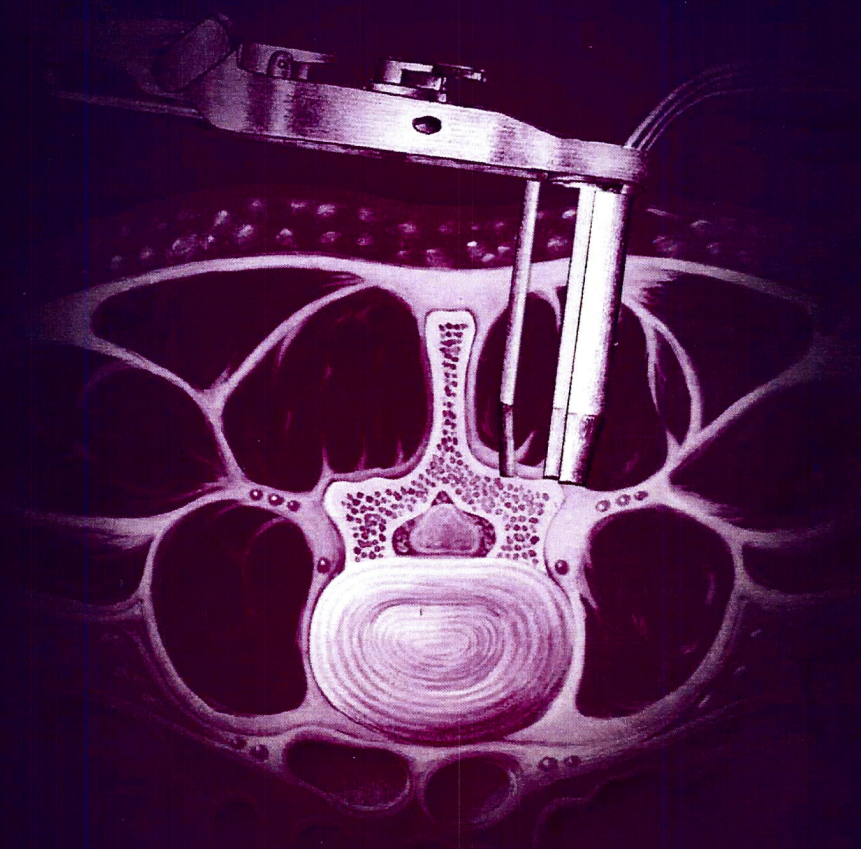
MAXCESS®

TLIF

SURGICAL TECHNIQUE



MSD 1177
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IPR2013-00508

NUVASIVE®
Creative Spine Technology

MAXCESS®

MAXIMUM ACCESS. MINIMAL DISRUPTION.™

CONTENTS

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PREFACE

Technological advances have allowed many surgical techniques to evolve into "minimally invasive" procedures with less risk and superior outcomes. Unfortunately, posterior spinal fusion has not been one of these procedures. Inadequate exposure and limited visualization often compromises the surgeon's ability to adequately and safely perform this operation. When compared to conventional techniques, the risk-benefit ratio of "minimally invasive" posterior fusion techniques has not justified acceptance by most spinal surgeons and patients… until now.

The MaXcess System provides maximum surgical access while minimizing the soft tissue disruption that occurs during open techniques. The system's modular blade assembly assures a proper size for each patient. The operative corridor is illuminated and may be expanded and angulated to provide direct visualization of the patient's anatomy. The split blade design allows instruments to be angled against the wound edge to optimize position and safety. These features of the MaXcess System offer the surgeon the opportunity to perform procedures with conventional surgical instruments and techniques, without the added morbidity of conventional open exposures.

This guide describes the MaXcess technique for transforaminal lumbar interbody fusion through a minimal muscle-splitting approach. The morbidity of this operation has been minimal, with most patients requiring only "23-hour inpatient observation" postoperatively. Since clinical and radiographic results seem to compare favorably to similar open procedures, it is our belief that this operation should be seriously considered for any patients that require posterior interbody fusion.

Mark Peterson, M.D.
Orthopedic Spine Surgeon
Southern Oregon Orthopedics
Medford, OR

William Taylor, M.D.
Associate Clinical Professor
Department of Neurosurgery, UCSD
San Diego, CA

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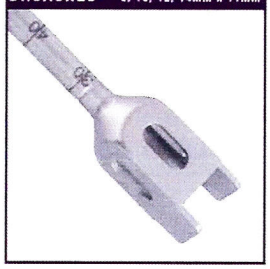
INSTRUMENTS – TLIF TRAY / GENERAL INSTRUMENT TRAY

TLIF TRAY

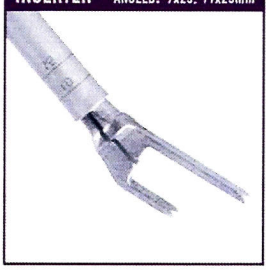
SIZERS – 7-14mm

BROACHES – 8, 10, 12, 14mm x 11mm

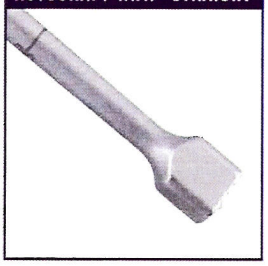


INSERTER – STRAIGHT: 9x25, 11x25mm

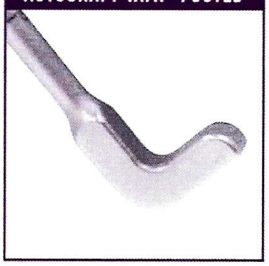
INSERTER – ANGLED: 9x25, 11x25mm



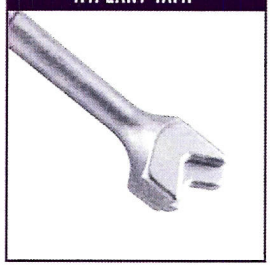
AUTOGRAFT TAMP-STRAIGHT



AUTOGRAFT TAMP-FOOTED



IMPLANT TAMP

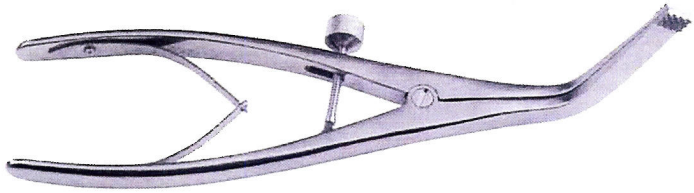


T-HANDLE

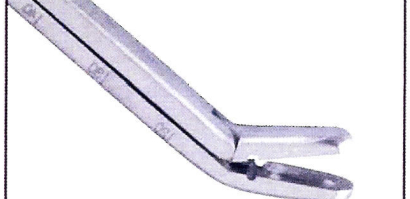
GENERAL INSTRUMENT TRAY

DISTRACTORS – 20° BEND, PEDICLE SCREW, STRAIGHT OFFSET

LAMINA SPREADER



PITUITARY RONGEURS – 6mm: STRAIGHT, UP-BITING



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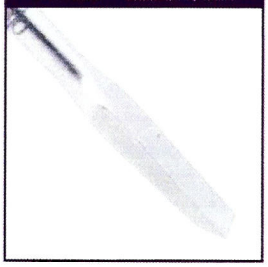
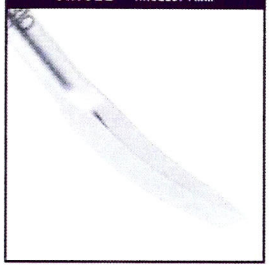
GENERAL INSTRUMENT TRAY (CONT.)

GENERAL INSTRUMENT TRAY

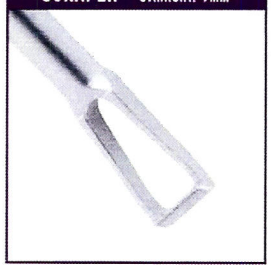
CHISELS – STRAIGHT: 7, 12mm



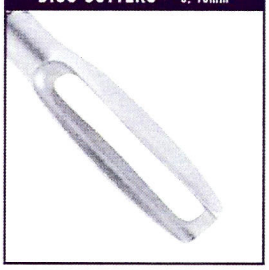
CHISEL – ANGLED: 7mm



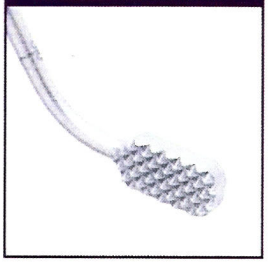
SCRAPER – STRAIGHT: 7mm



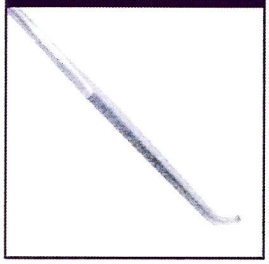
DISC CUTTERS – 8, 10mm



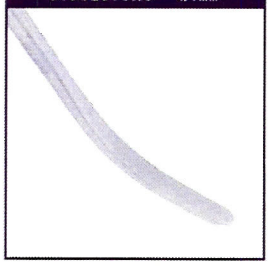
RASPS – STRAIGHT, ANGLED



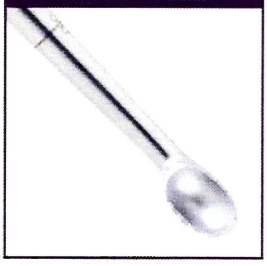
NERVE RETRACTOR



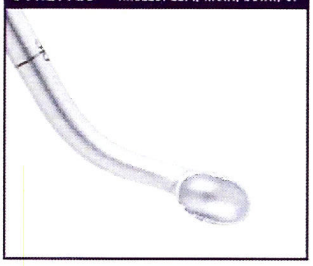
DISSECTORS – 4, 7mm



CURETTE – STRAIGHT



CURETTES – ANGLED: LEFT, RIGHT, DOWN, UP



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MAXCESS ACCESS SYSTEM

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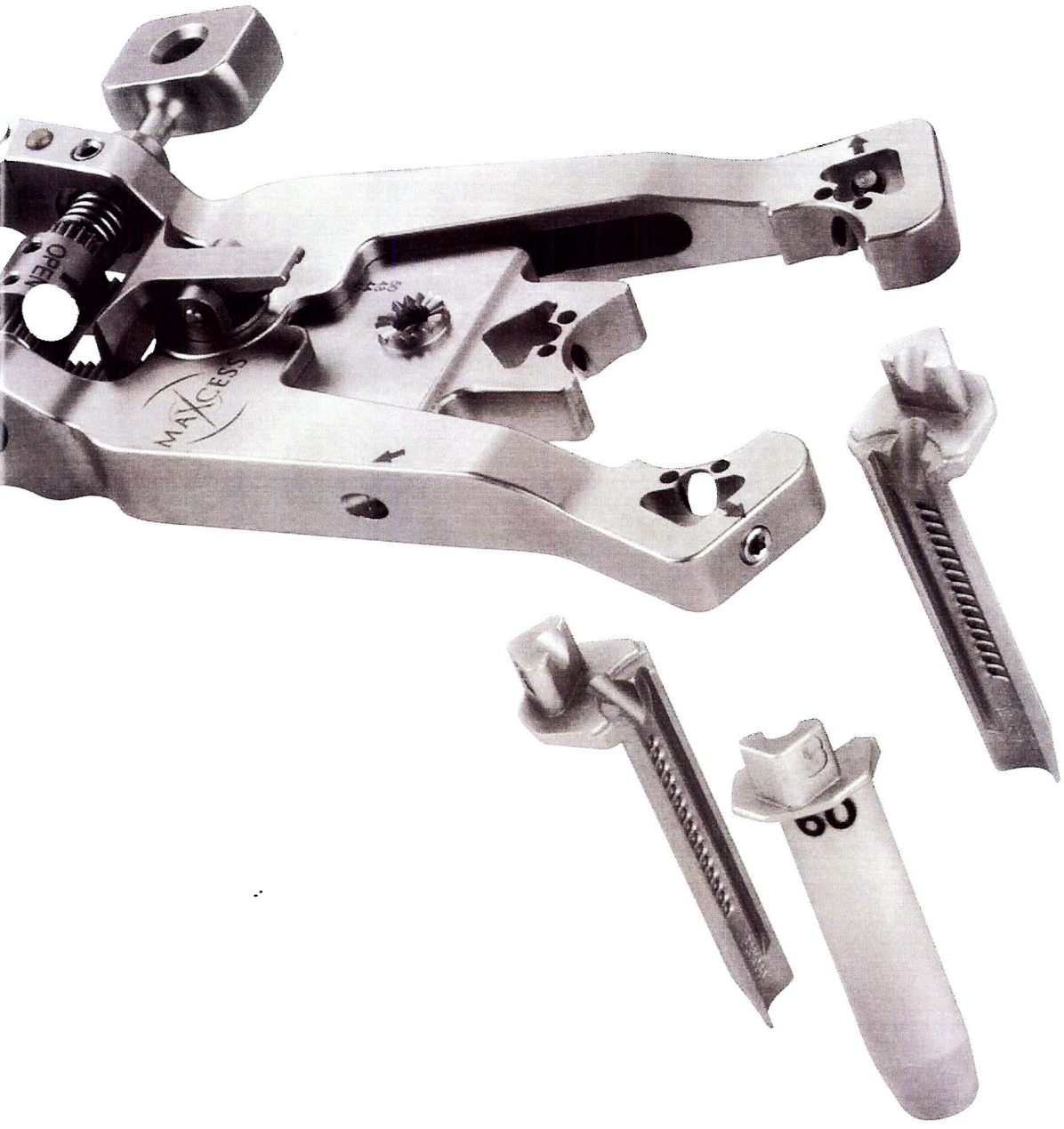
MAXCESS ACCESS SYSTEM (CONT.)



MAXCESS ACCESS SYSTEM

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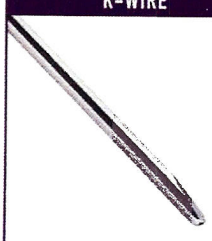
ARTICULATING ARM

DILATORS – NV: 6. 9. 12mm (NeuroVision® Compatible)

DILATORS – 6. 9. 12mm

K-WIRE



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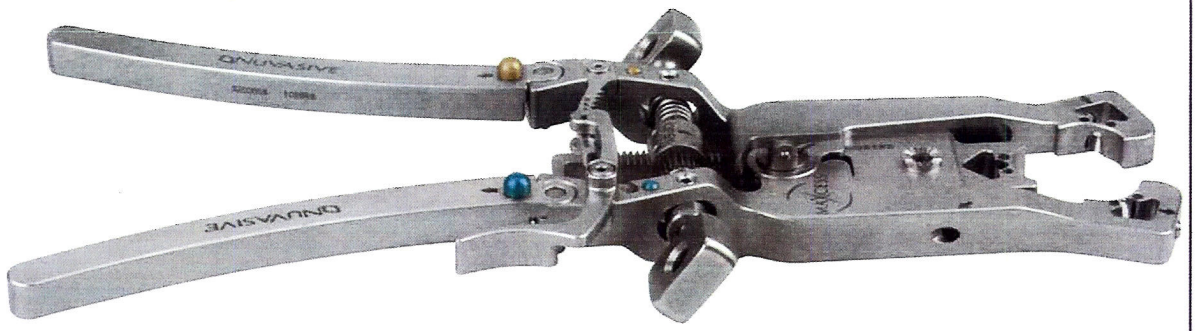
MAXCESS ACCESS SYSTEM (CONT.)

ACCESS DRIVER

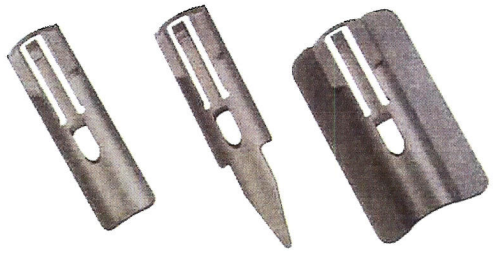


BLADES – 30, 40, 50, 60, 70, 80mm, 3 EACH

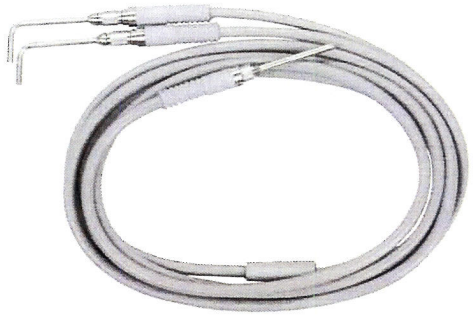
BLADES – 90, 100, 110, 120, 130mm, 3 EACH

SHIM INSERTER

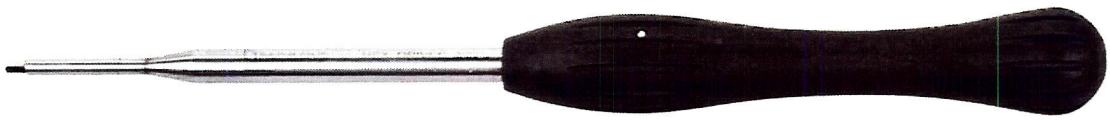
SHIMS – STANDARD, INTRADISCAL, WIDE



LIGHT CABLE (TIP, ADAPTORS NOT SHOWN)



HEX DRIVER



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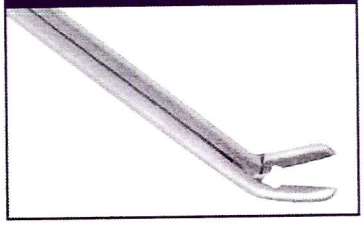
MAXCESS DECOMPRESSION SYSTEM

KERRISON RONGEURS – 3, 5mm X 40°, 90°

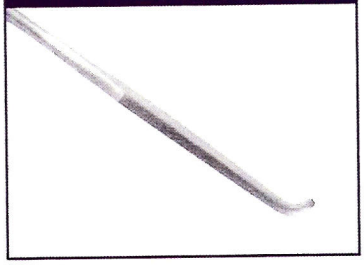
KERRISON RONGEURS – CURVED: 2, 4mm

PITUITARY RONGEURS – 2mm: UP, STRAIGHT, DOWN
4mm: UP, STRAIGHT
2mm MICRO: UP, STRAIGHT

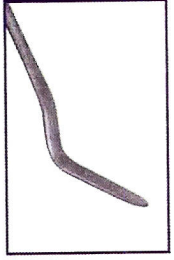


CURETTES – SMALL, LARGE X STRAIGHT, UP, DOWN

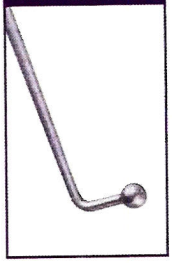
NERVE RETRACTOR



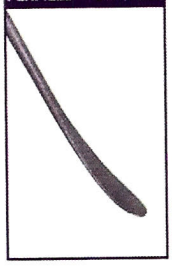
WOODSON



BALL TIP PROBE



PENFIELD – SMALL, LARGE



NERVE HOOK

DISSECTOR

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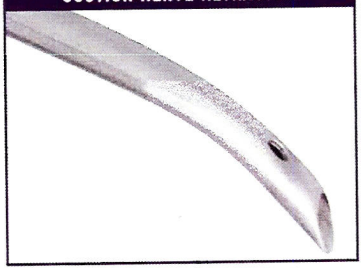
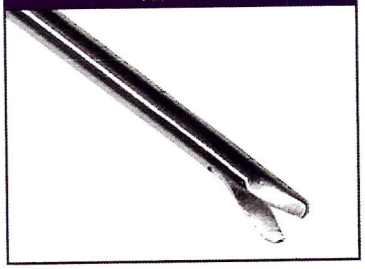
MAXCESS DECOMPRESSION SYSTEM (CONT.)

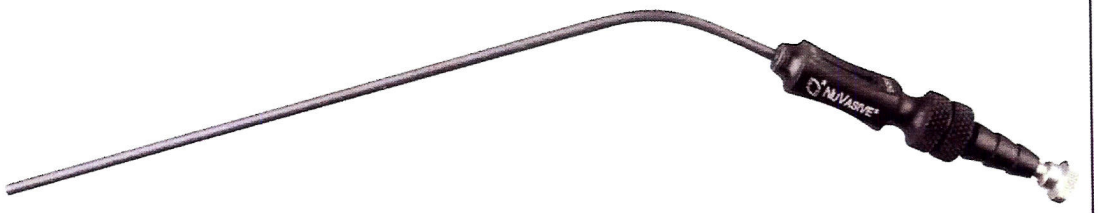
SUCTION NERVE RETRACTOR



SCISSORS



SUCTION 8, 10 FR



BIPOLAR FORCEPS – STRAIGHT, ANGLED

BIPOLAR FORCEPS CABLE

ANNULOTOMY KNIFE

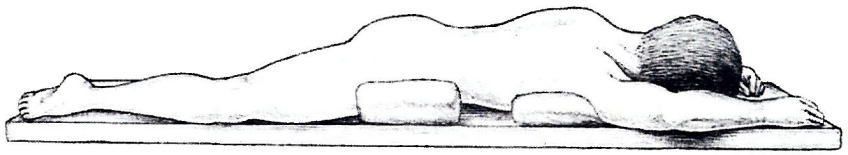
EQUIPMENT REQUIREMENTS:

- C-Arm
- Radiolucent Surgical Table
- Xenon Light Source
- Spinal Needle
- Triad® TLIF Tray
- Triad General Instrument Tray
- MaXcess Access System
- MaXcess Decompression System
- NeuroVision® (optional) for pedicle screw testing

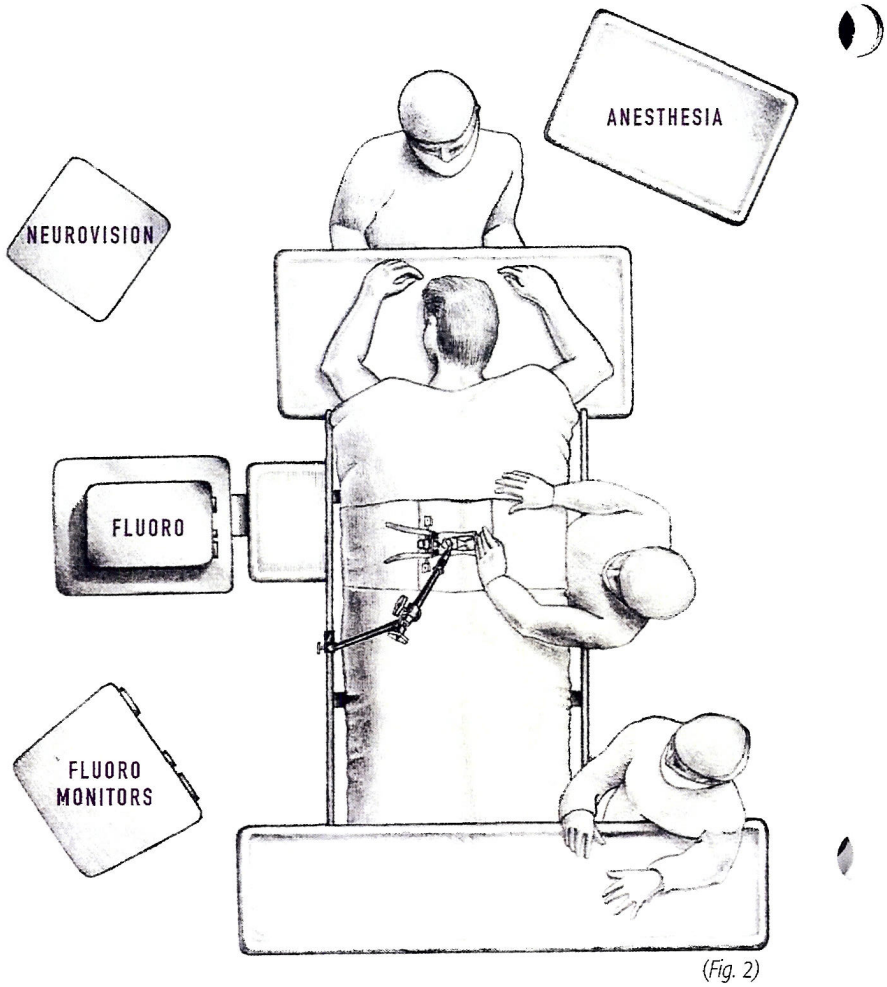
STEP 1:

PATIENT POSITIONING AND O.R. SET-UP

Patient is placed on the operating table in a prone position *(Fig. 1)*. Ensure a bedrail exists on the table to which an articulating arm will mount. The patient is then prepared and draped in a conventional manner *(Fig. 2)*.



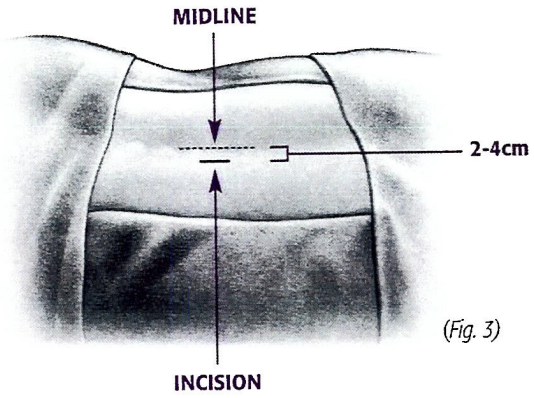
(Fig. 1)



(Fig. 2)

STEP 2:
EXPOSURE

Fluoroscopy in the AP and Lateral views is used to locate the affected level. Transforaminal access to the disc space is typically performed on the most symptomatic side. Palpate spinous process to define midline. Move 2-4cm off of midline to mark incision point on skin with a surgical pen at the level of the disc space. Proper location may be confirmed using a spinal needle. Make a small (~1cm) longitudinal incision at the location of the spinal needle. It is recommended to incise the fascia to facilitate the insertion of subsequent Dilators *(Fig. 3)*.



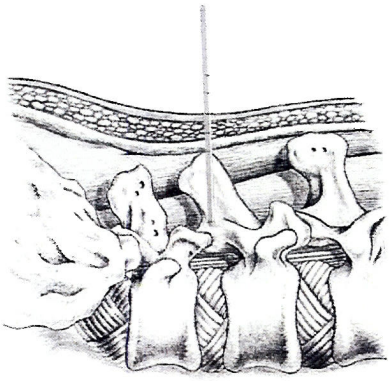
(Fig. 3)

Replace spinal needle with K-Wire and advance through the fascia. Care is taken not to advance the K-Wire through interlaminar space. Exchange the blunt tipped initial Dilator over K-Wire prior to advancing to the medial aspect of the facet joint *(Figs. 4, 5)*. The stainless steel Dilators should be used to optimize fluoroscopic visualization.

"I palpate and identify the inferior edge of the superior lamina with the initial Dilator. I find this to be a simple and reproducible technique to locate this common anatomical landmark."

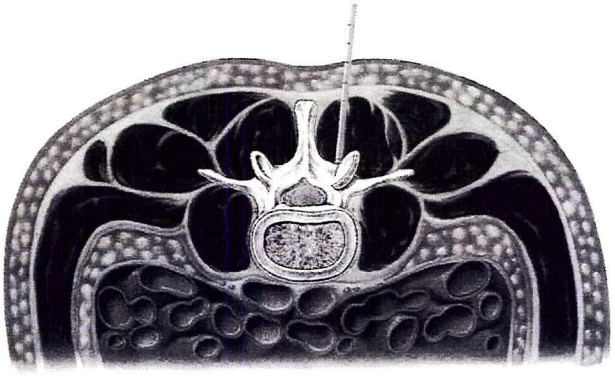
– William Taylor, M.D.

Using fluoroscopy, confirm that the initial Dilator is parallel to the disc space in the sagittal plane. Upon confirmation of position on lateral fluoroscopy, extend the incision 1cm on either side of the initial Dilator (~3cm total).


(Fig. 4)

"By controlling the C-arm myself, I ensure that I am getting the exact images I need during this important part of the procedure."

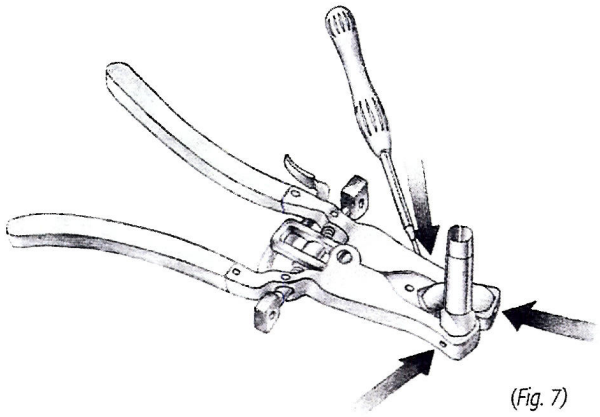
– Mark Peterson, M.D.


(Fig. 5)

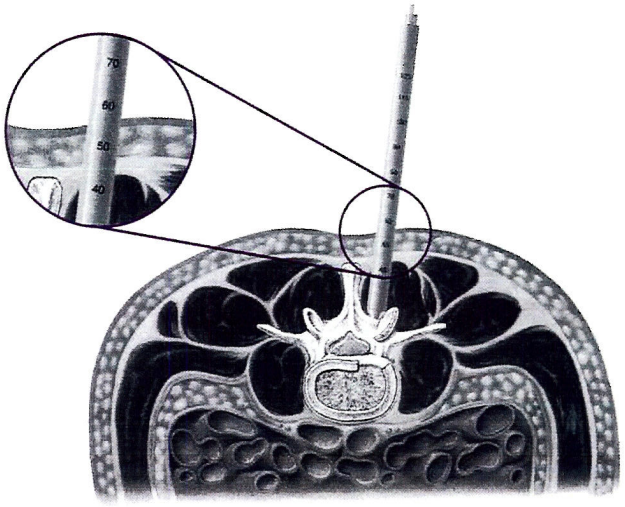
STEP 2:
EXPOSURE (CONT.)

Pass the subsequent two Dilators over the first and note the measurement of the depth markings at the skin level *(Fig. 6)*.

Attach appropriate length blades by tightening the set screws on the Access Driver *(Fig. 7)*.

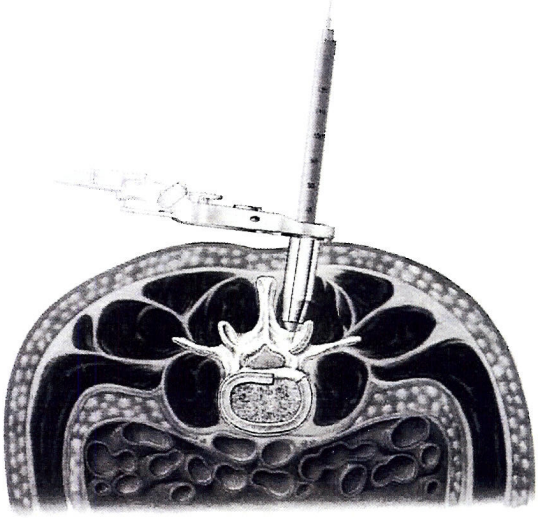


(Fig. 7)



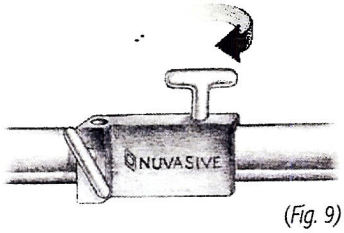
(Fig. 6)

Upon confirming position of Dilators and Blade length under fluoroscopy, slide the Access Driver over the Dilators down to the facet, keeping the handles directed medially across patient. The Access Driver should be angled obliquely to gain proper exposure *(Fig. 8)*.

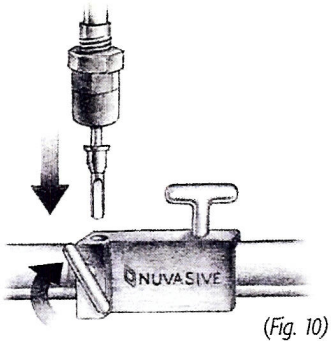


(Fig. 8)

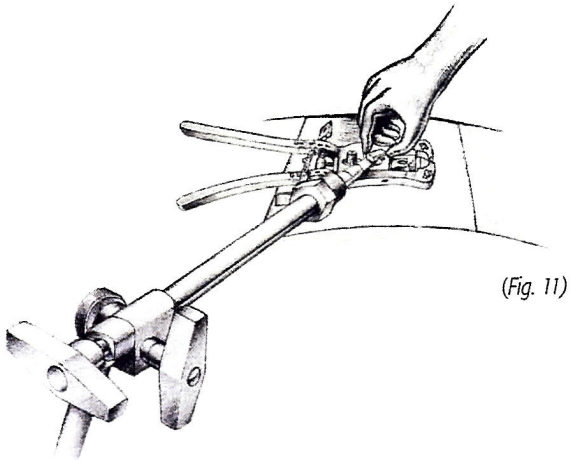
Attach Articulating Arm bedrail attachment to bedrail *(Fig. 9)*. Attach Articulating Arm post to bedrail attachment *(Fig. 10)*. Attach opposite end of the Articulating Arm to the Access Driver *(Fig. 11)*.



(Fig. 9)



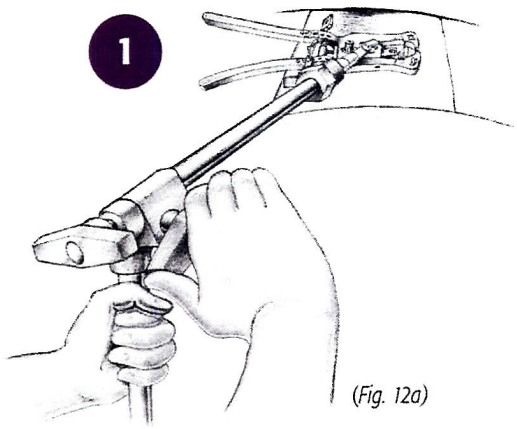
(Fig. 10)



(Fig. 11)

STEP 2:
EXPOSURE (CONT.)

While holding the Access Driver in position using downward force, lock the Articulating Arm by tightening both large Articulating Arm T-Handles clockwise in the order shown *(Figs. 12a, 12b)*. To loosen arm, rotate knobs counterclockwise in the reverse order.

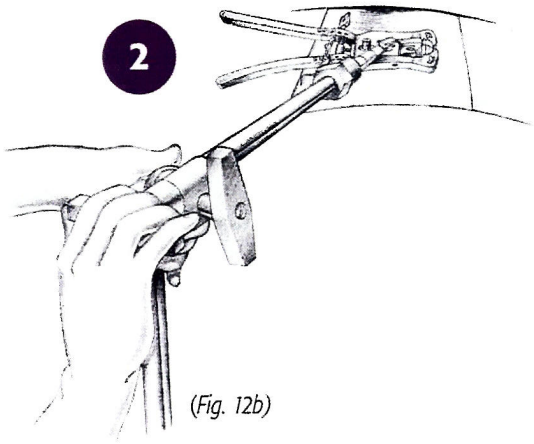


(Fig. 12a)

Squeeze the handles of the Access Driver to expand the Blades in a cranial/caudal direction to desired aperture *(Figs. 13, 14)*. A selection of different Blade lengths may be placed independently in the Access Driver in order to accommodate varying anatomy during exposure.

"I find it helpful to load blades that are 10mm longer into the two lateral arms of the Access Driver. As I open these blades, they fall lateral to the facet joint and improve tissue retraction in that area."

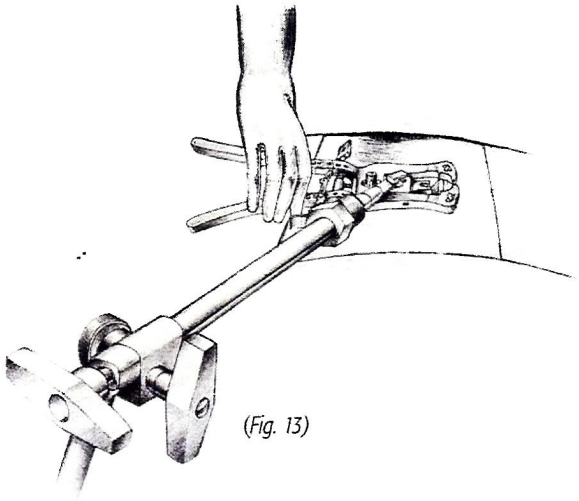
– William Taylor, M.D.



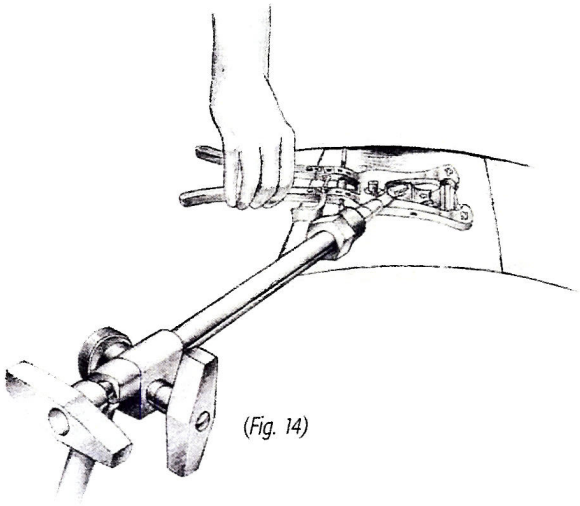
(Fig. 12b)

"At L5-S1 the inferior Blade may need to be ~10mm longer than the superior Blade due to the sagittal angulation necessary to gain proper access to the disc space."

– Mark Peterson, M.D.



(Fig. 13)

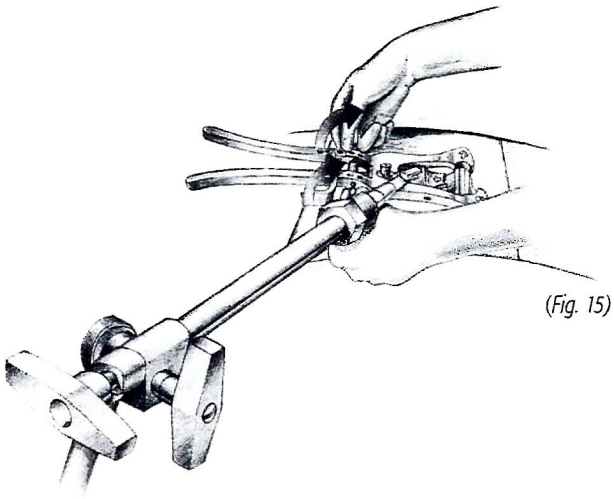


(Fig. 14)

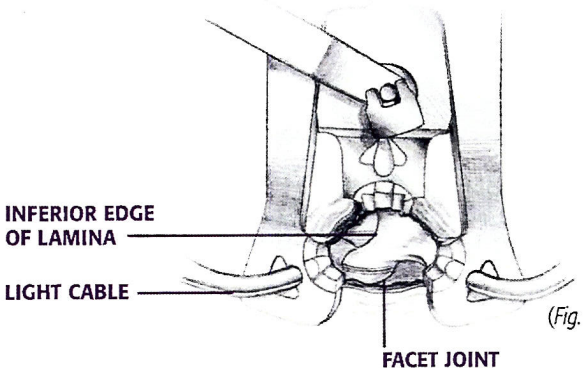
STEP 2:

EXPOSURE (CONT.)

Medial/Lateral exposure may be independently controlled by turning the knobs on the sides of the Access Driver *(Fig. 15)*. Approximate aperture dimensions can be identified on the Access Driver. Place ends of Light Cable into Blades (standard arthroscopy xenon light sources should be used for optimal illumination) *(Fig. 16)*.



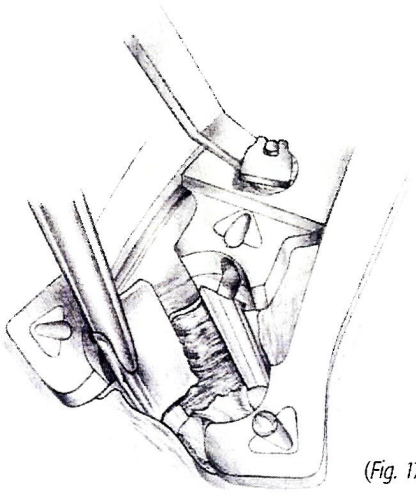
(Fig. 15)



(Fig. 16)

Shims are provided that effectively extend (standard shims), or widen (wide shims) the Blades to restrict encroachment of tissue into operative corridor *(Fig. 17)*. Light Cables may need to be removed while inserting Shim.

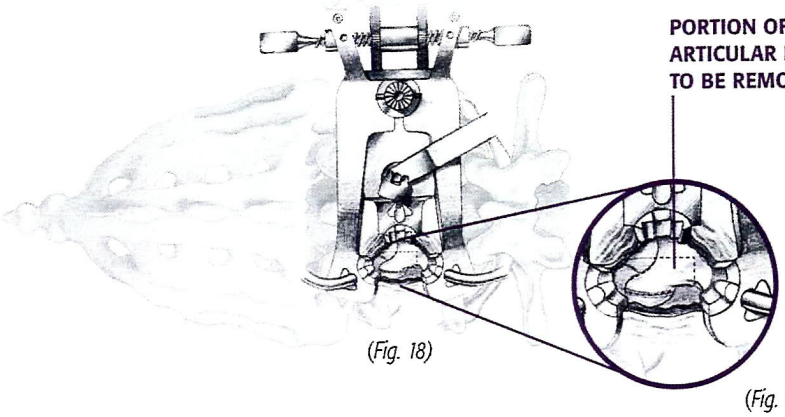
Handles may be removed from the Access Driver by pulling the button on the handle in direction of the arrow and lifting from Driver.



(Fig. 17)

STEP 3:
BONY DECOMPRESSION AND ANNULAR EXPOSURE

Expose the anatomical landmarks using a Bovie and Pituitary Rongeurs. Begin bony removal of facet joint by removing the inferior articular process of the superior vertebra *(Figs. 18, 19)*. This is performed using a combination of Kerrisons and burrs.

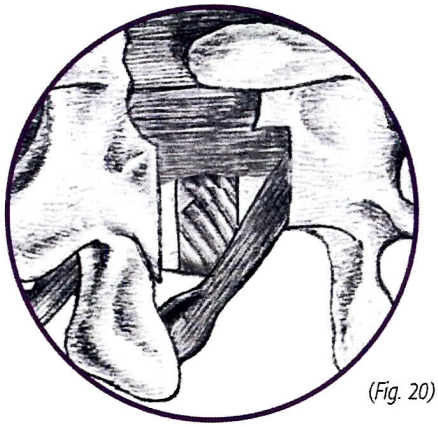


(Fig. 18)

(Fig. 19)

Continue facetectomy until pedicle-to-pedicle exposure is achieved. Using bipolar cautery, coagulate and divide epidural veins at base of caudal pedicle. Expose disc by gentle cephalad mobilization of veins. The disc space is exposed within the axila of the exiting nerve root and the lateral margin of the dura *(Fig. 20)*.

An annular window is created along the inferior borders of the exiting nerve root to the lateral border of the dura using the Annulotomy Knife.



(Fig. 20)

"Contralateral decompression can be achieved if necessary by undercutting the lamina at the base of the spinous process. Removal of contralateral hypertrophied ligamentum flavum and bony decompression of the lateral recess may be achieved by utilizing a curved Kerrison. Access Driver may be rotated to assist in this additional medial exposure. It also can be angled inferiorly to enable foraminotomy of the ipsilateral nerve root."

– William Taylor, M.D.

"I utilize the inferior edge of the laminar/facet junction as my starting point for bony removal. The decompression is performed up to the ligamentous insertion cranially and then laterally to the superior pedicle where the exiting nerve root is identified. This pedicle to pedicle exposure is perhaps the most important factor in ensuring a successful procedure."

– William Taylor, M.D.

"I define the anatomical landmarks including the pars, facet joint, and medial aspect of transverse processes by removing attached soft tissue. I begin the facetectomy by debulking the facet complex with rongeurs or a burr. I then complete bony removal with appropriate sized Kerrison Rongeurs. Resection of bone and ligament is performed until exposure is flush with inferior wall of cephalad pedicle and the superior wall of caudal pedicle, and the lateral margin of thecal sac is exposed."

– Mark Peterson, M.D.

STEP 4:

DISC REMOVAL AND ENDPLATE PREPARATION

The Triad® Lumbar Allograft – TLIF system offers a comprehensive set of disc space preparation instruments. A combination of these instruments and other NuVasive devices may be used based on surgeon preference.

PITUITARY RONGEURS

Use Pituitary Rongeurs to remove nucleus, creating space for the other disc removal instruments to be inserted into disc space.

CHISEL

If necessary, use the 7mm Straight Chisel to remove posterior endplate osteophytes for increased access to the disc space *(Fig. 21)*.

DISC CUTTER

Place the Disc Cutter into the disc space. Using a rotating motion, the disc material is cut and loosened from the endplates. By withdrawing the Disc Cutter, material is removed from the disc space. Remaining loose disc material can be removed with Pituitary Rongeurs *(Fig. 22)*.

CURETTES

Use the Straight, Left, Right, Up, and Down Angled Curettes to reach the extents of the disc space, and scrape disc material and cartilage from the endplates *(Fig. 23)*.

SCRAPER

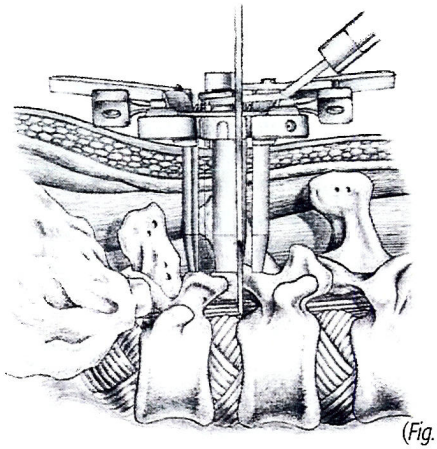
Place the Scraper into the disc space. Using a pulling motion, scrape the endplates to remove residual disc material and cartilage *(Fig. 24)*.

DSP™ BRUSH (provided separately)

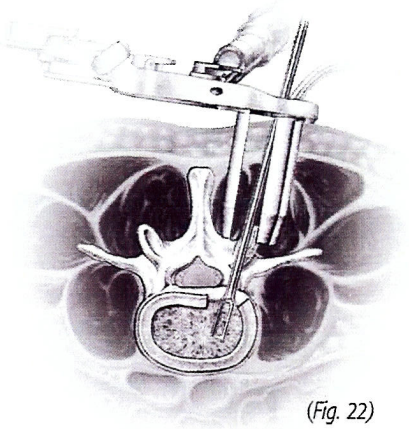
Using the DSP V-Retractors, retract and protect neural structures prior to using the Brush. Place the DSP Brush into the disc space. Using a rotating motion, use the brush to capture disc material and clean cartilage from the endplates *(Fig. 25)*. Remove from disc space, release from T-Handle, and dispose of brush. Repeat sequence with new brush until desired level of disc space preparation is achieved. Refer to the DSP Technical Brochure (P/N 9003326) for more information on the DSP System.

RASPS

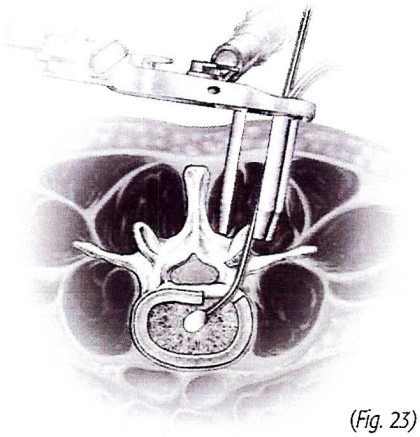
Use the Straight and Angled Rasp with a push/pull motion as a final step in preparing the endplates *(Fig. 26)*.



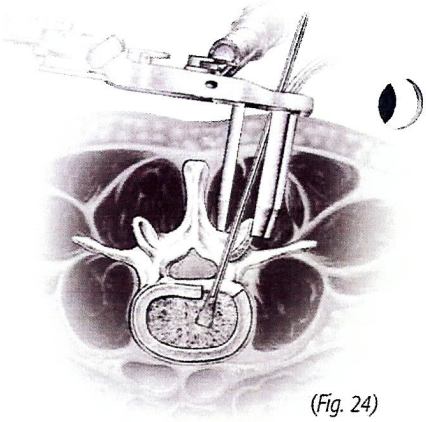
(Fig. 21)



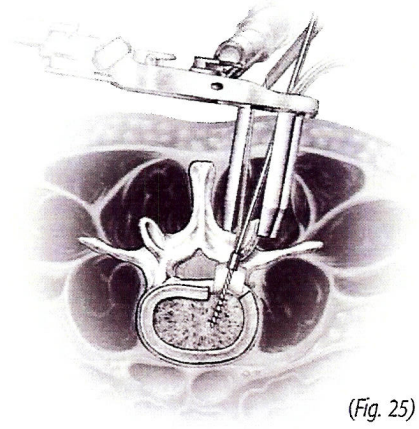
(Fig. 22)



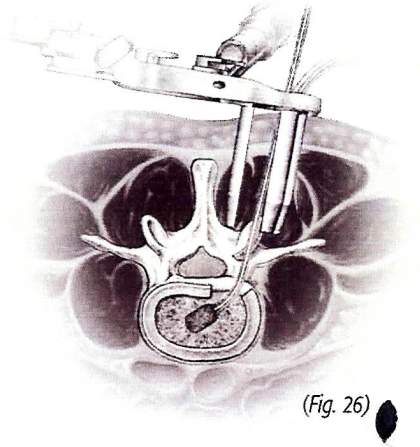
(Fig. 23)



(Fig. 24)



(Fig. 25)



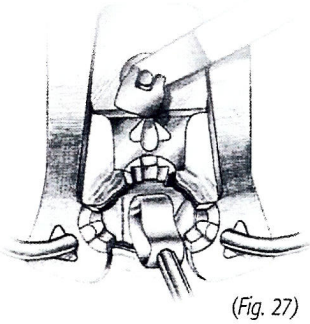
(Fig. 26)

"The ability to angle the instruments against the skin to gain maximum access to the disc space is one of the most important benefits of this system."

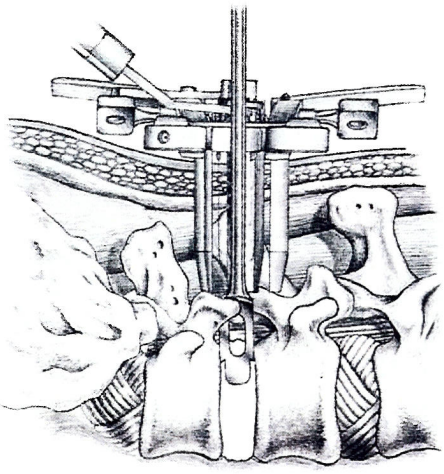
– William Taylor, M.D.

STEP 5:
DISC SPACE DISTRACTION AND ALLOGRAFT SIZING

Gently impact the TLIF sizers into the interbody space to distract and determine final allograft implant size. Sequentially increase the size used until adequate distraction is achieved *(Fig. 27)*.



(Fig. 27)



(Fig. 28)

STEP 6:
BROACHING

Further removal of endplate osteophytes may be achieved by using Broaches. Broach size is determined by the height of the largest sizer accommodated in the disc space. The atraumatic tangs of the appropriate sized Broach are positioned medial and lateral and seated into the disc space. Assure the cutting blades are parallel to the endplates prior to impaction. Impact the Broach into the disc space to remove posterior endplate osteophytes *(Fig. 28)*.

STEP 7:
ALLOGRAFT INSERTION

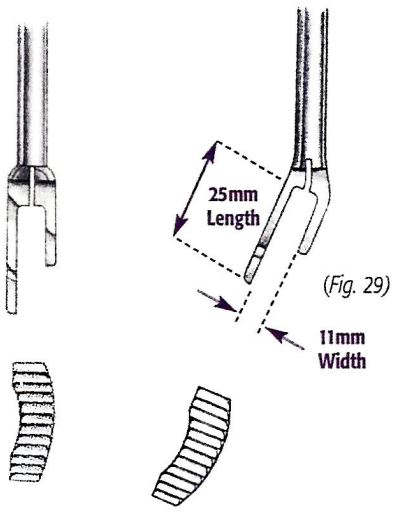
The height of the Triad® Lumbar Allograft is determined by the last TLIF Sizer used.

Allograft insertion may be accomplished by using either an impacted technique or an insert and rotate technique.*

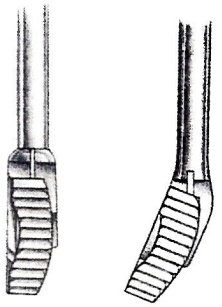
IMPACTED TECHNIQUE

Select either a straight or angled Inserter that corresponds to the size of the allograft selected *(Fig. 29)*.

Place the allograft implant onto Inserter with concave surface facing the long tang *(Fig. 30)*. Lock implant in place by rotating the Inserter Sleeve relative to the T-Handle in a clockwise direction.



(Fig. 29)



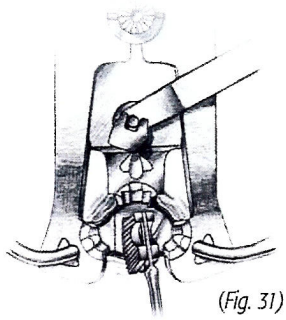
(Fig. 30)

* U.S. Patent No. 6,368,325.

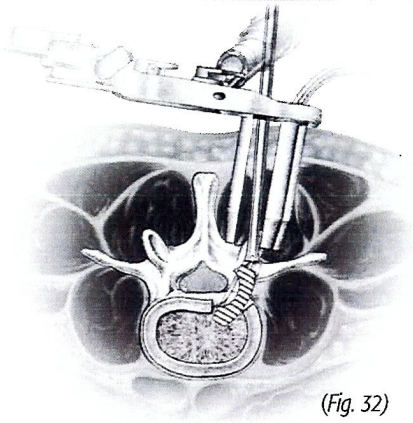
STEP 7:

ALLOGRAFT INSERTION (CONT.)

The implant is positioned adjacent to the opening of the annulus with the concave surface held by the long tang of the Inserter facing medial. It is then gently impacted into the disc space *(Figs. 31, 32)* and released from the Inserter *(Fig. 33)*.



(Fig. 31)



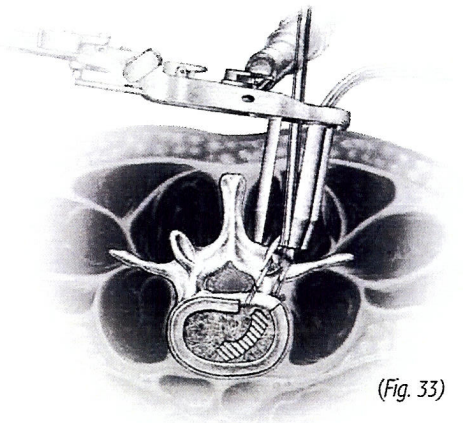
(Fig. 32)

INSERT AND ROTATE TECHNIQUE*

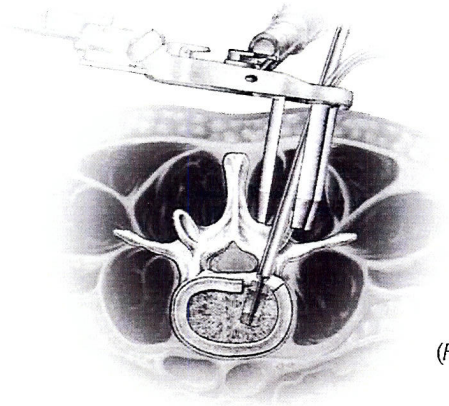
Select a Straight Inserter that corresponds to the size of the allograft selected.

Place the implant at the opening of the annulus such that the concave surface held by the long tang of the Inserter faces inferiorly. This is 90° from its eventual orientation within the disc space. It is then gently impacted into the disc space, positioned obliquely across the disc space, and then rotated 90° such that the concave surface then faces medially *(Fig. 34)*.

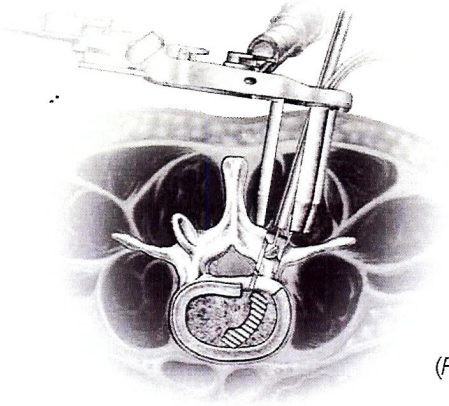
The implant is then released from the inserter *(Fig. 35)*.



(Fig. 33)



(Fig. 34)



(Fig. 35)

"The 'insert and rotate' technique of graft placement has several potential advantages over conventional methods. Inserting the graft in a 90° rotated position creates a geometric match between the rectangular profile of the graft and the annulotomy site . This relationship allows the graft to be inserted into the interspace with little or no retraction of the exiting nerve root or thecal sac. This reduces risk of nerve root injury and often improves visualization by eliminating the need of a nerve root retractor within the operative field. Once within the interspace the graft position may be easily adjusted, as the graft has not yet engaged the endplates. With the graft in the desired position, interspace distraction may be achieved by rotating the graft 90°. This maneuver decompresses the contralateral foramen and results in endplate engagement and graft compression. When the graft is placed across the anterior third of the interspace this technique also produces lordodic segmental alignment."

– Mark Peterson, M.D.

"When using the 'insert and rotate' technique, I prefer to rotate the graft prior to placing it all the way into the disc space. The stronger endplate bone near the annulus allows me to get better distraction of the disc space and reduces the chance of endplate damage."

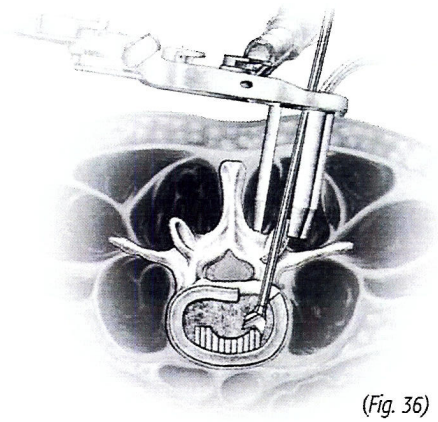
– William Taylor, M.D.

* U.S. Patent No. 6,368,325.

STEP 8:

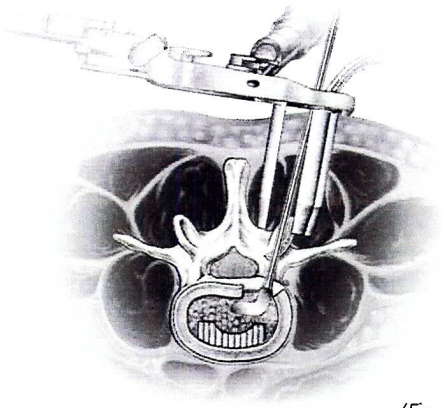
FINAL ALLOGRAFT POSITIONING

The implant is then positioned against the anterior annulus using the Implant Tamp *(Fig. 36)*.



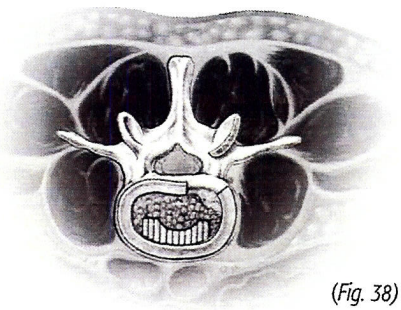
(Fig. 36)

Graft material of the surgeon's preference is then placed into the disc space posterior to the allograft implant and packed with the Straight and Angled Autograft Tamps *(Fig. 37)*.



(Fig. 37)

The final implant position is shown *(Fig. 38)*.



(Fig. 38)

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CATALOG

MAXCESS SURGERY CONFIGURATION

MAXCESS TLIF	CATALOG #
Triad® TLIF Tray	7102000
Triad General Instrument Tray	7103000
MaXcess Access System	3200000
MaXcess Decompression System	3100000

TLIF TRAY

STERILIZATION CASE	CATALOG #
Sterilization Case	7100002

SIZERS	CATALOG #
Sizer - 7mm	7190007
Sizer - 8mm (color-coded)	7191008
Sizer - 9mm	7190009
Sizer - 10mm (color-coded)	7191010
Sizer - 11mm	7190011
Sizer - 12mm (color-coded)	7191012
Sizer - 13mm	7190013
Sizer - 14mm (color-coded)	7191014

BROACHES	CATALOG #
Broach - 8mm (color-coded)	5005208
Broach - 10mm (color-coded)	5005210
Broach - 12mm (color-coded)	5005212
Broach - 14mm (color-coded)	5005214

TAMPS	CATALOG #
Autograft Tamp - Straight	7100058
Autograft Tamp - Footed	7100059
Implant Tamp	7100061

INSERTERS	CATALOG #
9 x 25mm Straight Inserter	7100070
9 x 25mm Angled Inserter	7100071
11 x 25mm Straight Inserter	7100072
11 x 25mm Angled Inserter	7100073

T-HANDLE	QTY	CATALOG #
T-Handle	2	5000901

GENERAL INSTRUMENT TRAY

STERILIZATION CASE	CATALOG #
Sterilization Case	7100003

DISTRACTORS	CATALOG #
Pedicle Screw Spreader	7100024
Distractor - 20-degree Bend	7100013
Distractor - Straight Offset	7100014
Lamina Spreader	7100040

PITUITARY RONGEURS	CATALOG #
Pituitary Rongeur - Straight	7100041
Pituitary Rongeur - Up-biting	7100042

CHISELS	CATALOG #
Chisel - Straight, 7mm	7100043
Chisel - Straight, 12mm	7100044
Chisel - Angled, 7mm	7100045

CURETTES	CATALOG #
Curette - Straight	7100046
Curette - Left Angled	7100047
Curette - Right Angled	7100048
Curette - Down Angled	7100049
Curette - Up Angled	7100050

SCRAPER	CATALOG #
Scraper - Straight	7100080

DISC CUTTERS	CATALOG #
Disc Cutter - 8mm	5001708
Disc Cutter - 10mm	5001710

RETRACTORS	CATALOG #
Nerve Retractor	7100053
Dissector - 4mm	7100054
Dissector - 7mm	7100055

RASPS	CATALOG #
Rasp - Straight	7100056
Rasp - Angled	7100057

MAXCESS ACCESS SYSTEM

ARTICULATING ARM	CATALOG #
Articulating Arm Assembly	3200021

K-WIRE	CATALOG #
K-Wire (.062)	3200011

DILATORS	CATALOG #
Dilator - 6mm	3202006
Dilator - 9mm	3202009
Dilator - 12mm	3202012
Dilator - 6mm, NV	3203006
Dilator - 9mm, NV	3203009
Dilator - 12mm, NV	3203012

ACCESS DRIVER	CATALOG #
Access Driver	3200010
Access Driver - Body	3200009
Access Driver - Arm, Right	3200007
Access Driver - Arm, Left	3200008

BLADES	QTY	CATALOG #
Blade - 30mm	3	3201030
Blade - 40mm	3	3201040
Blade - 50mm	3	3201050
Blade - 60mm	3	3201060
Blade - 70mm	3	3201070
Blade - 80mm	3	3201080
Blade - 90mm	3	3201090
Blade - 100mm	3	3201100
Blade - 110mm	3	3201110
Blade - 120mm	3	3201120
Blade - 130mm	3	3201130

SHIMS / SHIM INSERTER	CATALOG #
Shim - Intradiscal	3200012
Shim - Standard	3200013
Shim - Wide	3200014
Shim Inserter	3200015

LIGHT CABLE / ADAPTERS	CATALOG #
Light Cable Assembly	3200020
Light Cable	3200017
Light Cable Tip	3200018
Light Cable Adapter ACMI	3200045
Light Cable Adapter Storz	3200046
Light Cable Adapter Olympus	3200047

SET SCREWS / HEX DRIVERS	QTY	CATALOG #
Set Screw - Short	2	3200040
Set Screw - Long	1	3200041
Hex Driver (3/32")	1	3200016
Hex Key (3/32")	1	3200042

STERILIZATION CASES	CATALOG #
Sterilization Case Assembly MaXcess Access	3200031
Sterilization Case Lid MaXcess Access	3200032
Sterilization Case Tray 1 MaXcess Access	3200033
Sterilization Case Tray 2 MaXcess Access	3200034
Sterilization Case Base MaXcess Access	3200035

MAXCESS DECOMPRESSION SYSTEM

KERRISON RONGEURS	CATALOG #
Kerrison - 3mm, 40 Deg.	3100010
Kerrison - 5mm, 40 Deg.	3100011
Kerrison - 3mm, 90 Deg.	3100012
Kerrison - 5mm, 90 Deg.	3100013
Curved Kerrison - 2mm	3100014
Curved Kerrison - 4mm	3100015

PITUITARY RONGEURS	CATALOG #
Pituitary - Up, 2mm	3100030
Pituitary - Straight, 2mm	3100031
Pituitary - Down, 2mm	3100032
Micro Pituitary - Up, 2mm	3100033
Micro Pituitary - Straight, 2mm	3100034
Pituitary - Up, 4mm	3100035
Pituitary - Straight, 4mm	3100036

CURETTES	CATALOG #
Curette - Straight, Small	3100020
Curette - Straight, Large	3100021
Curette - Up, Small	3100022
Curette - Up, Large	3100023
Curette - Down, Small	3100024
Curette - Down, Large	3100025

PROBES/DISSECTORS/RETRACTORS	CATALOG #
Woodson	3100040
Ball Tip Probe	3100041
Penfield - Large	3100042
Penfield - Small	3100043
Nerve Hook	3100044
Dissector	3100045
Nerve Retractor - Short	3100048
Suction Nerve Retractor - Short	3100049

SCISSORS	CATALOG #
Scissors	3100037

SUCTION	CATALOG #
Suction 10 FR - Short	3100046
Suction 8 FR - Short	3100047

BIPOLAR FORCEPS	CATALOG #
Bipolar Forceps - Angled, Short	3100050
Bipolar Forceps - Straight Short	3100051
Bipolar Forceps Cable	3100052

ANNULOTOMY KNIFE	CATALOG #
Annulotomy Knife Handle	3100053
Annulotomy Knife Blade	3100054

STERILIZATION CASES	CATALOG #
Sterilization Case Assembly MaXcess Decompression	3100060
Sterilization Case Lid MaXcess Decompression	3100061
Sterilization Case Base MaXcess Decompression	3100062
Sterilization Case Insert 1 MaXcess Decompression	3100063
Sterilization Case Insert 2 MaXcess Decompression	3100064

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NOTES

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* U.S. Patent No. 6,368,325.