

Cervical Sagittal Balance Parameters After One Level ACDF Surgery in Patients With Cervical Myelopathy and in Patients with Radiculopathy. Correlations with Clinical and Functional Outcome.

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Introduction

Anterior cervical discectomy and fusion (ACDF) constitutes one of the most commonly performed surgical procedures for managing patients with radiculopathy and/or myelopathy. The goal of this study is to identify differences in cervical sagittal balance parameters and correlation with functional outcome after one level ACDF in two different study groups: patients with cervical myelopathy and patients with radiculopathy.

Methods

We performed a retrospective chart review study from January 2010 to January 2014. Inclusion criteria were: Adult patients (>18 years old), who underwent an Anterior Cervical Discectomy and Fusion surgery (ACDF) for one level degenerative disease, with no previous history of surgery in cervical spine. Cervical tumor cases, infections and cervical trauma cases were excluded from our study. Based on their initial presentation, patients were divided in myelopathy and in radiculopathy group. C1C2 angle, C2C7 angle, C7 slope, Segmental angle, Cobb angle and SVA (sagittal vertical axis) pre-operatively and 6 months to one year after surgery as well as functionality scores such as VAS, NDI and SF12 were recorded.

Results

Forty seven patients were included in our study. Median age was 51.19 years (range: 28-86 years old). Nineteen patients had myelopathy and twenty eight patients had radiculopathy. Fusion was radiographically documented in all patients. Pre-operative segmental angle was found to be significantly different between the two groups of patients, with myelopathic patients presenting with increased kyphosis at the operative level compared to the radiculopathy group ($p < 0.0216$). Also the preoperative segmental angle had moderate positive correlation with axial neck pain before treatment in myelopathy group (correlation coefficients $r = 0.52585$, $p\text{-value} = 0.0208$). Postoperative functional outcome scores were similar in both groups.

Conclusions

Myelopathy patients presented with increased preoperative segmental kyphosis and the degree of kyphosis correlated with preoperative axial neck pain in patients who underwent one level ACDF.

Learning Objectives

To understand the differences in cervical sagittal balance parameters in patients presenting with myelopathy and patients presenting with radiculopathy who underwent ACDF for one level pathology.

References