

Musculoskeletal Imaging and Intervention Section Imaging Procedures

Knee MR or CT Arthrogram

INDICATIONS

MR Arthrography

- Evaluation of the menisci in the post operative knee
- CT Arthrography
- Evaluation of the menisci in patients in whom a MRI is contraindicated
- Loose bodies
- Chondromalacia
- Osteochondral fracture of the patella

TECHNIQUE

1. Position the fluoroscopic tube over the patella.
2. Identify the midportion of the patella by palpation.
3. Have the patient relax the quadriceps, and subluxe the patella laterally. Palpate the posterior edge of the lateral margin. Mark the midportion.
4. Prep and drape in standard sterile fashion.
5. Anesthetize the skin.
6. Advance a 1½" 25 G needle under the patella from a lateral approach while subluxing it laterally. The needle should come to rest against the patellar cartilage near the center of the patella.
7. Hook up contrast solution taking care not to inject bubbles.
8. The contrast solution should flow easily. This can be monitored under fluoro, some experienced individuals routinely perform this procedure without fluoro guidance (Figure 1).



Fig 1: Knee after contrast injection, AP.

9. Solution to inject:

a. **MR Arthrogram:**

- i. Inject 40 cc standard MR arthrogram dilute gadolinium solution (20 cc normal saline, 10 cc Omnipaque 300, 10 cc 1% lidocaine, and 1.0 cc gadolinium).
- ii. If the patient has a joint effusion, aspirate off as much as possible and inject the above 40 cc plus whatever volume you were able to aspirate.

b. **CT Arthrogram (Figures 2 and 3):**

- i. Inject 40 cc of Omnipaque 300 , follow same rules as above for joint effusion. Some add 0.1-0.3 cc of 1:1,000 epinephrine.



Fig 2: CT arthrogram, coronal image.



Fig 3: CT arthrogram, sagittal image.

10. After the procedure, wrap an ACE bandage snugly around the suprapatellar bursa to force the contrast into the joint, outlining any potential meniscal tears or retears.

11. The patient should ambulate to the scanner to "pump" the contrast about the knee and into any meniscal tears.