ABSTRACT... Background: Discectomy is the standard treatment for lumbar disc disease. Fenestration operations involved lot of tissue dissection and so the complications. Instead the endoscopic discectomy involved less tissue dissection but limited exposure. Objectives: The objectives of this study were to compare the outcome of endoscopic discectomy and fenestration discectomy internms of relieve from symptoms and complications. Study Design: Analytic study. Place and duration of study: Neurosurgical unit Bahawal Victoria hospital Bahawalpur, from Feb 2010 to Aug 2010. Patients and Methods: Forty cases fulfilling the inclusion criteria were selected. Efficacy of procedure was determined by improvement in Denis pain scale, Macnab’s criteria and straight leg raising (SLR) improvement. Results: Forty patients divided in two equal groups. Patients of group A underwent fenestration and Group B endoscopic discectomy.60% of patients had left sciatica while 40% of patients had right sciatica. According to Denis pain scale 10% patients had moderate pain, 30% had severe pain and 60% had constant pain. Straight leg raising test showed, 50% patients had less than 30° SLR, 30% patients showed SLR of 31° to 40° and 20% patients had SLR more than 40°. MRI findings were disc bulging, protrusion and rupture. Considering SLR, Denis pain scale and Mncab’s criteria of pain control there was no clinical difference found between the two operative procedures except in two patients in group B when open discectomy had to be performed. Conclusions: MED is a safe and effective mode of treatment for low back pain in patients with lumbar disc herniation.

INTRODUCTION
Backache associated with sciatica is very common problem. The human race is paying price for attaining the upright posture. From adolescence to adulthood 80-85% of people suffered from this ailment. Degenerative changes leads to spinal canal narrowing. One common reason for Low Back Pain (LBP) is the herniation of intervertebral discs into the canal. Compression of nerve roots by protruded disc is strongly associated with distal extremity pain. The symptoms and signs of sciatica and MRI findings of nerve root compression or displacement by a disc herniation are correlated before invasive therapy is undertaken. Literature shows that standard discectomy is preferred technique for lumbar disc herniation then minimal invasive operations.

Only 10 years ago, if one had spine surgery, one could expect it to take as much as one year before one would be able return to normal activities. Minimally invasive techniques, however, are changing the face of spine surgery. What used to result in a week-long hospital stay, a year's recovery period and a large scar has been diminished to a few days, a few months and a few small scars.

Available evidence suggests that Prof. Muhammad Gazi Yasargil Turkish Neurosurgeon was the first person to introduce minimal invasive technique. According to another evidence microsurgical discectomy, was introduced by Yasargil and Casper. MED involve less tissue dissection, so the infection rate and post op pain is less as shown by the results of Smith et al.

Dissecting the muscles during fenestration operation produces the majority of the perioperative pain and delays return to full activity. The degree of the perioperative pain necessitates the use of significant pain medication with their inherent side effects. Also, the degree of the perioperative pain delays return to normal daily activities and nonphysical work. The dissection of the paraspinal muscles from their normal anatomic points of attachment results in a healing by scarring of these muscles. The various layers of the individual muscle healed by scar to one another losing their
OBJECTIVES
The objectives of this study were to compare the outcome of microendoscopic discectomy (MED) and fenestration discectomy in terms of relief from symptoms and complications.

PATIENTS AND METHODS

Setting
Department of Neurosurgery Bahawal Victoria Hospital Bahawalpur.

Study Design
Interventional quasi experimental study.

Sample Size
Forty cases fulfilling the inclusion criteria were included.

Duration of study
Six months, from March 2010 to August 2010.

Inclusion Criteria
- Age range 30-45 years
- Either sex
- MRI proven disc
- Straight leg raising (SLR) less than 60 degrees
- Unilateral disc

Exclusion Criteria
- Cauda equina syndrome
- Presence of infection
- Spinal canal stenosis
- Obese patient

Operational Definitions

Efficacy
- Improvement in straight leg raising sign in degrees.
- Improvement in Denis Pain Scale. (Table no: I)
- Mean Oswestry Disability Index
- Mcnabs criteria

RESULTS
Total forty patients were included in the study. Patients were divided in two equal groups. Group A patients undergone fenestration operation while Group B patients were treated by microendoscopic discectomy. In the distribution of gender, there were 32 (80%) male and 8 (20%) females. The mean age of the patients was 39 years. There were 4(10%) patients of age range of 30 to 35 years, 20(50%) patients of age range of 36-40 years and 16(40%)patients of age range of 41-45 years (Table no: II).Occupational distribution showed, 16(40%) laborers, 8(20%) farmers, 4(10%) drivers, 4(10%) shopkeepers, 8(20%) housewives.
bulge, 22(55%) patients of protrusion and 4(10%) disc were ruptured. In the improvement of SLR, before there were 40(100%) patients of less than 50° SLR. But postoperatively there significant improvement in SLR. In group A 70% patients had SLR above 50° and in group B 75% patients had SLR more than 50° (Table IV).

Regarding Denis pain scale, group A should 70% patient had no pain and in group B 80% had no pain both groups showed excellent results and 52% of patients had no pain while 20% patients of group A and 10% patients of group B had minimal pain and two patients of group A and group B showed no improvement in Denis pain scale.

Pain control criteria of McNabs showing excellent pain control in 60% of group A and 70% patients of group B. In 20% patients of group A and 10% patients of group B had fair pain control. 20% patients of group A and group B had poor pain control (Table IV). Oystery disability index showed excellent results in group A patients than group B patients.

**DISCUSSION**

The results of our study showed that backache due to lumbar disc herniation is common presenting complaint in working age group also shown by the study of
Gholamreza et al. According to the Ahmad M et al and our study the majority of cases are in the fourth decade of life. There is male predominance i.e. 8:2 male to female ratio but Akbar A male suffer more than females but the ratio is 3:1. It is because of the inclusion and exclusion criteria showing the huge difference. Our study also confirmed the work of other authors that most disc herniation occurs at the level of L4/L5 followed by L5/S1 level.

In our study on MRI findings the bulge was found in 24% patients, prolapse was found in 64% patients and extrusion was found in 12% patients. While in the study of Rosenberg et al the bulge was found in 42% patients and according to the study of Ahmed et al the disc prolapse was found in 92.4% patients. So our study is comparable with the above studies.

Improvement in Dennis pain scale

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>No pain</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Minimal pain</td>
<td>04</td>
<td>02</td>
</tr>
<tr>
<td>Moderate pain</td>
<td>02</td>
<td>02</td>
</tr>
</tbody>
</table>

Straight leg raising

<table>
<thead>
<tr>
<th>Straight leg raising</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>$&lt;30^\circ$</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>$31^\circ - 40^\circ$</td>
<td>02</td>
<td>01</td>
</tr>
<tr>
<td>$41^\circ - 50^\circ$</td>
<td>04</td>
<td>04</td>
</tr>
<tr>
<td>$&gt;50^\circ$</td>
<td>14</td>
<td>15</td>
</tr>
</tbody>
</table>

Mcnabs criteria

<table>
<thead>
<tr>
<th>Mcnabs criteria</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good control</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Fair control</td>
<td>04</td>
<td>02</td>
</tr>
<tr>
<td>Poor control</td>
<td>04</td>
<td>04</td>
</tr>
</tbody>
</table>

surgery 100% of the patients had SLR less than 500 and postoperatively 90% of the patients of both the groups had SLR more than 60°, these results coincide with different studies. 

As far as Denis pain scale concerned only two patients of the group B showed no relief from constant pain and had to be reoperated otherwise 88% of the patients had either no pain or minimal pain. 

Approximately 80% of patients had good or excellent outcomes based on modified Mcnab criteria. The remaining 3 patients had fair outcomes, and no patient had a poor outcome. In contrast different studies showed that results of fenestration, hemilaminectomy and standard laminectomy for lumber disectomy are satisfactory. The success rates for micro disectomy range from 88 to 98.5% in various series. It was established that this procedure reduces the incision size, blood loss and morbidity. The advantages of MED over standard microdisectomy include smaller incision, lesser post operative pain, early ambulation, short hospital stay, shorter time to return to work and lesser cost of treatment.

The best methods to learn MED are skill development in cadaveric workshops and clinical supervision in a learning environment. The specific skills required in MED include visuo-spatial orientation, handling of endoscopic equipment and working through a small field of view. Surgeons who are experienced in the standard microdisectomy may be better equipped to overcome the learning curve faster.

CONCLUSIONS
Micro endoscopic disectomy is a safe and effective surgical approach for the treatment of lumbar disc herniation. Endoscopic disectomy for herniation produces improvement in pain, disability, and functional health that is comparable with outcomes reported for conventional open disectomy. Minimal invasive techniques should be adopted and young neurosurgeons should be properly trained and the cost of endoscopes should be reduced so that the minimal invasive procedures performed commonly.

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