ISSN (Print): 2663-9491 ISSN (Online): 2789-6897

Original Article

An Evaluation of Prolapse of Lumbar Intervertebral Discs Surgery- A prospective observational study

DOI: https://dx.doi.org

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Received: 30 OCT 2021
Accepted: 08 NOV 2021
Published: 11 NOV 2021

Published by:
Sheikh Sayera Khatun Medical College Gopalganj, Bangladesh

How to cite this article:
Islam MT, Ahsan MK, Islam AS. An Evaluation of Prolapse of Lumbar Intervertebral Discs Surgery A prospective observational study . The Insight [Internet]. 2021 Nov. 11 [cited 2021 Nov. 11];4(01):17-21. Available from: https://bdjournals.org/index.php/insight/article/view/99

ABSTRACT

Introduction: *In the arena of orthopedic arena prolapse of lumbar intervertebral discs (PLID) is a major cause of morbidity. Back pain and sciatica are very common in adult persons. More cautious assessment must be done to treat such patients. Injudicious treatment, whether medical or surgical may aggravate the sufferings of patients. We have very few research-based information regarding the effectiveness of PLID surgery.* ***Objective:*** *The aim of this study was to assess the effectiveness of lumbar intervertebral disc prolapse (PLID) surgery in two tertiary care hospitals of Bangladesh.* ***Material & Methods:*** *This was a prospective observational study which was conducted at TMSS Medical College, Bogura and Natore Trauma Center & Hospital, Natore of Bangladesh during the period from January 2016 to December 2020. In total 43 patients prepared for PLID surgery were selected as the study people. A pre designed questioner containing demographic and clinical status as well as final outcomes of the patient was used. The clinical outcomes of all the patients were evaluated by MacNab scoring criteria. All data were processed, analyzed and disseminated by MS Office and SPSS version 25 as per need.* ***Results:*** *In analyzing the symptom distribution among participants, we observed, 86.05, 90.70%, 95.35%, 79.07%, and 60.47% patients were with Low back pain, radicular pain, numbness, neurological claudication and weakness (Affected side) respectively. Finally, in analyzing the final outcomes according to the MacNab scoring criteria we observed the highest number of patients found 'Excellent' result which was in 37.21%. Besides this, 27.91%, 23.26% and 11.63% patients found 'Good', Fair', and 'Poor' results respectively.* ***Conclusion:*** *PLID surgery is not a routine surgery. Proper assessment of the patient must be done before going to operation. The findings of this study may be helpful in the treatment arena of Prolapse of lumbar intervertebral discs and in similar further studies.*

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Key Words: *Prolapse of lumbar intervertebral discs (PLID), Orthopedics, Disc Prolapse.*

The Insight 2021; 4(1): 17:21

INTRODUCTION

In the arena of orthopedic arena prolapse of lumbar intervertebral discs (PLID) is a major cause of morbidity. Back pain and sciatica are very common in adult persons. More cautious assessment must be done to treat such patients. Injudicious treatment, whether medical or surgical may aggravate the sufferings of patients. We have very few research-based information regarding the effectiveness of PLID surgery. Prolapse lumbar intervertebral disc (PLID), frequently envisage in clinic, and might often encourage low back and leg pain. The occurrence is 1.9%–7.6% in men, and 2.2%-5.0% in women [1]. Indicative PLID is generally preserved with nerve root decompression with conservation of bony and ligamentous stabilizers of the spine [2–5]. The complete disappointing rate after discectomy is 3 to 20% [3,6–8]. Its reappearance at the similar level irrespective of ipsilateral or contralateral herniation next disc excision is reported to be 5 to 11% [3,6,7,9,10]. Humans have been annoyed by back and leg pain subsequently the commencement of the recorded history. Oppenheins and Krause did the first successful surgical excision of a herniated intervertebral disc in 1909. Regrettably, they could not identify the excised tissue as disc material and interpreted it as an enchondroma[11]. Mixter and Barr [12]. raised lumbar fusion after excision of the disc to prevent stableness. But Frymoyer et al [13] and others indicate that there is little if any benefit to the addition of spinal fusion. Causes of failed surgery are wrong prolapses at the same level or another level. Prolapse of lumbar intervertebral discs (PLID) is a major cause of morbidity.

OBJECTIVES

General objective:

To assess the effectiveness of lumbar intervertebral disc prolapse (PLID) surgery among participants.

Specific Objectives:

To collect information regarding the symptoms of participants.

To collect information regarding the side involvement of disc prolapse among participants.

To collect information regarding the of disc prolapse among participants.

To collect information regarding the final outcomes among participants.

METHOD AND MATERIALS

This was a prospective observational study which was conducted at TMSS Medical College, Bogura and Natore Trauma Center & Hospital, Natore of Bangladesh during the period from January 2016 to December 2020. In total 43 patients prepared for PLID surgery were selected as the study people. A pre designed questioner containing demographic and clinical status as well as final outcomes of the patient was used. The clinical outcomes of all the patients were evaluated by MacNab scoring criteria [14]. Written informed consent was obtained in favor of the participants before enrolling into the study. Most of the patients obtainable with back pain and sciatica with no positive history of trauma or weight lifting. Diagnosis was confirmed by MRI. According to the inclusion criteria of the study, only the patients, who were medically fit to undergo the full treatment procedure, were included in the study. On the other hand, according to the exclusion criteria of this study, over aged geriatric patients as well as severely ill patients were excluded from the study. In case of primary discectomy, a 3.5-cm longitudinal midline incision was made on the affected side and the paraspinal muscles were elevated to approach the inter-laminar space. A Casper retractor or micro lumbar retractor was applied to expose the interlaminar space. The nerve root was exposed using unilateral

flavectomy and retracted medially or laterally depending on the position of the disc. Through a transverse annulotomy, all the loose disc materials were removed (In most cases aggressive discectomy and disc fragment curettage was done). The midline ligaments, facets, and lamina were left undisturbed. The operating microscope was not used. On the other hand, for revision discectomy, the spinal canal was exposed from the medial border of the inferior facet rather than the midline ligament. The lateral part of the annulus was exposed using partial (<25%) facetectomy. The annulus was then incised laterally, without retracting the fibrous scar on its medial aspect, which contained the nerve root. The knee-chest position enabled opening up the interlaminar space. The lumbodorsal fascial incision was linear and immediately adjacent to the midline. Despite the small incision, an operating microscope was not used. A micro lumbar retractor was used to expose the interlaminar space. All data were processed, analyzed and disseminated by MS Office and SPSS version 25 as per need.

RESULTS

In this study among total 43 participants, 37% (n=16) were male and 63% (n=27) were female (Fig.1). So female was dominating number and the male female ratio was 1:1.69. In this study the highest number of participants were from 41-50 years' age group (44.19%). Besides this 2.33%, 34.88%, and 18.60% participants were from 20-30, 31-40, and 50-60 age groups respectively. In analyzing the symptom distribution among participants, we observed, 86.05%, 90.70%, 95.35%, 79.07%, and 60.47% patients were with Low back pain, radicular pain, numbness, neurological claudication and weakness (affected side) respectively. In this current study, according to the distribution of disc prolapse according to side we found, left, right and bilateral side were involved among 60.47%, 25.58% and 13.95% patients respectively. On the other hand, L4-L5, L5-S1, L4-L5 & L5-S1 and L3-L4 level of disc prolapse were found among 41.86%, 25.58%, 23.26% and 9.30% patients respectively. Finally, in analyzing the final outcomes according to the MacNab scoring criteria we observed the highest number of patients found 'Excellent' result which was in 37.21%. Besides this, 27.91%, 23.26% and 11.63% patients found 'Good', Fair', and 'Poor' results respectively.

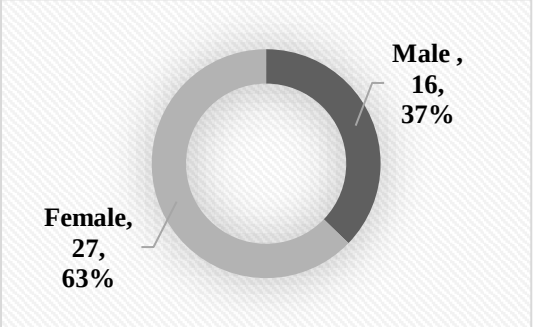

Figure I: Gender distribution of the studied participants. (n=43)

Table I: Distribution of patients according to age (n=43)

Age (Year)	n	%
20-30	1	2.33
31-40	15	34.88
41-50	19	44.19
50-60	8	18.60
Total	43	100

Table II: Symptom distribution among participants (n=43)

Symptoms	n	%
Low back pain	37	86.05
Radicular pain	39	90.70
Numbness	41	95.35
Neurological claudication	34	79.07
Weakness (Affected side)	26	60.47

Table III: Distribution of disc prolapse according to side (n=43)

Side	n	%
Left	26	60.47
Right	11	25.58
Bilateral	6	13.95
Total	43	100

Table IV: Distribution of level of disk prolapse. (n=43)

Level	n	%
L4-L5	18	41.86
L5-S1	11	25.58
L4-L5 & L5-S1	10	23.26
L3-L4	4	9.30
Total	43	100

Table V: Outcomes of surgery among participants (n=43)

Outcome	n	%
Excellent	16	37.21
Good	12	27.91
Fair	10	23.26
Poor	5	11.63
Total	43	100

DISCUSSION

The aim of this study was to assess the effectiveness of lumbar intervertebral disc prolapse (PLID) surgery in two tertiary care hospitals of Bangladesh. This was a prospective observational study in nature. It was conducted at TMSS Medical College, Bogura and Natore Trauma Center & Hospital, Natore of Bangladesh during the period from January 2016 to December 2020. In total 43 patients prepared for PLID surgery were selected as the study people. A predesigned questioner containing demographic and clinical status as well as final outcomes of the patient was used. To get good result of disc surgery, patient selection needs to be appropriate. The ideal patient selection process is choosing those patients with unilateral leg pain spreading below the knee that has been existing at least for 6 weeks. The pain must reduce by rest and anti-inflammatory medication but then again should have given back to the early level after a minimum of 6 weeks of traditional treatment [11]. Physical investigation must disclose symptoms of sciatic irritation and perhaps impartial sign of localizing neurological damage. CT, MRI or myelography had better authorize the level of participation constant with patient's investigation results. From the preoperative symptomatology of our study findings, we have seen that majority 47.62% had radicular pain, 35.24% had low back pain and 17.14% patients had lower extremity numbness**.** If traditional treatment miscarries, the following consideration is surgical involvement. In cooperation the surgeon and the patient must appreciate that disc surgery is not a cure, only can deliver symptomatic relief. It doesn't stop the pathological procedure that lets herniation to arise also doesn't return to a usual state. Patient has to exercise good posture and body mechanics after surgery. From our study findings we have seen that 92.38% of the patient had no pain and 7.62% had occasional back pain after disk surgery. A study done by Spangfort in reviewing 2504 lumbar disc excisions shows that 30% of the patient complained back pain after disc surgery[15] which contradicts our findings. In our study, the total outcome was very good as we carefully chosen the patients systematically tracked standard technique of operation, postoperative management was good and we discharged the patients after giving mandatory recommendation.

LIMITATIONS OF THE STUDY

It was a descriptive type of study with small sample size, which doesn't reflect the exact scenario of the whole country.

CONCLUSION AND RECOMMENDATIONS

PLID surgery is not a routine surgery. Proper assessment of the patient must be done before going to operation. Clinical improvement must be done before operation for good result. Psychiatric assessment should also be done before surgery. From our study we can conclude that if the patients are selected properly, operated classically, managed appropriately after operation and discharged with required advice, classical discectomy can give good result.

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