MR (Magnetic Resonance) Arthrogram

What is an MR Arthrogram?

Definition

An MR Arthrogram creates images of one or more of the body's joints in order to evaluate its condition and to assist with the diagnosis and treatment of joint problems. In some ways, an MR Arthrogram is similar to an x-ray, but it is also different in several important ways.

How It Works

During an MR Arthrogram procedure, a technician assists a Physician to inject a contrast material (dye) containing gadolinium into the joint. When the MRI scanner is scanning, the gadolinium interacts with the magnets and reveals the structures within and around the joint, showing how the contrast material moves within the joint space and the surrounding soft tissues. The difference is an MRI uses a powerful magnetic field and radiofrequency pulses to create detailed pictures, whereas an x-ray uses radiation. An MR Arthrogram can also produce more detailed images when an x-ray is not adequate.

Common Uses

MR Arthrograms are most often used to treat the knee and shoulder joints, but it can also be used to examine problems with the wrists, elbows, hips, and ankles. They are especially helpful for identifying torn ligaments, rotator cuff damage, synovial cysts, and damage from dislocated joints. It can help doctors determine if there is a structural abnormality or injury to the joint causing the patient's persistent discomfort or limited range of motion.

Benefits and Risks

Benefits

- MR Arthrograms can help identify causes of pain and help the patient make informed decisions about further treatment.
- MR Arthrograms can produce higher quality images of joints than other methods.
- MR Arthrography is a non-invasive procedure.
- The patient is not exposed to any radiation during an MR Arthrography procedure.
- The contrast material (dye) used in MRI Arthrography is less likely to cause allergic reactions than those used for x-rays and CT scans.

Risks

- There is an extremely small risk of developing an infection (less than 1 in 1,000) at the site of the injection of the contrast material, which would require treatment with antibiotics.
- Although rare, few patients may experience side effects from the contrast material. Patients are instructed to notify the technician immediately if any side effects are noted during the procedure.

- Medical devices inside the body that may cause problems during any MRI exam because they will be affected by the magnets in the MRI equipment. Therefore, patients are carefully screened to insure it is safe to have an MRI scan.
- In extremely rare cases, patients with compromised kidney function who are injected with high doses of gadolinium during an MRI can develop nephrogenic systemic fibrosis.
- MR Arthrography is not recommended for patients with joint infections or active arthritis.
- Other potential risks may vary from patient to patient; you should speak to your doctor before the procedure about any questions or concerns.

How Should I Prepare for My Appointment?

There are usually no special restrictions on what a patient my eat, drink, or do before coming in for an MR Arthrography procedure, unless he or she is going to be sedated as part of the procedure. The patient should notify his or her doctor of any drugs or materials to which he/she is allergic and should notify doctor of any other pertinent details of his or her medical history (prescriptions, recent illnesses or injuries, or serious health problems, etc.).

What Will Happen During the Procedure?

- The patient will be asked to remove any items of clothing, jewelry, or other accessories that might interfere with the procedure.
- A patient gown will be provided.
- Because the scans are loud, hearing protection will be provided.
- The patient will be positioned on the examination table.
- X-rays may be taken to be compared later with the arthrographs.
- The area around the joint will be draped with sterile covers and the immediate area will be wiped with antiseptic.
- The Radiologist will inject a local anesthetic near the joint to numb it.
- If there is fluid in the joint, it will be drawn out with a syringe.
- The Radiologist will inject the contrast dye into the joint, and the patient will be asked to move the joint to distribute the dye evenly.
- The patient will need to remain very still while the MRI machine takes images of the joint.
- The patient will be alone in the exam room (a parent or friend may be allowed to stay in the room), but the technician will be able to see and speak with the patient through a two-way intercom. The MRI machine will be noisy (it “buzzes” and “hums” while the magnets do the scanning).

What Should I Expect After the Procedure?

The doctor will give the patient guidelines for movement and care of the joint and will advise if any pain reliever is recommended. The patient may notice mild swelling of the joint and may notice some clicking sounds when the joint is moved. These symptoms are normal and will go away after several days. Otherwise, the patient may generally go on with his or her normal routine and activities.