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Discectomy for Primary and Recurrent Prolapse of Lumbar Intervertebral Discs

Dr. Md. Hasan[1*], Dr. Md. Bahauddin Al Mamun[2], Dr. Masum Billah[3], Shahidul Islam[4], Nozrul Islam[5], Dr. Gulshan Ara Akhter[6]

[1]Assistant Professor, Department of Orthopedics, Holy Family Red Crescent Medical College Hospital Dhaka, Bangladesh
[2]Assistant Registrar, National Institute of Traumatology and Orthopedic Rehabilitation (NITOR), Dhaka, Bangladesh
[3]Consultant, Orthopedics, Subarnachar Upazila Hospital, Noakhali, Bangladesh
[4]Professor and Head of Department, Department of Orthopedics and Spin Surgery, Addin Women's Medical College Hospital, Dhaka, Bangladesh
[5]Professor and Head of Department, Holy Family Red Crescent Medical College Hospital Dhaka, Bangladesh
[6]Consultant, Gyane & Obs, Upazila Health Complex, Tangail, Bangladesh

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***Corresponding author:** Dr. Md. Hasan
Assistant Professor, Department of Orthopedics, Holy Family Red Crescent Medical College Hospital Dhaka, Bangladesh

Abstract **Original Research Article**

Background: Prolapse of lumbar intervertebral discs (PLID) is one of the major causes of morbidity in the arena of orthopedics. Back pain or sciatica which is associated with PLID is now very common among adult population. More cautious assessment must be done to treat such patients. As a treatment method, discectomy is being used widely in treating primary and recurrent prolapse of lumbar intervertebral discs. We have very few research-oriented data regarding the effectiveness of discectomy in treating PLID. ***Aim of the study:*** The aim of this study was to assess the effectiveness of discectomy in treating PLID. ***Methods:*** This was a prospective observational study which was conducted in the department of Orthopedics, Holy Family Red Crescent Hospital Dhaka Bangladesh during the period from January to December 2019. Purposive sampling method was used in selecting study subjects. Written informed consents were taken from all the participants before data collection. In total 76 patients were included in the study as study population. All data were processed, analyzed and disseminated by using MS Office and SPSS version 23 as per necessity. ***Results:*** Among all the participants, the male-female ratio was 1.8%1. The majority portion of patients, 47% was aged between 30-39 years. Among half of total patients (n=38) radicular pain was found. Besides this, 25 had low back pain and the rest 13 patients had lower extremity numbness. Among majority of the participants, left side was involved. Besides this, among 39% patients right side and among 7% bilateral side was involved. As the final outcome regarding the severity of pain it was found that, after surgery among 93% patients occasional back pain was associated and 7% patients were fully free from pain. Conclusion: Discectomy method may be considered as an effective treatment procedure in treating patients with prolapse of lumbar intervertebral discs. But proper assessment of PLID and its situation is a vital part before the surgical procedure.

Keywords: Discectomy, Primary, Recurrent, Prolapse of lumbar intervertebral discs, PLID.

1. INTRODUCTION

Back pain or sciatica which is associated with PLID is now very common among adult population. As a treatment method, discectomy is being used widely in treating primary and recurrent prolapse of lumbar intervertebral discs. A study showed that, the occurrence of PLID is 1.9%-7.6% in men, and 2.2%-5.0% in women [1]. Indicative prolapse of lumbar intervertebral discs is generally preserved with nerve root decompression with conservation of bony and ligamentous stabilizers of the spine [2, 3]. Some study claimed complete disappointing rate after discectomy of PLID which is 3% to 20% [4, 5]. On the other hand its reappearance at the similar level irrespective of contralateral or ipsilateral to the next disc excision is reported to be 5 to 11% [6]. On the other hand, in several studies, 50 to 90% of revision surgeries achieved the satisfactory outcomes [5, 7]. In the year of 1909, Oppenheins and Krause performed the first successful surgical excision of a herniated intervertebral disc. Regrettably, they failed to identify the excised tissue as the disc material and interpreted it as an enchondroma [8]. Mixter and Barr [9] introduced lumbar fusion after excision of the disc to prevent

stableness. But Frymoyer *et al*., [10] and others indicated that, there is little if any benefit to the addition of spinal fusion. But technic of discectomy has been improved day by day and now it is being used widely in treating PLID.

2. METHODOLOGY

This was a prospective observational study which was conducted in the department of Orthopedics, Holy Family Red Crescent Hospital Dhaka, Bangladesh during the period from January January to December 2019. Purposive sampling method was used in selecting study subjects. Written informed consents were taken from all the participants before data collection. In total 76 patients were included in the study as study population. Patients were included if they had severe motor and sensory deficits or dominant leg pain rather than back pain or progressive neurological deficits with sciatica or persistent pain hampering daily activities or restricted straight leg-raising test and positive radiographic or magnetic resonance imaging findings. For all the patients, diagnosis was confirmed by MRI. As per the inclusion criteria of this study, only those patients, who were medically fit to undergo the full treatment procedure, were included as the study subjects. On the other hand, according to the exclusion criteria of this study, over aged geriatric patients as well as severely ill patients were excluded. Data were collected by using a pre-designed questioner. All data were processed, analyzed and disseminated by using MS Office and SPSS version 23 as per necessity.

3. RESULT

In this study, in total 76 patients were operated and observed periodically in outdoor. Among all the participants, 64% (n=49) were male and the rest 36% (n=27) were female. So male participants were dominating in number and the male-female ratio was 1.8%1. The majority portion of patients, 47% was aged between 30-39 years. Then 33% were in between 20 and 29 years, 17% were in between 40 and 49 and the rest 3.80% were aged of ≥50 years. Among half of total patients (n=38) radicular pain was found. Besides this, 25 had low back pain and the rest 13 patients had lower extremity numbness. Among majority of the participants, left side was involved. Besides this, among 39% patients, right side and among 7% bilateral side was involved. As the final outcome regarding the severity of pain it was found that, after surgery among 93% patients occasional back pain was associated and 7% patients were fully free from pain.

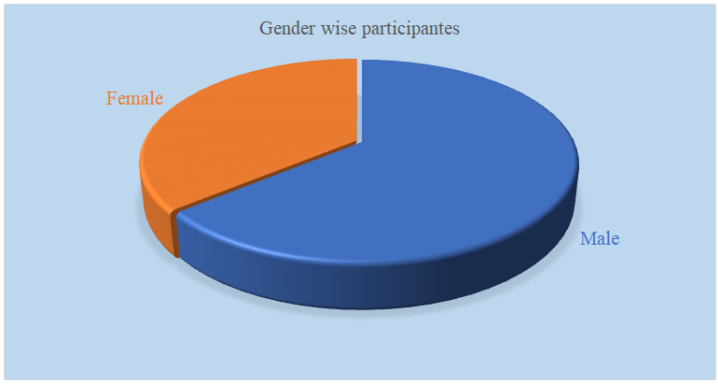

Figure 1: Gender distribution of participants (N=76)

Table 1: Age distribution of participants (N=76)

Age (Year)	n	%
20-29 yrs.	25	33%
30-39 yrs.	36	47%
40-49 yrs.	13	17%
≥ 50 yrs.	2	3%

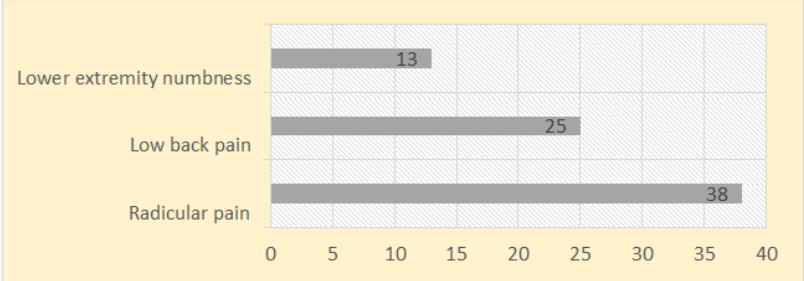

Figure 2: Major symptom distribution among participants (N=76)

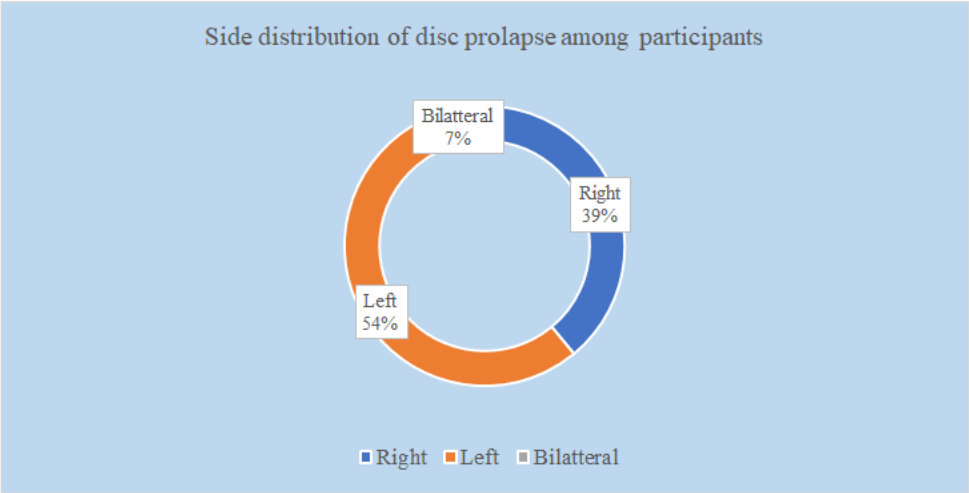

Figure 3: Side distribution of disc prolapse among participants (N=76)

Table 2: Distribution of level of disk prolapse among participants (N=76)

Variables	n	%
L2-L3	5	7%
L3-L4	13	17%
L4-L5	41	54%
L5-S1	17	22%

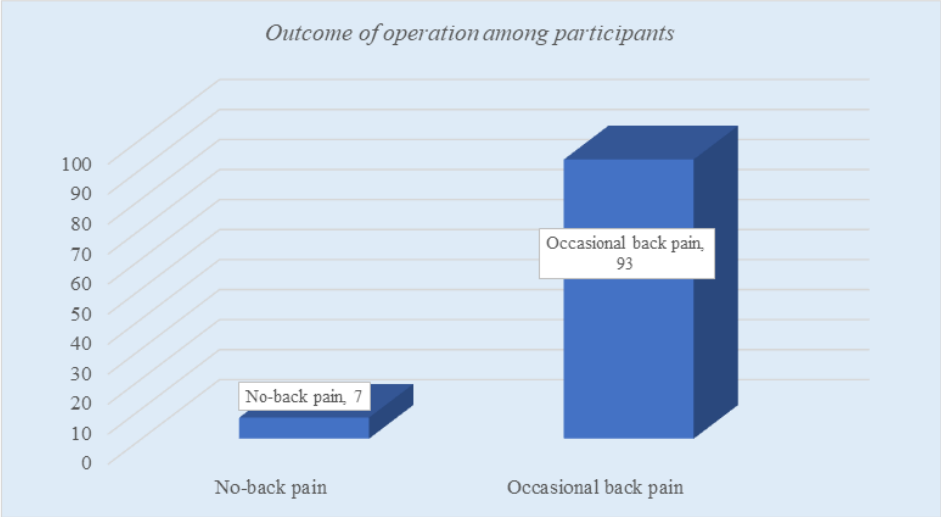

Figure 4: Outcome of operation among participants (N=76)

4. DISCUSSION

The aim of this study was to assess the effectiveness of discectomy in treating PLID. Among half of total patients of this study, radicular pain was found. Besides this, 25 had low back pain and the rest 13 patients had lower extremity numbness. Among majority of the participants, left side was involved. Besides this, among 39% patients, right side and among 7% bilateral side was involved. As the final outcome regarding the severity of pain it was found that, after surgery among 93% patients occasional back pain was associated and 7% patients were fully free from pain. To get good result of disc surgery of PLID, patient selection needs to be appropriate. The duration of unilateral leg pain spreading below the knee for at least 6 weeks is an effective indicator of having PLID. The pain in such cases must reduce by rest and/or anti-inflammatory medication but then again should have given back to the early level after a minimum of 6 weeks of traditional treatment [8]. Physical investigation must disclose the symptoms of sciatic irritation and perhaps impartial signs of localizing neurological damage. CT, myelography or MRI had better authorize the level of participation constant with patient's investigation results. If traditional treatment of PLID miscarries, the following consideration is surgical involvement. Recurrence is a major problem in treating PLID. A study showed that, 30% of the patient complained back pain following disc surgery [11] which contradicts our findings. Prolapse of lumbar

intervertebral discs can recur at the same disc as well as same side as the primary PLID [12] or at the same disc and contralateral side or at an individual new disc at different level [13]. The annular incision performed at the primary discectomy may be a predisposing factor for the recurrence, and the presence of "scar tissue" may affect the results of revision surgery [14]. Recurrent prolapse of lumbar intervertebral discs should be distinguished from postoperative fibrosis, as the former necessitates re-operation [15]. Its risk factors include repetitive lifting, weakness of annular tissue [16], vibrations, and smoking [17]. The findings of this study may be helpful in the treatment arena of PLID by discectomy and in further similar studies.

Limitation of the study

This was a single centered study with a small sized sample. So, findings of this study may not reflect the exact scenario of the whole country.

5. CONCLUSION & RECOMMENDATION

Discectomy method may be considered as an effective treatment procedure in treating patients with prolapse of lumbar intervertebral discs. But proper assessment of PLID and its situation is a vital part before the surgical procedure. We can conclude that, after proper selection of the patients if operated classically, managed appropriately during post-operative period and discharged with proper advice, classical discectomy can ensure good result. For getting more specific findings we would like to recommend for conducting similar more studies with larger sized samples in several places.

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