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Surgical Outcome of Open Lumbar Microdiscectomy in Lumbar Disc Herniation Patients

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ABSTRACT

INTRODUCTION: Lumbar disc herniation is common medical problem. PIVD presented with intractable pain or severe neurological symptoms related to nerve root compression. The most common herniation level is L4-L5, 95% rupture occurs at this levels. Almost 90% patients are relieved symptomatically with conservative treatment within 3 months period. There are various surgical methods if conservative treatment fails. The operative techniques are Open discectomy, microscopic discectomy, Standard microdiscectomy, endoscopic discectomy. The most commonly performed surgical procedure is standard microdiscectomy.

METHODOLOGY: This is retrospective study of open lumbar microdiscectomy done at Shree Birendra Hospital from 2013 to 2018.The inclusion criteria are age <45yrs,presence of radicular feature, failure of conservative treatment. In all patients leg and back pain, neurological involvement were recorded pre and post operative. The data were analysed in SPSS 21.

RESULTS: There were 123 cases and 20 cases were lost for follow up. There were 93 male patients out of 103.The age range was between 23 to 69 yrs and mean age was 36.4± 9.5 yrs. 53 patients had left sided herniation and rest had right sided and central. 85 patients had clinical and neurological improvement. Eight patients had back pain and developed discitis, one had incidental durotomy and one wrong diagnosis. Out of eight discitis, 6 patients relieved with conservative treatment in 6 months period and two had TLIF surgery.

CONCLUSION: There are various surgical option for lumbar disc prolapse if conservative management fails. Standard open microdiscectomy is cost effective, less technical demanding and has effective clinical outcome.

KEYWORDS: Disc Herniation, Microdiscectomy, Discitis, Durotomy

INTRODUCTION

Low back pain is common problem second to common cold. One of the common cause of back pain is prolapsed intervertebral disc(PIVD). Most of the PIVD patients can be managed with conservative treatment very well (90%). If conservative treatment fails in 3-6 months period, patients can be treated with surgery. The standard surgical treatment of lumbar disc herniation is open microdiscectomy.[1] The open microdiscectomy is traditionally done by mobilizing the muscles laterally off the spinous process and lamina using a unilateral retractor.[2] There are numerous procedures being carried out in patients with intractable pain or severe neurological symptoms related to nerve root compression.[3] Lumbar discectomy remains one of the most commonly performed procedure.[4]

The result of microdiscectomy outcome is less satisfactory with small herniation. It also demonstrated that surgical outcome is better predicted by herniation size and type than by patients age, gender, workmens compensation status.[5] Our aim is to assess effectiveness of open lumbar microdiscectomy in lumbar disc herniation patients who had failed conservative treatment and also met the criteria for open microdiscectomy.

METHODOLOGY

This is the retrospective study conducted at Shree Birendra hospital, Chhauni. The data were collected from 2013 to 2018A.D .The total no of 123 patients were included in the study. The inclusion and exclusion criteria were listed in Table1.

Table 1

Inclusion Criteria	Exclusion Criteria
• Lumbar disc herniation diagnosed clinically as well as radiologically. • Failed conservative treatment. • Neurological deterioration during course of conservative treatment. • Single level involvement	• Multiple level involvement. • Previous surgery at same level • Cauda equine syndrome • Segmental instability

Written informed consent were taken. PIVD was diagnosed clinically and confirmed radiologically i.e. X-ray and MRI of Lumbarsacral spine. Conservative therapy started after the establishment of diagnosis. All the patients demographic data were recorded once fit in inclusion criteria. The VAS score for back and leg pain and lower limb neurology were recorded pre-op and post–operatively. The patients were mobilized as the pain was tolerable, usually next day. Stitches were removed on 14th post operative day. All the patients were followed up at 6 weeks, 3 months, 6 months and 12 months. In every visit VAS score and neurology were recorded. The data were analysed in SPSS version 21.

Surgical Technique: Patients were kept in Prone position after general anesthesia. Midline incision was given between the spinous process of the affected level. Spinal muscle was reflected only on the affected side. Fenestration of the lower part of the lamina of the upper vertebra and upper portion of the lamina of the lower vertebra was done. Ligamentum flavum were removed with the help of small curette, pituitary and kerrison roenger. Facet joint remained intact in all cases. With the help of dura retractor, nerve root and dura retracted and given Nick at the disc and disc was removed.

RESULT

There were 103 of 123 patients present at the final follow up. Eight two percent of the patients were satisfied with their outcome and returned to unrestricted active duty. There were 10 complications, 8 discitis, 1 incidental durotomy and 1 wrong diagnosis. Two discitis patients were treated with TLIF surgery and rest healed with medical therapy. Incidental durotomy patient was treated with dura repair. One patient was not relieved symptomatically and was diagnosed as Motor Neuron Disease(MND). Patients who were not doing well enough to return to full duty, repeat MRI and dynamic X-ray was done to rule out instability, reherniation, infection.

The age of the patients ranged between 29 to 69 yrs with the mean of 36.4±9.5. Ninety percentage were male patients.47 percentage patients were symptomatic for less than 6 months duration.57% patients had L4-L5 disc prolapse and 33% L5-S1 prolapse. 53% had left

side nerve root compression and 45% right.

The mean postoperative leg pain VAS score at final follow up was 0.86±0.9 point (range, 0-7) and mean preoperative leg pain VAS score was 4.95±1 points(range,0-8). The mean postoperative back VAS score at final follow up was 0.97±0.95 points(range,0-5) and mean preoperative back pain VAS score was 2.67±1.8 points(range,0-7)(Table 2).

There were 65% patients with intact neurology preoperatively whereas 83.5% patients with intact neurology postoperatively (Table 3).

Table 2

	N	Minimum	Maximun	Mean	Std. Deviation
PreoplegVAS	103	0	8	4.95	1.149
PostoplegVAS	103	0	5	0.86	0.897
PreopbackVAS	103	0	7	2.65	1.800
PostopbackVAS	103	0	5	0.97	0.944

Table 3

	Preop neurology(%)	Postop neurology(%)
Intact	65	83.5
Sensory involvement	6.8	
Sensorymotor involvement	28.2	16.5

DISCUSSION

Our study demonstrates that patients who underwent lumbar microdiscectomy for symptomatic prolapsed intervertebral disc returned to active job. The complication rate was minimum, patient satisfaction rate was high (82%) and most of patients were able to return to unrestricted active duties. These results were comparable with outcome studies of lumbar microdiscectomy in other studies.[6,7]

In this study, we have found out that age of the patients did not affect clinical outcome. There are studies showing age at the time of surgery is not predictive of outcome.[8] Female gender are associated with poor outcomes. But in this study only 10% were female so couldnot be compared.

Studies have shown that increased duration of preoperative symptoms are associated with poor outcomes but in this study we found no such correlation.

In this study, 67% patients had leg VAS score improved more than the back VAS score. The mean leg VAS score improved by score 4 whereas mean back VAS score improved by score 2. There are other study where Leg VAS improved by 4.4±3.2 and back VAS improved by 1.8±3.49.

There were around 35% patients with neurological involvement preoperatively. Almost 18.5% patients had neurological improvement postoperatively. 16.5% had persisting neurological involvement postoperatively, either only sensory or both motor and sensory.

CONCLUSION

PIVD is a common cause of back and leg pain. Microdiscectomy is common surgical procedure to treat PIVD. There is significant improvement in leg pain and neurology postoperatively. Back pain improvement is less compared to leg pain improvement postoperatively.

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