

Long-Term Clinical Outcomes following Four-Level Anterior Cervical Discectomy and Fusion

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Introduction

Four-level anterior cervical discectomy and fusion (ACDF) is an uncommon procedure, even in high-volume spine centers. The objective of this study is to report the long-term clinical outcomes following four-level ACDF.

Methods

A retrospective review of all adult neurosurgical patients undergoing elective ACDF for degenerative spine disease between 1996 and 2013 was performed. Only patients who underwent first-time four-level ACDF were included; patients with history of previous cervical spine surgery, patients undergoing combined anterior/posterior approaches and patients with corpectomy and cage reconstruction were excluded.

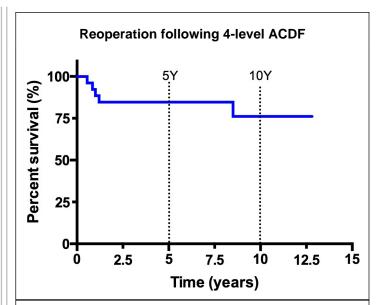
Results

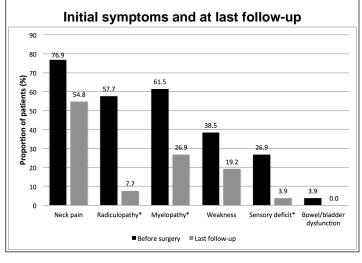
Twenty-six patients (average age 57.2 ± 8.8) were identified and followed for an average of 7.6 ± 4.2 years. Ten patients (38.5%) developed at least one perioperative complication; major complications occurred in three cases (11.5%) – two vertebral artery injuries and one deep wound infection. The fusion rate after index surgery was 84.6%, and reoperation rate was 19.2% - four cases for pseudoarthrosis and one adjacent segment disease.

The mean Nurick score decreased significantly from 1.1 before surgery to 0.7 at last follow-up (p=0.002). Based on Odom's criteria, 6 patients (23.1%) showed an excellent outcome, 9 good (34.6%), 5 fair (19.2%), and 6 poor (23.1%). The neck VAS score was 5.4 ± 4.2 before surgery and 3.9 ± 3.8 at last follow-up (p=0.166); 54.8% of patients continued to have neck pain and 40% were still using narcotics at last follow-up.



A female smoker underwent 4-level ACDF, which was complicated by pseudoarthrosis (Left). She required posterior instrumentation (Right)/





Conclusions

Although the fusion rate for four-level ACDF was 85% in this study, and most patients experienced some relief of radiculopathy and myelopathy, a considerably high proportion of patients continued to have axial neck pain and require narcotics at last follow-up.