GENERAL TEACHING HOSPITAL

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MAGNETIC RESONANCE IMAGING - LUMBAR SPINE

PATIENT INFORMATION

Name: John A. Doe (FICTIONAL)
DOB: 01/15/1985
Age: 40 years
Sex: Male
MRN: 1234567890
Study Date: 09/15/2025

STUDY INFORMATION

Referring Physician: Dr. Amanda Rehab, MD (PM&R)
Interpreting Radiologist: Dr. Lisa Radiology, MD
Study Type: MRI Lumbar Spine W/O Contrast
Indication: Persistent low back pain post-MVA
Scanner: 3.0 Tesla MRI

CLINICAL HISTORY

40-year-old male with persistent lower back pain 6 weeks following motor vehicle accident. Patient also sustained left hip fracture (surgically repaired) and cervical strain. Current symptoms include lower back pain (6/10) with muscle spasms, worse with prolonged sitting and forward flexion. Patient reports some improvement with physical therapy but plateauing of progress. No radicular symptoms or neurological deficits

reported.

TECHNIQUE

MRI of the lumbar spine was performed using a 3.0 Tesla magnet. Multiplanar images were obtained using the following sequences:
• Sagittal T1-weighted images
• Sagittal T2-weighted images
• Sagittal STIR (Short TI Inversion Recovery) images
• Axial T2-weighted images through the lumbar discs
• Axial T1-weighted images through symptomatic levels

No intravenous contrast was administered. Patient tolerated the procedure well with no adverse events.

FINDINGS

Alignment and Vertebral Bodies:
Normal lumbar lordosis is maintained. The vertebral body heights are preserved. No compression fractures or acute osseous abnormalities are identified. Bone marrow signal is normal throughout.

Disc Findings:
L1-L2: Normal disc height and signal. No disc bulge or herniation.

L2-L3: Normal disc height and signal. No disc bulge or herniation.

L3-L4: Mild loss of disc height with decreased T2 signal consistent with early degenerative disc disease. Small central disc bulge without significant canal stenosis. No foraminal narrowing.

L4-L5: Moderate loss of disc height and signal. Broad-based posterior disc bulge with a superimposed right paracentral disc protrusion. Mild bilateral facet arthropathy. The disc protrusion contacts but does not significantly compress the right L5 nerve root. Mild central canal narrowing. Bilateral foraminal narrowing is mild.

L5-S1: Preserved disc height and signal. No significant disc bulge or herniation.

Spinal Canal and Neural Foramina:
The central spinal canal is patent throughout with mild narrowing at L4-L5 as described above. Neural foramina are patent bilaterally with mild narrowing at L4-L5. No significant spinal stenosis.

Paraspinal Soft Tissues:
There is mild edema and inflammatory changes within the bilateral paraspinal musculature, most prominent at the L4-L5 level, consistent with muscle strain/spasm. No masses or fluid collections identified.

Additional Findings:
Facet joints show mild degenerative changes at L4-L5 with small joint effusions bilaterally. Ligamentum flavum is mildly thickened at L4-L5. Conus medullaris terminates at the L1 level and appears normal.

IMPRESSION

1. **Acute paraspinal muscle strain** with edema most prominent at L4-L5, consistent with post-traumatic changes following motor vehicle accident

2. **L4-L5 disc protrusion** (right paracentral) with contact of the right L5 nerve root but without significant compression. This may be post-traumatic or represent exacerbation of pre-existing degenerative changes

3. **Mild degenerative disc disease** at L3-L4 and L4-L5 with associated facet arthropathy, likely age-appropriate changes

4. **No evidence of spinal fracture** or other acute osseous injury

Clinical Correlation:
The findings are consistent with the patient's history of motor vehicle accident with resultant back strain. The disc protrusion at L4-L5 may be contributing to the patient's ongoing symptoms. Correlation with clinical

findings and consideration of targeted therapy (epidural injection) may be beneficial if conservative management fails.

RECOMMENDATIONS

1. Continue conservative management with physical therapy and anti-inflammatory medications
2. Consider epidural steroid injection at L4-L5 if symptoms persist or worsen
3. Neurosurgical consultation if neurological symptoms develop
4. Follow-up MRI in 3-6 months if no clinical improvement
5. Functional capacity evaluation may be helpful for work return planning

RADIOLOGIST ATTESTATION

I have personally reviewed all images and clinical information. The above represents my radiological interpretation.

Electronically signed by: Dr. Lisa Radiology, MD
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Diagnostic Radiology
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