

## ORIGINAL ARTICLE

# Lumbar Disc Herniation, Clinical Analysis Muzaffarabad, AK

MUKHTAR AHMED, LIAQAT MAHMOOD AWAN

Department of Neurosurgery, AIMS/CMH, Muzaffarabad

## ABSTRACT

**Objective:** Analysis of different variables in patients operated for lumbar disc prolapsed.

**Materials and Method:**

**Study design:** Observational study.

**Sample size:** Twelve hundred forty eight consecutive patients operated for lumbar disc herniation.

**Settings:** Abbas Institute of Medical and Health Sciences.

**Duration:** The study duration was four years from January 2005 to December 2009.

**Inclusion criteria:** Patients irrespective of age and sex with lumbar disc herniation having. Failed conservative treatment for 3 weeks. Intractable pain or impending neurological deficit.

**Exclusion criteria:** Spinal stenosis. Spinal tumors. Spinal tuberculosis. Spondylolysthesis. Psychological problems.

**Results:** Out of 1248 patients 812 were male and 416 were female with male to female ratio of 2:1. The age ranged from 20 to 60. Majority 672 (56%) of patients were from Muzaffarabad and its suburbs. Straight leg raising test was impaired in 1180 cases. The ratio between contained and ruptured disc was 3:1. About 44.9% of patients (560) had left lateral disc prolapse, while right sided in 29.5% cases and bilateral in 25.6% cases. The common level affected was L<sub>4</sub>-L<sub>5</sub> in 900 (72.1%) patient. Fenestration and discectomy was suitable in 900 patients, 232 patients had Hemilaminectomy and in 116 laminectomy was carried out. The removed disc tissue was sent for histopathology in all cases. Out of which three were reported as tuberculosis, two metastasis and two plasmacytoma. Forty patients developed discitis postoperatively.

**Conclusion:** From this study we conclude that lumbar disc herniation is common in male gender in 4<sup>th</sup> decade. Left lateral disc at L<sub>4</sub>-L<sub>5</sub> level is involved in the majority of patients. Sciatica with backache and impaired straight leg raising test are important clinical features. Contained disc is more common than ruptured discs. Minimal invasive procedures like fenestration and discectomy gives good results. It is also concluded that all disc material should be sent for histopathology examination to over look unusual pathologies.

**Keywords:** Prolapsed lumbar disc, backache, fenestration discectomy.

## INTRODUCTION

Disc herniation is a common spinal degenerative or rarely traumatic disorder.<sup>1,3</sup> Lumbar disc constitute nearly 90% of all discs whereas dorsal disc 1% and rest by the cervical discs.<sup>1</sup> Disc prolapsed is common in men in their 4<sup>th</sup> and 5<sup>th</sup> decades especially in those who subject their spine to inappropriate loading which is common in laborers, drivers, weight lifters, farmers

but sedentary workers do suffer from this ailment, thus no person in the community is immune to this.<sup>3,4</sup>

Patients with disc prolapsed have backache or pain in a specific dermatome or both.<sup>4,5</sup> They may have numbness or weakness or both in the respective dermatome / myotome supplied by compressed nerve root. Cauda equina syndrome is a neurosurgical emergency where patient will have sacral sensory loss and

incontinence due to sphincter problem.<sup>4</sup> Limitation of straight leg raising (SLR) test is an important finding in lumbar disc herniation. Plain x-rays, CT myelogram and MRI are the investigations to identify the site and side of herniated disc.<sup>4</sup> MRI scan is noninvasive and provides better anatomical details. Disc dehydration, thecal sac or nerve root compression are the important findings of herniated disc (Fig 1 – 3). Majority of the patients (80%) with prolapsed intervertebral disc are treated conservatively with satisfying results. Patients with failed conservative treatment (20%), severe radicular pain or having progressive neurological deficit need surgical intervention. Cauda equina syndrome and patients with progressive motor deficit need emergency surgery.<sup>4,6</sup> Laminectomy, after its introduction by Mixter and Barr in 1934 remained the mainstay of surgical treatment for disc prolapse.<sup>1,4,7</sup> Microsurgical techniques were introduced later which have similar results to standard laminectomy but lower complication rate.<sup>4,7,8</sup> Minimal invasive surgical procedure as percutaneous endoscopic discectomy is also practiced now a days. These surgical procedures are dependent on the skill of surgeon, availability of the equipment, clinical status of patients and compatible radiological findings.<sup>1</sup> Postoperative outcome of surgical procedures can be predicted which is based on certain preoperative prognostic factors. Variables like age, sex, occupation, psychiatric and psychological history,

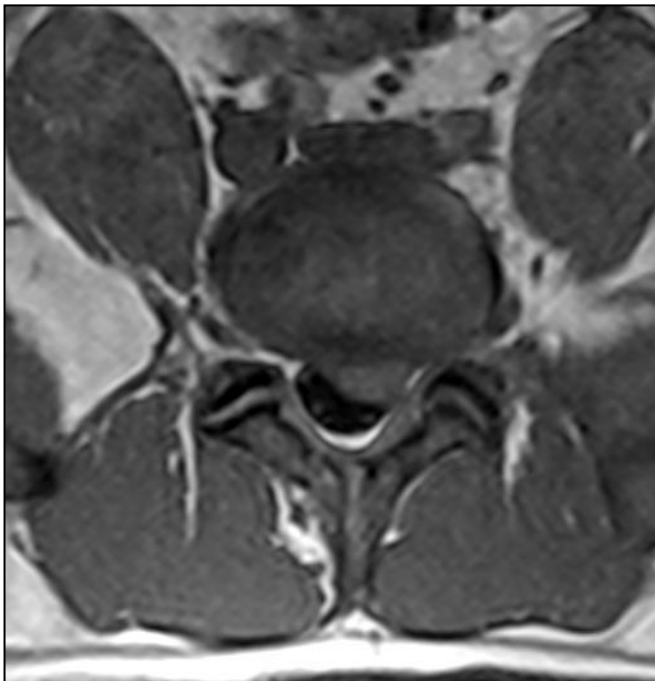


Fig. 1:



Fig. 2:

side, level, surgical procedure, contained vs. ruptured disc, complication and histopathology can affect the postoperative results and need serious consideration during surgical management of these patients.

## MATERIALS AND METHODS

This study was carried out at the Department of Neurosurgery Abbas Institute of Medical and Health Sciences Muzaffarabad, Azad Kashmir. AIMS is a tertiary care hospital providing neurosurgical care to the people of Azad Kashmir. A total of 1248 patients were operated for lumbar disc. Duration of study was from January 2005 to December 2009. All age groups and both genders with the lumbar disc herniation were included in the study. Patients with Sciatica secondary to causes other than disc prolapse like spinal tumors, spinal stenosis, spinal tuberculosis and sciatic nerve lesion were excluded from the study. Patients' presenting symptoms were made to collect. Designed Performa considering different variables was used to collect data of patients and their disease. History was

taken, clinical examination performed with emphasis on straight leg raising test and neurological status. MRI was carried out, prose & cones were discussed with relatives. Most of the patients had fenestration, hemilaminectomy or laminectomy.



Fig. 3:

**Table 3:** Occupation of patients (n = 208).

Occupation	No of Patients	% age
Laborers	316	37.9
Driver	204	24.5
Farmer	172	20.7
Forces	68	8.2
Office workers sedentary	92	8.7

**Table 4:** Clinical Features.

Clinical Features	No of Patients	% age
Impaired SLR	1180	94.5
Nerve root compression	1120	89.7
Backache	912	73.1
Foot drop	60	4.8
Cauda equine syndrome	40	3.2

**Table 5:** Side of lumbar disc herniation (n = 312).

Side	No of Patients	% age
Left	560	44.9
Right	368	29.5
Bilateral	320	25.6

## RESULTS

**Table 1:** Sex incidence (n = 1248).

Sex	No of Patients	% age	Ratio
Male	832	66.6%	2
Female	416	33.4%	1

**Table 2:** Age incidence (n = 1248).

Age Range	No of Patients	% age
10 – 19 year	48	3.8
20 – 29 year	176	14.1
30 – 39 year	544	43.6
40 – 49 year	96	30.8
50 year and more	96	7.7

**Table 6:** Level of lumbar disc herniation.

Level	No of Patients	% age
L 1 – 2	48	0.9
L 2 – 3	64	1.3
L 3 – 4	24	1.9
L 4 – 5	592	47.4
L 5 – S1	520	41.6

**Table 7:** Surgical procedures performed.

Procedure Name	No of Patients	% age
Fenestration	900	72.1
Hemilaminectomy	232	18.6
Laminectomy	116	9.3

**Table 8:** *Improvements of symptoms.*

Symptoms	No of Patients	% age
Nerve root compression	952 {1120}	85
Backache	680 {912}	74.56
Foot drop	60 {80}	75
Sphincter dysfunction	4 {40}	10

**Table 9:** *Contained vs ruptured disc (n = 1248).*

Disc Type	No of Patients	% age	Ratio
Contained	936	75	3
Ruptured	312	25	1

**Table 10:** *Complications.*

Complication	No of Patients	% age
Wound infection	56	4.5
Discitis	40	3.20
Dural tear	16	1.28

**DISCUSSION**

Backache is mainly caused by degeneration of a disc or multiple discs. The incidence varies in different classes of society. It is more common in those who use their back in unprotected manner especially laborers, drivers etc, but no person in the community is immune to this disorder.

In this study 1248 patients with disc prolapsed were included and excluded patients were with other diseases like tumour, tuberculosis etc. Male predominance was obvious<sup>4,5,9</sup> males 1144 (66.6%) and 104 (33.4%) were females. The male to female ratio was 2:1 which was also documented by Saddiq and Perisini.<sup>4,5</sup> Males are affected more in Azadkashmir this may be due to unprotected use of back by the under privileged and uneducated. The ages of patients ranged from 17-70 yr with the mean age of 39.4%. Most of them were in their 4th decade. This shows that brunt of this degenerative spine disease is in this age group.

In our study 316 (37.9%) patients were laborers. Drivers and formers formed 24.1% and 20.7% (172) of the total. Another study also concluded that lumbar disc is common in drivers. The most common symptoms were nerve root pain in 1120 patients followed by backache in 912 patients. SLR was impaired in 1180 cases while foot drop and Cauda equina synd-

rome in 60 and 40 patients respectively. Left sided disc herniation was common in our study (560) cases. This may be due to the fact that most of the patients are right handed and they bend on the right side while lifting weight so intervertebral disc is squeezed from the right to left.

Studies have shown that disc herniation is more common at L<sub>4</sub> – L<sub>5</sub> level<sup>4</sup> (Fig. 1 – 3). We have comparable results in our study (47%). Fenestration and discectomy was done in 900 (72%) patients, because this microsurgical procedure is the procedure of choice in patients with disc herniation having root pain. Laminectomy was preferred especially in patients having associated spinal stenosis with disc prolapse or Cauda equine syndrome to have good decompression laterally and removal of central discs without over starching of nerves. The ratio between contained and ruptured disc was 3:1 in this study. After surgery 85% improved as far as their radicular pain was concerned. Backache responded in almost 74% of cases. Foot drop and sphincter dysfunction improved in 66.6% and 60% respectively. None of the patients complained about worsening of the condition except who developed discitis or wound infection. Asch and his colleagues also concluded in their study that relief of leg pain in patient with lumbar disc herniation after surgery.<sup>10</sup> 14% of patients had superficial wound infection and 40 patients (3.2%) developed post operative discitis. Almost the same results were reported in a local study.<sup>4</sup> We collected disc tissue for histopathology which showed fibrocartilage and any other pathological lesion was excluded from the study which were tuberculosis 3, metastasis in 2 and plasmacytoma in 2 patients. Hasselblatt et al<sup>11</sup> in their retrospective study of surgical specimens obtained during 2102 operations (2177 intervertebral discs) in 2017 patients revealed unexpected pathological diagnosis of cavernous malformation in one patient and in two patients malignancies (metastatic prostate carcinoma and large diffuse B-cell lymphoma). They suggested that routine histopathological examination of specimens obtained during intervertebral disc procedures is both justified and cost effective.

This indicates that prolapse disc has normal histology but all specimens should be sent for histological examination to exclude unexpected pathologies.

**CONCLUSIONS**

In this study we concluded that lumbar disc herniation is more common in the male gender in 4<sup>th</sup> decade. Left

posterolateral prolapse at L<sub>4</sub> – L<sub>5</sub> level is involved in the majority of the patients. Sciatica with backache and impaired SLR are the common clinical features. Sciatica responds well to surgery than isolated backache. Contained disc is more common than ruptured disc. Minimal Invasive procedures like fenestration and discectomy gives good results. It is also concluded that all disc specimens should be sent for histopathology examination to avoid overlooking of serious pathologies.

*Address for Correspondence:*

*Dr. Mukhtar Ahmed*

*Consultant Neurosurgeon/Senior Specialist*

*AIMS/CMH, Muzaffarabad*

*Mobile Phone: +923335111255*

## REFERENCES

1. Alleyne CH, Rodts GE. Current and Future Approaches to Lumbar Disc Surgery (A Literature Review). *Med Gen Med* 1 (1), 1999 {formerly published in *Medscape Orthopaedics and Sports Medicine e Journal* 1 (6), 1997.
2. Xiatao Wu, Suyang Zhuang, Zubin Mao, Hui Chen. Micro endoscopic discectomy for Lumbar Disc Herniation: Surgical Technique and Outcome in 873 Consecutive Cases. *Spine*. Posted 01/23/2007.
3. Micheal A, Adams, Peter J and Roughley. What is Intervertebral Disc Degeneration, and What Causes It? *Spine*. Posted 09/19/2006.
4. Siddiq M, Ali N, Jan WA and Dil R. Surgical management of lumbar disc herniation by standard laminectomy in a periphery hospital; an experience with 64 patients. *JPMI* 2003; 17 (1): 20-25.
5. Parisini P, Greggi T, Di Silvestre M, Bakaloudis G and Abati L. Lumbar disc herniation in childhood and adolescence: long term results after surgical treatment *Journal of Bone and Joint surgery* 2005; (87): 195.
6. Ramirez G, Minimally invasive video endoscopic surgery for lumbar disc herniation : 50 cases. *Journal of Bone and joint surgery*.2008; 90: 235.
7. Kelly A, Huw B, Griffeith anf Jamjoom A H. Results of day case surgery for lumbar disc prolapse, *British journal of neurosurgery*. 1994; 8: 47-9.
8. Gibson JNA, Grant IC, Waddel G. coherence review of surgery for lumbar disc prolapse and degenerative lumbar spondylosis. *Spine* 1999: 1820-32.
9. Munnie T. Surgical management of lumbar disc prolapse in Addis Ababa East-afr *Med J*. 1997 May; 74 (5): 335-6.
10. Asch HL, Lewis PJ, Morel and DB et al. Prospective multiple outcomes study of outpatients lumbar microdiscectomy; should 75 – 80% success be norm. *J Neurosurg* 2002; 96. *Spine* (1): 34-44.
11. Hasselblatt M, Maintz D, Goll T, Wildförster U, Schul C, Paulus W. Frequency of unexpected and important histopathological findings in routine intervertebral disc surgery. *J Neurosurg Spine*. 2006 Jan; 4 (1): 20-3.