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Long Term Functional Outcome of Patients that Underwent Laminectomy, in Pakistani Population

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Abstract

Objective: To measure long term functional outcome of patients that underwent laminectomy in Pakistani population.

Introduction: Back pain is one of the most commonly presented health issue and reason of declined quality of life of patients, especially after surgical interventions. The main aim is to have long term follow up, to able to appreciate the functional outcome. The tool used is Oswestry Disability Index (ODI) in our study.

Materials and Methods: Patients that underwent laminectomy from 2010 to 2019, they were divided in to two groups, group A had 2010 to 2014 and group B had 2015 to 2019. They were called and asked questions from ODI Questionnaire.

Results: Out of total 565 patients in group A 103; and out of 273 from group B 51 patients answered the phone. 49% patient had ODI between 0-20 in group A and 65% in group B. There were no patients with bed bound disability, but crippled back pain was present in 2% in group A and 4% in group B patients. The mean ODI in group A is 23 and in Group B is 18.

Discussion: Oswestry scoring is considered more standardized and reliable. Normal ODI on average is around 10. For the patients the end outcome is decrease in pain so it does not limit daily activities, so can go back to the premorbid state. Reported surgery functional varies hugely from 49-90%. Several factors like age < 41-year-old; male-sex; duration of sciatica < 7 months; no previous lumbar surgery, less duration of presentation before surgery are good indicators of successful surgery.

Conclusion: Long term follow up is crucial to help to understand the effectiveness of surgery. Moreover, further studies are required to identify the causative factors of poor.

Keywords: Decompression-only laminectomy; Lumbar vertebrae; Decompression; Spinal fusion; Functional status

Introduction

Back pain is considered one of the most commonly presented health issue for which physicians are consulted, and it has significant effect in declining quality of life of patients and affecting most of the part of their lives [1,2]. It could be due to multiple reasons including degenerative disc disease, spinal stenosis, spondylolisthesis. It is tried to treat the above-mentioned conditions without operation, but invasive procedures might be necessary considering that non-operative options did not help or that the symptoms have been worsened especially neurologically [3]. After such interventions, long term of follow up of patients is not possible, until they have recurring symptoms or other treatment they tried after recurrence have failed to relieve the symptoms. Hence, patients' perception can vary directly of how illness and treatment intervention affects their daily lives, and how it differs from the perception of their practitioners [4]. There are many tools to assess the pain and one of the way to assess is through Oswestry Disability Index (ODI), which is considered one of the ideal instrument [5]. One of the way pains is relieved is through posterior decompression that is laminectomy. It is considered as an effective intervention [6]. This practice has also increased tremendously in past 2 decades. We set out to evaluate, using validated patient-assessed outcome measure ODI, the long term outcome of patients that underwent laminectomy.

Materials and Methods

Approval for the present study was obtained by the Institutional Review Board of the Shifa International hospital, Pakistan in December 2010 and the study conducted in January and February 2021. List of the patients that underwent lumbar decompression laminectomy from 2010 to 2019 were retrieved, in this observational retrospective study. Participants were divided into groups. Group A has from 2015 to 2019 and group B had from 2010 to 2014. They were approached through telephone. Verbal informed consent for participating voluntarily in the study. They were asked questions about back pain and their quality of life from Oswestry Low Back Pain Questionnaire. The ODI version 2.0 is rated from 0 (best functional outcome) to 100 (worst functional outcome). The questionnaire contains ten topics concerning intensity of pain, lifting, ability to care for oneself, ability to walk, ability to sit, sexual function, ability to stand, social life, sleep quality, and ability to travel. Each topic category is followed by 6 statements scored on a scale of 0–5 with the first statement being zero and indicating the least amount of disability and the last statement is scored 5 indicating most severe disability. The scores for all questions answered are summed, then multiplied by two to obtain the index (range 0 to 100) [7]. ODI index scale is as followed: 0% –20% for minimal disability, 21%–40%: moderate disability. 41%–60%: severe disability, 61%–80%: crippling back pain and 81%–100% involve patients are either bed-bound or have an exaggeration of their symptoms. Statistical analysis was performed with statistical software SPSS (version 21) and data were evaluated.

Results

Patients from both groups were approached through telephone. Out of 273 from group A 51; and out of total 565 patients in group B 103 answered the phone and all gave consent for the study. Among them, 22 (43%) were females and 29 (57%) were males in group A. From group B, 40 (39%) were females and 63 (61%) were males. Participants ranged in age from 20 to 78 years (on average 54 years) of both groups. Table 1 shows 49% patient had ODI between 0-20 in group A, and 65% in group B. There were no patients with bed bound disability, but crippled back pain was present in 2% in group A and 4% in group B patients (Table 2). The mean ODI in group A is 23 and in Group B is 18. Old group of patients between 2010 to 2014, reported that 47% patients are still on pain medications and 10% patients underwent redo surgery, while patients in other group, 69% are on pain medications and 12.5% had redo surgery yet. (Tables 3 & 4) shows that no problem reported around 50% of patients in both groups but decrease in sensation and weakness is still persisting in some number of patients in both. Moreover, when correlation was checked, pain is statistically significant in both groups; group A (coefficient for ODI: 0.435 [P = 0.001]) and group B, score was (coefficient 0.780 [P < 0.001]).

Table 1: shows Oswestry Disability Index percentage scores.

ODI	Group A n (%)	Group B n (%)
0-20	25 (49)	67 (65)
21-40	17 (33)	23 (23)
41-60	8 (16)	9 (9)
61-80	1 (2)	4 (4)
81-100	0 (0)	0 (0)

Table 2: shows the number and percentage of patients that are still taking pain medications.

	Group A n (%)	Group B n (%)
Yes	24 (47)	72 (69)
No	27 (53)	30 (29)
Total	51 (100)	102 (99)

Table 3: shows the number and percentage of patients that had redo spine surgery.

	Group A n (%)	Group B n (%)
No	46 (90)	75 (73)
Yes	5 (10)	13 (12.5)
Total	51 (100)	88 (85.5)

Table 4: shows symptoms percentage of patients that still has symptoms.

	Group A n (%)	Group B n (%)
Decrease in sensation	3 (6)	3 (3)
Weakness	8 (16)	12 (12)
Other	7 (14)	7 (6)
None	27 (53)	45 (44)

Discussion

There are many tools available to assess functional outcome after spinal surgery including Oswestry Disability Index (ODI), the physical component summary (PCS) of the Short Form of the Medical Outcomes Study (SF-36), Roland & Morris Disability Questionnaire and Visual Analogue Scale (VAS) [8,9]. Oswestry scoring is considered more standardized and reliable [10]. The score reported for a normal population where the ODI has been reported at an average of around 10 [11]. Higher scores have been reported in various conditions of the spine with chronic back pain and metastasis presenting the highest degree of disability with an average score around 50 [11]. Most of the studies in the literature have used ODI scale.

For the patients the ultimate outcome is based on functional outcome because that decides the satisfaction of the patient. In spine disc diseases, pain is the predominant factor that limits the quality of life and daily activities of the patients. The main goal of management is to be able to go back to premorbid state. However,

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the surgery outcome varies hugely from 49-90% in different studies, which can be due to huge number of factors [12].

Several factors like age < 41-year-old; male-sex; duration of sciatica < 7 months; no previous lumbar surgery, less duration of presentation before surgery are good indicators of successful surgery [13]. One of the main reasons of surgery is to be able to return to work without any hassle. Numerous authors have reported that 66.67% to 90% cases have returned to their original vocation without any limitations by 6 months [14-20]. Whereas multiple authors [14-18] have stated that 64% to 92% cases had complete relief of pain, while our study observed 48% with no issues. One study included Swedish Spine Registry, published by Försth et al. included 5390 patients with lumbar stenosis and study showed a statistically significant improvement of spine surgery with functional outcome [21]. Although, there is not much evidence on long term functional effect after spinal surgery on average mainly 2 years but there are few studies have been published [22,23]. Our study also involves patients that had surgery done between 2010 and 2019 and long term ODI has been reported. The average ODI in our study is 20, compare to Imada et. al had ODI of average 31.84 with mean follow up of 20 months (range 12 to 40 months), which is lower than many studies that are reported [24]. Another study showed detailed review of ODI postoperatively, after 1 year to up to 4 years. The average was 36.3 that after 1 year had difference of 22.2 and after 4 years 14.7.

Conclusion

The ODI is a reliable indicator to assess the outcome of patients with spinal surgery, however, long term follow up is crucial to help to understand the management of the patients. Further studies are required to help to understand the patients with poor functional outcome and identify the causative factors.

References

1. Winn HR, Youmans JR (2004) Youmans neurological surgery. Chicago: Saunders.
2. Hart LG, Deyo RA, Cherkin DC (1995) Physician office visits for low back pain. Frequency, clinical evaluation, and treatment patterns from a U. S. national survey. Spine (Phila Pa 1976) 20(1): 11-19.
3. Vishwanathan K, Braithwaite I (2021) Construct validity and responsiveness of commonly used patient reported outcome instruments in decompression for lumbar spinal stenosis. J Clin Orthop Trauma. 16:125-131.
4. Farzanegan G, Alghasi M, Safari S (2011) Quality-of-Life Evaluation of Patients Undergoing Lumbar Discectomy Using Short Form 36. Anesth Pain Med 1(2): 73-76.
5. Chapman JR, Norvell DC, Hermsmeyer JT, Richard J Bransford, John DeVine, et al. (2011) Evaluating common outcomes for measuring treatment success for chronic low back pain. Spine (Phila Pa 1976) 36 (21 Suppl): S54-68.
6. Machado GC, Ferreira PH, Yoo RI, Ian A Harris, Marina B Pinheiro, et al. (2016) Surgical options for lumbar spinal stenosis. Cochrane Database Syst Rev 11(11): CD012421.
7. Fairbank JC, Pynsent PB (2000) The Oswestry Disability Index. Spine(Phila Pa 1976) 25(22): 2940-2952.
8. Copay AG, Glassman SD, Subach BR, Berven S, Schuler TC, et al. (2007) Minimum clinically important difference in lumbar spine surgery patients: a choice of methods using the Oswestry Disability Index, Medical Outcomes Study Questionnaire Short Form 36, and pain scales. Spine J 8(6):968-974.
9. Haefeli M, Elfering A (2006) Pain assessment. Eur Spine J 15 Suppl 1(Suppl 1): S17-S24.
10. Imada A O, Huynh T R, Drazin D (2017) Minimally Invasive Versus Open Laminectomy/Discectomy, Transforaminal Lumbar, and Posterior Lumbar Interbody Fusions: A Systematic Review. Cureus 9(7): e1488.
11. Fairbank JC, Pynsent PB (2000) The Oswestry Disability Index. Spine (Phila Pa 1976) 25(22):2940-2952.
12. Fairbank JC, Couper J, Davies JB, O Brien JP (1980) The Oswestry low back pain disability questionnaire. Physiotherapy. 66(8): 271-273.
13. Wankhade UG, Umashankar MK, Reddy BS (2016) Functional Outcome of Lumbar Discectomy by Fenestration Technique in Lumbar Disc Prolapse - Return to Work and Relief of Pain. J Clin Diagn Res 10(3): RC09-13.
14. Aslam M, Khan FR, Huda N, Pant A, Julfiqar M, et al. (2015) Outcome of Discectomy by Fenestration Technique in Prolapsed Lumbar Intervertebral Disc. Ann Int Med Den Res 1(3): 286-290.
15. Chakrabarty PS (2015) Excision of lumber disc through fenestration: A Prospective study to analyse functional results. Ind J Med Res Pha Sci 2(1): 10-13.
16. Manohara Babu KV (2006) Surgical management of Lumbar disc prolapse by Fenestration technique J Orthopaedics. 3(4)e6.
17. Sangwan SS, Kundu ZS, Singh R, Kamboj P, Siwach RC, et al. (2006) Lumbar disc excision through fenestration. Ind J Orthop 40(2): 86-89.
18. Nahar K, Srivastava RK (2013) Prospective study of prolapsed lumbar intervertebral disc treatment by fenestration. Int J Res Med 2(2): 170-73.
19. Garg M, Kumar S (2001) Interlaminar discectomy and selective foraminotomy in lumbar disc herniation. J Orth Surg 9(2): 15-18.
20. Weinstein JN, Tosteson TD, Lurie JD, Toteston ANA, Hanscom B, et al. (2006) Surgical vs Nonoperative treatment for lumbar disc herniation – The spine patient outcome research trial (SPORT): A randomized trial. JAMA 296(20): 2441-2450.
21. Försth P, Michaëlsson K, Sandén B (2013) Does fusion improve the outcome after decompressive surgery for lumbar spinal stenosis?: A two-year follow-up study involving 5390 patients. The Bone & Joint Journal 95-B (7): 960-965.
22. Owoicho Adogwa, Scott L Parker, Stephen K, Mendenhall, David N Shau et al. (2013) Laminectomy and Extension of Instrumented Fusion Improves 2-Year Pain, Disability, and Quality of Life in Patients with Adjacent Segment Disease: Defining the Long-Term Effectiveness of Surgery. World Neurosurgery 80 (6): 893-896.
23. Ghogawala Z, Dziura J, Butler WE, Dai F, Terrin N, et al. (2016) Laminectomy plus Fusion versus Laminectomy Alone for Lumbar Spondylolisthesis. N Engl J Med 374(15): 1424-1434.
24. Imada AO, Huynh TR, Drazin D (2017) Minimally Invasive Versus Open Laminectomy/Discectomy, Transforaminal Lumbar, and Posterior Lumbar Interbody Fusions: A Systematic Review. Cureus 9(7): e1488.

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