Spine MRI



Magnetic resonance imaging (MRI) of the spine uses radio waves, a magnetic field and a computer. It creates clear, detailed pictures of the spine and surrounding tissues. MRI does not use radiation and may require an injection of gadolinium contrast material. Gadolinium is less likely to cause an allergic reaction than iodine contrast material.

Tell your doctor about any health problems, recent surgeries, allergies and whether you are pregnant. The magnetic field is not harmful, but it may cause some medical devices to malfunction. Most orthopedic implants pose no risk. But, you should always tell the radiologic technologist if you have devices or metal in your body. Guidelines about eating and drinking before your exam vary between facilities. Unless you are told otherwise, take medications as usual. Leave jewelry at home and wear loose, comfortable clothing. You may be asked to wear a gown. If you have a fear of closed spaces, you may want to ask your doctor for a mild sedative before the exam.

What is MRI of the Spine?

Magnetic resonance imaging (MRI) is a noninvasive test doctors use to diagnose medical conditions.

MRI uses a powerful magnetic field, radiofrequency pulses, and a computer to produce detailed pictures of internal body structures. MRI does not use radiation (x-rays).

Detailed MR images allow doctors to examine the body and detect disease.

Currently, MRI is the most sensitive imaging test available for the spine.

What are some common uses of the procedure?

MR imaging is used to assess or detect:

- Spine anatomy and alignment.
- Birth defects in the vertebrae or spinal cord.
- Trauma injury to the bone, disc, ligament or spinal cord.
- Disc and joint disease. Both are frequent causes of severe lower back pain and sciatica (back pain radiating into lower leg).
- Compression or inflammation of spinal cord and nerves.
- Infection of the vertebrae, discs, spinal cord or its coverings (meninges).
- Tumors in the vertebrae, spinal cord, nerves or surrounding soft tissues.

Spine MRI is also used to help plan procedures such as decompression of a pinched nerve, spinal fusion (http://www.radiologyinfo.org) , or steroid injections. The steroid injections relieve pain and are usually done using x-ray guidance. Spine MRI detects other possible causes of back pain such as compression fracture, and bone swelling. It is also used to monitor changes in the spine after an operation, such as scarring or infection.

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Who interprets the results and how do I get them?

A radiologist, a doctor trained to supervise and interpret radiology exams, will analyze the images. The radiologist will send a signed report to your primary care or referring physician, who will share the results with you.

You may need a follow-up exam. If so, your doctor will explain why. Sometimes a follow-up exam further evaluates a potential issue with more views or a special imaging technique. It may also see if there has been any change in an issue over time. Follow-up exams are often the best way to see if treatment is working or if a problem needs attention.

What are the benefits vs. risks?

Benefits

- MRI is a noninvasive imaging technique that does not involve exposure to radiation.
- MR images of the spine are clearer and more detailed than images obtained with other imaging methods. MRI can show spinal abnormalities, injuries and disease that may not be seen with other methods. MRI is the best available method to visualize the spinal cord and nerves.
- MRI is very useful for evaluating spinal injuries. It helps diagnose or rule out acute spinal cord compression when a physical exam shows muscle weakness or paralysis. MRI is the best available method to evaluate ligament injuries.
- MRI is able to detect subtle changes in the vertebral column that may be an early sign of infection or tumor. MRI is more sensitive than CT scanning for evaluating tumors, abscesses (http://www.radiologyinfo.org) and other soft tissue masses near the spinal cord.
- MRI is the preferred method for assessing potential complications of surgery, including bleeding, scarring, infection and re-appearance of a herniated disk.

Risks

- The MRI exam poses almost no risk to the average patient when appropriate safety guidelines are followed.
- If sedation is used, there is a risk of using too much. However, your vital signs will be monitored to minimize this risk.
- The strong magnetic field is not harmful to you. However, it may cause implanted medical devices to malfunction or distort the images.
- There is a very slight risk of an allergic reaction if your exam uses contrast material. Such reactions are usually mild and controlled by medication. If you have an allergic reaction, a doctor will be available for immediate assistance.
- Although there are no known health effects, evidence has shown that very small amounts of gadolinium can remain in the body, particularly the brain, after multiple MRI exams. This is most likely to occur in patients receiving multiple MRI exams over their lifetime for monitoring chronic or high-risk health conditions. The contrast agent is mostly eliminated from the body through the kidneys. If you are a patient in this category, consult with your doctor about the possibility of gadolinium retention, as this effect varies from patient to patient.
- IV contrast manufacturers indicate mothers should not breastfeed their babies for 24-48 hours after contrast material is given. However, the most recent American College of Radiology (ACR) Manual on Contrast Media reports that studies show the amount of contrast absorbed by the infant during breastfeeding is extremely low.

What are the limitations of MRI of the Spine?

High-quality images depend on your ability to remain perfectly still while the images are being recorded. If you are anxious, confused or in severe pain, you may find it difficult to lie still during imaging.

Patients who are very large may only be accommodated in specialized machines that may not be present in every imaging facility. Call ahead if you have concerns.

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Implants and other metallic objects can make it difficult to obtain clear images. Patient movement can have the same effect.

In some patients, vertebral fractures may be better detected by CT scan.

Present data show no convincing evidence that non contrast MRI harms the fetus of a pregnant woman. However, if the need for the exam is not time sensitive your doctor may delay the exam until after delivery. MRI gadolinium contrast agents are generally avoided during pregnancy except in very specific circumstances. Your doctor will discuss the benefits and risks of any MRI procedure with you. Doctors may perform MRI after the first trimester to assess the fetus for findings that are not fully evaluated by ultrasound.

An MRI exam typically costs more and may take more time than other imaging exams. Talk to your insurance provider if you have concerns about the cost of MRI.

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