Unusual Circumstances for Cervical Arthroplasty: Challenging the Established Dogma

E-Poster 441932

Authors: Pedro Coutinho, M.D., Timur Urakov, M.D., Steven Vanni, D.O., Allan Levi, M.D., Ph.D., and Michael Wang, M.D.
Disclosure

The authors report no conflicts of interest concerning the materials or methods used in this study or the findings specified in this poster.
INTRODUCTION

Cervical arthroplasty still faces many challenges and criticisms in its application. The benefits of arthroplasty include preserved mobility and slowing down of adjacent level deterioration. The studies performed to date have focused on a more “favorable” population of patients that prefers younger age with mild to moderate degree of spondylosis. Any deviation from the so far established criteria is considered a contraindication for cervical arthroplasty.
METHODS

We provide an analytical review testing the rigidity of currently established criteria for cervical arthroplasty. We further present our own case where the dogma was challenged and a patient who normally would be considered for arthrodesis received an artificial disk.
RESULTS

A 31-year-old female who had been submitted to C5-6 anterior cervical discectomy and fusion (ACDF) progressed 3 years later with C6-7 disc herniation. She underwent a surgical revision at an outside institution where the C5-6 plate was removed and a single-level ACDF was performed at C6-7. Two years after that second surgery she came to our department presenting both pseudarthrosis (C5-6) and adjacent level disease (C4-5).
Unusual Circumstances for Cervical Arthroplasty: Challenging the Established Dogma
RESULTS

Normally, such patient would receive a revision two-level arthrodesis. After careful evaluation of patient’s parameters, including new cervical spine MRI showing initial disc degeneration at C3-4, which could be accelerated by adjacent fusion, we performed two-level arthroplasty (C4-5 and C5-6) instead, also converting a level disclosing pseudarthrosis into a mobile segment, with successful outcome so far.
Unusual Circumstances for Cervical Arthroplasty: Challenging the Established Dogma
DISCUSSION

The ACDF is admittedly effective for the achievement of neural decompression and spinal stabilization in patients with cervical disc herniation. However, the elimination of motion may lead to increased stress across adjacent disc spaces, contributing to adjacent level disease. Studies have shown that cervical arthroplasty has similar clinical outcomes with a reduced risk of adjacent segment pathology and thereafter a lower frequency of secondary surgeries. The current rigid indication criteria for this type of procedure may prevent that a number of patients who could benefit from this technique ends up being fused.
SUMMARY

The indications for cervical arthroplasty may be more inclusive than currently believed. It is possible that a significant number of patients who could actually benefit from maintenance of cervical range of motion and decreased risk of adjacent level disc disease are nowadays excluded by the current criteria. With meticulous review of case series, it is possible to elucidate additional factors in decision making and identify more patients that could benefit from this technology.