

A New Minimally Invasive Option for Extending Posterior Fixation in Patients with Adjacent Segment Disease

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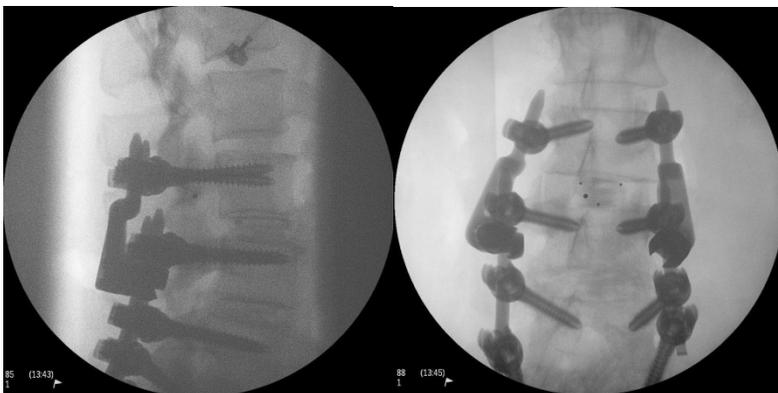
Introduction: This is an evaluation of a newly available posterior fixation system to treat adjacent segment disease (ASD), in which degeneration occurs in spinal segments adjacent to previously fused levels. Although radiographic evidence of ASD does not always correlate with clinical symptoms, many patients require surgical intervention. In one retrospective review of 215 patients, 27% were indicated for surgery at an average follow-up of 6.7 years¹. In patients with prior instrumented posterior fusion, ASD surgery typically includes removal of existing hardware in order to extend the fusion to new level(s). These revisions require large incisions to expose the full construct, also impacting soft tissue damage, surgery time, blood loss, and complications.

An alternative posterior fixation system that does not require revision of existing hardware is now available. This adjacent level implant (Annex[®] Adjacent Level System, Spine Wave) fixates to existing hardware and can be implanted using a minimally invasive (MIS) approach, potentially resulting in surgical parameters. Benefits of MIS surgery may also include reduced soft tissue damage, complications, hospital stay, and narcotics use.

Methods and Results: This case review is a 51 year old female who presented with primary back pain approximately 3.5 years after TLIF and posterior fixation at L4 to S1. The patient was treated for ASD at L3/4 with the adjacent level implant using an MIS approach that required 4 small incisions (2-4cm each). The adjacent level implants were placed on the left and right side to extend the original rod to new pedicle screws at the L3/4 level (see figures). A TLIF was also performed at L3/4. Total surgical time was 102 minutes and estimated blood loss was 75ml (no blood transfusions). Patient was discharged after three days with no complications.

For comparison, we also performed a retrospective chart review of traditional cases (open procedures with hardware replacement). Included were 25 single level extensions of original constructs that ranged from 1 to 7 levels. Averages were increased compared to the adjacent level device case, including OR time (193 minutes), blood loss (614cc), blood transfusions (299cc), and hospital stay (5.5 days).

Conclusion: This case review demonstrates the potential of using this adjacent level device in MIS surgeries to reduce OR parameters and morbidity. A larger clinical study is underway to collect more information for comparison and to evaluate long-term fusion success. Information obtained from the retrospective chart review will also be further evaluated for economic impact comparison.



Reference: 1) Ghiselli G, Wang JC, Bhatia NN, Hsu WK, Dawson EG: Adjacent segment degeneration in the lumbar spine. JBJS Am 86-A(7): 1497-1503, 2004.

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