

Adjacent Level Pathology and Reoperation Rates in Patients Undergoing Minimally Invasive Laminectomy and In-Situ Posterior Fusion For Lumbar Stenosis

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Introduction

Traditional surgical treatment for lumbar stenosis includes removal of the spinous process and lamina bilaterally to achieve decompression. This potentially can increase the incidence of adjacent level pathology and need for reoperation. Our objective is to evaluate whether minimally invasive laminectomy and In-Situ posterior fusion (MIL-ISF) can improve patient outcomes while reducing adjacent level pathology (ALP) and need for re-operation

Methods

Between April 2009 and September 2013, 280 minimally invasive laminectomies (MIL) were preformed in 155 patients for lumbar spinal stenosis refractory to non-operative treatments.

Charts were review retrospectively and outcome scales (Oswestry Disability Index(ODI) and Visual Analogue Scale (VAS)) were answered prospectively preoperatively and over a 5 year follow-up period. Facet anatomy was documented as well as stability seen on pre-operative dynamic plain films.



Results

155 patient were follow over the 5 year period with average 2.3 year follow-up. MIL-ISF was most commonly preformed at the L3-L4 (n=123, 44%) and L4-L5 (n=98, 35%) levels. Complications occurred in 9 (5.8%) cases and included superficial wound infection (n=2 (1.3%)), and pulmonary embolism (1 (0.6%). Additional transient complication included urinary retention and atelectasis. Re-operation rates occurred in 5 (3.2%) cases due to new onset or persistent symptoms with 4 (2.6%) requiring same level surgery and 1 (0.6%) adjacent segment surgery. VAS improved from 6.5 to 2.4 (p>0.001) and ODI improve from 58 to 19 (p>0.001). Pre-operative facet anatomy and plain films determined optimal candidates.

Conclusions

MIL-ISF for lumbar stenosis is a safe and effective technique with excellent clinical outcomes, low complication rates and very

complication rates and very low rate of ALP. This low rate of ALP is felt due to preservation of normal anatomical structures of the spine while allowing for adequate neural decompression. Minimally Invasive Laminectomy for Lumbar Stenosis



A. Pre-operative lumbar stenosis,
B-C, images of procedure, and DE, intra-operative views showing canal decompression.



Intra-operative use of local autograph to preform in-situ posterior fusion after MIS laminectomy



MIS Laminectomy



Pre-operative stenosis, intraoperative view, post-operative MRI and incision.

Pre- and Post Operative Images after MIS Laminectomy with In-Situ Fusion



