



“ROLE OF MRI EVALUATION IN ASSESSMENT OF MORPHOLOGICAL CHANGES IN DEGENERATIVE DISEASE OF SPINE ”

Radiology

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ABSTRACT

Between each vertebral body of the spine are pads of fibrocartilage-based structures that provide support, flexibility, and minor load-sharing known as the intervertebral discs. These are primarily composed of two layers: (1) a soft, pulpy nucleus pulposus on the inside of the disc and (2) a surrounding firm structure known as the annulus fibrosus. A disruption of the normal architecture of these round discs can lead to a disc herniation or a protrusion of the inner nucleus pulposus, possibly applying pressure to the spinal cord or nerve root and resulting in radiating pain and specific locations of weakness.

MRI is the standard imaging modality for detecting disc pathology due to its advantage of lack of radiation, multiplanar imaging capability, excellent spinal soft-tissue contrast and precise localization of intervertebral discs changes.

KEYWORDS

Mri, Low Backache, Spondylosis.

INTRODUCTION:-

Disc degeneration is directly correlated with age; the risk of degeneration increases with age. Interestingly, while it is thought that men likely start this degeneration almost ten years early than women, women with disc degeneration are likely to be more susceptible to the effects (e.g., malalignment, instability).

Evaluation of patients with low back pain typically includes anterior-posterior (AP) and lateral radiographs of the impacted area. Some physicians will obtain radiographs of the entire spine. An MRI should not be ordered at initial presentation of suspected acute disc herniations in patients lacking “red flags,” because these patients will initially trial a 6-week course of physical therapy and frequently improve. An MRI likely is an unnecessary financial and utilization burden in the initial presentation. If at follow-up the symptomology is still present, then an MRI can be obtained at that time. The focus should be directed to the T2 weighted sagittal, and axial images as these will illustrate any compression of neurologic elements. Over time, both symptomatic and asymptomatic disc herniations will decrease in size on MRI. The finding of disc disease (degeneration or herniation) on MRI does not correlate with the likelihood of chronic pain or the future need for surgery.

MATERIALS AND METHODS

**Place of study:** grant medical college, mumbai

**Study duration:** 2 years

**Type of study:** a hospital based prospective study

**Sample size:** 50 patients

**Sampling method:** random

Inclusion criteria:

All outdoor and IPD patients referred to the department of Radio Diagnosis of a tertiary care centre with symptoms of backache & low backache.

Exclusion criteria:

1. Patients not consenting to the study
2. Hemodynamically unstable patients

Technique:-

Conventional and fast spin echo sequences used: Sagittal plane: T1WI, T2WI, STIR WI. Axial-T1WI, T2WI, GREat disc level and slab and axial, Coronal-STIWI.

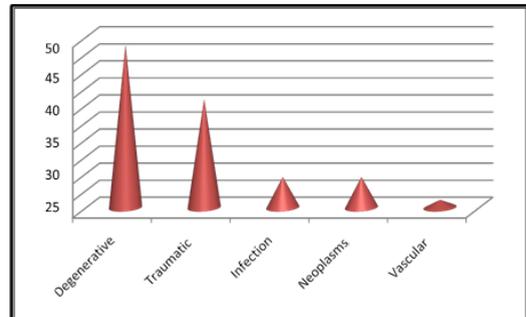
Post contrast- T1 FS Sagittal whole spine with T1 FS axial, coronal at the level of lesion.

RESULTS:-

Etiological distribution in extradural compartment :-

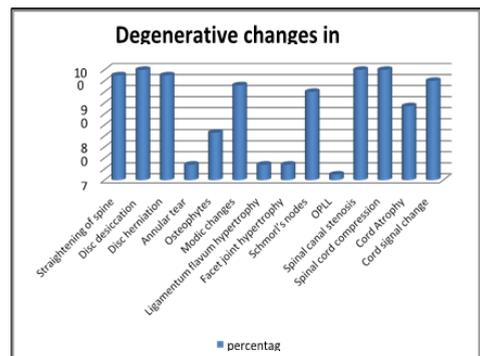
Most common causes of extra-dural compression in this study were degenerative changes (47.7%), spinal injuries (31.8%), infection (9%)

and neoplasms (9%) and least common was vascular cause (2.27%).



Degenerative changes in spine in cases of degenerative compressive myelopathy:-

Out of 50 cases of degenerative compressive myelopathy, disc herniation was seen in 48 (95%) cases and 2 case was of ossification of posterior longitudinal ligament, Spinal canal stenosis and spinal cord compression was is seen in 100 % cases. Spinal cord signal change was seen

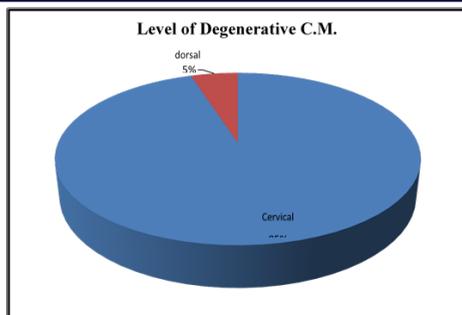


in 90% cases. Cord atrophy was seen in 67% cases.

Level of degenerative compressive myelopathy:-

Spinal level	Number of patients (n=21)	%
C: Cervical	20	95
D: Dorsal	1	5
L: Lumbar	0	0

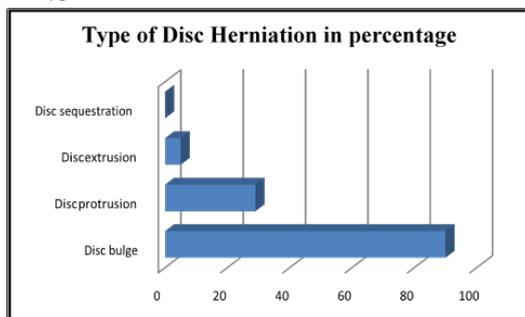
95 % cases of degenerative compressive myelopathy were seen in cervical region.



**Percentage distribution of disc herniation.**

Type of disc herniation	Number of patients (n=21)	%
Disc bulge	19	90
Disc protrusion	06	29
Disc extrusion	01	05
Disc sequestration	00	00

Disc bulge was seen most commonly contributing 90 % of total cases of degenerative compressive myelopathy. Extrusion was least common (5%). No case of sequestration was seen. Some cases showed different types of herniations at various disc levels.



**CONCLUSION**

- Most common causes of extra-dural compression is degenerative changes (47.7%), spinal injuries(31.8%), infection(9%) and neoplasms (9%) and least common was vascular cause (2.27%).
- Cervical region was the most common site for compressive myelopathy accounting for 56% (28) of total cases, followed by dorsal 34% (17), dorso- lumbar 6%(3) and lumbar 4%(2) levels.
- 95 % cases of degenerative compressive myelopathy were seen in cervical region.
- Disc bulge was seen most commonly contributing 90 % of total cases of degenerative compressive myelopathy. Extrusion was least common (5%). No case of sequestration was seen. Some cases showed different types of herniations at various disc levels.

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