

Lumbar laminectomy case series

Pourtaheri et al., evaluated 34 consecutive patients who had undergone a [lumbar laminectomy](#), bilateral partial [facetectomy](#), and [posterolateral fusion](#) at a single institution between 1981 and 1996. They included 25 men and 9 women with a mean age of 42 years (range, 27-57 years). Twenty-three cases were instrumented and 11 were noninstrumented. Mean follow-up was 21 years (range, 15-29 years). Outcomes evaluated included reoperation rate, clinical outcomes evaluated by the [Oswestry Disability Index](#) (ODI) score, radiographic evaluations of adjacent segmental degeneration (ASD) and lumbar lordosis, and contributing demographic factors to disease progression. At final follow-up, 17 of the 34 patients had undergone reoperation (43% of the instrumented group and 64% of the noninstrumented group). There were no differences in the reoperation rate or ODI improvement between the instrumented and noninstrumented groups ($P > .05$). Female patients required more revisions, had less ODI improvement, had greater postoperative ASD, and had less maintenance of their postoperative lumbar lordosis. There was no difference in maintenance of postoperative lumbar lordosis or ASD between the instrumented and noninstrumented groups. Instrumentation did not improve revision rates, clinical outcomes, or radiographic outcomes in laminectomies requiring contemporaneous facetectomies ¹⁾.

2000

Of 151 patients who underwent decompressive laminectomy from 1980 through 1989, 37 were followed up for a minimum of 10 years. The mean age at surgery was 60.9 \pm 8.2 years (range, 43-76), and the average follow-up period was 13.1 \pm 2.1 years (range, 10.1-17.4). The results were evaluated by the criteria of the Japanese Orthopedic Association Lumbar Score, and the outcome was classified as excellent at more than 75% improved score; good, 50-75%; fair, 25-49%; and poor, 0-24% or less. Information about impairment of activities of daily living was also obtained at follow-up. Associations between preoperative clinical and radiographic variables and clinical outcome were evaluated statistically.

In all patients, the average score improvement of 55.2 \pm 31.6% was regarded as acceptable. The postoperative score and percentage of improvement of low back pain were lower than those of leg pain and walking ability. No impairment in activities of daily living was found in 62.2% of the patients. Rate of improvement was evaluated as excellent in 13 (35.1%), good in 8 (21.6%), fair in 8, and poor in 8 patients. Three patients required additional surgery because of disc herniation at the laminectomized segments. The patients with multiple laminectomy ($P = 0.034$) and more than 10 degrees preoperative sagittal rotation angle ($P = 0.018$) showed a significantly poorer outcome than the remainder of the patients.

Long-term follow-up showed that even without spinal fusion, more than half the patients were evaluated as excellent or good. Patients with more than a 10 degrees sagittal rotation angle who need multiple laminectomy, should be given information about the possibility of earlier deterioration of the outcome, and alternative or additional treatment such as concomitant spinal fusion with decompression may be considered ²⁾.

1994

The pre- and postoperative [Lumbar spine radiography](#) of 119 patients who underwent decompressive lumbar laminectomy were studied to evaluate radiographic changes and to correlate them with clinical outcome. An accurate and reproducible method was used for measuring pre- and postoperative radiographs that were separated by an average interval of 4.6 years. Levels of the spine that underwent laminectomy showed greater change in [lumbar spondylolisthesis](#), disc space angle, and disc space height than unoperated levels. Outcome correlated with radiographic changes at operated and unoperated levels. This study demonstrates that radiographic changes are greater at operated than at unoperated levels and that some postoperative symptoms do correlate with these changes. [Lumbar fusion](#) should be considered in some patients who undergo decompressive laminectomy. The efficacy of and unequivocal indications for lumbar fusion can only be determined from randomized, prospective, controlled trials, however, and these studies have not yet been undertaken ³⁾.

1993

A total of 258 consecutive decompressive lumbar laminectomies performed on 244 individuals presenting with spinal stenosis were analyzed retrospectively. Spinal fusion was avoided in all but two patients. Outcome in terms of pain relief and return to normal activity was evaluated in two stages, one derived from patient charts and having a relatively short-term follow-up time (mean 8.4 months) and a second derived from patient responses to a questionnaire (which also scored for satisfaction with the results of surgery), which had a longer follow-up time (mean 4.7 years). More than 20 clinical and operative parameters were analyzed. Overall, a high degree of success (93% pain relief, 95% return to normal activity) was achieved in the short term, which was supported by the longer-term follow-up data (64% pain relief, 56% activity return, 75% satisfaction). The following factors were not significantly correlated with outcome: patient age; sex; worker's compensation or no-fault insurance status; employed versus not employed; a history of back surgery prior to the laminectomy studied; existence of degenerative spondylolisthesis or scoliosis; complete versus incomplete myelographic block; or the level of the lumbar spine undergoing surgery. The major conclusions arising from these data are: 1) for all age groups through at least the eighth decade of life, decompressive lumbar laminectomy is a relatively safe operation having a high medium-to-long-term success rate; 2) lumbar instability following laminectomy is rare, even in individuals presenting prior to surgery with degenerative instability conditions; and 3) lumbar fusion in addition to the decompressive laminectomy procedure is rarely required for degenerative spinal stenosis ⁴⁾

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Pourtaheri S, Billings C, Bogatch M, Issa K, Haraszti C, Mangel D, Lord E, Park H, Ajiboye R, Ashana A, Emami A. Outcomes of Instrumented and Noninstrumented Posterolateral Lumbar Fusion. *Orthopedics*. 2015 Dec;38(12):e1104-9. doi: 10.3928/01477447-20151120-07. PubMed PMID: 26652331; PubMed Central PMCID: PMC5561727.

2)

Iguchi T, Kurihara A, Nakayama J, Sato K, Kurosaka M, Yamasaki K. Minimum 10-year outcome of decompressive laminectomy for degenerative lumbar spinal stenosis. *Spine (Phila Pa 1976)*. 2000 Jul 15;25(14):1754-9. PubMed PMID: 10888941.

3)

Tuite GF, Doran SE, Stern JD, McGillicuddy JE, Papadopoulos SM, Lundquist CA, Oyedijo DI, Grube SV, Gilmer HS, Schork MA, et al. Outcome after laminectomy for lumbar spinal stenosis. Part II: Radiographic changes and clinical correlations. *J Neurosurg*. 1994 Nov;81(5):707-15. PubMed PMID:

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Silvers HR, Lewis PJ, Asch HL. Decompressive lumbar laminectomy for spinal stenosis. J Neurosurg. 1993 May;78(5):695-701. PubMed PMID: 8468598.

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