

Does the Plate Maintain a Sagittal Plane Correction after Anterior Cervical Discectomy and Fusion Compared to Stand Alone Cage?

Abduljabbar Alhammoud *

Department of Spine Surgery, University of Doha, Doha, Qatar

*Corresponding author: Abduljabbar Alhammoud, Department of Spine Surgery, University of Doha, Doha, Qatar, E-mail: abalhammoud@gmail.com

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Description

Anterior cervical discectomy and fusion is the treatment of choice of cervical degenerative disc disease which cause neurological symptoms such radiculopathy or myelopathy. Anterior cervical discectomy and fusion with stand-alone cage (ACDF-CA) is successful option to treat cervical disc disease, but long-term follow-up showed the complications like cage subsidence and pseudo arthrosis. Then, anterior cervical decompression and fusion with stand cage and plate (ACDF-CPA) developed to decrease the complication of stand cage alone but showed its complication like dysphagia [1]. The purpose of this study is to compare the role of anterior plate constructs (ACDF-CPC) and stand-alone cage (ACDF-CA) in maintaining of sagittal plane correction. Sixty-five patients underwent to ACDF, 88 operative levels, 29 (44.6%) ACDF-CA and 36(55.6%) ACDF CPC. There were 41(63.1%) males and 24(36.9%) females, average age 47.7 years (SD: 9.32), 40% done by orthopedic spine surgeon and 60% by neurosurgeon. Most common operated level is C5-C6 followed by C6-C7.

Anterior Cervical Discectomy and Fusion

Anterior Cervical Discectomy and Fusion (ACDF) is the treatment of choice for Cervical degenerative disc disease, which can cause neurological symptoms including radiculopathy and myelopathy [1,2]. It can be done by multiple techniques that utilize different types of implants like. Some of the current options include disc spacers made of autograft or allograft bone, porous metal, Polyether Ether Ketone (PEEK) and anterior plates and screws [3-5].

Anterior cervical discectomy and fusion with stand cage alone (ACDF-CA) has proven to be a successful option to treat cervical disc disease, but long-term follow-up showed complications like cage subsidence and pseudo arthrosis [4,5]. These complications negatively affect the clinical outcome of this method. Another technique; Anterior cervical decompression and fusion with stand cage and plate (ACDF-CPA) was then developed to decrease the complication of stand cage alone but follow up showed its own set of complications such as dysphagia [6]. The purpose of this study is to compare the role of anterior plate

constructs (ACDF-CPC) and stand cage alone (ACDF-CA) in maintain of Sagittal plane correction. Radiological findings (cervical lordosis, segmental lordosis, cage subsidence, disc height) will be compared (pre-op, post-op, 3-6 months' post-op, 12-18 months' post-op) [6-7].

Surgical Technique

A retrospective review of all patients whom underwent to ACDF by stand-alone cage (ACDF-CA) or cage and plate (ACDF-CPC) between 2011 and 2015 after obtaining the ethical approval from Medical Research Center. The choice of the surgical technique was depending on the surgeon preference and experience.

We define the surgical correction as the difference in measurement between post op and pre op, whereas the loss of correction defined as the difference in the measurement between last follow up and postop [8,9]. All measurement done by two orthopedics residents trained by a senior surgeon.

Descriptive statistics were used to summarize demographic and radiological measurement. Chi-square test and Fisher Exact test were used to express the associations between two or more qualitative variables whereas unpaired 't' test was used to compare the quantitative data between the two groups. Frequency (percentage) and mean \pm SD or median and range were used for categorical and continuous values as appropriate. P value <0.05 was statistically significant. All statistical analyses were done using statistical packages SPSS 23.0 (SPSS Inc. Chicago, IL) and Epi InfoTM 2000 (Centers for Disease Control and Prevention, Atlanta, GA) [10].

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