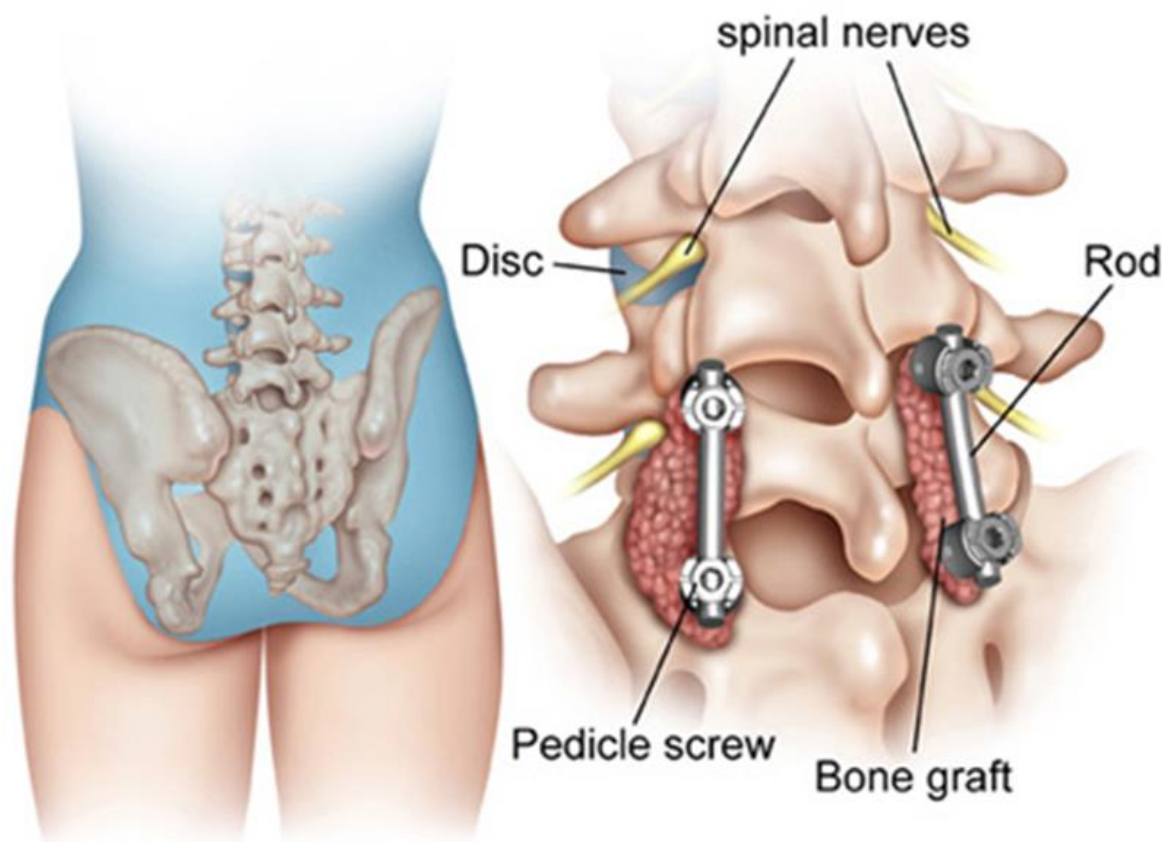


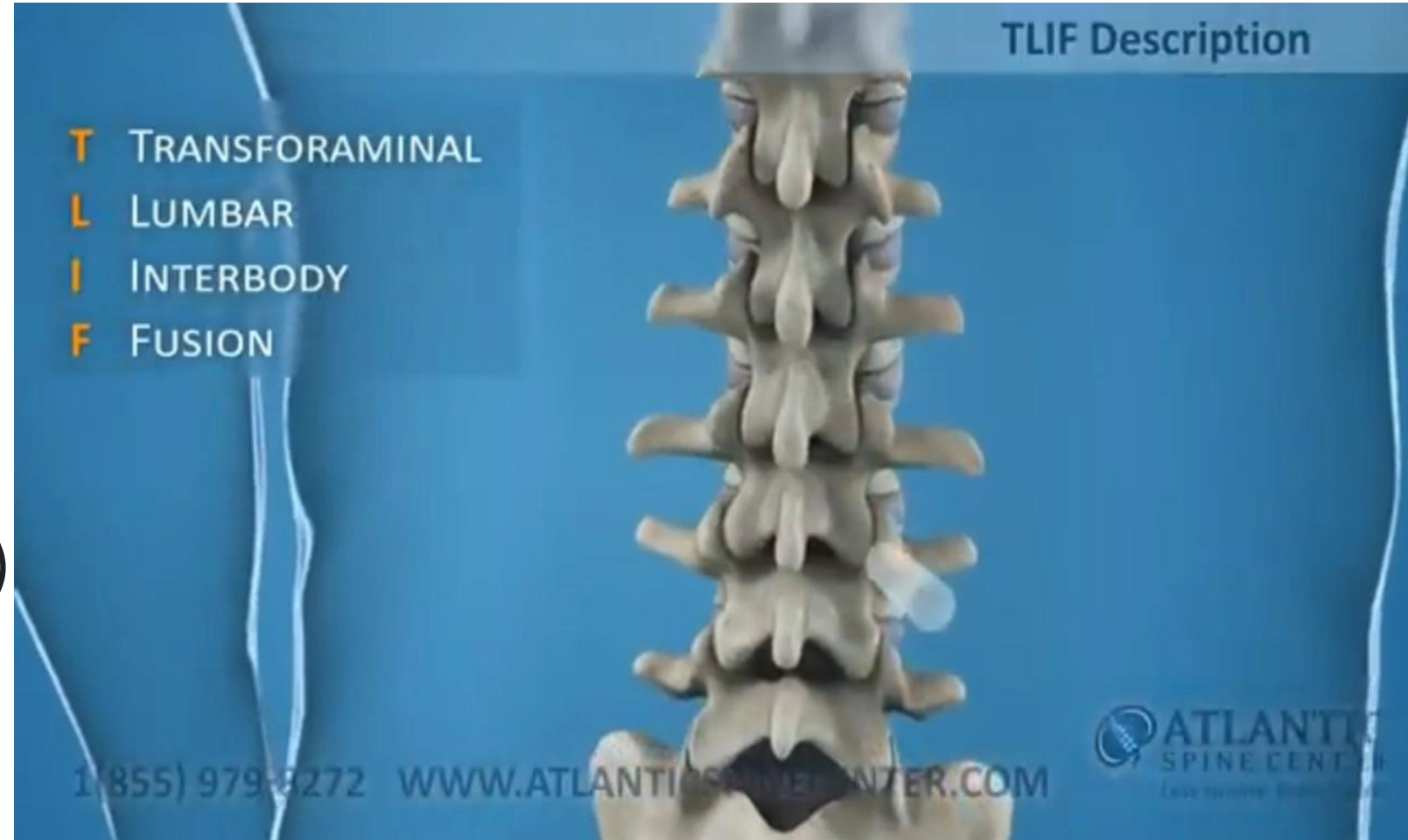
EVOLUTION OF SPINAL INTERBODY FUSION SURGERY



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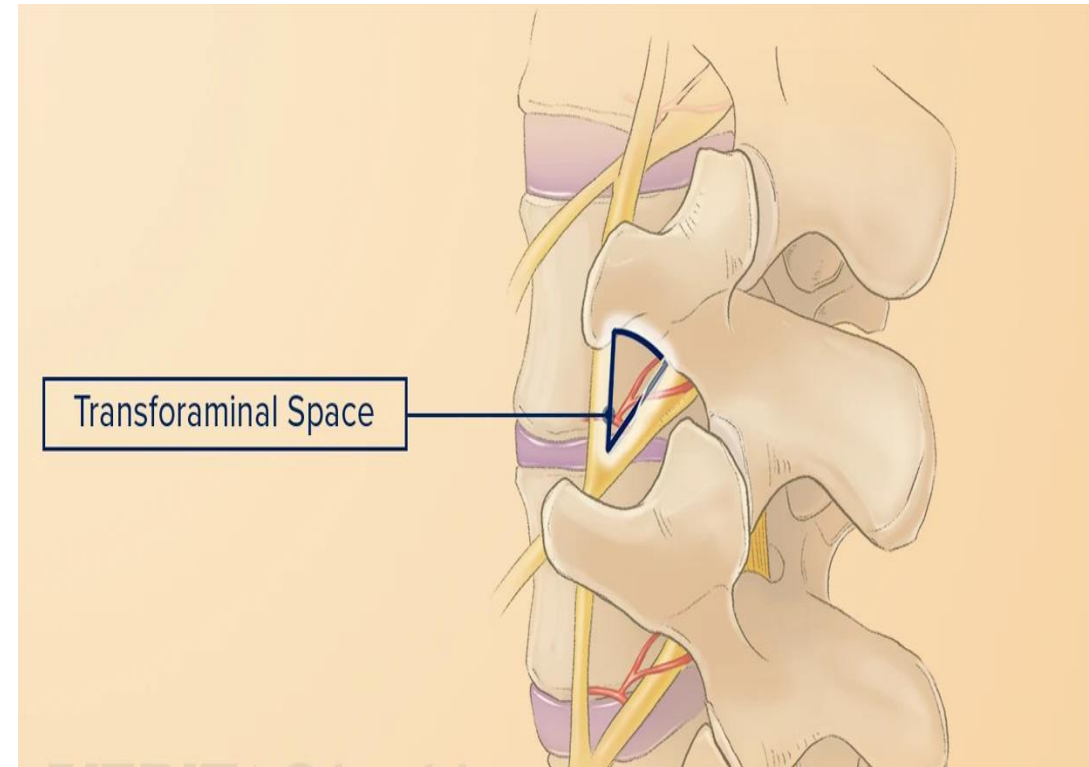
TLIF (TRANSFORAMINAL LUMBAR INTERBODY FUSION)

- Transforaminal lumbar interbody fusion (TLIF) is a spinal fusion technique for the lower back, in which two spinal bones (vertebrae) are joined by removing a portion of the spinal disc between them and placing a spacer (cage) with local bone graft, supplemented by screws and rods, in its place.



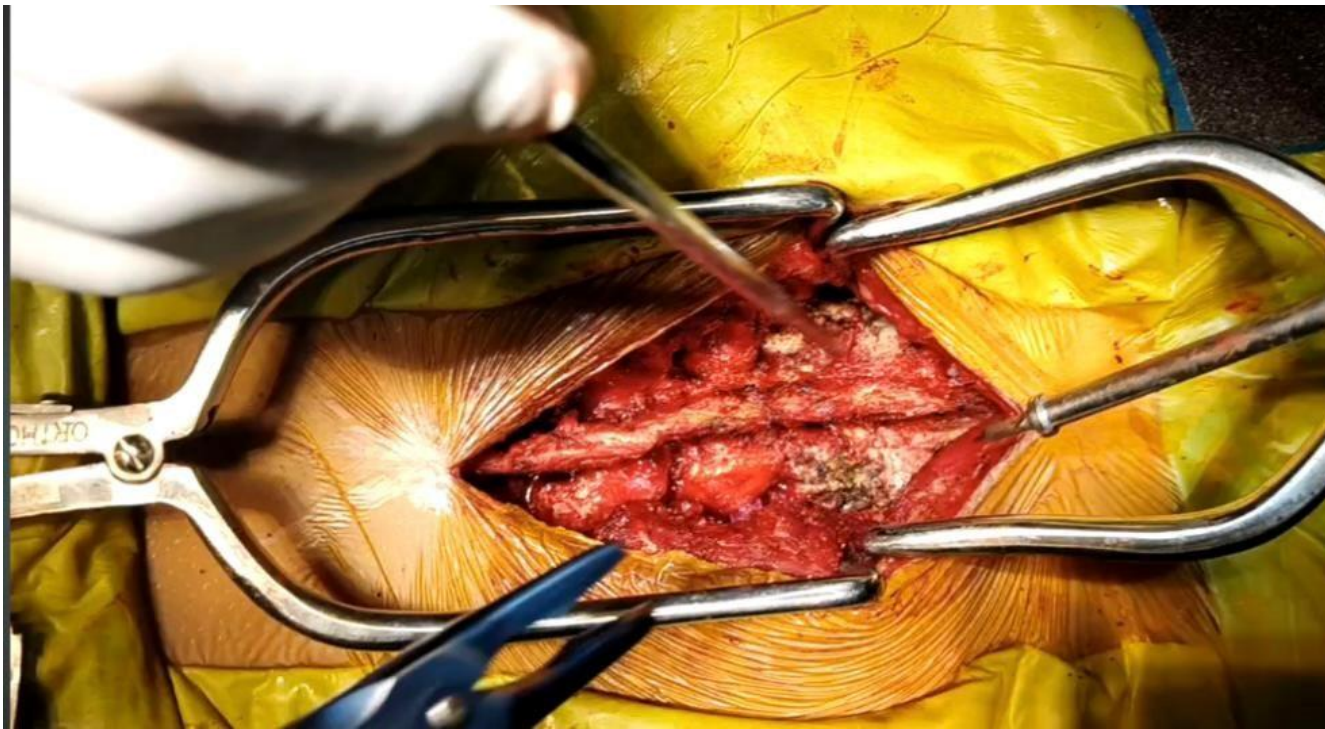
MODALITIES FOR TLIF

- The Aim is to discuss the evolution of (TLIF) Transforaminal lumbar interbody fusion from
- *Open* TLIF
- *To MIS*(Minimally Invasive Spine) with Tubular dilator.
- *To UBE* (Unilateral Biportal Endoscopy)



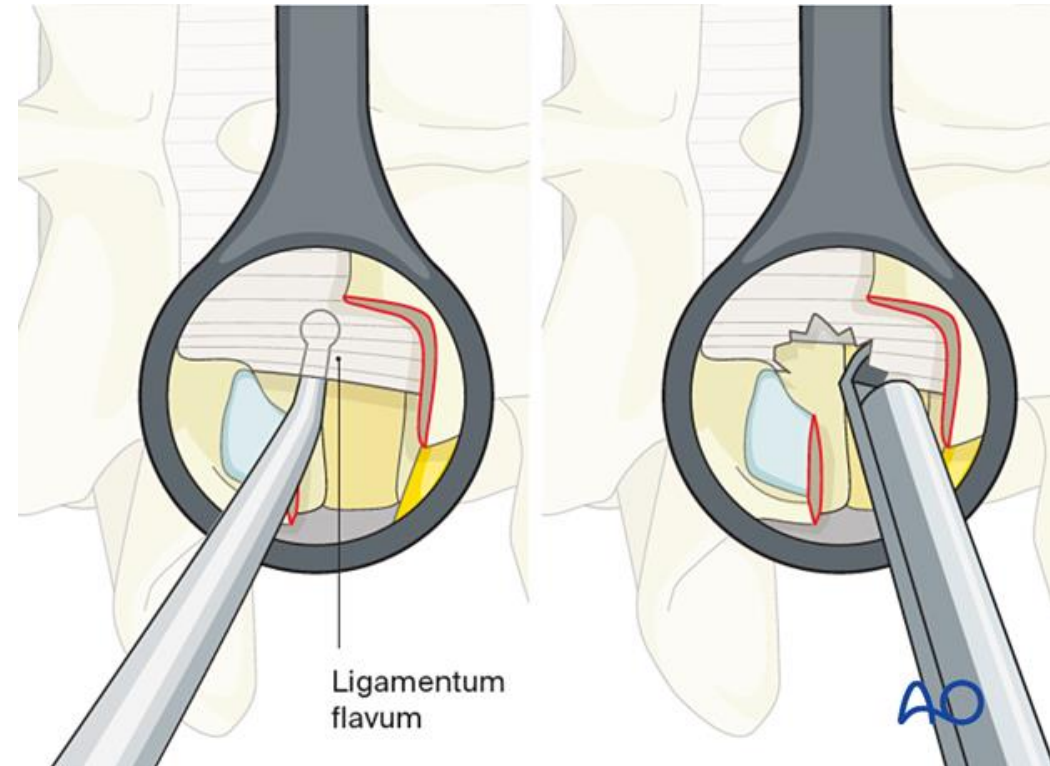
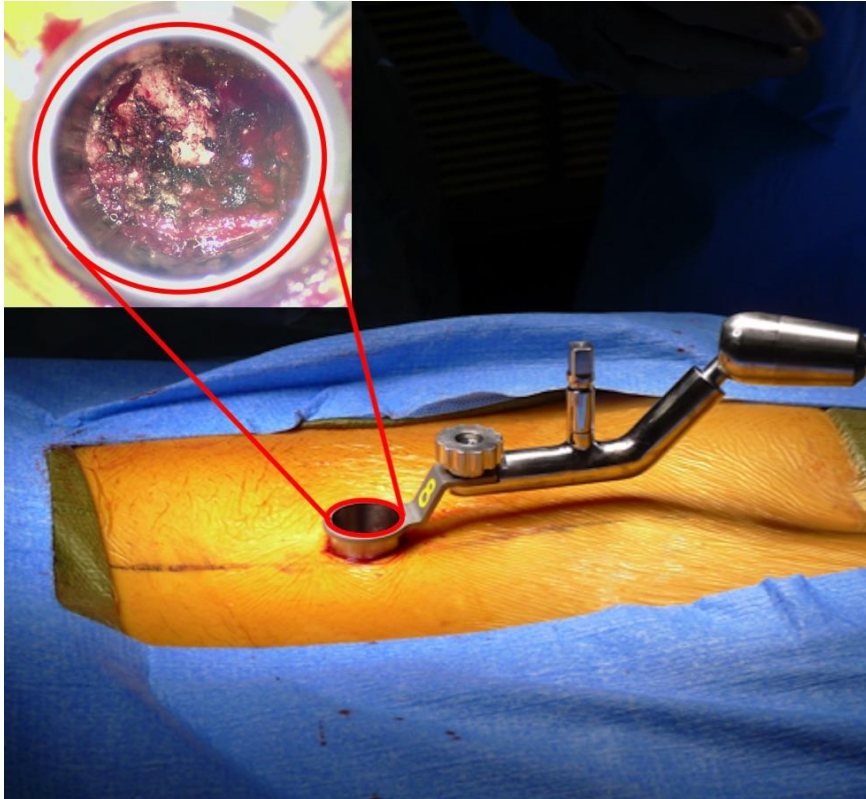
OPEN TLIF

- First reported by Harms and Rolinger in 1982.
- Extensive exposure of vertebrae is required to insert pedicle screws, rods and cage for fusion.
- Muscle stripping approach is employed which leads to extensive muscle damage and blood loss intra operatively and increased incidence of post operative back pain.



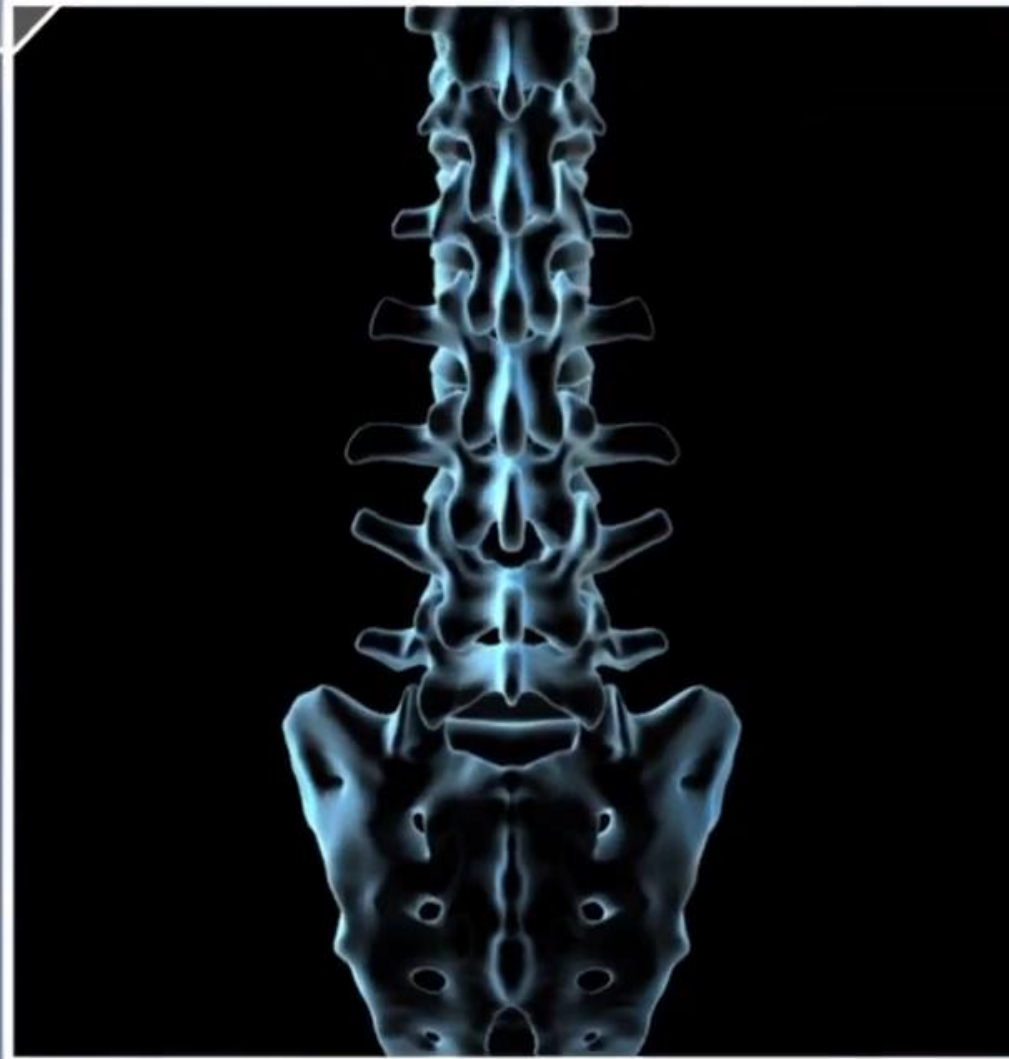
MISS TLIF – Minimally Invasive Spine surgery with Tubular Dilator

- Goal of MIS TLIF is to do fusion with minimal incision and scar with the use of Tubular Dilators and percutaneous pedicle screws.
- Tubular dilators are used to create a tunnel to the Spinal Column.
- Muscle Splitting approach is employed rather than muscle stripping, hence limited damage to the muscles around the spine and less intra op blood loss.



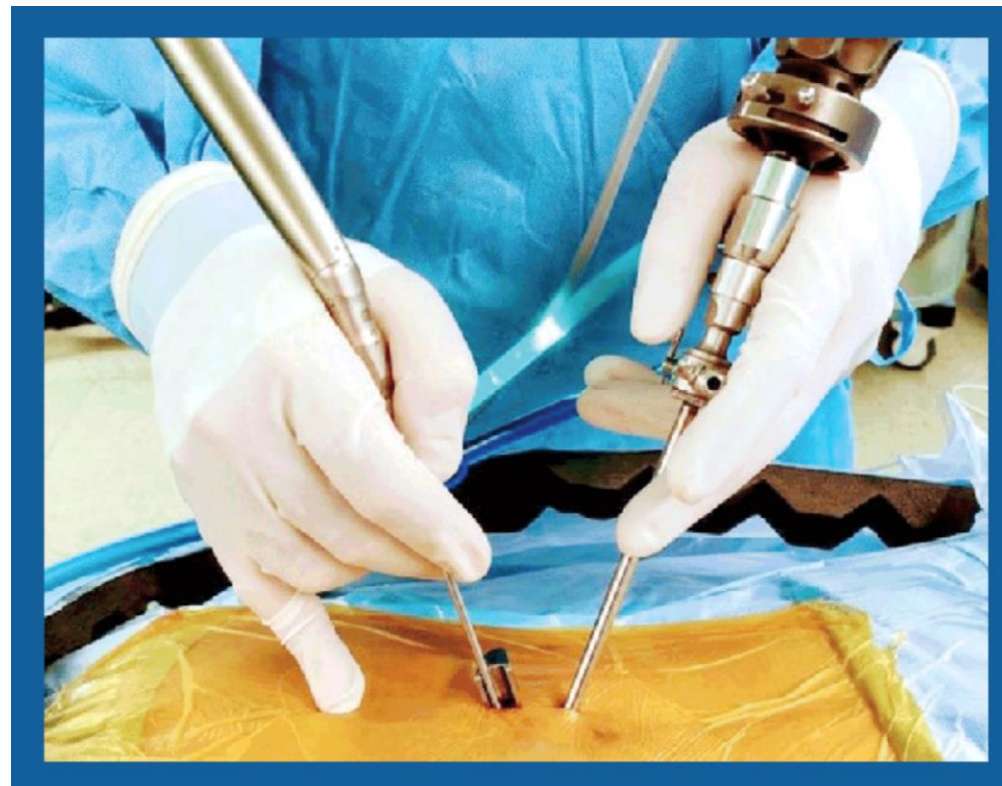
Percutaneous MIS screws

Introduction



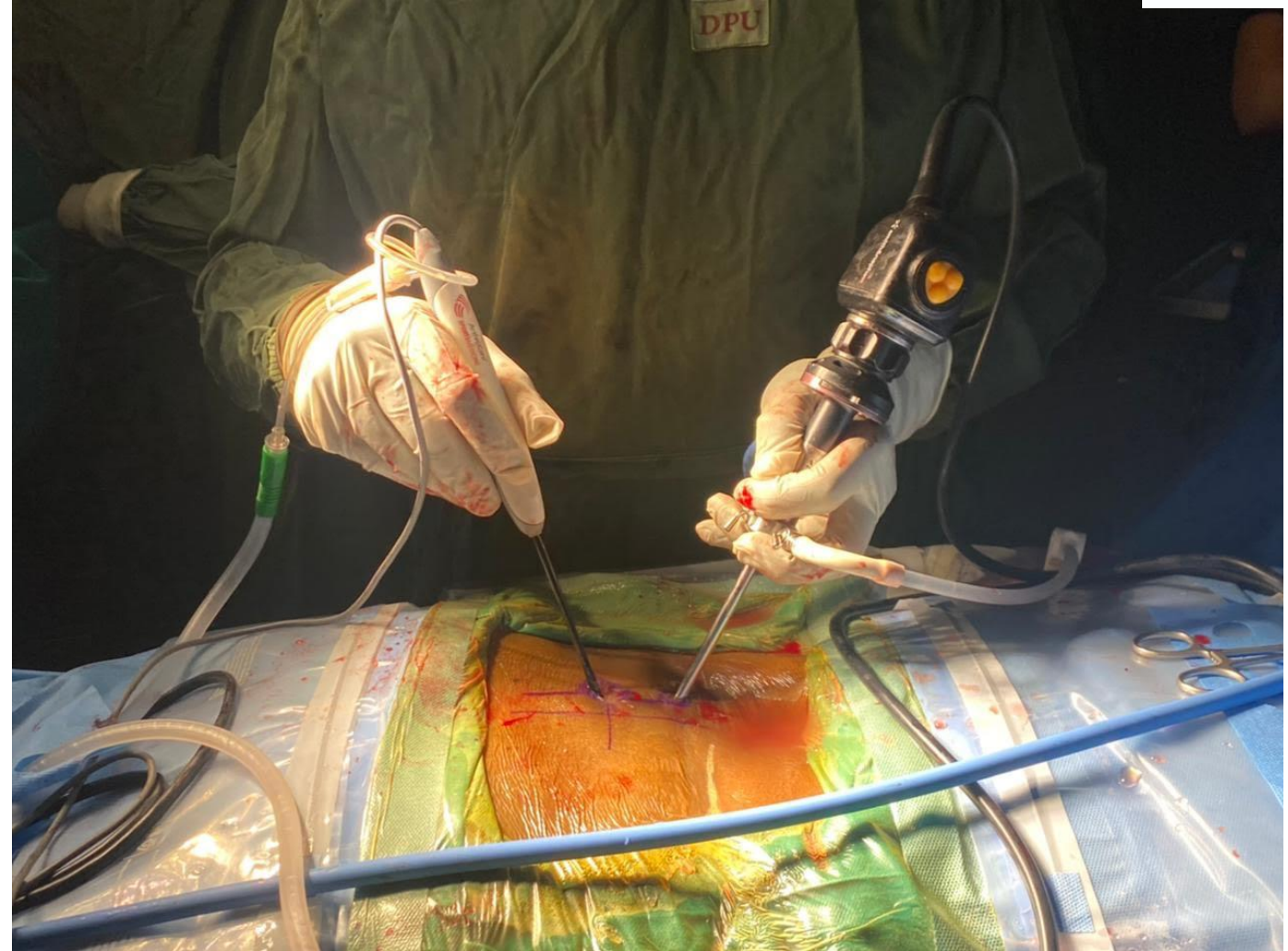
UBE(Unilateral Biportal Endoscopy) TLIF

- It is an Endoscopic Spine surgery which requires 2 portals which are atraumatic working corridors , hence UBE guarantees the same result as conventional spine surgery with less post operative morbidity and early post operative recovery



Overview

- Two skin incisions are made
one - viewing portal
Second - working portal.
- It is a fluid medium surgery.
- The benefit of UBE is that the surgeon uses the same surgical route as in open surgery and routine instruments



CASE HISTORY

- 73 year/male presented with pain in lower back since 3 years.
- No history of Fall or Trauma.
- Pain radiating to left lower limb associated with tingling and numbness
- Claudication with claudication distance of around 4 feet.
- No comorbidities

Inspection

- No swelling
- No skin discolouration
- No discharging sinus

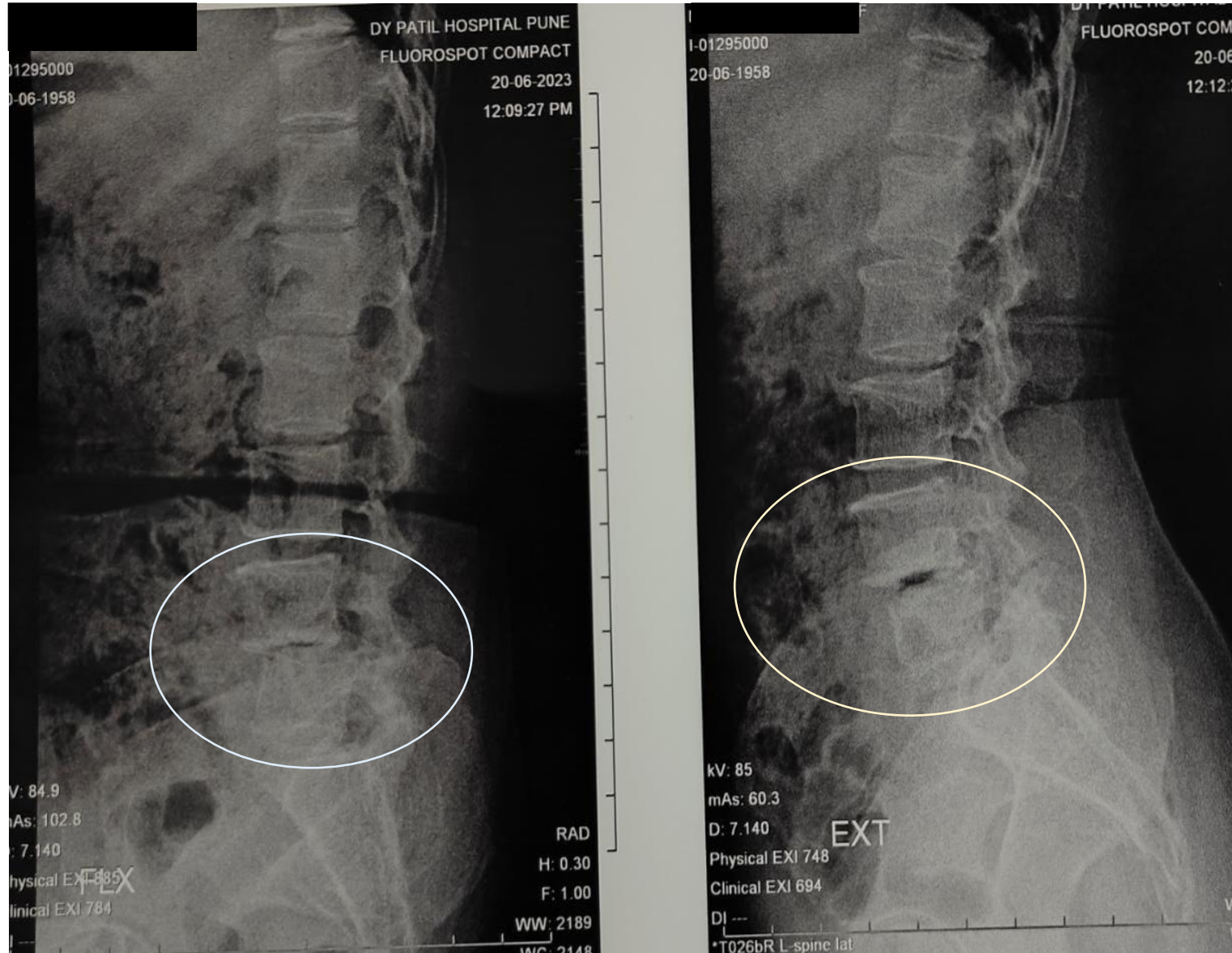
Palpation

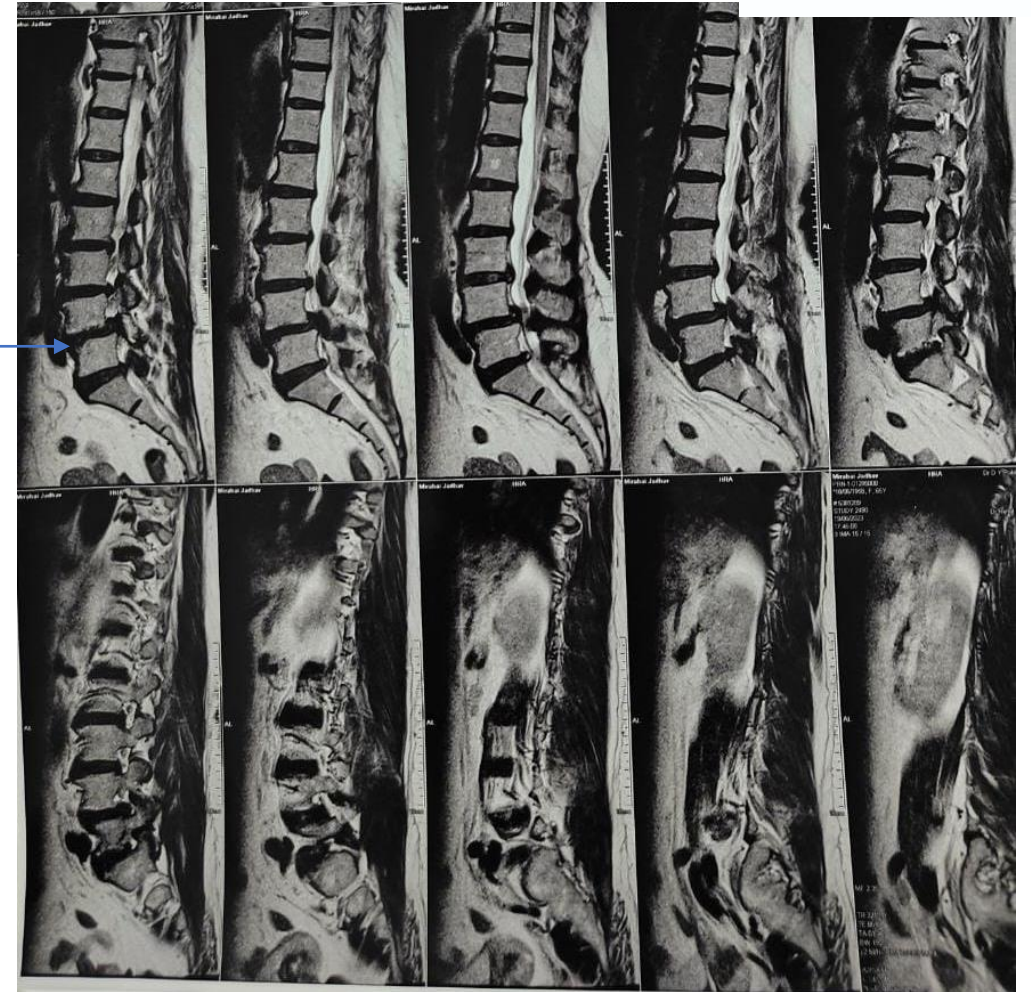
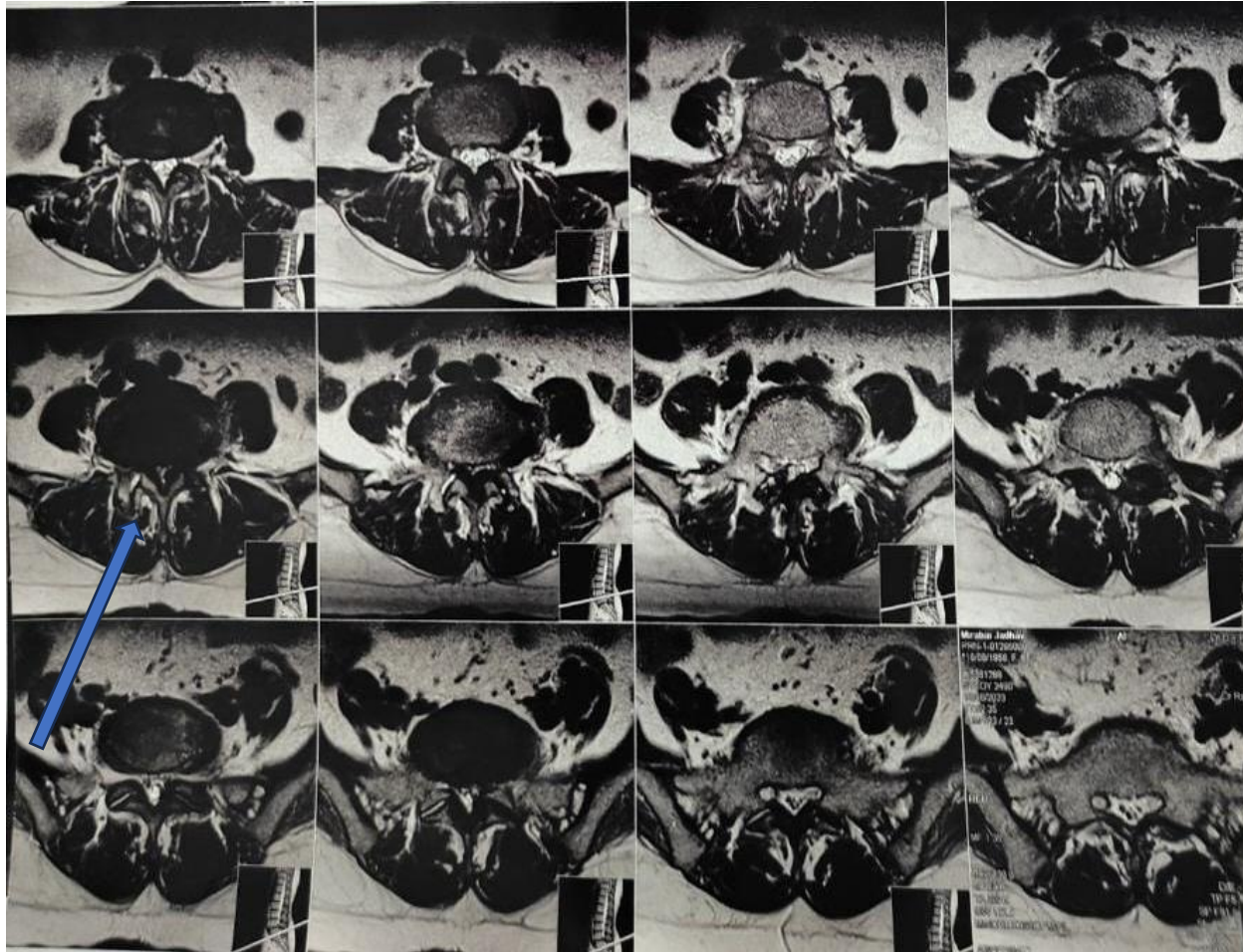
- Para spinal tenderness present
- Step sign +

On Examination

	Right	Left
SLR	90	30
Fig of 4	Negative	Positive
EHL	5/5	4/5
FHL	5/5	4/5

PRE OP XRAYS





IMPRESSION:

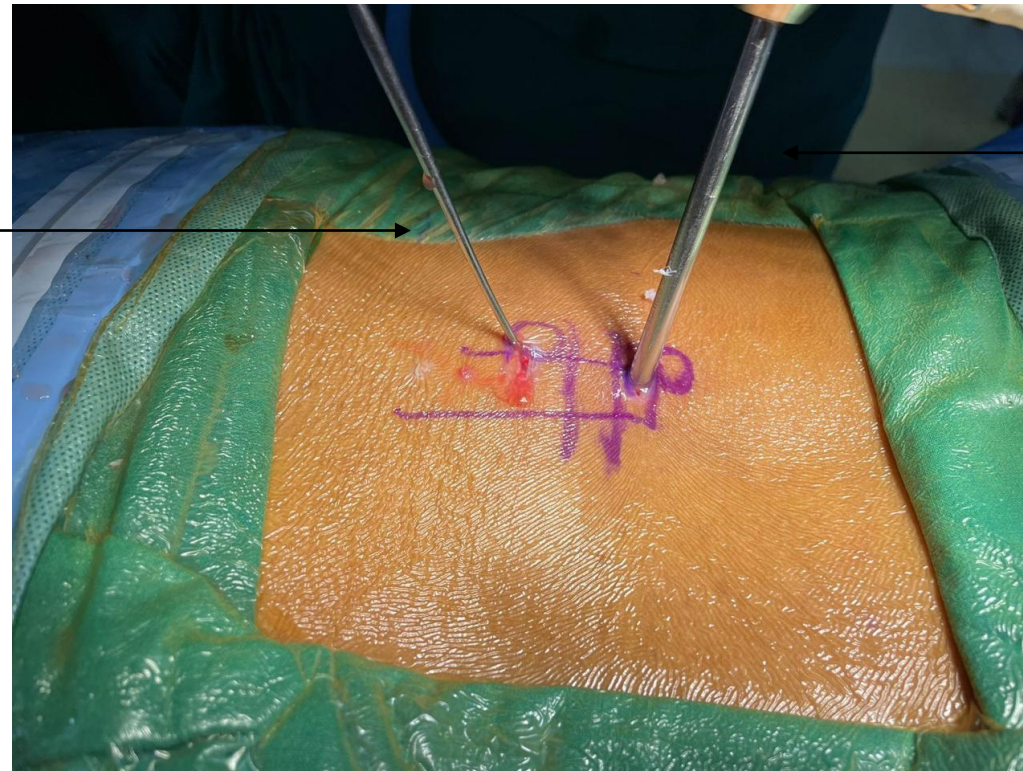
- **Degenerative changes in the form of osteophytes, disc desiccation, facet joint arthropathy and ligamentum flavum hypertrophy.**
- **Diffuse disc bulge at L2-L3 level indenting the anterior thecal sac without significant canal stenosis or nerve root compression.**
- **Diffuse disc bulge at L3-L4 level indenting the anterior thecal sac with mild canal stenosis (AP diameter 9.2mm) and compromise of bilateral lateral recesses (right>left) causing mild compression of right L3 exiting nerve root**
- **Diffuse disc bulge at L4-L5 level compressing the anterior thecal sac with moderate canal stenosis (AP diameter of 5.9mm) and severe compression of bilateral lateral recesses and neural foramina causing compression of bilateral L4 exiting and bilateral L5 traversing nerve roots**
- **Diffuse disc bulge at L5-S1 level indenting the anterior thecal sac with moderate canal stenosis (AP diameter of 7.5mm) and compression of bilateral lateral recesses and neural foramina causing compression of bilateral L5 exiting and bilateral L5 traversing nerve roots**

Plan

- Patient was advised L4-L5 fixation and fusion based on pre operative clinical and radiological examination
- We performed fixation and fusion via Unilateral Biportal Endoscopy for this patient.

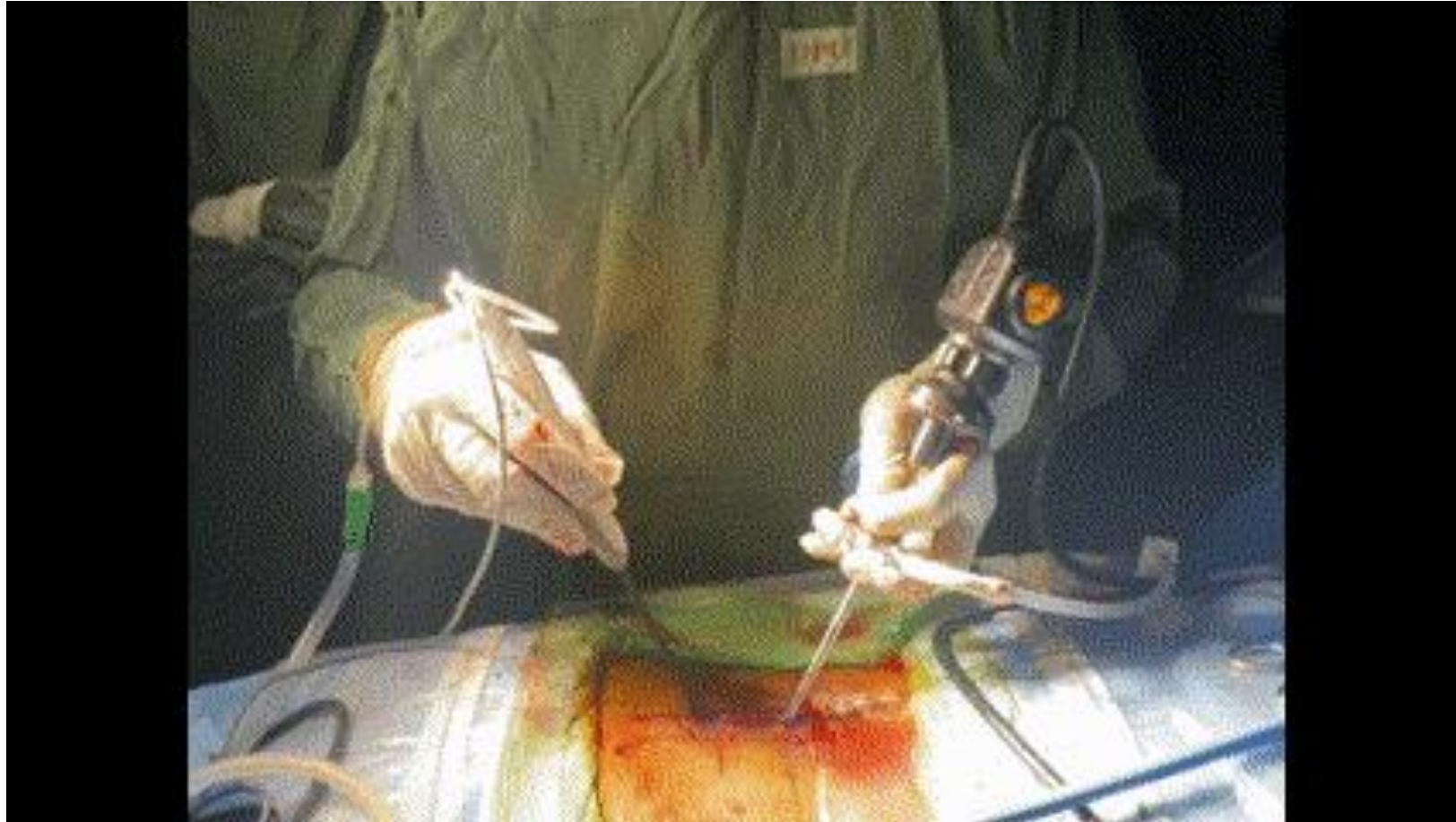
- Patient was under General Anaesthesia ; in prone position and 2 arthroscopic portals(viewing and working) were made

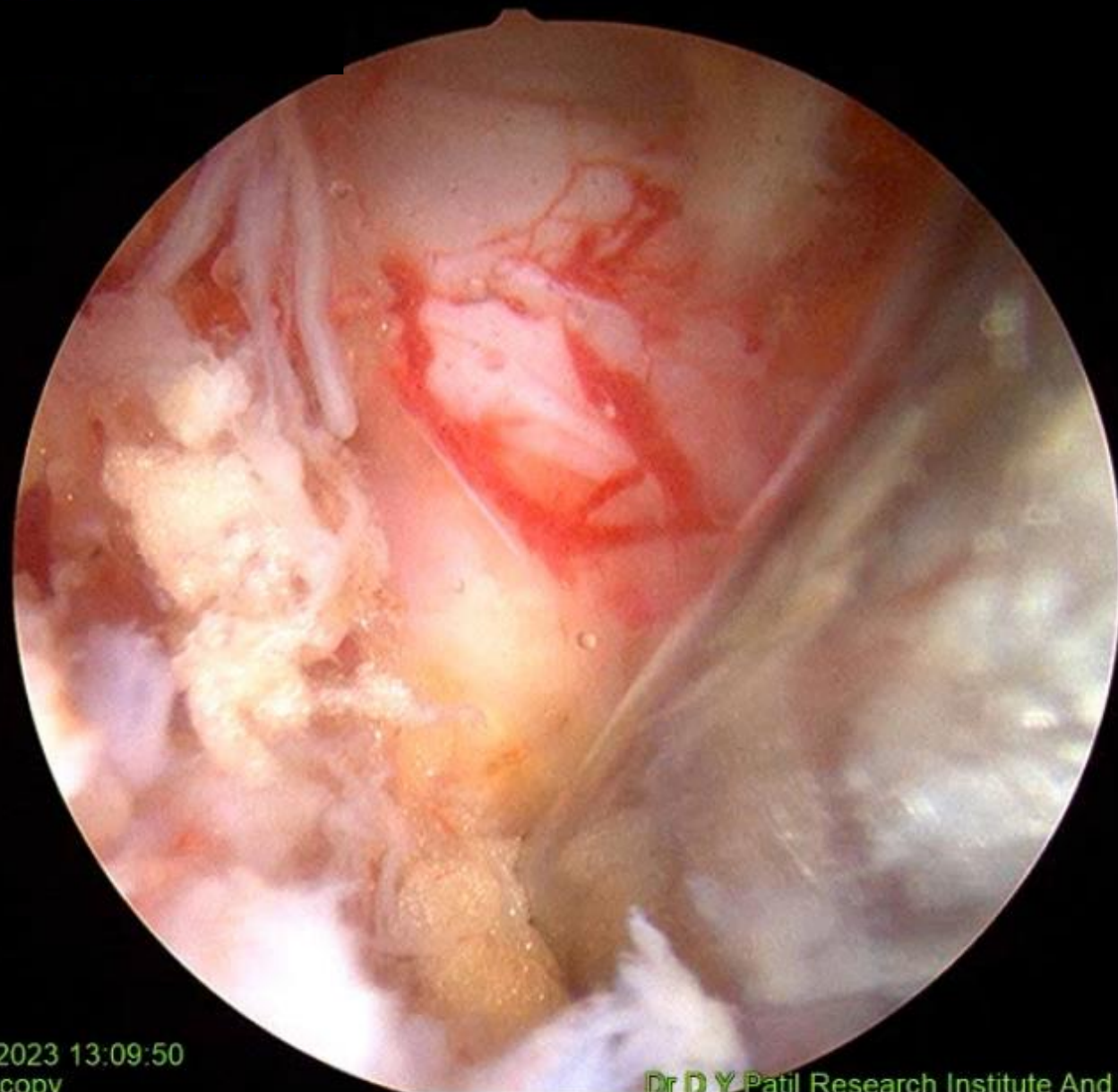
Working Portal



Viewing Portal

- Decompression done using Radio Frequency cautery and Kerrisor rongeur through the working portal.





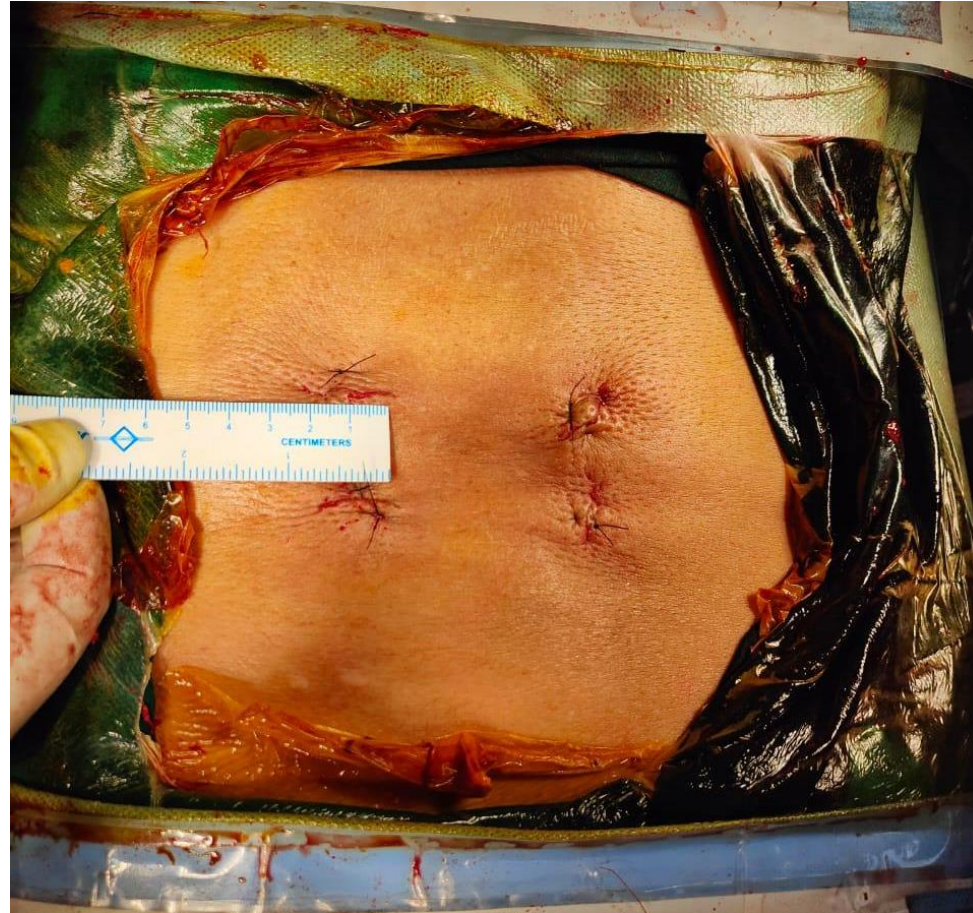
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spine scopy

Dr D Y Patil Research Institute And Hosp

- Bone graft and Cage were inserted through the same working portal

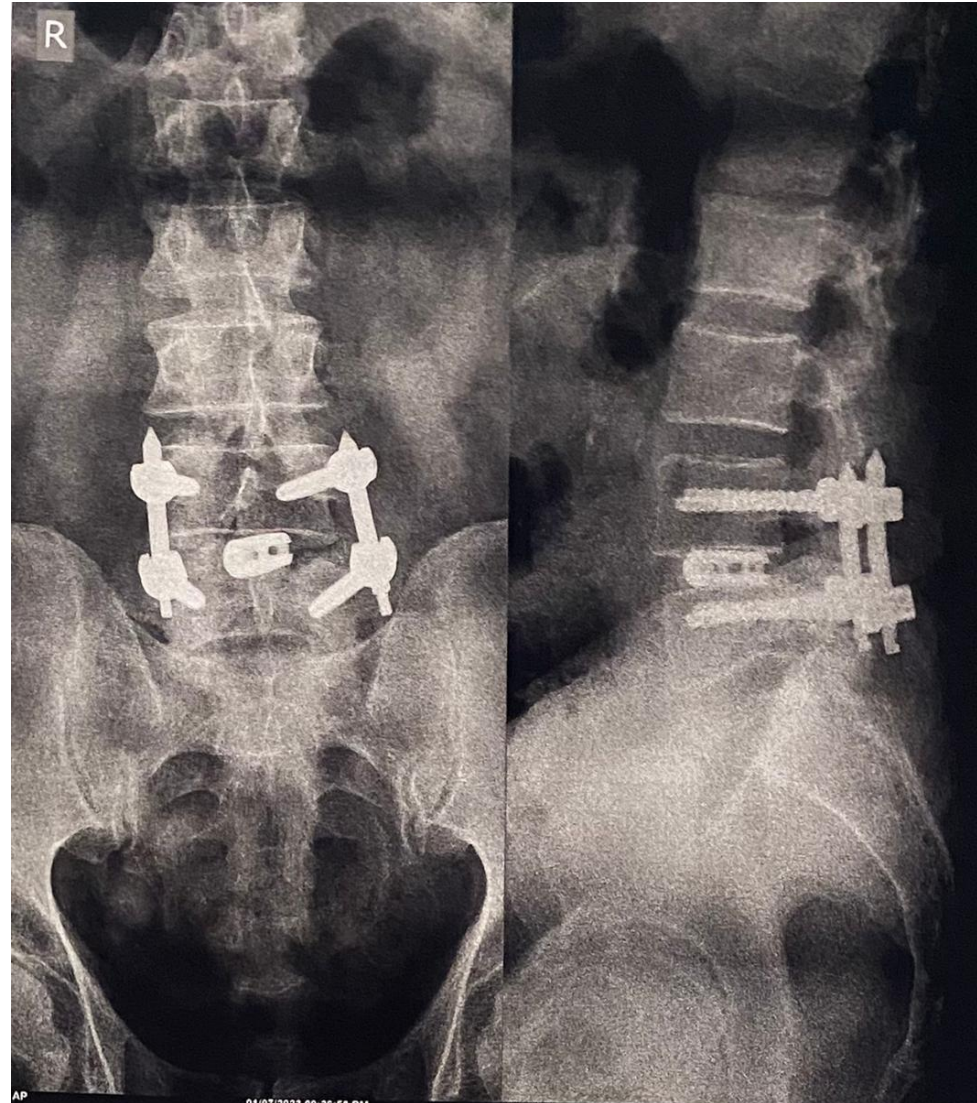


- After inserting the cage and the bone graft 4 percutaneous minimally invasive pedicle screws were put for which same incisions were utilized on the left side and 2 new 2 cm incisions were taken on the right side.





POST OP XRAY



Advantages of UBE TLIF vs Open TLIF

- Minimal soft tissue dissection , hence less damage to the muscles therefore short term post operative back pain and early recovery.
- Small incision scar , cosmetically better.
- Lesser chances of damaging the adjacent facet joint hence decreasing adjacent segment disease
- Lesser chances of infection as the lesser area exposed
- Comparatively less blood loss than open procedure
- Closure time is minimal.

Parameter	Open	MIS	UBE
• Duration	2 HRS	2-3 HRS	2-3 HRS
• Visibility	GOOD	Limited to dilator	Limited to scope
• Tissue damage	EXTENSIVE	MINIMAL	MINIMAL
• Blood loss	250-300 ML	100-150 ML	100-150 ML
• Recovery time	1-2 Months	1 Month	1 Month
• Wound Complications	Wound dehiscence Infection	LESS CHANCES	LESS CHANCES

Disadvantage of UBE

- Longer learning curve
- Duration of the procedure is comparatively more than the open procedure
- Cost of the procedure is more due to the minimally invasive implants

Conclusion

- UBE can be an effective treatment modality for treating lumbar degenerative diseases.
- The anatomic trajectory and the endoscopic view is similar to open procedures.
- Patient satisfaction and minimal post operative scar and pain providing good post operative results.
- However there is dearth of literature about ULIF and long term results needs to be assessed as data on this is less.

THANK YOU