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Deformity in Adults: Outcomes of Minimally-invasive Surgical Treatment (XLIF) out to 42 Months Post-op. An South American Case Series

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Background context: The lumbar degenerative scoliosis patient often presents with significant comorbidities that can complicate the large, invasive reconstructive surgeries that are often performed for deformity correction. The direct lateral approach (extreme lateral interbody fusion, or XLIF) offers a less invasive and therefore more tolerable surgical option for these patients. XLIF is accomplished through one Skin incision and incorporates a blunt finger dissection of the retroperitoneal space, finger-guidance of an initial dilator to the psoas muscle, EMG-guidance of the dilator through the psoas, and expansion of a split-blade retractor system that provides a working channel and direct visualization of the lateral disc.

Purpose: To assess the clinical and radiographic outcomes of degenerative lumbar scoliosis patients having undergone XLIF.

Study design/setting: Prospective clinical study.

Patient sample: 48 patients with degenerative scoliosis with neurogenic claudication and back pain were treated with XLIF procedure.

Outcome measures: Pain visual analog score (VAS) and Oswestry disability index (ODI) were measured preoperatively and at various time points postoperatively. Pre and postoperative measures of scoliosis and lordosis were recorded.

Methods: 48 patients underwent XLIF for the treatment of symptomatic degenerative scoliosis. In all cases the far-side annulus was disrupted to ensure symmetric disc space distraction and a 50-55mm PEEK interbody implant filled with iliac crest autograft was placed from side to side across the disc space at the scoliotic levels such that it rests on the strong ring apophysis. 7% of cases included additional internal fixation. Patients were followed clinically and radiographically for up to 42 months postoperatively.

Results: 48 patients with symptomatic degenerative scoliosis and spinal stenosis were included. Mean patient age was 63 yrs (range: 51-74yrs). XLIF was performed at 1 to 4 lumbar levels (mean 2 levels) between T12 and L5. Mean operative time was 140 minutes and in all cases measured blood loss was less than 50cc. Patients were typically out of bed, ambulating and advanced to regular diet on the day of surgery, and discharged home the following day. There were no procedural complications. Mean pain VAS decreased from 8,7 preoperatively to 4,1 at 3 months postoperatively, 4.4 at 1 year, 4,1 at 2 years, and 5,2 at 3 years, and 4,8 at 42 months. ODI improved from 56 preoperatively to 22 at 3 months postoperatively, 24 at 1 year, 24 at 2 years, and 25 at 42 months postoperatively. Scoliotic deformity was corrected from 26° to 12°, and lumbar lordosis was improved from a mean of 31° to 38°.

Conclusions: The rapid postoperative recovery suggests XLIF to be a less morbid procedure than traditional large reconstructive surgeries for the treatment of symptomatic degenerative lumbar scoliosis. Clinical and radiographic outcomes up to 42-months follow-up show the XLIF procedure for this condition provides continued pain relief, improved physical function, and maintenance of sagittal and coronal plane deformity correction.