



# AB160. SOH23ABS\_033. Comparative surgical outcomes of navigated vs. non-navigated posterior spinal fusions in ankylosing spondylitis patients

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**Background:** Ankylosing spondylitis (AS) patients with acute spinal fractures represent a challenge for practicing spine surgeons due to difficult operative anatomy and susceptibility to complications. Advanced surgical techniques, such as intraoperative navigation, could potentially aid spine surgeons in the most difficult of cases.

**Methods:** A retrospective review was carried out at our centre from 05/2016–06/2021 to identify AS patients presenting with a traumatic spinal fracture, managed surgically with posterior spinal fusion (PSF). Cohorts were categorised and compared for outcomes based on those who underwent PSF with intraoperative computed tomography (CT)-navigation (O-arm<sup>®</sup>, Medtronic) versus those surgically managed without.

**Results:** Thirty-seven AS patients were identified. Twenty-nine of these (78.4%) underwent PSF. Intraoperative navigation was used in 14 (48.3%) cases. Mean age of the entire cohort was 67.6 years, who were predominantly male (28/29; 96.6%). No difference existed for mean levels fused (5.35 vs. 5.07; P=0.31), length of operation (217.9 vs. 175.3 min; P=0.07), overall length-of-stay (12 vs. 21.9 days; P=0.16), patients requiring high dependency unit (HDU) (3/14 vs. 5/15; P=0.09) or intensive care unit (ICU) (5/14 vs. 9/15; P=0.10), postoperative neurological improvement (1/14 vs. 1/15; P=0.48) or deterioration (1/14

vs. 0/15; P=0.15), intraoperative complications (2/14 vs. 3/15; P=0.34), postoperative complications (4/14 vs. 4/15; P=0.46), revision surgeries (3/14 vs. 1/15; P=0.16) and 30-day mortality (0/14 vs. 0/15).

**Conclusions:** This is the first study that compares surgical outcomes of navigated vs. non-navigated PSFs for AS patients with an acute spinal fracture. Although limited by its retrospective design and sample size, this study highlights the potential efficacy of intraoperative navigation as a surgical aid in a challenging cohort.

**Keywords:** Ankylosing spondylitis (AS); acute spinal fractures; intraoperative navigation; posterior spinal fusion (PSF); post-operative outcomes

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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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