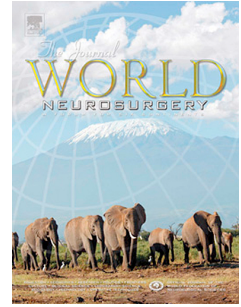


Accepted Manuscript

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PII: S1878-8750(15)00803-7

DOI: [10.1016/j.wneu.2015.06.055](https://doi.org/10.1016/j.wneu.2015.06.055)

Reference: WNEU 3007

To appear in: *World Neurosurgery*

Received Date: 24 February 2015

Revised Date: 21 June 2015

Accepted Date: 22 June 2015

Please cite this article as: Liu B, Zhu D, Yang J, Zhang Y, VanHoof T, Kalala Okito J-P, Can multilevel anterior cervical discectomy and fusion result in decreased lifting capacity of the shoulder?, *World Neurosurgery* (2015), doi: 10.1016/j.wneu.2015.06.055.

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Can multilevel anterior cervical discectomy and fusion result in decreased lifting capacity of the shoulder?

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Keywords: cervical spine; anterior cervical decompression and fusion; upper extremity abduction and lift limitations; related factors.

Abbreviations:

MMT manual muscle test JOA Japanese orthopaedic association

NDI Neck disability index ACDF Anterior cervical decompression and fusion

Abstract

Objectives: To investigate the upper extremity abduction, and lifting limitations and associated factors after anterior cervical decompression and fusion.

Methods: 117 patients who underwent anterior cervical decompression and fusion for cervical spondylosis were assessed retrospectively. Their upper extremity abduction and lifting capacity after operation, and manual muscle test (MMT) grade for deltoid muscle strength and its sensory status were recorded. In addition, spinal cord function (JOA and NDI scores) and C4-5 intervertebral height (X-rays) were assessed. Finally, high signal and ossification of posterior longitudinal ligament were observed by T2 MRI and CT, respectively.

Results: Seven individuals had muscle strength decline, with 2 patients also showing sensory defect. Six individuals had bilateral weakness of deltoid and biceps brachii and 1 of unilateral. After 8-16 months of follow-up, the abduction function and lift capacity were restored. The MMT grade recovered to 5 and 4 degrees, respectively, in 6 and 1 patients. Two patients remained with sensory defect. The mean recovery time averaged 19.7 days, and JOA scores significantly improved. Among the 117 patients, less than 2 level decompression showed upper extremity function limitations at 1/67 (1.5%), while more than 3 level decompression resulted in higher rate of 6/50 (12%), a significant difference ($P < 0.05$). No significant difference was obtained in C4-5 intervertebral heights, as well as for rates of C3-5 high signal area in MRI images. **Conclusion:** The rate of upper extremity abduction and lifting limitation after anterior cervical decompression and fusion is low, indicating a good prognosis after active treatment.

Introduction

Anterior cervical decompression and fusion (ACDF) is a classic surgical treatment method for cervical spondylosis, and can directly decompress the anterior spinal cord or nerve root; its clinical efficacy is widely acknowledged. C5 nerve root palsy is one of the complications of cervical surgery. Clinically, some patients present upper extremity abduction and lifting dysfunction after surgical treatment of cervical spondylosis. Since the deltoid muscle is the key to drive upper extremity abduction and lifting functions, and C5 nerve root from the cervical spine mainly dominates the strength and sensory in area of deltoid muscle, so it is possibly associated with C5 nerve root palsy,

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