

Case Study: eXtreme Lateral Interbody Fusion (XLIF®)

Introduction:

The practice of spine surgery is changing, fueled in large part by innovations in technology that offer surgeons and patients superior options for treating challenging spinal pathologies such as degenerative scoliosis and improving patient outcomes. Roughly 250,000 total lumbar spine procedures are conducted in the United States each year. Adult degenerative scoliosis accounts for about one-third of that market. Many patients suffering from degenerative scoliosis cannot tolerate a traditional "open" procedure because of the increased risks of long anesthesia time, elevated blood loss, patient age considerations, long hospitalization and months – or even years – of recovery.

Surgical Approach

Among the new advancements in spinal surgery, the Extreme Lateral Interbody Fusion (XLIF®, Inc., San Diego, CA), a retroperitoneal, transpsoas approach to anterior column stabilization of the thoracolumbar spine (Fig. 1) has led the way for surgeons to access the spine laterally with the safety of nerve monitoring through the NeuroVision® JJB System.

Indications

The XLIF minimally-disruptive procedure can be performed for multiple thoracolumbar indications, excluding L5-S1 disc space, due to the iliac crest positioning. The list below contains representative examples and is not intended to include all possible indications/and or contraindications. Examples include: DDD with Instability, Recurrent Disc Herniation, Degenerative Spondylolisthesis (\leq grade 2), Degenerative Scoliosis, Pseudarthrosis, Discitis, Vertebral Osteomyelitis (without active infection), TDR Revision, Post-Laminectomy Instability and Junctional Disease.

Case Study:

A 79-year-old female presented to my office complaining that she had chronic low back pain and could not walk or stand more than five to 10 minutes due to lower back pain and radiation to her hips. She had tried various conservative methods of treatment ranging from acupuncture to physical therapy. Her pain became so unbearable that she felt her quality of life was being compromised by debilitating pain ranking a 7 on a pain scale of 1 to 10 (1 being low intensity and 10 being high intensity pain). She explained that her normal daily life functions had become severely restrained and couldn't function whatsoever as she had in the past.

After reviewing MRI's and X-rays, she was diagnosed with severe rotary lumbar scoliosis centered at L3-4, convexed to the right, along with degenerative disc disease, collapses and multiple subluxations on the frontal projection (Fig. 2). There was an 8mm left lateral subluxation of L1, 3mm left lateral subluxation of L2, retrolisthesis and right lateral subluxation of L3, and a 6-7mm right lateral subluxation of L4 with severe multiple level neuro foramina and lateral recess and spinal canal stenosis. We discussed the minimally-

invasive XLIF procedure to correct her spinal deformity and improve her spinal sagittal and coronal balance, relieving the exiting nerve roots, cauda equina and conus. Her main goal was to eliminate pain and increase her quality of life. I felt a minimally-invasive extreme lateral approach with correction of the deformity would afford the patient the greatest result.

I performed the XLIF procedure from L1-5, with 4 laterally inserted intervertebral cages, and 2 lateral plates and bone morphogenic protein; blood loss was 200cc; and this approach required 2 small flank incisions (Fig. 3). This procedure resulted in very satisfactory correction of coronal and sagittal deformity as well as adequate indirect decompression of stenotic neuroforaminas and spinal canal. This lateral approach avoided a much more complex deformity surgery, which usually are performed anteriorly and/or posteriorly; which one wants to avoid, especially in the elderly population. At four weeks post operatively, "all my preoperative back and radiating hip symptoms have all subsided." Three months post operatively, she is feeling "infinitely improved and only takes one or two Tylenol as needed."

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Figure 1: Axial illustration of XLIF's retroperitoneal, transpsoas access to the lumbar spine using MaxCess (NuVasive, Inc.) Retractor.



Figure 2: Before XLIF procedure



Figure 3: After XLIF procedure