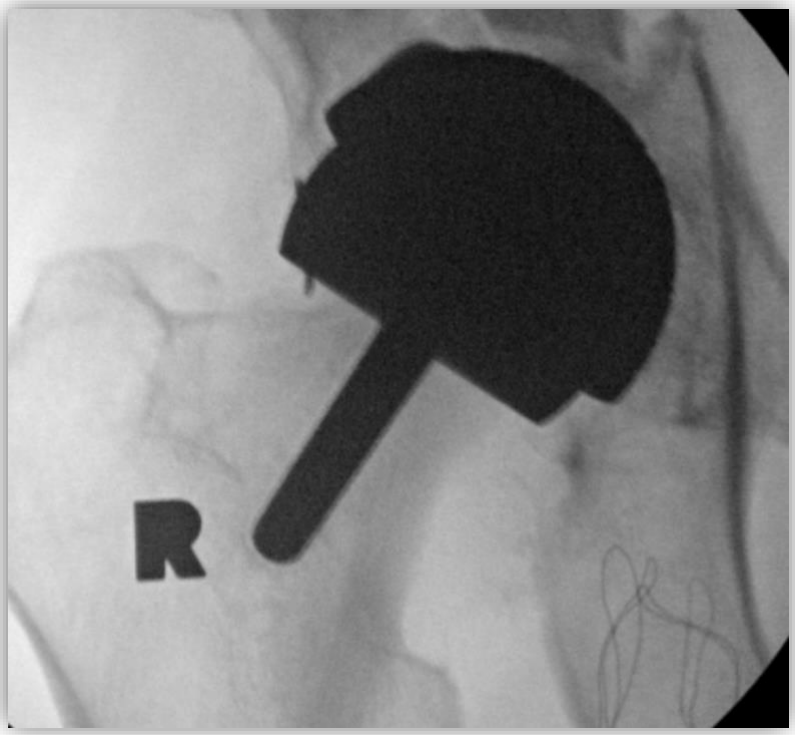

Fig 7. AP view of a right hip resurfacing prosthesis with appropriate needle tip placement before attempted aspiration.

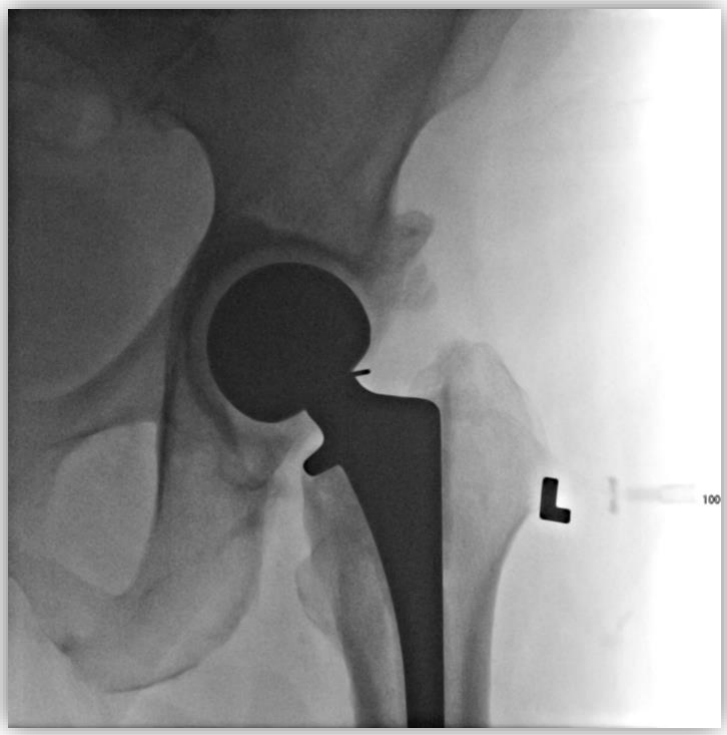

Fig 8. AP view of the left hip with needle tip just lateral to the head-neck prosthetic junction.

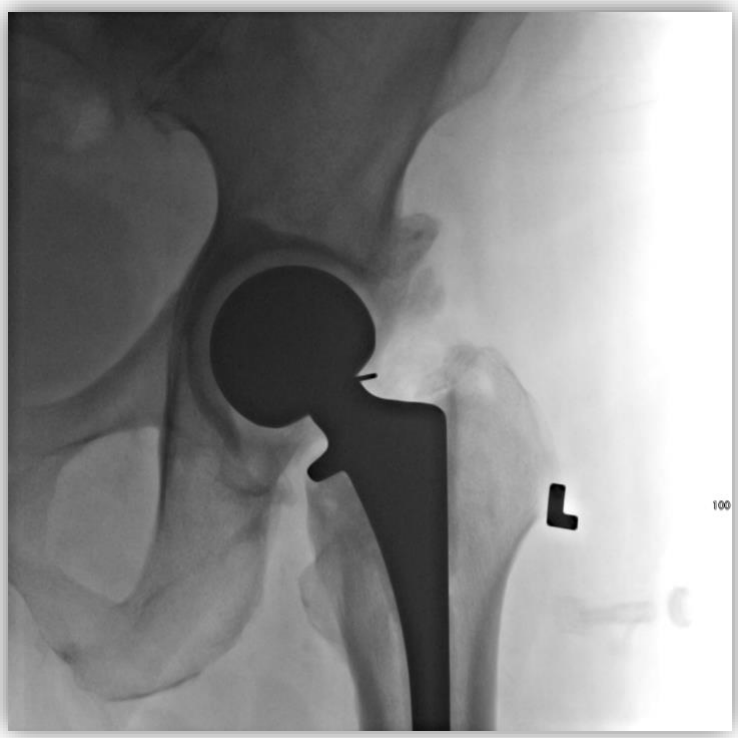

Fig 9. AP view of the left hip following injection of air as a contrast agent to confirm intra-articular positioning.

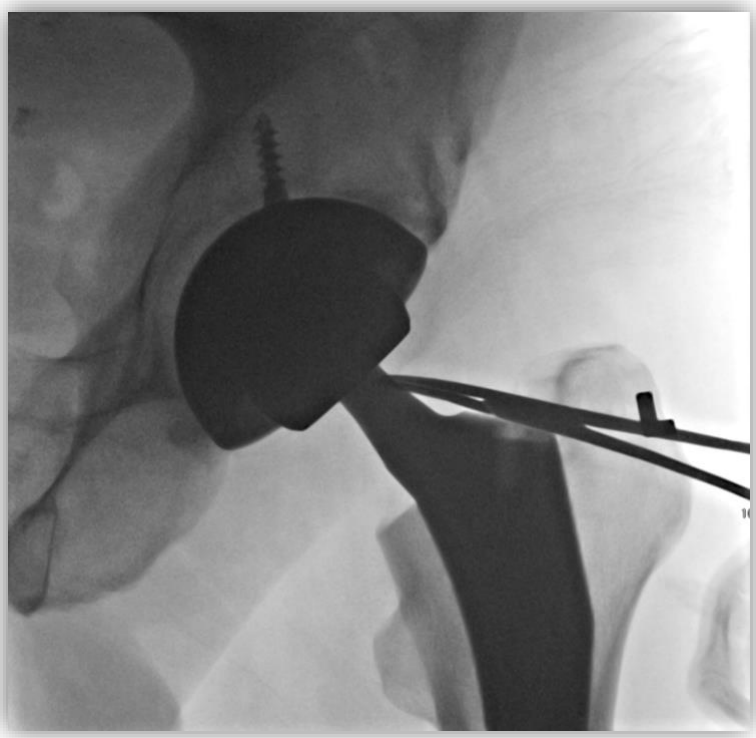

Fig 10. AP view of the left hip prior to needle placement, using forceps to mark an appropriate skin entry site.

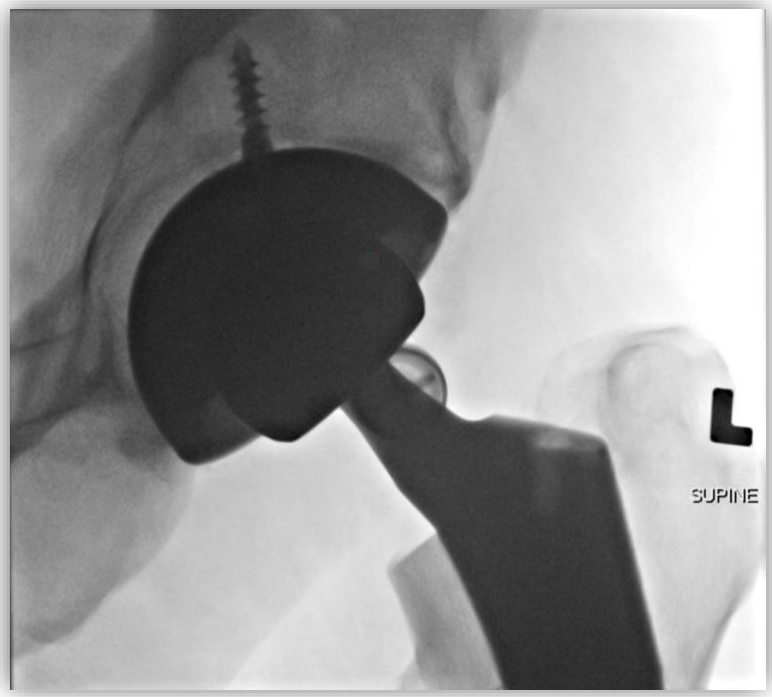

Fig 11. AP view demonstrating proper needle placement, the tip just inferior to the head-neck prosthetic junction.

Fig 12. AP view demonstrating presence of contrast to document intra-articular positioning following a successful periprosthetic aspiration.

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