Lumbar Spine MRI — AI Analysis Report

Patient ID:	**DEMO-2025-001**	Study Date:	**January 4, 2025**
Modality:	**MRI Lumbar Spine**	Sequences:	**T1, T2, STIR**
Referring:	**Dr. Sample Provider**	Priority:	**Routine**

CLINICAL HISTORY

Low back pain with left leg radiculopathy. Rule out disc herniation or stenosis. Patient reports symptoms for approximately 3 months with gradual worsening.

TECHNIQUE

MRI of the lumbar spine was performed on a 1.5T scanner without contrast. Sagittal and axial T1-weighted, T2-weighted, and STIR sequences were obtained.

LEVEL-BY-LEVEL FINDINGS

Level	Disc	Central Canal	Neural Foramina	Confidence
L1-L2	Normal	Patent	Patent bilaterally	96%
L2-L3	Mild dehydration	Patent	Patent bilaterally	94%
L3-L4	Mild broad-based bulge	Mild narrowing	Patent bilaterally	92%
L4-L5	Moderate disc bulge	**MODERATE STENOSIS**	Mild bilateral narrowing	91%
L5-S1	Left paracentral protrusion	Mild narrowing	**LEFT FORAMINAL NARROWING**	89%

ADDITIONAL FINDINGS

- Vertebral body heights and alignment are maintained.
- No evidence of compression fracture.
- Conus medullaris terminates at the L1 level (normal).
- Paraspinal soft tissues are unremarkable.
- No concerning bone marrow signal abnormality.

IMPRESSION

1. Moderate central canal stenosis at L4-L5 secondary to disc bulge and facet hypertrophy. This may correlate with patient's symptoms.

2. Left paracentral disc protrusion at L5-S1 with left foraminal narrowing, potentially impinging on the exiting L5 nerve root. Clinical correlation with left leg radiculopathy recommended.

3. Mild degenerative changes at L3-L4 without significant stenosis.

RECOMMENDATIONS

- Clinical correlation with physical examination findings.
- Consider conservative management with physical therapy.
- If symptoms persist or worsen, neurosurgical or pain management consultation may be warranted.
- Follow-up imaging if clinical status changes.

AI MODEL VERIFICATION
Model: Bumble70B (Meditron-70B-AWQ)
Execution: SwarmOS Epoch 2025-0104
Overall Confidence: 94.2%
Processing Time: 4.8 seconds
Proof Hash: 0x7a3f...b291

This AI-generated report is intended as a clinical decision support tool and should be reviewed by a qualified radiologist. Final diagnosis and treatment decisions remain the responsibility of the treating physician.