

# Functional and Clinical Recovery Following Conventional Microlumbar Discectomy: A Prospective Study

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## ABSTRACT

**Background:** Conventional microlumbar discectomy is exactly that kind of a surgical procedure, wherein without removal of major part of the lamina, the cord is exposed, retracted and the discectomy carried out. Present study was conducted to assess functional and clinical Recovery following Conventional Microlumbar Discectomy.

**Materials and Methods:** This study was conducted to assess functional and clinical Recovery following Conventional Microlumbar Discectomy. Sample size was 50 patients. Patients were assessed clinically; a thorough history and a complete physical examination were carried out. Pre-operative and post - operative assessment using the VAS score and Prolo economic and functional scale for outcome analysis was performed for all patients. All patients underwent conventional microlumbar discectomy and findings noted in detail. Regular follow-up was done.

**Results:** In our study, 50 patients with lumbar disc lesion were operated by conventional microlumbar discectomy. In this study, preoperative mean total score was 4.54 with an SD of 2.53 whereas post-operative mean total score was 8.78 with an SD of 3.07. Out of 50 patients, preoperatively 42 (84%) patients were in poor outcome category (maximum) whereas

postoperatively 47 (94%) patients were in good outcome category (maximum).

**Conclusion:** The present study concluded that patients with Conventional Microlumbar Discectomy shows good functional and clinical recovery following surgery. It provided excellent pain relief.

**Keywords:** Lumbar Disk Herniation, Conventional Microlumbar Discectomy, ProloEconomic and Functional Scale.

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## INTRODUCTION

Lumbar disk herniation (LDH) is a common medical condition with a pathological process that leads to spinal surgery. The fibrous ring of an intervertebral disk is fractured and allows the soft central portion, the nucleus pulposus, to bulge out beyond the damaged fibrous rings. LDH is considered to be the most prevalent spinal disk herniation and always causes a series of signs and symptoms. One of the most challenging medical problems is sciatica symptoms. Sciatica affects millions of individuals worldwide.<sup>1</sup> The nerve root compression caused by the bulge of the nucleus pulposus and the secondary inflammatory reaction represent two crucial factors that result in lumbosacral radicular syndrome.<sup>2</sup> With the aggravation of LDH, incontinence may develop.<sup>3</sup>

Conventional microlumbar discectomy is exactly that kind of a surgical procedure, wherein without removal of major part of the lamina, the cord is exposed, retracted and the discectomy carried out.<sup>4</sup> Minimally invasive tubular lumbar micro-endoscopic discectomy (MED) is a refinement of the standard open microlumbar discectomy (MLD) technique. Traditional MLD surgery requires muscles dissection and retraction causing iatrogenic morbidity of the soft tissues but allows greater visualization of dural sac, direct visualization of anatomic structures and obtaining the optimal angle for disc removal, however, MED is associated with tubular retractors which minimizes the tissue injury and ensures that deeper tissues are less exposed to potential pathologic organisms due to restricted surgical field. Advantages

of minimal invasive surgery includes less perioperative pain, early ambulation, shorter hospital stays and early return to work with smaller incision.<sup>5-7</sup> This study was conducted to assess functional and clinical Recovery following Conventional Microlumbar Discectomy.

**MATERIALS AND METHODS**

This study was conducted to assess functional and clinical Recovery following Conventional Microlumbar Discectomy. Written informed consent was taken from the patients. Patients with backache and/radicular pain in the age group 20-50 years including male and female, which showed no signs of improvement with conservative management of 6 weeks except herniated disc with neurologic deficit where surgery was done earlier., patients with neurological deficits, Single level disc herniation, Magnetic resonance imaging (MRI) proved significant disc herniation were included in the study. Patients with presence of other associated spine pathology, Multiple level discs, Previous history of spine surgery, Evidence of lumbar stenosis, Disc lesion with instability/lithesis were excluded from the study. Sample size was 50 patients. Patients were assessed clinically; a thorough history and a complete physical examination were carried out. Pre- operative routine investigations as well as MRI Lumbar spine of all patients to confirm diagnosis was also done. Pre-operative and post - operative assessment using the VAS score and Prolo economic and functional scale for outcome analysis was performed for all patients. All patients underwent conventional microlumbar discectomy and findings noted in detail. Regular follow-up was done, when the patients were assessed for the presence of back pain or radicular pain, signs of root or cord compression, and the neurologic status of the patient. Prolo economic – functional outcome rating scale used to determine the outcome following spinal surgeries, and it is a sum of the score given for the economic and functional status of patients. Prolo economic-functional outcome rating scale

It is graded from 1 to 5. Total score 5 or less is considered to be a poor outcome, a score of 6 or 7 is considered as a moderate outcome, and a score of 8-10 is considered as a good outcome.

**Economic status**

- E1: Completely invalid.
- E2: No gainful occupation including ability to do housework/ continue retirement activities.
- E3: Able to work but not at previous occupation.
- E4: Working at previous occupation part-time/limited status.
- E5: Able to work at previous occupation with no restrictions of any kind.

**Functional status**

- F1: Total incapacity (or worse than before operation).
  - F2: Mild to moderate level of back pain /sciatica (or pain same as before operation but able to perform activities of daily living).
  - F3: Low level of pain and able to perform all activities except sports where applicable.
  - F4: No pain but patient has had one or more recurrence of low backache/sciatica.
  - F5: Complete recovery, no recurrent episodes of low backache, able to perform all previous activities, including sports where applicable.
- Patients were classified as failures or successes at the 12-month follow-up according to the overall VAS score and PROLO total clinical score.

**RESULTS**

In our study, 50 patients with lumbar disc lesion were operated by conventional microlumbar discectomy. In this study, preoperative mean total score was 4.54 with an SD of 2.53 whereas post-operative mean total score was 8.78 with an SD of 3.07. Out of 50 patients, preoperatively 42(84%) patients were in poor outcome category(maximum) whereas postoperatively 47(94%) patients were in good outcome category(maximum).

**Table 1: Comparison of mean total score of pre-and post-operative Prolo economic-functional score**

Total score	Mean ± SD
Pre-operative	4.54 ± 2.53
Post-operative	8.78 ± 3.01

**Table 2: Comparison of mean total score of pre- and postoperative according to grade**

Outcome	Preoperative n(%)	Postoperative n(%)
Good	00 (00)	47(94)
Moderate	08 (16)	01 (2)
Poor	42 (84)	02 (4)

**DISCUSSION**

Lumbar open microdiscectomy is a popular procedure for the surgical treatment of lumbar disk herniation.<sup>8</sup> However, the open microdiscectomy surgery often requires a large incision to provide optimal vision. During the surgery, the paravertebral muscles are retracted, and the spinal lamina and facet joint are removed. This surgery can cause scarring and instability of the spine, which causes clinical symptoms in 10% or more of patients.<sup>9</sup>

In our study, 50 patients with lumbar disc lesion were operated by conventional microlumbar discectomy. In this study, preoperative mean total score was 4.54 with an SD of 2.53 whereas post-operative mean total score was 8.78 with an SD of 3.07. Out of 50 patients, preoperatively 42(84%) patients were in poor outcome category(maximum) whereas postoperatively 47(94%) patients were in good outcome category(maximum).

Nagi reported 93.5% good to excellent result with discectomy and found it to be an extremely satisfactory method. He said that discectomy was a much faster surgery, with less blood loss, faster recovery, and lesser amount of postoperative complications and would not jeopardize the stability of the spine when compared to open laminectomy procedure.<sup>4</sup>

J. Pappas et al. and Davis applied the Functional-Economic Rating Scale of Prolo et al., which takes into consideration professional rehabilitation and residual pain symptoms.<sup>10,11</sup> Davies in a long-term study of 984 patients treated for herniated lumbar disc found an 89% of good outcome.<sup>11</sup>

Gulati operated 159 patients of virgin lumbar disc prolapse treated with microlumbar discectomy over a 7 year period from 1995 to 2002. Of 151 patients who followed up on VAS scale average preoperative, back pain was rated 4.1 and leg pain 7.8. Postoperatively mean back pain was 2.1, with 80.1% having no back pain. Mean leg pain was 0.7 with 96% having no leg pain.<sup>12</sup>

Zhang et al. explored the feasibility of enhanced recovery after surgery in patients with lumbar spondylolisthesis undergoing mobile microendoscopic discectomy and TLIF. They found that the ERAS pathway reduced intraoperative bleeding, shortened LOS, improved postoperative pain, and promoted rapid rehabilitation of patients without impacting long-term outcomes.<sup>13</sup>

Early post-operative mobilization is easy, compared with the traditional operation, the microsurgical approach means a shorter duration of operation, less bleeding during surgery, less intraoperative myoligamentous trauma, less postoperative wound pain, and return to work within half the usual time.<sup>14-16</sup>

A 4-week postoperative exercise program that concentrates on improving strength and endurance of the back and abdominal muscles and mobility of the spine and hips; with repetitive assessment of posture, hip and lumbar mobility, back muscle endurance capacity and electromyographic measures of back muscle fatigue can improve pain, disability, and spinal function in patients who undergo microdiscectomy, and should be made part of the protocol.<sup>17</sup>

## CONCLUSION

The present study concluded that patients with Conventional Microlumbar Discectomy shows good functional and clinical recovery following surgery. It provided excellent pain relief.

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