



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

**Musculoskeletal Imaging and Intervention Section Procedures**  
Knee Corticosteroid Injection

**INDICATIONS**

- CT or MR arthrography to evaluate the menisci in the post-operative knee
- Intra-articular body evaluation
- Chondromalacia
- Osteochondral patellar fracture
- Therapeutic anesthetic/steroid injection for osteoarthritis

**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
- 5 mL syringe for Omnipaque 300
- 40 mL syringe for arthrogram mixture
- 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. Position the tube over the knee with the patient supine on the table. Place a towel or pad underneath the knee to create slight flexion, and allow the leg to roll naturally in slight external rotation.
2. Mark your needle entry point at the central aspect of the medial femoral condyle, approximately 1 cm cranial from its inferior margin.
3. Prep and drape the site as per usual and perform local anesthesia.
4. Advance a 22G needle of appropriate length (1.5" or 3.5") straight down along your trajectory until osseous endpoint is reached.
5. Connect contrast solution and confirm intra-articular positioning. The solution should flow easily. Save the image.
6. Solution to inject:
  - a. MR arthrogram:
    - i. 40 mL of a solution containing 20 mL 1% preservative-free lidocaine, 10 mL Omnipaque 300, 10 mL 0.9% preservative-free NaCl, and 0.2 mL Dotarem (0.5 mmol/mL).
  - b. CT arthrogram:
    - i. 40 mL of a solution containing 20 mL 1% preservative-free lidocaine and 20 mL Omnipaque 300.
  - c. Therapeutic:
    - i. 9 mL of a solution containing 4 mL ropivacaine HCL 0.5%, 4 mL 1% preservative-free lidocaine, and 1 mL Kenalog.
7. After performing an arthrogram injection, wrap an ACE bandage snugly around the suprapatellar bursa to force the contrast into the joint, outlining any potential meniscal tears or re-tears.
8. The patient should ambulate to the scanner to 'pump' the contrast about the knee.



Fig 1. Coronal CT arthrogram image of the knee demonstrating intra-articular contrast.



Fig 2. Sagittal CT arthrogram image of the knee demonstrating intra-articular contrast.



Fig 3. AP fluoroscopic image of the left knee demonstrating proper needle tip positioning over the medial femoral condyle.

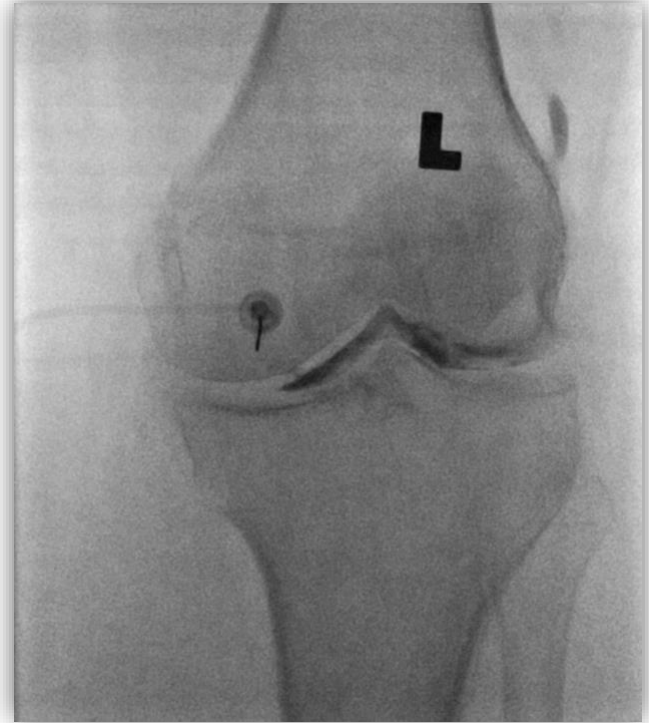


Fig 4. AP fluoroscopic image demonstrating flow of intra-articular contrast within the left knee joint.

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Musculoskeletal Imaging and Intervention

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Fig 5. AP fluoroscopic image of the right knee demonstrating proper needle tip positioning over the medial femoral condyle.



Fig 6. AP fluoroscopic image demonstrating flow of intra-articular contrast within the right knee joint.

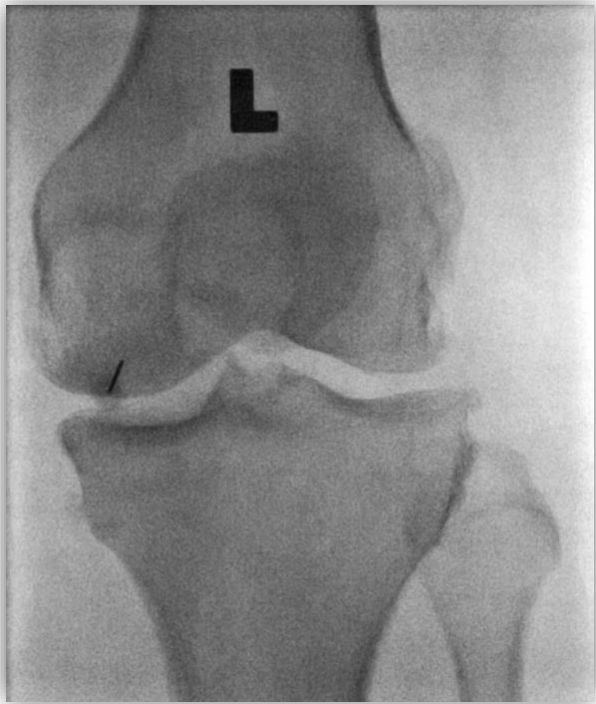


Fig 7. AP fluoroscopic image of the left knee demonstrating proper needle tip positioning over the medial femoral condyle.

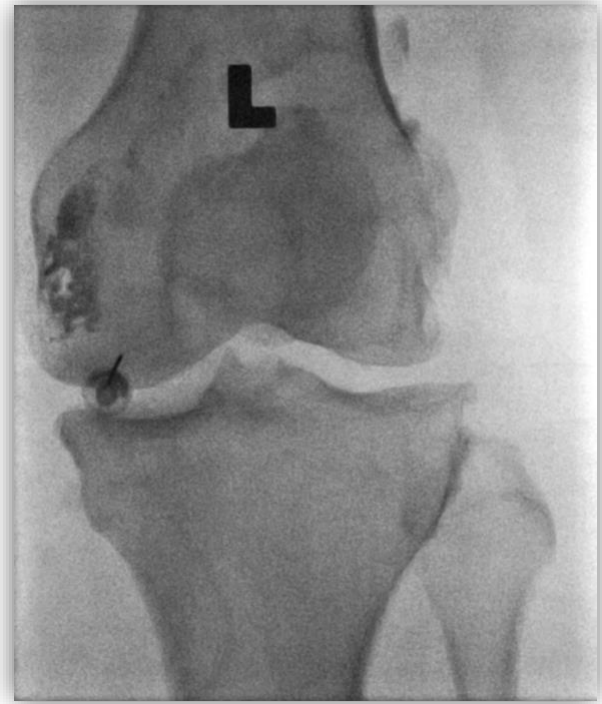


Fig 8. Fluoroscopic image demonstrating flow of intra-articular contrast within the left knee joint.



