Clinical: Lumbar Fusion (i.e. MIS, TLIF, XLIF, Axial LIF, ALIF)

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A Novel Minimally Invasive Technique to Avoid Injury during the Implantation of the Trans1 Axial Lumbar Interbody Fusion Device

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Aims: A series of patients were prospectively studied to determine the efficacy and feasibility of performing an axial lumbar interbody fusion through a 10-mm endoscopic balloon cannula in the minimally invasive approach to axial lumbar interbody fusion using the Trans1 AxiaLIF® device.

Methods: The presacral space is free of neurovascular and intra-abdominal structures and has proved to be an ideal approach for the Trans1 axial lumbar interbody fusion (AxiaLIF®). In some patients however, the use of the Trans1 AxiaLIF® device is contraindicated due to the possibility of anatomic anomalies caused by previous surgery, pelvic inflammatory conditions and inflammatory bowel diseases. The use of endoscopic balloon cannulas and the laparoscope allow the surgeon to visualize the surgical site and avoid injury to the patient. A standard presacral approach utilizing a 10-mm endoscopic balloon cannula and 10-mm laparoscope is described. One hundred patients treated with this method were evaluated with respect to intraoperative blood loss, operating time, intraoperative and postoperative complications and fusion results.

Results: There were no complications, either general or technique related in any of the 100 patients studied. The use of endoscopic equipment did not increase blood loss or complications and did not decrease fusion rates. In every case clear, unobstructed visualization of the sacrum and Retroperitoneum allowed for implantation without injury to the patient.

Conclusions: The use of a 10-mm endoscopic balloon cannula and endoscope during the implantation of the Trans1 AxiaLIF® device is a safe and effective way to decrease the risk of injury to the patient by mechanically retracting critical anatomic structures away from the operative site. The technique shows little to no effect on blood loss, surgical complications or fusion results with a negligible increase in operative time.