

TLIF (Transforaminal Lumbar Interbody Fusion) vs. Lesser Surgeries for L4-5 Spondylolisthesis

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Disclosures/Disclaimers

- I don't necessarily agree with everything that I am going to say
- Transcendental Spine



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Introduction

- Lumbar instability has many definitions but most would agree that spondylolisthesis, whether degenerative or spondylotic, represents a spectrum of instability
- Patients with symptoms that have not significantly improved with time or non-surgical therapies may benefit with surgical intervention
- More severe pre-operative instability suggests the need for more significant surgical stabilization to improve fusion rates
- The more solid the fusion, the greater likelihood of pain relief



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Surgical Options

- No surgery
- Gill-type procedure
- Laminectomy
- Laminectomy with non-instrumented fusion
- Pedicle screw-augmentation without fusion +/- laminectomy (Dynesys)
- Pedicle screw-augmented fusion +/- laminectomy
- Pedicle screw-augmented fusion with interbody support (generically referred to as TLIF) +/- laminectomy
- Anterior approach with TDR
- Anterior approach with interbody fusion alone
- Anterior approach with interbody fusion and posterior pedicle screw augmented fusion +/- laminectomy
- Lateral approaches
- Co-Flex
- Laminar clamp-type devices
- All of these procedures can be performed in an MIS fashion
- Various methods of arthrodesis materials can be considered (autograft, allograft, BMP, bone extenders, etc)

Indications for Stabilization

- Degenerative disease
 - Spondylolisthesis
- Trauma
- Neoplastic
- Infections
- Deformity




Decision process

- In general terms, we apply multifaceted scientific knowledge (biomechanics, patho-anatomy, natural history and results of intervention) to improve surgically-correctable conditions while realizing that this process remains, very much, an art.
- We attempt to apply the least amount of surgery and the lowest risk-type surgery to a problem we view as surgically treatable.
- We will rely on our personal and collective experience to help guide the surgical decision making process
- We strive to be efficient and effective in resource utilization
- Taking all of this in consideration, the only logical, reasonable and rational surgical procedures for this surgical problem is TLIF
- Why not perform the surgery with the best track record of fusion success?

Open TLIF Advantages

- Well understood anatomy
- Option for direct visualization of most structures
- Can palpate pedicles
- Direct decompression of roots
- Option for direct visualization of most structures
- Radiographic confirmation
- Image guidance
- EMG assessment
- All yield multiple safeguards
- Allows indirect and direct foraminal and disc decompression
- Can help to correct coronal plane imbalance
- Provides a good "landing pad" for cephalad extension



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Shades of Gray: Mini-Open TLIF

SURGICAL APPROACHES

THE MINI-OPEN TRANSFORAMINAL LUMBAR INTERBODY FUSION

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Abstract: In 1982, Harris and Bologan first described the transforaminal lumbar interbody fusion (TLIF) technique to create a single posterolateral approach. In the TLIF procedure, bone graft and an interbody spacer are placed via a posterolateral transforaminal route into a distracted disc space in conjunction with a supplemental pedicle screw construct.

PATIENT POSITIONING: Optimal intraoperative positioning of the patient is critical to achieving success with the mini-open TLIF. We prefer to position patients prone on a standard operating table on chest

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Most published results show:

- Excellent (75%+) radiographic fusion rates
- Fusion rates better than pedicle screws alone
- Fusion rates similar to ALIF
- Excellent clinical results
- Complication rate is well known and accepted
- Lower complication than ALIF

Villavicencio AT et al. J Spinal Disord 2006

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Conclusions

- Open TLIF is a common, time-tested, robust, mechanically-sound, well-accepted treatment for symptomatic L4-5 spondylolisthesis
- Risk/reward ratio is well known and accepted
- Open TLIF is a “successful” operation by spine surgery standards
- TLIF is the correct operation for this patient

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