Indirect Decompression of Lumbar Spinal Stenosis with Transpsoas Anterior Lateral Interbody PEEK Cages and Percutaneous Posterior Spine Instrumentation

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Study design: Retrospective review of prospectively collected outcomes data and CT neural canal measurements.

Objective: The purpose of this study is to examine the relationship between radiographic changes (via CT Scan) and the canal dimension and foraminal area at the index vertebral segments prior to and after indirect decompression of the neural foramen and correlate with clinical outcome measures.

Summary of background data: The use of lateral approach, transpsoas cages for direct distraction of the intervertebral space for purposes of indirectly decompressing the neural structures has the potential of decreasing the morbidity associated with open laminectomies. This technique can also reduce and correct both the sagittal and coronal deformities. The addition of MIS (minimally invasive surgery) percutaneous posterior screws will avoid recurrence of the deformity and maintain the canal volumes.

Methods: Single surgeon, consecutive series (N=20) evaluated for 12-24 months. All patients completed all data points. All patients had a lateral approach trans psoas cage with a lateral anterior interbody fusion and a MIS percutaneous screws and instrumentation. Clinical outcomes were obtained prospectively pre and post operatively using SF-36 Health Survey, Visual Analogue Scale (VAS); Oswestry Disability Index (ODI). CT Scans done preoperatively and postoperatively were evaluated by an independent neuro-radiologist who obtained measurements of foraminal height, foraminal volume and posterior disc heights.

Results: The average age of patients was 63 y/o (range 49-72). There were 12 female and 8 males with a mean follow-up of 18 mo. (12-24 months). 18/20 patients had severe stenosis and 2/20 had moderate spinal stenosis as read by an independent radiologist. Mean improvement of the foraminal volume was 20% at L4-5, 24% at L3-4, and 30% at L2-3. The functional outcomes presented a 45% improvement of the VAS, 36% improvement of the ODI and a 15 point improvement in the SF 36. There were no crossovers to a laminectomy.

Conclusion: Small cohort of patients with degenerative adult scoliosis and severe spinal stenosis that have improved clinical outcomes with a MIS lateral approach interbody cage with MIS percutaneous screws, without the need of a laminectomy.