

Patient Name
Date of Birth
Patient Sex
Study Date

Site Name
Ref. Physician

DIAGNOSTIC IMAGING REPORT

LUMBAR SPINE MRI REPORT

INDICATIONS: Lower back pain following motor vehicle collision dated 02/05/2025. Evaluate for traumatic injury, disc pathology, and nerve root compromise.

TECHNIQUE: Multiplanar, multisequence MRI of the lumbar spine.

COMPARISON: No prior lumbar spine imaging available for comparison.

FINDINGS:

There are 5 typical lumbar segments. The vertebral body heights are maintained. No misalignment or spondylolisthesis. The regional marrow signal is unremarkable. The visualized portions of the sacrum and sacroiliac joints are unremarkable.

The spinal canal caliber is normal. There is no abnormality of the conus medullaris or cauda equina. The tip of the conus is at T12-L1.

Paraspinal lumbar musculature is symmetric without atrophy or signal abnormality. Multiple cystic lesions are noted in the right and left kidney of variable size. Recommend a dedicated ultrasound exam of the kidneys for further evaluation.

Segmental analysis:

L1-L2: Disc height is adequate with a broad-based posterior protrusion type disc herniation measuring 3.9 mm, series 15 image 8. This is complicated by a high signal intensity zone seen on the T2 and STIR sequence, compatible with an annular tear. Facet joint effusion. Otherwise, the posterior elements are unremarkable.

L2-L3: Disc height is adequate with a broad-based posterior protrusion type disc herniation measuring 2.4 mm, series 15 image 7. This is complicated by a high signal intensity zone seen on the T2 and STIR sequence, compatible with an annular tear. Facet joint effusion. Otherwise, the posterior elements are unremarkable.

L3-L4: Disc height is adequate but with a right foraminal annular bulge measuring 2.1 mm, series 15 image 4. Facet joint effusion. Otherwise, the posterior elements are unremarkable.

L4-L5: Moderate to advanced loss of intervertebral disc height with endplate hypertrophy and a broad-based posterior protrusion type disc herniation measuring 5.4 mm, series 15 image 5. This causes compression of the transiting and exiting nerve roots bilaterally. Facet joint effusion. Otherwise, the posterior elements are unremarkable.

L5-S1: Disc height is adequate but with a left paracentral protrusion type disc herniation measuring 2.4 mm, series 15 image 9. Facet joint effusion. Otherwise, the posterior elements are unremarkable.

IMPRESSIONS:

1. No evidence of acute fracture, destructive osseous lesion, or epidural mass.
2. Multilevel protrusion-type disc herniations measuring 2.4-5.4 mm L1-L3 and L4-S1, with compression of the transiting and exiting nerve roots bilaterally at L4-L5, as detailed above.
3. Multilevel facet effusion. Correlate for facet capsular sprain and/or synovitis. Facetogenic pain remains a clinical diagnosis, and MRI is relatively insensitive to purely facet-mediated pain.
4. Polycystic kidney disease of the right and left kidneys. A dedicated ultrasound exam of the kidneys may be beneficial for further evaluation.

This MRI examination was obtained following an acute traumatic event dated 02/05/2025. The imaging demonstrates the structural findings described above, including specific measurements of disc pathology, vertebral translation, and any segmental alignment abnormality. Determination of whether these imaging findings are causally related to the reported trauma, represent acute aggravation of pre - existing degenerative disease, or are incidental and asymptomatic requires correlation with the temporal onset of symptoms, mechanism of injury, physical examination findings, other diagnostic tests, and, when available, prior imaging studies. Facet joint arthropathy is described morphologically on MRI (joint space narrowing, hypertrophy, osteophytes, effusion), but facetogenic pain remains a clinical diagnosis. MRI is relatively insensitive to facet-mediated pain, and normal or mildly abnormal facet imaging should not be interpreted as exclusion of clinically significant facetogenic pain.

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Additional Notes:

1. Disc morphology terminology (disc bulge, herniation, protrusion, and extrusion) follows the standardized nomenclature of the Combined Task Forces of the North American Spine Society, American Society of Spine Radiology, and American Society of Neuroradiology (Lumbar Disc Nomenclature V2.0, Spine Journal 14(2014):2525-2545). A disc herniation is described as a protrusion unless specifically characterized as an extrusion or sequestration in this report.
2. Spondylolisthesis, when present, is graded by the Meyerding classification based on the percentage of slip of one vertebral body relative to the one below it on standing lateral radiographs: Grade I, 0-25% slip; Grade II, 25-50%; Grade III, 50-75%; Grade IV, 75-100%; and Grade V, greater than 100% (spondyloptosis). In general, slips greater than 50% (Meyerding Grade III or higher) are considered high grade and are associated with an increased risk of neurologic compromise and mechanical instability. Koslosky E, Gendelberg D. Classification in Brief: The Meyerding Classification System of Spondylolisthesis. Clin Orthop Relat Res. 2020 May;478(5):1125-1130. doi: 10.1097/CORR.0000000000001153. PMID: 32282463; PMCID: PMC7170696.
3. Alteration of Motion Segment Integrity (AOMSI), as defined in the AMA Guides to the Evaluation of Permanent Impairment, 5th edition, is considered present in the lumbar spine when there is either abnormal translation or abnormal angular motion between adjacent vertebral segments beyond defined normal limits. In the lumbar spine, abnormal anteroposterior translation is typically defined as greater than approximately 4.5 mm of shear between adjacent vertebrae on flexion-extension radiographs. Abnormal angular motion is defined as motion greater than 15° at L1-L2, L2-L3, and L3-L4, greater than 20° at L4-L5, and greater than 25° between L5 and S1. AMA Guides to the Evaluation of Permanent Impairment. 5th ed. Chicago: American Medical Association; 2001. p. 384.
4. Lumbar spinal canal stenosis is described by reduction of the anteroposterior (AP) thecal sac diameter and degree of CSF effacement/cauda equina crowding on axial T2 MRI, with AP diameters >13-15 mm generally normal, about 10-13 mm indicating relative/mild stenosis, and <10 mm usually representing definite/severe stenosis often associated with neurogenic claudication or radicular symptoms. <https://pmc.ncbi.nlm.nih.gov/articles/PMC3161920/>
 Lumbar neuroforaminal stenosis on MRI is commonly graded by perineural fat loss and nerve root deformation on sagittal images as Grade 0 (none, fat fully preserved), Grade 1 (mild, partial fat loss without root deformity), Grade 2 (moderate, complete fat loss with preserved root shape), and Grade 3 (severe, marked narrowing with flattening or collapse of the exiting root, most strongly associated with symptomatic radiculopathy). <https://www.ajronline.org/doi/10.2214/AJR.09.2772>

Thank you for allowing our participation in your patient's care.

