Comparison of Postoperative Complications Following Laminectomy for Intraspinal Neoplastic and Non-Neoplastic Lesions: Evidence from the National Surgical Quality Improvement Program (NSQIP)

Andrew Karl Rock MHS MS; Matthew Thomas Carr; Charles Frederick Opalak MpH, MD; Kathryn Workman; William C. Broaddus MD

Department of Neurosurgery, Virginia Commonwealth University, 417 North 11th Street, Sixth Floor, P.O. Box 980631, Richmond, VA 23219-0631, USA

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Introduction

-Laminectomy is commonly performed for excision of intraspinal neoplasms and non-neoplastic lesions

-Studies have not evaluated postoperative complications between these two indications for laminectomy

-Our objective was to compare the prevalence of and risk factors for complications following laminectomy for intraspinal neoplasms and non-neoplastic lesions using the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP)

Methods

-Patients who underwent laminectomy performed by neurosurgeons for intraspinal neoplasms (CPT: 63275-8, 63280-7, 63290) and non-neoplastic lesions (CPT: 63270-3, 63265-8) were extracted from the 2005-2015 ACS-NSQIP

-Prevalence of 30-day postoperative complications was estimated

-Multivariable logistic regression identified demographic, comorbid, and perioperative characteristics associated with presence of any complication

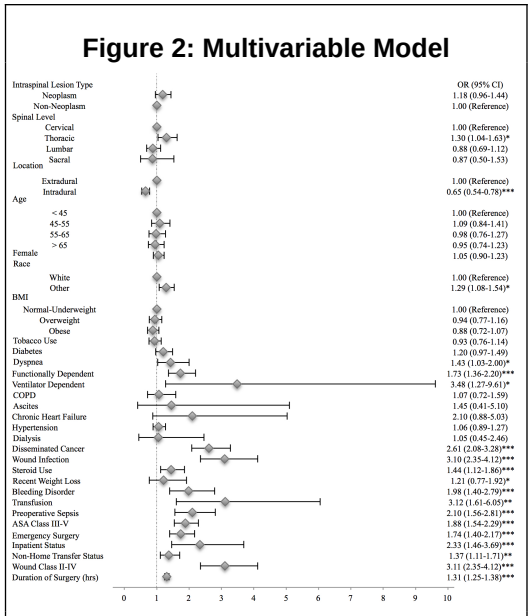
Results

-There were 5,239 cases of laminectomy for intraspinal lesions (2,599 intraspinal neoplasms, 2,640 non-neoplastic intraspinal lesions)

-Non-neoplastic intraspinal lesions were more likely to be extradural (77.58% vs. 40.94%; p<.001) and within the lumbar region (68.37% vs. 27.97%; p<.001)

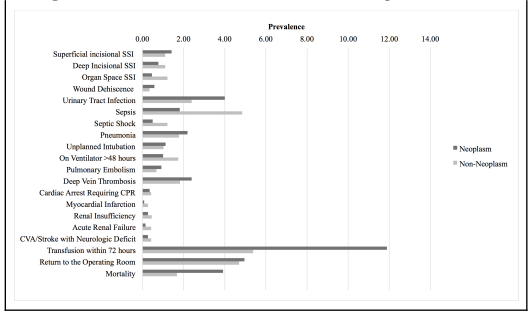
-Complications occurred more frequently following laminectomy for intraspinal neoplasms when compared to non-neoplastic lesions (24.89% vs. 17.92%; p<.001)

Figure 2: Multivariable Model



*p<0.05; **p<0.01; ***p<0.001

Figure 1: Prevalence of Complications



Results continued

-Predictors for complications included:

Thoracic level
Intradural location
Non-white race
Dyspnea
Dependent functional status
Ventilator dependence
Disseminated cancer
Wound infection
Chronic steroid use
Bleeding disorder
Preoperative transfusion
Preoperative sepsis
ASA class III-V
Emergent surgery
Inpatient status
Transfer from a location other than home
Wound class II-IV
Longer duration of surgery

-After controlling for covariates, laminectomy for intraspinal neoplasms did not have higher odds of any complication when compared to non-neoplasic lesions (OR: 1.18; 95% CI: 0.96-1.44; p=0.12)

Conclusions

-The prevalence of postoperative complications following laminectomy for intraspinal neoplasms and non-neoplastic lesions was 24.89% and 17.92%, respectively

-The odds of complications did not differ between laminectomy for intraspinal neoplasms and non-neoplastic lesions in multivariable models

-However, there were 18 other variables that significantly predicted postoperative complications and may assist neurosurgeons in stratifying risk for patients undergoing these procedures