

# Biportal endoscopic lumbar interbody fusion

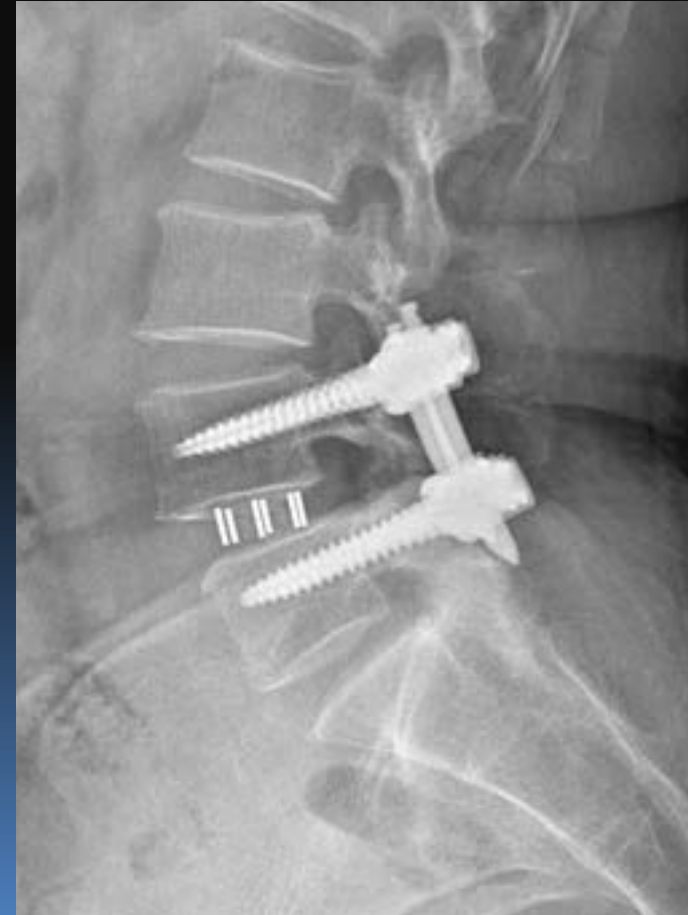
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**Dong Hwa Heo, MD. PhD.**

**Endoscopic Spine Surgery Center,  
Neurosurgery  
Seoul CPD Hospital, Seoul, South Korea**



# Dual-portal endoscopic lumbar interbody fusion



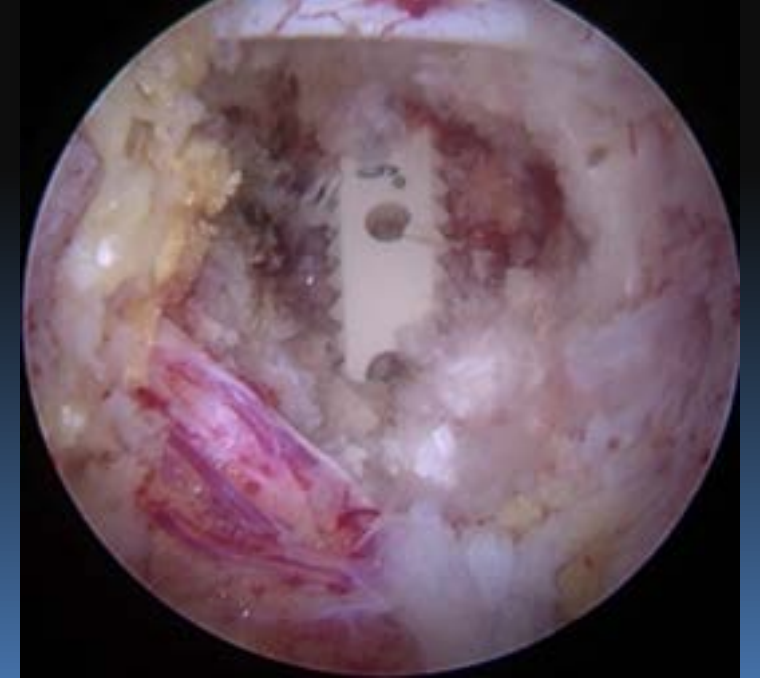
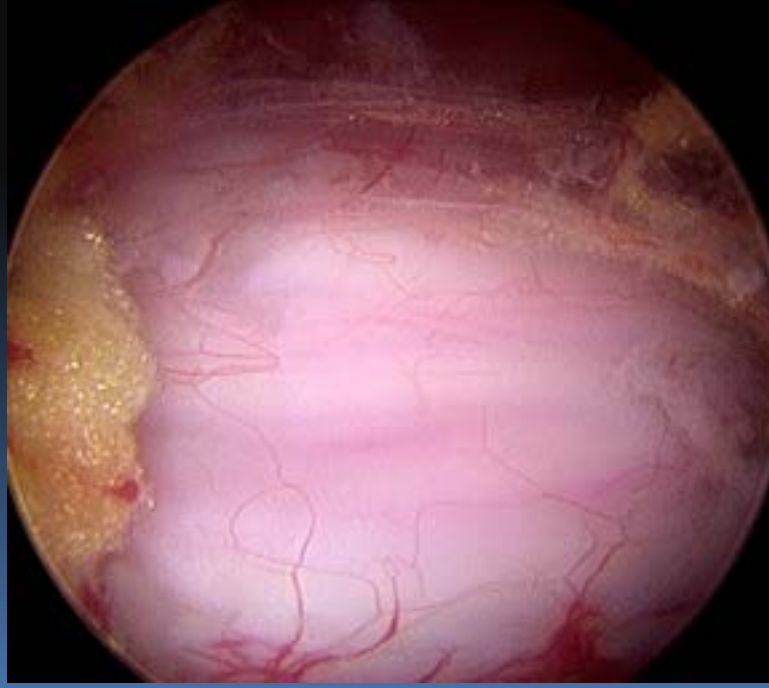
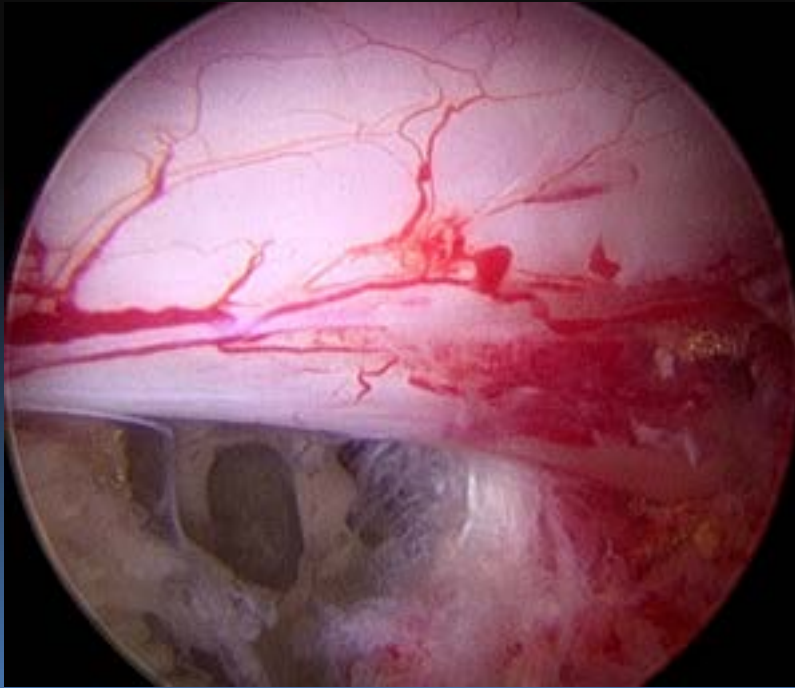
# What are the better points comparing with MIS TLIF or Open TLIF ?



# Biportal Endoscopic TLIF, Endoscopic assistant TLIF

## @ Advantages

### 1. Direct decompression of nerve roots and central canal

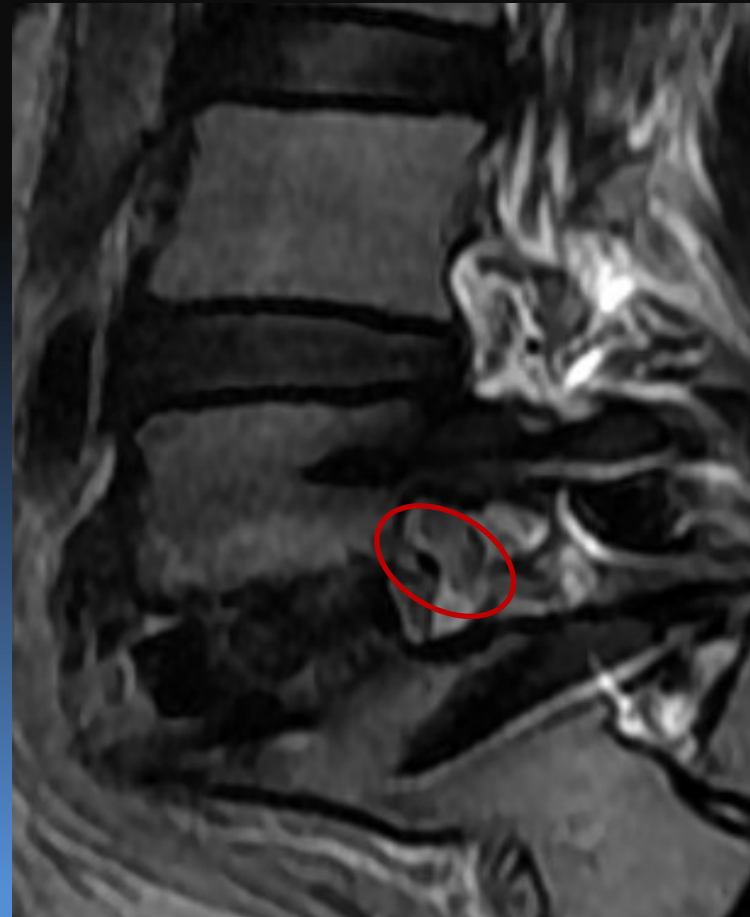




# Biportal Endoscopic TLIF, Endoscopic assistant TLIF

@ Advantages

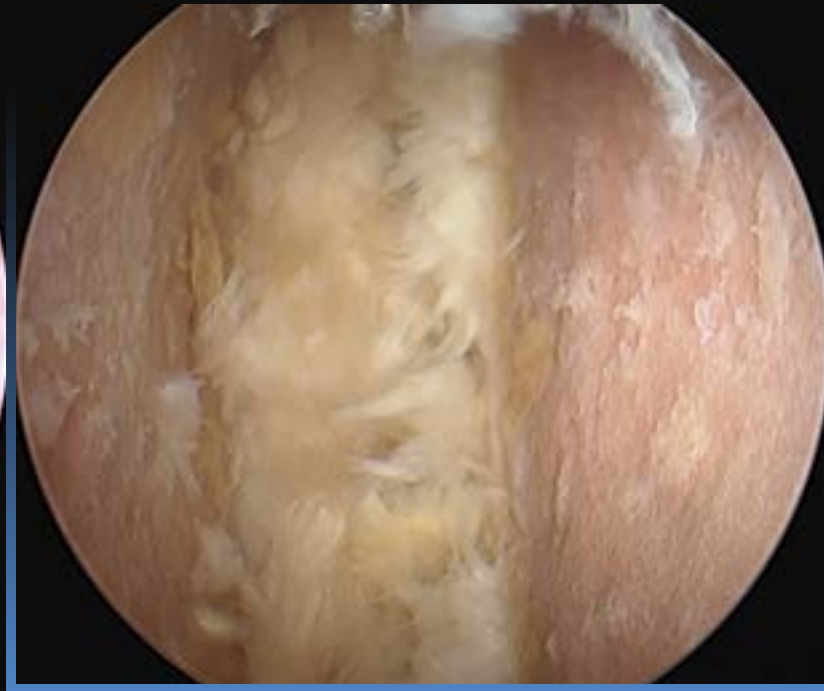
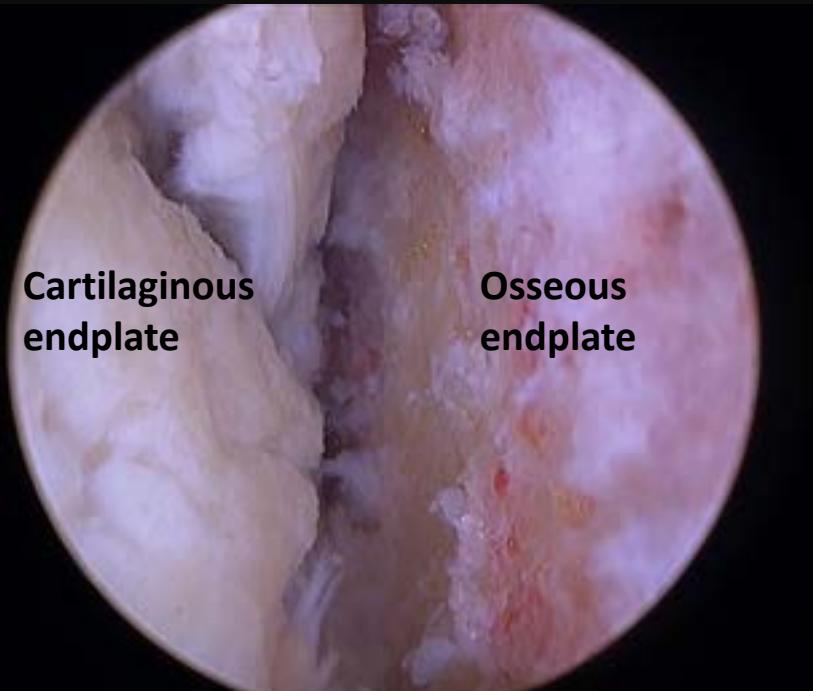
2. Indirect decompression (large size cage) as well as direct decomp



# Biportal Endoscopic TLIF, Endoscopic assistant TLIF

## @ Advantages

### 3. Endoscopic endplate preparation



# Removal of Only Cartilaginous endplate from osseous endplate

→ complete endplate preparation

→ prevention of subsidence

→ Fusion



@ Anterior annulus and ALL

# Biportal Endoscopic TLIF, Endoscopic assistant TLIF

## @ Advantages

### 4. Minimizing traumatization of muscle (Fast recovery)

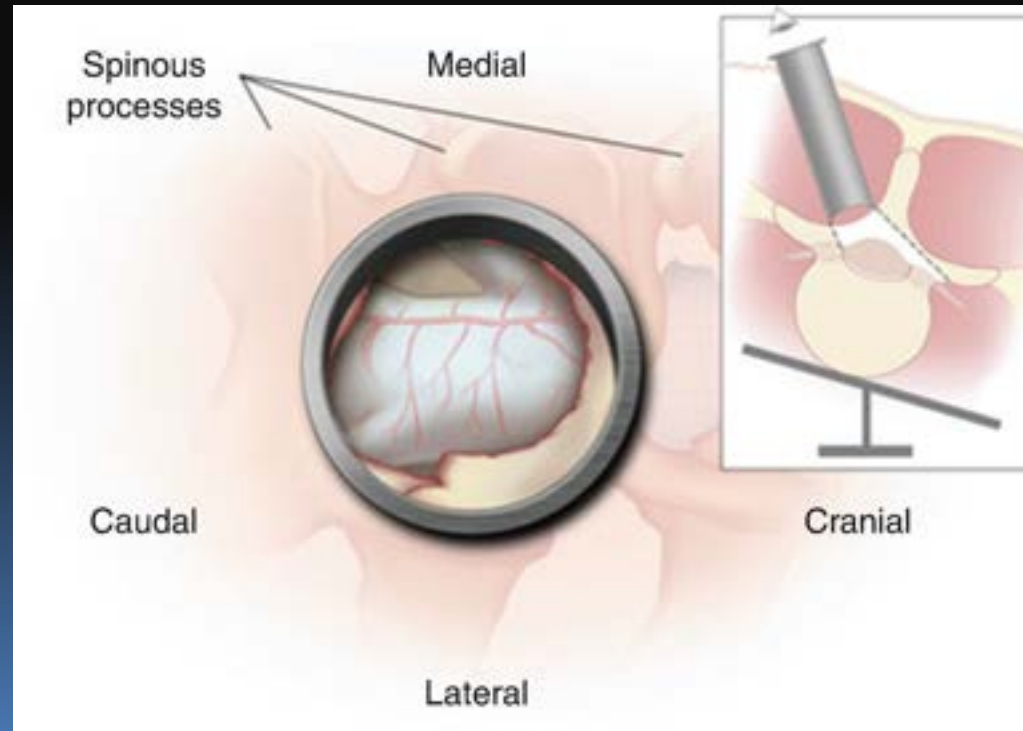
Painless surgery. Reduce postoperative pain and complications





# Technique of biportal endoscopic TLIF

Same as MIS TLIF using Tubular retractor



# Technique: same as Modified MIS-TLIF

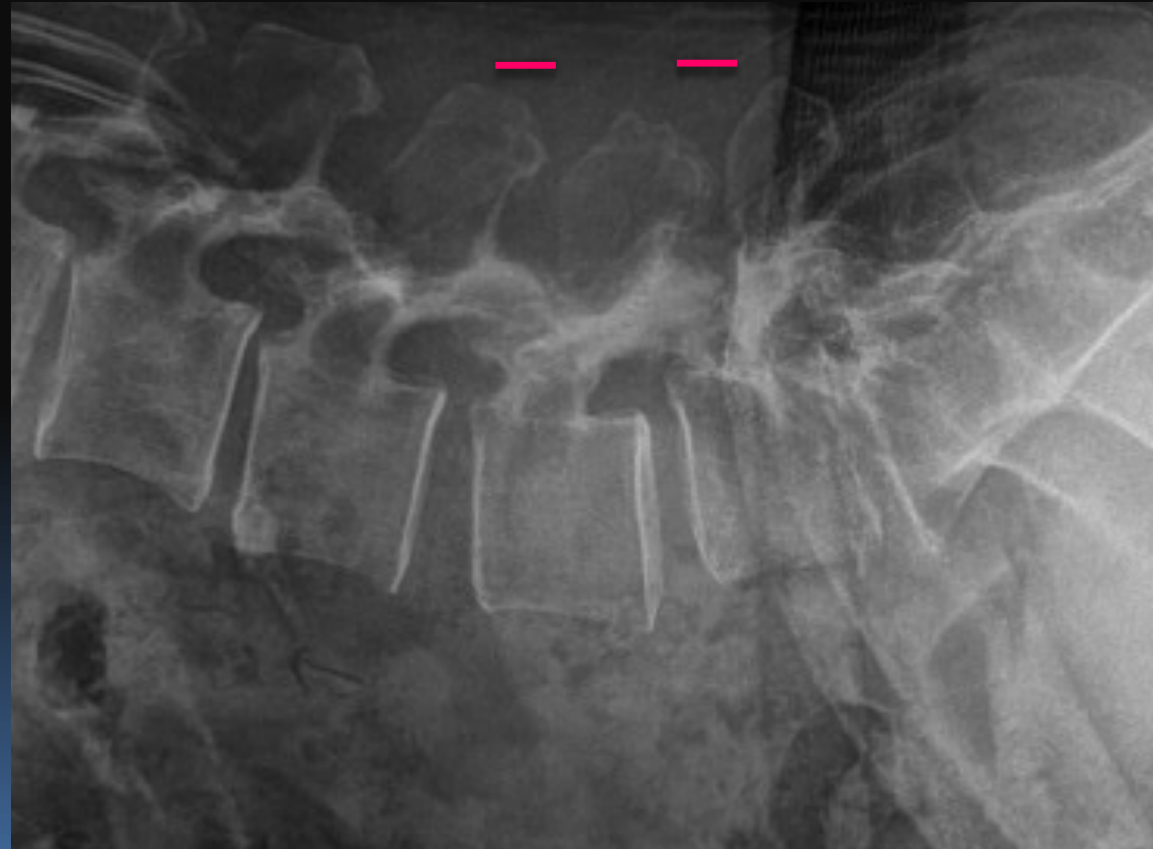
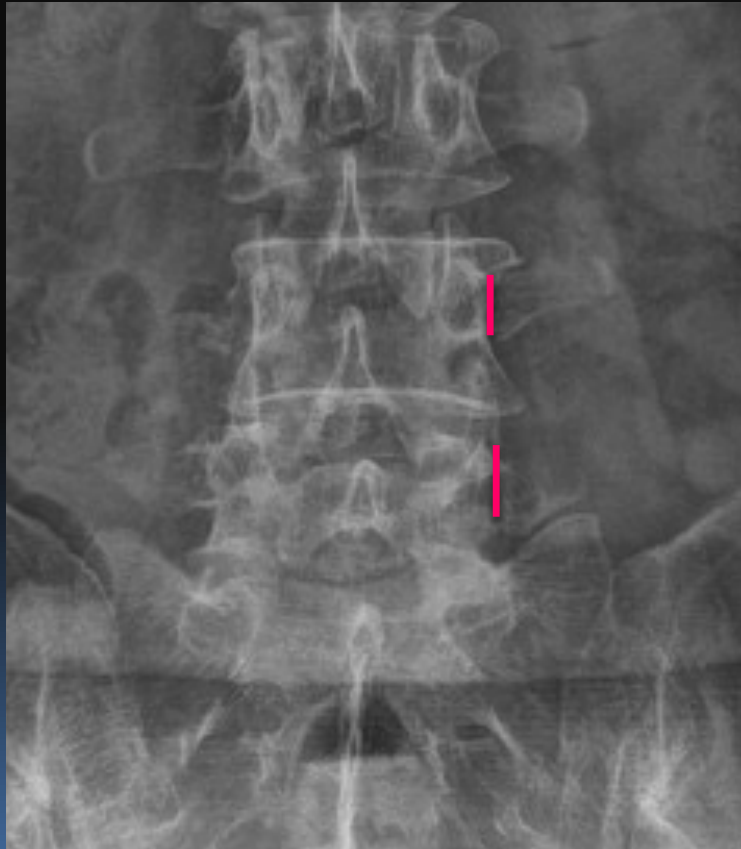
1. Unilateral laminotomy with  
bilateral decompression

2. Unilateral facetectomy and  
discectomy

3. Endplate preparation and  
cage insertion



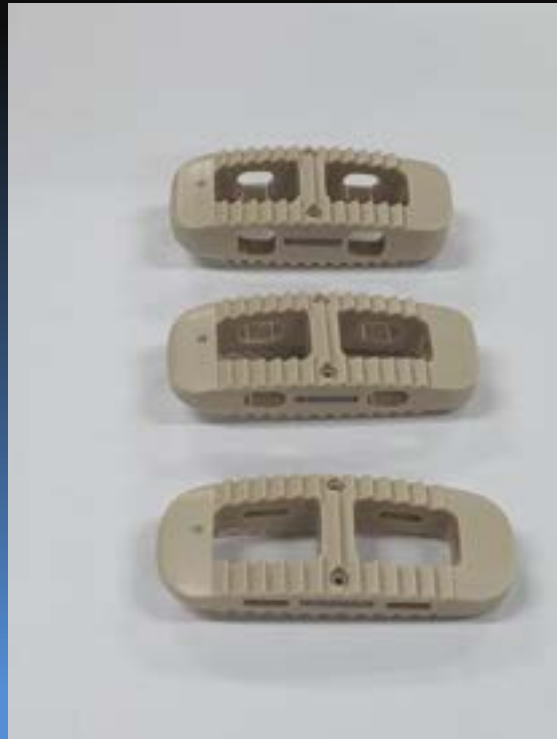
- Skin incision points for making two portals: over the pedicles



- Surgery: Biportal endoscopic TLIF at L45, Right side approach

# Modified biportal endoscopic TLIF

- Large spacer
- Large cage
- OLIF cage > Ex TLIF cage > TLIF cage > PLIF cage

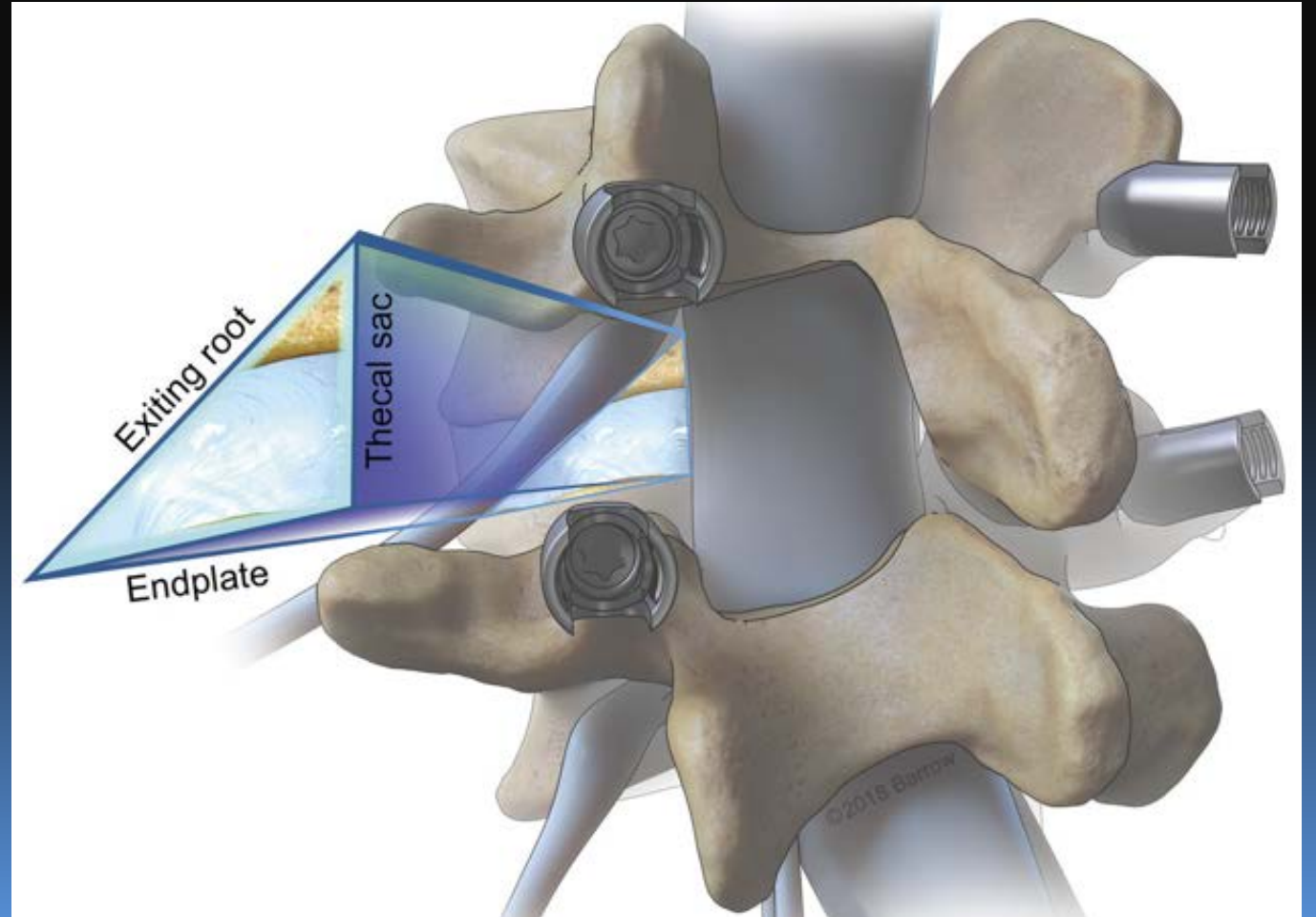
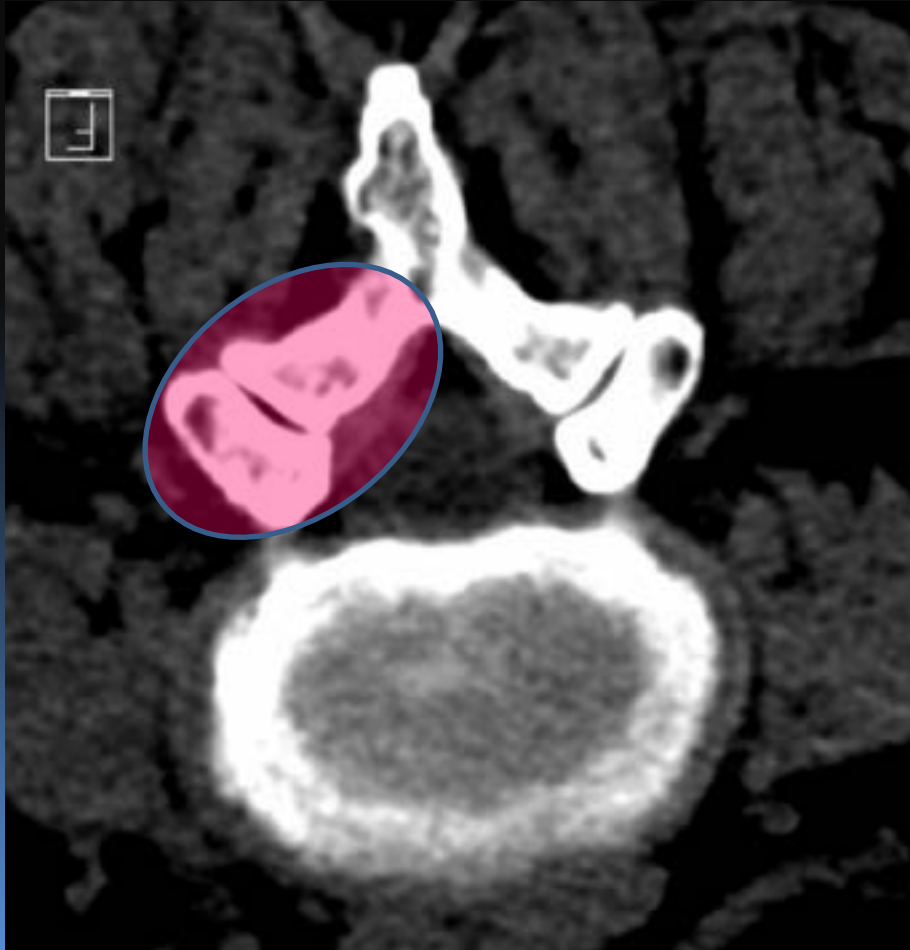


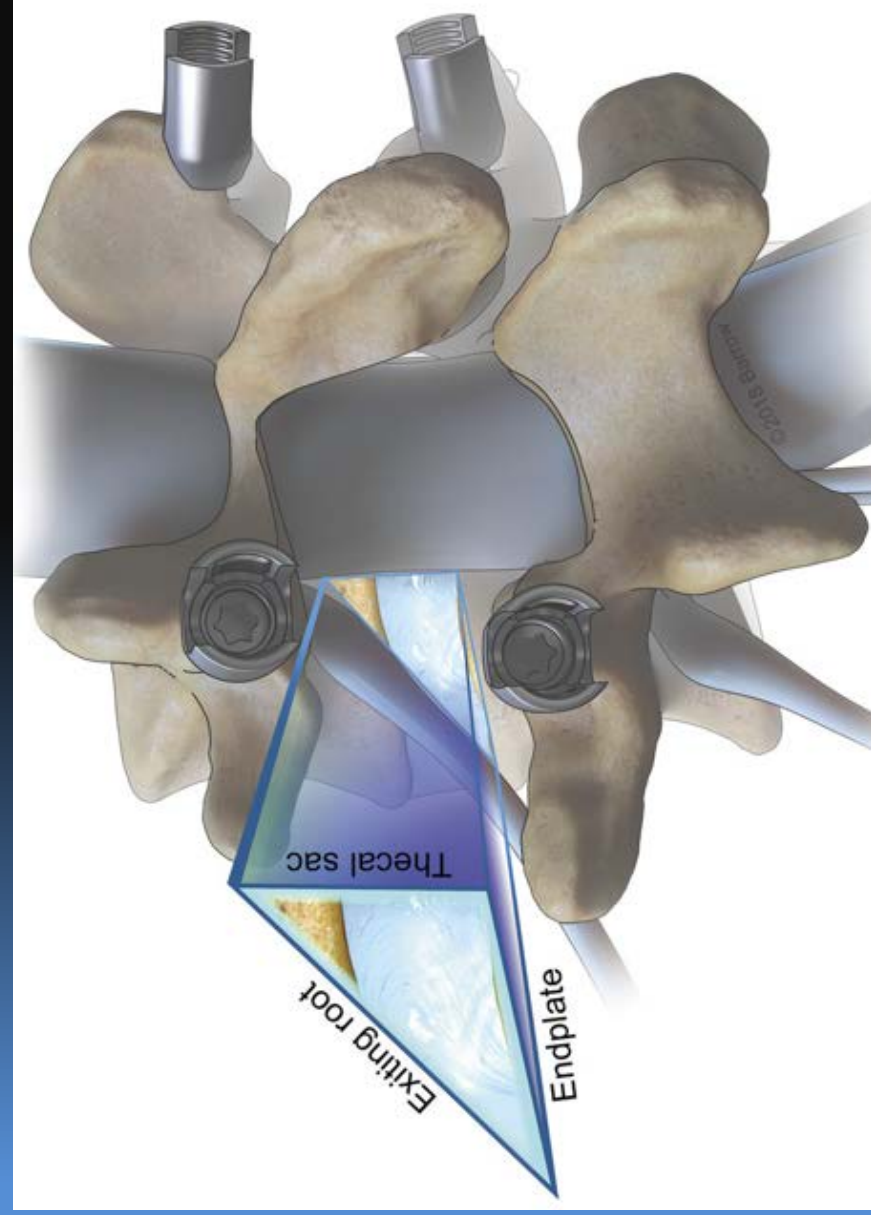


# Expansion of Kambin's triangle

Unilateral laminotomy with **total facetectomy**

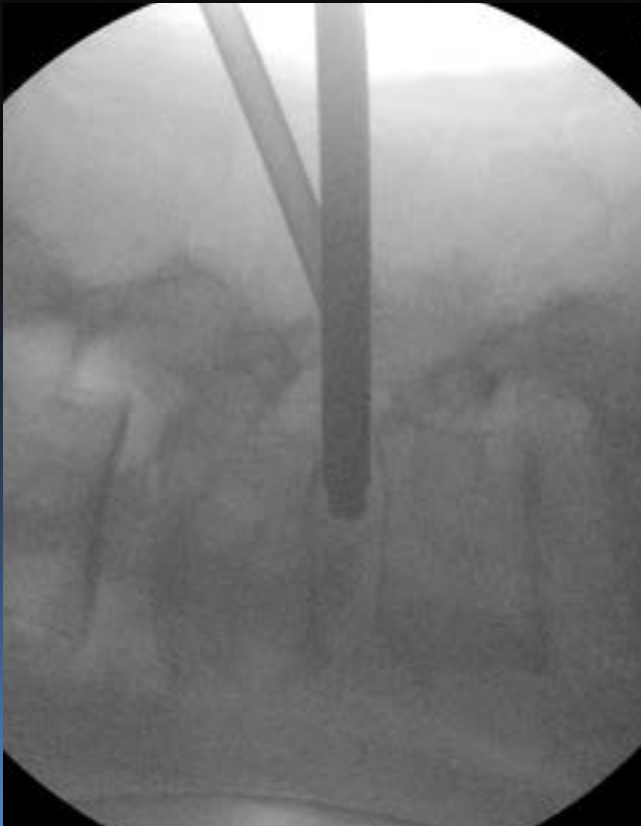
**Make enough space for large cage insertion**







**Insertion a lot of fusion material into interbody space  
before a cage insertion**





**Right sided approach**

**Medial**

**Caudal**

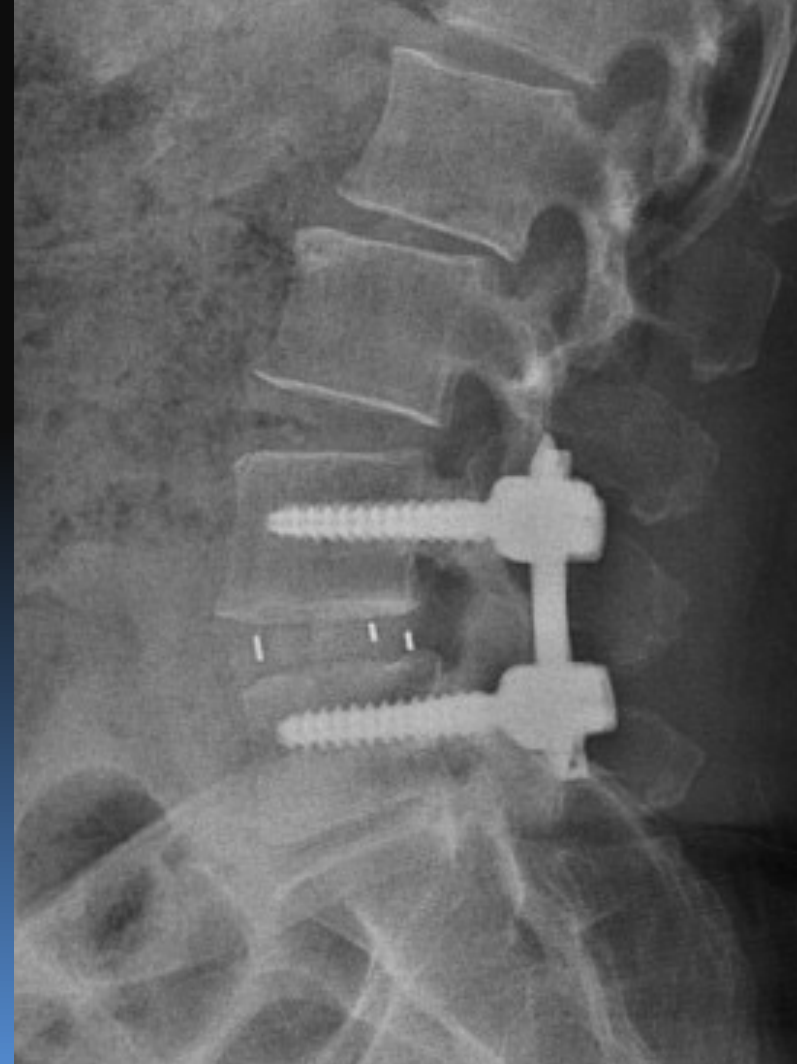
**Cranial**

**Lateral**



Exposure of L4 lamina. Rt using RF

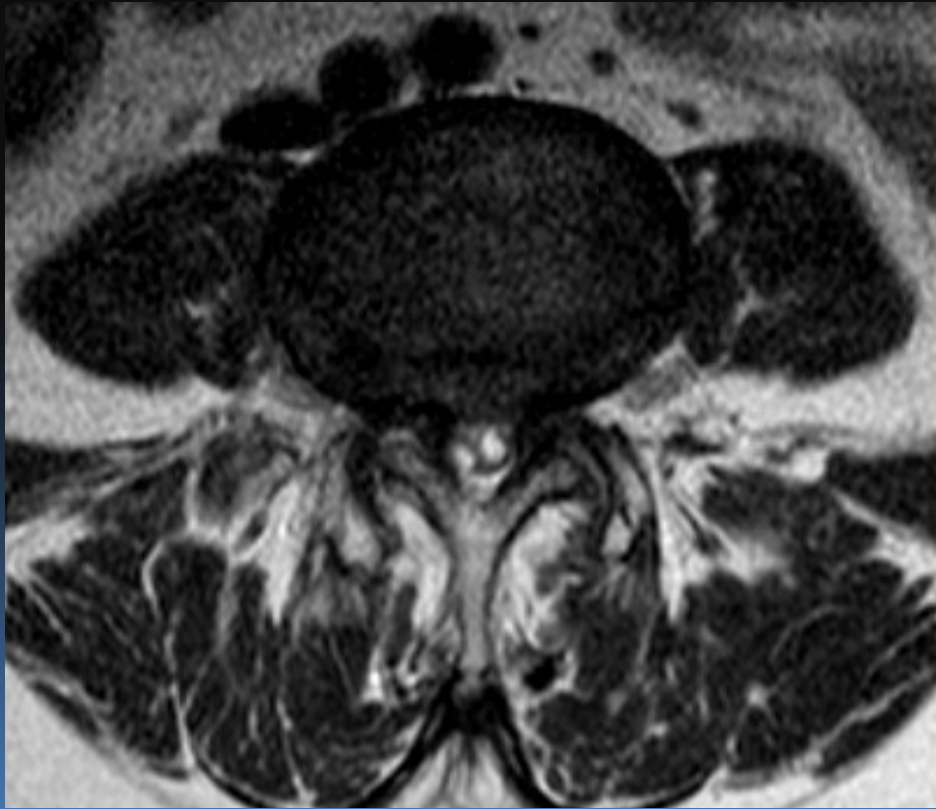
- **Postoperative X ray image**



- **Postoperative MRI image**



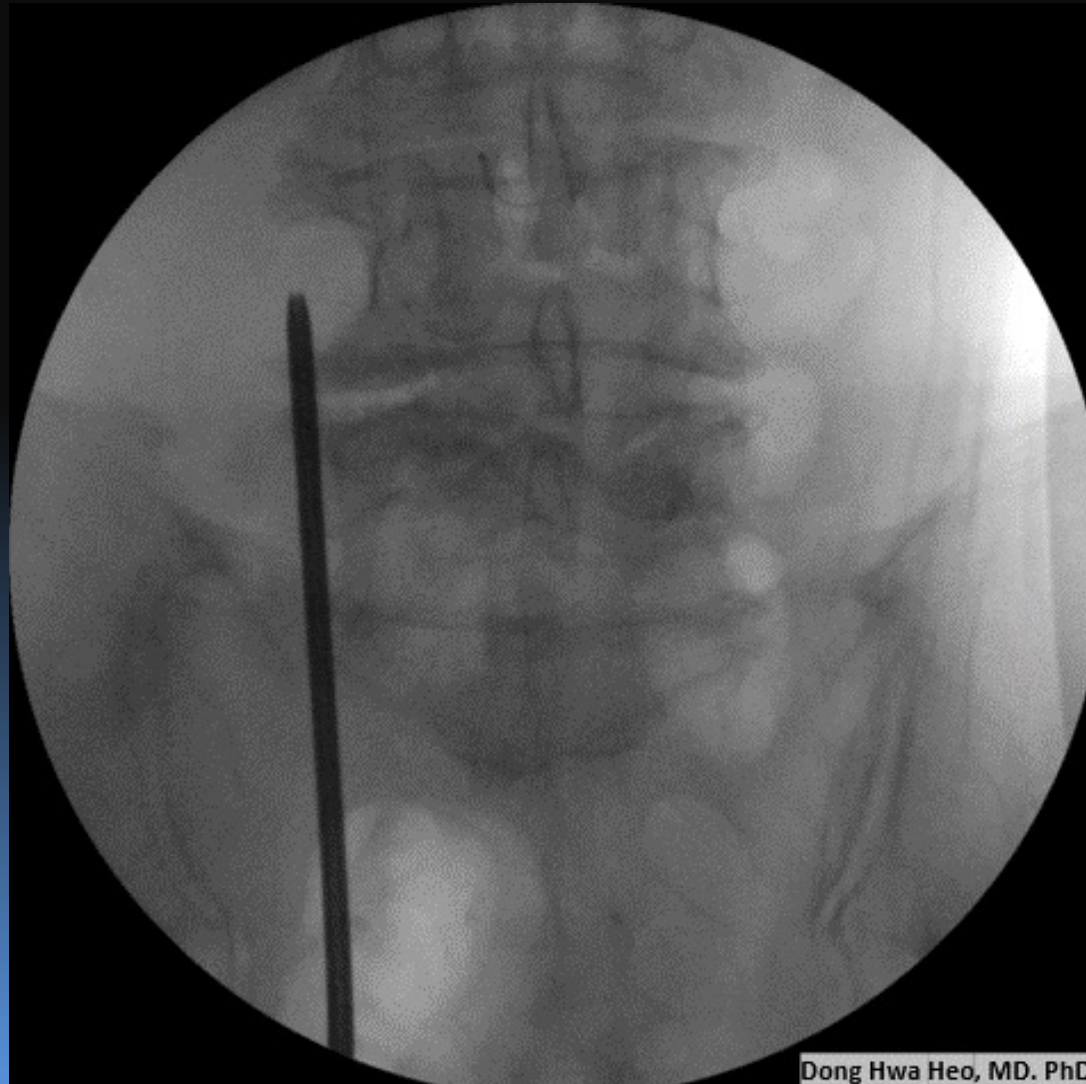
- **Postoperative MRI image**





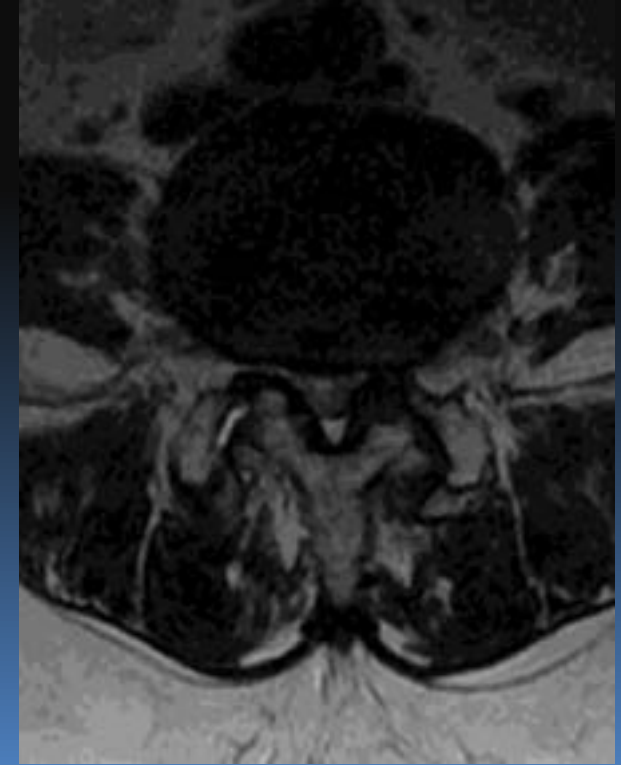


# Biportal endoscopic TLIF

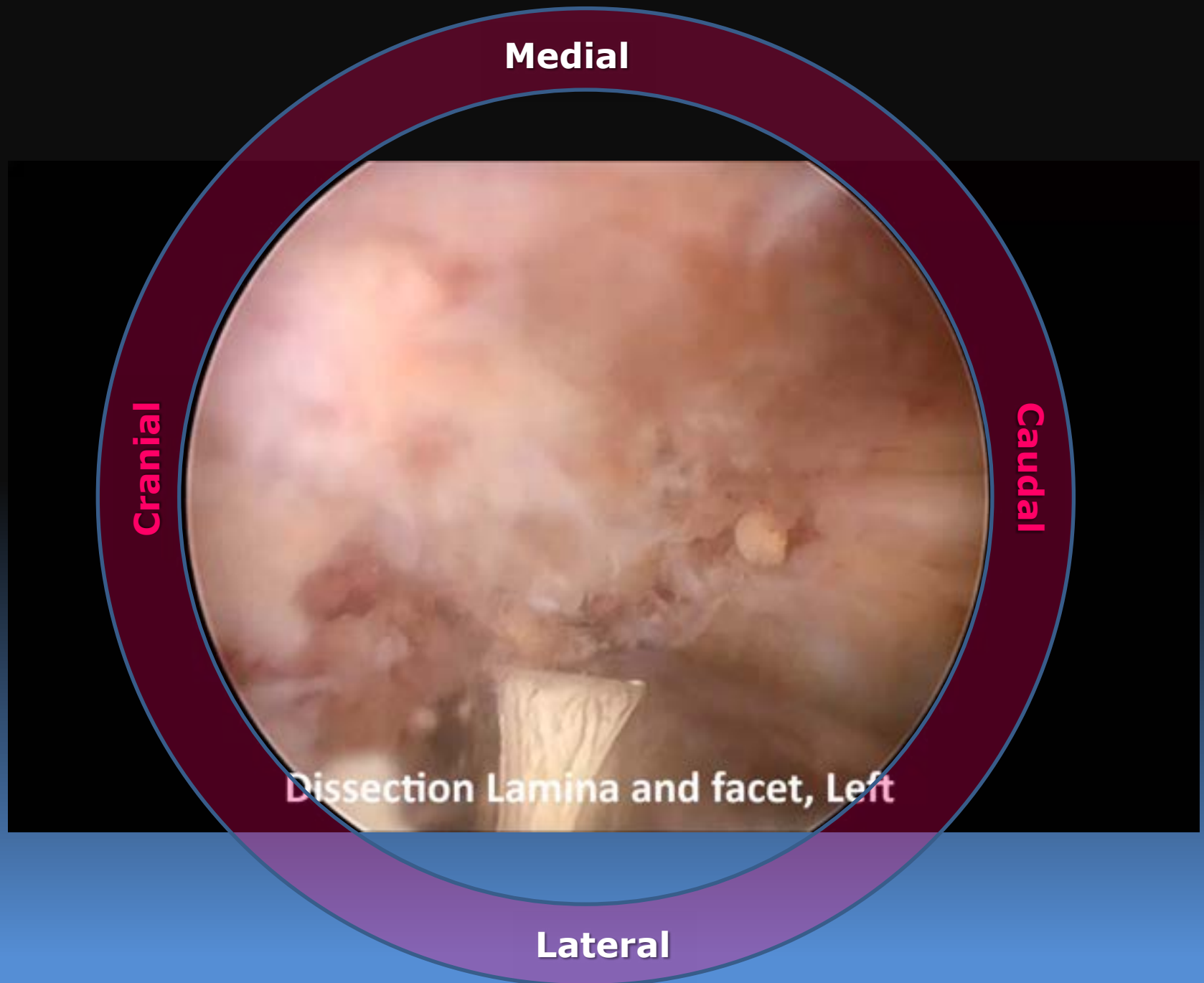


Dong Hwa Heo, MD. PhD

**61/F back pain with both legs pain, claudication**



large cage,  
Left approach





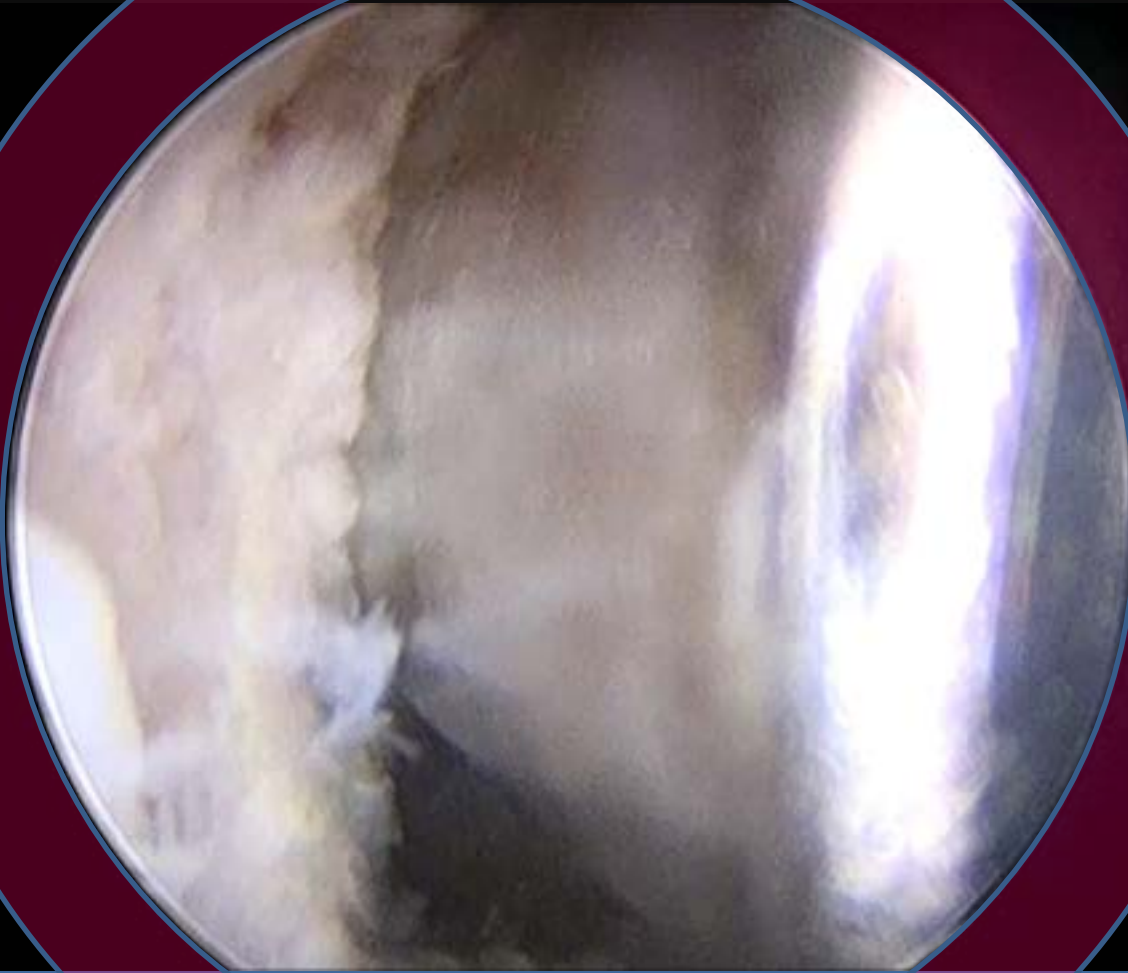


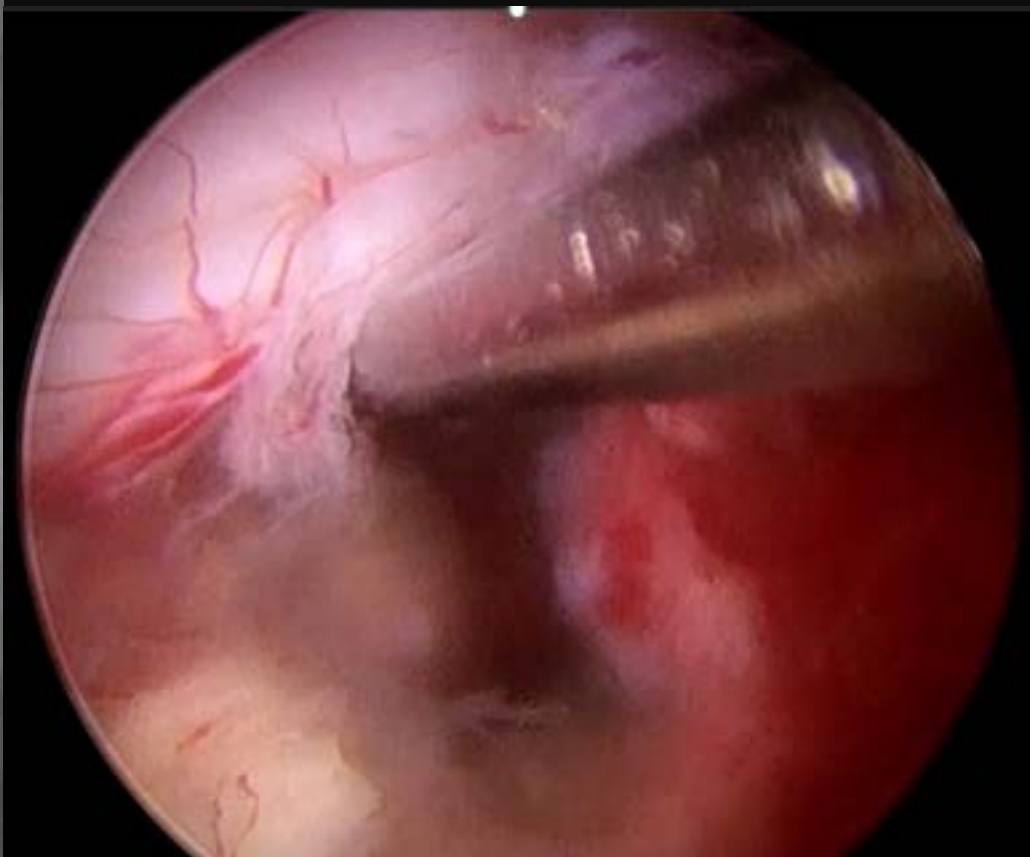
**Medial**

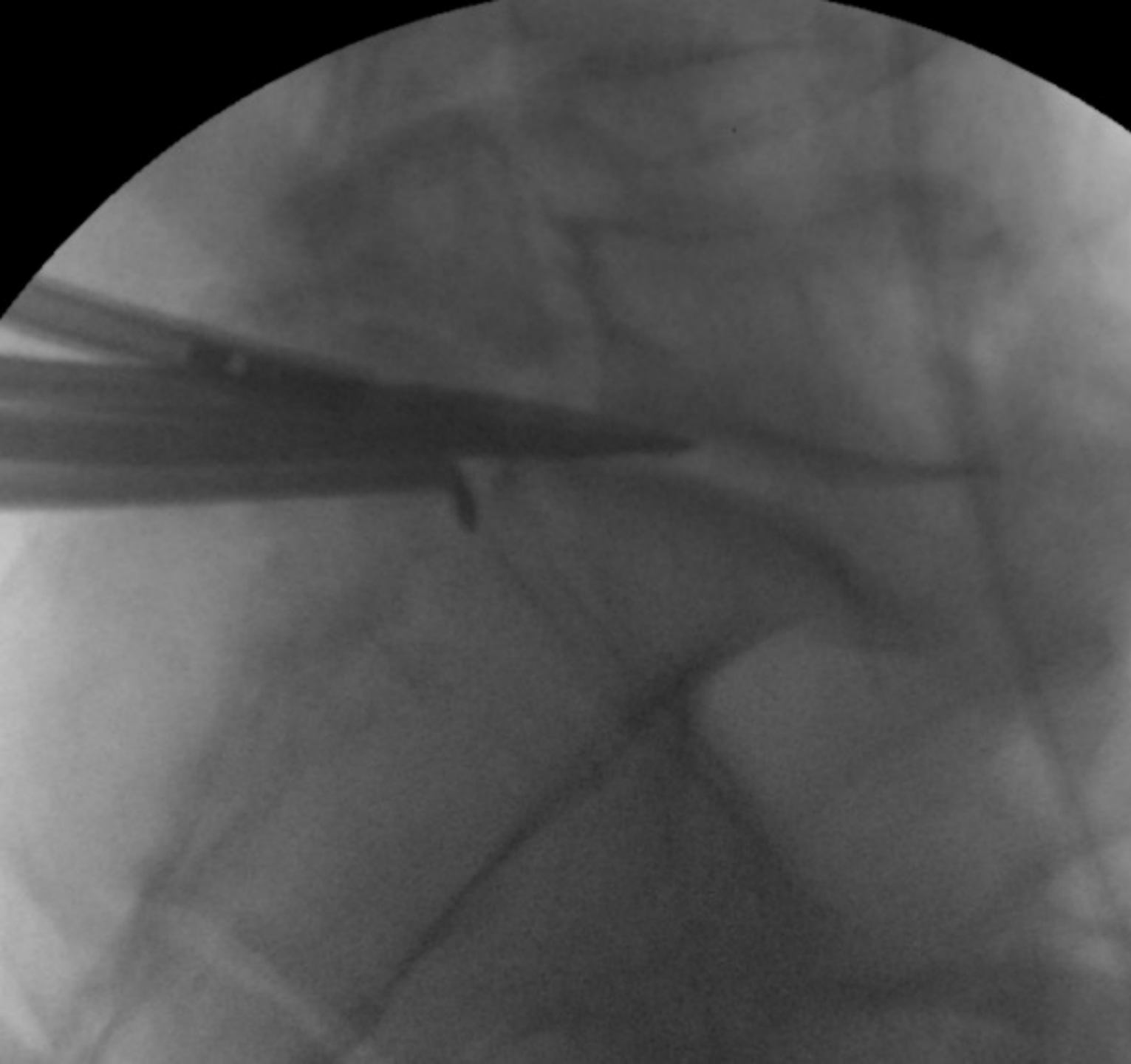
**Cranial**

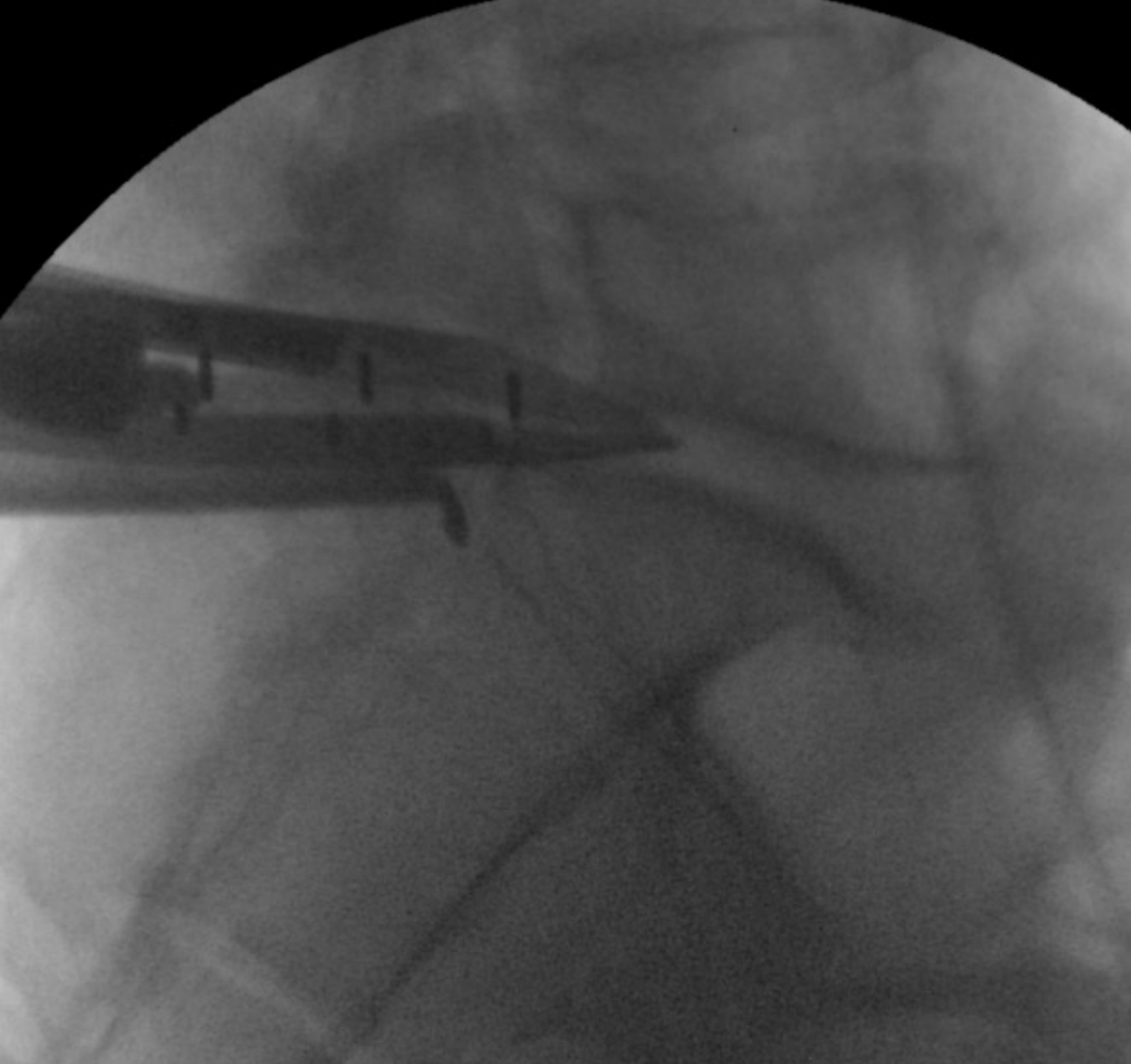
**Caudal**

**Lateral**

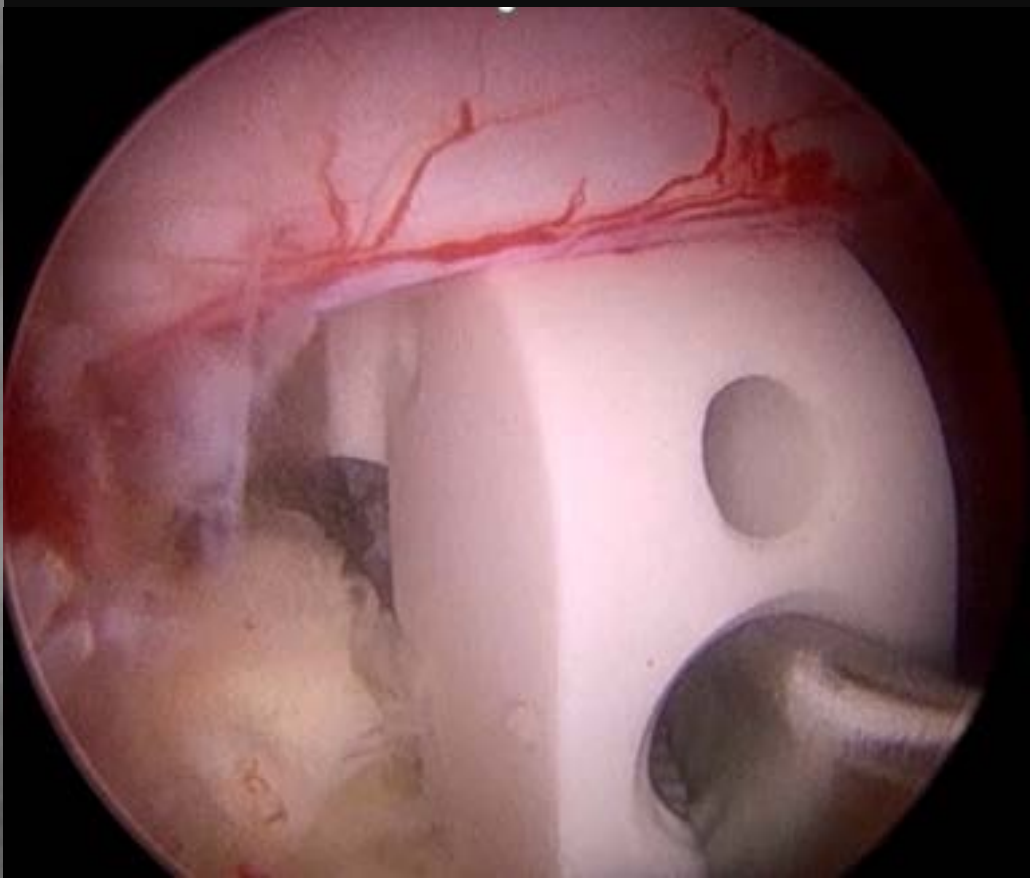
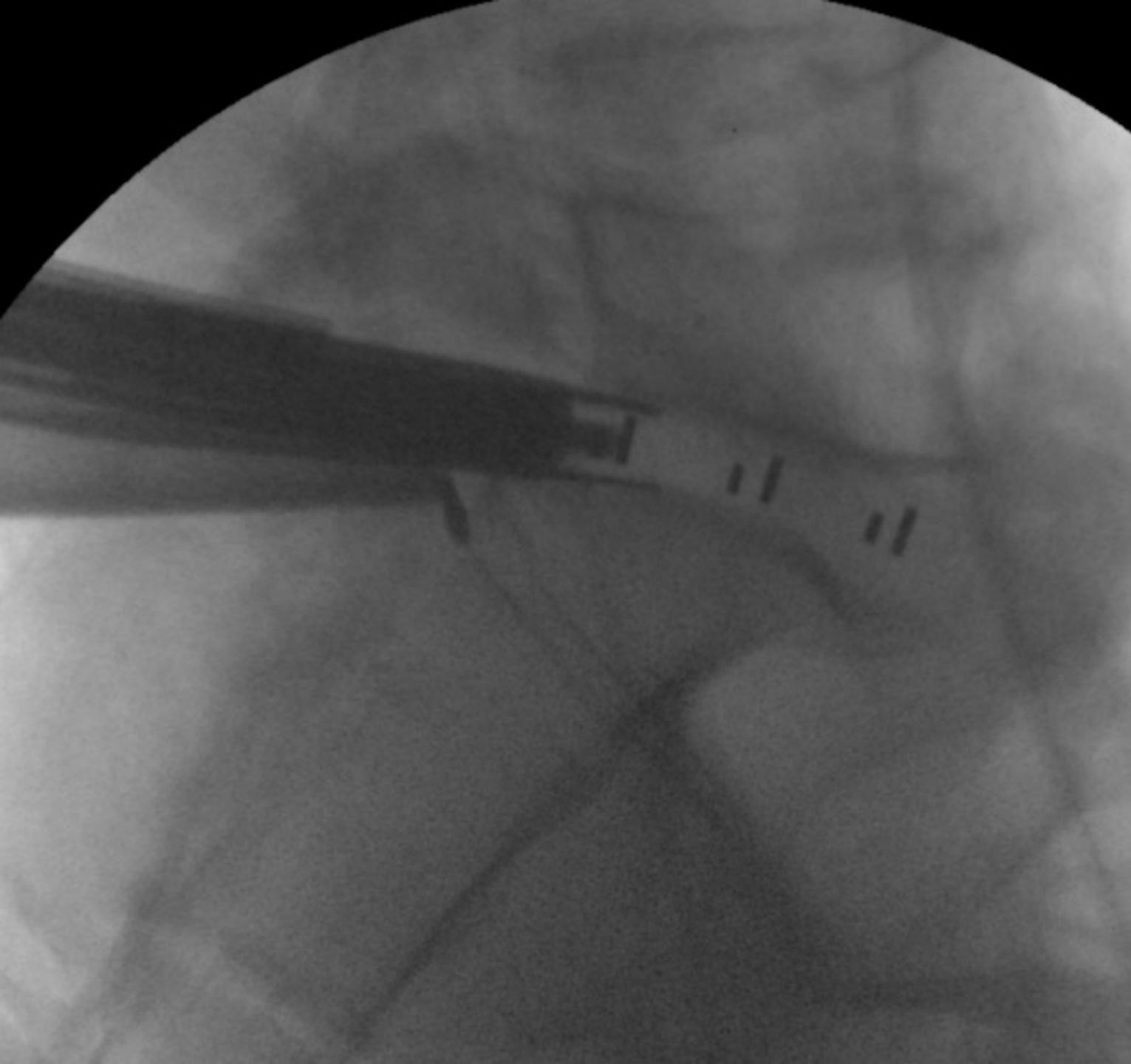


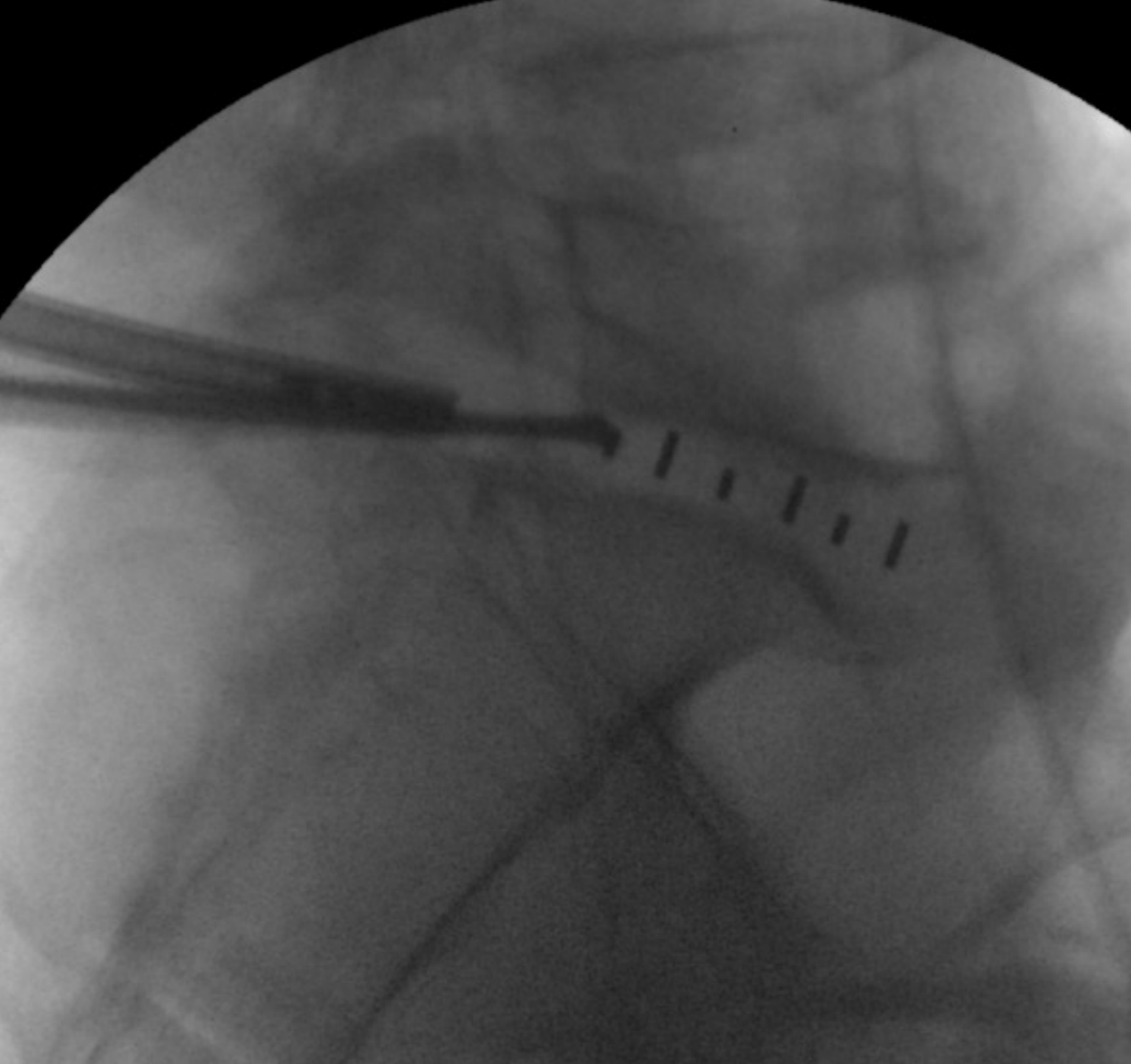


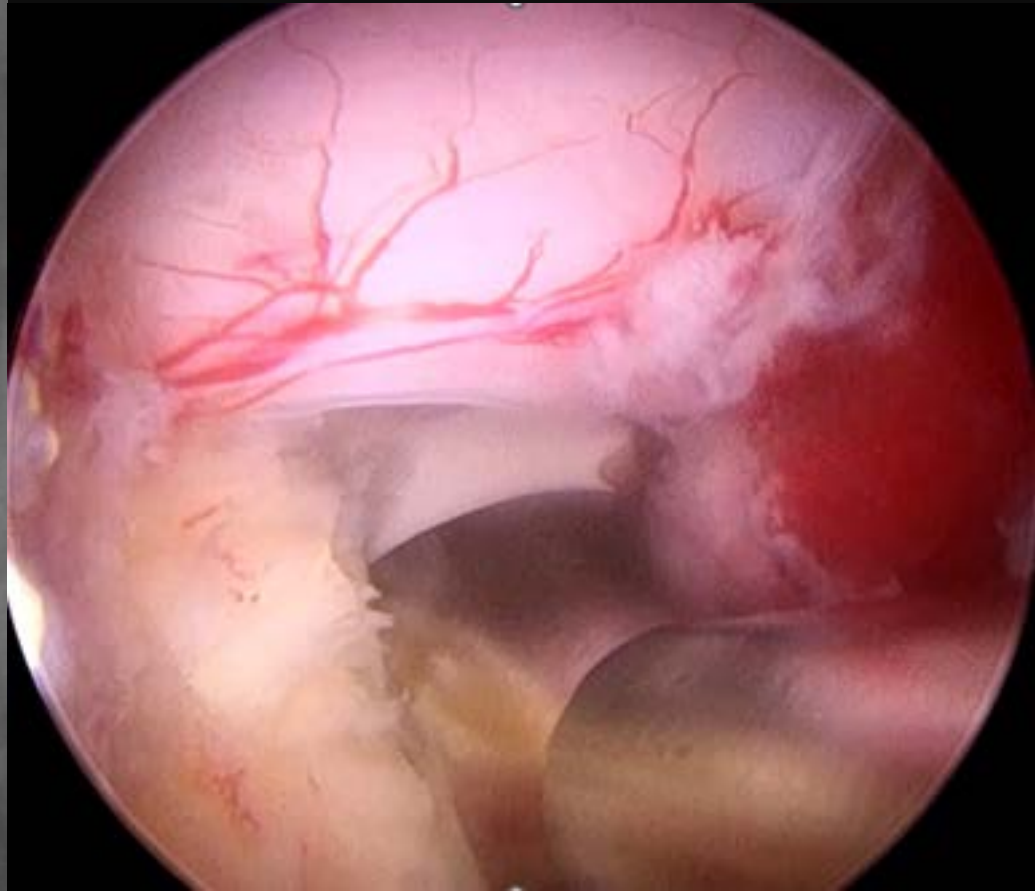
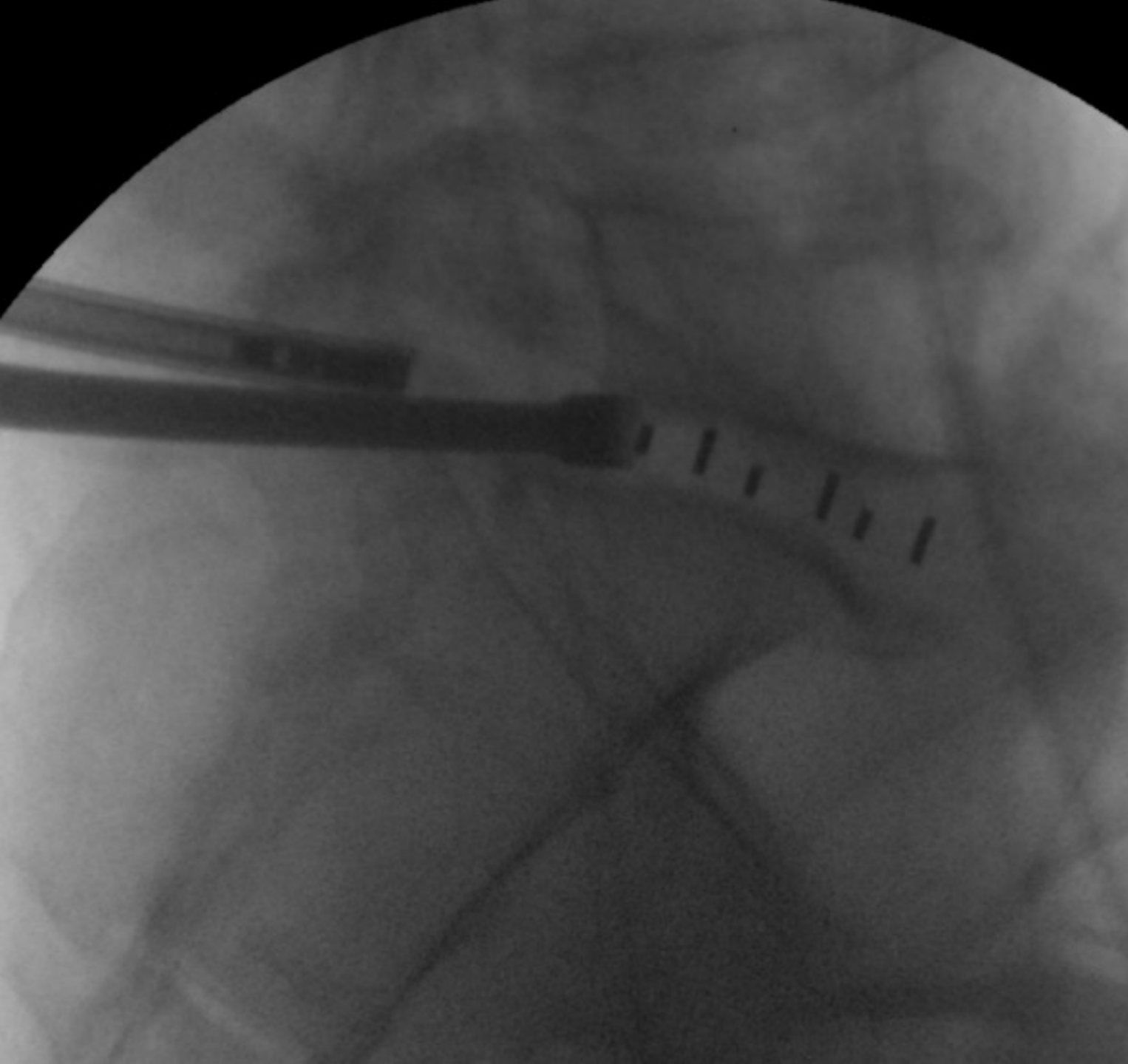


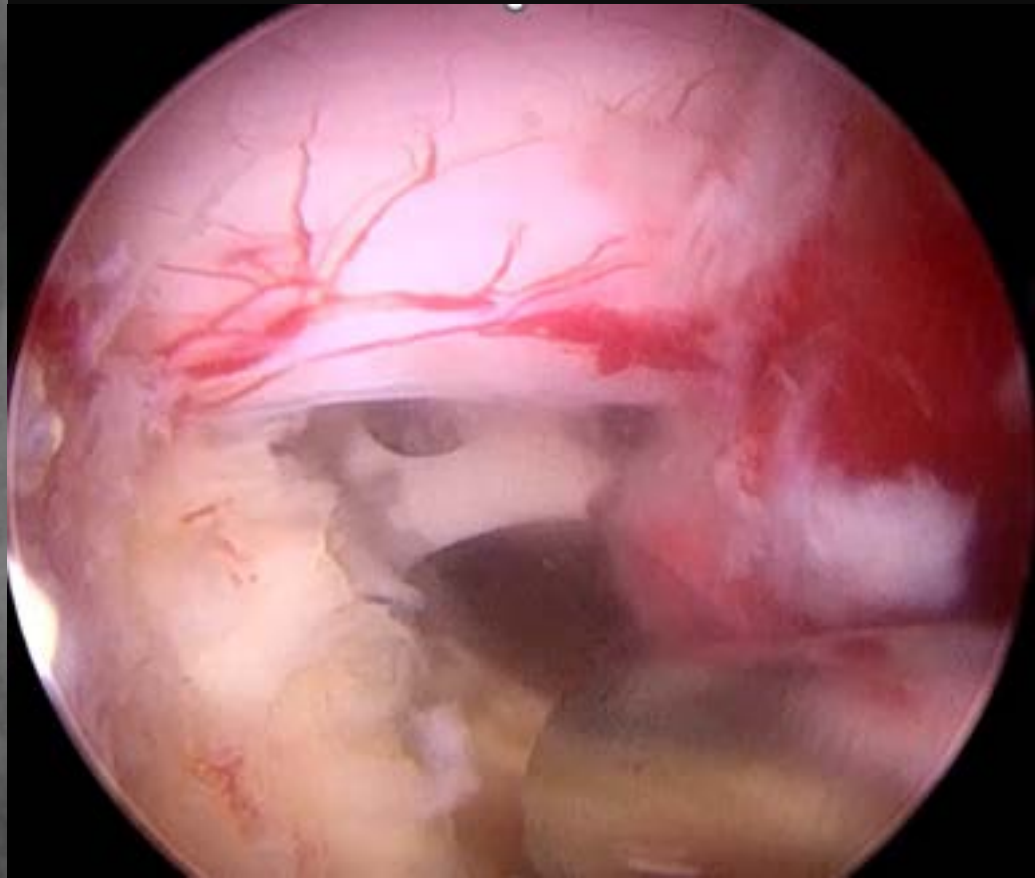
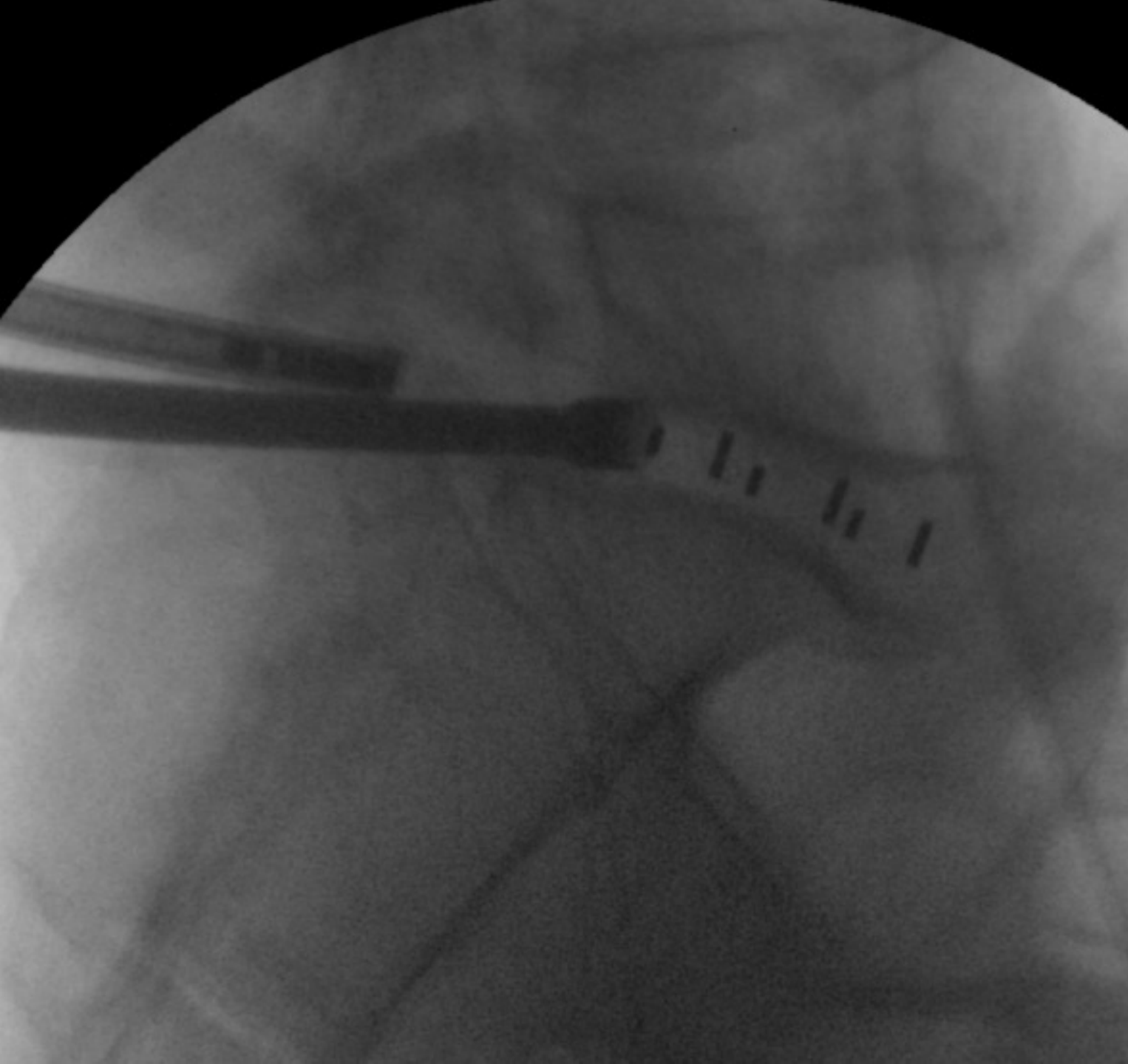




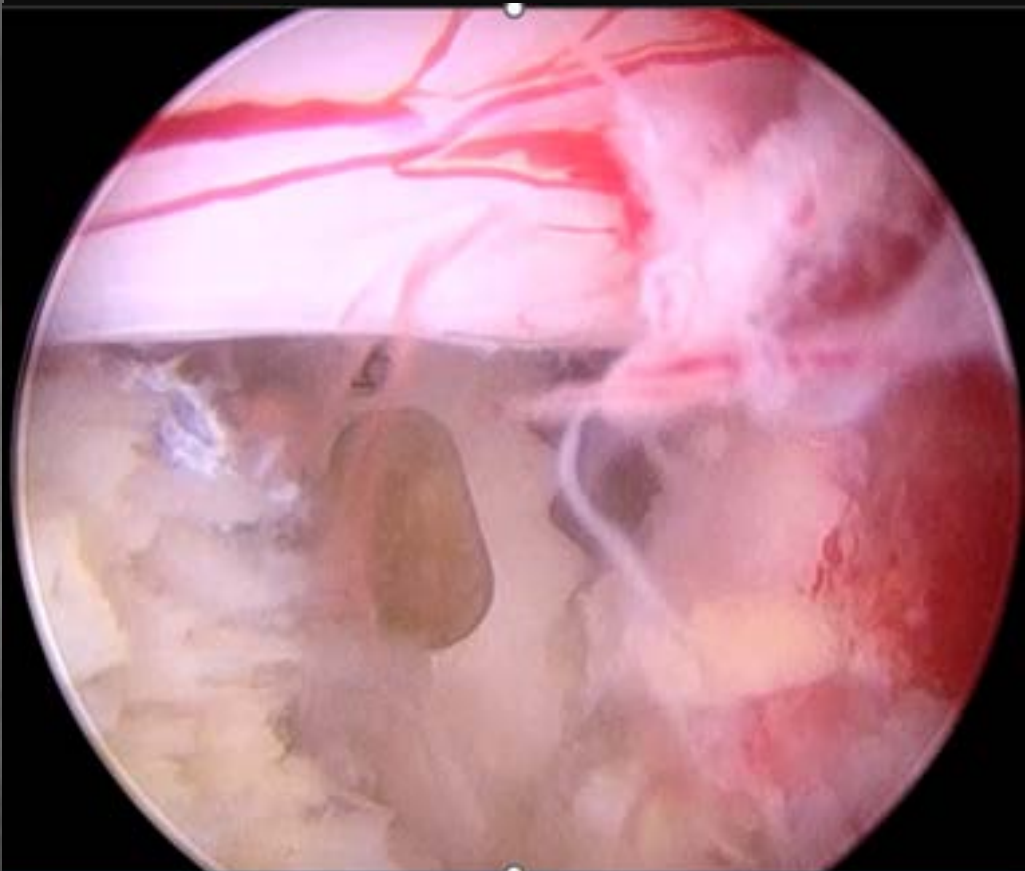
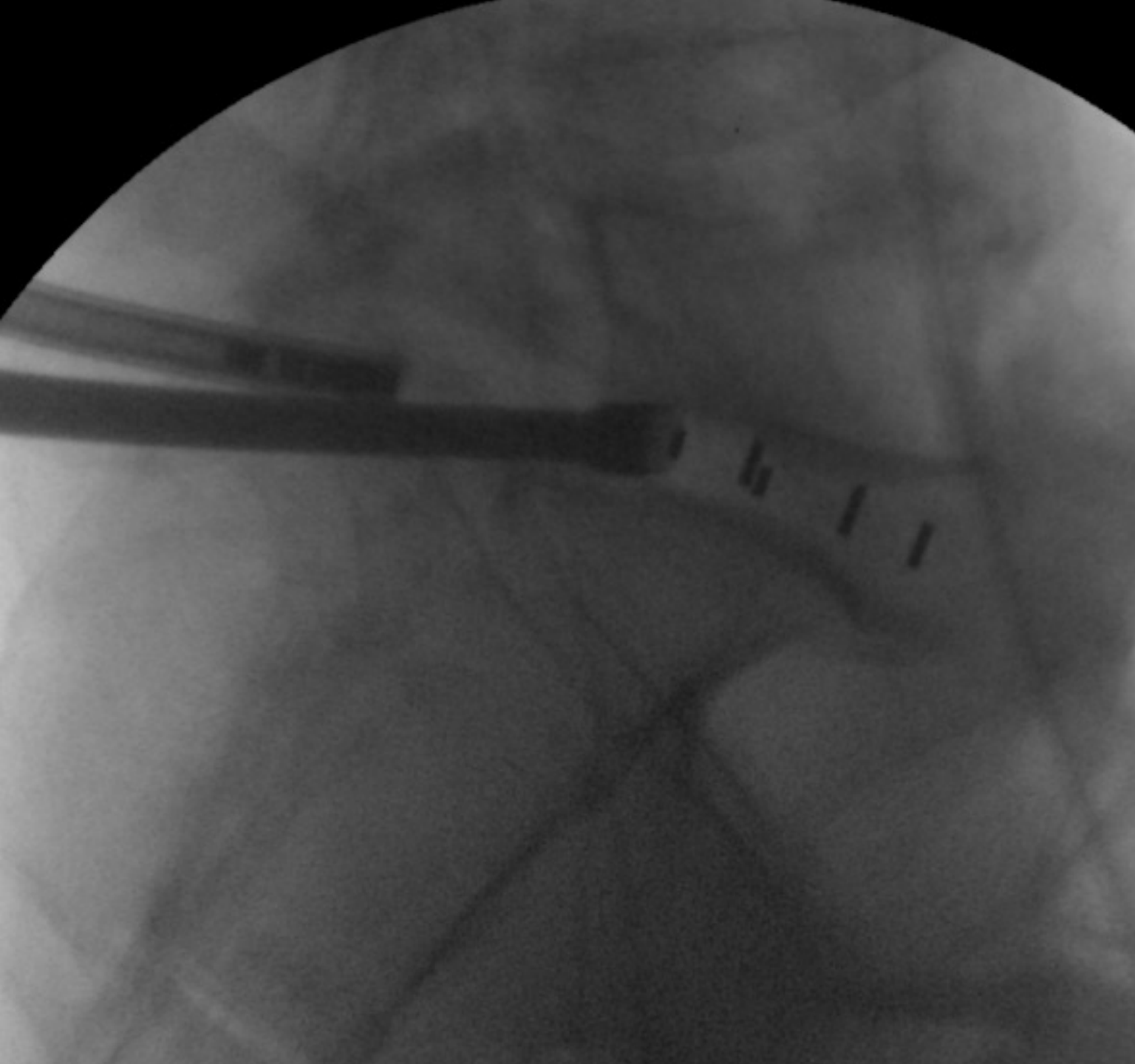








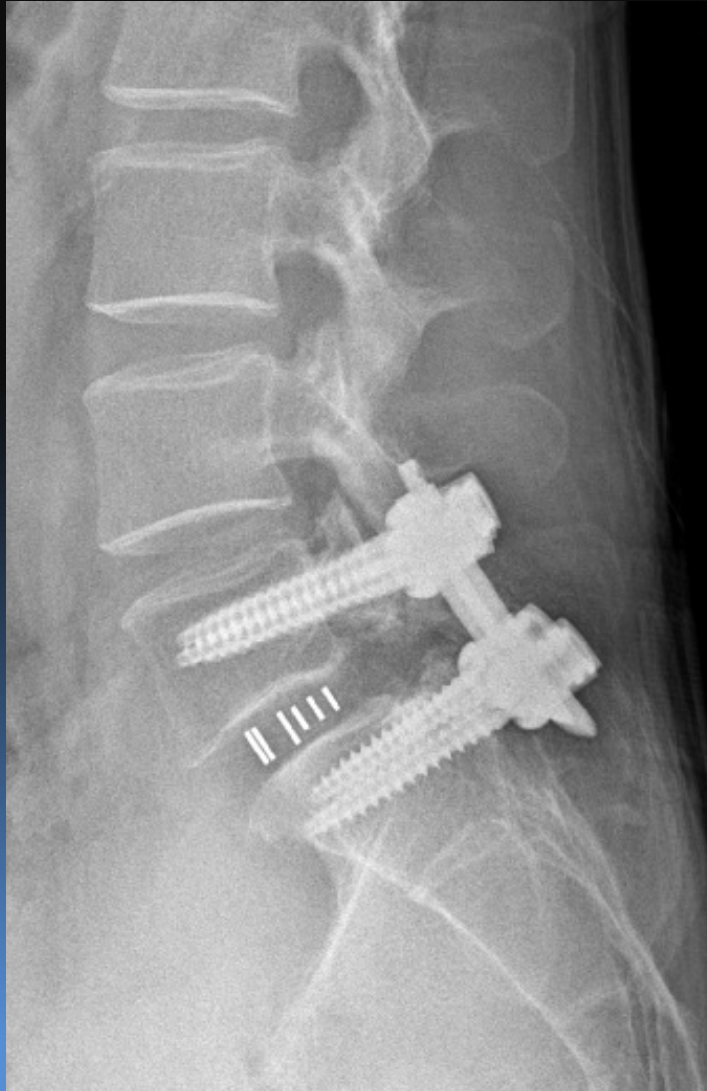




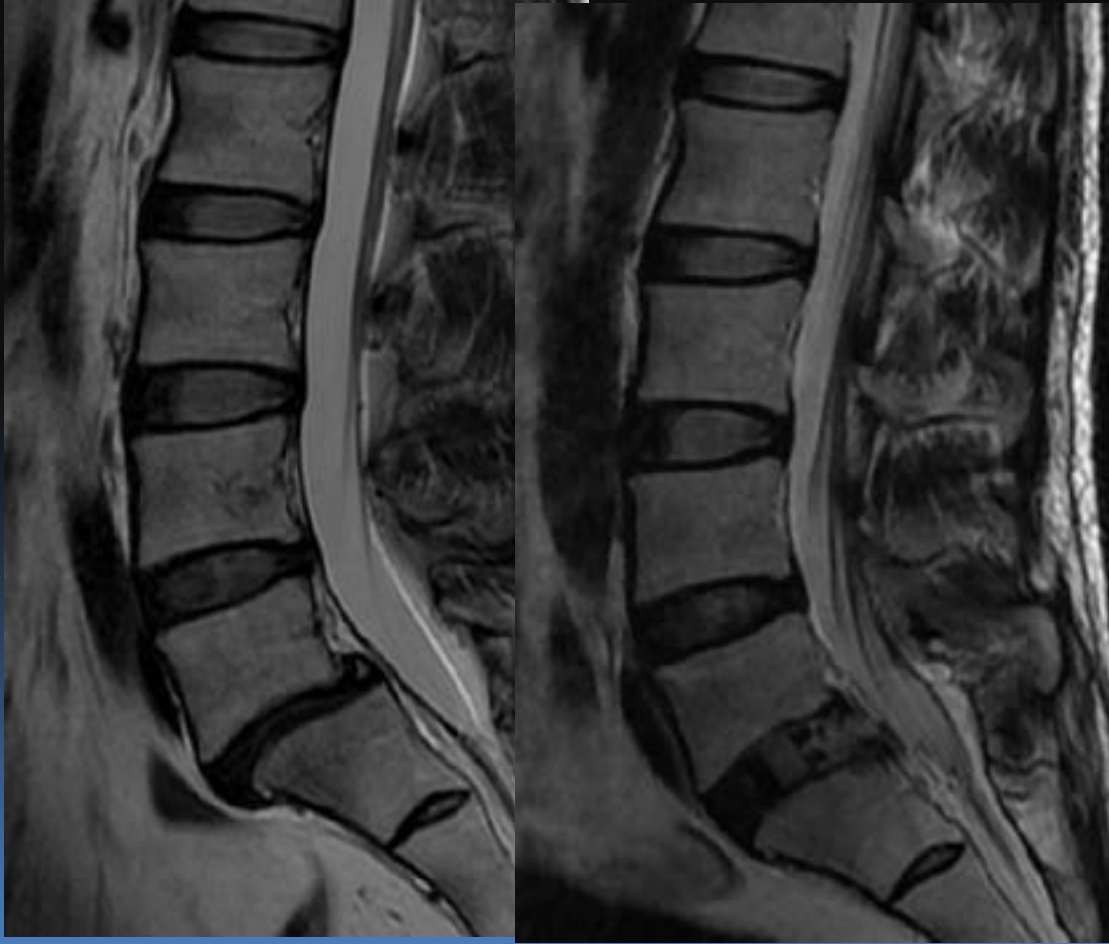
**39/M back pain with both legs pain, claudication**



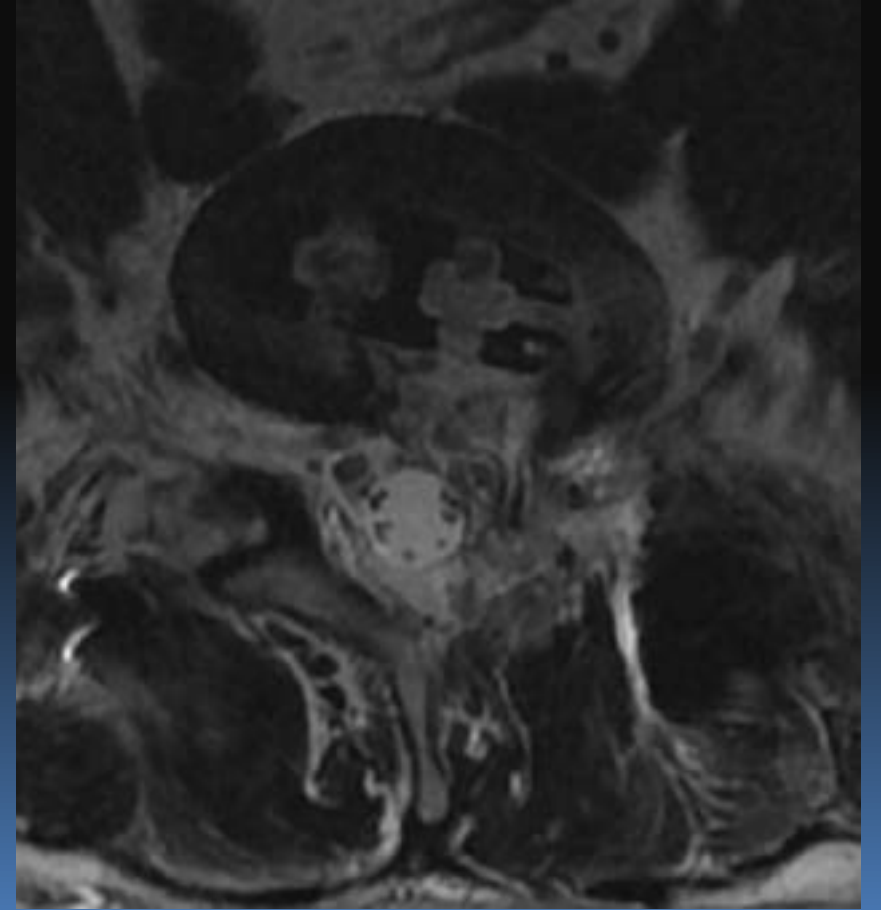
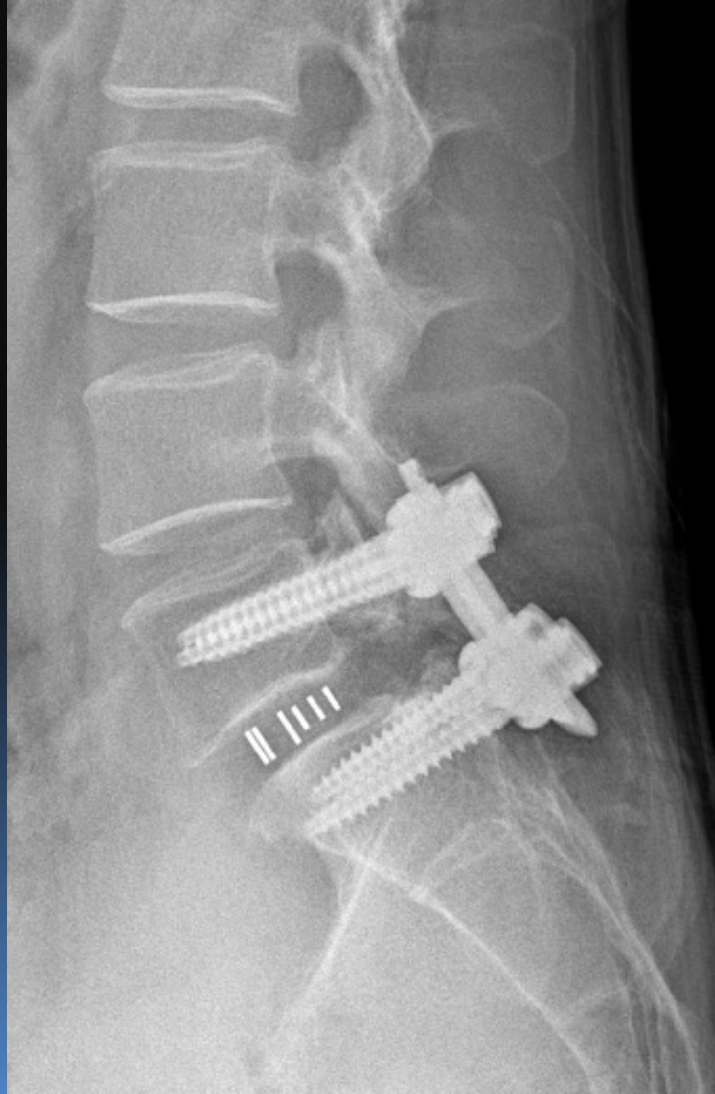
**39/M back pain with both legs pain, claudication**











# 58/F NIC. Back pain







# Evidences, Meta-analysis

> J Korean Neurosurg Soc. 2022 Jul;65(4):539-548. doi: 10.3340/jkns.2021.0168. Epub 2022 Jun 29.

## Full-Endoscopic versus Minimally Invasive Lumbar Interbody Fusion for Lumbar Degenerative Diseases : A Systematic Review and Meta-Analysis

Seong Son <sup>1</sup>, Byung Rhae Yoo <sup>1</sup>, Sang Gu Lee <sup>1</sup>, Woo Kyung Kim <sup>1</sup>, Jong Myung Jung <sup>1</sup>

Meta-Analysis > Pain Physician. 2021 Sep;24(6):441-452.

## Comparison of Clinical Outcomes and Complications Between Percutaneous Endoscopic and Minimally Invasive Transforaminal Lumbar Interbody Fusion for Degenerative Lumbar Disease: A Systematic Review and Meta-Analysis

Lei Zhu <sup>1</sup>, Tongchuan Cai <sup>2</sup>, Yuzhou Shan <sup>1</sup>, Wenjie Zhang <sup>3</sup>, Liang Zhang <sup>1</sup>, Xinmin Feng <sup>1</sup>

Meta-Analysis > Sci Rep. 2022 Feb 8;12(1):2101. doi: 10.1038/s41598-022-05988-0.

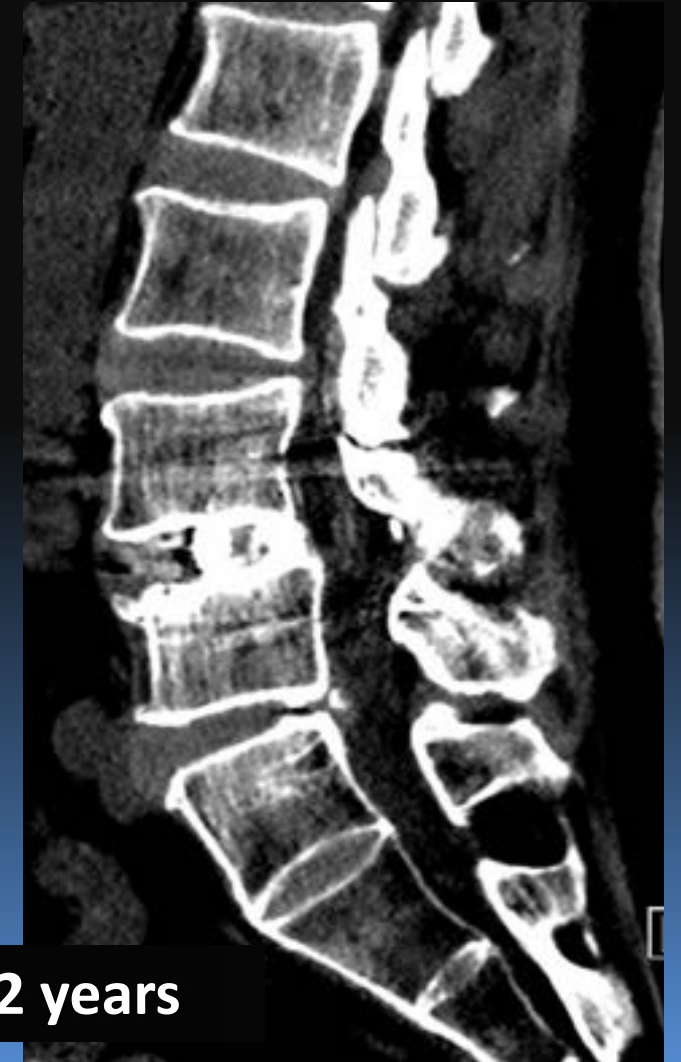
## Clinical outcomes, complications and fusion rates in endoscopic assisted intraforaminal lumbar interbody fusion (iLIF) versus minimally invasive transforaminal lumbar interbody fusion (MI-TLIF): systematic review and meta-analysis

José Miguel Sousa <sup>1 2</sup>, Hugo Ribeiro <sup>3</sup>, João Luís Silva <sup>3</sup>, Paulo Nogueira <sup>4</sup>,  
José Guimarães Consciência <sup>3 5</sup>

**Minimize postoperative pain, Lower complications,  
Short hospital stay**



# Fusion rate



# Endoscopic lumbar interbody fusion

## @ Advantages

Direct decompression

Complete endplate preparation under endoscopic view

Large size cage insertion

Fast recovery after surgery. Minimize postoperative pain

# Endoscopic lumbar interbody fusion

## @ Disadvantages

Technically difficult.

Need large experiences of Endoscopic surgery and microsurgery

# Thank you so much

