



Radionucleoplasty Therapy in Intervertebral Disc Herniation

KEYWORDS

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ABSTRACT Disc herniation is a localised displacement of a disc material beyond the limits of the intervertebral disc space. Partial tear of annular ligament with herniation of nucleolus pulposus is termed as contained herniation. Diagnosis contained disc herniation on MRI becomes crucial as radionucleolysis as its treatment has better prognosis as compared to disc protrusion¹. Clinical signs and symptoms of disc herniation are not only caused by mechanical compression but also by biochemical factors that play an important role in inflammatory sensitization and immune response in the epidural environment² of the nerve root pain and inflammation. Management of the patients with radicular pain relies on history taking, clinical examination and investigational modalities which additionally provide information for accurate diagnosis³, treatment and later follow up. The use of radionucleoplasty has opened the doors for further modalities. Hence, it is important to diagnose and deffreniate these conditions so that early treatment can be given to minimise further complications. However the knowledge of use of radionucleoplasty in treatment of radicular pain is still scant. Hence it was decided to take up the study in this part of country to evaluate radionucleoplasty as treatment modality for radicular pain.

INTRODUCTION:

Low back pain is an extremely common ailment encountered in our day to day practice The prevalence rate of low back pain in a number of studies ranged from 22% to 65% in one year and the lifetime prevalence ranged from 11% to 84% .Low backache is the leading cause of lost working days all over the world⁵.

The spinal column consist of vertebral bodies ,each vertebral body has intervertebral disc which contains jelly like material (proteo-glycan bridges) If this material comes out it is known as protrusion or herniation of disc. This leads to compression on spinal cord, nerve roots and causes radicular pain and numbness⁶.

Radionucleoplasty is a percutaneous minimal invasive method of decompression in a contained intervertebral disc by using coablation technology which is, cost effective with minimal hospital stay and least complication for discogenic low back pain. This technique chemically disrupts nucleus pulposus by means of percutaneous intradiscal Chemodiscolysis⁷ by chimopapain is based on an enzymatic dissolution of the nucleus.

Radionucleoplasty is used in disc herniation and because of its property to break down the proteo-glycan bridges in the nucleus pulposus of disc and an anti-inflammatory action⁸.

AIMS AND OBJECTIVE

This is a prospective study to determine the efficacy of radio nucleoplasty in Lumbar disc herniation .

The objectives are :

To assess the patients pain , function using

- Visual analog score (VAS)
- Radiological assessment using repeat MRI

MATERIAL AND METHODOLOGY

- This study included 30 pateints, aged between 30 to 55 years, treated at a tertiary centre.
- Detailed history and clinical examination was carried out.
- MRI was done as a chief investigation.
- VISUAL analog score was performed pre operatively and immediate postoperatively.

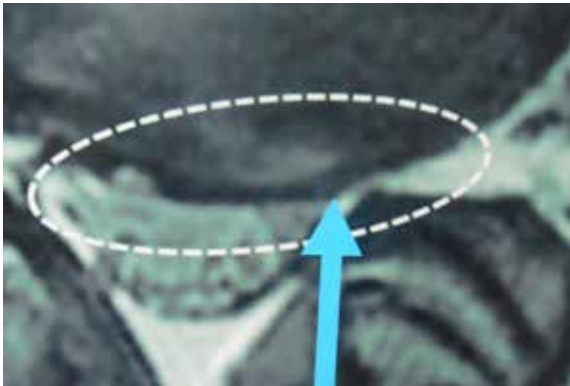
- This study was done under prospective analysis with exclusion criteria consisting of patients having Motor deficit, previous lumbar spine surgery, fractures and infections.
- With all the cases thoroughly followed up post operatively.
- MRI was done after 6 months of follow up.

Procedure:

The patient is taken to the operation theatre lying on prone position. The lower back painted and draped. The procedure is done under local anesthesia, intravenous antibiotic given prior to the procedure, under c-arm guidance , the level of the deseased disc marked in both antero posterior and lateral view, local anesthesia injected and a long spinal needle passed with trochar up to center of disc and confirmed in antero posterior and lateral view under fluoroscopic guidance. trochar is removed and wand is inserted through the needle, advanced and positioned at the proximal channel limit. The needle is retracted approximately 2mm; the tip of the needle is now within the posterior margin of the annulus. Using ablation mode (power setting 2), the wand is advanced into the nucleus to the pre-determined depth. Several channels are created in clockwise positions 2, 4, 6, 8, 10 and 12. At the end, the needle and the catheter are extracted and the puncture place is sterile bandaged.



Pre op MRI of lumbar spine, sagittal view showing L4, L5 disc bulge.

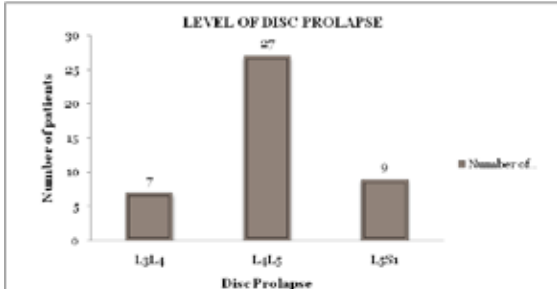


Pre op MRI axial view showing disc bulge at L4 – L5 level.



Lateral view of C-arm showing wand position

OBSERVATION AND RESULT



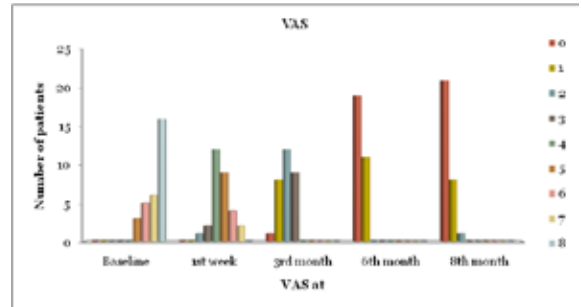
Graph 1- 27% of patients showed maximum level of disc

prolapse at L4-L5 level.

Table 1- Grades of prolapse in percentage.

Grade of Prolapse	Number of patients	Percentage (%)
II	2	36.40
III	11	70.10
Total	30	100

Graph 2- Post operative follow up of VAS in months.



- In this study we had a good result of 90% patients who had shown significantly reduced radicular pain.
- VAS for radiating pain on regular intervals post operatively had shown significant difference.
- Radionucleolysis caused a more significant improvement of radiation pain in those patients who had complaints of low backache along with radicular pain. patient with moderate(7.37%) outcome used occasional analgesic physiotherapy . two patient (2.95%) had underwent surgical intervention like discectomy

CONCLUSION

Radionucleolysis is a new minimal invasive procedure done under local anesthesia and has shown effective results in the contained lumbar vertebral disc herniation with remarkably few side effects. Radionucleoplasty is a good option to treat lumbar disc herniation that has failed to respond to conservative management, before recourse to medication or surgery.

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