

Posterior Cervical Fusion Leads to Spontaneous Regression of Anteriorly-Situated Osteophytes Mohamad Bydon MD; Nicholas B. Abt BS; Mohamed Macki BA; Rafael De la Garza-Ramos MD; Dimitrios MD Mathios; Sharonda Evette Keith; Ziya L. Gokaslan MD; Ali Bydon MD Department of Neurosurgery, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA



#### Introduction

In this manuscript, we sought to investigate whether posterior cervical fusion could provide radiographic regression of disk/osteophyte (D/O) complexes situated anterior to the spinal cord.

#### Methods

Patients who underwent posterior cervical laminectomy and fusion for cervical stenosis were retrospectively reviewed from 2006-2013. All patients underwent preoperative magnetic resonance imaging (MRI) with 30 patients having postoperative MRI follow-up. Preoperative imaging was assessed for posterior ligamentum flavum hypertrophy and anterior disk/osteophyte (D/O) complex formation and compared to postoperative imaging. Comparisons between cohorts were made using the t-test/Wilcoxon ranksum test for continuous variables or the chi-squared test for categorical variables, as appropriate.

# **Results** All 30 patients in the study presented with either cervical myelopathy and/or radiculopathy and the following radiographic findings: cervical stenosis (100%), degenerative disc disease (56.7%), ossified posterior longitudinal ligament (OPLL, 16.7%), and spondylolisthesis (10%). After posterior cervical fusion, 25 (83.3%) patients had

cervical fusion, 25 (83.3%) patients had radiographically documented regression of their disk/osteophyte complexes over a mean of 17.0±15.5 months (range: 1.3 months – 47.8 months). Postoperative radiculopathy was more prevalent in patients without regression than with regression at 60% versus 16%, respectively (p=0.034). Sixty-seven percent of spondylolisthesis patients did not experience D/O complex regression, which was statistically significantly lower than patients without spondylolisthesis (33%, p=0.014). One patient (3.3%) developed pseudoarthrosis nine months postoperatively.

# Conclusions

Patients with circumferential cervical stenotic disease undergoing posterior laminectomy with instrumented fusion demonstrated regression of anteriorly situated disk/osteophyte complexes in 83.3% of cases over a mean of 17.0±15.5 months (range: 1.3 months – 47.8 months). Patients with D/O complex regression demonstrated lower rates of postoperative radiculopathy. Patients with spondylolisthesis were less likely to have regression of D/O complexes.

In conclusion, posterior cervical fusion may lead to better circumferential decompression of the spinal cord, as compared to laminectomy alone.

## Learning Objectives

1. After posterior cervical fusion, 83.3% of patients who underwent posterior cervical decompression and fusion for cervical stenosis experienced radiographically documented regression of their disk/osteophyte complexes over a mean of 17.0±15.5 months (range: 1.3 months – 47.8 months).

 Sixty-seven percent of spondylolisthesis patients did not experience D/O complex regression, which was statistically significantly lower than patients without spondylolisthesis (33%, p=0.014).
Patients with D/O complex regression demonstrated lower rates of postoperative radiculopathy.

### References

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Case example 1 of osteophyte/disc complex regression. Preoperative (A) and postoperative (B) T2 MRI imaging.