



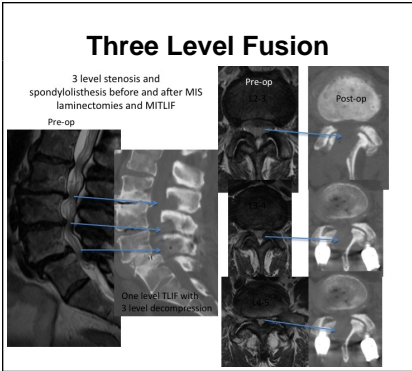
Treatment of lumbar Spondylolisthesis Associated with Adjacent Level(s) Stenosis using Minimally Invasive (MIS) Unisegmental TLIF/ Pedicle Screw Instrumentation and Adjacent Level MIS laminectomy

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Introduction

Low back pain is the second most common reason patients present to the emergency department, and the most common symptom that patients present with to spine surgeons. Many of these patients have multi-level spinal stenosis and associated spondylolisthesis, which is often treated with multi-level decompression and pedicle screw fixation and fusion. This treatment can be associated with significant morbidity.



This study seeks to evaluate the use of single-level MITLIF to treat lumbar stenosis and associated single-level spondylolisthesis with regard to outcome, fusion rates, blood loss, and cost-effectiveness with a retrospective chart review of patients over a six-month period.

The MITLIF procedure has a number of distinct advantages over traditional PLIF and ALIF. These include preservation of the contralateral facet complex, limited nerve root injury, avoid entering the abdominal cavity, reduction of intraoperative blood loss and morbidity.

Patients and Methods

50 patients (mean age 65.8, range 30 – 87) presented with intractable low back pain and neurogenic claudication secondary to spondylolisthesis and adjacent level lumbar stenosis. Patients were evaluated with the Visual analog scale (VAS), short form-36 (SF-36), and Oswestry disability index (ODI) scores pre-operatively and post-operatively at 6 months.

Patient characteristics include 14 males (28%) and 36 females (72%). All patients were treated with unisegmental TLIF and adjacent level laminectomy (1 to 3 levels). 3 patients underwent TLIF at L2-3; 4 patients at L3-4; 34 patients at L4-L5; and 9 patients at L5-S1. The patients experienced excellent pain relief after surgery. Pre and post-operative scores from the VAS, Short Form – 36, and ODI were recorded and analyzed. All findings maintain statistical significance ($p < .001$)

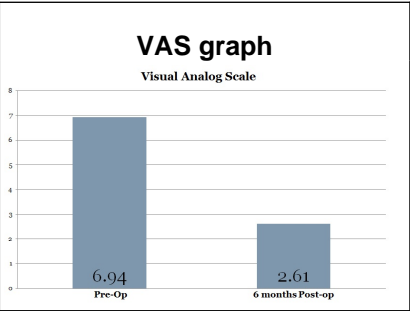
Patient Characteristics

Males	14 (28%)
Females	36 (72%)
Age (range)	65.8 (30-87)
Blood Loss	125.9 mL
Length of Stay	4.13 days
L2-L3	3 (6%)
L3-L4	4 (8%)
L4-L5	34 (68%)
L5-S1	9 (18%)

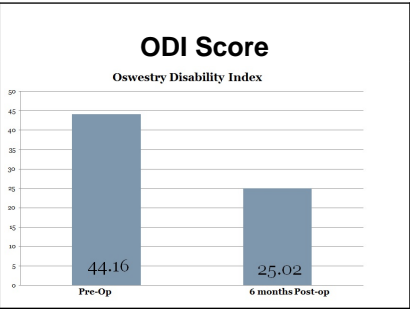
Results

Estimated blood loss and hospital stay was 125.9 mL and 4.13 days, respectively.

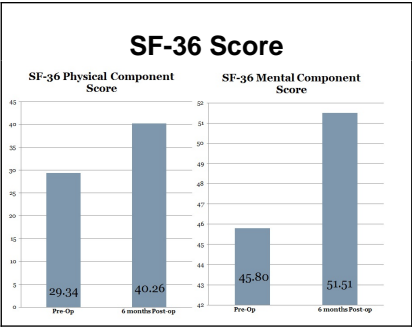
The VAS score decreased from 6.94 preoperatively to 2.61 at six months postoperatively.



The ODI score decreased from 44.16 preoperatively to 25.02 at six months postoperatively.



The SF-36 physical component score (PCS) increased from 29.34 preoperatively to 40.26 at six months postoperatively. The SF-36 mental component score (MCS) increased from 45.80 preoperatively to 51.51 at six months postoperatively.

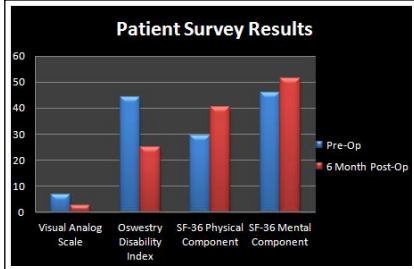


Survey	Preoperative	6 month follow up
VAS	6.9	2.6
ODI	44.2	25.0
SF-PCS	29.3	40.3
SF-MCS	45.8	51.5

Survey	Percent improvement
VAS	41.4%
ODI	36.8%
SF-PCS	19.4%
SF-MCS	N/A

Conclusions

Minimally invasive surgical interventions have the potential advantage of having decreased intra-operative and postoperative complications and morbidity. Patients with multi-level spinal stenosis and spondylolisthesis can be treated with a minimally invasive single-level fusion and adjacent level laminectomy with good results and potentially reduced cost.



References

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