



Comparison of Outcome Following Laminoplasty versus Laminectomy with Posterior Spinal Fusion for Cervical Spondylotic Myelopathy: Matched Cohorts Regional and Sagittal Balance

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Introduction

The indications for laminoplasty and laminectomy with posterior spinal fusion are different for the treatment of cervical spondylotic myelopathy (CSM). Therefore, simple comparisons between the two techniques can be confounded. In this study, we compared outcomes of laminoplasty and laminectomy with posterior spinal fusion in cohorts of matched regional and sagittal balance.

Methods

All adult patients from 2011 to 2013 undergoing laminoplasty or laminectomy with posterior spinal fusion for SCM were identified. A matched cohort was obtained by excluding laminectomy patients with regional Cobb angle and sagittal vertical axis measurements outside the range of laminoplasty patients. Preoperative, perioperative, and follow-up outcomes were compared.

Results

A total of 42 laminoplasty patients and 26 laminectomy with fusion patients were included. Patients that underwent laminectomy tended to have less preoperative lordotic curvatures and higher VAS pain scores, but this was not significant ($p=0.084$ and $p=0.067$, respectively). Laminectomy with fusion was associated with significantly higher blood loss (356.0 ml vs. 231.0 ml, $p=0.019$). There was no difference in perioperative complication, length of stay, and 30-day readmission rate. Laminectomy with fusion was associated with higher long-term complications (15.4% vs. 0.0%, $p=0.010$), but had significantly lower mean Nurick myelopathy score at follow-up (0.8 vs. 1.6, $p=0.020$). Final Cobb and SVA were similar between the groups (matched).

Learning Objectives

By the conclusion of this session, participants should be able to:

1. Understand the differences in regards to perioperative and follow-up outcomes between laminoplasty and laminectomy with fusion.

Conclusions

Laminectomy and fusion may be associated with higher morbidity than laminoplasty, but laminectomy with fusion may provide greater resolution of myelopathy. Additional matched cohort studies are warranted.

References

1. Highsmith JM, Dhall SS, Haid RW Jr, Rodts GE Jr, Mummaneni PV. Treatment of cervical stenotic myelopathy: a cost and outcome comparison of laminoplasty versus laminectomy and lateral mass fusion. *J Neurosurg Spine*. 2011 May;14(5):619-25.