

# AB075. SOH23ABS\_039. Optimal surgical strategy for cervical fractures in ankylosing spondylitis: a comparative meta-analysis of single-stage vs. circumferential fusion

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**Background:** Ankylosing spondylitis (AS) is associated with a high risk of unstable vertebral fractures. The surgical management of these fractures is both technically challenging and associated with significant morbidity and mortality. This risk is even greater in the cervical spine. To date, no consensus exists regarding the optimal surgical management for cervical fractures in the AS population.

**Methods:** A systematic review and meta-analysis were performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Studies included comparative studies pertaining to surgical management (circumferential fusion *vs.* single-stage anterior or posterior approach) of cervical fractures in AS populations.

**Results:** Fourteen studies were included. No significance existed between circumferential fusion and single-stage approaches for rates of neurological improvement (anterior:  $P=0.16$ , posterior:  $P=0.18$ ), neurological deterioration (anterior:  $P=0.55$ , posterior:  $P=0.74$ ), postoperative complications (anterior:  $P=0.06$ , posterior:  $P=0.45$ ), revision surgeries (anterior:  $P=0.68$ , posterior:  $P=0.61$ ), or acute mortality (anterior:  $P=0.69$ , posterior:  $P=0.87$ ). With regards to decompression of pre-operative incomplete neurological deficits, a circumferential approach was noted

to have significantly greater rates of complete resolution compared to a posterior-only approach (12/47, 25.5% *vs.* 5/21, 23.8%; relevant risk (RR), 2.02; 95% confidence interval (CI): 1.25, 3.26;  $P=0.02$ ).

**Conclusions:** This meta-analysis is limited to the quality of evidence of studies available. High rates of revision surgeries and acute mortality highlight the pertinent need for more robust, multicentre comparative studies, and qualitative input from experts is needed in order to derive efficacious guidelines for the surgical management of cervical fractures in AS patients.

**Keywords:** Ankylosing spondylitis (AS); cervical fractures; circumferential fusion; posterior cervical fracture repair; postoperative complications

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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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