

## Introduction

- Transforaminal lumbar interbody fusion (TLIF) is a widely performed procedure for the treatment of degenerative lumbar pathology.
- Minimally invasive TLIF (MI-TLIF) was developed in an effort to reduce the perioperative morbidity associated with the open TLIF approach.
- There is a lack of literature comparing long-term outcomes between matched cohorts undergoing these two procedures.
- Purpose: To determine the overall revision rates, rates of fusion, and functional clinical outcomes of open versus MI-TLIF with at least five-year follow-up.

## Methods

- A retrospective review was performed at a single institution to identify patients who underwent open or MI-TLIF between 2012-2015 with a minimum follow-up of 5 years.
- Each cohort was matched for age, sex, BMI and levels operated.
- Revision rates, time to revision, graft subsidence and fusion rates in each group were analyzed and compared.
- Functional outcomes were assessed with ODI, VAS-I and VAS-b measurements at follow-up visits.

Table 1. Patient Demographics

Demographic	MI-TLIF	Open TLIF	p-value
# of patients	45	45	
Age (years)	49.9 ± (14.8)	50.9 ± (13.9)	0.742
Gender (M/F)	27/18	27/18	1.000
BMI	30.5 ± (5.4)	30.0 ± (4.5)	0.634
Follow-up (months)	97.9 ± (9.2)	90.3 ± (14.6)	0.004
# of levels	45	45	1.000
Levels operated (%)			
L3-4	1 (2.2%)	1 (2.2%)	1.000
L4-5	28 (62.2%)	28 (62.2%)	1.000
L5-6	16 (35.6%)	16 (35.6%)	1.000

BMI= Body Mass Index

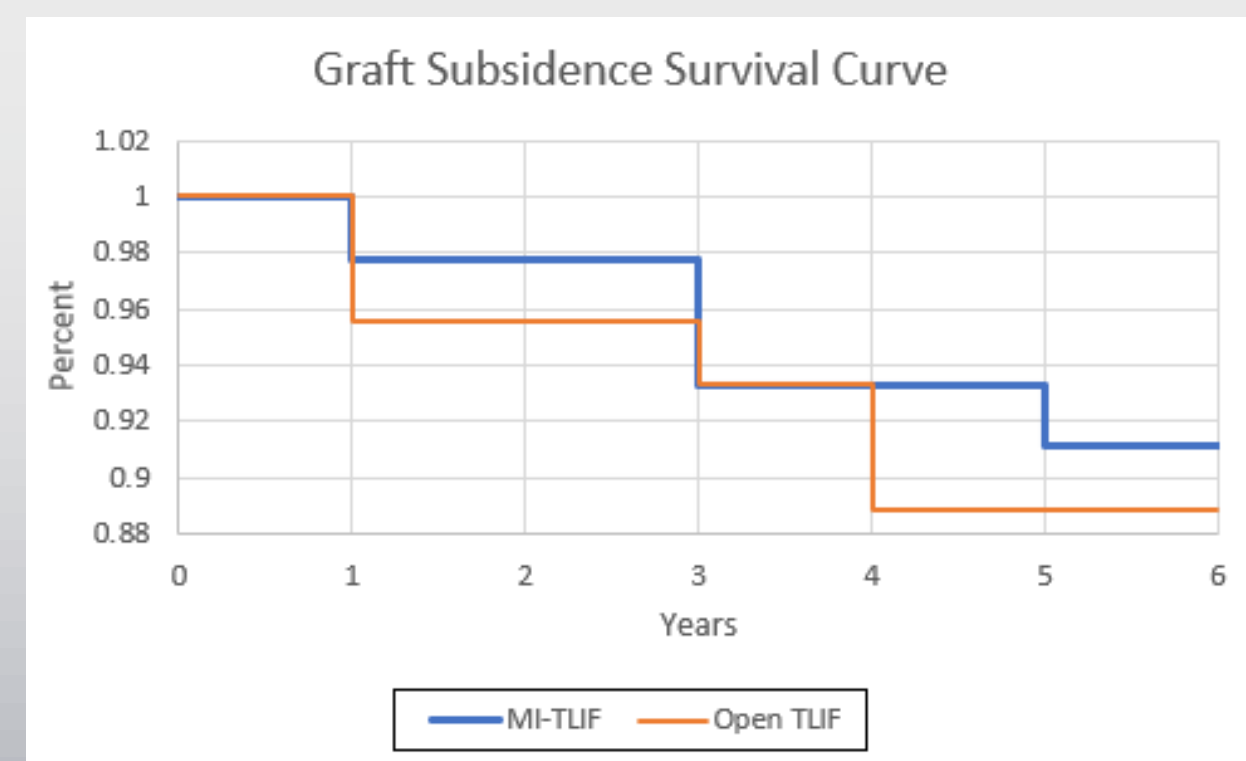


Table 2. Revisions

Revision Indication	MI-TLIF	Open TLIF	p-value
Pseudarthrosis (%)	4 (57.1%)	1 (16.7%)	0.135
Adjacent Segment Disease (%)	0	2 (33.3%)	0.097
Recurrent Herniation (%)	2 (28.6%)	1 (16.7%)	0.612
Residual Stenosis (%)	0	1 (16.7%)	0.261
Epidural Hematoma (%)	1 (14.3%)	0	0.335
Infection (%)	0	1 (16.7%)	0.261
Total	7 (15.6%)	6 (13.3%)	

## Results

- 90 patients were included in this study, 45 in the open TLIF cohort and 45 in the MI-TLIF cohort.
- The overall revision rates were 13.3% for the open TLIF group and 15.6% for the MI-TLIF group (p= 0.764) (Table 2).
- Mean time to revision (TTR) was 1,281.3 and 718.1 days for the open and MI-TLIF groups, respectively (p= 0.015).
- The most common reason for revision was pseudarthrosis (57.1%) in the MI-TLIF cohort and adjacent segment disease (33.3%) in the open TLIF cohort (Table 2).
- 11.1% of patients in the open TLIF group and 8.9% of patients in the MI-TLIF group had radiographic signs of subsidence (p= 0.725) at 5 years post-operatively.
- Successful spinal fusion at 5 years was 89.1% and 91.1% in the open and MI-TLIF cohorts, respectively.
- Both groups experienced significant improvements in their functional outcome scores compared to pre-operative values.

## Conclusions

- After five-year follow-up, MI-TLIF demonstrated similar improvements in functional outcome scores without increased rates of revision or subsidence compared to open TLIF.

## References

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**Title: Open Versus Minimally Invasive Transforaminal Lumbar Interbody Fusion: A Matched Cohort Analysis with Five-Year Follow-Up**

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