

**ORIGINAL ARTICLE****Assessment of MRI findings in patients with low backache with or without radiculopathy**

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**ABSTRACT:**

**Background:** One of the most frequent reasons for outpatient visits is low backache, which affects 80% to 90% of people at some point in their lives. The present study was conducted to assess MRI findings in patients with low backache with or without radiculopathy. **Materials & Methods:** 110 patients with low backache with or without radiculopathy of both genders were subjected to MRI and the T1W Turbo Spin Echo, T2W Turbo Spin Echo, Gradient-echo, Myelogram, and STIR sequences were used in all imaging planes (axial, coronal, and sagittal planes). **Results:** Spinal lesions were traumatic lesions in 11, degenerative disc disease in 64, infective lesions in 5, neoplastic lesions in 4 and congenital lesions in 26 cases. Herniation types were disc bulge in 78, disc protrusion in 20, disc sequestration in 12. Position of herniated disc was central in 30, posterolateral in 75 and foraminal in 5 cases. Tumours were extradural in 2, intradural extramedullary in 1 and intramedullary in 1 case. Congenital lesions were Sacralization/Lumbarization in 14, scoliosis in 5 and perineural cyst in 3 cases. **Conclusion:** Most cases of low back ache can be attributed to one single most common category: degenerative disc disease. MRI is helpful in categorizing spinal lesions, which again affects the course of treatment and final result.

**Keywords:** low backache, MRI, Spinal lesions

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**INTRODUCTION**

One of the most frequent reasons for outpatient visits is low backache, which affects 80% to 90% of people at some point in their lives.<sup>1</sup> Numerous conditions can lead to it, including gynecological, neurological, orthopedic, and surgical conditions; additionally, menstrual disorders, pregnancy, genitourinary tract infections, and severe gastroenteritis can all be contributing factors.<sup>2</sup> Chronic or sudden low back pain is possible. Lumbagosacral pain lasting less than six weeks, with or without increasing or incapacitating symptoms, is referred to as acute low back pain. The majority of acute back pain is mechanical in nature, stemming from lower back injuries or conditions like arthritis.<sup>3</sup>

Acute low backaches are caused by sprains or strains in the spinal muscles in about 70% of cases. Acute low back pain may be simple or complex. When low back pain symptoms last more than six weeks, they are considered complicated acute low back pain.<sup>4</sup> Recent significant trauma, unexplained weight loss or fever, immunosuppression, a history of cancer, intravenous (IV) drug use, prolonged corticosteroid use, osteoporosis, age greater than 70, focal neurologic deficit with progressive or disabling symptoms are all indicators of a complicated status

that preclude radiological evaluation.<sup>5</sup> A low backache is deemed chronic if it lasts more than three months. Poor ergonomics, such as extended uncomfortable posture, repetitive bending, prolonged sitting, etc., in the workplace, additional physical or psychological stress, and pathological conditions can all contribute to chronic low backache.<sup>6</sup> The present study was conducted to assess MRI findings in patients with low backache with or without radiculopathy.

**MATERIALS & METHODS**

The present study was conducted on 110 patients with low backache with or without radiculopathy of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. The T1W Turbo Spin Echo, T2W Turbo Spin Echo, Gradient-echo, Myelogram, and STIR sequences were used for the spine MRI in all imaging planes (axial, coronal, and sagittal planes). When required, the T1W turbo spin echo sequence with gadolinium enhancement was employed. A scan was performed, covering the lower thoracic (T10) to the lumbar region. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

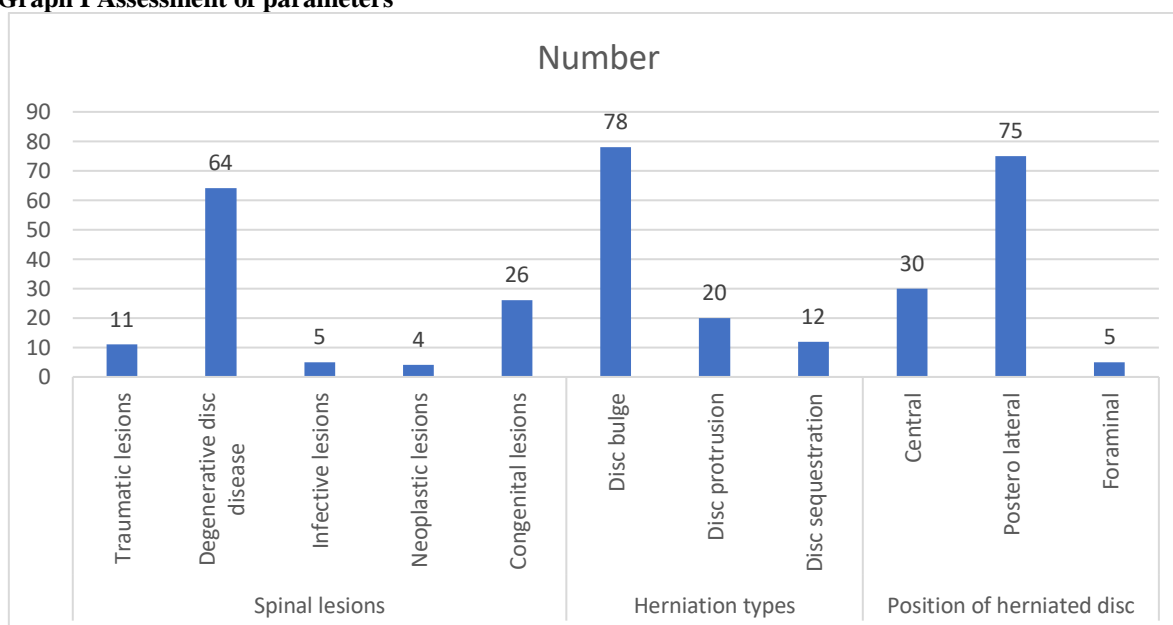
**RESULTS**

**Table I Assessment of parameters**

Parameters	Variables	Number	P value
Spinal lesions	Traumatic lesions	11	0.01
	Degenerative disc disease	64	
	Infective lesions	5	
	Neoplastic lesions	4	
	Congenital lesions	26	
Herniation types	Disc bulge	78	0.05
	Disc protrusion	20	
	Disc sequestration	12	
Position of herniated disc	Central	30	0.02
	Postero lateral	75	
	Foraminal	5	

Table I shows that spinal lesions were traumatic lesions in 11, degenerative disc disease in 64, infective lesions in 5, neoplastic lesions in 4 and congenital lesions in 26 cases. Herniation types was disc bulge in 78, disc protrusion in 20, disc sequestration in 12. Position of herniated disc was central in 30, postero- lateral in 75 and foraminal in 5 cases. The difference was significant (P< 0.05).

**Graph I Assessment of parameters**



**Table II Types of tumors and congenital lesions**

Parameters	Variables	Number	P value
tumours	Extradural	2	0.05
	Intraduralextramedullary	1	
	Intramedullary	1	
Congenital lesion	Sacralization/ Lumbarization	14	
	Scoliosis	5	
	Perineural cyst	3	

Table II shows that tumours were extradural in 2, intradural extramedullary in 1 and intramedullary in 1 case. Congenital lesions were Sacralization/ Lumbarization in 14, scoliosis in 5 and perineural cyst in 3 cases. The difference was significant (P< 0.05).

**DISCUSSION**

The majority of low backaches go away with conservative treatment, at least temporarily. However, a certain percentage of individuals experience chronic pain that does not go away with cautious traditional treatment.<sup>7</sup> Choosing an appropriate treatment

modality and making a diagnosis from this fraction is a difficult endeavor.<sup>8</sup> Most notably, radiological imaging has a significant impact on the treatment decision-making process and can help identify or rule out pathological disorders.<sup>9</sup> Over the past 20 years, there have been significant advancements in the

radiological examination of the lumbosacral spine. MRIs, CT scans, and plain radiography are the standard imaging methods.<sup>10,11</sup>The present study was conducted to assess MRI findings in patients with low backache with or without radiculopathy.

We found that spinal lesions were traumatic lesions in 11, degenerative disc disease in 64, infective lesions in 5, neoplastic lesions in 4 and congenital lesions in 26 cases. Herniation types was disc bulge in 78, disc protrusion in 20, disc sequestration in 12. Position of herniated disc was central in 30, postero-lateral in 75 and foraminal in 5 cases. Gopalakrishnan et al<sup>12</sup>classified and quantified the causes of low back pain. Degenerative disc diseases were the commonest pathology followed by congenital and traumatic lesions. Neoplastic lesions were the least common. Commonest herniation type being the disc bulge (79%) followed by disc protrusion (15%), disc extrusion (6%) and disc sequestration (<1%). The posterolateral disc herniation as the commonest and foraminal the least. Sacralisation was the most common congenital spinal anomaly, followed by lumbar scoliosis and perineural cyst. There is no sex difference in disc protrusion but male preponderance in disc extrusion with subligamentous extrusion.

We found that tumours were extradural in 2, intradural extramedullary in 1 and intramedullary in 1 case. Congenital lesions were Sacralization/Lumbarization in 14, scoliosis in 5 and perineural cyst in 3 cases. Pradeep et al<sup>13</sup>examined the association of incident lumbar MRI findings with two specific spine-related symptom outcomes: 1) incident chronic bothersome LBP, and 2) incident radicular symptoms such as pain, weakness, or sensation alterations in the lower extremity. Three-year cumulative incidence of new MRI findings ranged between 2 and 8%, depending on the finding. Incident annular fissures were associated with incident chronic LBP, after adjustment for prior back pain and depression (adjusted odds ratio [OR] 6.6; 95% confidence interval [CI] 1.2-36.9). All participants with incident disc extrusions (OR 5.4) and nerve root impingement (OR 4.1) reported incident radicular symptoms, although associations were not statistically significant. No other incident MRI findings showed large magnitude associations with symptoms.

Cheung et al<sup>14</sup>analyzed the occurrence, pattern, and connection between lumbar spine MRI alterations and back pain. Lumbar intervertebral disc degeneration (LDD) affected 40% of people under 30. By the time a person reaches 50 to 55 years old, the prevalence of LDD has increased to almost 90%. The DDD score and low back discomfort showed a positive association. The levels that were most frequently impacted were L4-L5 and L5-S1. In addition to the typical patterns of degeneration, some rare patterns were found, such as people with isolated upper or midlumbar degeneration and skip level lesions, which intervene at normal levels.

The shortcoming of the study is small sample size.

## CONCLUSION

Authors found that most cases of low back ache can be attributed to one single most common category: degenerative disc disease. MRI is helpful in categorizing spinal lesions, which again affects the course of treatment and final result.

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