Minimally Invasive Indirect Decompression and Stabilization for Isthmic Lumbar Spondylolisthesis Using Anterior Lumbar Interbody Fusion and Posterior Pedicle Screw Fixation. Prospective Clinical and Radiological 36 Months Follow-up Study

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Introduction: Unstable isthmic spondylolisthesis is a common disease. According to the literature, decompressive laminectomy and fusion is preferred by most surgeons. We believe that satisfactory nerve root decompression may be achieved by complete discectomy and restoration of disc height, followed by ALIF graft and posterior pedicle screws. The purpose of this prospective study was to evaluate safety and, clinical and radiological outcomes of a one stage minimally invasive 360 degrees construction (miniALIF followed by percutaneous pedicle screws) without laminectomy in the management of symptomatic unstable isthmic lumbar spinal spondylolisthesis offering many advantages, such as preservation of posterior arch, no dural retraction, high fusion rate and short hospital stay.

Methods: Data will be collected pre-operative and from O.R. In addition, VAS, ODI, Odom scores and X-rays was collected on all patients preoperatively and at 1, 3, 6, 12, 24 and 36 months postoperatively. Adverse events and surgical related complications will also be recorded.

Results: A series of 17 patients with Isthmic spondylolisthesis in L5-S1 grade I and II were enrolled. All patients recovered uneventfully and improved of preoperative symptoms. Patients experienced minimal post-operative pain and were discharged before 23 hours in 14 cases. VAS, ODI scores improved post-operatively. 100% Excellent-Good results using Odom scale. There were no cases of postoperative neurologic deficits, pseudoarthrosis, malpositioned or broken screws or rods. No revision procedure was performed.

Conclusions: Current study demonstrates that minimally invasive ALIF with percutaneous pedicle screws is an efficacious option for isthmic spondylolisthesis grade I and II. Posterior laminectomy decompression is not necessary to relieve radicular pain. This technique could be a therapeutic alternative for spinal surgeons.