AB207. SOH21AS014. Risk factors for failure in the management of traumatic cervical fractures with single-stage anterior cervical discectomy and fusion (ACDF)

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Background: Diagnosis and appropriate management of traumatic cervical fractures is important due to secondary neurological sequelae and permanent disability that can arise. For fractures requiring surgical fixation 1-stage surgery is appealing in favour of 2-stage surgery due to reduced intraoperative time and potential subsequent complications. However certain patients fail a 1-stage anterior approach. The purpose of this study is to identify patient-and injury-specific factors associated with failure in 1-stage anterior fixation to optimise the treatment of traumatic cervical fractures.

Methods: A retrospective study was performed at our institution from June 22nd 2016 to August 14th 2019 to identify patients that suffered traumatic cervical fractures and were managed surgically with a 1-stage anterior cervical discectomy and fusion (ACDF). Data collated included demographic parameters, fracture characteristics, associated injuries, and characteristics of fusion surgeries. Statistical analysis involved *t*-test of independent means, and *z*-test of proportions where applicable.

Results: Twenty-two patients were identified. Five patients (22.7%) failed the 1-stage ACDF approach and required subsequent second-stage posterior instrumentation. Statistically significant parameters that influenced 1-stage ACDF failure were age discrepancy between cohorts (65.2 *vs.* 50.2, P<0.04) and injuries requiring cervico-thoracic junctional stabilization due to instability (60% *vs.* 11.7%, P<0.01).

Conclusions: The definitive management of traumatic cervical fractures remains a surgical challenge. The results of our study indicate that older patients and injuries at the cervicothoracic junction have a higher risk of failure with 1-stage ACDF. Thus, the authors recommend considering 2-stage anterior-posterior fusion in elderly patients and in injuries at the cervicothoracic junction.

Keywords: Cervical spine injury; spine surgery; anterior-cervical discectomy and fusion (ACDF); failed surgery; revision surgery

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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