Clinical and surgical outcomes after lumbar laminectomy: An analysis of 500 patients

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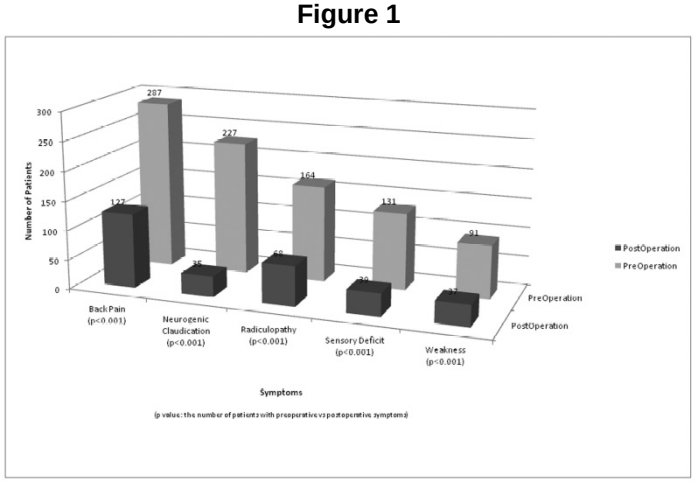
Introduction

The objective of this study is to determine clinical and surgical outcomes following first-time lumbar laminectomy.

Methods

We retrospectively reviewed medical records of all patients who underwent first-time, bilateral, 1-3 level laminectomy for degenerative lumbar disease. Patients with discectomy, complete facetectomy, and fusion were excluded. Incident rates (IR) were expressed as a function of person -time and then converted to an annualized reoperation rate.

Figure 1



Preoperative symptoms versus postoperative symptoms in 500 patients who underwent first-time bilateral, lumbar laminectomy.

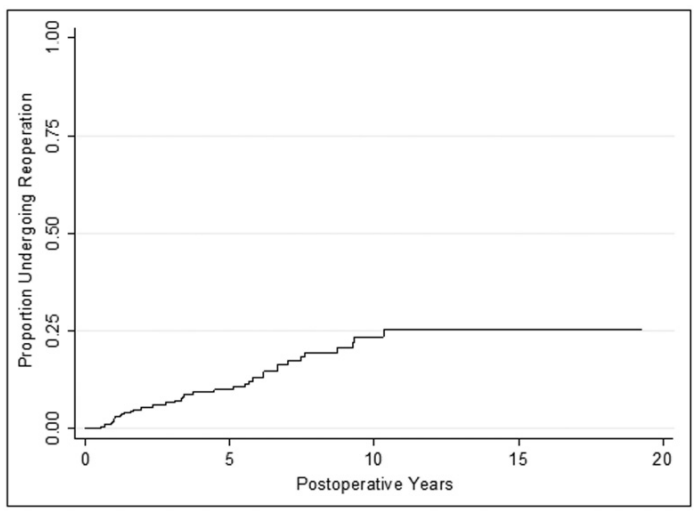
Results

Five hundred patients who met our selection criteria were followed for an average of 46.79 months. In comparing the number of patients with preoperative versus postoperative symptoms, improvements were reported with back pain (57.40% vs 25.40%, $p<0.001$), neurogenic claudication (45.40% to 7.00%, $p<0.001$), radiculopathy (32.80% vs 13.60%, $p<0.001$), weakness (18.20% vs 7.40%, $p<0.001$), and sensory deficits (6.20% to 7.80%, $p<0.001$) [**Figure 1**]. Of the 500 laminectomy cases, 72 patients (14.40%) required reoperation for progression of degenerative disease over a mean of 3.40 years. The annualized reoperation rate was 4.60% [IR=4.6 reoperations per 100 person-years] [**Figure 2**]. The most common clinically symptomatic indication for reoperation was back pain (54.17%) followed by radiculopathy (47.22%), weakness (18.06%), sensory deficit (15.28%), and neurogenic claudication (19.44%). The relative risk of reoperation in patients with postoperative back pain was 6.14 times higher than those without postoperative back pain ($p<0.001$). Of the 72 patients undergoing first-time reoperation, 79.17% underwent laminectomy, 44.44% posterolateral fusion, and 8.33% interbody placement. Upon cumulating all-time reoperations, the lifetime risk of a fusion was 8.0% following a lumbar laminectomy.

Conclusions

In the largest Western cohort series on lumbar laminectomy, patients experienced statistically significant improvements in back pain, neurogenic claudication, radiculopathy, motor weakness, and sensory deficit. Following a first-time laminectomy, the overall reoperation rate was 14.4% over a mean of 3.40 years, and the annualized reoperation rate was less than 5%. The lifetime risk of a fusion was 8.0%.

Figure 2



Kaplan-Meier curve illustrating time to reoperation for progression of degenerative disease in 500 patients who underwent first-time lumbar laminectomy. Calculated as a function of person-time, the annualized incidence rate was 4.6% [IR=0.046 person-years].

References

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