Multiplanar Radiological Assessment and Outcomes of Minimally Invasive Surgical Treatment (XLIF) in Adult Deformity. Follow up out to 36 Months

H. Nicola¹, M. Da Silva², L. Pimenta³, D. Onay², A. Damas¹, J. Rodriguez¹
¹Hospital San Juan de Dios, Caracas, Venezuela, ²Clinica Sanatrix, Spine Surgery, Caracas, Venezuela, ³Hospital Santa Rita, Sao Paulo, Brazil

Background context: The current study was undertaken to evaluate one site's early experience with XLIF in lumbar degenerative scoliosis and kyphosis and analyze the role of indirect decompression of the neural elements through restoration of foraminal dimensions and its effect on clinical outcomes. The direct lateral approach (extreme lateral interbody fusion, or XLIF) offers a less invasive and therefore more tolerable surgical option for these patients. XLIF allows for minimally invasive placement of a large anterior graft, facilitating disk height and alignment restoration.

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

Study design/setting: Prospective clinical study.

Patient sample: 62 patients with degenerative scoliosis and 2 patients with degenerative kyphosis with neurogenic claudication and back pain were treated with the XLIF procedure.

Outcome measures: Visual analog pain 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. DEXA Scan was obtained preoperatively.

Methods: 62 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 DBM in a lipid carrier mixed with hydroxyapatite and tri-calcium phosphate granules was placed from side to side across the disc space at the scoliotic levels such that it rested on the strong ring apophysis. 10% of cases included additional internal fixation. Patients were followed clinically and radiographically for up to 36 months postoperatively.

Results: 62 patients with symptomatic degenerative scoliosis and spinal stenosis were included. Mean patient age was 58 yrs (range: 41-76 yrs). XLIF was performed at 1 to 4 lumbar levels (mean 2 levels) between L2 and L5. Mean operative time was 130 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 8.1 preoperatively to 2.8 at 3 months postoperatively, 3.4 at 1 year, 4.8 at 2 years, and 4.6 at 30 months. Mean ODI improved from 53 preoperatively to 19 at 3 months postoperatively, 22 at 1 year, 21 at 2 years, and 28 at 30 months. Scoliotic deformity was corrected from a mean Cobb angle of 22° to 12°, and lumbar lordosis was improved from a mean of 34° to 41°.

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 deformity. Clinical and radiographic outcomes up to 36-months follow-up show that the XLIF procedure for this condition provides continued pain relief, improved physical function, and maintenance of sagittal and coronal plane deformity correction.