

TO KNOW THE EFFECTIVENESS OF DISC EXCISION IN THE TREATMENT OF HERNIATED LUMBAR INTERVERTEBRAL DISC

Mansoor Ahmad¹, Naseer Hassan², Mehran Ali³, Raza Hassan⁴, Shah Nawaz⁵

ABSTRACT

OBJECTIVES

To evaluate the effectiveness of disc excision in the treatment of herniated lumbar intervertebral disc.

METHODOLOGY

This study was conducted in the Department of Neurosurgery, Lady Reading Hospital, Peshawar. A total of 62 patients had moderate to severe radicular pain due to Prolapsed intervertebral disc at L4/5 or L5/S1. All the enrolled patients were subjected to disc excision surgery. Postoperatively the patients were kept for 48 hours for observation and then discharged. All the patients were advised to come after 2 weeks for the follow-up to check effectiveness.

RESULTS

The mean age of patients was 34.59 ± 7.49 years. There were 64.5% male and 35.5% female. 53.2% of patients had L4-L5, 33.9% of patients had L5-S1 and 12.9% of patients had both L4-L5 and L5-S1 level disc herniation. 85.5% of patients had no pain, 8.1% had mild pain and 04.8% had moderate pain. Postoperatively 79.0% of patients were satisfied.

CONCLUSION

As compared to conservative care limited disc excision is safe, effective, and reliable in terms of pain. Disc excision technique provides immediate relief from radicular pain.

KEYWORDS: Cervical Cancer, Pap Smear, Cervical Screening, Precancerous Lesions

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Correspondence

²Naseer Hassan, Associate Professor, Head of Neurosurgery Department, Nowshera Medical College, Nowshera

☎: +92-321-9119080

✉: dmnaseerhassan@gmail.com

¹Senior Registrar, Neurosurgery Department, Nowshera Medical College, Nowshera

³Senior Registrar, Neurosurgery Department, Nowshera Medical College

⁴Senior Clinical Fellow, Orthopedic Department, Royal Free London Hosiptal London, United Kingdom

⁵Vice Dean, Associate Professor Biochemistry Department, Nowshera Medical College

INTRODUCTION

Globally, one of the most serious health issues is low back pain that is caused by Lumbar disc herniation (LDH).¹ LDH is a spinal degenerative disorder, that mostly affects patients in their 3rd to

5th decades of life and more often develops in males than females.² LDH patients often suffer from continuous back pain, radicular symptoms and weakness.³ Back pain may be provoked by setting and drive.⁴ Disc herniation most often arise between L4/5 or L5/S1 disc spaces.^{5,6} Lower back pain is experienced in 60%–80% of adults in their life span.⁷ Herniated discs is treated by either surgical approach or nonsurgical approaches but surgical approach is beneficial.^{8,9} Non-surgical approach involves bed rest, physical therapy, intravenous sedation, osteopathic manipulations, massage therapy and non-steroidal anti-inflammatory drugs, epidural injection, and analgesia-assisted traction therapy. Surgical treatment approach include microdiscectomy, laminectomy or hemilaminectomy, lumbar fusion, and artificial disc replacement.¹⁰ Disc excision is a

safe, effective, and reliable surgical approach for the treatment of patients suffering from sciatica due to prolapsed intervertebral disc at L4-L5 and L5-S1 level. Discectomy is the surgical removal of the damaged portion of a herniated disc, so we used this procedure in this study to evaluate its effect that help the health practitioner to choose best treatment approach for the herniated lumbar intervertebral disc.

METHODOLOGY

This descriptive case series study was conducted at the Neurosurgery department, Lady Leading Hospital, Peshawar. The duration of the study was 6 months (April 2021 – Oct 2021). A consecutive non-probability sampling technique was used for the recruitment of patients. Those patients have moderate to severe radicular pain due to Prolapsed intervertebral disc at L4/5 or L5/S1, confirmed by MRI, patients of age between 20-50 years and of both gender (male and female) were included in the study. Those patients have Cauda equina syndrome, presenting as foot drop, saddle anesthesia or bladder dysfunction due to the prolapsed intervertebral disc, and are clinically diagnosed with persistent symptoms of back or leg pain despite surgical therapy due to several various causes including misdiagnosis and inappropriate operation, having disc space infection and with mild or no radicular pain were excluded from the study. Totally 62 patients diagnosed as moderate to severe radicular pain due to prolapsed intervertebral disc at L4/5 or L5/S1 were enrolled in this study. Approval was obtained from college of Physicians and Surgeons Pakistan (CPSP) and hospitals ethical committee. Informed consents were obtained which were duly signed by the patients or their guardian. The purpose of the study was explained to the patients. All the patients were clinically examined, and history was noted in predesigned questionnaire. All the enrolled patients were followed by routine investigation. On the next operation day, all the enrolled patients were subjected to disc excision surgery. Postoperatively the patients were kept for 48 hours for observation and then discharged. All the patients were advised to come after 2 weeks for follow up to check effectiveness (the patients were either satisfied, partially satisfied, or not satisfied. Visual Analogue Scale (VAS) was used to measure the severity of pain. Effectiveness of disc excision was shows based on pain severity. All the cases were operated on by different surgeon. A predesign questionnaire was used for the collection of data. By using the SPSS version 23.0, all the

collected data were analyzed. Mean \pm standard deviation was used for quantitative variable i.e., age. Frequency and percentages were presented for the qualitative variable i.e., level involved, type of operation, pain at presentation, pain after two weeks and effectiveness. Effect modifier like age, gender, pain at presentation and effectiveness were stratified.

RESULTS

Out of total 62 patients, 64.5% were male and 35.5% were female with mean age of 34.59 ± 7.49 years.

Table 1: Demographics of Patients (n=62)

Variable	f	%age
Gender		
Male	40	64.5%
Female	22	35.5%
Age Group (Years)		
20 to 30	11	17.7%
31 to 40	43	69.4%
41 to 50	08	12.9%
Total	62	100%
Sign & Symptom		
LBP & Radicular Pain	62	100%
Positive SLR	62	100%
Numbness/Paranesthesia's	37	59.7%
Limping gait	17	27.4%
Claudication	09	14.5%
Abnormal/ decreased reflexes	09	14.5%
Level of Lumbar Disc Herniations		
L4 - L5	33	53.2%
L5 - S1	21	33.9%
L4-L5, L5-S1	08	12.9%

Table 2: Distribution of Patients According to Different Approaches (N=62)

Different Approaches	f	%age
Laminectomy	38	61.3%
Fenestration	15	24.2%
Hemilaminectomy	09	14.5%
Total	62	100%

Table 3: Distribution of Patients According to Type of Herniated Disc on MRI (N=62)

Type of Herniated Disc on MRI	f	%age
Protruded disc	37	59.7%
Extruded disc	15	24.2%
Sequestered disc	10	16.1%
Total	62	100%

Table 4: Distribution of Patients According to Level of Pain (N=62)

Level of Pain	f	%age
No Pain	53	85.5%
Mild Pain	05	8.1%
Moderate Pain	03	4.8%
Total	62	100%

Table 5: Distribution of Patients According to Effectiveness (n=62)

Effectiveness of Disc Excision	f	%age
Satisfied	49	79.0%
Partially Satisfied	09	14.5%
Not Satisfied	04	6.5%
Total	62	100%

DISCUSSION

In this study 64.5% were male and 35.5% were female. According to a study done in Peshawar–Pakistan sixty two patients were recruited out of which 60% were male and 40% were female.¹¹ In another study conducted by Riaz-Ur-Rehman stated that 63% were males and 36% were females showing closer results to ours results.¹² These studies show male predominance. LDH mostly affect quality of life in young and middle age patients.¹³ In our study most of the patients (69.4%) were in age range 31-40 years, 17.7% patients were in age range 41-50 years and 12.9% patients were in age range 20-30 years. this shows that most of the herniated lumbar intervertebral disc patients were in in age range 31-40 years. Similar results regarding age range were observed in a study conducted by Ahmad N et al.¹⁴ In our study 53.2% patients had L4-L5 level of herniated disc followed by 33.9% patients had L5-S1 and 12.9% patients had L4-L5 and L5-S1 level of herniated disc. Similar results regarding level of herniated disc were shown by Mewat Shah et al and Ahmad N et al.¹¹ The interlaminar approach with hemilaminectomy gives suitable space for disc excision at L4-L5 and L5-S1 levels in most of the patients.⁴ Some researcher have described a higher level of success and shorter hospital stay with microdiscectomy.¹⁶ In our study most the effected patients were with Protruded disc followed by Extruded disc and Sequestered disc. Our study is resembling by another study regarding Type of herniated Disc on MRI. In a study conducted described that L4-L5 level to be the most common spinal level, followed by L5-S1 level. In our study, laminectomy was done in 61.3% patients, fenestration was done in 24.2% patients and hemilaminectomy was done in 14.5% of patients depending upon the clinical presentation and MRI findings of the patients. Similar results was also given by Amir et al.^{14,15} The outcome of lumbar discectomy depends more on patient selection than on surgical technique. Surgical discectomy was considered best than conservative care in term of relief for patients with sciatica.⁴ In our study the level of effectiveness

were determined, and it was found out that 79.0% were satisfied followed by 14.5% partially satisfied and only 6.5% patients were not satisfied regarding treatment of herniated lumbar intervertebral disc in terms of pain relief. Preoperatively most of the patients had severe pain with visual analogue scale but postoperatively the results change and gives relief to the patients. In follow up study we found a clear decrease in the intensity of pain. In our study 85.5% patients had no pain, 8.1% had mild pain and 4.8% had moderate pain. In our study no one had severe pain. That means that disc excision in the treatment of herniated lumbar intervertebral disc is effective as compared to conservative care in term of pain. Like our study same results were found by Marinella Gugliotta et al. in his study.¹⁷ Our study was also resemble by study conducted at Hayatabad medical complex Peshawar by Mewat Shah et al.¹¹ Surgical therapy may have provided faster relief than conservative care in term of pain.

LIMITATION

This study was lacking the other factors that contributing to the exacerbation and relief in the pain. Therefore, there should be comparative and interventional studies to figure out the role and effectiveness of them as well.

CONCLUSION

As compared to conservative care the limited disc excision is a safe, effective, and reliable in term of pain for treating patients of sciatica due to prolapsed intervertebral disc at L4-L5 and L5-S1 level. Disc excision provide immediate and long-lasting relief. It was also concluded that surgical therapy may have provided faster relief than conservative.

REFERENCES

1. Al Qaraghi MI, De Jesus O. Lumbar Disc Herniation. StatPearls [Internet]: StatPearls Publishing; 2021.
2. Palada V, Ahmed AS, Finn A, Berg S, Svensson CI, Kosek E. Characterization of neuroinflammation and periphery-to-CNS inflammatory cross-talk in patients with disc herniation and degenerative disc disease. *Brain, behavior, and immunity*. 2019;75:60-71.
3. Kruse RA, White BA, Gudavalli S. Management of Lumbar Radiculopathy

- Associated With an Extruded L4-L5 Spondylolytic Spondylolisthesis Using Flexion-Distractio Manipulation: A Case Study. *Journal of Chiropractic Medicine*. 2019;18(4):311-6.
4. Amir S, Qadir M, Usman M. Effectiveness of Disc Excision in the Treatment of Herniated Lumbar Intervertebral Disc. *Journal of Gandhara Medical and Dental Science*. 2017;3(2):37-42.
 5. Dydyk AM, Mesfin F. Disc herniation. 2017.
 6. Choi W-S, Kim J-S, Ryu K-S, Hur J-W, Seong J-H. Minimally invasive transforaminal lumbar interbody fusion at L5-S1 through a unilateral approach: technical feasibility and outcomes. *BioMed Research International*. 2016;2016.
 7. Ganesan S, Acharya AS, Chauhan R, Acharya S. Prevalence and risk factors for low back pain in 1,355 young adults: a cross-sectional study. *Asian spine journal*. 2017;11(4):610.
 8. Kerr D, Zhao W, Lurie JD. What are long-term predictors of outcomes for lumbar disc herniation? A randomized and observational study. *Clinical Orthopaedics and Related Research®*. 2015;473(6):1920-30.
 9. Takahashi H, Aoki Y, Inoue M, Saito J, Nakajima A, Sonobe M, et al. Characteristics of relief and residual low back pain after discectomy in patients with lumbar disc herniation: analysis using a detailed visual analog scale. *BMC Musculoskeletal Disorders*. 2021;22(1):1-9.
 10. Bae HW, Rajae SS, Kanim LE. Nationwide trends in the surgical management of lumbar spinal stenosis. *Spine*. 2013;38(11):916-26.
 11. Shah M, Khan MM, Safi T, Aman A, Ahmad A, Shah MA, et al. Effectiveness of disc excision in the treatment of herniated lumbar intervertebral disc. *Journal of Medical Sciences*. 2015;23(3):153-7.
 12. AYOOB S, RIZWAN M, Shah M, Khan I. The Effectiveness of Surgery for the Symptomatic Prolapsed Lumbar Intervertebral Disc. *Pakistan Journal of Neurological Surgery*. 2014;18(1):78-90.
 13. Hareni N, Strömqvist F, Strömqvist B, Rosengren BE, Karlsson MK. Predictors of satisfaction after lumbar disc herniation surgery in elderly. *BMC musculoskeletal disorders*. 2019;20(1):1-6.
 14. A Amir S, Qadir M, Usman M. Effectiveness of Disc Excision in the Treatment of Herniated Lumbar Intervertebral Disc. *Journal of Gandhara Medical and Dental Science*. 2017 Mar 1;3(2):37-42.
 15. Kanaan T, Abusaleh R, Abuasbeh J, Al Jammal M, Al-Haded S, Al-Rafaiah S, Kanaan A, Alnaimat F, Khreesha L, Al Hadidi F, Al-Sabbagh Q. The efficacy of therapeutic selective nerve block in treating lumbar radiculopathy and avoiding surgery. *Journal of Pain Research*. 2020;13:2971.
 16. Rushton A, Zoulas K, Powell A, Staal JB. Physical prognostic factors predicting outcome following lumbar discectomy surgery: systematic review and narrative synthesis. *BMC Musculoskeletal Disorders*. 2018;19(1):1-17.
 17. Gugliotta M, da Costa BR, Dabis E, Theiler R, Jüni P, Reichenbach S, et al. Surgical versus conservative treatment for lumbar disc herniation: a prospective cohort study. *BMJ open*. 2016;6(12):e012938.
 18. Chen BL, Guo JB, Zhang HW, Zhang YJ, Zhu Y, Zhang J, Hu HY, Zheng YL, Wang XQ. Surgical versus non-operative treatment for lumbar disc herniation: a systematic review and meta-analysis. *Clinical Rehabilitation*. 2018 Feb;32(2):146-60.

CONTRIBUTORS	
1.	Mansoor Ali - Concept & Design; Data Acquisition
2.	Naseer Hassan - Critical Revision; Supervision
3.	Mehran Ali - Critical Revision
4.	Raza Hassan - Data Analysis/Interpretation; Drafting Manuscript
5.	Shah Nawaz - Data Analysis/Interpretation; Drafting Manuscript



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