

# LUMBAR DISC FENESTRATION

## EFFICACY IN PAIN RELIEF; FENESTRATION TECHNIQUE FOR DISC EXCISION

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**ABSTRACT... Objectives:** To know the efficacy of disc excision by fenestration method for the relief of lumbar radicular pain in patients with prolapsed intervertebral disc. **Study Design:** Descriptive study. **Setting:** Department of neurosurgery of Hayatabad Medical Complex, Peshawar. **Period:** October 2008 to September 2010. **Patients and Methods:** All those patients were included in whom straight leg raising (SLR) sign was less than 60 degree and prolapsed L4-5 or L5-S1 disc on MRI. Patients with multiple level discs, previous history of spine surgery, evidence of lumbar stenosis and cauda equina syndrome were excluded from this study. All patients were operated in knee-chest position under general anesthesia. Efficacy of disc excision was measured using Dennis pain scale. Findings were documented on the day of discharge. Statistical analysis was performed with SPSS (version 10). **Results:** One hundred and nine patients were studied. Sixty were male and fifty nine were female patients. Age rang was from 19 to 52 years with mean age 34.31 years. The most common level of involvement was L4-L5 (n=67) followed by L5-S1 (n=42). Sixty five patients had left sided symptoms while forty four had right sided. Majority of patients presented in Dennis pain scale 4 i.e. 66.97% (n=73). Twenty patients (18.36%) were in P3 and 16 patients (14.67%) were in Dennis pain scale 5. Complete pain relief (P1), three weeks after disc excision, was achieved in 90 (82.57%) patients. Fourteen patients (12.85%) were in P2 and five (4.58%) patients in P3 according to Dennis pain scale. No patients in this study deteriorated after surgery. **Conclusions:** Surgical treatment provides quick pain relief in selected patients with prolapsed intervertebral disc. Fenestration with disc excision is quite a reasonable method to surgically treat the indicated cases of prolapsed disc. Fenestration offers complete visualization of nerve root and complete removal of the offending disc. This procedure does not need greater know-how, expertise in instrumentation and techniques.

**Key words:** Prolapsed intervertebral disc, Radicular pain, Fenestration, Efficacy.

### INTRODUCTION

From adolescence to adulthood, 80 to 85% of people suffer from low back pain in the modern world. It results in tremendous loss of time and work productivity costing billions of dollars<sup>1</sup>. Incidence of sciatica is more than forty percent in low backache patients. However clinically significant sciatica due to prolapsed lumbar intervertebral disc is only four to six percent<sup>2</sup>. Lumbar disc disease forms the second most common cause for medically authorized absence from work<sup>3</sup>. The pain is due to the irritation of the dural covering of the nerve root by the protruded part of intervertebral disc<sup>4</sup>. Pressure on the nerve root itself causes parasthesia and numbness in the corresponding dermatome as well as weakness and depressed reflexes in the corresponding myotomes<sup>5</sup>. The surgical management of prolapsed of a lumbar disc has been practiced since Mixter and Barr<sup>1</sup> discovered the link between sciatica and herniation of a lumbar disc in 1934. They started operated upon the patients via extensive laminectomy<sup>6</sup>.

Shortly afterwards Love described extradural removal of herniated disc and devised inter laminar fenestration for treatment of lumbar disc prolapse<sup>7</sup>. It is very safe, effective and reliable surgical technique for treating properly selected patients with herniated disc. This approach is free from spinal instability and membrane formation resulting from laminectomy<sup>8</sup>. The recent techniques like percutaneous lumbar disc decompression (PLDD), percutaneous endoscopic lumbar discectomy (PELD) and Young endoscopic spine system (YESS) need lots of expertise, experience and expensive equipments which are not available at every center<sup>9</sup>. Hence disc excision through fenestration is the procedure which can be performed by majority of neurosurgeons and orthopedic surgeons even in small peripheral centers<sup>4</sup>.

This study was performed to assess the results of fenestration method for disc excision through an inter laminar approach in patients in whom specific objective criteria were used to justify surgical intervention.

## PATIENTS AND METHODS

This descriptive study was conducted in The department of neurosurgery of Hayatabad Medical Complex, Peshawar from October 2008 to September 2010, after prior approval from ethical committee of Hayatabad Medical Complex, Peshawar. Consent was taken from all patients.

All those patients were included in whom straight leg raising sign was less than 60 degree and prolapsed L4-5 or L5-S1 disc on MRI. Patients with multiple level discs, previous history of spine surgery, evidence of lumbar stenosis and cauda equina syndrome were excluded from this study. One hundred and nine cases fulfilled the inclusion criteria.

All patients were operated in knee-chest position under general anesthesia. If needed, lower 3rd part of upper lamina or upper 3rd of lower lamina was cut to enlarge a fenestration for clear view.

Severity of pain was measured pre operatively by the time of admission using Dennis pain scale as under.

Dennis Pain Scale	
P1	No pain
P2	Occasional minimal pain; no need for medication
P3	Moderate pain, occasionally medications e no interruption of work or activities of daily living
P4	Moderate to severe pain, occasionally absent from work; significant changes in activities of daily living
P5	Constant, severe pain; chronic pain medications

Efficacy of disc excision was measured by improvement in Dennis pain scale on the day of discharge from hospital. Postoperatively, patients were allowed up on first postoperative day. Gradual walking was encouraged. All patients were advised a regular postoperative back exercise program after 3 weeks.

Statistical analysis was performed with SPSS (version 10).

## RESULTS

Out of 109 patients 60 were males and 49 were females. The average age was 34.31 years ranging from 19-52 years.

The most common level of involvement was L4 -L5 (n=67) followed by L5 -S1 (n=42). Sixty five patients had left sided symptoms while forty four had right sided.

Majority of patients presented in Dennis pain scale 4 and complete pain relief, three weeks after disc excision, was achieved in 91 (83.48%) patients as shown in table below. No patients in this study deteriorated after surgery.

Pre and post operative distribution of cases according to Dennis pain scale			
Pre operative Dennis pain scale		3 weeks post operative Dennis pain scale	
Scale	No. & %age	Scale	No. & %age
P1	-	P1	90 (82.57%)
P2	-	P2	14 (12.85%)
P3	20 (18.36%)	P3	5 (4.87 %)
P4	73 (66.97%)	P4	-
P5	16 (14.67%)	P5	-

## DISCUSSION

Recovery from sciatica makes early surgery likely to be more cost effective than prolong conservative care<sup>10</sup>. A Cochrane review summarized some trials evaluating surgery and chemonucleolysis for prolapsed disc, showing better results with surgery than chemonucleolysis<sup>11</sup>. The standard treatment of prolapsed lumbar disc has been surgical excision of the disc, though the methods of discectomy vary. The traditional view has been that wide laminectomy produces increased morbidity compared to less extensive procedures like inter-laminar fenestration<sup>12</sup>. Hence fenestration has been done for all patients in the present study.

Dennis pain scale is used in this study. The results shows that most of patients in our set up present to

neurosurgeons when pain starts changing their life style (P4). This may be because of the fact that they don't have awareness about the nature of pain. So many of them get pain killers from Hakeems or get it from medical stores without consulting qualified doctors. Similar kind of trend can be seen in studies conducted in other parts of the country<sup>10</sup>.

To measure the efficacy, various parameters like Dennis pain scale, Prolo functional and economic rating scale and Visual analog scale (VAS)<sup>4</sup> are being used in different studies<sup>4,10,13</sup>. The present study analyses the results of this surgical technique on the basis of the Dennis pain scale. It is a very simple method and more importantly gives the functional ability of the patient, because eventually it is the functional outcome that has an ultimate impact on the patient.

In our study, 82.57% (n=90) patients had no pain after surgery only 4.56% (n=5) patients had pain but that would not affect their routine life and could be relieved with simple analgesics. These findings correlate well with the data collected from other centers<sup>10</sup>. Microdiscectomy yields comparable results<sup>13</sup> but the procedure is not as cost effective as fenestration and more sophisticated instruments are needed.

This study however has got certain limitations as well. It was confined to limited number of patients with a short follow up period. The operations were performed by different surgeons. Randomized clinical trials are needed to provide evidence based findings.

## CONCLUSIONS

In selected patients with prolapsed intervertebral disc, surgical treatment provides quick pain relief. Disc excision through fenestration is quite a reasonable method to surgically treat the indicated cases of prolapsed disc. Fenestration offers complete visualization of nerve root and complete removal of the offending disc. This procedure does not need greater know-how, expertise in instrumentation and techniques.

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**“Stay committed to your decisions,  
but stay flexible in your approach.”**

(Tom Robbins)