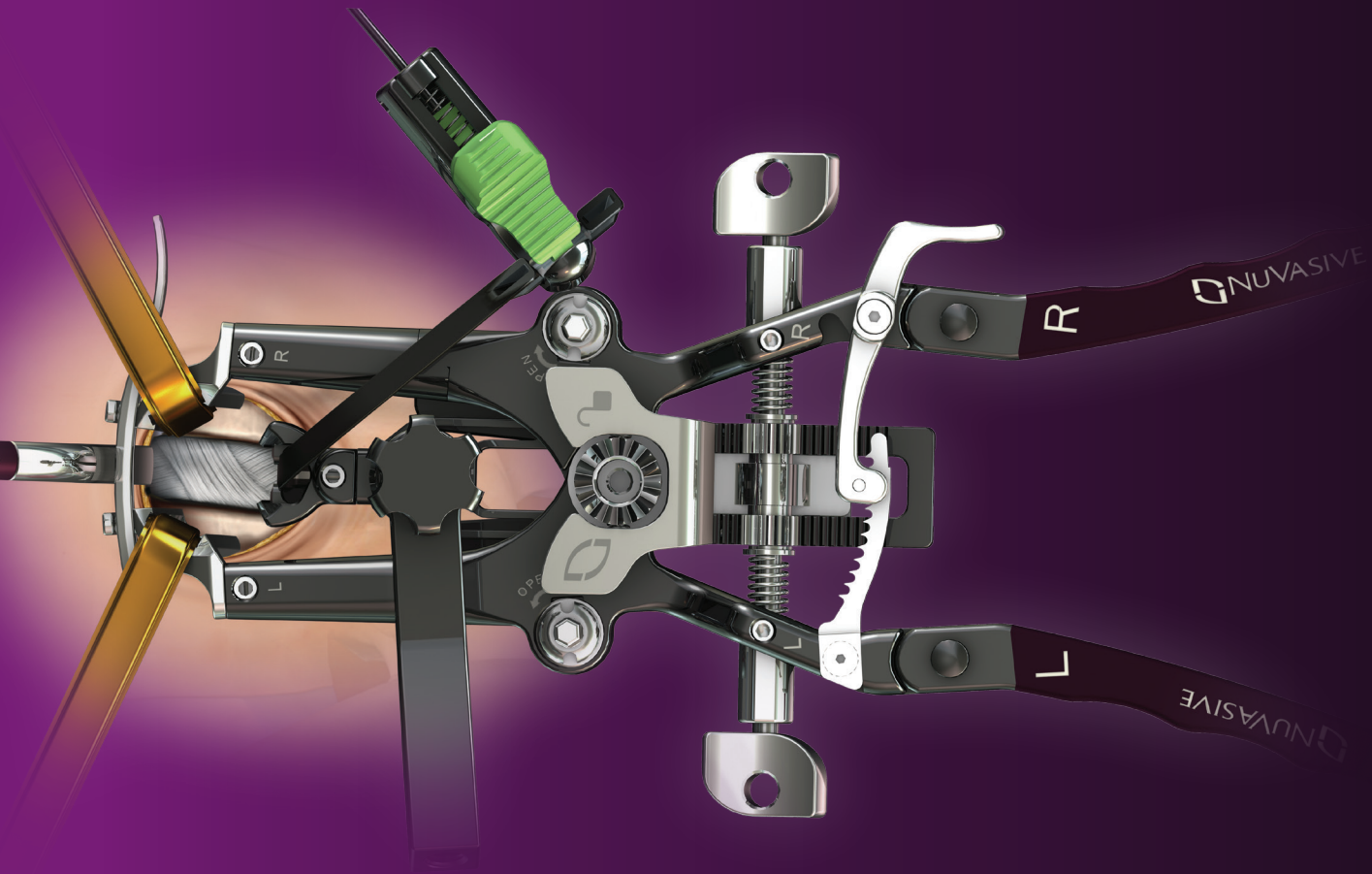




# Surgical Technique



MSD 1180  
IPR2013-00506  
IPR2013-00508

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## PREFACE

Fellow Colleagues,

XLIF® was created to be a safer and more reproducible, minimally disruptive procedure that utilizes conventional surgical techniques and a seamlessly integrated Maximum Access Surgery(MAS®) platform. With years of experience and thousands of successful procedures and system advancements, XLIF applications have expanded from single-level DDD to advanced degenerative spinal pathologies. XLIF is the first clinically validated lateral approach to the spine, allowing surgeons to accomplish fundamental surgical goals—anterior column correction and fusion.

Whereas previous attempts at minimally disruptive spine surgery (e.g., endoscopes, optical trocars, CO<sub>2</sub>) typically introduced an inherent difficulty in using the new technology, XLIF is minimally disruptive while utilizing conventional surgical techniques. Over the years, the XLIF procedure and technology has evolved. However, two systems, described below, continue to help enable safer and more reproducible minimally disruptive spine surgery.

The MaXcess® 4 Access system provides maximum surgical access while minimizing the soft tissue disruption that often occurs during open surgery. MaXcess 4 allows the fundamentals of conventional surgical techniques to be achieved, while eliminating the unfamiliar requirements of operating coaxially through tubular portals. Additionally, since there are no adjunctive visualization tools (e.g., endoscope, monitor), the MaXcess 4 Access System enables direct illuminated visualization of the patient's anatomy through conventional methods.

The NVM5® system is another important technology that helps to enable safer and more reproducible minimally disruptive techniques. This system is the only surgeon-driven technology that provides dynamic, discrete information on nerve location and condition. The XLIF technique described in this guide utilizes a direct lateral, retroperitoneal, transpsoas approach to access the intervertebral disc. NVM5 was designed to enable a safer trajectory past the nerves in the psoas muscle by communicating nerve proximity and directionality information. This enables the surgeon to locate and avoid the lumbar plexus while accessing the disc. NVM5 is the only clinically validated nerve avoidance system for safety and reproducibility during a lateral transpsoas technique.

XLIF adoption has grown significantly since its introduction. Initially, the XLIF technique was used to address mainly single-level degenerative conditions in the lumbar spine. Since then, the indications have evolved and expanded. Today it is used routinely as a minimally disruptive solution to address many degenerative spinal pathologies that require anterior column support and/or reconstruction, including deformity.

As we continue to evolve spine surgery and decrease patient morbidity, it is imperative that the techniques do not undermine the surgical fundamentals that have served us well. The XLIF technique satisfies this requirement and should be considered as one of the many viable treatment options available to the spine surgeon.

Cordially,

A handwritten signature in black ink, appearing to read "Luiz Pimenta". The signature is fluid and cursive, written in a professional style.

Luiz Pimenta, M.D., Ph.D.  
Hospital Santa Rita  
São Paulo, Brazil

## PRESURGICAL PREPARATION

### EQUIPMENT REQUIREMENTS:

To successfully complete this technique, the following patient positioning supplies, instruments, implants, and fixation options are required.

#### PATIENT POSITIONING:

- 3 Inch Tape
- Axillary Roll
- Foam Padding
- Radiolucent Bendable Surgical Table

#### INSTRUMENTS:

- C-Arm
- Light Source
- MaXcess<sup>®</sup> 4 Access System
- MaXcess 4 Articulating Arm Tray
- MaXcess 4 Kit
- MaXcess Fixation Shim Kit (*optional*)
- XLIF<sup>®</sup> Instruments
- Anterior/Lateral General Instruments
- NVM5<sup>®</sup>
- NVM5 XLIF Dilator Kit
- NVM5 EMG Module

#### IMPLANTS:

- CoRoent<sup>®</sup> (XL, XL-W, XL-XW, XL-CT, XL-F, XL-FW, XL-K, XL-T)

#### LATERAL FIXATION OPTIONS:

- XLP<sup>®</sup>
- XLP Plus

#### POSTERIOR FIXATION OPTIONS:

- Precept<sup>®</sup>
- Armada<sup>®</sup>
- SpheRx<sup>®</sup> II
- SpheRx DBR III
- SpheRx PPS
- SpheRx PPS + EXT
- Radian<sup>®</sup> Facet Screws

Reference the CoRoent, MaXcess 4, NVM5, SpheRx II, SpheRx DBR III, Armada, Precept, Radian, and XLP Surgical Technique(s) or Reference Manual(s) and/or Instructions for Use (IFU) for additional important labeling information.

## PRESURGICAL PREPARATION

### **SURGICAL CONSIDERATIONS:**

The XLIF procedure enables access to the spine via a lateral, retroperitoneal approach. The anatomic landmarks the surgeon should consider when preparing for this technique are the iliac crest, the 12th rib, and the lateral border of the erector spinae muscles.

Two small incisions will be made during this procedure. The surgeon will use the first incision, located near the lateral border of the erector spinae muscles, to access the retroperitoneal space and safely guide the initial XLIF Dilator to the psoas muscle. The second incision, located in a direct lateral position, will be used to place the Dilators and retractor, and will provide disc space access. This two-incision technique was specifically developed to offer simple and efficient access to the spine, while minimizing the potential for peritoneal injury, however various single-incision techniques may be used alternatively.

### **RETROPERITONEAL ACCESS:**

Alternating blunt scissor and finger dissection is used to safely enter the retroperitoneal space. Once the index finger is inside the space, a gentle sweeping motion is used to release the peritoneum anteriorly and create a space through which the Dilators and retractor will pass. The initial XLIF Dilator will first pass through the oblique muscle layers and meet the index finger just inside the retroperitoneal space. The index finger will then escort the Dilator safely past the peritoneum down to the surface of the psoas muscle.

### **TRANSPSOAS ACCESS:**

Once the initial XLIF Dilator is on the surface of the psoas muscle, the Dynamic Stimulation Clip is connected to the Dilator. As the Dilator is advanced through the psoas, the surgeon uses the NVM5® neuromonitoring system to detect and avoid the nerves of the lumbar plexus. A direct lateral trajectory targeting just posterior to the middle of the disc minimizes the chance of encountering a nerve and ensures that the anterior vessels remain well anterior to the access corridor. Once docked on the spine, the Dilator is affixed to the disc with a K-Wire, and subsequent dilation and muscle-splitting retraction establish the operative corridor.

## XLIF<sup>®</sup> SURGICAL TECHNIQUE

### STEP 1:

#### PATIENT POSITIONING & O.R. SETUP

Under AP fluoro guidance, the patient is placed on a radiolucent and bendable surgical table in a direct lateral decubitus (90°) position so that the greater trochanter is slightly inferior to the table break. The patient is then secured with tape at the following locations (*Fig. 1*):

Just below the iliac crest (**A**)

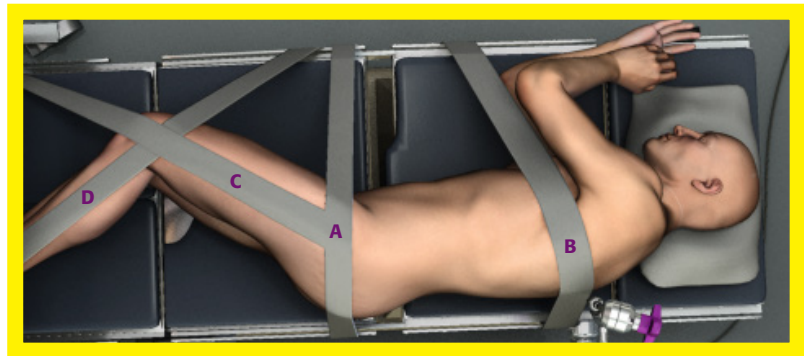
Over the thoracic region (**B**)

From the greater trochanter to the knee, then secured to the table with padding placed between knees (**C**)

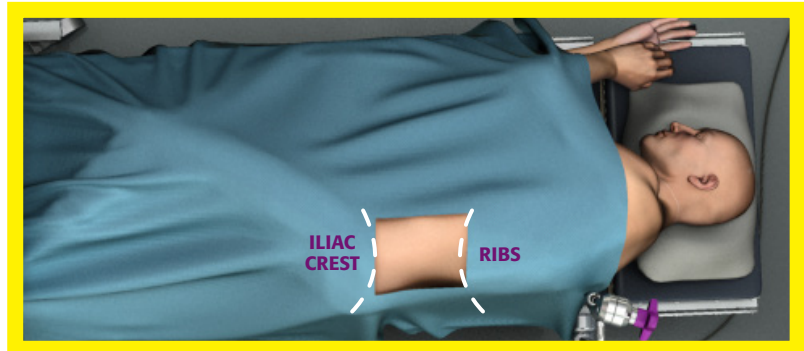
From the table to the knee, past the ankle, then secured to the table (**D**)

This configuration ensures that the pelvis tilts away from the ipsilateral spine, allowing access to all lumbar levels, particularly L4-L5, without interference from the iliac crest.

Using fluoroscopy to verify location, the surgical table may be flexed to increase the distance between the iliac crest and the ribs in order to gain direct access to the disc (*Fig. 2*) and tension the skin.



(Fig. 1)



(Fig. 2)

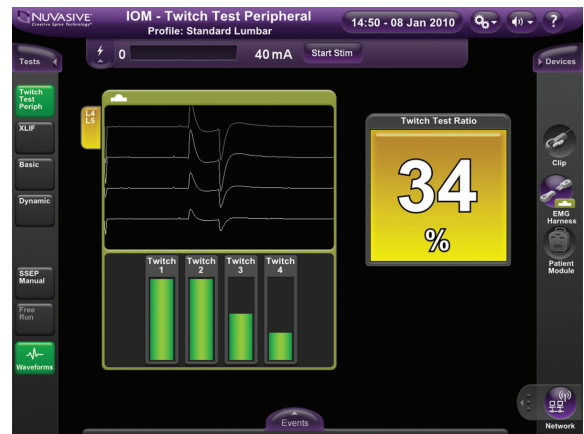
## XLIF® SURGICAL TECHNIQUE

### STEP 1:

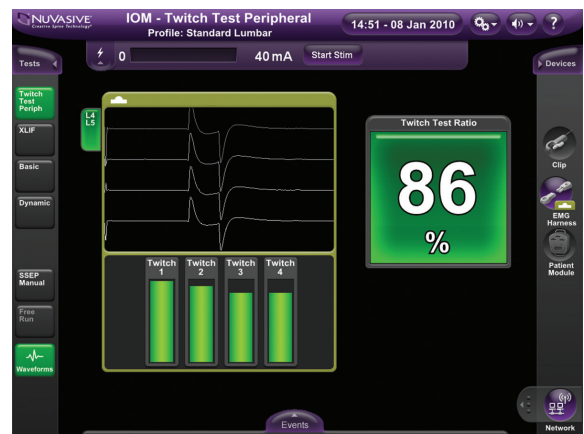
#### PATIENT POSITIONING & O.R. SETUP (CONT'D)

##### NVM5® TWITCH TEST

In order to ensure that accurate EMG readings are obtained later in the procedure, it is imperative that a Twitch Test be performed once the patient is positioned and the NVM5 electrodes are in place (see NVM5 Reference Manual for details). If the Twitch Test results are unacceptable (*Fig. 3*), anesthesia should be instructed to reverse paralytics and muscle relaxants until an acceptable Twitch Test is conducted (*Fig. 4*).



(Fig. 3)



(Fig. 4)

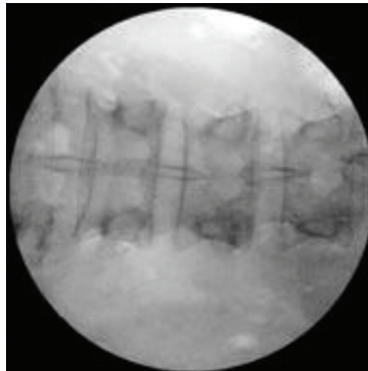
## XLIF<sup>®</sup> SURGICAL TECHNIQUE

### STEP 1: PATIENT POSITIONING & O.R. SETUP (CONT'D)

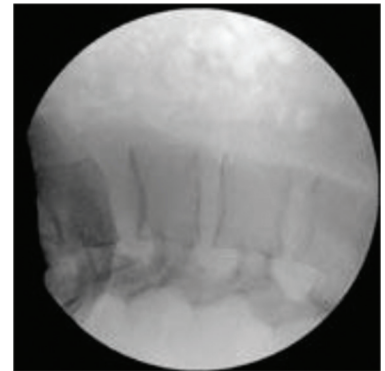
Once the patient is secured, the table should be adjusted so that the C-Arm provides true AP images when at 0° (distinct endplates and pedicles symmetrical about the spinous process), and true lateral images when at 90° (distinct endplates and superimposed pedicles) (Figs. 5, 6).

The table should be adjusted independently when accessing each level in order to maintain this relationship.

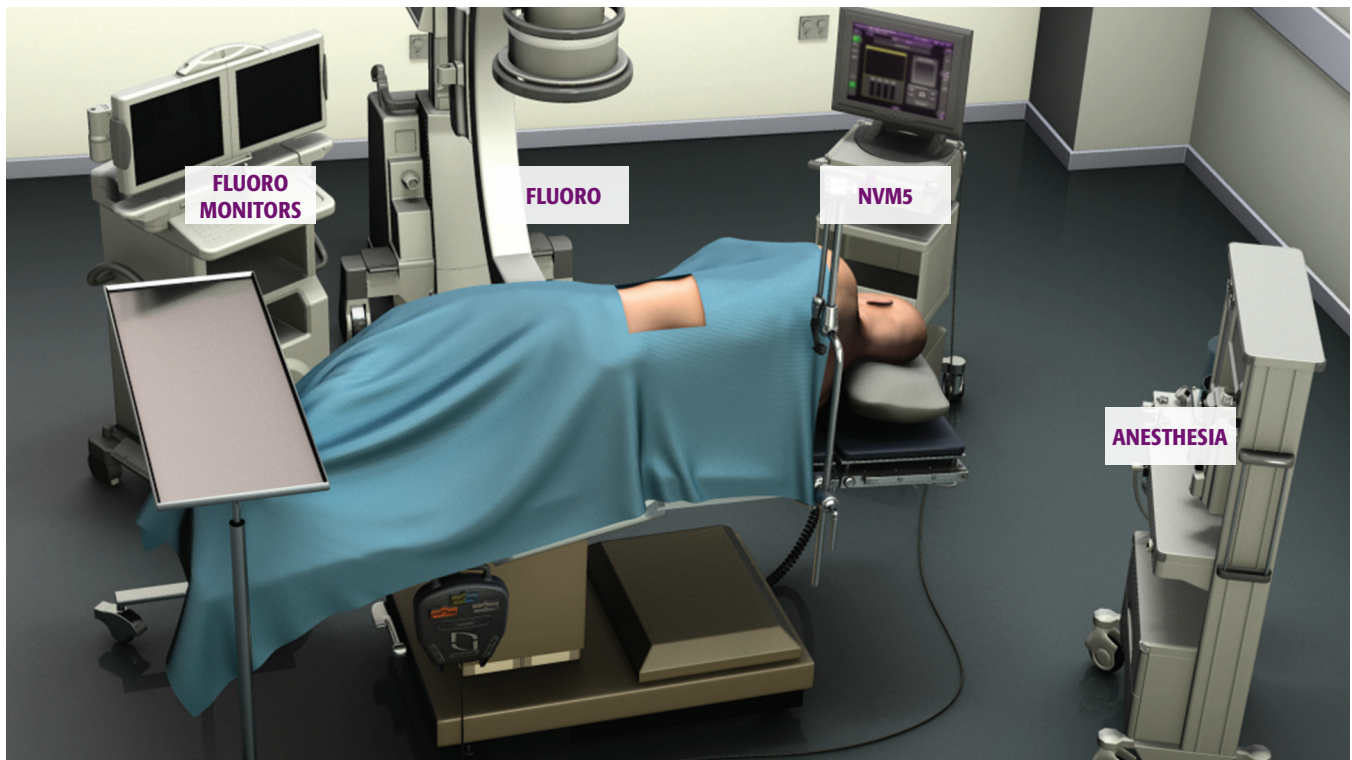
The NVM5<sup>®</sup> control unit should be placed opposite the surgeon to enable an unobstructed view (Fig. 7).



(Fig. 5)



(Fig. 6)



(Fig. 7)



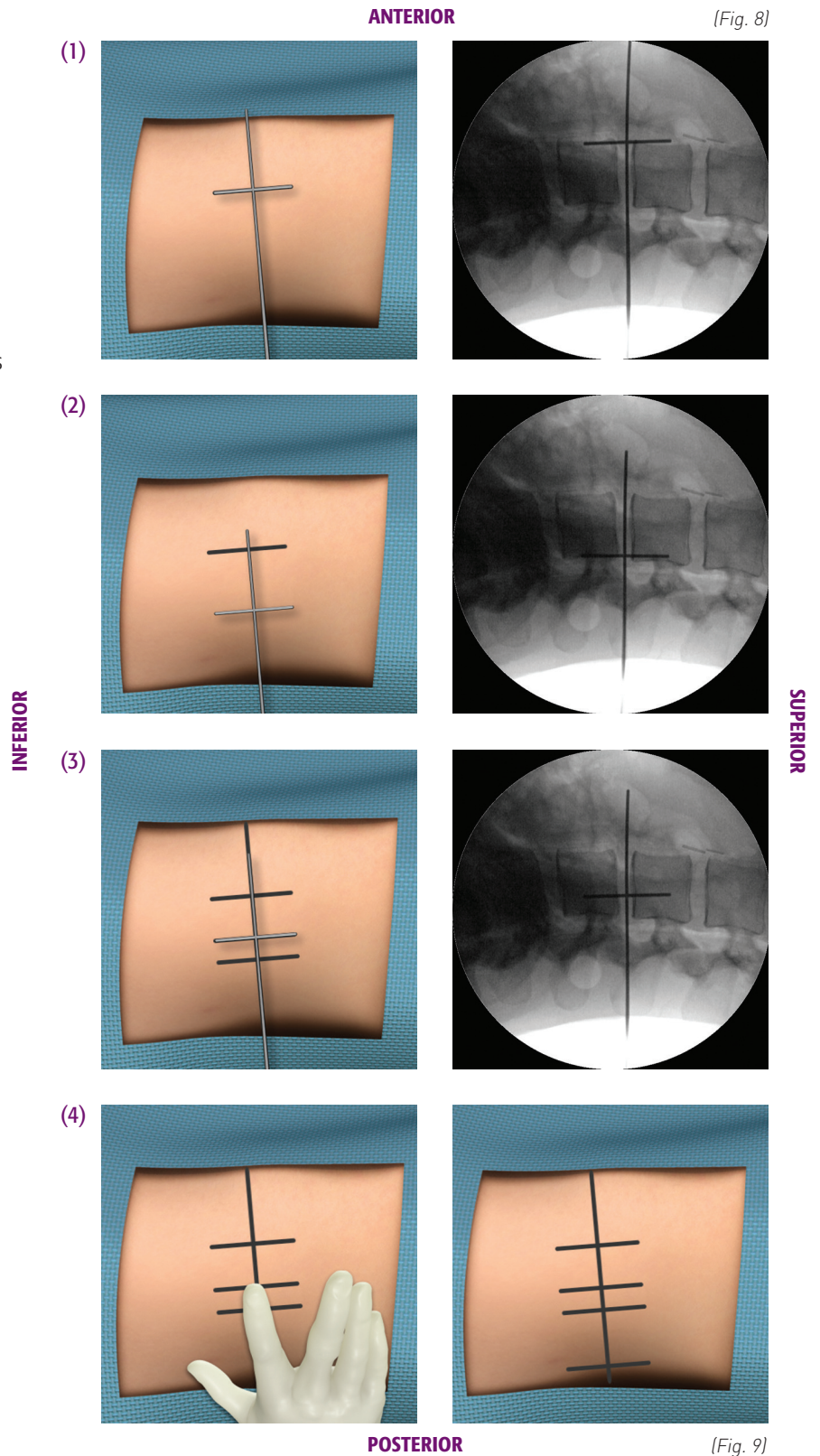
## XLIF® SURGICAL TECHNIQUE

### STEP 2: ANATOMIC LANDMARK IDENTIFICATION & INITIAL INCISIONS

Following standard surgical preparation, the disc space is localized using lateral fluoroscopy (*Fig. 8*).

Using the Targeting Instrument, longitudinal marks are made on the skin to define the anterior border of the vertebral bodies (1), the posterior border of the vertebral bodies (2), and the posterior third of the disc space (3). Next, a transverse mark, in line with the disc space, is made on the skin (4). Extending this transverse mark serves as a visual reference to both surgeon and C-Arm operator.

Another mark is made on the skin at a posterolateral location that will serve as the location for the skin incision for accessing the retroperitoneal space via blunt scissor and finger dissection. Typically, this is a finger length's distance from the lateral incision and just lateral to the erector spinae muscles (*Fig. 9*).

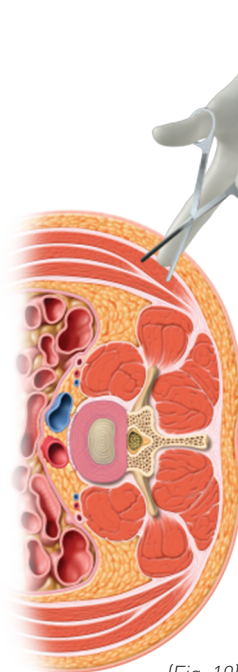


## XLIF<sup>®</sup> SURGICAL TECHNIQUE

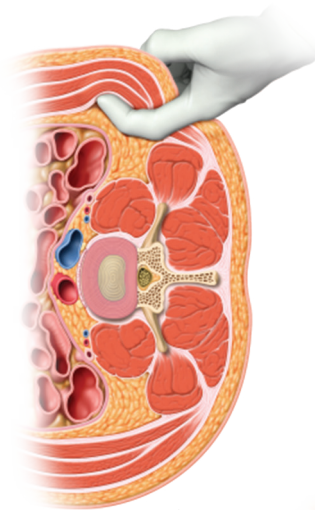
### STEP 3: RETROPERITONEAL ACCESS

The skin and fascia are incised at the posterolateral marking. Through this incision, the muscle layers of the external obliques, internal obliques, and transverse abdominis are dissected using alternating blunt scissor and finger dissection (*Fig. 10*). Care should be taken to preserve the sensory nerves in these muscle layers (i.e., electrocautery should be avoided). The final fascial layer that will be reached is the transversalis fascia, which can be perforated by gentle pressure with blunt scissors. Typically a loss of resistance by the fascia and constriction around the finger indicates that the retroperitoneal space has been reached. Care should be taken to avoid abrupt advancement, which could cause perforation of the peritoneum.

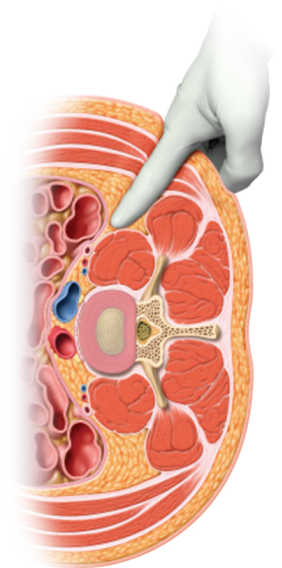
Once inside the retroperitoneal space, the index finger is used to create space and release the peritoneum anteriorly (*Fig. 11*). When the peritoneum is released, the finger is then used to palpate the psoas muscle or the anterior surface of the transverse process (*Fig. 12*) for verification of position within the retroperitoneal space.



(Fig. 10)



(Fig. 11)



(Fig. 12)

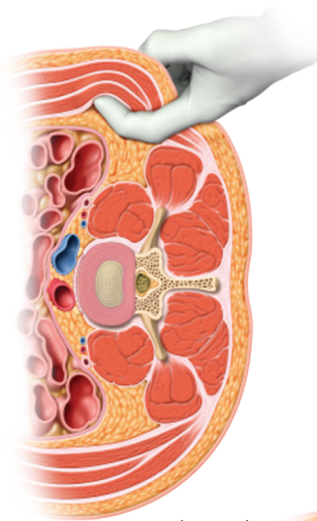
## XLIF® SURGICAL TECHNIQUE

### STEP 4: RETROPERITONEAL APPROACH

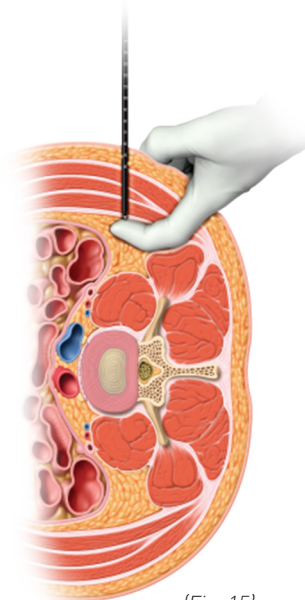
Once the retroperitoneal space is identified, the index finger is brought up to the inside abdominal wall underneath the direct lateral skin mark (Fig. 13). This step ensures that a pathway exists between the abdominal wall and the psoas muscle.

A skin and fascial incision is made at this location (Fig. 14) followed by blunt dissection through muscle planes and the transversalis fascia. Then the initial XLIF Dilator (black) is introduced (Fig 15).

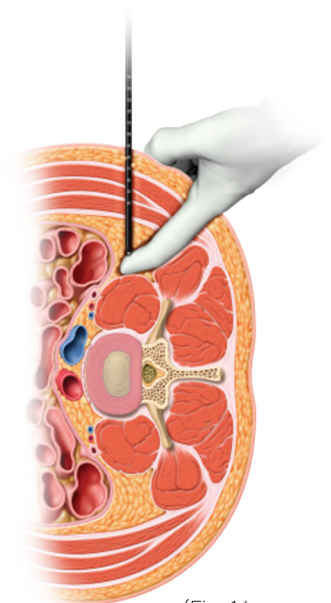
The index finger that is inside the retroperitoneal space is then used to escort the initial Dilator down to the psoas muscle (Fig. 16).



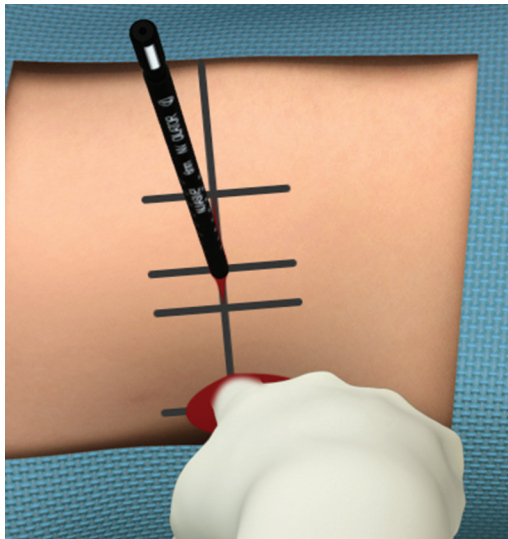
(Fig. 13)



(Fig. 15)



(Fig. 16)



(Fig. 14)

## XLIF<sup>®</sup> SURGICAL TECHNIQUE

### STEP 5: TRANPSOAS APPROACH

#### IMPORTANCE OF NEUROMONITORING:

Neuromonitoring is critical to the safety and reproducibility of any lateral transpsoas approach due to the lumbar plexus' positioning within the psoas. The motor nerves of the lumbar plexus generally reside within the posterior third of the psoas, however, their positioning can vary from patient to patient.

XLIF<sup>®</sup> relies on the clinically validated dynamic EMG nerve avoidance mode of NVM5<sup>®</sup> to identify a safer docking position and working area.<sup>1</sup>

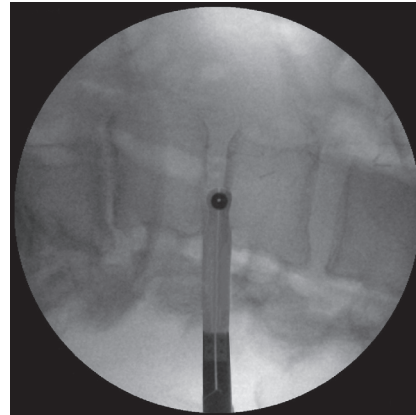
NVM5 offers surgeon-driven, real-time discrete thresholds, as well as directionality and relative proximity nerve information.

Upon reaching the lateral surface of the psoas muscle with the initial XLIF Dilator, the location is verified with a lateral fluoroscopic image. The ideal docking location is the junction of the posterior third and anterior two-thirds of the disc space, or as posterior on the disc space as NVM5 favorably allows (Fig. 17).

The Dynamic Stimulation Clip is attached to the initial Dilator and NVM5 is activated in XLIF mode. The initial Dilator is then passed medially through the psoas, while slowly being rotated 360° to determine the three-dimensional position of the nerves.<sup>2</sup> NVM5 will display the continually updated threshold stimulation that triggers a neural response (Fig. 18-20). A line on the proximal end of the Dilator indicates the stimulation direction, and if this stimulation is directed away from the nerves, the NVM5 monitor will display a higher threshold. If alert-level thresholds indicate an unsafe docking location, the Dilator is removed from the psoas and moved to a new trajectory, away from the nerves. Lower EMG thresholds posterior with higher thresholds anterior, generally indicates a safe position. This process is repeated until a safe path through the psoas to the spine is identified. For more information, refer to the NVM5 Quick Reference Manual in the help section on the NVM5 screen.

<sup>1</sup> Uribe JS, et.al. J Neurosurg Spine 13:260-266, 2010

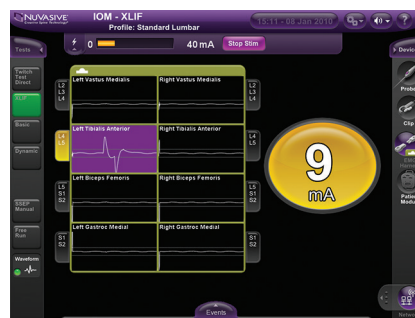
<sup>2</sup> Tohmeh AG, et. al. J Neurosurg Spine 14:31-37, 2011



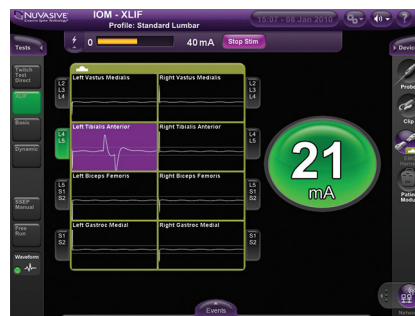
(Fig. 17)



(Fig. 18)



(Fig. 19)



(Fig. 20)

## XLIF® SURGICAL TECHNIQUE

### STEP 5: TRANPSOAS APPROACH (CONT'D)

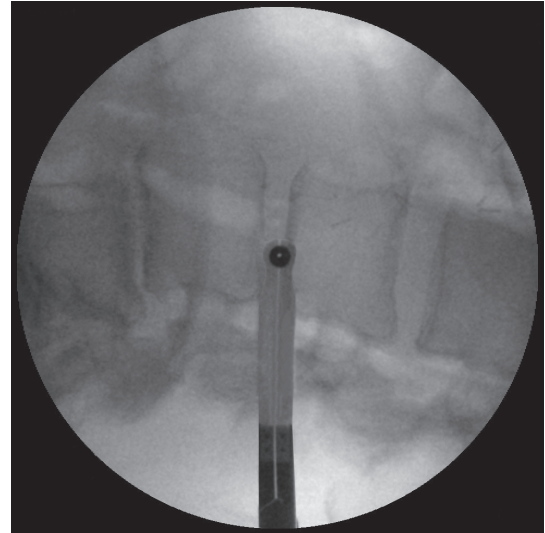
Once the initial Dilator is docked on the disc, fluoroscopy should be used to confirm proper positioning.

A lateral image should confirm that the Dilator is approximately centered on, and parallel with, the disc (Fig. 21). If the Dilator is not in the optimal position, it may be repositioned with the use of NVM5®.

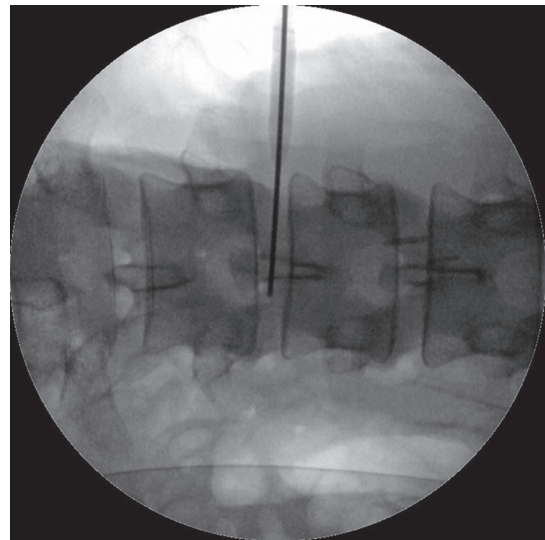
A cross-table AP image should confirm that the Dilator is in the plane of, and flush with, the disc space (Fig. 22).

Following confirmation of the initial Dilator's position, a K-Wire is introduced about halfway into the disc space to secure the position. Laser markings on the K-Wire at 10mm intervals may assist in reaching optimal K-Wire depth. Depth markings on the Dilator indicate the size of the appropriate length Blades to be attached to the MaXcess® 4 Access Driver (Fig. 23).

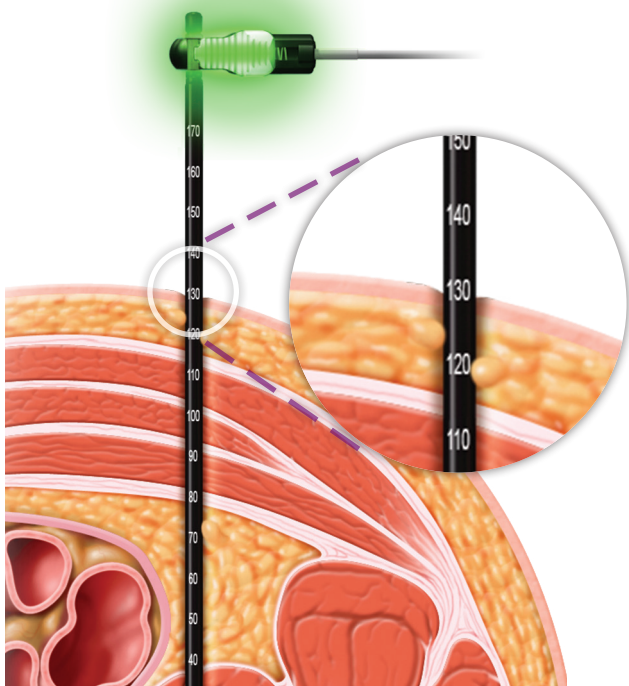
The next two XLIF® Dilators (magenta and blue) are subsequently introduced over the initial Dilator using a twisting motion. NVM5 is used as with the previous Dilator to determine nerve proximity.



(Fig. 21)



(Fig. 22)



(Fig. 23)

## XLIF<sup>®</sup> SURGICAL TECHNIQUE

### STEP 6:

#### XLIF<sup>®</sup> ELECTRODE INSTALLATION AND RETRACTOR ASSEMBLY

Once the appropriate Center Blade length has been selected, the XLIF Electrode can be installed by sliding the Electrode into the Center Blade track, cylindrical end first, following the direction of the instructional arrow on the back of the blade (Figs. 24, 25, 26).



(Fig. 24)



(Fig. 25)



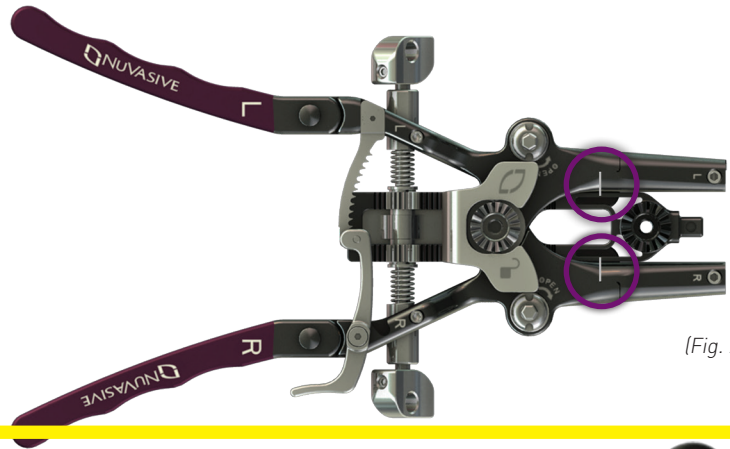
(Fig. 26)

## XLIF® SURGICAL TECHNIQUE

### STEP 6: XLIF® ELECTRODE INSTALLATION AND RETRACTOR ASSEMBLY (CONT'D)

To assemble the Access Driver, the lines of the center arm should be aligned with the lines on the left (L) and right (R) arms with the retractor closed (*Fig. 27*). The Center (C) Blade should be loaded first and the set-screw tightened.

The L and R Blades can then be loaded and the set-screws tightened (*Fig. 28*); the L and R handles can be attached to the Access Driver by depressing the button and sliding toward the retractor body.



(Fig. 27)



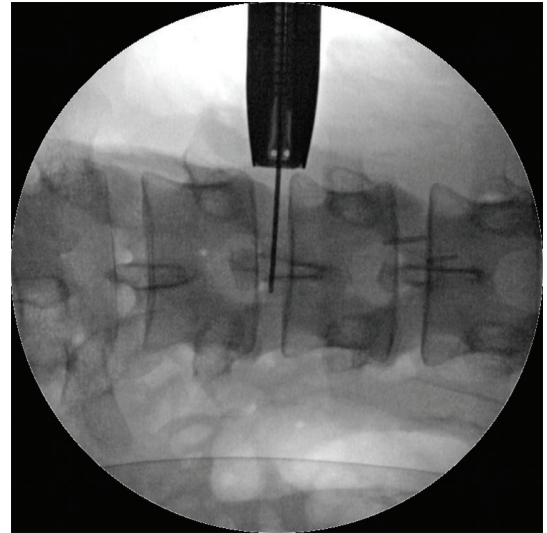
(Fig. 28)

## XLIF<sup>®</sup> SURGICAL TECHNIQUE

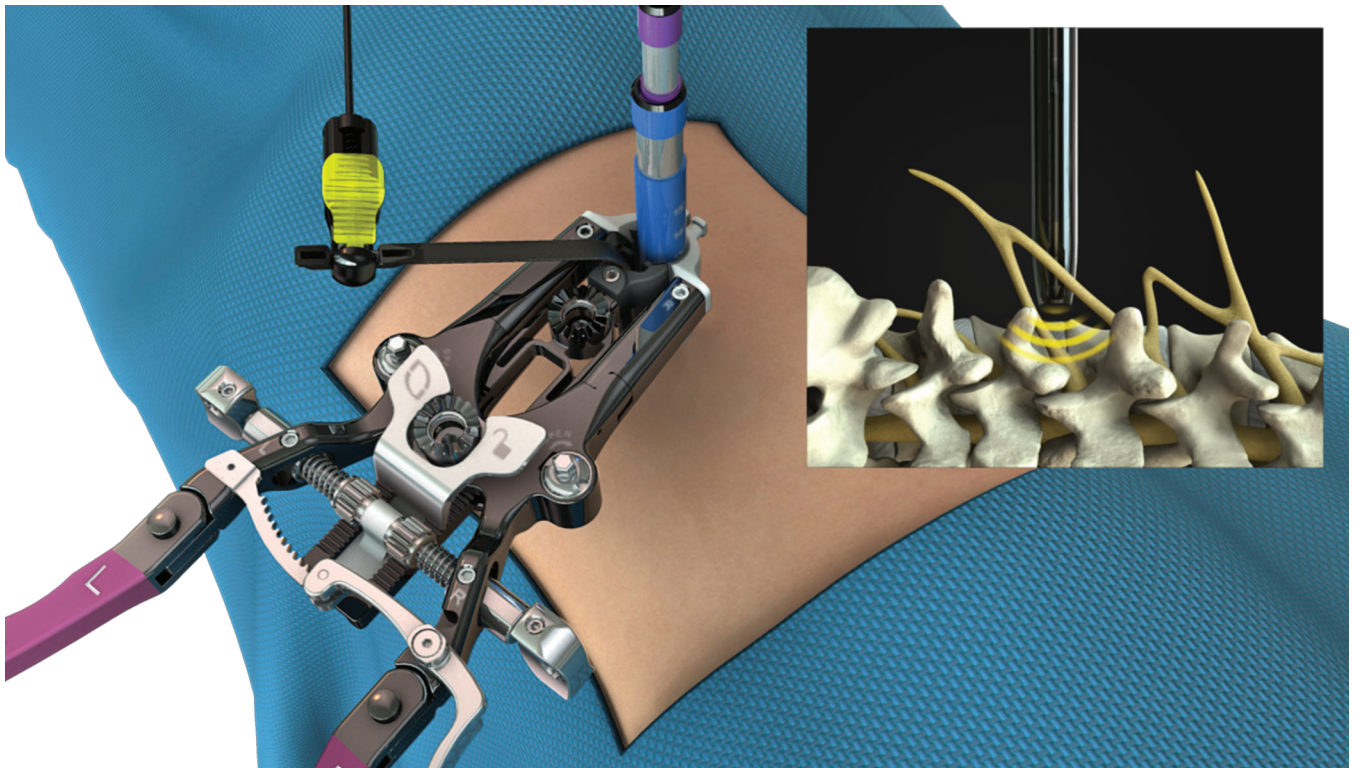
### STEP 7: ACCESS

The Access Driver is introduced over the third Dilator with the handles pointing posteriorly. The NVM5<sup>®</sup> Dynamic Stimulation Clip may be attached to the cylindrical lead at the proximal tip of the XLIF<sup>®</sup> Electrode (Fig. 29). The Access Driver is advanced through the psoas muscle with slight rotation in conjunction with stimulated EMG. Threshold EMG readings from the XLIF Electrode provide directionality and relative proximity nerve information throughout the entire procedure. Constant downward pressure on the Access Driver may help mitigate tissue creep.

Cross-table AP fluoroscopy is used to confirm the correct position of the Access Driver Blades on the spine and to ensure that the Blades are parallel with the disc space. The Alignment Dots at the distal tips of the L and R Blades will align with the bottom corners of the C Blade Targeting Window when the retractor is in line with the C-Arm, and thus the disc space, and parallel with the floor (Fig. 30).



(Fig. 30)



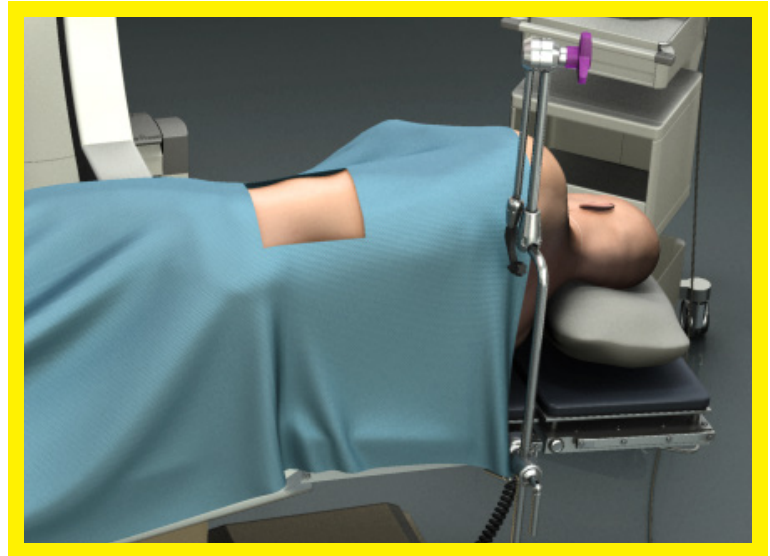
(Fig. 29)



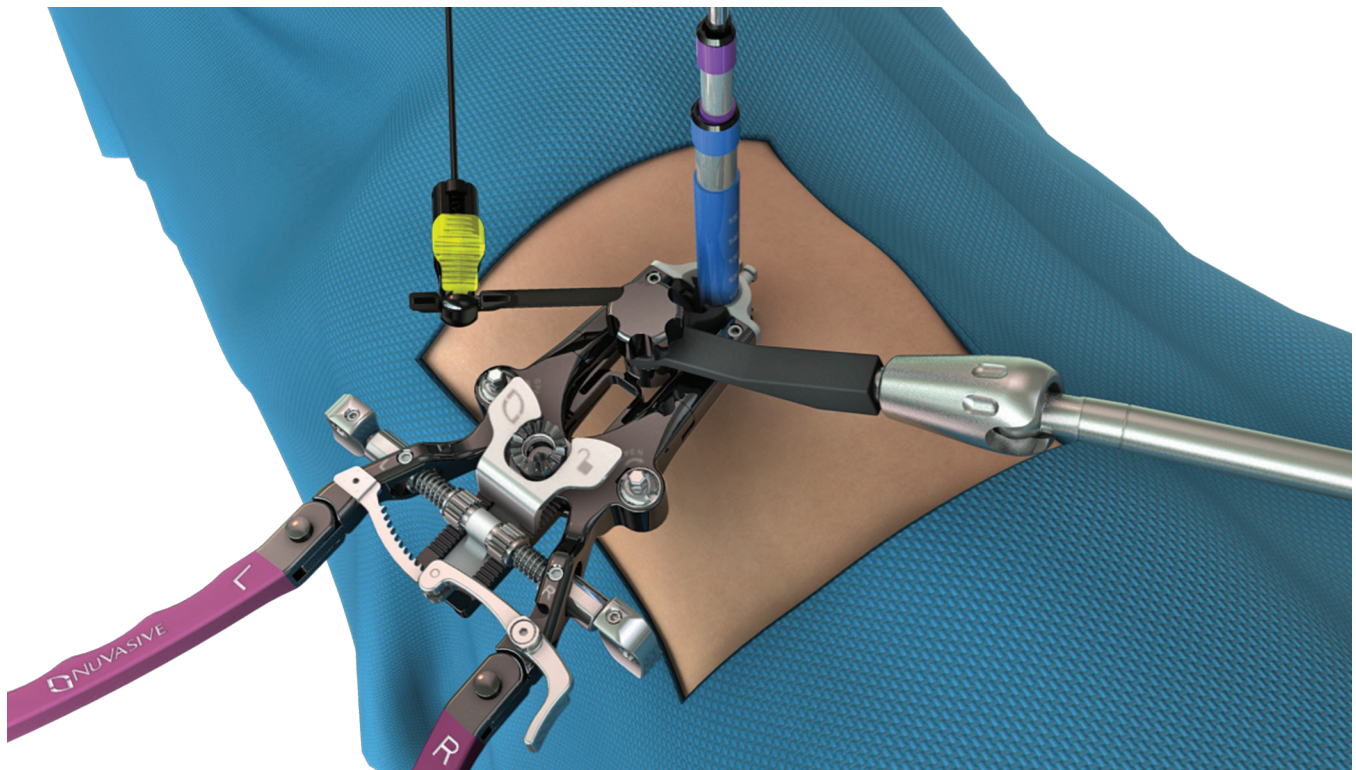
## XLIF® SURGICAL TECHNIQUE

### STEP 7: ACCESS (CONT'D)

The Articulating Arm bedrail attachment should be attached to the bedrail of the table (Fig. 31). The Articulating Arm post is passed through the bedrail attachment, adjusted to the desired height, and locked into position by tightening the handle on the bedrail attachment. The opposite end of the Articulating Arm is attached to the Access Driver (Fig. 32). Maintenance of retractor position may be enhanced by maintaining an upward angle of the Articulating Arm when attaching to retractor body.



(Fig. 31)



(Fig. 32)

## XLIF<sup>®</sup> SURGICAL TECHNIQUE

### STEP 7: ACCESS (CONT'D)

The black-coated Articulating Arm attachment point is most commonly used for Lumbar XLIF<sup>®</sup> procedures. This fixes the C Blade relative to the table and results in the L and R Blades moving anteriorly when opened to minimize pressure at the posterior portion of the psoas muscle, where the majority of the lumbar plexus nerves are located (Fig. 33). The silver Articulating Arm attachment point is primarily used for thoracic applications and affixes the L and R Blades to the table which results in the C Blade moving posteriorly when opened (Fig. 34).



(Fig. 33)



(Fig. 34)

## XLIF® SURGICAL TECHNIQUE

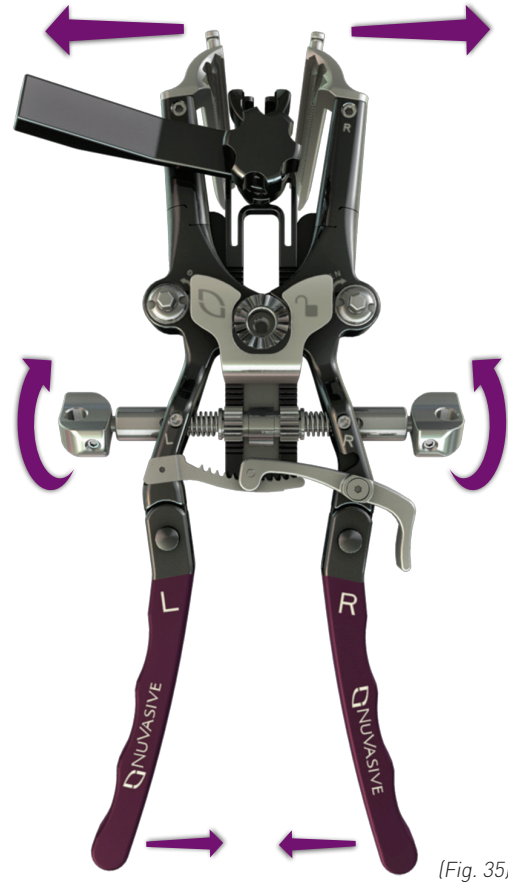
### STEP 7: ACCESS (CONT'D)

The handles of the Access Driver are squeezed one click to open the Blades in the cephalad/caudal direction (*Fig. 35*).

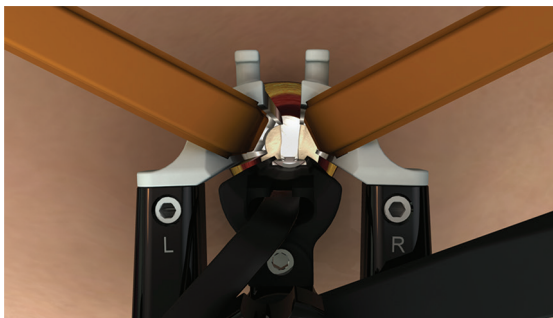
Initial anterior exposure is achieved by turning the knobs on the sides of the Access Driver one click in the direction of arrows (*Figs. 36, 37*).

The single end of the bifurcated Light Cable and the appropriate light source connector are passed off the sterile field and attached to a light source. The two beveled ends of the Light Cable are placed about halfway down the L and R Blades of the Access Driver and bent flush to the surface of the Access Driver.

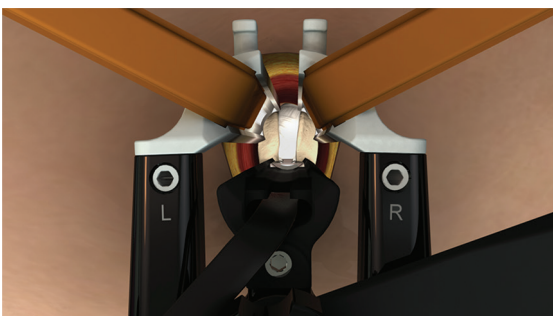
Proper anterior/posterior position is verified using lateral fluoroscopy (*Fig. 38*).



(*Fig. 35*)



(*Fig. 36*)



(*Fig. 37*)



(*Fig. 38*)

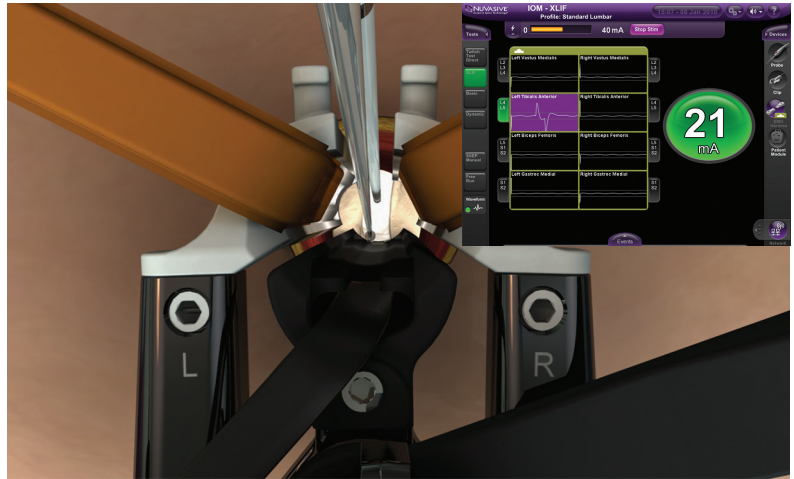
## XLIF<sup>®</sup> SURGICAL TECHNIQUE

### STEP 7: ACCESS (CONT'D)

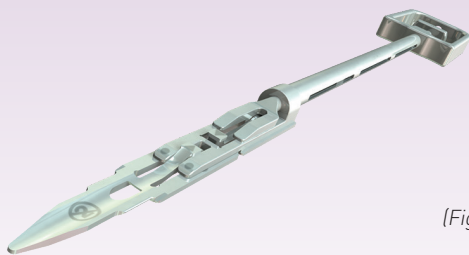
Any residual tissue at the bottom of the exposure is thoroughly explored, using the NVM5<sup>®</sup> Probe to confirm that no nerves are within the exposure (Fig. 39).

Shims are available in various sizes to both effectively widen and lengthen the Blades to keep tissue out of the exposure. A Locking Intradiscal Shim may be placed into the disc space to further stabilize the retractor and prevent nerves from slipping under the C Blade.

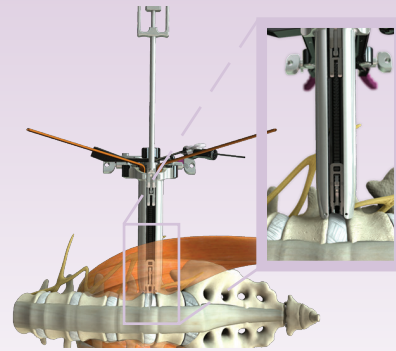
To load the Locking Intradiscal Shim onto the Locking Shim Repositioning Tool, align the laser markings and slide the Shim onto the Repositioning Tool. The Locking Shim Repositioning Tool will click into place when it is fully engaged (Fig. 40). The Locking Shim Repositioning Tool is used to introduce the Locking Intradiscal Shim into the disc space (Fig. 41). To disengage the Locking Shim Repositioning Tool from the Locking Intradiscal Shim, depress the button (Fig. 42). The Locking Intradiscal Shim may also be removed with the Locking Shim Repositioning Tool (Fig. 43).



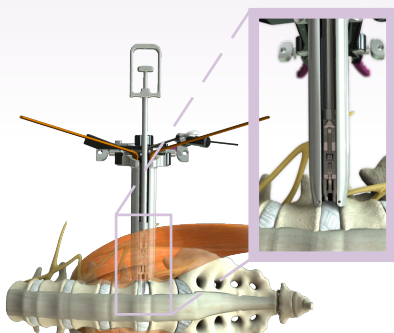
(Fig. 39)



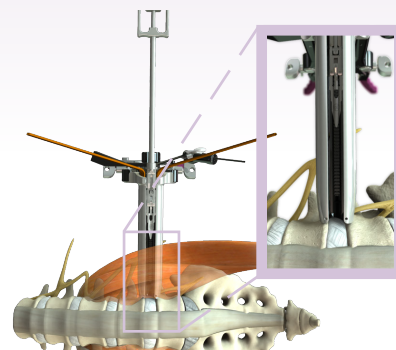
(Fig. 40)



(Fig. 41)



(Fig. 42)

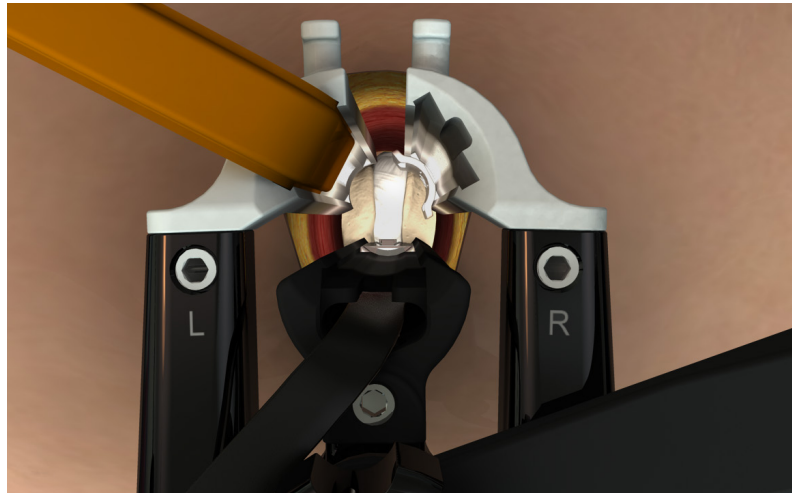


(Fig. 43)

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### STEP 7: ACCESS (CONT'D)

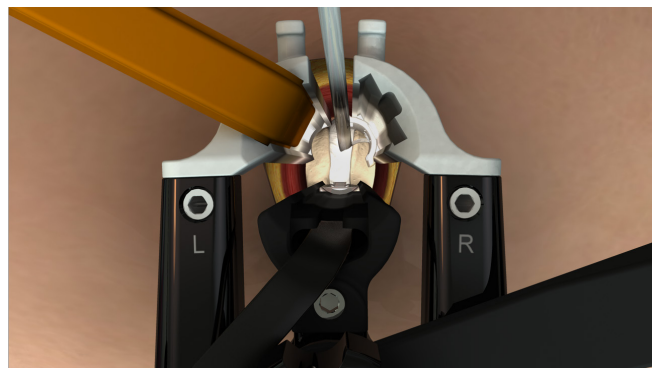
Additional Shims can optionally be placed down the Blades to increase the Blade length or width (Fig. 44). A Penfield, Nerve Retractor, or Psoas Retractor can be used to tuck residual tissue behind the shims (Figs. 45-48). Bipolar electrocautery can be used, if necessary, to further prepare for disc visualization. Monopolar electrocautery is best avoided to prevent inadvertent nerve injury.



[Fig. 44]



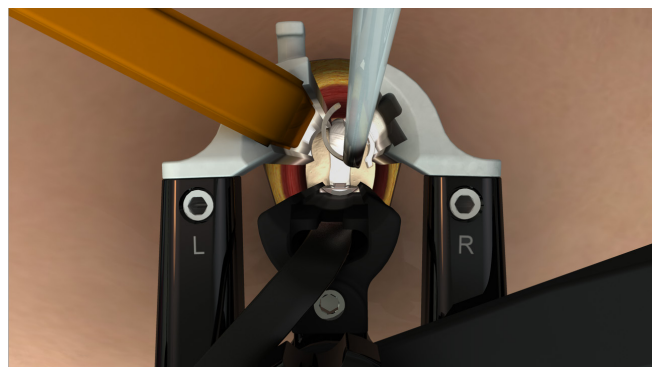
[Fig. 45]



[Fig. 46]



[Fig. 47]



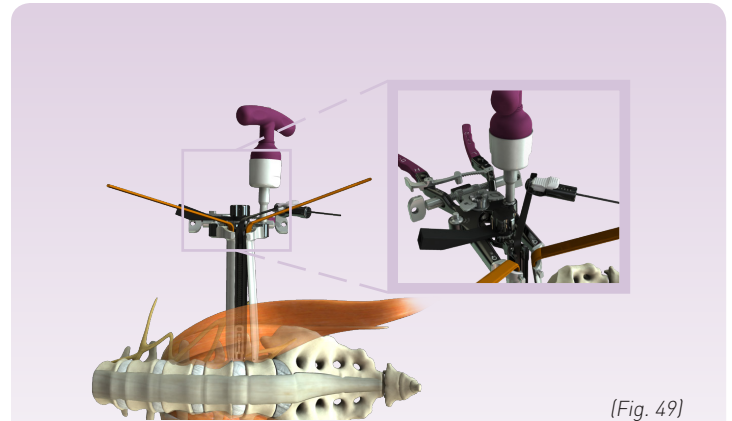
[Fig. 48]

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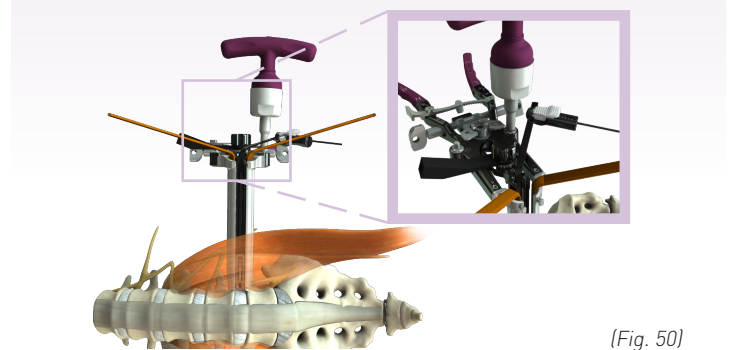
### STEP 7: ACCESS (CONT'D)

If patient anatomy dictates, the Blade Rotation Driver can be used to rotate the left and/or right Blades independently (Fig. 49). This will expand the distal exposure and may assist in preferentially adjusting the exposure cephalad or caudal (e.g., caudal at L4-L5 under iliac crest) to gain optimal access to the disc space (Fig. 50). Care should be taken to avoid expanding the Blades to the mid-vertebral body or beyond to minimize psoas trauma and reduce the risk of segmental vessel injury. A quarter turn of the Blade Rotation Driver corresponds to approximately 5° of blade rotation, which can be visualized using AP fluoroscopy.

The cephalad/caudal exposure should only be as wide as is necessary to prepare the disc space (Fig. 51). Wider exposure unnecessarily increases psoas muscle trauma. The nerve root retractor or anterior retractors can be used to retract tissue to the anterior border of the spine (i.e., Anterior Longitudinal Ligament) and can be secured using the anterior crossbar (Fig. 52). It is recommended that the Anterior Retractor is removed during any steps that involve impaction.



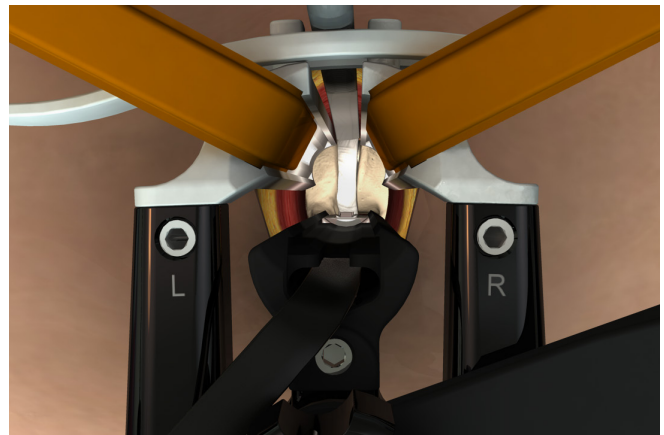
(Fig. 49)



(Fig. 50)



(Fig. 51)



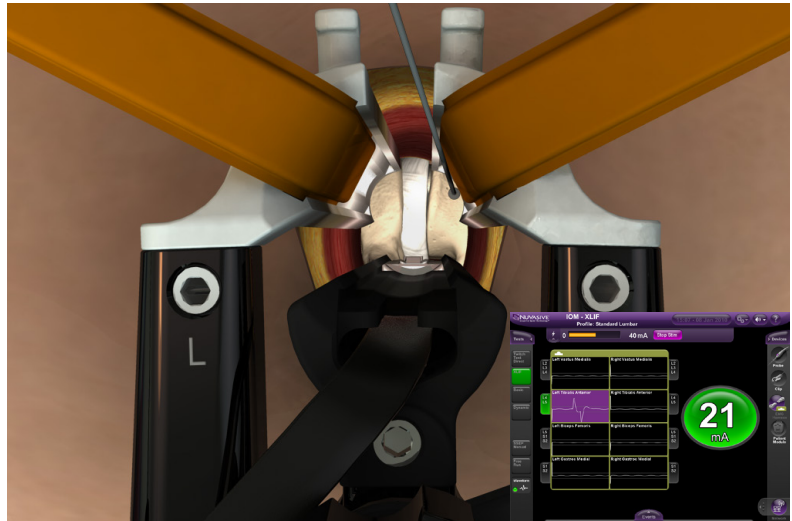
(Fig. 52)

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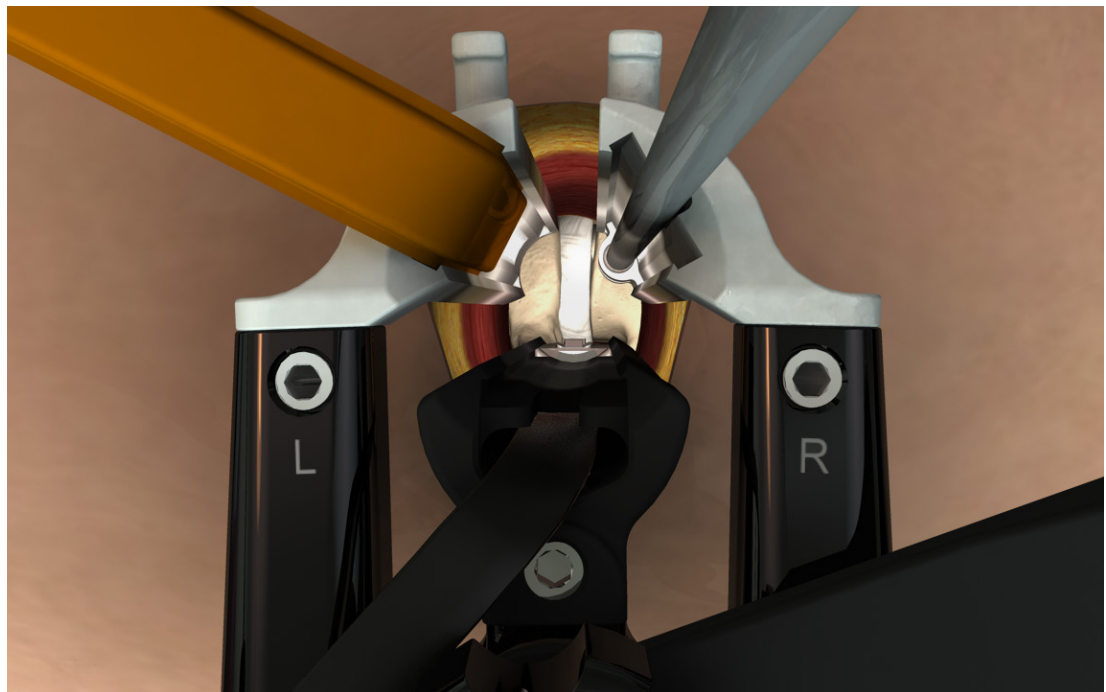
### STEP 7: ACCESS (CONT'D)

#### FIXATION SHIMS (OPTIONAL)

Following placement of the Locking Intradiscal Shim and any necessary rotation of the left and right blades, MaXcess® Fixation Shims can optionally be placed down the L and R Blades of the Access Driver and threaded into the vertebral bodies to attach the retractor to the spine and provide further stabilization. First, the location of the vertebra where the screw will engage is identified. Then, the absence of nerves and segmental vessels are verified using direct visualization and the NVM5® Ball Tip Probe (Fig. 53). A Fixation Shim is attached to the Fixation Shim Driver, placed down the Blades, and threaded into the vertebral body under fluoroscopic guidance (Fig. 54). Once the Fixation Shims are placed, the Blades should not be adjusted. The MaXcess Fixation Shims should not be used for vertebral body distraction. A hemostatic agent should be used following removal of the Fixation Shims to minimize bleeding and the risk of hematoma formation.



(Fig. 53)



(Fig. 54)

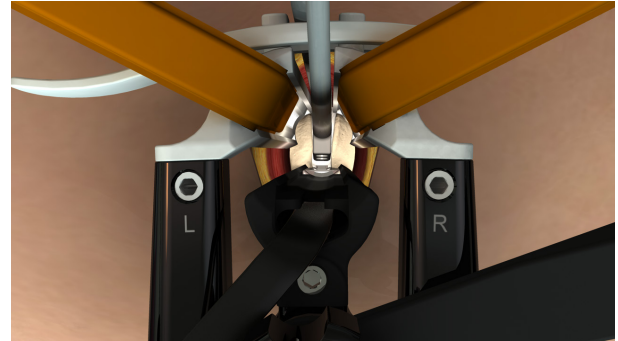
## XLIF<sup>®</sup> SURGICAL TECHNIQUE

### STEP 8:

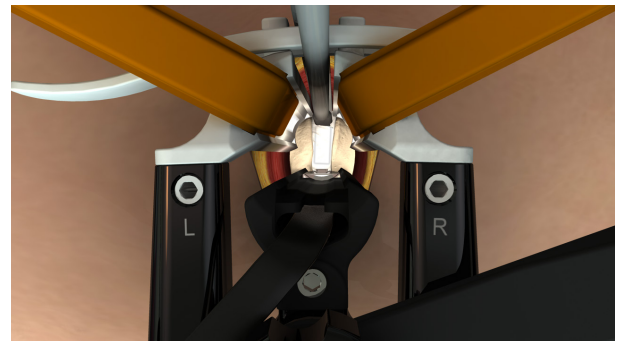
#### ANNULOTOMY & DISC SPACE PREPARATION

The Annulus Cutter is used to create an annulotomy template, either 18mm or 22mm in AP length depending on the desired implant size, on the lateral face of the disc, leaving at least 1mm-2mm of annulus between the Locking Intradiscal Shim and the template (Fig. 55). Following this, an annulotomy is created with the Annulotomy Knife (Fig. 56). Disc preparation instruments are passed along both endplates and completely through the contralateral annulus (Fig. 57). Contralateral annulus release is critical to facilitate distraction of the disc space, achieve proper coronal alignment, and place a large implant that spans the ring apophysis.

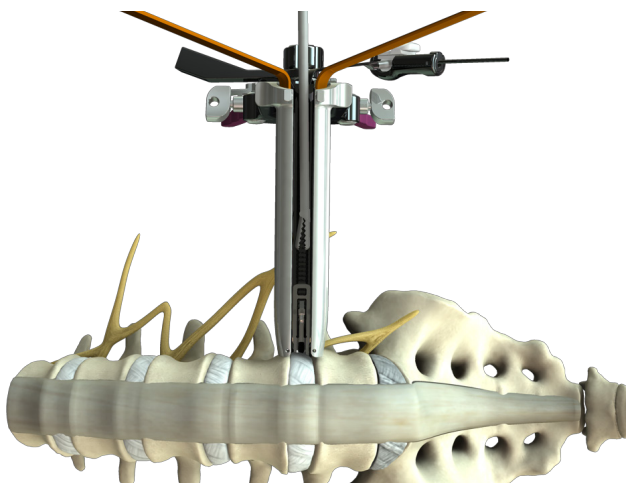
Pituitaries, Curettes, Disc Cutters, Endplate Scrapers, Rasps and other disc preparation instruments can be used to thoroughly evacuate the disc and prepare the endplates for fusion (Fig. 58).



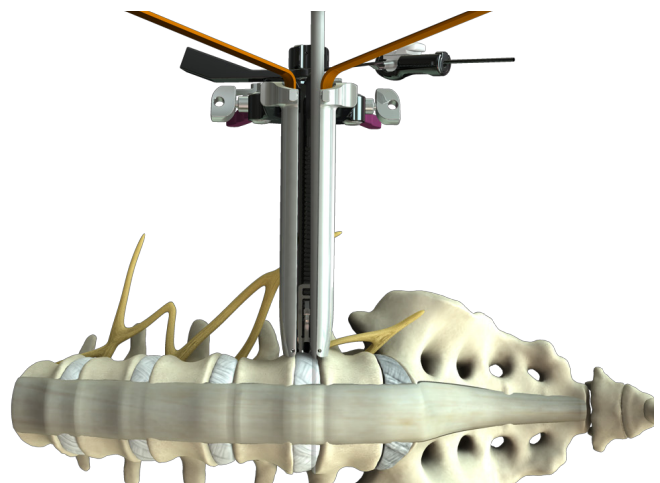
(Fig. 55)



(Fig. 56)



(Fig. 57)



(Fig. 58)

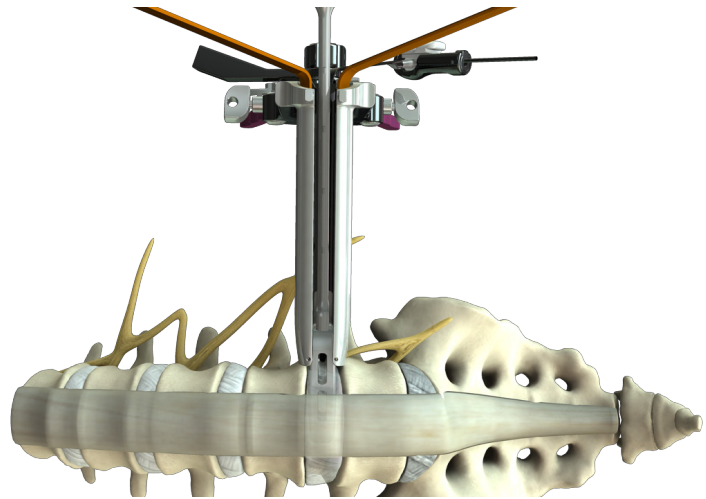


## XLIF® SURGICAL TECHNIQUE

### STEP 9: IMPLANT SIZING

A Coroent® XL Trial is threaded onto the Inserter and the thumb-wheel lock is tightened to secure the Trial (Fig. 59). Under AP fluoroscopy, the Trial is gently impacted into the disc space until centered to determine the desired implant size (Fig. 60). Proper anterior/posterior position is verified using lateral fluoroscopy (Fig. 61).

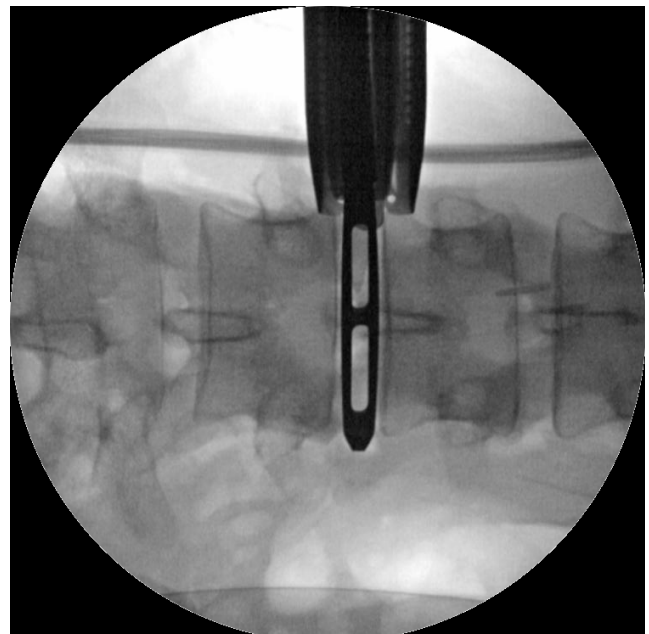
If satisfied with placement and fit of the Trial, it can be removed from the disc space. The Slap Hammer can be used, if necessary, to facilitate Trial removal.



(Fig. 59)



(Fig. 60)



(Fig. 61)