

# The Effectiveness of Surgery for the Symptomatic Prolapsed Lumbar Intervertebral Disc

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## ABSTRACT

**Aims and Objective:** To know the effectiveness of surgery for the symptomatic prolapsed lumbar intervertebral disc in patients admitted in tertiary care hospital.

**Materials and Methods:** Subsequent to the approval from the ethical review committee, this descriptive study was conducted in neurosurgery department, Hayatabad Medical Complex, Peshawar from April 2009 to March 2012. All the patients were consented before enrolling into the study. Only those patients were included in whom straight leg raising sign was less than 60 degree and prolapsed disc was at L<sub>4-5</sub> or L<sub>5</sub> – S<sub>1</sub> MRI. Those patients in whom the disc was at multiple levels or there was previous history of spine surgery, evidence of lumbar stenosis and higher level discs patients were excluded from this study. History, examination and MRI lumbosacral spine was done in all patients. Procedure was done in prone position under general anesthesia. Laminectomy and discectomy was performed. Patients were allowed to sit and mobilized after 12 hours of surgery and discharged mostly on 2nd postoperative day. The collected information was analyzed in statistical package of social sciences (SPSS) version 16.

**Results:** Out of 226 patients, 144 (63.72%) were male and 82(36.28%) were female. Mean age was 33.67 years with age range from 18–64. Most of the patients presented with leg pain i.e. n = 210 (92.92%) followed by back pain n = 190 (84.07%), numbness n = 181 (80.08%), motor deficit n = 30 (13.27%) and cauda equine n = 16 (7.07%). Post operatively only 14 (7.96%) patients had sciatica, backache was present in 110 (48.67%) patients, numbness in 150 (66.37) patients, motor deficit in 6 (2.65%) and cauda equine persisted in 7 (3.09%) patients. Commonest complication of the surgery was CSF leak which was present in 15 (6.64%) patients followed by discitis i.e. in 8 (3.53%) patients. Foot drop in 2 (0.88%) patients. Recurrent disc was seen in 18 (7.96%) patients.

**Conclusion:** Surgery in appropriately selected patients gives excellent results. It gives early and rapid pain relief. Conservative trial should be exhausted before embarking on surgery.

## INTRODUCTION

Prolapsed lumbar intervertebral disc can be treated both conservatively and surgically.<sup>1</sup> However the ultimate objective of the treatment is to alleviate the symptoms of the patients and get the patient returned to normal life as early as possible.<sup>2</sup>

Most of the patients initially receive some form of conservative treatment and less than half of patients undergo surgery. Some authors however are of the opinion that patients will still improve whether treated

surgically or medically.<sup>3</sup> Previous literature suggests that about 10% of patients with prolapsed lumbar intervertebral disc will finally need surgery.<sup>4</sup> Appropriate indications for discectomy include failed conservative treatment, presence of nerve root tension signs and when radiological feature are in line with the clinical condition of the patient.<sup>4</sup> So in appropriately selected patients, disc excision provide rapid relief of leg pain and back ach.<sup>5</sup>

This study was performed to assess the results of

surgical intervention for prolapsed lumbar intervertebral disc in patients in whom specific objective criteria were used to justify surgical intervention.

**MATERIALS AND METHODS**

Subsequent to the approval from the ethical review committee, this descriptive study was conducted in neurosurgery department, Hayatabad Medical Complex, Peshawar from April 2009 to March 2012. All the patients were consented before enrolling into the study.

Only those patients were included in whom straight leg raising sign was less than 60 degree and prolapsed disc was at L<sub>4-5</sub> or L<sub>5</sub> – S<sub>1</sub> MRI. Those patients in whom the disc was at multiple levels or there was previous history of spine surgery, evidence of lumbar stenosis and higher level discs patients were excluded from this study.

Detailed history, clinical examination was performed and MRI lumbosacral spine was done in all patients. Strict inclusion and exclusion criteria were exercised in patient selection.

All patients were operated in prone position under general anesthesia. Midline incision was given at required level and laminectomy was done. Discectomy was performed; nerve root was retracted where necessary. Pituitary rongeur was used for removal of the disc. Patients were allowed to sit and mobilized after 12 hours of surgery and discharged mostly on 2nd postoperative day.

Patient’s biodata, management of the patient and the outcome of the procedure were noted and recorded in the separate data sheet. The collected information were analyzed in statistical package of social sciences (SPSS) version 16. Frequency and percentage were

calculated for variables like age, sex, clinical features, complications and postoperative outcome. Tables and Figures were also used to illustrate the findings.

**RESULTS**

Out of 226 patients, 144 (63.72%) were male and 82 (36.28%) were female. Mean age was 33.67 years with age range from 18 – 64.

Most of the patients presented with leg pain (92.92%) followed by back pain (84.07%) and numbness (80.08%) (Table 1).

**Table 1: Presenting Complaints.**

No.	Clinical Feature	No. of Patients	Percentage
1.	Sciatica	210	92.92%
2.	Low backache	190	84.07%
3.	numbness	181	80.08%
4.	Motor weakness	30	13.27%
5.	Cauda acquina	16	7.07%

Most of our patients had sciatica as predominant symptoms which lasted at least for three months. Moreover the most gratifying aspect of the treatment was relief from the leg pain. Pre-operative and post-operative symptoms are given in table 2.

**Outcome**

Post-operatively most of the patients recovered uneventfully as shown in table 2.

**Complications**

There were few patients who developed certain complications which are listed in table 3.

**DISCUSSION**

Most of the patients with low back ache and lumbar radiculopathy can be managed with conservative measures. In rural areas of Pakistan, people have been using various kinds of treatments to treat sciatica. They burn skin on back, legs or feet and create wounds and sometimes cut veins in legs and

**Table 2: Improvement in symptoms Pre-Operative Post-Operative.**

Symptom	Pre-operative Status		Post-operative Status	
	No.	Percentage	No.	Percentage
Sciatica	210	92.92%	14	7.96%
Back ach	190	84.07%	110	48.67%
Numbness	181	80.08%	150	66.37%
Motor weakness	30	13.27%	6	2.65%
Cauda acquina	16	7.07%	7	3.09%

**Table 3:** Postoperative complications.

No.	Complications	No of Patients	Percentage
1.	CSF leak	15	6.64%
2.	Recurrent disc	18	7.96%
3.	Discitis	8	3.53%
4.	Foot drop	2	0.88%



**Figure 1:** A patient has burnt the skin of his leg for the treatment of his sciatica.



**Figure 2:** This patient has caused injury to his little toe to treat his lumbar radicular pain.

feet (Figures 1 and 2).

But now as the awareness is increasing in masses, these unhealthy practices are on decrease now and

more and more patients are now consulting neurosurgeons for their treatment.

Surgery for sciatica due to prolapsed intervertebral disc gives early relief from pain and hence remains more cost effective than prolong conservative care.<sup>6</sup> The standard procedure for the treatment of prolapsed lumbar disc has been laminectomy and discectomy.<sup>7</sup>

There is male predominance in the present study which is in line with the work of other researchers<sup>(8)</sup> this is due to the fact that Males are more involved in manual work heavy weight lifting.

Surgery for prolapsed disc and associated sciatica usually produces excellent results.<sup>9,10</sup> In our study too, almost 93% patients had no leg pain and remained happy with their surgery results. Between 5 to 20% of patients remain unsatisfied after discectomy<sup>11,12</sup> for various reasons. Few of our patients were of some concern with their numb leg. These were the patients in whom numbness was already present but these symptoms were masked by severe pain. The cause of low back pain after lumbar disc surgery is still not clear. Various factors are considered responsible for persistent low back ache which include epidural fibrosis, pre-existing degenerative spine or segmental instability. Previous research also shows the same problem of low back pain after discectomy.<sup>8,12,13</sup>

Factors like psychological disturbance and job compensation should also be considered while evaluating the post operative results of the patients. Psychological issues are more important in female patients. The pain due to segmental instability is a particular problem in relatively older patients and gets aggravated with physical activity and remains episodic in nature.

Recurrent prolapsed disc after lumbar discectomy is distressing both to the patient as well to the surgeon. Redo surgery for recurrent disc is not only difficult but even risky as well. In our series, recurrence of disc was found in 7.96% of cases which is line with studies of previous researchers.<sup>14,15</sup>

Preoperative neurological deficit like motor weakness, sensory disturbance and sphincter dysfunctions if persists for long time before surgery, usually does not improve after surgery.<sup>16-19</sup>

In the present study cauda equine patients improved only when they reported early to our unit and they were operated within 24 – 48 hours. However there are few patients who did not improve after surgery as they presented late to the department. Most of these patients were either from far off areas of the province or they were coming from Afghanistan. Hence they could not make it in time.

## CONCLUSION

Surgery in appropriately selected patients gives excellent results. It gives early and rapid pain relief. Conservative trial should be exhausted before embarking on surgery.

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