



The Future of Posterior MIS Solutions

Addressing Challenges

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Life moves us

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Challenge 1 – Staff / Managers

- Introducing new / modified techniques
 - New Implants / equipment
 - Cost
 - Paperwork
 - Training
 - Learning curve (25 cases)
 - Go through kit with staff day(s) before case / get staff on a course



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Challenge 2 – Theatre Set Up

- Type of operating table / Light source / Microscope / XR / Navigation / Display Screens / Scrub Staff / Trolleys / Anaesthetist
- Do a trial run / setup
- Pre Op checklist of all kit required



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Challenge 3 – Patient Selection

- The 3Ps
 - Patient / Pathology / Practitioner
- Address patient Ideas / Concerns and Expectations (ICE)
- Have an algorithm / use best evidence
- Start with simple cases
- Practice “open” / go on courses
 - practice over the top decompressions from same side when doing simple decompressions

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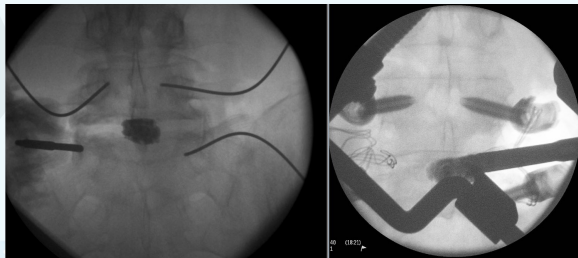
Challenge 4 – Which Implants?
In my opinion

- Big anterior disc space – Altera
- L5/1 – Caliber – has “fan” option
- L3/4/5 - Rise

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Challenge 5 – MIS TLIF Screws or Cage 1st

- Does it matter?
- Make sure contralateral facet release esp if shut down disc



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Challenge 6 – II or Navigation / Robot?



- Cost...
- Radiation – patient / staff
- Learning curve for each

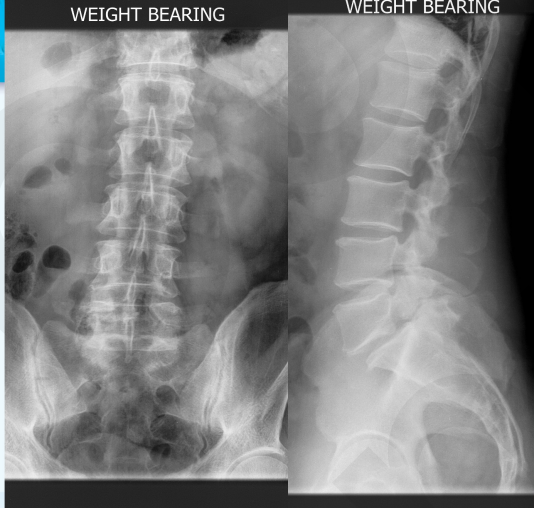
Challenge 7 – Screw Insertion



- Perc screws vs facets (robot or nav helpful)
 - Make sure on TP
 - Scotty dog view
- Size of Jamshidi - small vs large
- Medial screw placement
- Pedicle blowout
- Open kit on standby
 - Arthritic facets / ivory bone – bail out...

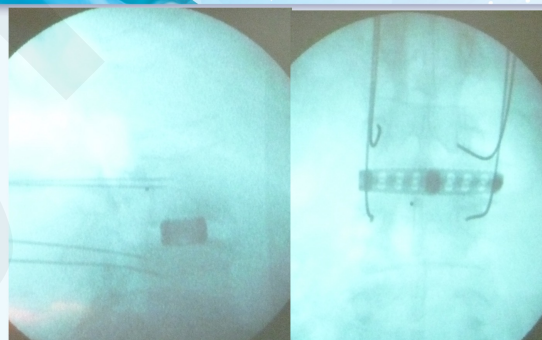
WEIGHT BEARING

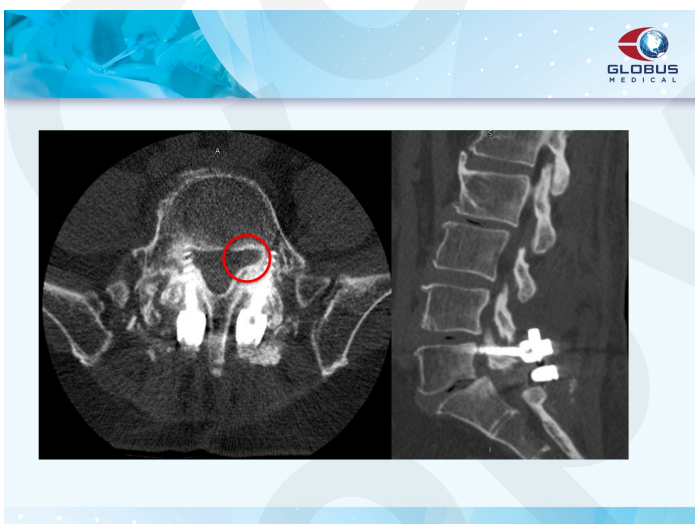
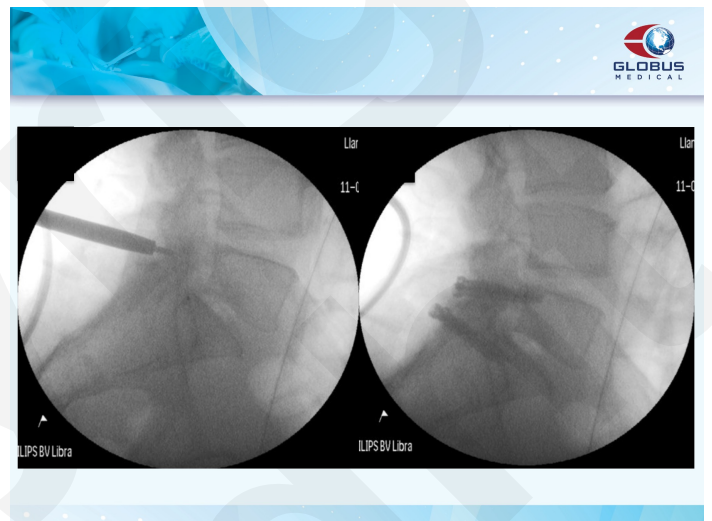
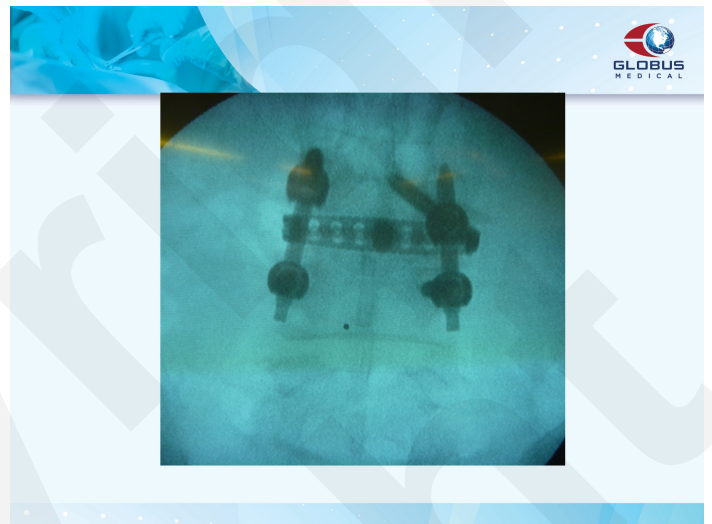
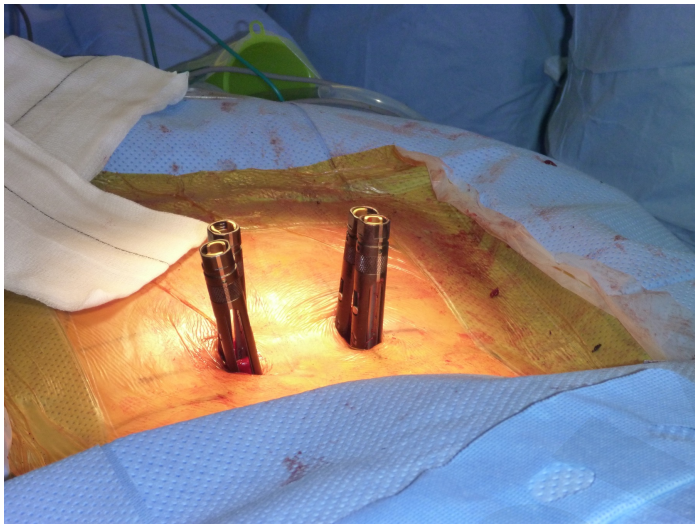
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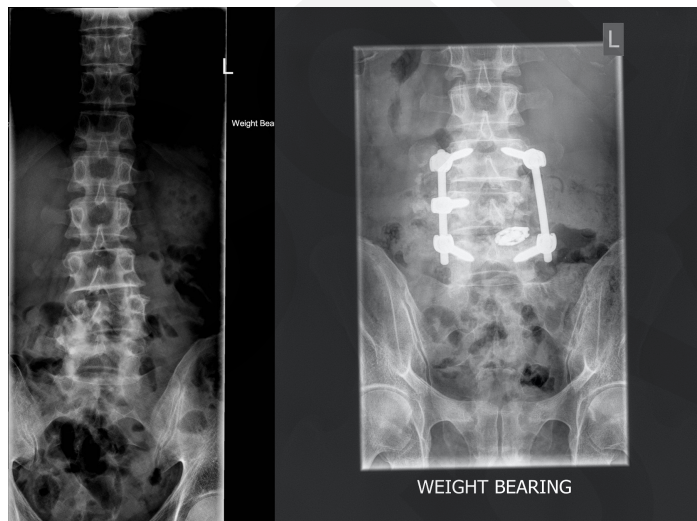
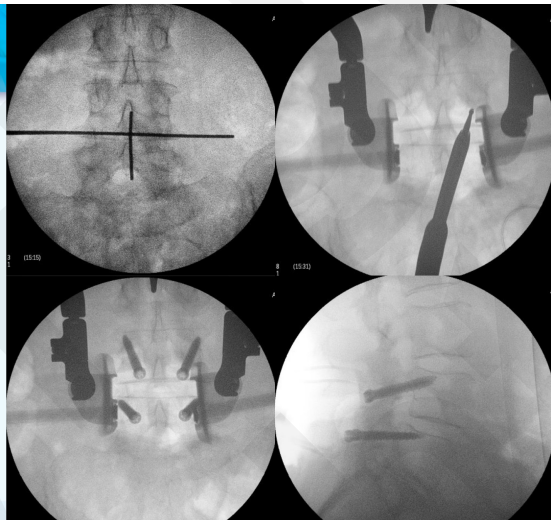


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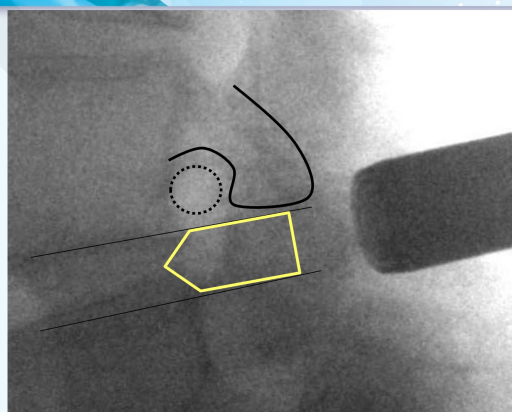
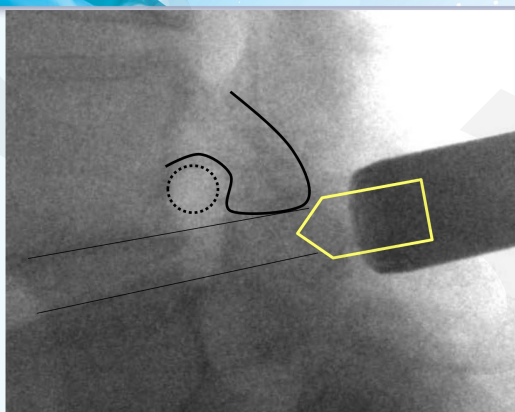
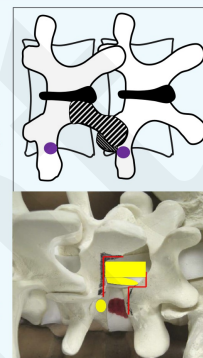


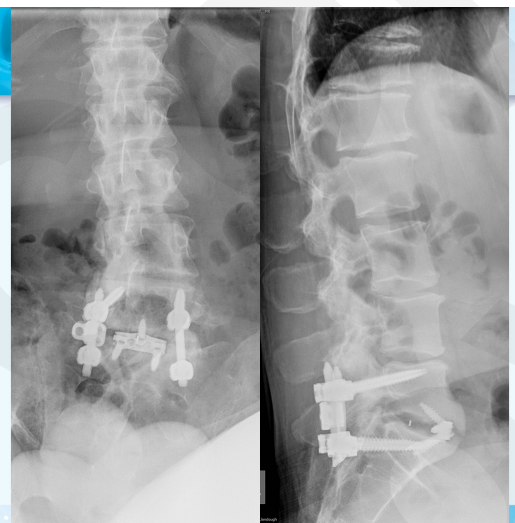
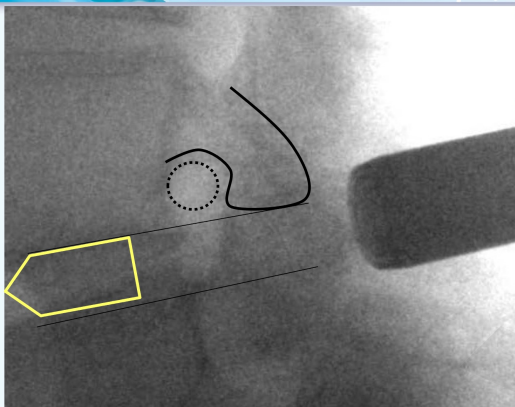




Challenge 8 – Getting In

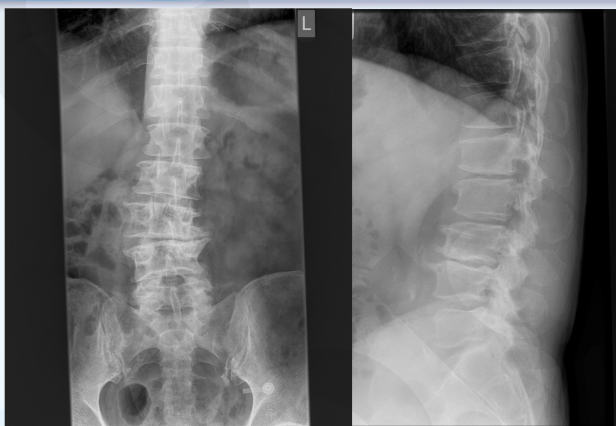
- Retractor systems
- Anatomy of open midline TLIF is different to Wiltse lateral
- Burr / Osteotomes
- Shut down disc - osteotome
- Leave some pars to protect root



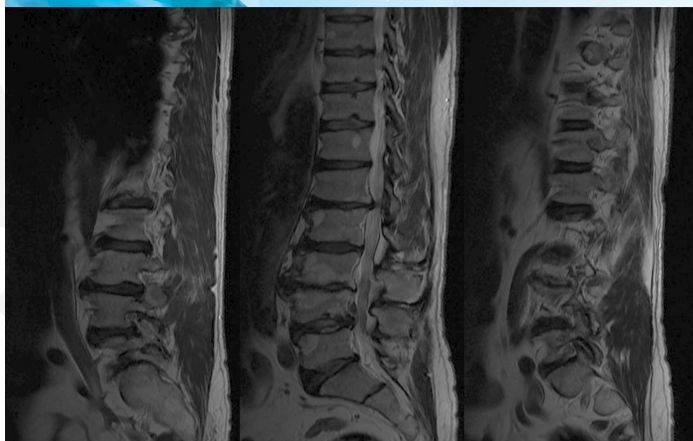


Challenge 9 – Endplate Damage

- Gouging the endplate...
- Be gentle with disc shavers / curettes
- “Feel” the endplate prep
- Avoid pts with osteoporosis
- Screen endplate prep if needs be



L5/S1 Foraminal Stenosis

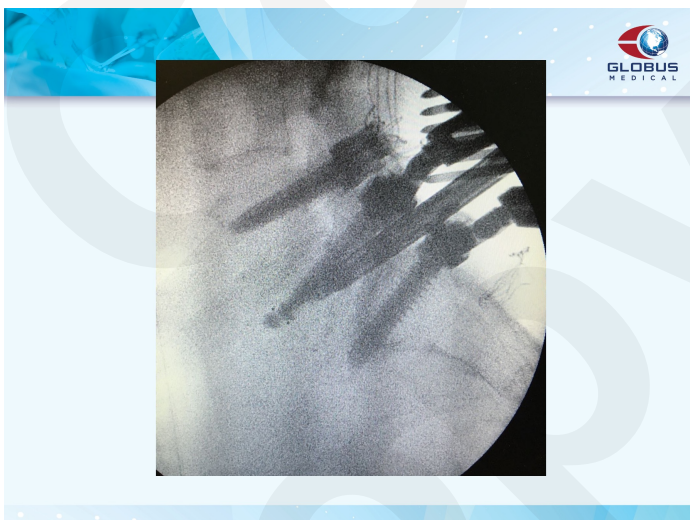


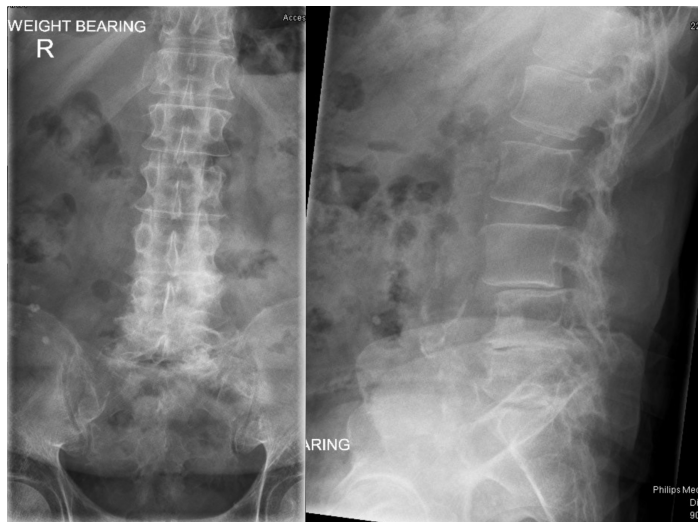


Challenge 10 – Cage Insertion



- Pack some graft in disc space first then reinsert a paddle to create space for cage
 - graft inserting device
- Ensure cage mounted properly and tight
- Watch the root / theca - +/- retract
- Check orientation parallel with disc space in all planes prior to insertion
- Screen before and during expansion
 - Helps avoid cage into endplate

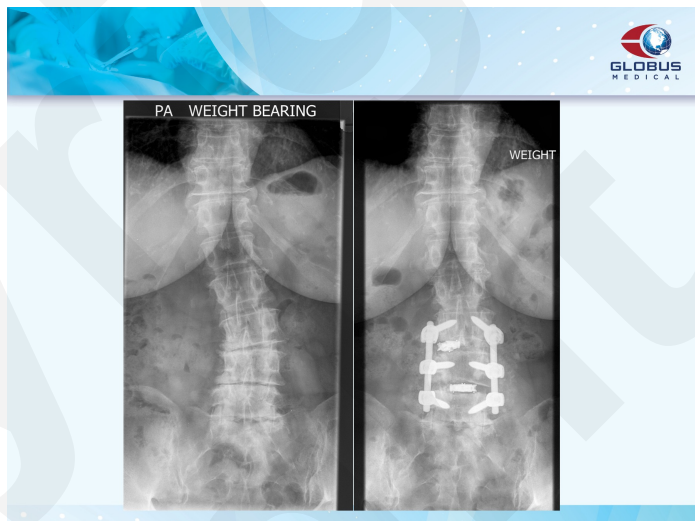




Challenge 11 – Lordosis / Deformity



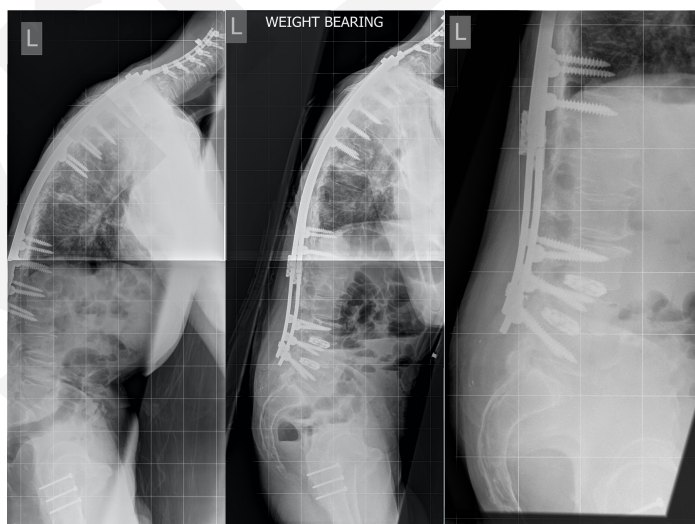
- Creating / maintaining lordosis...
- Offset cage placement



Challenge 12 – Complications



- Gin and glass eyes...
- Cage backout
- Epidural haematoma
- Infection
- Revision



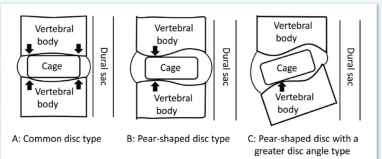
Spine SURGERY

SPINE Volume 37, Number 13, pp 1144-1147
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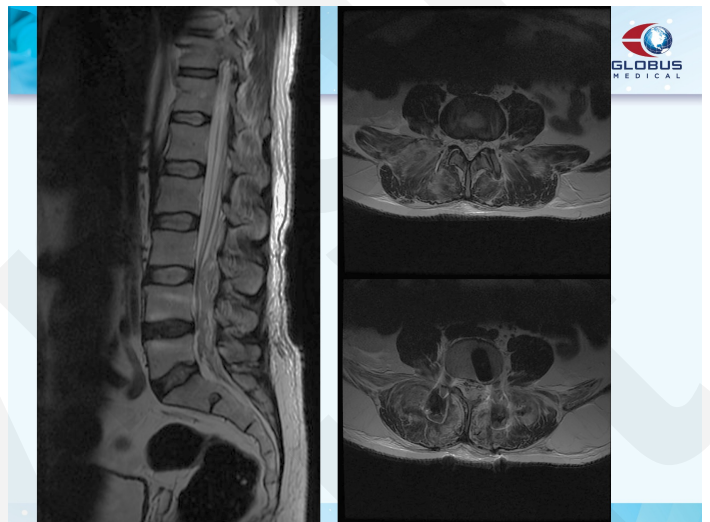
Risk Factors for Cage Retropulsion After Posterior Lumbar Interbody Fusion

Analysis of 1070 Cases

Hiroaki Kimura, MD, PhD, Jitsuhiko Shikata, MD, PhD, Seichi Odate, MD, Tsunemitsu Soeda, MD, PhD, and Satoru Yamamura, MD



- L5/S1
- Wide disc with instability
- Multilevel
- Pear shaped disc space



Spine SURGERY

SPINE Volume 44, Number 2, pp 150-156
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Comparison of Postoperative Outcomes Between Primary MIS TLIF and MIS TLIF With Revision Decompression

Benjamin Khechen, BA, Brittany E. Haws, MD, Dil V. Patel, BS, Ankur S. Narain, MD, Fady Y. Hiji, MD, Jordan A. Guntin, BS, Kaitlyn L. Cardinal, BS, Sravish Iyer, MD, and Kern Singh, MD

Conclusion. The results of the present study demonstrate patients undergoing primary MIS TLIF with LD as a revision to a primary decompression experienced similar postoperative improvements in PROs as compared to primary MIS TLIF patients. This indicates a primary decompression does not compromise clinical outcomes in patients undergoing MIS TLIF. As such, patients should not be precluded from undergoing MIS TLIF based on the history of a previous LD.

