

Less Invasive Lumbar Fusion

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Less Invasive Lumbar Fusion

Anterior: **Mini-open**

Anterior Lumbar Interbody Fusion: ALIF

Posterior: **Mini-Open** or **Percutaneous**

Pedicle screw Fusion

Interbody: TLIF with Screws

Example: ALIF

Anterior Lumbar Interbody Fusion

- **Mini-Open:** 3 inch incision – paraumbilical
- **Retroperitoneal:** 10 minute exposure time
- **Complete Disc Removal +/- PLL**
- **Insert Peek Spacer with BMP**
- **Anterior Plate**

ALIF Benefits

- Excellent Visualization of Disc Space
- Able to Completely remove Disc/Cartilage and prepare Endplates
- Large, Lordotic Graft
- Able to restore Lordosis
- Able to Open Foramen and Decompress Lateral Recess
- Does not require nerve root retraction
- Posterior para-spinal musculature spared
- No future scar tissue around the neurovascular elements

ALIF Negatives

- Life threatening approach
- Must have capable access surgeon
- Intraoperative Complications
 - Vessel injury/thrombosis
 - Retrograde Ejaculation
- Postoperative Ileus
- Graft Extrusion
- May Need additional stabilization

ALIF Stability

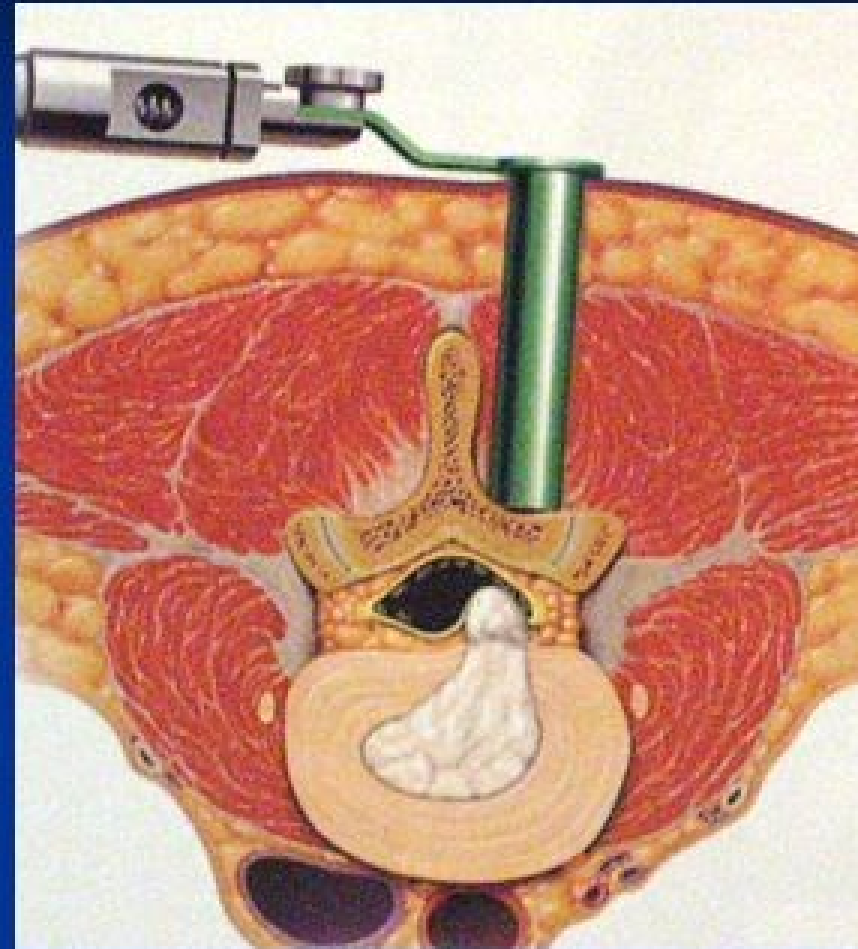
- Stand-Alone
- Anterior Plate
- Translaminar Screws

- **Pedicle Screws – Ideally Could Be Placed in a Minimally Invasive Way**

Common Access Portal via the ProView Tubular Retractor System



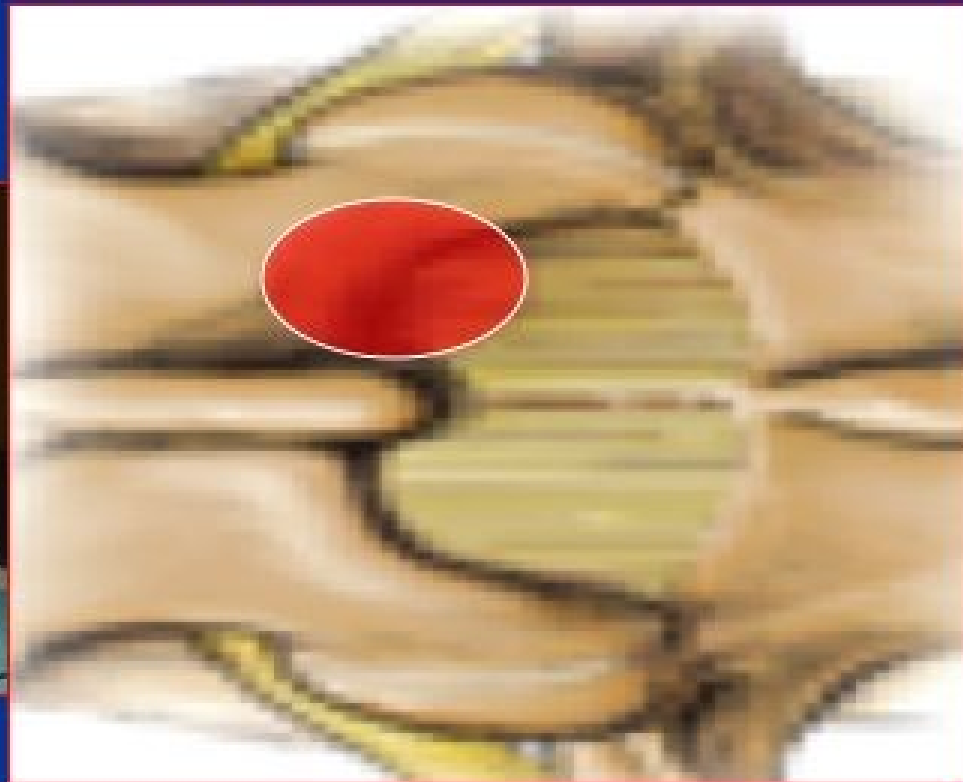
Example: Minimally Invasive Approach to the Disk Space



Placement of Tubular Retractor for Disk Space Access

Disk Space Access

- Place K-wire at Inferior Lamina Edge at Junction of Spinous Process





Tubular Retractors can be used For:
Placement of pedicle screws
Placement of Interbody Device



Percutaneous Pedicle Screws

Percutaneous Pedicle Screws

Positives

- Do not detach Paraspinous Muscles from Midline structures
- Less Pain
- Less Inpatient Days
- Faster Rehab
- Better Long Term Function of musculature

Percutaneous Pedicle Screws

Negatives

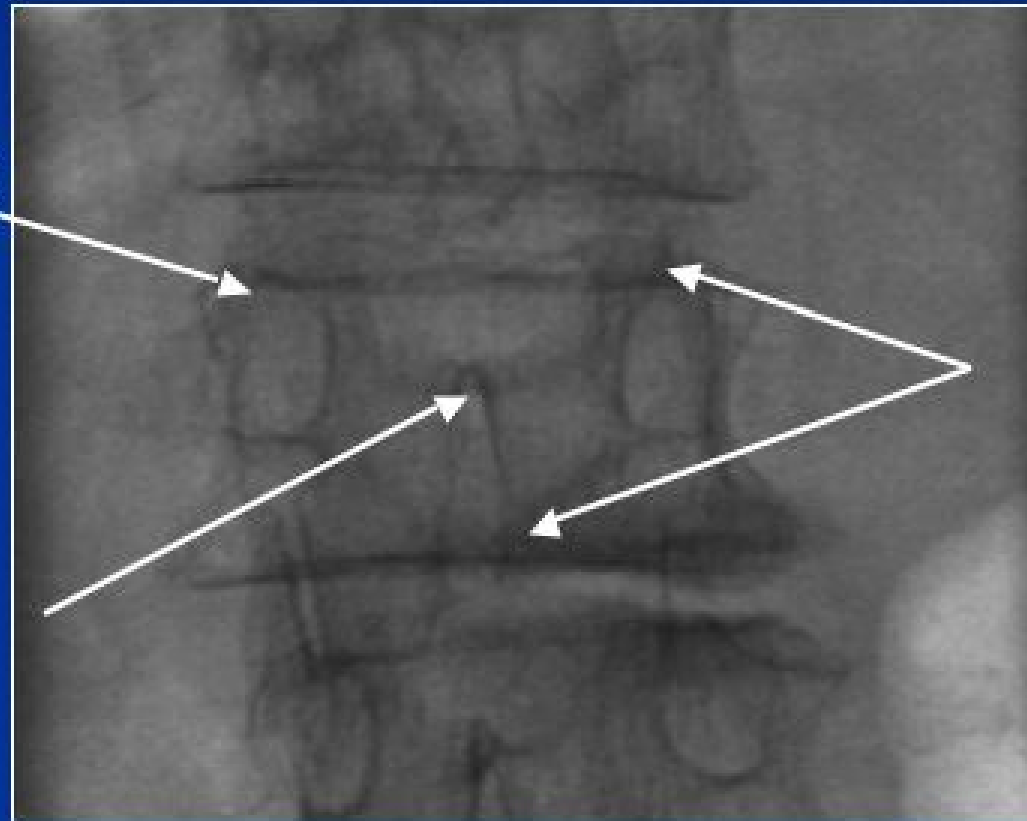
- Decompression
 - Adequacy of MISS decompression
 - Amount of Incisions and Time
- Fusion
 - Facet Joint
 - Intertransverse
- Accuracy

“True” A-P Image

Shows Where to Mark Skin for Incision

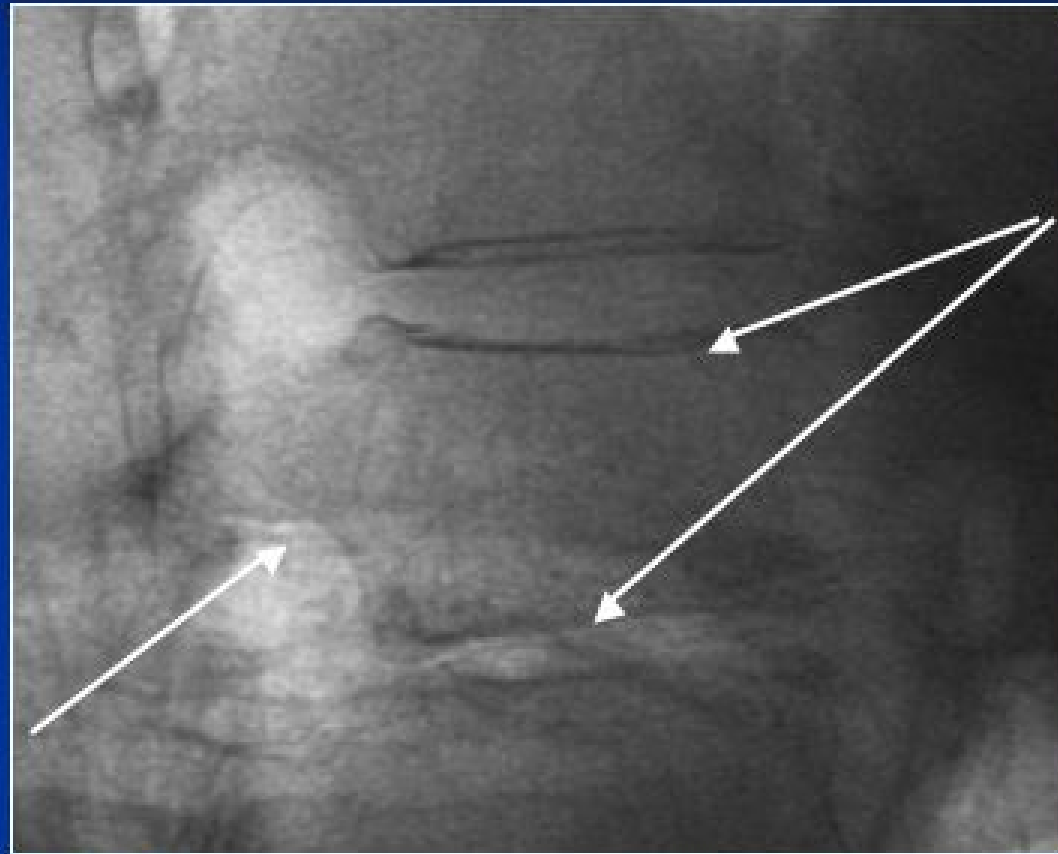
**Pedicles in
upper half of
vertebral
body**

**Spinous
process
equidistant
between
pedicles**



**Endplates
parallel**

“True” Lateral Image



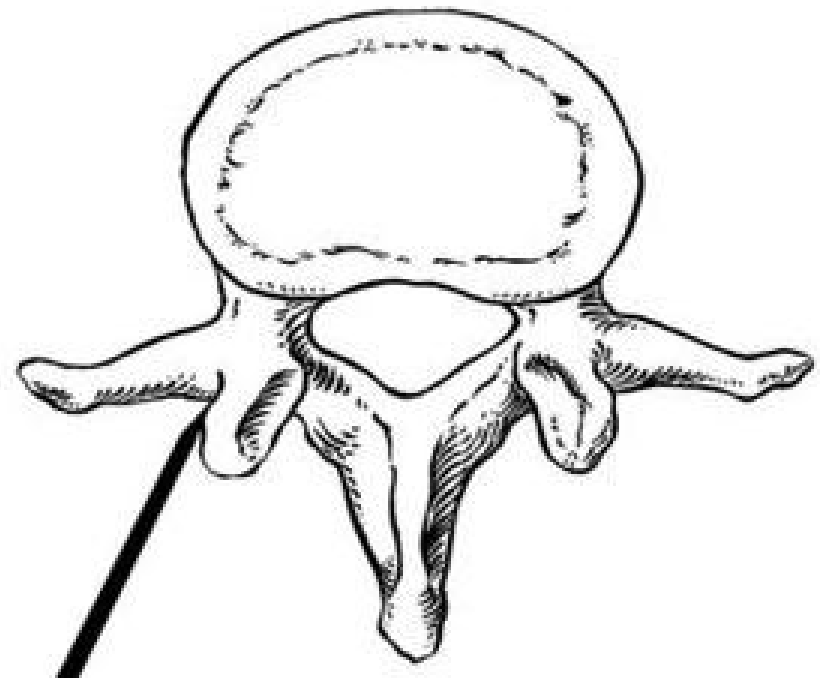
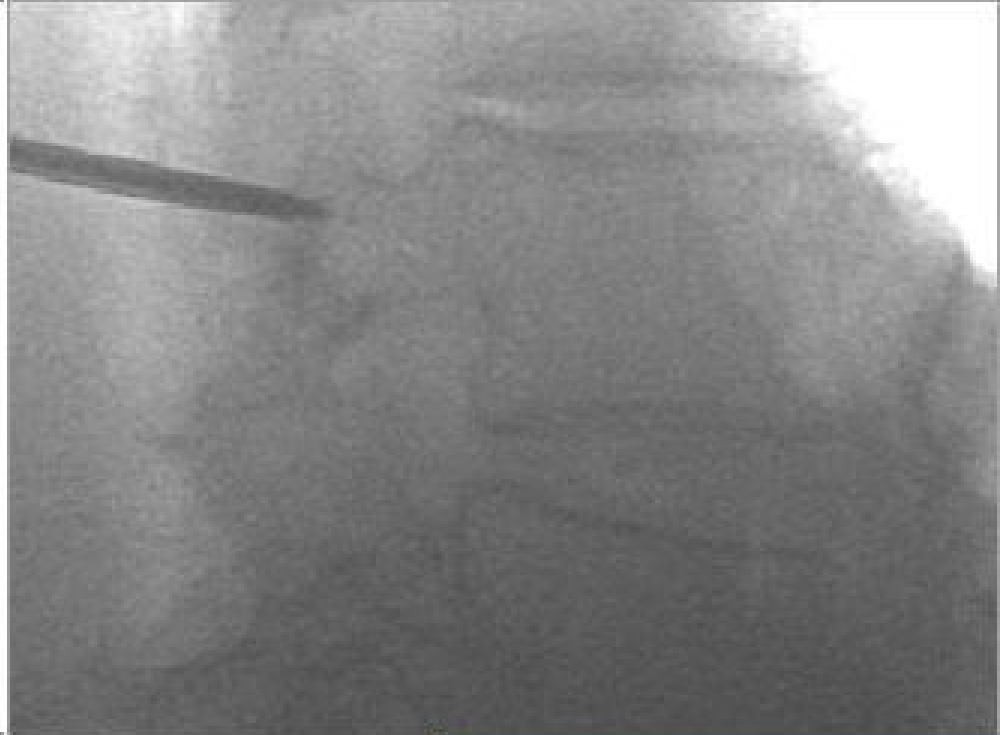
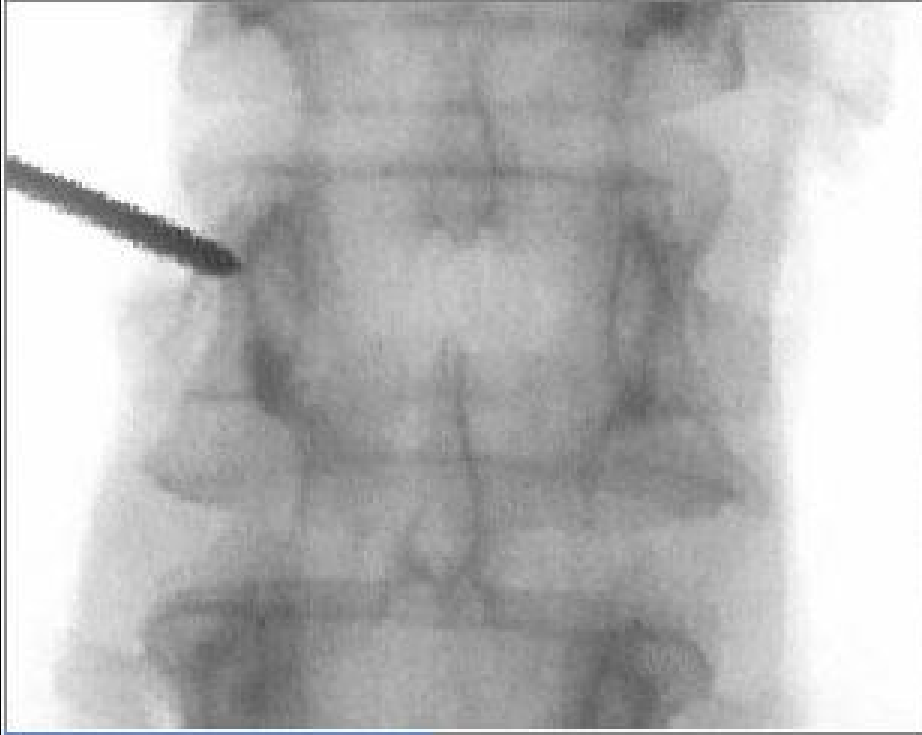
**Endplates
parallel**

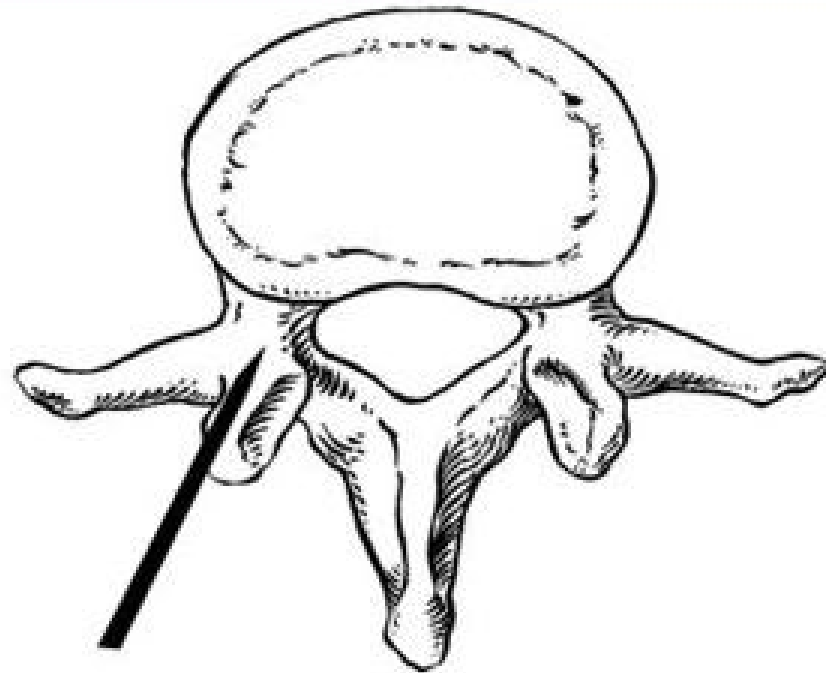
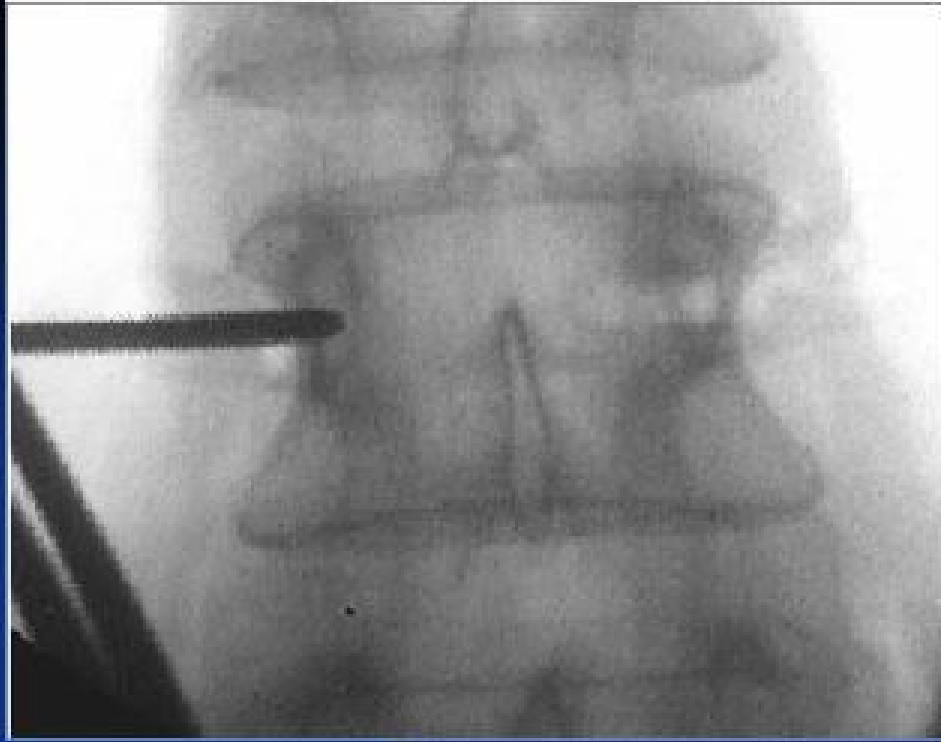
**Pedicles
superimposed**

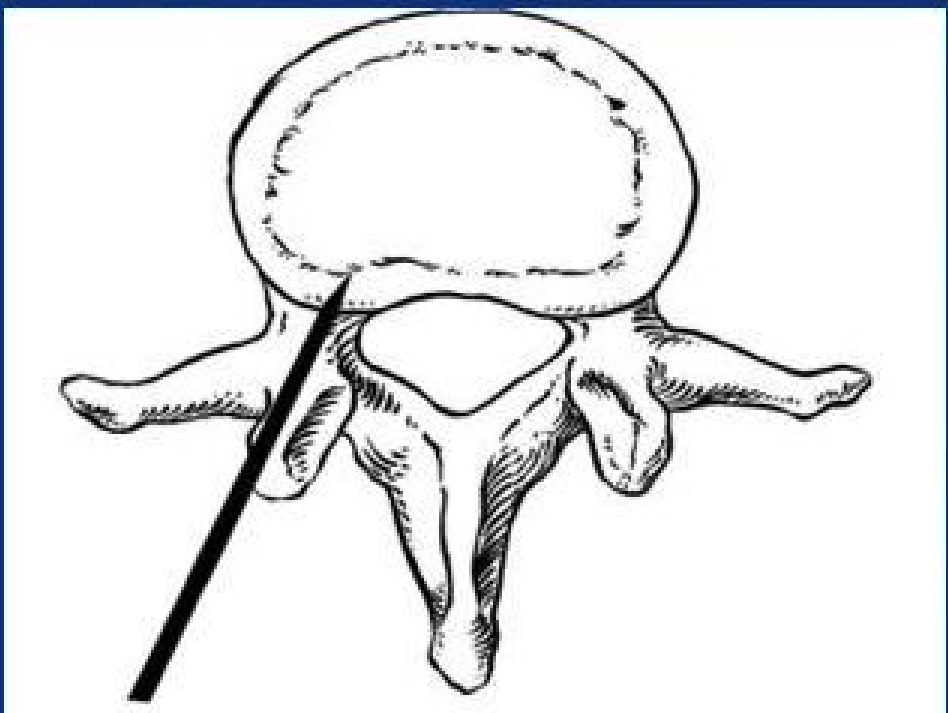
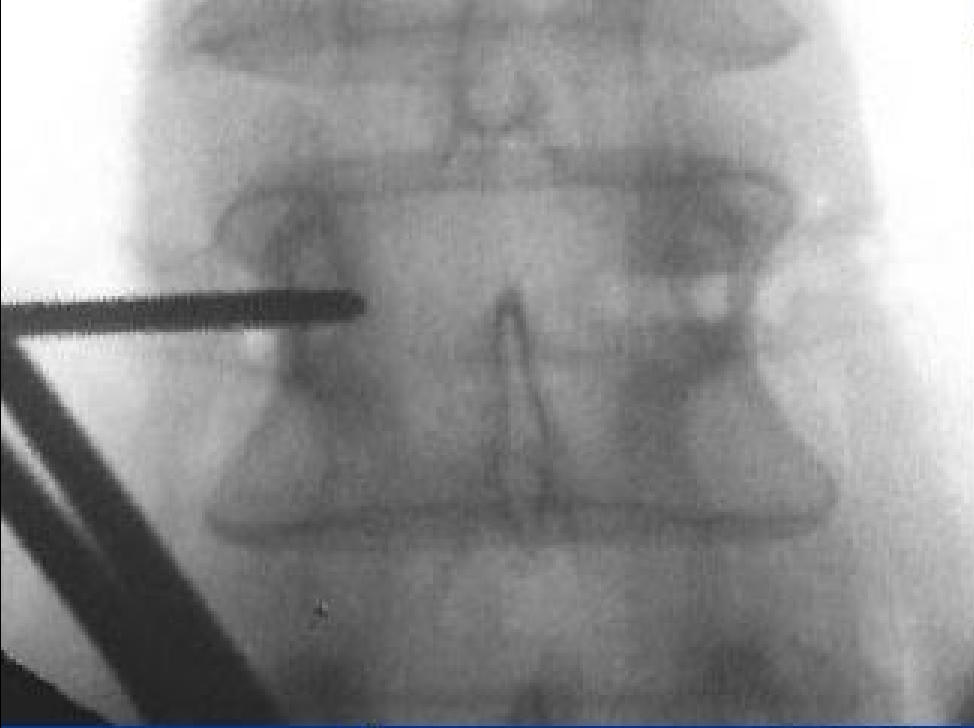
Placement of K-wire as a Guide

- Small 2cm skin incision
- Trocar to penetrate cortex at Pedicle
- Advance K-wire under A/P and LAT
Fluoroscopy
- Advance Dilators
- Place Tubular Retractors and/or
Percutaneous Screw Head Holders



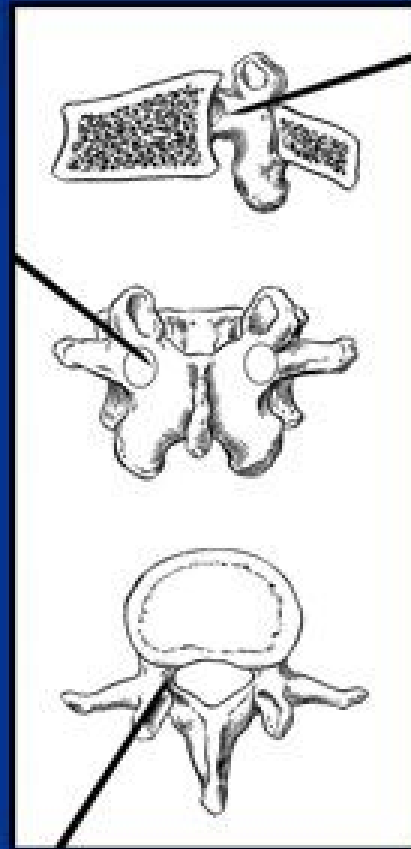




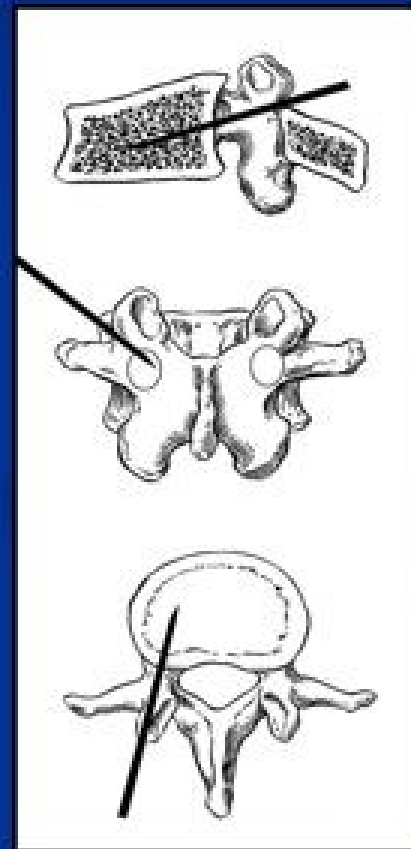


TRANSPEDICULAR APPROACH

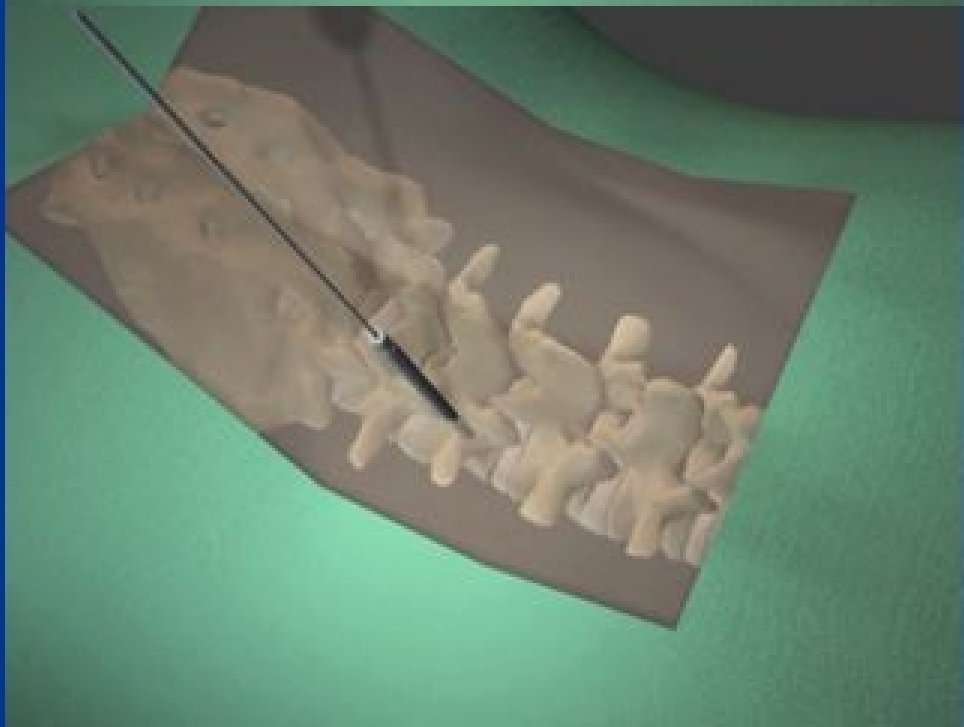
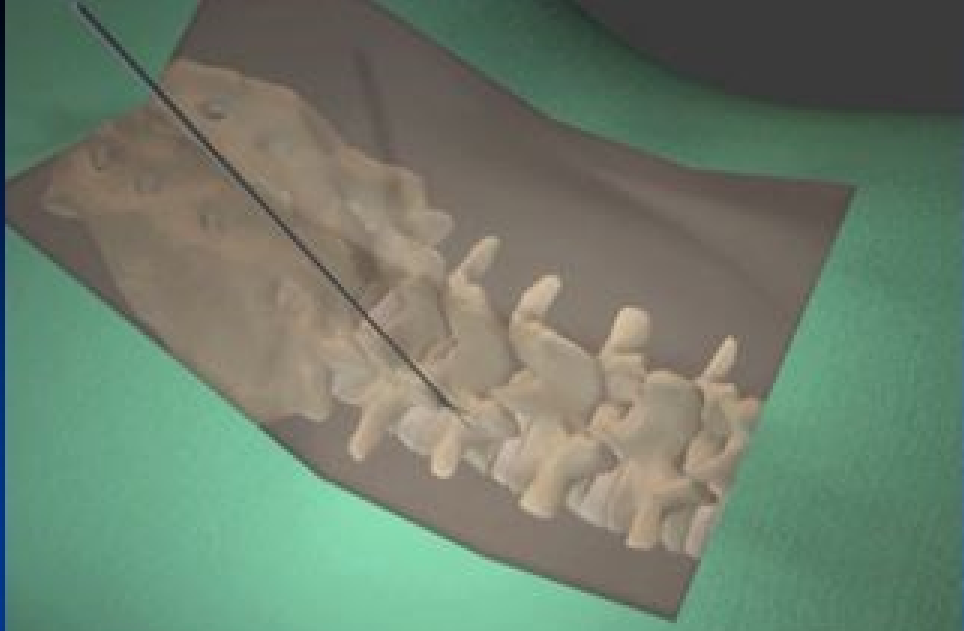
Access - Troubleshooting

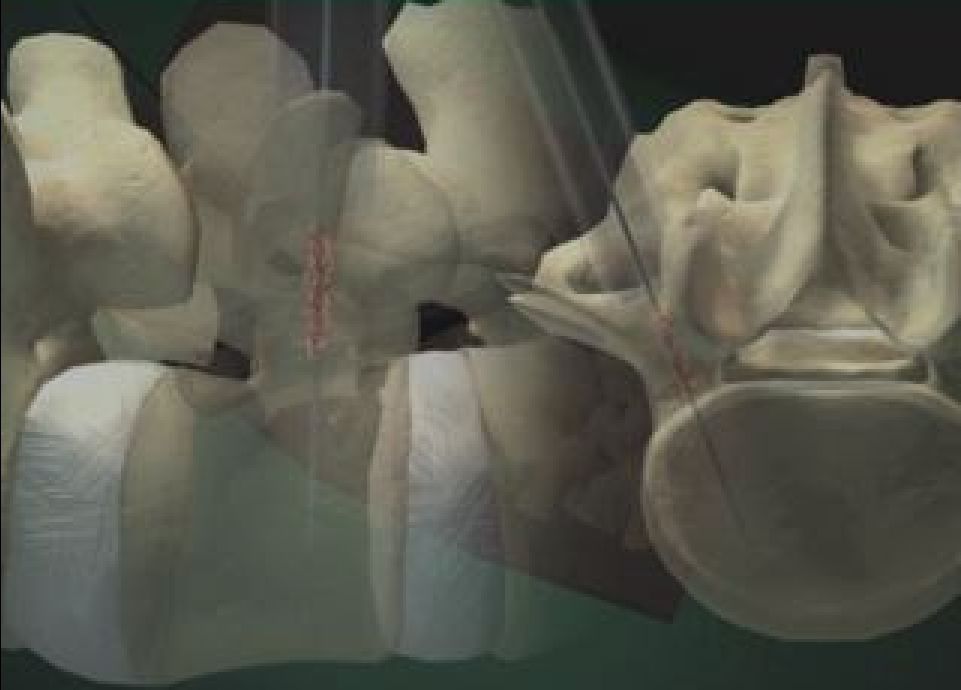
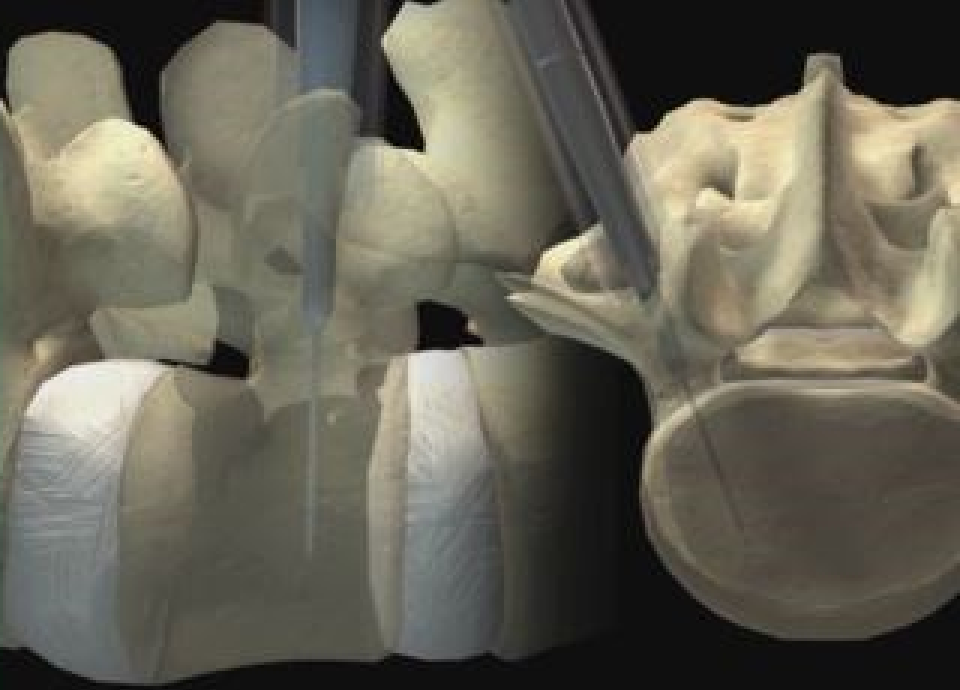
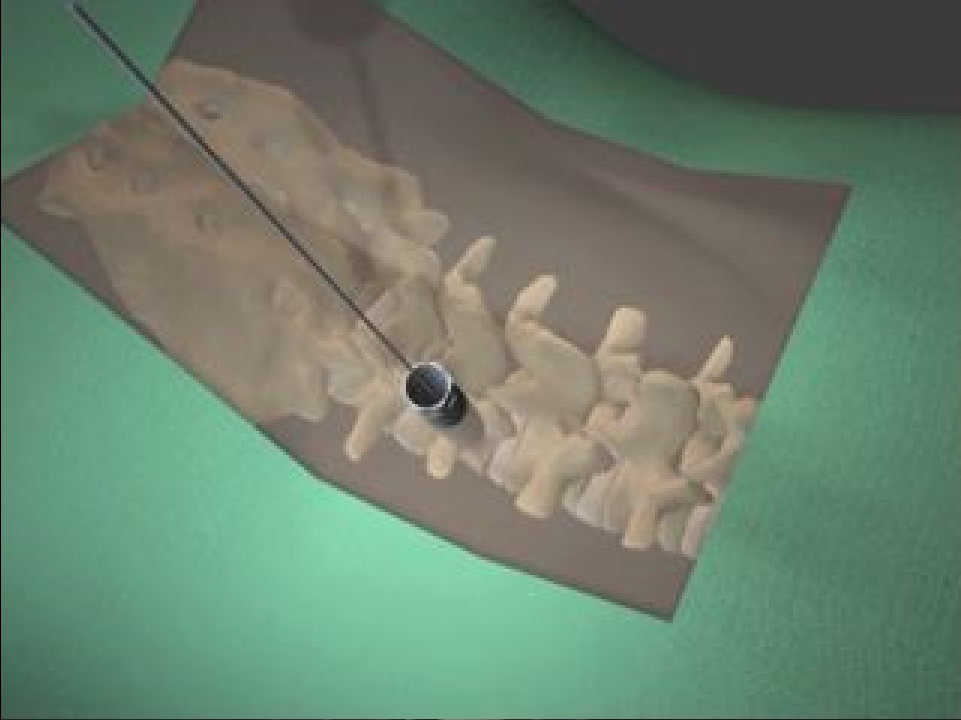


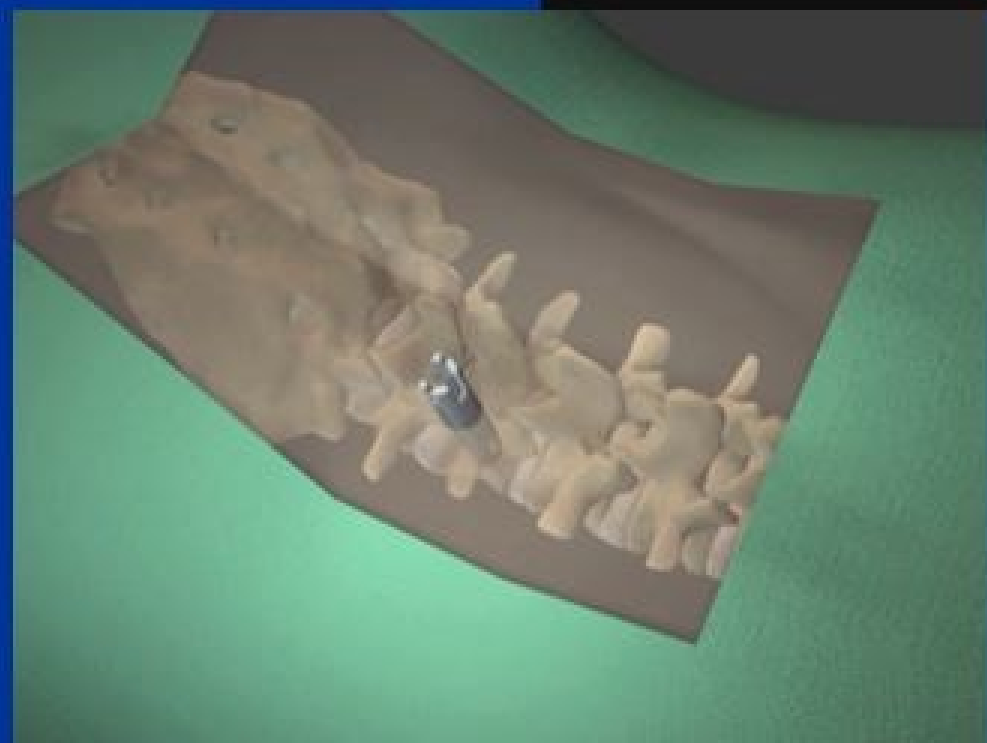
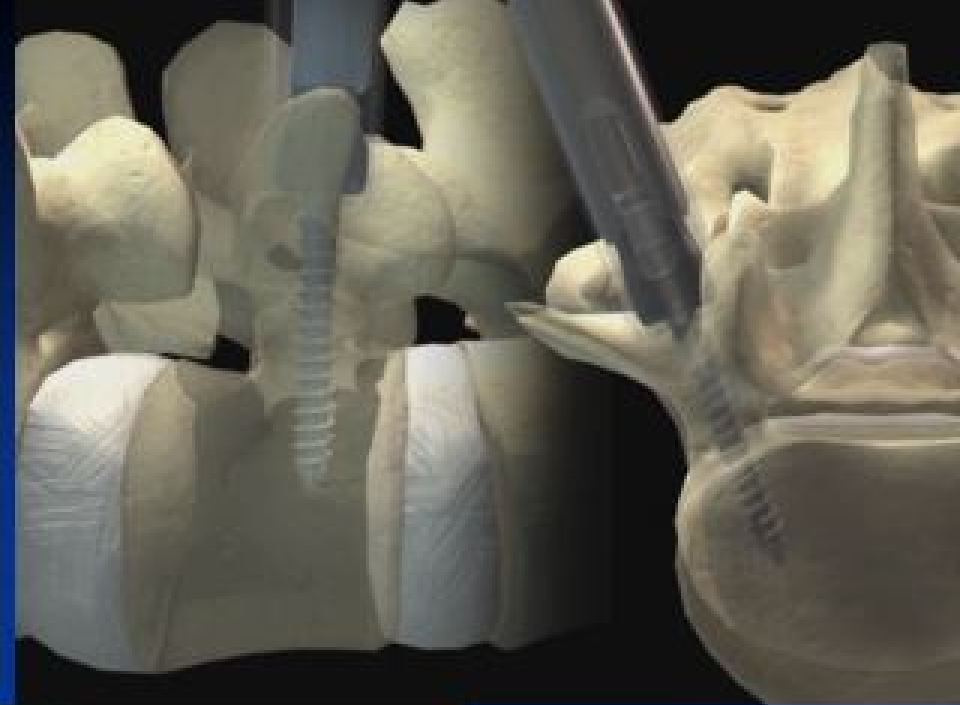
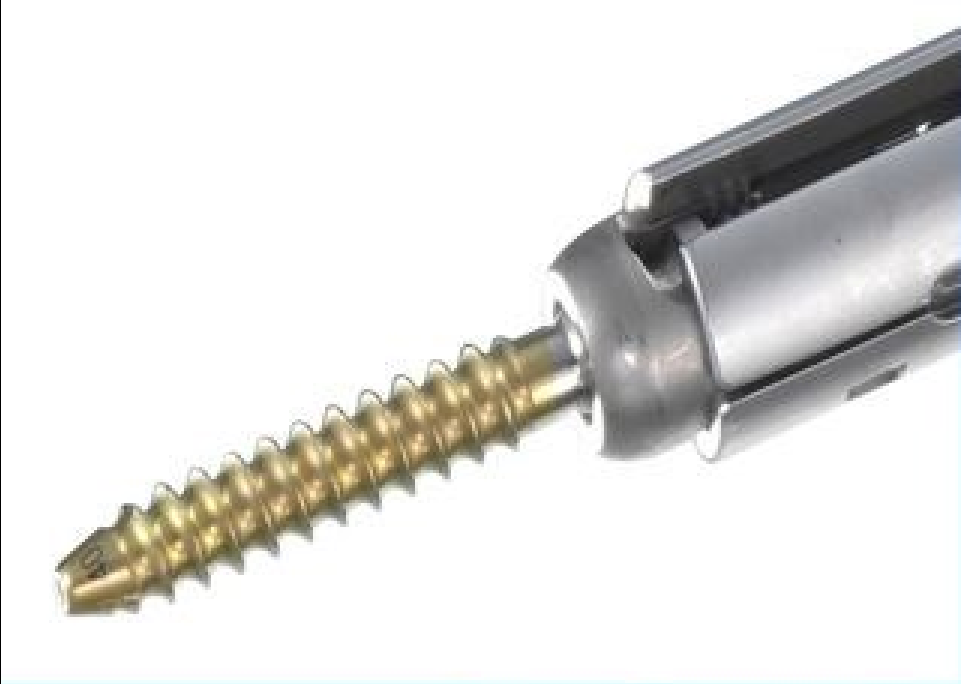
Too far medial

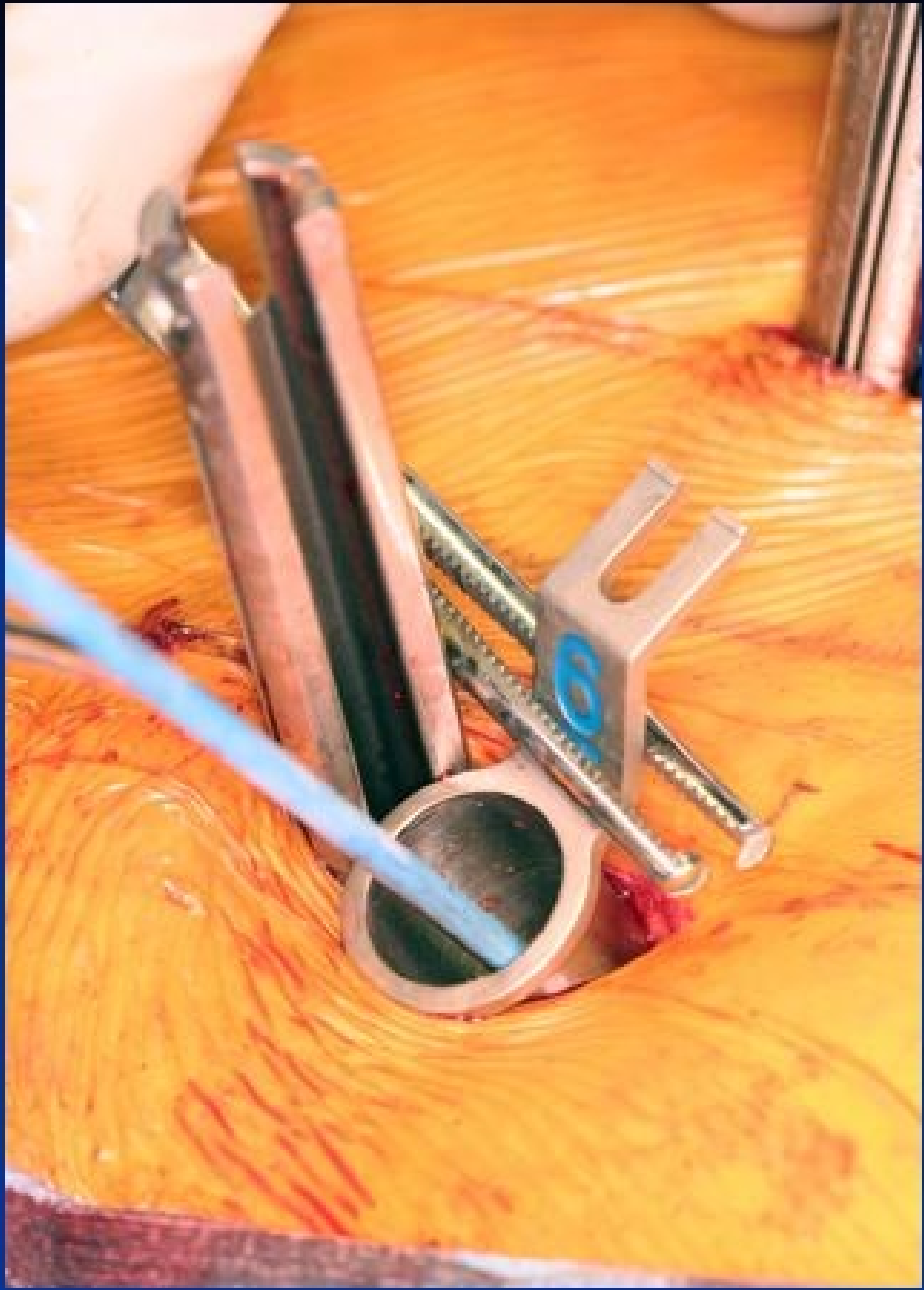


Too far lateral



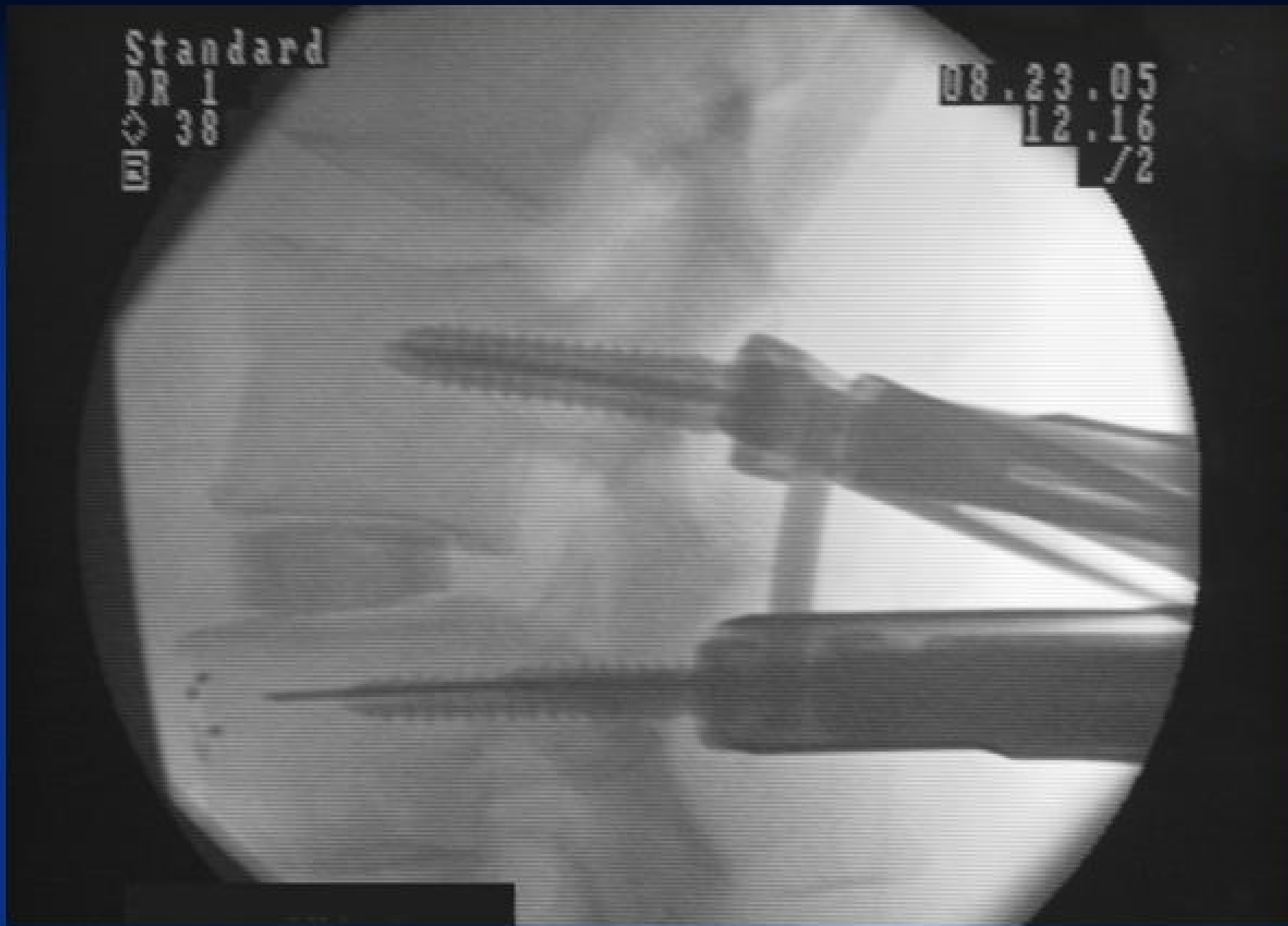






Standard
PR 1
38

08.23.05
12.16
/2





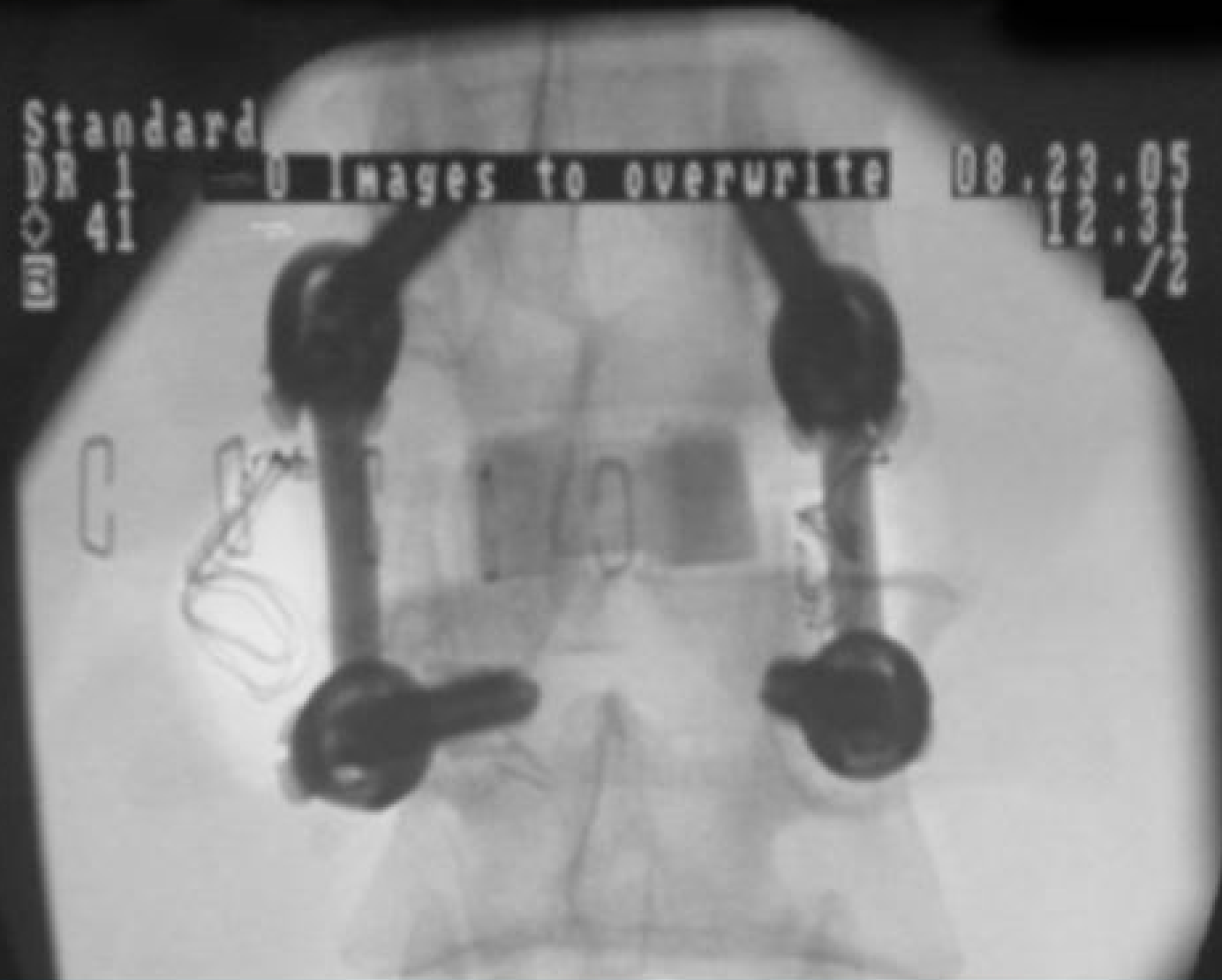
Standard

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R 1
41

0 Images to overwrite

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C

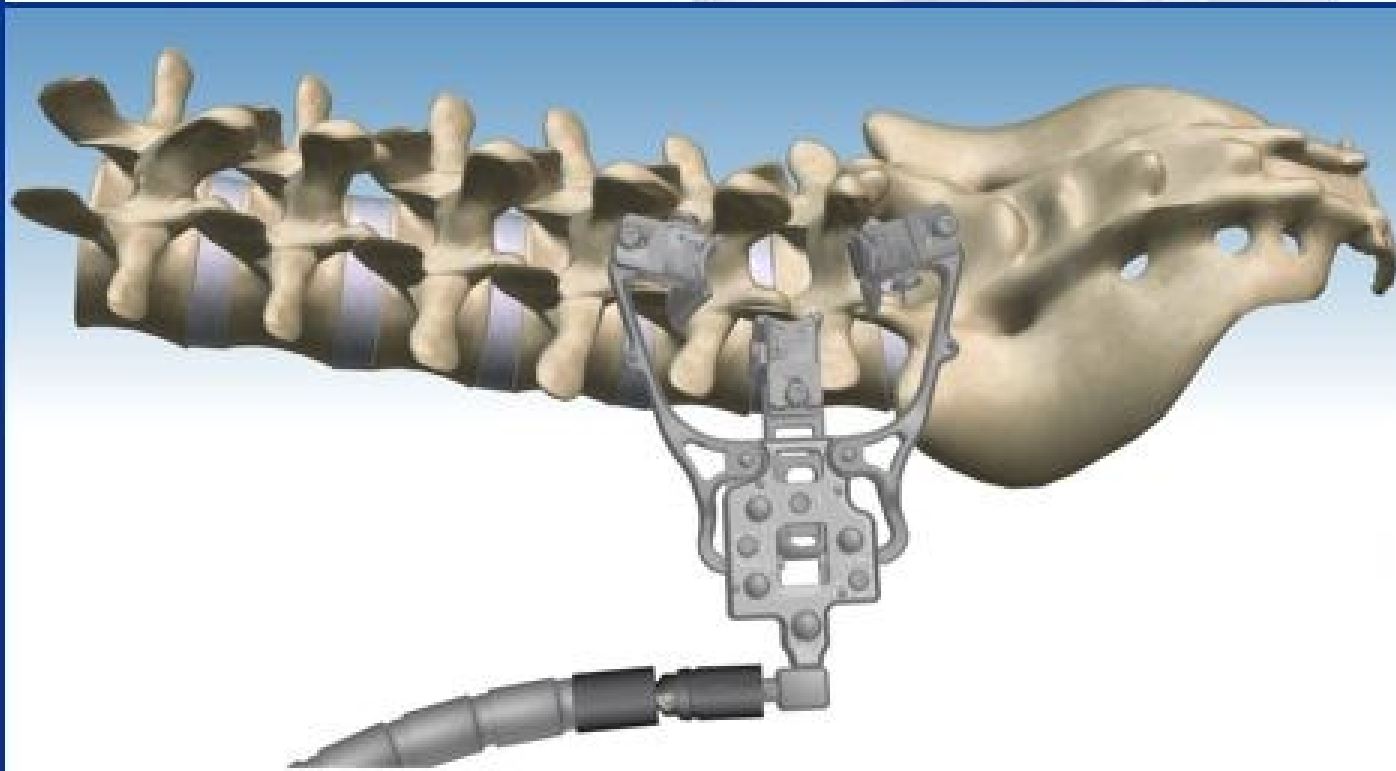
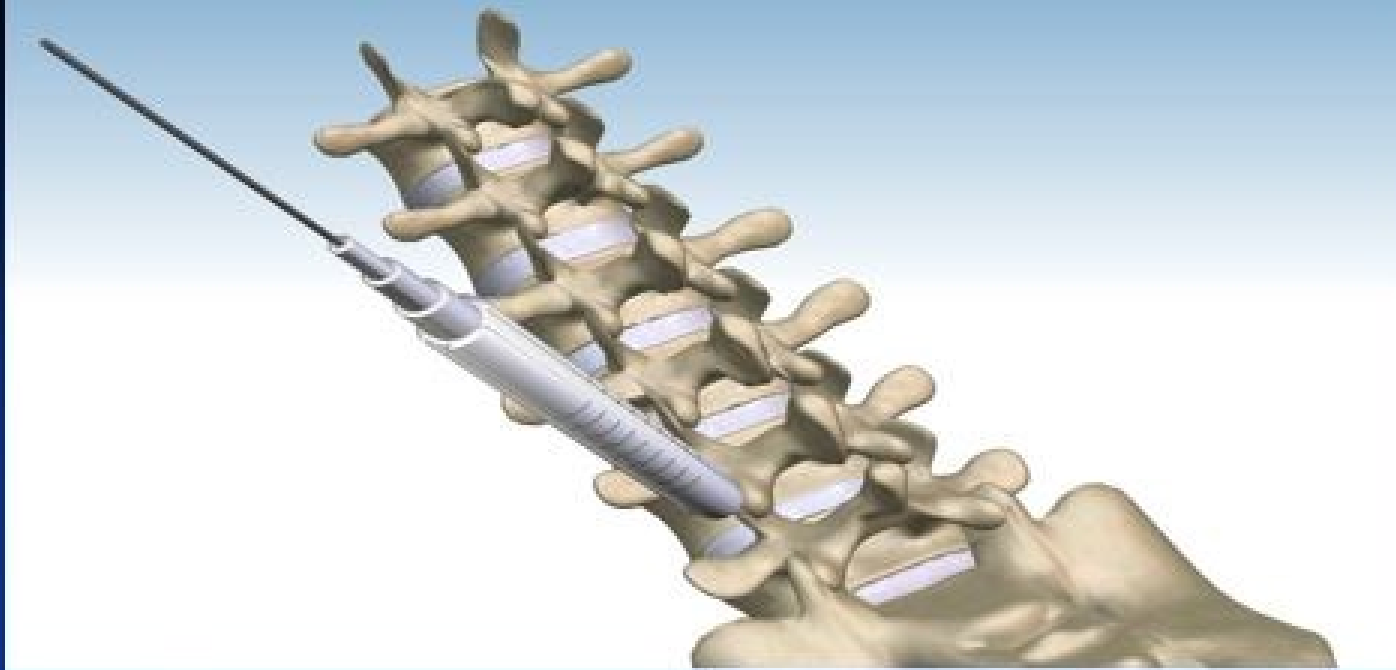




Less Invasive TLIF

■ Advantages:

- No need to turn the patient over for interbody placement
- Wide Exposure of disk space for preparation
- Less nerve retraction
- Can be approached on a single side



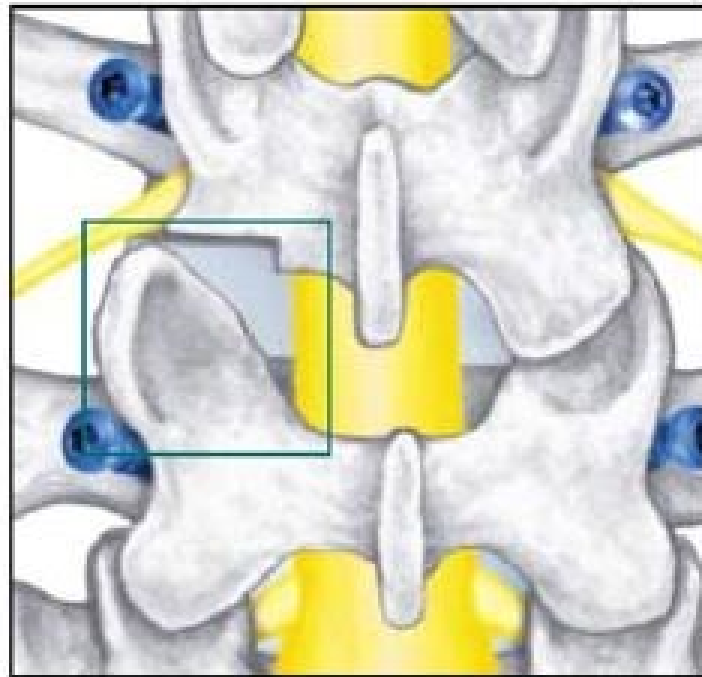
ProView Retractor on TLIF Side

Same as Tubular Retractor, but can
Expand

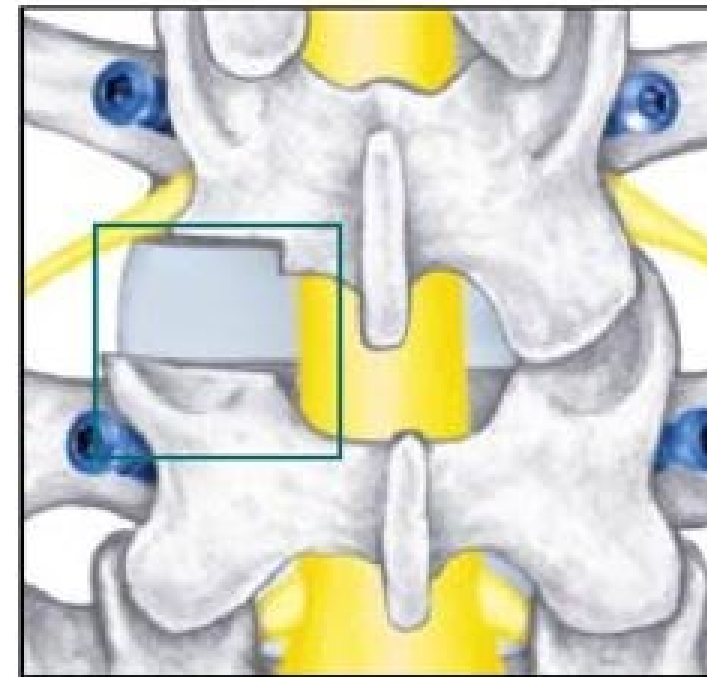




Removal of inferior facet followed by removal of superior facet can be done through either system

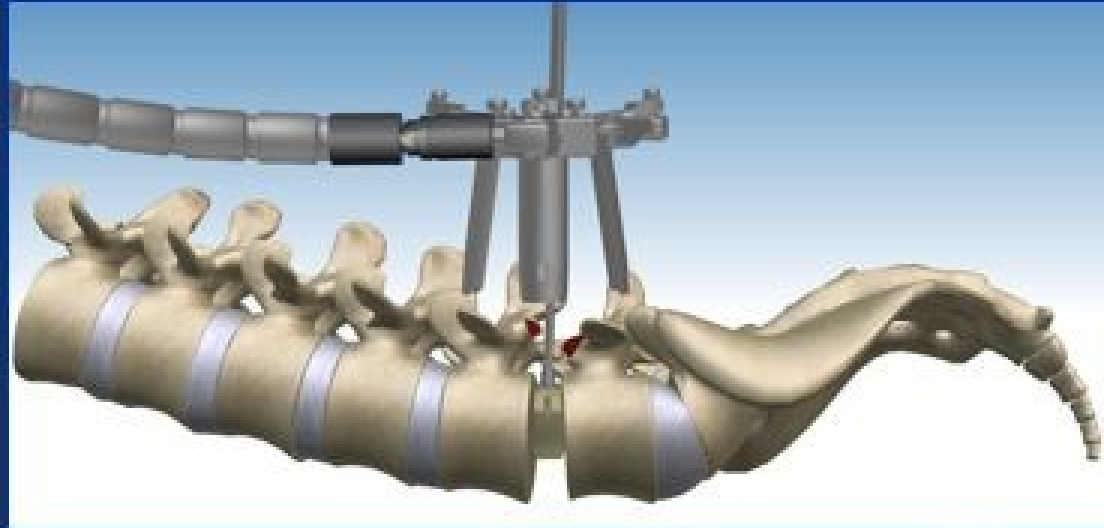
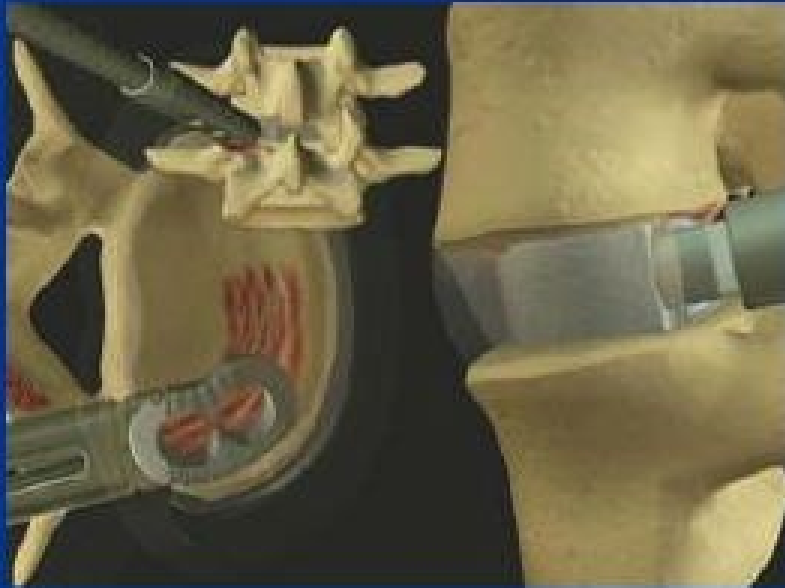


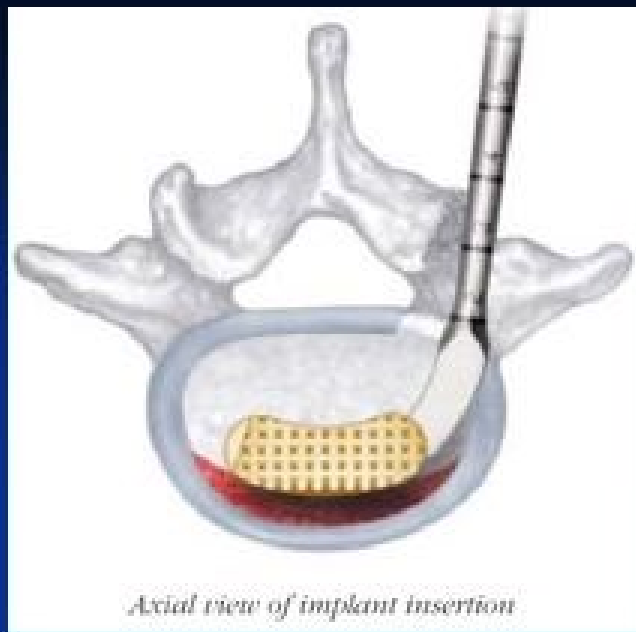
Inferior articular facet removed



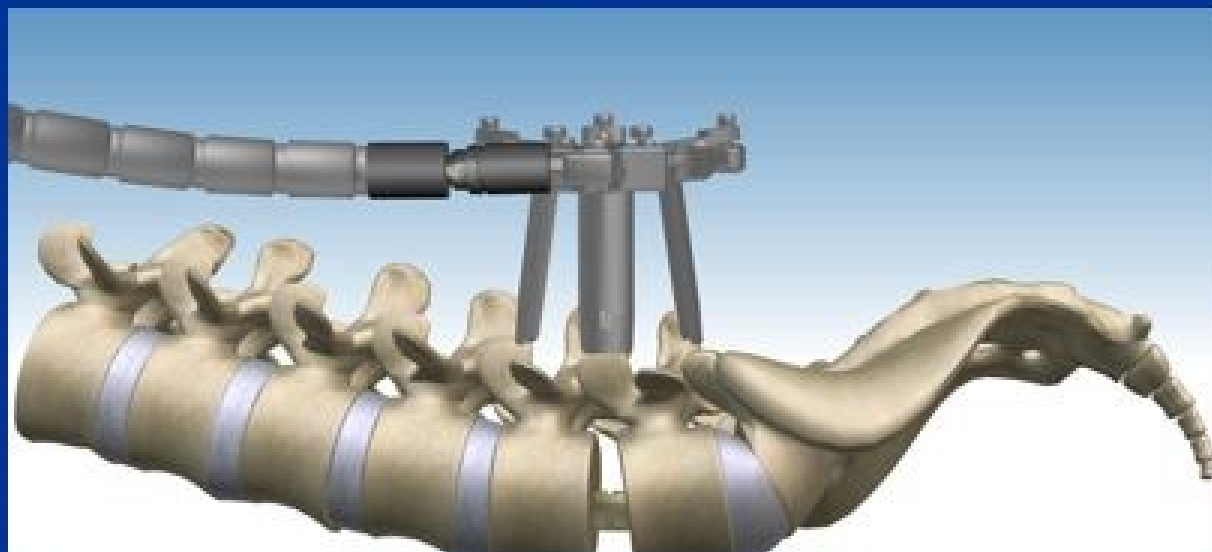
Transforaminal window created by unilateral facetectomy

TLIF cage insertion





Axial view of implant insertion



Obrigado

