

The fate of failed cervical arthroplasties: outcome of revision surgery

Abstract

Background: Cervical artificial disc replacement (ADR) results in good clinical outcomes. There is however scarce information about the patients submitted to secondary surgery.

Research question: What leads to secondary surgery when a cervical arthroplasty fails? Which surgical method is chosen? What is the clinical outcome after revision surgery? Is it worth to reoperate a patient with symptoms of ADR failure?

Design: Descriptive cohort study of 42 ADR patients who underwent secondary surgery at the index or adjacent level.

Methods: Data collected from the National Swedish Register for Spine Surgery 2006 through 2018, completed with information from patients' charts, images, and a telephone interview with the patients. Analysis of time to reoperation, diagnosis leading to reoperation, surgical method, and outcome at 2 years, measured as change in neck pain, arm pain and function, as well as overall patient satisfaction.

Results: Mean time to reoperation was 44 months. The most common diagnosis leading to reoperation was loosening (n=16), clinical adjacent segment pathology (ASP) (n=8), or a combination thereof (n=6). Thirty-four of the surgeries were performed at the index level. Reoperation consisted of extraction of the ADR and fusion surgery in 32 cases. Function improved after the reoperation in 32 patients. Twenty-four of 30 patients who had neck pain, and 28 of 32 who had arm pain improved after the reoperation. No patients reported post-operative aggravation of symptoms. There was complete or nearly complete recovery in just over 4/5 of patients.

Discussion: This is the largest cohort of patients reoperated after cervical ADR.

Failure of ADR is mainly due to loosening of the implant and/or ASP, and is predominantly treated with fusion surgery. Reoperation results in good outcomes (complete or nearly complete recovery) in the vast majority of patients. We conclude that revision surgery for failed cervical arthroplasty is effective and justified.