

ORIGINAL ARTICLE

DISCECTOMY IN SINGLE LEVEL LUMBAR DISC DISEASE

Riaz Ahmad Raja, Vash Dev Khemani, Manzoor Ali Lakhair*, Shahbaz Ali Khan**

Department of Neurosurgery, *Neurology, Liaquat University of Medical and Health Sciences, Jamshoro,

**Department of Neurosurgery, Ayub Medical College, Abbottabad, Pakistan

Background: There is a controversy regarding the treatment of lumbar disc herniation. Most of patients with lumbar disc herniation and radiculopathy improve with rest and medicine. Lumbar disc surgery gives rapid relief to the patients with severe root pain in legs. This study was conducted to see the risks and benefits of surgery in single level symptomatic lumbar disc disease. **Methods:** This prospective study was conducted in Department of Neurosurgery, Liaquat University of Medical and Health Sciences, Jamshoro during 2007–2009. Patients with severe leg pain, positive straight leg raising, and confirmed disc extrusion on imaging were included and conventional open discectomy was performed. Patients were followed up for one year after the surgery. **Results:** Forty-five patients were operated for lumbar root pain due to a single disc. Most common disc involved was L4–5 and discectomy was performed. Recurrence of disc occurred in 4 patients. **Conclusion:** Proper selection of patients is necessary for excellent postoperative results in back surgery. Failed back surgery continues to rise with high rate of lumbar spine surgery as many patients are selected inappropriately.

Keywords: Lumbar disc herniation, open discectomy, backache

INTRODUCTION

The low back pain and sciatica due to lumbar disc disease is a result of herniation of nucleus pulposus through a mechanically weak annulus fibrosus or from tearing of annulus itself, most likely due to excessive stress applied to the disc.^{1,2} Herniation most often occurs on the posterior or posterolateral aspect of disc. The degree of pain is characterised by location of abnormal portion of disc.^{3,4} Degeneration of lumbar disc begins in adulthood and dry disc is more liable to bulge and compress nerve roots. The herniated disc also induces an inflammatory response and it clearly plays a role in radiculopathy.^{5–7} The most common level affected is L4–5 and L5–S1.^{8,9}

There are several risk factors for disc herniation. Increase weight, heavy lifting, heavy work, occupational and physical load like long driving, standing for long time, and heavy weight handling have greatest effect on disc degeneration. Prolonged smoking also plays some role. Genetic influences have greatest effect on disc degeneration.^{10–14} The patients with severe intractable pain or neurological deficit undergo surgery. Although most of the patients with proper diagnosis have good relief of pain but a significant number of patients have persistent complain of pain and paraesthesias in leg or back that sometimes can be subjective. These patients represent as failed back surgery syndrome.^{15,16} It can be due to wrong selection of patient, incomplete removal of disc, adhesions, excessive root retraction or instability. Social and psychological factors have been shown by many authors to influence surgical results of lumbar discectomy.¹⁷

This study was conducted to see the risks and benefits of surgery in single level symptomatic lumbar disc disease. We are presenting results of single level lumbar discectomy in our patients.

MATERIAL AND METHODS

This prospective study was conducted in Department of Neurosurgery, Liaquat University of Medical and Health Sciences, Jamshoro during 2007–2009. Patients with backache radiating to leg with no improvement by conservative measures were included in this study. Detailed history and complete physical examination was performed. MRI was carried out in all cases. Patients with multilevel disc disease, previous history of spinal surgery and patients with malignancy were excluded from the study.

Midline incision was given at required level and laminectomy was done. Discectomy was performed, nerve root was retracted where necessary. Curette was used for removal of disc. Antibiotics were used before induction and continued for two days postoperatively. Patients were allowed to sit and walk after 12 hours of surgery and discharged on 2nd postoperative day. The data were recorded on a predesigned proforma, and analysed using SPSS-16.

RESULTS

Out of 45 patients, 29 (64.44%) were male and 16 (35.55%) were female. Mean age was 34.64 years with age range from 17–70. Most of the patients presented with leg pain 42 (93.33%) followed by back pain 38 (84.44%) and numbness 40 (88.88%) (Table-1).

The most common site was L4–5 (28, 62.22%), rest of the cases had L5–S1 level lesions. In most of the patients leg pain improved postoperatively. Most of the patients had persistent back pain and paresthesias during the postoperative period (Table-2).

Four patients had CSF leakage which settled with conservative measures, and 2 patients had discitis among whom one patient had diabetes mellitus.

Recurrence of disc was found in 4 patients which was diagnosed on repeat MRI (Table-3). Out of the 45 patients 28 (62.2%) had received some type of local therapies like burns for the treatment of the radiating backache (Figure-1).

Table-1: Presenting Complaints

Complaints	No.	Percentage
Lower Back Pain.	38	84.44
Leg Pain.	42	93.33
Motor Weakness.	8	17.77
Numbness.	40	88.88
Cauda equine syndrome	4	8.88

Table-2: Improvement in symptoms

Symptoms	Pre-Operative		Post-Operative.	
	No.	%	No.	%
Leg Pain	42	93.33	5	11.11
Back Pain	38	84.44	28	62.22
Numbness	40	88.88	37	82.22
Weakness	8	17.77	1	2.22
Physical Disability	34	75.55	4	8.88

Table-3: Postoperative complications

	No.	%
Numbness	37	82.22
CSF Leakage	4	8.88
Recurrent Pain		
Back	28	62.22
Leg	5	11.11
Recurrent Disc	4	8.88
Discitis	2	4.44
Sphincter Disturbance	1	2.22

DISCUSSION

The majority of patients with low back pain and radiculopathy (sciatica) can be managed with conservative measures. It is common practice in rural areas of Pakistan to burn skin on back, legs or feet and create wounds, and sometimes they cut veins in legs and feet and discharge venous blood in order to relieve pain (Figure-1 a, b). Surgery is successful in alleviating pain.



Figure-1: Wounds at (a) buttock and (b) leg showing illiterate methods to relieve pain of sciatica

The ideal candidate for disc surgery is a patient whose history, physical examination and radiologic findings are consistent with each other.¹⁸ Surgery provides better results than those of non-operative treatment.¹⁹ A non-operative approach means loss of work for longer time. Waiting long in symptomatic patients worsens the symptoms. Thorough pre-operative workup is mandatory because best surgical results are attained in cases of persistent leg pain, positive straight leg raising (SLR), in whom imaging correlates with symptoms. Patients with large extruded fragments of disc do very well as is observed in our patients and correlates with literature.²⁰ (Figure-2, 3)



Figure-2: MRI Lumbar spine showing L4-5 disc



Figure-3: Per-operative photograph of a huge disc

There was male predominance in our patients like other studies.²¹⁻²⁴ Males are more involved in manual work. Because of illiteracy, less number of neurosurgeons, and unavailability of MRI at all hospitals, most of the patients are initially mishandled and are unaware of their problem. The rates of unsatisfactory results after discectomy range between 5–20%.^{25,26} Excellent results after lumbar disc surgery have been widely accepted.^{16,27} Same results are found in this study. It was observed that the patients who came late for surgery had numbness already present but these symptoms were masked by severe pain and after surgery they considered it as failure of surgery. Causes of low back pain after lumbar disc surgery are still not clear. It can be because of epidural fibrosis, already degenerative spine or segmental instability. Preoperative counselling is an important part of managing these patients. Studies show the same problem of low back pain after

discectomy.^{24,26} Heavy manual work, psychological disturbance and job compensation can affect the results of discectomy. Psychological disturbances were found more in female patients. The pain felt from segmental instability may be episodic and with particular activities. We observed that many old age patients had persistent postoperative low back pain that could be due to segmental instability. Undue retraction of the nerve while removing the disc causes numbness and paresthesias. Good results in context of postoperative relief of pain were noted after use of intrathecal steroids. Preoperative neurological deficit like motor weakness, sensory disturbance and sphincter involvement is reported to be hardly improved after disc surgery.²⁸⁻³¹ In our patients majority had persistent low back pain and paresthesias after the surgery, while in maximum number improvement was seen in the symptoms of leg pain and motor weakness.

Recurrence of disc prolapse after lumbar disc surgery is a nightmare both for patient and surgeon. Redo surgery for recurred disc is not only problematic but even risky. In our series, recurrence of disc was found in 8.8% of cases which is compatible with other studies.^{32,33}

CONCLUSION

Properly selecting patients for lumbar disc surgery leads to more successful results. Non-operative measures should be exhausted before operating. Failed back surgery continues to rise with high rate of lumbar spine surgery.

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Address for Correspondence:

Dr. Riaz Ahmed Raja, 110, Defence, Hyderabad, Sindh, Pakistan. **Cell:** +92-300-3039056

Email: riazrajameon@yahoo.com