# Minimally Invasive Lateral Access Surgery and Readmissions: A Retrospective Study of 1484 Patients

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## Introduction

Unplanned readmissions have increasingly drawn attention as drivers of cost, adding more than $17 billion to Medicare expenditures. Furthermore, since the passage of the Hospital Readmissions Reduction Program in 2012, hospitals can be heavily penalized for increased 30-day readmissions. In lumbar decompressive surgery, the impact of minimally invasive (MIS) lateral access approaches versus open posterior approaches on reoperation rates remains poorly understood. The aim of this study is to determine if MIS lateral access approaches impact 30-day hospital reoperation rates compared to open posterior approaches.

## Methods

The medical records of 1484 patients who underwent single-stage elective lumbar spinal surgery at multiple institutions were reviewed. Patient demographics, comorbidities, peri-operative variables, complication rates, and readmission rates were collected. The primary outcome investigated in this study was 30-day readmission rate, compared between approaches through univariate analysis.

## Results

There were 1242 patients who underwent MIS lateral access surgery and 242 patients who underwent open posterior surgery. Baseline patient demographics and operative course were similar between the two cohorts. While the rate of 30 day readmissions did not significantly vary, there were significantly fewer complications with lateral approaches (13% vs 19%, p=0.02). Furthermore, the rate of reoperation was significantly decreased in the lateral approach (2% vs 5%, p<0.01).

| | MIS lateral access surgery | Open posterior surgery | p-value |
|---|---|---|---|
| ***Demographic*** | | | |
| Mean Age (SD) (n) | 62.8 (11.5) (1008) | 58.9 (14.4) (225) | <0.01* |
| Mean BMI (SD) (n) | 30.1 (0.3) (796) | 31.9 (0.6) (187) | <0.01* |
| Male (%) | 466/1239 (37.6) | 114/241 (41.3) | <0.01* |
| Smokers (%) | 192/1060 (18.1) | 54/225 (24.0) | 0.050 |
| Narcotic use (%) | 677/1062 (63.6) | 149/225 (66.2) | 0.492 |
| ***Peri-op*** | | | |
| CCI >3 (%) | 195/901 (21.6) | 35/191 (18.3) | 0.330 |
| Home discharge (%) | 662/969 (68.3) | 186/208 (89.4) | <0.01* |
| ***Post-operative (within 30 days)*** | | | |
| Readmissions | 50/1242 (4%) | 12/242 (5%) | 0.507 |
| Reoperations | 8/1242 (1%) | 5/242 (2%) | 0.030* |
| Complications | 94/1242 (8%) | 32/242 (13%) | <0.01* |

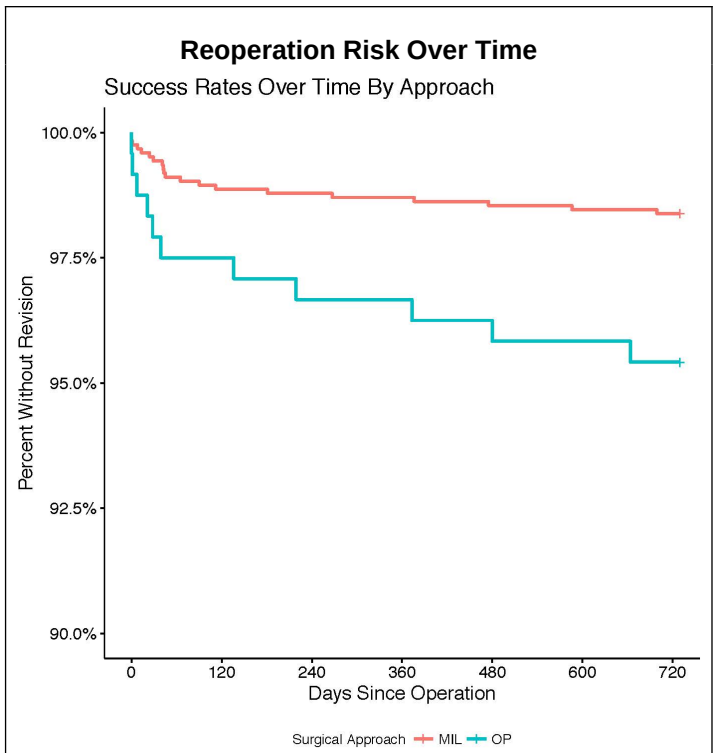
*p-value significant at <0.05

| | Adverse Events | | |
|---|---|---|---|
| | MIL (n=1242) | OP (n-242) | P-value |
| *RRA* | | | |
| *<30 Days* | 50 (4%) | 12 (5%) | 0.476 |
| *RRO* | | | |
| *Overall* | 26 (2%) | 13 (5%) | 0.006* |
| *<30 Days* | 8 (1%) | 5 (2%) | 0.019* |
| *31-60 Days* | 10 (1%) | 3 (1%) | |
| *>60 Days* | 8 (1%) | 5 (2%) | |

** p value <0.05 denotes significance*

## Conclusions

Minimally invasive lateral access surgery, compared to traditional open posterior approach, was associated with a significantly lower rate of post-operative complications. Additionally, lateral access surgeries led to significantly fewer reoperations, thereby reducing risk to the patient and cost to the hospital.




Kaplan-Meier Analysis of Reoperation Over Time

## Learning Objectives

By the conclusion of this session, participants should be able to:

1) Identify the benefits of lateral access surgery with regard to readmissions and reoperations

## References

1.Yeramaneni S, Robinson C, Hostin R. Impact of spine surgery complications on costs associated with management of adult spinal deformity. Curr Rev Musculoskelet Med. 2016;9(3):327-332.
2.Ma Y, Passias P, Gaber-Baylis LK, Girardi FP, Memtsoudis SG. Comparative in-hospital morbidity and mortality after revision versus primary thoracic and lumbar spine fusion. Spine J. 2010;10(10):881-889.