

Imaging Considerations for Acute Low Back Pain To View or Not to View!

Most patients who present with low back pain that is less than 4-6 weeks in duration do not require any imaging, either x-ray, CT scan or MRI. Most of the patients who present to us in the primary care settings as first touch providers will have nonspecific pain without associated symptoms and will improve on their own without any imaging.

Most common imaging tests used for this are:

X-rays – used for bones, but not effective for viewing soft tissue

CT scans – special kind of imaging, but does expose a patient to more radiation, can visualize bone and soft tissues

MRI – magnets in lieu of radiation, and do show more details of the soft tissues, not everyone can get these and there might be a longer wait for this to be done

Approximately one-quarter of patients 18 to 50 years of age with acute low back pain who did undergo imaging exams had no identifiable indication for imaging. Inappropriate lumbar imaging can lead to irrelevant findings and trigger additional costly studies, unneeded treatments, and unwarranted surgical interventions. This can lead to the catastrophizing of acute low back pain from the patient and lead to many patients taking unnecessary time off work and increase their back pain which leads to more chronic issues. Joint guidelines from the American College of Physicians (ACP) and the American Pain Society explicitly recommend that "clinicians should not routinely obtain imaging or other diagnostic tests in patients with nonspecific low back pain" and reserve imaging for patients with severe or progressive neurologic deficits or when serious underlying conditions are suspected based on history and physical examination.

There are **special circumstances** that warrant imaging such as if the pain is caused by a trauma, older age, are immunocompromised, history of cancer, unexplained weight loss or fever, osteoporosis history, IVDA, urinary and bowel incontinence or saddle anesthesia. If pain is more than 6 weeks, then imaging may be indicated.

Please refer to the following table for normative findings by patient age – this is useful information when educating patients about their pain to ease their anxiety with an increased understanding of what is to be expected.

Table 2: Age-specific prevalence estimates of degenerative spine imaging findings in asymptomatic patients^a

| Imaging Finding | Age (yr) | | | | | | |
|--------------------|----------|-----|-----|-----|-----|-----|-----|
| | 20 | 30 | 40 | 50 | 60 | 70 | 80 |
| Disk degeneration | 37% | 52% | 68% | 80% | 88% | 93% | 96% |
| Disk signal loss | 17% | 33% | 54% | 73% | 86% | 94% | 97% |
| Disk height loss | 24% | 34% | 45% | 56% | 67% | 76% | 84% |
| Disk bulge | 30% | 40% | 50% | 60% | 69% | 77% | 84% |
| Disk protrusion | 29% | 31% | 33% | 36% | 38% | 40% | 43% |
| Annular fissure | 19% | 20% | 22% | 23% | 25% | 27% | 29% |
| Facet degeneration | 4% | 9% | 18% | 32% | 50% | 69% | 83% |
| Spondylolisthesis | 3% | 5% | 8% | 14% | 23% | 35% | 50% |

^a Prevalence rates estimated with a generalized linear mixed-effects model for the age-specific prevalence estimate (binomial outcome) clustering on study and adjusting for the midpoint of each reported age interval of the study.

Table from: Systemic Literature Review of Imaging Features of Spinal Degeneration in Asymptomatic Populations.

Brinjikii, W. Luetmer, P.H., Comstock B., Brensnahan B.W., Chen L.E., Devo R.A., Halabi S., Turner J.A., Avins A.L., James K., Wald J.T., Kallmes D.F., AJNR 2015; 36(4):