

Original Research Article

Functional Outcome of Prolapsed Intervertebral Disc Disease at Lumbosacral Spine in Patient Treated with Laminectomy Discectomy with Pedicle Screw Fixation Verses without Pedicle Screw Fixation: A Prospective Comparative Study

Dr Pulkit Khator^{1*}, Dr Ankit Verma², Dr Puneet Maheshwari³¹PG Resident, Department of Orthopaedics, Amaltas Institute of Medical Science, Dewas, Madhya Pradesh, India²Professor and HOD, Department of Orthopaedics, Amaltas Institute of Medical Science, Dewas, Madhya Pradesh, India³Professor, Department of Orthopaedics, Amaltas Institute of Medical Science, Dewas, Madhya Pradesh, India

Article History

Received: 16.07.2025

Accepted: 13.09.2025

Published: 16.09.2025

Journal homepage:

<https://www.easpublisher.com>

Quick Response Code



Abstract: Background: Laminectomy and discectomy are established surgical treatments for Prolapsed intervertebral disc (PIVD), aiming to decompress neural structures. However, routine addition of pedicle screw fixation in the absence of overt spinal instability remains a subject of ongoing debate. This study aimed to evaluate and compare functional outcomes in patients presenting with PIVD treated by laminectomy and discectomy without or with concomitant pedicle screw fixation. **Materials and Methods:** This comparative study was conducted in the Department of Orthopaedics, for a period of 18 months, which included 96 patients divided into two treatment groups of laminectomy and discectomy: (a) Without pedicle screw fixation, and (b) With pedicle screw fixation. Patients were followed up at 1, 3, and 6 months for post-operative functional outcome of patients, as assessed by the VAS scores for low back pain and leg pain, Oswestry Low Back Pain Disability Questionnaire, JOA scores, Roland-Morris Low Back Pain and Disability Questionnaire, and muscle power grading. **Results:** There was statistically significant improvement in the NPRS scores from baseline to 6-month follow-up period in both the study groups ($p < 0.001$). Additionally, there was improvement in other outcome parameters in both study groups from pre-operative to 6-month follow-up, but the difference was not statistically significant ($p > 0.05$). **Conclusion:** The study concluded that routine application of pedicle screw fixation may not be essential for this specific patient demographic, potentially enabling a less invasive surgical approach.

Keywords: Discectomy, Functional Outcomes, Laminectomy, Postoperative Recovery, Spine Surgery.

Copyright © 2025 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Prolapsed intervertebral disc (PIVD), also referred as disc protrusion, is when nucleus pulposus, pushes through tears or weak spots in annulus fibrosus [1]. This growth can press on or encroach on nerve roots in spinal canal, causing pain and other neural symptoms [2]. Low back pain (localized or widespread), and radicular pain (sciatica), which goes down leg along the path of injured nerve, are two common signs of PIVD. Numbness, tingling, muscle weakness, and changes in responses are some of the other neural symptoms that can occur [1-3]. In some cases, PIVD resolves on its own or with simple treatments like physical therapy and medicine, but some cases may get worse over time,

causing ongoing pain and disability [4]. The goal of conservative treatment is to lower pain and inflammation, make body work better, and speed up the mending process. However, it may not be effective in all cases, particularly those with significant nerve root compression or progressive neurological deficits. Early attempts at surgical management involved laminectomy alone [5, 6]. However, it was later recognized that direct removal of herniated disc material (discectomy) was necessary to effectively decompress affected nerve root. This led to development of combined laminectomy and discectomy procedures [7], which is currently the gold standard surgical procedure for PIVD [8]. This involves performing a limited laminectomy to access the disc and

*Corresponding Author: Dr. Pulkit Khator

PG Resident, Department of Orthopaedics, Amaltas Institute of Medical Science, Dewas, Madhya Pradesh, India

then carefully excising the protruding disc fragment. By decompressing nerve root, surgery aims to alleviate radicular pain, improve neurological function, and reduce low back pain. In some cases, surgeons may choose to supplement laminectomy and discectomy with pedicle screw fixation. The role of pedicle screw fixation in conjunction with laminectomy- discectomy for PIVD remains a subject of ongoing debate within surgical community. While some surgeons advocate for its routine use, citing potential benefits in spinal stability and fusion rates, others question its necessity, particularly in cases where fusion is not primary goal [9, 10]. This divergence in practice highlights the need for more robust comparative studies to definitively establish the true benefits, if any, of adding pedicle screw fixation to standard laminectomy-discectomy procedure. This study aimed to address this gap in knowledge by prospectively comparing the functional outcomes of laminectomy-discectomy with and without pedicle screw fixation in patients with PIVD.

MATERIALS AND METHODS

This prospective comparative study was conducted in the Department of Orthopaedics, for a period of 18 months after obtaining approval from institutional ethical committee. Study included 96 adult patients, aged ≥ 19 years diagnosed with PIVD at any two lumbar levels, with symptoms of typical lower back pain and/or leg pain, with no signs of improvement after minimum six weeks of conservative management. However, adult patients with more than two or less than two lumbar levels involvement, those with presence of congenital spinal deformity, medically unfit, patients with high impact injury, moderate to severe lumbar instability, and those complicated with spinal tumors,

tuberculosis, infection, and other diseases were excluded from the study. Study patients were distributed into two study groups based on the type of treatment: (a) Laminectomy decompression and discectomy without Pedicle Screw; and (b) Laminectomy decompression and discectomy with Pedicle Screw. Socio-demographic data, clinical and radiological presentation, and mode of treatment were recorded in a pre-designed proforma. The primary outcome measure included were functional outcome of patients, as assessed by the VAS scores for low back pain and leg pain, Oswestry Low Back Pain Disability Questionnaire, JOA scores, Roland-Morris Low Back Pain and Disability Questionnaire, and muscle power grading. All these parameters were measured at 1, 3, and 6 month follow-up period. The secondary outcome measures were the radiological findings and the incidence of complications. Data thus collected was subjected to statistical analysis and results were drawn.

Statistical Analysis

The data was then analyzed using SPSS software (version 20.0, IBM Corp., Armonk, NY). The unpaired t-test was used to compare continuous variables between the two groups. Categorical variables were compared using the chi-square test. A p-value of less than 0.05 was considered statistically significant.

RESULTS

The mean age of patients in Laminectomy decompression and discectomy without Pedicle Screw group was 41.13 ± 10.38 years and in that with Laminectomy decompression and discectomy with Pedicle Screw was 50.54 ± 9.46 years. Most of the patients were in the age group of 41-50 years, followed by 51-60 years. Majority of patients were male (Table 1).

Table 1: Distribution of patients according to the age group and type of surgery underwent

Parameters		Study groups		Total	Chi square value, p value
		Laminectomy decompression and discectomy without Pedicle Screw	Laminectomy decompression and discectomy with Pedicle Screw		
		N (%)	N (%)		
Age group (years)	≤30	6 (75.0)	2 (25.0)	8 (100.0)	21.632, <0.001
	31-40	16 (88.9)	2 (11.1)	18 (100.0)	
	41-50	17 (48.6)	18 (51.4)	35 (100.0)	
	51-60	8 (28.6)	20 (71.4)	28 (100.0)	
	≥61	1 (14.3)	6 (85.7)	7 (100.0)	
	Total	48 (50.0)	48 (50.0)	96 (100.0)	
Mean age (years)		41.13±10.38	50.54±9.46		
Gender	Male	36 (56.3)	28 (43.8)	64 (100.0)	3.000
	Female	12 (37.5)	20 (62.5)	32 (100.0)	0.083

The pre-operative comparison of outcomes between study groups is presented in Table 2, which

showed no significant difference between study groups ($p > 0.05$).

Table 2: Pre-operative Comparison of Outcome Measures Between Procedure Groups

Outcome Measure	Laminectomy decompression and discectomy	Mean	SD	t	p
Numeric Pain Rating Scale	Without Pedicle Screw	6.6	0.893	0.439	0.662
	With Pedicle Screw	6.52	0.967		
JOA Score for low back pain	Without Pedicle Screw	9.27	2.377	0.554	0.581
	With Pedicle Screw	9.00	2.414		
MPG - Hip Flexion	Without Pedicle Screw	2.96	0.355	0.00	1.00
	With Pedicle Screw	2.96	0.41		
MPG – Knee Extension	Without Pedicle Screw	3.6	0.818	0.125	0.901
	With Pedicle Screw	3.58	0.821		
MPG -Dorsiflexion	Without Pedicle Screw	4.31	1.114	0.789	0.432
	With Pedicle Screw	4.13	1.214		
MPG - EHL	Without Pedicle Screw	4.23	1.242	0.558	0.578
	With Pedicle Screw	4.08	1.318		
MPG – Plantar Flexion	Without Pedicle Screw	4.31	1.114	0.789	0.432
	With Pedicle Screw	4.13	1.214		
Roland-Morris Low Back Pain and Disability Questionnaire score	Without Pedicle Screw	16.65	2.026	1.567	0.12
	With Pedicle Screw	16.00	2.011		
Oswestry Low Back Pain Disability Questionnaire score	Without Pedicle Screw	56.33	9.302	0.244	0.808
	With Pedicle Screw	55.88	9.136		

On comparing the outcomes between study groups at 1, 3, and 6 months, we observed that there was no statistically significant difference between the study

groups with respect to outcome measures at all time intervals (Table 3-5).

Table 3: Comparison of Outcome Measures between Study Groups at 1-Month Follow-Up

Outcome Measure	Laminectomy decompression and discectomy	Mean	SD	t	p
Numeric Pain Rating Scale	Without Pedicle Screw	1.27	0.869	0.125	0.901
	With Pedicle Screw	1.25	0.758		
JOA Score for low back pain	Without Pedicle Screw	20.69	2.125	-0.262	0.794
	With Pedicle Screw	20.81	2.532		
MPG - Hip Flexion	Without Pedicle Screw	4	0.583	-0.423	0.673
	With Pedicle Screw	4.04	0.355		
MPG - Knee Extension	Without Pedicle Screw	3.94	0.522	0.2	0.842
	With Pedicle Screw	3.92	0.498		
MPG - Dorsiflexion	Without Pedicle Screw	4.81	0.394	1.398	0.165
	With Pedicle Screw	4.63	0.841		
MPG - EHL	Without Pedicle Screw	4.77	0.515	1.094	0.277
	With Pedicle Screw	4.65	0.601		
MPG - Plantar Flexion	Without Pedicle Screw	4.81	0.394	1.128	0.262
	With Pedicle Screw	4.71	0.504		
Roland-Morris Low Back Pain and Disability Questionnaire score	Without Pedicle Screw	9.48	2.432	0.33	0.742
	With Pedicle Screw	9.31	2.519		
Oswestry Low Back Pain Disability Questionnaire score	Without Pedicle Screw	25.71	7.957	-0.53	0.598
	With Pedicle Screw	26.54	7.446		

Table 4: Comparison of Outcome Measures between Procedure Groups at 3-Month Follow-Up

Outcome Measure	Laminectomy decompression and discectomy	Mean	SD	t	p
Numeric Pain Rating Scale	Without Pedicle Screw	0.69	0.689	0.155	0.877
	With Pedicle Screw	0.67	0.63		
JOA Score for low back pain	Without Pedicle Screw	22.33	1.906	0.959	0.34
	With Pedicle Screw	22.75	2.329		
MPG - Hip Flexion	Without Pedicle Screw	4.31	0.689	0.172	0.864
	With Pedicle Screw	4.33	0.476		
MPG - Knee Extension	Without Pedicle Screw	4.48	0.652	0.157	0.876

Outcome Measure	Laminectomy decompression and discectomy	Mean	SD	t	p
MPG - Dorsiflexion	With Pedicle Screw	4.46	0.651	1.124	0.264
	Without Pedicle Screw	4.81	0.394		
MPG - EHL	With Pedicle Screw	4.67	0.808	0.765	0.446
	Without Pedicle Screw	4.77	0.515		
MPG - Plantar Flexion	With Pedicle Screw	4.69	0.552	0.735	0.464
	Without Pedicle Screw	4.81	0.394		
Roland-Morris Low Back Pain and Disability Questionnaire score	Without Pedicle Screw	6.92	2.395	1.042	0.3
	With Pedicle Screw	6.42	2.305		
Oswestry Low Back Pain Disability Questionnaire score	Without Pedicle Screw	15	4.776	0	1
	With Pedicle Screw	15	4.105		

Table 5: Comparison of Outcome Measures between Procedure Groups at 6-Month Follow-Up

Outcome Measure	Laminectomy decompression and discectomy	Mean	SD	t	p
Numeric Pain Rating Scale	Without Pedicle Screw	0.31	0.589	0.18	0.858
	With Pedicle Screw	0.29	0.544		
JOA Score for low back pain	Without Pedicle Screw	23	1.879	1.013	0.314
	With Pedicle Screw	23.42	2.142		
MPG - Hip Flexion	Without Pedicle Screw	4.35	0.699	0.169	0.866
	With Pedicle Screw	4.38	0.489		
MPG - Knee Extension	Without Pedicle Screw	4.6	0.494	0.208	0.836
	With Pedicle Screw	4.63	0.489		
MPG - Dorsiflexion	Without Pedicle Screw	4.9	0.309	1.034	0.304
	With Pedicle Screw	4.77	0.778		
MPG - EHL	Without Pedicle Screw	4.83	0.476	0.814	0.418
	With Pedicle Screw	4.75	0.526		
MPG - Plantar Flexion	Without Pedicle Screw	4.9	0.309	0.612	0.542
	With Pedicle Screw	4.85	0.357		
Roland-Morris Low Back Pain and Disability Questionnaire score	Without Pedicle Screw	6	2.288	0.982	0.329
	With Pedicle Screw	5.56	2.072		
Oswestry Low Back Pain Disability Questionnaire score	Without Pedicle Screw	12.33	5.109	0.044	0.965
	With Pedicle Screw	12.29	4.187		

There was statistically significant improvement in the NPRS scores from baseline to 6-month follow-up period in both the study groups ($p < 0.001$). (Table 6) We also observed that there was improvement in other

outcome parameters in both study groups from pre-operative to 6-month follow-up, but the difference was not statistically significant ($p > 0.05$).

Table 6: Change in NPRS Scores from Pre-Op to Follow-Up Time Points

Comparison	Mean Difference (Pre-Op - Follow- Up)	SD	95% CI of Difference	t	p
Laminectomy decompression and discectomy without Pedicle Screw					
Pre-Op to 1 Month	5.33	1.06	[5.03, 5.64]	34.906	<0.001
Pre-Op to 3 Month	5.92	1.07	[5.61, 6.23]	38.361	<0.001
Pre-Op to 6 Month	6.29	1.11	[5.97, 6.61]	39.268	<0.001
Laminectomy decompression and discectomy with Pedicle Screw					
Pre-Op to 1 Month	5.27	1.03	[4.97, 5.57]	35.591	<0.001
Pre-Op to 3 Month	5.85	1.13	[5.53, 6.18]	35.903	<0.001
Pre-Op to 6 Month	6.23	1.12	[5.91, 6.55]	38.69	<0.001

DISCUSSION

Prolapsed intervertebral disc (PIVD) at the lumbosacral spine represents a substantial global health issue, contributing significantly to low back pain and disability worldwide, with a considerable prevalence also documented within the Indian population. While

laminectomy and discectomy are established surgical treatments for PIVD aiming to decompress neural structures, the routine addition of pedicle screw fixation in the absence of overt spinal instability remains a subject of ongoing debate within the surgical community. This lack of consensus regarding the

incremental benefit of instrumentation in such cases underscores the necessity for comparative clinical evidence. The primary objective of this study was therefore to evaluate and compare functional outcomes in patients presenting with prolapsed intervertebral disc disease at two lumbosacral spine levels, treated either by laminectomy and discectomy with concomitant pedicle screw fixation or by laminectomy and discectomy without such internal fixation.

An important initial observation in our study was statistically significant difference in mean age between the two surgical cohorts, with patients undergoing laminectomy and discectomy with pedicle screw fixation being older (50.54 years) compared to those undergoing the procedure without fixation (41.13 years) ($p < 0.001$). (Table 1) While this demographic disparity is noted, it is pertinent that despite this age difference, the groups were comparable concerning all pre-operative functional scores. Specifically, there were no statistically significant differences at baseline in the NPRS, Oswestry Disability Index, Roland-Morris Disability Questionnaire, Japanese Orthopaedic Association scores, or Muscle Power Grading ($p > 0.05$). (Table 2-5).

We observed that there was statistically significant improvement in both the study groups across all measured patient-reported outcomes and motor power grades when compared to respective pre-operative values. This finding of substantial clinical benefit following surgical intervention for PIVD aligns with observations from the broader literature [11, 12].

In our study, substantial reduction in pain, as measured by NPRS, did not significantly differ between the two study groups at any post-operative follow-up intervals, (Table 2-5) which is in accordance with previous study by Soliman and Elfadle [13]. The mean change in NPRS scores from pre-operative values was comparable between the groups throughout the follow-up period ($p = 0.784$). The mean post-operative NPRS of approximately 0.3 at 6 months in both groups of the present study is also notably similar to the mean postoperative VAS of 0.3 reported by Nayak *et al.*, [11], in patients who received posterolateral fusion with instrumentation for lumbar spondylolisthesis, indicating effective pain control through surgical intervention. Consistent with findings for pain relief, we did not identify any statistically significant difference in functional disability, as assessed by the Oswestry Disability Index (ODI) and the Roland-Morris Disability Questionnaire (RMDQ), between the two study groups at any follow-up interval. These findings are in accordance with previous literature [13-16].

The evaluation of neurological improvement, utilizing Japanese Orthopaedic Association (JOA) scores and Muscle Power Grading (MPG), revealed no statistically significant differences between the two

surgical cohorts at any post-operative assessment point. (Table 2-5) Both groups demonstrated an increase from a mean preoperative JOA score of approximately 9 to around 23 at 6 months. Similarly, while improvements in MPG were noted for hip flexion, knee extension, dorsiflexion, extensor hallucis longus, and plantar flexion, these changes were modest and did not differ significantly between the groups. It is pertinent to note that baseline MPG scores for several muscle groups were relatively high, thereby limiting the potential magnitude of observable change.

The existing literature provides varied perspectives on the role of fixation in neurological recovery. For instance, Li *et al.*, [17], in their study on elderly patients with degenerative lumbar spinal stenosis undergoing total laminectomy with pedicle screw fixation, reported significant increases in JOA scores at 3 months post-surgery. The current study similarly documents substantial JOA score improvements in both its cohorts; however, the crucial distinction is the absence of a superior outcome attributable to the addition of pedicle screws. The findings from the present study suggest that for two-level PIVD without overt instability, neural decompression achieved via laminectomy and discectomy provides a comparable degree of neurological recovery regardless of concomitant pedicle screw fixation, at least within the 6-month follow-up period. There are few limitations of this study including single center study, restrictive inclusion criteria including two-level PIVD without moderate/severe instability, limited follow-up duration of 6 months, smaller sample size, and baseline age discrepancy.

CONCLUSION

This study demonstrated that in patients with symptomatic, two-level lumbosacral PIVD without overt pre-operative instability, addition of pedicle screw fixation to laminectomy and discectomy did not confer any statistically significant superiority in functional outcomes (pain relief, disability reduction, and neurological status) when compared to laminectomy and discectomy performed alone, up to six months post-operatively. Both surgical techniques proved highly effective in yielding substantial clinical improvements from baseline. Consequently, these findings suggest that the routine application of pedicle screw fixation may not be essential for this specific patient demographic, potentially enabling a less invasive surgical approach without compromising short-to-midterm clinical success and underscoring the importance of meticulous patient selection when considering supplemental instrumentation.

REFERENCES

1. Japanese orthopaedic association back pain evaluation questionnaire (JOABPEQ) as an outcome measure for patients with low back pain:

- reference values in healthy volunteers
<https://www.sciencedirect.com/science/article/pii/S0949265815301214>
2. According to study by Usker Naqvi; Univ. of Miami/Jackson Health System and Andrew I. Sherman. Univ. of Miami Miller School of Med Muscle Strength Grading-
<https://www.ncbi.nlm.nih.gov/books/NBK436008/>
3. Stratford PW, Binkley J, Solomon P, Finch E, Gill C, Moreland J. Defining the minimum level of detectable change for the Roland-Morris questionnaire. *Phys Ther*. 1996 Apr;76(4):359-65; discussion 66-8.
<https://www.physiocarephysiotherapy.com/media/file/363315/RMQ%20Back%20Questionnaire.pdf>
4. Fairbank JCT, Pynsent, PB. The Oswestry Disability Index. *Spine*, 2000; 25(22):2940-53.
5. Saini R, Sharma A, Agrawal K, Patel U, Dholakia A, Shah D. Comparative evaluation of functional outcome of discectomy and posterior lumbar interbody fusion for treatment of prolapse intervertebral disc. *International Journal of Orthopaedics Sciences* 2021;7(2):14-9.
6. Wang X, Liu H, Wang W, Sun Y, Zhang F, Guo L, Li J, Zhang W. Comparison of Posterior Pedicle Screw Fixation and Lateral Fixation in the Extreme Lateral Interbody Fusion in Lumbar Degenerative Disease Patients with Osteopenia or Osteoporosis. *Orthop Surg*. 2022;14(12):3283-3292. doi: 10.1111/os.13540.
7. Fardon DF, Williams AL, Dohring EJ, Murtagh FR, Gabriel Rothman SL and Sze GK. Lumbar disc nomenclature: version 2.0: recommendations of the combined task forces of the north American spine society, the American society of spine radiology and the American society of neuroradiology. *Spine J* 2014; 14: 2525-45.
8. Dydyk AM, Ngnitewe Massa R, Mesfin FB. Disc Herniation. [Updated 2023 Jan 16]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK441822/>
9. Li H, Wang Z, Zhao J, Wu S, Sun H, Hu L, Feng X, Wang Y. Effects of unilateral and bilateral pedicle screw fixation on symptoms and quality of life of patients with lumbar degenerative diseases. *Am J Transl Res*. 2021;13(5):5216-5223.
10. Ansari F. A prospective study of functional outcome of lumbar prolapsed intervertebral disc managed with surgical decompression. *MedPulse International Journal of Orthopedics*. 2020;15:17-21. 10.26611/1031531.
11. Nayak MT, Sannegowda RB. Clinical and Radiological Outcome in Cases of Posterolateral Fusion with Instrumentation for Lumbar Spondylolisthesis. *J Clin Diagn Res*. 2015;9(6):PC17-21. doi: 10.7860/JCDR/2015/11530.6077.
12. Kale A, Oz II, Onk A, Kalaycı M, Büyükuysal Ç. Unilaterally posterior lumbar interbody fusion with double expandable peek cages without pedicle screw support for lumbar disc herniation. *Neurol Neurochir Pol*. 2017;51(1):53-59. doi: 10.1016/j.pjnns.2016.11.001.
13. Soliman AY, Elfadle AA. Surgical outcomes of decompression alone versus transpedicular screw fixation for upper lumbar disc herniation. *Egypt J Neurosurg* 2021;36:12.
<https://doi.org/10.1186/s41984-021-00104-2>
14. Austevoll IM, Hermansen E, Fagerland MW, Storheim K, Brox JI, Solberg T, et al. Decompression with or without Fusion in Degenerative Lumbar Spondylolisthesis. *N Engl J Med*. 2021;385(6):526-38. doi: 10.1056/NEJMoa2100990.
15. Ghogawala Z, Dziura J, Butler WE, Dai F, Terrin N, Magge SN, et al. Laminectomy plus Fusion versus Laminectomy Alone for Lumbar Spondylolisthesis. *N Engl J Med*. 2016;374(15):1424-34. doi: 10.1056/NEJMoa1508788.
16. Wu CH, Kao YH, Yang SC, Fu TS, Lai PL, Chen WJ. Supplementary pedicle screw fixation in spinal fusion for degenerative spondylolisthesis in patients aged 65 and over: outcome after a minimum of 2 years follow-up in 82 patients. *Acta Orthop*. 2008;79(1):67-73. doi: 10.1080/17453670710014789.
17. Li Chun-liang, Guo Q, Qin F, Yan Wen-qi, Zhu Hai-yong, Wang K. Total laminectomy combined with lumbar pedicle screw fixation for treatment of lower back and leg pain in older adult patients with degenerative lumbar spinal stenosis: study protocol for a self-control trial and preliminary results. *Asia Pacific Journal of Clinical Trials: Nervous System Diseases*. 2018;3. 10.4103/2542-3932.226193.

Citation: Pulkit Khator, Ankit Verma, Puneet Maheshwari (2025). Functional Outcome of Prolapsed Intervertebral Disc Disease at Lumbosacral Spine in Patient Treated with Laminectomy Discectomy with Pedicle Screw Fixation Verses without Pedicle Screw Fixation: A Prospective Comparative Study. *EAS J Orthop Physiother*, 7(5): 128-133.