

Trends in Cervical Laminoplasty Procedures Amongst American Board of Orthopaedic Surgery Part II Oral Examination Candidates: A 20-Year Analysis

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INTRODUCTION:

The utilization of cervical laminoplasty among recent spine fellowship graduates is unknown. Cervical laminoplasty is a surgical technique commonly used to treat cervical myelopathy and spinal cord compression. However, its usage and proficiency among spine surgeons, particularly recent graduates, are not well understood. The purpose of this study was to assess the utilization rate of cervical laminoplasty over a twenty-year period and assess postoperative outcomes among recent spine fellowship graduates.

METHODS:

Orthopaedic surgeons take the American Board of Orthopaedic Surgery (ABOS) Part II Oral Examination two calendar years after fellowship completion and they submit cases they have completed over a six-month period. The ABOS maintains a database of all submitted cases and this dataset has been used previously to evaluate trends of different surgical procedures.

In this study, a retrospective analysis was performed using the ABOS dataset from 2004 to 2024. Surgeons who performed cervical laminoplasty were identified using Current Procedural Terminology (CPT) codes 63051 and 63050. Demographic data included fellowship specialty of the surgeon, region of practice, year of surgical procedure, patient age, gender, and follow-up period. Postoperative outcomes included surgeon self-reported medical and surgical complications, as well as reoperation and readmission rates. Descriptive statistics, Pearson's Chi-Squared test, and Cochran-Armitage trend test were utilized in this study. A p-value < 0.05 was considered statistically significant.

RESULTS:

In total, 744 patients were included in the study. The mean age of the patients was 60.5 years with an average follow-up time of 10.6 weeks. More than half of the patients were male (61.8%). All surgeons performing cervical laminoplasty completed a Spine fellowship, with a few also completing an additional fellowship in Adult Reconstruction (1.0%) or Pediatrics (2.0%). Cervical laminoplasty was most frequently used in the Southeast (28.5%), followed by the Southwest (26.3%), Northwest (23.5%), Midwest (22.0%), Northeast (20.1%), and South (17.7%).

During the study period, there was no significant relationship found between the number of surgeons and the rates of laminoplasty ($p=0.982$) (Figure 1). The proportion of cervical laminoplasty cases being performed decreased over the 20-year study period (Figure 2). Logistic regression demonstrated a 1.8% annual decrease in odds of laminoplasty usage ($p=0.014$). The most common indications for laminoplasty were myelopathy, cervicgia and brachial neuritis. Nerve palsy (20 patients, 2.7%), infection (13 patients, 1.7%), and wound healing problems (10 patients, 1.3%) were the most frequent postoperative surgical complications. The most common postoperative medical complications were urinary retention (7 patients, 0.9%) and delirium (5 patients, 0.7%). Reoperation rates did not demonstrate much variability over the years ($p=0.32$) (Figure 3).

DISCUSSION AND CONCLUSION:

The lack of understanding of the usage of cervical laminoplasty poses several challenges, including variability in spine fellowship training programs and exposure to cervical laminoplasty. Understanding these training variabilities is crucial for optimizing fellowship curriculum and ensuring uniform competency among spine surgeons. The observed decreasing trend of cervical laminoplasty may also be a result of the lower reimbursement for this procedure as compared to a laminectomy and fusion with instrumentation. Further work is needed to determine if cervical laminoplasty may benefit from a higher reimbursement rate. Ensuring that recent spine fellowship graduates get a breadth of exposure to cervical laminoplasty cases is a needed consideration.

