

Abstract: 123

Complications Associated with Axial Lumbar Interbody Fusion

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Introduction: Axial Lumbar Interbody Fusion (AxiaLIF) is a novel minimally invasive approach for fusion of the L5 vertebra to the sacrum. This technique uses the presacral space for percutaneous access to the anterior sacrum. AxiaLIF has the potential to decrease patient recovery time, length of hospital stay, and overall occurrence of surgical complication. It can be used alone or in combination with minimally invasive or traditional open fusion procedures. The purpose of this study was to evaluate complications of the AxiaLIF procedure.

Methods: Patients who underwent AxiaLIF surgery between October 2005 and June 2009 at the authors' two institutions were identified. We retrospectively reviewed these patients' charts, including operative reports and postoperative medical records, to determine what complications were encountered.

Results: A total of 66 patients underwent AxiaLIF surgery. Complications occurred in 14 (7 males and 7 females; mean age 56.4) of the 66 patients (21.2%). These complications included superficial infection (4.5%), deep infection (1.5%), pseudoarthrosis (4.5%), sacral fracture (1.5%), pseudoarthrosis and sacral fracture (3%), pelvic hematoma (3%), failure of wound closure (1.5%), and rectal perforation (1.5%).

Conclusions: The complication rate associated with AxiaLIF in the present study was relatively low (21.2%) and was lower than previously published complication rates for transforaminal lumbar interbody fusion (33.6%) and anterior lumbar interbody fusion (38.3%). The most common complications were superficial infection and pseudoarthrosis. We had one case of rectal perforation that required exploratory laprotomy and a loop colonoscopy for repair of the perforation. It is important for surgeons to be aware of the potential for these complications. Many of these complications can likely be avoided with proper patient selection and operative planning. Pre-operative MRI, a detailed patient physical and history, adequate bowel preparation, improved access instrumentation, and the use of live fluoroscopy can all help to prevent complications with AxiaLIF surgery.