

ORIGINAL ARTICLE

## Patient Satisfaction Undergoing Surgery for Lumbar Disc Herniation

MUSHTAQ AHMAD MIAN, MUHAMMAD USMAN, MUSHTAQ

Department of Neurosurgery, Rehman Medical Institute, Peshawar – Pakistan

### ABSTRACT

**Objective:** To assess patient's satisfaction, who are undergoing surgery for lumbar disc herniation.

**Materials and Methods:** This observational study was conducted in Neurosurgery Department of Rehman Medical Institute, Peshawar from February 2014 to July 2014. A total of 58 patients who underwent surgery with lumbar disc herniation were studied. Clinical outcomes were measured using the visual analog scale (VAS) score for leg and/or back pain pre-operatively and 2 weeks post-operatively. Patient was considered satisfied from surgery (Lumbar Microdiscectomy), if there is improvement in VAS, 2 weeks post-operatively of  $\geq 3$  score. All the patients were followed up for a minimum period of four weeks.

**Results:** The mean age of the patients was  $40.21 \pm 12.51$  years with majority (62.1%) of the male patients. The main bulk of the patients (75.8%) having lumbar disc herniation were in between 20 – 50 yearsof age. Regarding level of the prolapsed intervertebral disc, most of the patients were harboring lumbar disc herniation at L4-L5 level (41.4%). About 5.2% ( $n = 3$ ) of the patients were lost to follow-up. Major bulk of the patient (89.1%) was satisfied from the surgery. There was statistically significant difference between pre-op and post-op VAS ( $p$  value =  $<0.01$ ).

**Conclusion:** Majority of the patients of lumbar prolapsed intervertebral disc was male with L4 – L5 level most commonly involved. Almost 90% of the patients were satisfied from the surgery, Lumbar microdiscectomy, with statistically significant  $p$  value.

**Key Words:** Lumbar Disc Herniation, Visual Analog Scale, Lumbar Microdiscectomy.

### INTRODUCTION

Lumbar disc herniation is displacement of disc material beyond the intervertebral space.<sup>1</sup> Lumbar disc herniation leads to inflammation in the nerve root of dorsal root ganglions, which is induced by nucleus pulposus.<sup>2</sup> As in other disorders the diagnosis is made by detailed history and physical examination followed by relevant investigations and in this case MRI is the investigation of choice.<sup>3</sup>

Considering the etiology, disc herniation is secondary to mechanical factors associated with the degeneration and from additional stresses placed on the disc. These include poor musculature, awkward posture and particularly outreach lifting with the back being flexed or rotated. Driving motor vehicles is one

of the commonest risk factor. Smoking is also included in the list of risk factors for disc herniation.<sup>4</sup>

Lumbar disc herniation is the most common cause of lumbar radiculopathy and microdiscectomy provides immediate relief of the symptoms.<sup>5-9</sup> Majority of lumbar prolapsed intervertebral disc occur at the L4-L5 and L5 – S1 levels, which usually affects the L5 and S1 roots, and result in sciatica.<sup>10-13</sup> Less common levels involved in lumbar disc herniations are L2 – L3 and L3 – L4. Patients with upper lumbar disc herniations present with back and thigh pain, a negative straight leg-raising test, a positive femoral stretch test, a unilaterally depressed or absent knee reflex, sensory changes in the thigh and sometimes quadriceps weakness, because of the involvement of upper nerve

roots.<sup>14,15</sup>

In a randomized trial by Osterman et al. surgical results were better than non-operative treatment for patients with L4 – L5 herniations but not for those with L5 – S1 herniations.<sup>6</sup> Other studies found that the level of herniation had no significant effect on the outcomes of discectomy.<sup>16</sup>

The rationale of the current study is to assess the outcome of lumbar micro discectomy in terms of pain control using VAS score in patients presented with lumbar herniated disc. This study is important because nationally, to my knowledge, there is no study on lumbar prolapsed intervertebral disc using VAS score as outcome and internationally the results of this procedure for pain control are variable and we want to see the effectiveness of it in our setup. Furthermore this study will be a guideline to take further steps in future studies to incorporating more complex clinical parameters to evaluate patient's outcome.

**MATERIALS AND METHODS**

This observational study was conducted in Neurosurgery Department of Rehman Medical Institute, Peshawar from February 2014 to July 2014. A total of 58 patients were studied. Patients of all ages with either sex were included while patients having associated comorbid conditions, like; Diabetes Mellitus, Hypertension, Coronary Heart Disease were excluded.

All patients meeting the inclusion criteria with diagnosis of lumbar disc herniation based on history, physical examination and MRI Lumbo-sacral spine were admitted to Neurosurgery department of Rehman Medical Institute Peshawar from OPD. All patients were evaluated by detailed history and neurological examinations. Blood investigations like complete blood count, renal and liver profiles were done. A written informed consent was obtained. The enrolled patients were put on the OT list for the next available OT day after performing anesthesia assessment through an expert anesthesiologist. On the OT day fenestration and discectomy were performed under general anesthesia by single expert neurosurgeon having minimum of 5 years of experience.

Clinical outcomes were measured using the VAS score for leg and/or back pain pre-operatively and 2 weeks post-operatively. Patient was considered satisfied from surgery (Lumbar Microdiscectomy), if there is improvement in VAS, 2 weeks post-operatively of  $\geq 3$  score. All the patients were followed up for a minimum period of four weeks. All the data was analyzed

by SPSS version 20 and presented in the form of graphs and charts.

**RESULTS**

A total number of 58 patients were studied. The age of the patients ranged from 22 – 63 years with mean age of  $40.21 \pm 12.51$  years. In the study 36 (62.06%) were male, while 22 (37.93%) were female patients. The main bulk of the patients (75.8%) having lumbar disc herniation were in between 20 – 50 years of age (Figure 1). Regarding level of the prolapsed intervertebral disc, most of the patients were harboring lumbar disc herniation at L4 – L5 level, 24 (41.4%), followed by Multiple level involvement, 18 (31%), L5 – S1 level 12 (20.7%), L2 – L3 and L3 – L4 level was involved in 2 patients (3.4%) each. About 5.2%

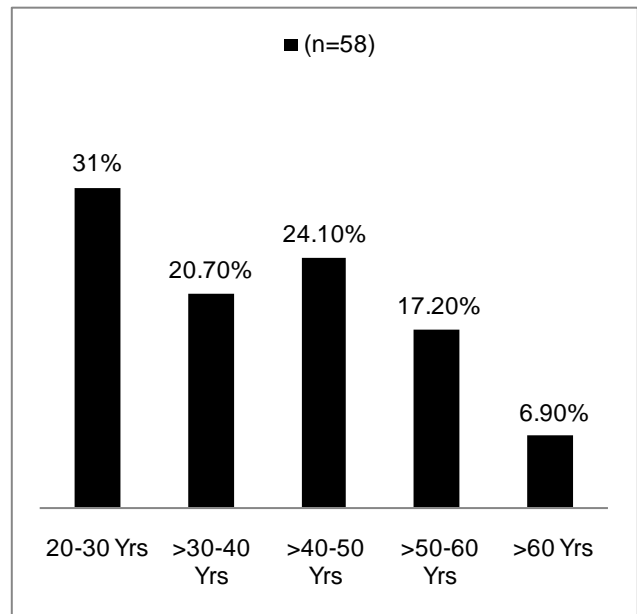


Figure 1: Age Wise Distribution.

Table 1: Pre-operative VAS.

Valid	Frequency	Percent	Valid percent	Cumulative Percent
6	4	6.9	6.9	6.9
7	20	34.5	34.5	41.4
8	24	41.4	41.4	82.8
9	10	17.2	17.2	100.0
Total	58	100.0	100.0	

(n = 3) of the patients were lost to follow-up. In majority, 82.8%, pre-operative VAS was 6 – 8 (Table 1), which comes down to 0-3 post-operatively (Table 2). Major bulk of the patient (89.1%) was satisfied from the surgery (Table 3). There was statistically significant difference between pre-operative and post-operative VAS (p value = < 0.01).

**Table 2:** *Post-operative VAS.*

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
0	2	3.4	3.6	3.6
1	9	15.5	16.4	20.0
2	22	37.9	40.0	60.0
3	10	17.2	18.2	78.2
4	4	6.9	7.3	85.5
5	4	6.9	7.3	92.7
6	1	1.7	1.8	94.5
7	3	5.2	5.5	100.0
Total	55	94.8	100.0	
Missing System	3	5.2		
Total	58	100.0		

**Table 3:** *Patient Satisfaction.*

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	49	84.5	89.1	89.1
No	6	10.3	10.9	100.0
Total	55	94.8	100.0	
Missing System	3	5.2		
Total	58	100.0		

**DISCUSSION**

In the current study the mean age of the patients were 40.21 ± 12.51 years with male pre-dominance. About 76% of the patients were in between 20 – 50 years of age. Most of the patients were harboring lumbar disc herniation at L4 – L5 level, 24 (41.4%), followed by Multiple level involvement in 18 (31%) patients, L5 –

S1 level in 12 (20.7%) patients, L2 – L3 and L3 – L4 level was involved in 2 patients (3.4%) each. In majority, 83%, pre-operative VAS was 6-8 that comes down to 0 – 3 post-operatively. Major bulk of the patient (89%) was satisfied from the surgery. There was statistically significant difference between pre-op and post-op VAS (p value = < 0.01).

More than 95% of herniated lumbar disc patients responded to conservative treatment, which consists of short period of rest, nonsteroidal anti-inflammatory drugs, muscle relaxants and physiotherapy. Surgery is usually preserved for patients who despite initial conservative treatment develop worsening of neurologic symptoms or failure to improve after an appropriate minimum of 6 weeks of therapy.<sup>17,18</sup>

In our study the most common age range was 20 – 50 years, while in comparison to Jordan J. et al<sup>19</sup> the most common age range was 30 – 50 years. The reason why in our study younger age group was affected, it's because of the fact that majority of our patients were labors, who used to pick up heavy loads and used their back not with care. The Male to Female ratio (2:1) in our study is comparable with literature.<sup>19</sup> Most common level involved in our study was L4 – L5 and L5 – S1 (94%), this finding is compatible with the literature.<sup>20</sup>

The standard treatment of herniated lumbar disc worldwide is surgical excision of the disc, although the methods of discectomy vary among different centers, depending upon the expertise available, resources, cost, associated conditions etc. The traditional treatment, which is wide laminectomy, produces increased morbidity in the form of spine instability, more hospital stay, more post-operative pain and late recovery. Compared to that less extensive procedures like microdiscectomy and endoscopic discectomy are more favourable.<sup>21</sup> In our study, microdiscectomy was done for all patients.

There are different scales to measure the efficacy, like; pain scale, Prolo functional and economic rating scale and VAS, which are being used in different studies.<sup>22-24</sup> In the current study, we analyze the results of this surgical technique on the basis of the VAS. It is a very simple method, easy to follow and more importantly gives the functional ability of the patient because eventually it is the functional outcome that has a positive impact on the patient quality of life. In our study, in most of the patients the VAS score decrease from 6 – 8 pre-operatively to 0 – 3 post-operatively and this finding is statistically significant.

About 90% of the patients in the current study

were satisfied from the surgery and this finding when compared with the literature, showed that in the literature there are 85 – 95% good to excellent short-term results.<sup>19</sup>

We encountered complications in 6 patients, unintended durotomy in 4 (7.27%) and superficial wound infection in 2 (3.63%). In the literature unintended durotomy is in the range of 0.8 – 7.2%,<sup>19</sup> it's slightly higher in our study is because of smaller sample size, while infection reported in the literature is 3 – 4%,<sup>19</sup> which is comparable with our study.

Short follow-up, smaller sample size and single center study are our limitations. In future we would like to add more clinical outcomes in our study and also like to collaborate with other centers to make a multi-centered large study. So, that the results can be generalized as a whole with authenticity.

## CONCLUSION

Majority of the patients of lumbar prolapsed intervertebral disc was male with L4 – L5 level most commonly involved. Almost 90% of the patients were satisfied from the surgery, Lumbar microdiscectomy, with statistically significant p value.

*Address for Correspondence:*

*Dr. Muhammad Usman, Consultant Neurosurgeon,  
Department of Neurosurgery, Rehman Medical  
Institute, Peshawar – Pakistan  
E-mail: drusman387@yahoo.com*

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**AUTHORS DATA**

<b>Name</b>	<b>Post</b>	<b>Institution</b>	<b>E-mail</b>	<b>Role of Authors</b>
Dr. Mushtaq Ahmad Mian		Department of Neurosurgery, Rehman Medical Institute, Peshawar Pakistan		Paper Writing
Dr. M. Usman	Consultant Neurosurgeon		drusman387@yahoo.com	Data Collection
Dr. Mushtaq				Discussion and Corrections