

MR Arthrography and 'Loose Bodies' in the Knee



A loose body is a free-floating piece of bone, cartilage or a foreign object in a joint. The knee is the most common site for loose bodies.

Loose bodies can be caused by degenerative joint disease, a bone fragment resulting from fracture or possibly a torn piece of cartilage. This condition may result from osteochondritis dissecans (OCD).

Foreign objects, such as a dislodged piece of hardware from a previous surgery or an object from a penetrating injury, can also become loose bodies. Symptoms may

include pain and swelling, the inability to straighten the knee, intermittent locking of the knee and chronic stiffness. In many cases, the loose body can be felt by touching the knee.

MRI/MR arthrography has proven superior to both X-Ray and CT/CT arthrography in the detection of intraarticular bodies in the knee.

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MR arthrography can be performed via either a direct or indirect technique. In the direct technique, the injection of saline solution or diluted gadolinium can be useful for evaluating the menisci after meniscectomy, or especially in delineating loose bodies in joints.

Indirect MR arthrography does not require fluoroscopic guidance or joint injection, and is superior to conventional MR imaging in delineating structures where there is minimal joint fluid. In addition, vascularized or inflamed tissue will enhance with this method.



Sagittal, coronal and axial images with intra-articular gadolinium (bright fluid). Fat suppression makes marrow and fat dark. Dark loose bodies (arrows) present in multiple locations, including the popliteus tendon sheath (arrowhead).

Patient History:

A 69 year-old male patient complained of a moveable structure along the medial joint line, which travels posteriorly, causing an inability to straighten his knee.

Examination:

X-Ray: Osteoarthritis with one calcification in suprapatellar recess.
MRI: Multiple calcified loose bodies throughout the knee joint, with associated osteoarthritis primarily affecting the patellofemoral joint.

Discussion:

Loose bodies can be made of cartilage or bone, and are difficult to identify on x-ray when made of cartilage. Radiographs may underestimate the number of loose bodies. MRI, and especially MR arthrography, is superior to other imaging modalities for depicting loose bodies.

Loose bodies can occur in the large, synovial joints, such as the shoulder, elbow, hip, knee and ankle. Synovial chondromatosis, another name for multiple small loose bodies, has primary and secondary forms. Secondary is much more common, believed to be caused by trauma. Osteoarthritis is typically present.

Treatment:

Removal of loose bodies and smoothing of articular cartilage defects. MRI can help in planning removal, especially in the knee, where not all compartments are easily visible with an arthroscope.

Radiologist Spotlight



Christopher Goeser, D.C., M.D.

Dr. Goeser is a staff radiologist at Diagnostic Imaging of Salem, as well as a member of Diagnostic Imaging Associates (Salem, OR) since 2000. His specialty is musculoskeletal imaging.

A graduate of the University of Illinois College of Medicine and Western States Chiropractic College, Dr. Goeser is both a licensed medical doctor and chiropractor. His interests include spine MRI, women's imaging, musculoskeletal MRI and ultrasound as well as image-guided injections and biopsies. He is on staff at the departments of radiology of Albany General Hospital and Silverton Hospital.

Dr. Goeser is certified by the American Board of Radiology and also the American Chiropractic Board of Radiology.

About Our Center:

Diagnostic Imaging of Salem offers both short-bore and open MRI. Our GE Signa Horizon LX 1.5 T delivers superior image quality and enables a broad assortment of studies, while our Hitachi Elite open MRI delivers exceptional comfort to large, claustrophobic and special needs patients. We have also added a new GE Logiq 9 ultrasound for faster and more precise ultrasound studies with 3D/4D imaging when appropriate.

You can depend on us for:

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- Assistance with patient insurance issues
- Film or digital delivery and key images with all reports