

Bilateral Spinal Decompression by Extended Unilateral Mini-open TLIF in Degenerative Spondilolistesis with Central Lumbar Canal Stenosis. Description of the Surgical Technique.

Giuseppe Barbagallo MD; Gianluca Scalia MD; Massimiliano Maione MD; Francesco Certo MD

Introduction

: Degenerative spondylolisthesis is often associated to central lumbar canal stenosis. Minimally invasive techniques have been demonstrated to be feasible and effective not only to obtain spine fixation but also to achieve a wide spinal decompression. We investigate the clinical outcome of a series of patients affected by degenerative spondylolisthesis treated by an extended unilateral mini-open TLIF approach, which allows omolateral radicular decompression as well as central canal and controlateral nerve roots exposure.

The technical steps of such extended transforaminal approach are reported.

Methods

105 patients (48 men and 57 women) affected by symptomatic lumbar canal stenosis associated to degenerative spondylolisthesis, at the same level, underwent microsurgical decompression of stenotic lumbar canal and interbody fusion through MiniOpen-TLIF approach. Patients included in this analysis experienced both radiculopathy and neurogenic claudicatio. The surgical control of controlateral neural structures has been obtained with adequate tilting of surgical bed, microscope inclination and oblique position of tubular retractor. Neural decompression has been performed through unilateral facetectomy followed by laminectomy, drilling of the spinous process and resection of controlateral ligamentum flavum.

Radiological evaluation has been based on pre-operative spine Magnetic Resonance (MR), Computed Tomography (CT) and plain and flexion/extension X-rays. Zurich Claudicatio Questionnaire (ZCQ) and Oswestry Disability Index (ODI) were used for clinical assessment.

Results

Bilateral neural decompression has been achieved in all cases, as demonstrated by volumetric comparative evaluation of pre-operative and post-operative lumbar canal volumes at stenotic level, based on multiplanar CT scan. An increase of at least 30 % of spinal canal volumes has been documented in all cases. Clinical improvement of mean ZCQ and ODI confirmed the clinical impact of this technique.

Conclusions

The clinical and radiological results of this study support the safety and efficacy of the extended unilateral mini-open TLIF approach in patients with symptomatic lumbar canal stenosis and degenerative spondylolisthesis.

Learning Objectives

- To understand surgical steps of extended unilateral laminectomy for central decompression during mini-open TLIF surgery.
- To correlate extension of decompression to clinica outcome.

To know the indications for mini-open TLIF

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