

Open Versus Minimally Invasive Transforaminal Lumbar Interbody Fusion in the Treatment of Two-Level Degenerative Disc Disease

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Introduction

- Transforaminal lumbar interbody fusion (TLIF) is a widely performed procedure for the treatment of degenerative lumbar pathology.
- Minimally invasive TLIF (MI-TLIF) has been integrated into common surgical practice in an attempt to reduce perioperative morbidity associated with the open approach.
- A paucity of literature exists directly comparing the outcomes of two-level MI-TLIF to the traditional open technique.
- Purpose: To compare MI-TLIF versus open TLIF in the treatment of two-level degenerative disc disease.

Methods

- A retrospective review was performed at a single institution to identify patients who underwent two-level open or MI-TLIF between 2013-2018 with a minimum follow-up of 2 years.
- Revision rates and time to revision in each group was analyzed and compared.
- Functional outcomes were assessed via ODI, VAS-I, and VAS-b measurements at follow-up visits.
- All complications were reviewed and compared between cohorts.

Table 1. Patient Demographics

Demographic	MI-TLIF	Open TLIF	p-value
# of patients	42	43	
Age (years)	49.3 ± (14.1)	50.2 ± (12.9)	0.632
Gender (M/F)	25/17	30/13	0.323
BMI	33.1 ± (5.0)	32.1 ± (4.6)	0.221
Follow-up (months)	42.5 ± (9.7)	45.6 ± (10.0)	0.136
# of levels	84	86	0.877
Levels operated (%)			
L3-4	1 (1.2%)	1 (1.2%)	1.000
L4-5	61 (72.6%)	58 (67.4%)	0.461
L5-6	22 (26.2%)	27 (31.4%)	0.454

BMI= Body Mass Index

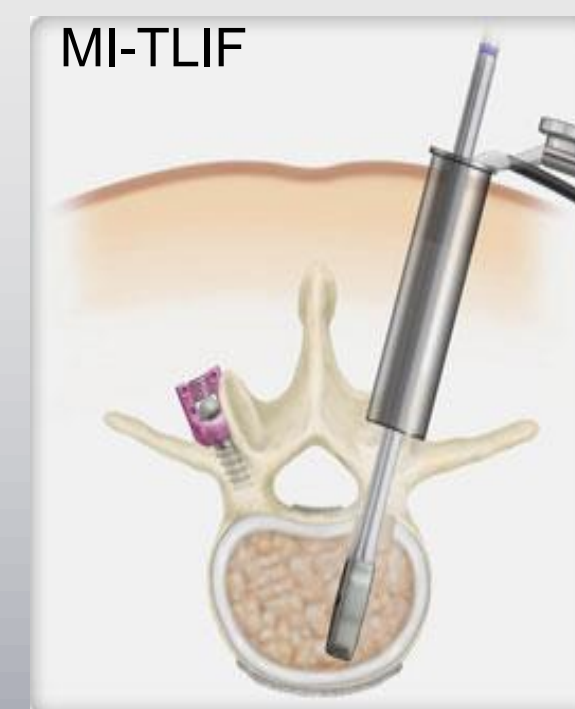


Table 2. Comparison of Revisions & Complications

	MI-TLIF	Open TLIF	p-value
Total Revisions	5 (11.9%)	3 (7.0%)	0.437
ASD/Radiculopathy	1	2	0.187
Pseudarthrosis	3	1	0.465
Wound Infection	1	-	0.408

ASD= Adjacent Segment Disease

Results

- A total of 85 patients were included, 43 in the open TLIF cohort and 42 in the MI-TLIF cohort.
- Complication rates were 2.4% and 2.3% in the MI and open cohorts, respectively (p= 0.987).
- The overall revision rates were 11.9% for the MI cohort and 7.0% for the open group (p= 0.437) (Table 2).
- Average time to revision was 517.6 ± 372.1 and 629.0 ± 144.8 days for the MI and open groups, respectively (p= 0.071).
- The most common reason for revision in the MI-TLIF group was pseudarthrosis (60%), whereas the most common reason for revision in the open TLIF group was recurrent radiculopathy (66.7%).
- Both cohorts experienced significant improvements in their functional outcome scores compared to their pre-operative values.

Conclusions

- MI-TLIF demonstrated similar improvements in functional outcome scores without increased complication or revision rates compared to open TLIF

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**Disclosures: none of the authors have any
potential conflict of interest**