

Case Report

Surgery for Far Lateral Disc Prolapse

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Abstract

Far lateral disc prolapse offers a diagnostic and management challenge. Patient clinically present with radiculopathy of the exiting nerve root at that level. These are being increasingly diagnosed after the advent of Computed tomography (CT) and Magnetic resonance imaging (MRI). Surgical approach is different from the regular approach to the lumbar disc. This case report highlights the clinical presentation and the use of inter transverse muscle splitting approach for far lateral disc prolapse.

Key Words: Far lateral disc, Extra-foraminal approach.

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Introduction

The term far lateral disc prolapse is applied to disc protrusion occurring outside the intervertebral foramen and it compresses the nerve root exiting at the same level in contrast to the normal posterolateral disc prolapse which compresses only the traversing root. Failure to identify this may lead to wrong diagnosis, management and persistence of pain after surgery. Incidence of far lateral disc is about 7-12% of all disc herniations¹. Since far lateral disc compresses the exiting nerve root, the clinical presentation corresponds to the radiculopathy of exiting nerve root in contrast to the regular posterolateral disc protrusion and is being increasingly diagnosed after the advent of Computed tomography (CT) and Magnetic resonance imaging (MRI). Surgical options for a far lateral disc is different from normal posterolateral disc protrusions. In this report a case of far lateral disc protrusion at L4-L5 level is presented with emphasised clinical presentation and use of inter transverse muscle splitting approach.

Case report

A 41 year old man presented with low back pain which is radiating to the left lower limb through the back of the thigh upto the front of the leg corresponding to the L4 root distribution since 3 years with aggravation of pain on walking and numbness in the lower part of the leg. Neurologic examination shows weakness of knee extension and dorsiflexion of the foot on the left side, with the impairment of sensation over the L4 dermatome on the left side, straight leg raising was positive at 60 degrees on the left side. MRI of lumbosacral spine showed evidence of far lateral extraforaminal disc prolapse at L4-L5 (Fig 1). Patient was taken up for surgery for far lateral disc prolapsed by inter transverse muscle splitting approach.

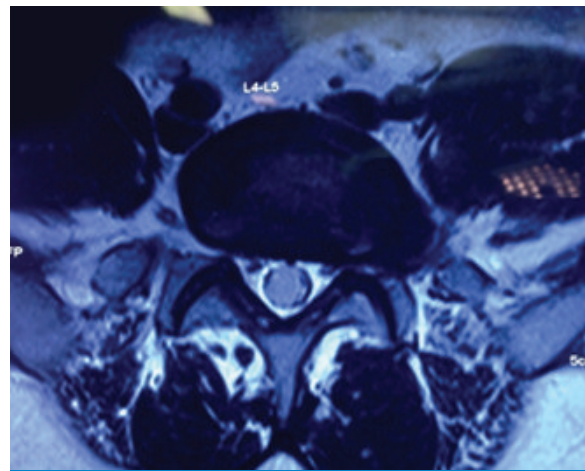


Fig 1 - MRI - LS Spine Showing Left Far Lateral Disc

Surgical Technique

Under general anaesthesia, patient was placed in prone position. Inter transverse space between L4-L5 was identified with c-arm. Paramedian skin incision was made (5cm away from the midline). Inter transverse space was approached after splitting the muscles (multifidus and longissimus), transverse process was identified by palpation. Level was reconfirmed with c-arm. Under operating microscope, the posterior primary ramus and the spinal nerve was identified, where it passes through the medial aspect of the inter transverse ligament and soft tissues were dissected carefully, preserving the nerve root. Lateral aspect of the superior articular process of the facet was drilled using diamond burr, nerve root was identified and separated and disc protrusion under the nerve root was seen, which was removed using disc punch (Fig 2) and nerve root was decompressed and remaining degenerated disc material was cleared from the space.

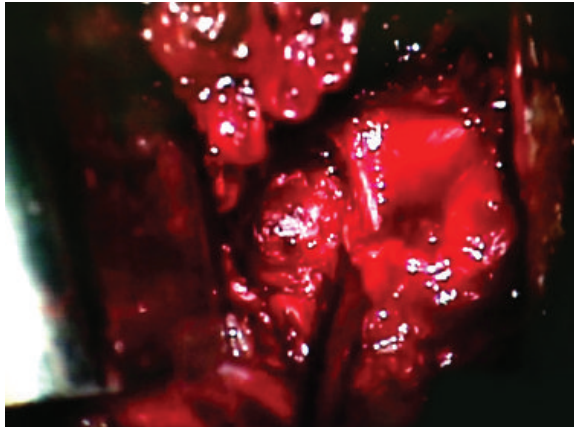


Fig 2 - Showing Intraoperative Far Lateral Disc

Post operatively patient had complete relief of radicular pain, motor and sensory deficits started improving. Patient is doing well at the end of 1 month follow-up without any residual discomfort (Fig 3).



Fig 3 - Postoperative Scar

Discussion

Far lateral disc refers to herniation of the disc at or lateral to the intervertebral foramen. This position usually compresses the exiting nerve root at that level for example, far lateral disc protrusion at L4-L5 compresses L4 root in that side and L5-S1 compresses L5 root in that side. This is in contrast to the usual posterolateral disc protrusion which presents with radiculopathy of the nerve root leaving below the level.

Far lateral disc prolapse was first described by Lindblom in 1944 in a cadaver². Macnab et al³ and Abdullah et al⁴, described the clinical syndrome of extreme lateral disc herniation. The diagnosis of the far lateral disc remained difficult till the advent of CT and MRI era in the mid 1980's. The incidence of far lateral disc is estimated to 7- 12% of all disc herniations¹ and can be foraminal and extraforaminal components.

Various resection techniques are employed for removal of far lateral disc herniations, medial facetectomy, inter-transverse technique⁵, full facetectomy, trans-pars technique, extra-foraminal: technique (extreme lateral) approach, endoscopic techniques, anterolateral retroperitoneal approach with or without fusion and pedicle screw fixation. The extent and type of facet resection and decompression employed to approach far lateral disc herniations must be individualised, as no one technique is universally appropriate¹.

The extreme lateral extra-foraminal technique (technique followed in our department) exposed through midline or preferably paramedian muscle splitting approaches, affords access only to the far lateral compartment and nerve root^{6,7,8}. Removal of the intertransversarius ligament and fascia adequately exposes the far lateral compartment. The supero-lateral portion of the facet must also be removed to caudally identify the more medial portion of the far laterally exiting nerve root.

The exposure is appropriate for pathology confined to the far lateral compartment beyond the pedicles⁶. Darden et al excised 25 far lateral discs using the muscle splitting approach and obtained a 2 year follow-up; 48% exhibited excellent, 32% good, 20% fair/poor results with surgery⁹. In Siebner and Faulhauer's series of 40 patients with far lateral disc prolapse removed through 38 midline and 2 paramedian extra-foraminal approaches, pain was successfully relieved in 85% of their patients. The minimal bony decompression and facet excision limited instability⁶. Extra-foraminal technique provides excellent exposure of far lateral pathology. Limitations of the extra-foraminal technique include the inability to remove disc medially and the lack of access to foraminal and intra-canalicular spondyloarthrosis.

Inter transverse muscle splitting approach used in this patient involves no major resection of bone and spine stability is not affected. Limitations are unfamiliar anatomy and difficulty in the removal of the more medially placed disc protrusion.

References

- 1) Epstein NE. Evaluation of varied surgical approaches used in the management of 170 far lateral lumbar disc herniations: indications and results. *J Neurosurgery* 1995;83:648-656.
- 2) Lindblom K. Protrusions of discs and nerve compression in the lumbar region. *Acta Radiol* 1944;25: 195-212.
- 3) Macnab I. Negative disc exploration an analysis of the causes of nerve-root involvement in sixty-eight patients. *J Bone Joint Surg [Am]* 1971;53(A):891-903
- 4) Abdullah AF, Ditton EW III, Byrd EB et al,. Extreme -lateral lumbar disc herniations . clinical syndrome and special problems of diagnosis. *J Neurosurg* 1974;41:229-34.
- 5) Jane JA, Haworth CS, Broaddus WC. A neurosurgical approach to far-lateral disc herniation. Technical note. *J Neurosurg (US)* 1990; 72: (1) 143-144.
- 6) Siebner HR, Faulhauer K. Frequency and specific surgical management of far lateral lumbar disc herniations. *Acta Neurochir (Wien Austria)* 1990; 105: 3-4. 124-131.

- 7) Garrido E, Connaughton PN. Unilateral facetectomy approach for lateral lumbar disc herniation . J Neurosurg 1992; 76:2. 342-343.
- 8) Wiltse LL, Bateman JG, Hutchinson RH. The paraspinous sacrospinalis-splitting approach to the lumbar spine. J Bone Joint Surg 1960; 50(A): 919-921.
- 9) Darden BV, Wade JF, Alexander R, Wood KE, Rhyne AL III, Hicks JR. Far lateral disc herniations treated by microscopic fragment excision. Techniques and results . Spine 1996;20: 13. 1500-1505.

Mom's Fibre-Rich Diet Keeps Baby's Asthma Quiet

Whether an offspring develops asthma or not depends on what its mother eats during the pregnancy. That is apparently the conclusion of a study carried out at Monash University in Australia (Nature Communications, doi: 10.1038/ncomms8320, published online 23 June 2015). The study was done both in pregnant mice and pregnant women. Pregnant mice fed with high fiber diet delivered offspring that did not develop symptoms of asthma later in life in contrast to the offspring of mice fed low fiber diet. Similarly, offspring of women who consumed fiber-rich diet during their pregnancy, were less prone to develop asthma related symptoms later in childhood. Apparently, high fiber diet induces changes in gut bacterial flora leading to preponderance of those microbes that release anti-inflammatory substances. These in turn suppress asthma related genes (*Foxp3* gene) in the offspring.

- Dr. K. Ramesh Rao