

**Original Article**  
**Orthopaedics**

**CLINICAL CASE  
SERIES OF STANDARD  
LUMBAR DISCECTOMY  
FOR PROLAPSED  
INTERVERTEBRAL DISC:  
OUR EXPERIENCE IN 64  
CASES**

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**Abstract**

**Introduction:** Lumbar disc prolapse is characterized by back pain and leg pain. Although majority of the patients do well with the conservative treatment, surgical management becomes important on failure of conservative modalities. This study deals with the techniques and results of lumbar disc prolapse in long term.

**Aims:** The aim of the study is to know the effectiveness of standard laminectomy and discectomy in patients with lumbar disc prolapse patients.

**Materials and Methods:** This is a prospective study studied at a single institute. All patients with established case of lumbar disc prolapse satisfying the inclusion criteria were included in the present study. The patients underwent routine thorough clinical and radiological examination and planned for surgical intervention. A standard laminectomy and fragmentectomy was done and mobilized the next post-operative day. The patients were followed up at six weeks, two months, six months and at one year. Japanese Orthopaedic Association (JOA) score and Visual analogue scale (VAS) were recorded at each of the follow up.

**Results:** A total of sixty four patients were included in the present study. There were 45 males and 19 females and mean age was 39 years. Right sided leg pain was predominant and average duration of onset of symptom to surgery was 6 months. The posterolateral disc protrusion was found in

41 patients (64.06%), extruded disc in 37 (57.81%) and protruded discs in 15 (23.44%). The mean pre-operative VAS score for back pain was 6, and 8 for leg pain and 4:4 post-operatively. The JOA score was 12.87 pre-operatively and 25.96 post-operatively. Three patients (4.6%) with superficial infection which was managed conservatively with antibiotics. One patient (1.5%) had deep infection and underwent interbody fusion and recovered completely with respect to leg pain. Two patients had intra-operative dural tears which was managed conservatively.

**Conclusion:** A standard laminectomy and discectomy is a time proven technique which can give us satisfactory results. The need for thorough decompression and need to maintain good stability of the motion segment results in better long term outcomes.

**Keywords:** Lumbar discectomy, prolapsed intervertebral disc, back 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%.<sup>1</sup> Although back pain is common complaint, a pathologic cause cannot be determined. Epidemiologic studies determined that risk factors related to the development of back pain include job dissatisfaction, repetitive lifting, and low frequency vibration, low educational level, smoking and social problems. Low backache is the leading cause of lost working days all over the world.<sup>2</sup>

The spinal column consists of vertebral bodies & discs. The discs contains the nucleus pulposus surrounded by a fibrous ring, the annulusfibrosus. When the fibrous ring becomes diseased due to injury or any other condition then nucleus pulposus is pushed out or prolapses into the spinal canal and causes compression of the spinal cord and its accompanying nerve roots. This condition is called disc herniation or disc prolapse. The symptoms are low back pain, radiation pain, numbness, weakness, or loss of bowel and bladder control.

Management of sciatica varies considerably. Patients are commonly treated in primary care but a small proportion is referred to secondary care and may eventually undergo surgery if complaints remain present for atleast 6 weeks.

The symptoms of 80-90% of patients with disc prolapse usually resolve with conservative treatment. Most episodes resolve spontaneously or after conservative therapy.<sup>2,3</sup> Conservative treatment for sciatica

is primarily aimed at pain reduction, either by analgesics, physiotherapy, physical modalities like heat, traction etc. Operative management is advised in cases of non compliance to conservative treatment, progressive neurological deficits, patients with radiculopathy with significant compression by disc herniations on investigation and patients with Cauda equine syndrome.

The primary rationale of surgery for sciatica is that surgery will relieve nerve root irritation or compression due to herniated disc material. The most common type of surgery is open discectomy, surgical removal of part of disc, performed with or without use of microscope or other magnifying tools.<sup>3</sup>

Traditionally open discectomy has stood the test of time for treatment of prolapsed intervertebral disc. Endoscopic and microdiscectomy have good results but, due to associated surgical complications and epidural scar formation in a substantial proportion of patients, the preoperative symptoms recur after primary surgical treatment.

In our study we aim to assess the effectiveness of standard open lumbar laminectomy/discectomy, the outcome analysis in surgically treated patients. For the evaluation of outcome, Japanese Orthopaedic Association Score and The Visual Analogue Scale are used.

## Materials and Methods

It is prospective study evaluating the result of surgical management of lumbar disc prolapse patients in 64 cases by standard laminectomy/discectomy and decompression at our institute (Figure 1). A precise history was elicited regarding the onset of pain, associated radiculopathy and

clinically assessed for neurological deficits. Patients in whom conservative management has failed and decided to be taken up for surgery are included (Figure 2).

During the period between September 2010 and May 2012, all cases considered for surgical management of lumbar disc prolapse fulfilling the inclusion criteria were managed by standard laminectomy/discectomy, fenestration technique with or without decompression.

All patients included in this study underwent thorough clinical and neurological examinations as per the proforma attached. Patients were assessed with Visual Analogue scale (VAS: 0-10) and Japanese orthopaedic association score pre-operatively and at subsequent follow-ups.

## Results

In the present study, sixty four cases of surgically treated of lumbar disc prolapse with standard laminectomy/ discectomy between Sept. 2010 to June 2012 were included. In the present study the age of patients ranged from 23-60 years with mean age of 39 years. The present study had 45 patients (70.31%) males and 19 females. The right sided leg pain was more affected and bilateral radiating pain was found in 14 patients (21.88%). The position of disc prolapse was more in posterolateral area contributing to 41 patients (64.06%). Thirty seven patients (57.81%) had extruded discs and 15 (23.44%) had protruded discs. In the present study thirty two patients(50%) had affection at L4-5 level followed by L5-S1 level in 20 patients. the mean pre-operative VAS score back pain was 6, and 8 for leg pain. The JOA score was 12.87 pre-operatively. The mean JOA score post-operatively was 25.96 and VAS

for back pain was 4 and for leg pain 4 at the end of follow up. We had three patients with superficial infection which was managed conservatively with antibiotics, one patient had deep infection. The patient underwent interbody fusion and recovered completely with respect to leg pain. Two patients had intra-operative dural tears which was managed conservatively.

## Discussion

Intervertebral disc prolapse is a relatively common ailment among adults. Standard laminectomy and discectomy is an important surgical modality for an orthopaedic surgeon.

In the present study, sixty four cases who were decided to go for the surgical management were included. All patients were treated with standard laminectomy and discectomy, fenestration discectomy and decompression for canal stenosis patients.

Intervertebral disc prolapse are commonly seen in adult individuals. The average age of presentation in this study is in 3<sup>rd</sup> and 4<sup>th</sup> decade. The age group of patients ranged from 23-60 years.

The age distribution in this study is similar to the observation by SK Lunawat et al (2002)<sup>4</sup>, Charles Fischer et al (2004)<sup>5</sup> A Akbar et al (2006)<sup>6</sup>. In our study the most common level affected was L4-5 (50%) followed by L-S1 (27%), which is comparable to SK Lunawat 4. This can be attributed to increased degeneration at L4-5, highest mobile segment in lumbar spine. The posterolateral portion of Posterior longitudinal ligament (PLL) is the weakest part compared to stronger central portion. The common area of protrusion was posterolateral which is comparable to Study by

James quenstein<sup>7</sup>. The most common type of disc was extrusion variety in 37 cases which is comparable with Jae Chul Lee et al<sup>8</sup>

JOA scoring system is one of the validated system to assess and quantify the morbidity secondary to spine pathologies. The mean Pre-operative JOA score was 12.87 and at the end of follow up it was 25.87 which is comparable to other studies<sup>8,9,10</sup>. The VAS score pre-operative was 6.23 and post-operatively 1.73 which is comparable to other studies<sup>9,10</sup>.

The final outcome at the end of follow up was excellent in 78.57% of patients. Jae Chull et al<sup>8</sup> and Sangwan et al<sup>9</sup> reported 80% and 88% respectively.

In our study we encountered dural tear in 3 patients (4.69%). All three patients were managed conservatively with frequent observation of soaked dressing and absolute bed rest given for a week until the wound is healed. Three other patients had superficial infection and was managed with antibiotics. One patient had persistent severe back pain and leg pain. The patient was diagnosed to have deep infection which was managed with repeat surgery with debridement and interbody fusion. The patient subsequently improved and it was uneventful.

This study is not without limitations. A standard laminectomy/ Laminoitom with discectomy was performed for all patients, Comparative studies with other minimally invasive techniques would have given better information regarding appropriate mode of surgical modality. The causes of poor results were because of multi level involvement associated with other co-morbid conditions, and non-compliance to the protocol followed post-operatively.

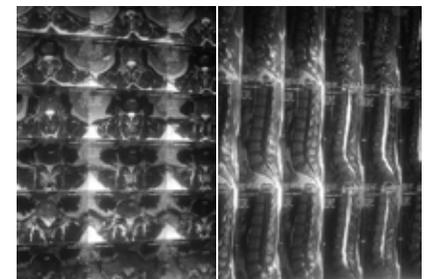
## Conclusion

A standard laminectomy and discectomy is a time proven technique which can give us satisfactory results. The need for thorough decompression and need to maintain good stability of the motion segment results in better long term outcomes.

## Figures



**Figure 1: Intra-operative photograph**



**Figure 2: Pre-operative MRI: Axial and Sagittal films**

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