TRANSFORAMINAL INTERBODY FUSION (TLIF)

Transforaminal – Through or across the foramina
Foramina – A hole or opening in bone or a membranous structure
Interbody – Material inserted between two vertebral bodies to reestablish and maintain disc height
Fusion – Surgically induce union or healing of bone

Basic Anatomical Landmarks: Posterior View Lumbar Spine
TRANSFORAMINAL INTERBODY FUSION (TLIF)

Basic Anatomical Landmarks:
Lumbar Spine

Lumbar Spine Posterior View
- Superior articular process
- Facet joint
- Lamina
- Inferior articular process
- Transverse process

Vertebral Body, Endplate and Disc Anterior View
- Intervertebral disc
- Endplate cartilagenous layer
- Endplate bony layer

Vertebral Body Lateral View
- Superior articular process
- Transverse process
- Body
- Hour glass shape

Lumbar Vertebrae Superior View
- Cortical rim
- Cancellous bone
- Pedicle
- Transverse process
- Superior articular process
- Lamina
- Vertebral foramen
- Spinous process

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Basic Anatomical Landmarks

The posterior elements of the spine lie under these muscles.

The motion segment (outlined in black) is the functional unit of the spinal column. Motion is achieved through the intervertebral disc and the two facet joints.

A motion segment of the spine consists of the intervertebral disc and facet joints connecting any two adjacent vertebrae.

The motion segment is referred to as the "functional unit of the spine" because a combination of adjacent motion segments allows the spine to move in six degrees of freedom.
TRANSFORAMINAL INTERBODY FUSION (TLIF)

Approach/Patient Positioning

1. Transmuscular Paramedian Approach
2. Intermuscular/Wiltse Approach

**Intermuscular/Wiltse** - (Paraspinal/Paramedian Muscle Splitting Approach)
The patient is positioned in the prone position. A paraspinal incision provides the approach and exposure of the operative site

**Patient in Prone Position**
TRANSFORAMINAL INTERBODY FUSION (TLIF)

Technique: Intermuscular/Wiltse

A Wiltse technique is a paramedian (paraspinal) approach to the lumbosacral junction. Unlike a midline incision, where the exposure is created by cutting through the muscle planes, a Wiltse approach utilizes a muscle dividing technique of dissecting between the fascial planes of the multifidus and longissimus muscles to create the exposure.

TLIF Exposure with the Multifidus Muscle Retracted Medially and Longissimus Muscle Retracted Laterally

Unilateral Exposure of the Disc Space

Lamina and Facet Joint on Contralateral Side Still Intact
TRANSFORAMINAL INTERBODY FUSION (TLIF)

Technique: Intermuscular/Wiltse

The incision must be tailored to the pathology, but as a rule of thumb, the incision is made 4.5cm off midline for a TLIF approach as represented in Green.

Once the exposure has been made, a variety of procedures may be performed: a laminotomy, medial facetectomy, foraminotomy, discectomy, TLIF or pedicle screw insertion.
TRANSFORAMINAL INTERBODY FUSION (TLIF)

Technique: Transmuscular (Muscle Splitting)

A paramedian skin incision is made. The intramuscular approach enables the surgeon to access the spine in a less invasive fashion than a midline incision. It’s considered minimally invasive because it preserves the posterior musculature of the spine and is performed unilaterally.

Patient in Prone Position
TRANSFORAMINAL INTERBODY FUSION (TLIF)

Technique: Transmuscular (Muscle Splitting)

The incision must be tailored to the pathology, but as a rule of thumb, the incision is made 4.5cm off midline for a TLIF approach as represented in Green.

This approach utilizes a technique of muscle splitting to access the spine. Essentially, a 20-gauge needle is inserted at the operative site and a series of tubular dilators are advanced over it to create an exposure large enough to perform the procedure through the appropriate size tube.
Dilators are sequentially placed over each other until the desired diameter is reached. A tubular retractor is selected in accordance with exposed markings on the final dilator.

A tube is inserted over the dilators and seated firmly until flush with the bony anatomy and locked in place with a flexible arm. The dilators are then removed establishing a tubular operative corridor.
TRANSFORAMINAL INTERBODY FUSION (TLIF)

Technique: Transmuscular (Muscle Splitting)

Once the tube is in place, a variety of procedures can be performed.
Ultimately, the objective of the transmuscular approach is to perform a laminotomy, medial facetectomy, foraminotomy, discectomy, TLIF or pedicle screw insertion in a minimally invasive fashion.