MR Protocols | Lumbar Spine

Lumbar spine MRI provides valuable information on the underlying causes of lower back pain (LBP), one of the most common causes of physician visits in the United States.[1] The high-contrast and high-spatial resolution of this diagnostic technique, achieved without the use of ionizing radiation, makes MRI one of the best imaging techniques for the investigation of LBP.[2]

However, MRI payment coverage is frequently restricted to patients suspected of having more serious underlying conditions than herniated disks, such as possible malignant disease, infection, compression fracture, cauda equina syndrome, or ankylosing spondylitis.[3] Restricted use is supported by randomized clinical trials indicating that lumbar spine MRI does not improve the clinical outcomes of patients who do not show signs or symptoms of such serious conditions compared with CT.

OPTIMIZED PROTOCOL

PRECONTRAST SERIES

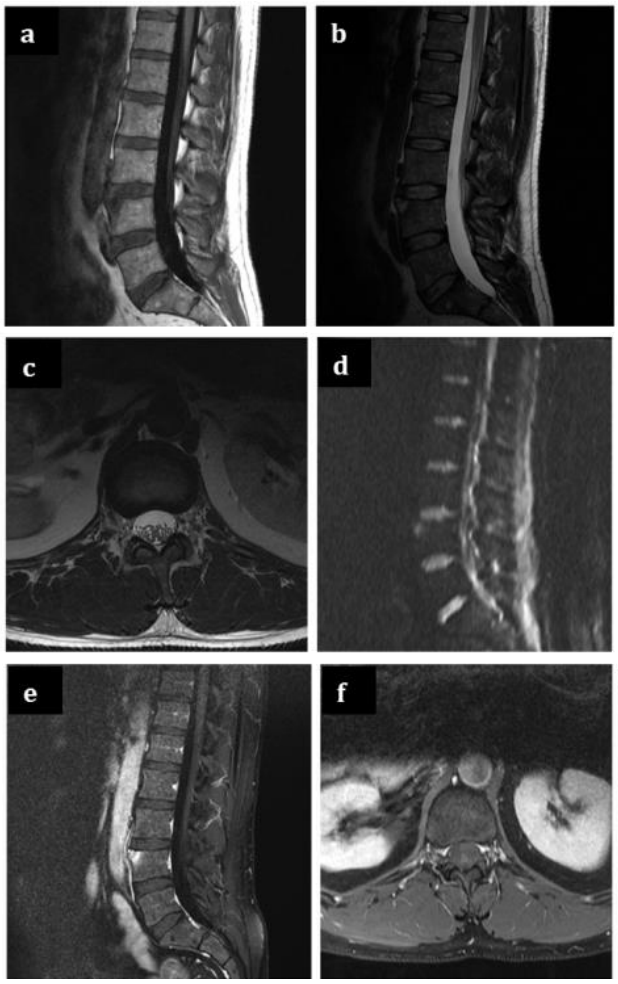
- Multiplanar localizer
- Sagittal T1 SE or T1 FLAIR (at 3T)
- Sagittal T2 FRFSE
- Axial T2 FRFSE
- Sagittal diffusion (optional for suspected infarct or epidermoid)

CONTRAST (IF INDICATED FOR POSTOPERATIVE STATUS, SUSPECTED MASS, VASCULAR CONDITION, OR INFECTION)

- Injection dose: 0.1 mmol/kg body weight
- Sagittal T1 SE or T1-FLAIR (3T) (fat-suppressed)
- Axial T1 SE or T1-FLAIR (at 3T) (fat-suppressed)

The images (right) were obtained during a 20-minute L-spine examination completed using a 3.0T scanner: (a) sagittal T1 FLAIR, (b) T2-weighted image, (c) axial T2-weighted image, (d) diffusion-weighted image, (e) sagittal postcontrast T1 FLAIR, and (f) axial postcontrast T1 FLAIR. Note the abnormal appearance at the anterior portion of L4.

Images courtesy of Lawrence Tanenbaum, MD, Mount Sinai School of Medicine.



References

1. Hart LG, Deyo RA, Cherkin DC. Physician office visits for low back pain: frequency, clinical evaluation, and treatment patterns from a U.S. national survey. *Spine*. 1995;20:11-19.
2. Chou R, Qaseem A, Snow V, et al; Clinical Efficacy Assessment Subcommittee of the American College of Physicians; American College of Physicians; American Pain Society Low Back Pain Guidelines Panel. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. *Ann Intern Med*. 2007;147:478-491.
3. Roudsari B, Jarvik JG. Lumbar spine MRI for low back pain: indications and yield. *AJR Am J Roentgenol.* 2010;195:550-559.

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