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

Minimally Invasive TifLIF (Trans Foraminal Inferior Facet Lumbar Interbody Fusion). A Technical Modification to the Traditional MIS TLIF: Surgical Anatomy and Prospective Case Series Study

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Study design: Description of a new surgical technique and a prospective preliminary case series review of 57 patients.

Methods: From July 2008 to April 2010, 57 patients were treated with lumbar spinal fusion using the minimally invasive TifLIF technique, with posterior pedicular screw fixation supplementation. Diagnoses included degenerative disc disease, degenerative spondylolisthesis and facet cysts. 3 cm paramedian incisions, 5 cms from the midline were used. Using fluoroscopic guidance, a non-traumatic dissection was used to separate the lumbar musculature and through the use of tubular and self-fixating separators, the corresponding facet joint was exposed; a selective inferior facet osteotomy was performed. The medial border of the medial intertransverse muscle was laterally dissected along with the intertransverse membrane, in that way protecting the dorsal root ganglion and the exiting root. Using this technique, we gained access to the Kambin’s safety triangle with sufficient space to perform the discectomy and placement of the intervertebral cage. In all cases, the manipulation of the exiting nerve root was minimal and there was no need to visualize the traversing root. All cases were supplemented by using pedicular screw fixations by way of minimally invasive techniques. Clinical evaluation was performed by using the Oswestry Disability Index and the Visual Analog Scale before surgery and one and six months after the procedure. Patient satisfaction was measured by using the Odom Scale.

Results: Over 90% of patients showed an improvement in the evaluated parameters after their first postoperative month. The improvement rates remained close to 80% at six months. There were no major complications or serious neurologic injuries. The average surgical time was less than that reported for the traditional minimally invasive TLIF, and in hospital stay was less than 24 hours in all cases.

Conclusions: The new TifLIF technique allows us to perform a safe and effective interbody fusion, with minimal and less bone removal, low morbidity, short in-hospital stay and similar clinical outcomes when compared to the conventional minimally invasive TLIF technique.

Keywords: Minimally Invasive Surgery, TLIF, Transforaminal Lumbar Interbody Fusion, Degenerative Disc Disease