Successful Revision of an L5-S1 AxiaLIF Rod Using a Minimally Invasive Presacral Approach: A Case Report

A. Cohen¹, L.E. Miller², J.E. Block³
¹The Brooklyn Hospital Center, Neurosurgery, Brooklyn, NY, United States, ²Miller Scientific Consulting, LLC, Flagstaff, AZ, United States, ³Jon E. Block, Ph.D., Incorporated, San Francisco, CA, United States

Aims: To describe procedural details of a minimally invasive presacral approach for revision of an L5-S1 AxiaLIF rod.

Methods: A 70-year-old male presented with marked thoracolumbar scoliosis, osteoarthritic changes characterized by high grade osteophytes, and significant intervertebral disc collapse and calcification. The patient required crutches during ambulation and reported intractable axial and radicular pain. Multi-level reconstruction of L1-4 was accomplished with extreme lateral interbody fusion although focal lumbosacral symptoms persisted due to disc space collapse at L5-S1. Lumbosacral interbody distraction and stabilization was achieved with the AxiaLIF System (TranS1 Inc., Wilmington, NC) and rod implantation via an axial presacral approach. Despite symptom resolution following this procedure, the patient suffered a fall 7 months later with direct sacral impaction resulting in symptom recurrence and loss of L5-S1 distraction. The revision of the AxiaLIF rod utilized the same presacral approach with an experimentally approved larger cannula. Minimal adhesions were encountered upon presacral reentry. Precise operative trajectory to the base of the previously implanted rod was achieved using fluoroscopic guidance. Surgical removal of the implant was successful with minimal bone resection required. A larger diameter AxiaLIF rod was then implanted and joint distraction was reestablished.

Results: Symptoms resolved following revision surgery. No adverse events occurred and the patient is ambulating without assistance.

Conclusions: The AxiaLIF interbody distraction rod may be revised and replaced with a larger diameter rod using the same presacral approach. Technical and clinical success was achieved in this challenging case.