Low back pain: MR findings without clinical significance
Miriam A. Bredella, MD
Assistant Professor of Radiology, Harvard Medical School
Massachusetts General Hospital, Boston, MA

Low back pain is exceedingly common. An estimated 80% of the general population suffers an episode of low back pain at some point in their lives, and 5-10% of patients develop persistent back symptoms (1). Low back pain is the second most common cause of a visit to a primary care physician after the common cold, and the largest cause of disability in the working age population <45 years. Magnetic resonance imaging (MRI) is frequently used to examine patients with low back pain, however, the relationship between anatomic abnormalities of the lumbar spine detected at MRI, patient symptoms and outcome are controversial (2). Several studies have shown that MRI is not accurate in predicting patient symptoms. There is a high prevalence of abnormal findings in both symptomatic and asymptomatic individuals (3, 4). In one study, 52% of asymptomatic individuals had disc bulges, and 27% had disc protrusions (4).

Changes that are seen on MRI in asymptomatic individuals do not predict the future occurrence of pain (4, 5). Patients with both specific and non-specific low back pain may have similar MRI findings (6) and pain may even be contra lateral to the side of the disc herniation (7). Although the side of radiculopathy usually correlates with the side of herniation, there is frequently no relation between severity of symptoms and either the size, number or level of disc herniation (8).

MRI findings that are the result of normal aging and generally not of clinical significance are:
- disc space narrowing
- T2-weighted signal intensity loss from the intervertebral disc
- fissures, fluid, vacuum changes and calcification within the intervertebral disc
- ligamentous signal changes
- anterior and lateral osteophytosis
- disc herniation (bulges, protrusions)

For patients with non-specific low back pain, clinicians should not routinely order MRI. MRI should be used when tumor, infection, or insufficiency fracture is suspected as the cause of low back pain or in patients with persistent low back pain and symptoms of radiculopathy or spinal stenosis if positive results would potentially lead to steroid injection or surgery. Surgical indications are progressive neurologic deficit, cauda equina syndrome, refractory radicular pain, or neurogenic claudication (9). Note that none of the surgical indications can be demonstrated on imaging. If the patient is a surgical candidate, MRI should be used to determine whether there is an operable lesion, and to corroborate levels.

References:


