Bowel injury with AXALIF

In a 5-year post-marketing surveillance study, Gundanna et al. (2011) reported complications associated with axial presacral lumbar interbody fusion in 9152 patients. A single-level L5-S1 fusion was performed in 8034 patients (88%), and a two-level L4-S1 fusion was performed in 1118 patients (12%). Complications were reported in 1.3% of patients with the most commonly reported complications being bowel injury (0.6%) and transient intraoperative hypotension (0.2%).

Gundanna MI, Miller LE, Block JE. Complications with axial presacral lumbar interbody fusion: a 5-year postmarketing surveillance experience. SAS J. 2011; 5:90-94.

Bowel and Vascular Injury Following 13,000 Lateral Interbody Fusions

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By Armen R. Deukmedjian MD
With Konrad Bach MD, Michael Park MD, Juan S. Uribe MD, FACS

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Introduction: Minimally invasive (MIS) lateral interbody fusion (LIF) through a retroperitoneal transpsoas approach has become increasingly popular as a less invasive treatment of degenerative spinal disease, deformity, and trauma. It offers several potential advantages over traditional posterior approaches to interbody fusion, including decreased muscle dissection, decreased post-operative muscle atrophy, and the ability to place a large interbody graft. It allows access to the anterior spinal column without the risks associated with anterior lumbar interbody fusion, including manipulation of the great vessels, retrograde ejaculation, and abdominal adhesions. Anatomic studies of the thoracolumbar retroperitoneal region have demonstrated that peritoneal and retroperitoneal structures at risk during these procedures include the aorta, inferior vena cava (IVC), common iliac vessels, kidneys, bowel, lumbar plexus, and to a much lesser extent, the spleen and liver. The object of this study is to evaluate the incidence of major complications following MIS lateral fusion performed by experienced surgeons actively engaged in an MIS lateral research society (SOLAS), including visceral (bowel laceration)

and vascular complications (great vessel injury).

Methods: Complication data was retrospectively collected from spine surgeons in both private and academic practice with active SOLAS (Society of Lateral Access Surgeons) membership. Only those with a minimum of 100 lateral interbody fusions were included to mitigate learning curve complication biases. Data was inclusive of all complications including those from early surgeon experience. Lumbar plexus injuries producing transient anterolateral thigh numbness, though common with this approach, were not included as catastrophic complications.

Results: Of 77 spine surgeons contacted we achieved a 52% response rate (40 surgeons). 62.5% orthopedic surgeons (25), 37.5% Neurosurgeons (15), 20% academic (8), and 80% private (32). From 2003 to early 2013, **13,004** patients were treated with MIS LIF. Complication rates were as follows: 0.08% for visceral complications (10) and 0.08% for vascular complication (10).

Conclusion: The low incidence of catastrophic complications (< 0.1%) in a large series highlights the low morbidity of MIS LIF, and compares favorably with complication rates for alternative approaches. Although technically demanding, MIS LIF is a safe and reproducible alternative to other interbody fusion procedures with a low risk of catastrophic complications.