

Reproducibility of Implant Positioning During Prone Lateral Interbody Fusion (LIF): Does Bed Rotation Result in Increased Variability of Interbody Placement?

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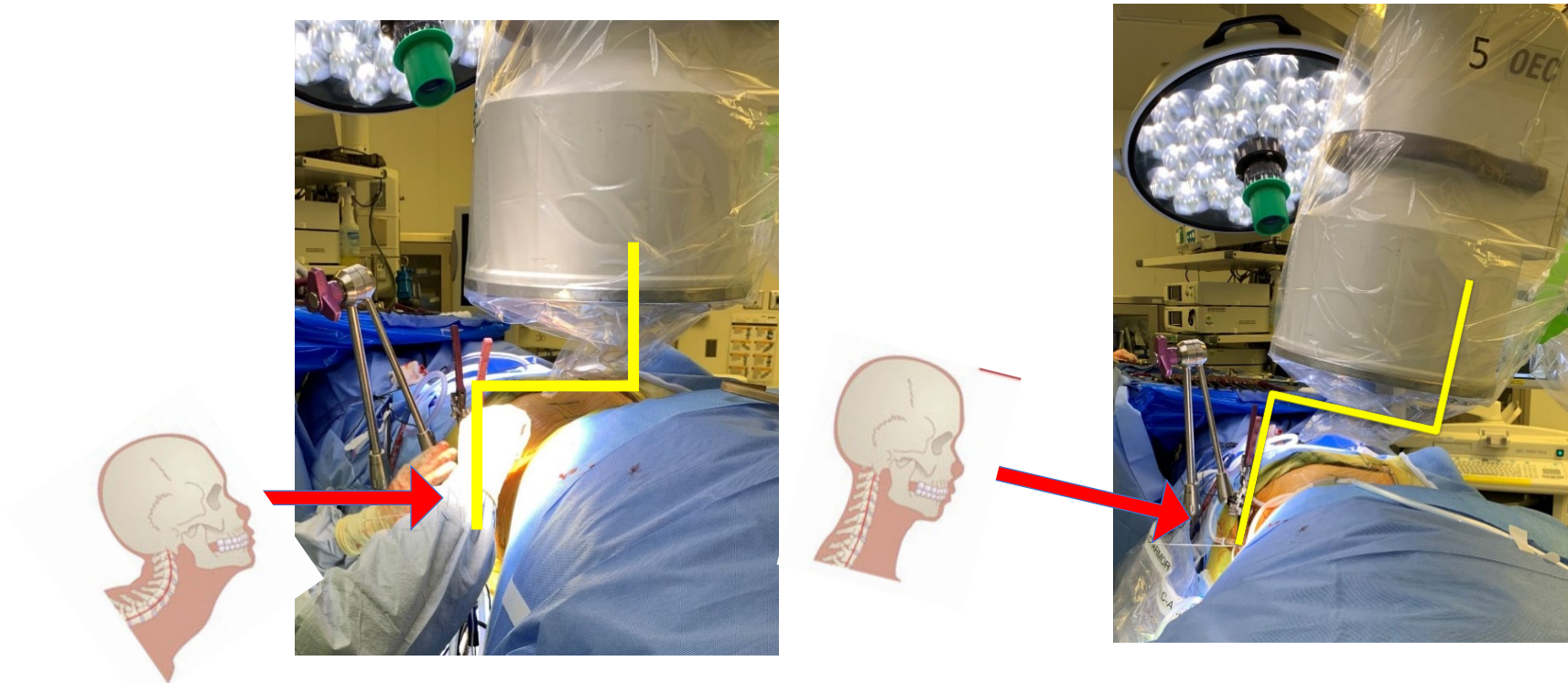
Background

- Performing a LIF in the prone position has recently gained interest.
- Visualization of the surgical corridor may be difficult when in the perfectly orthogonal position.



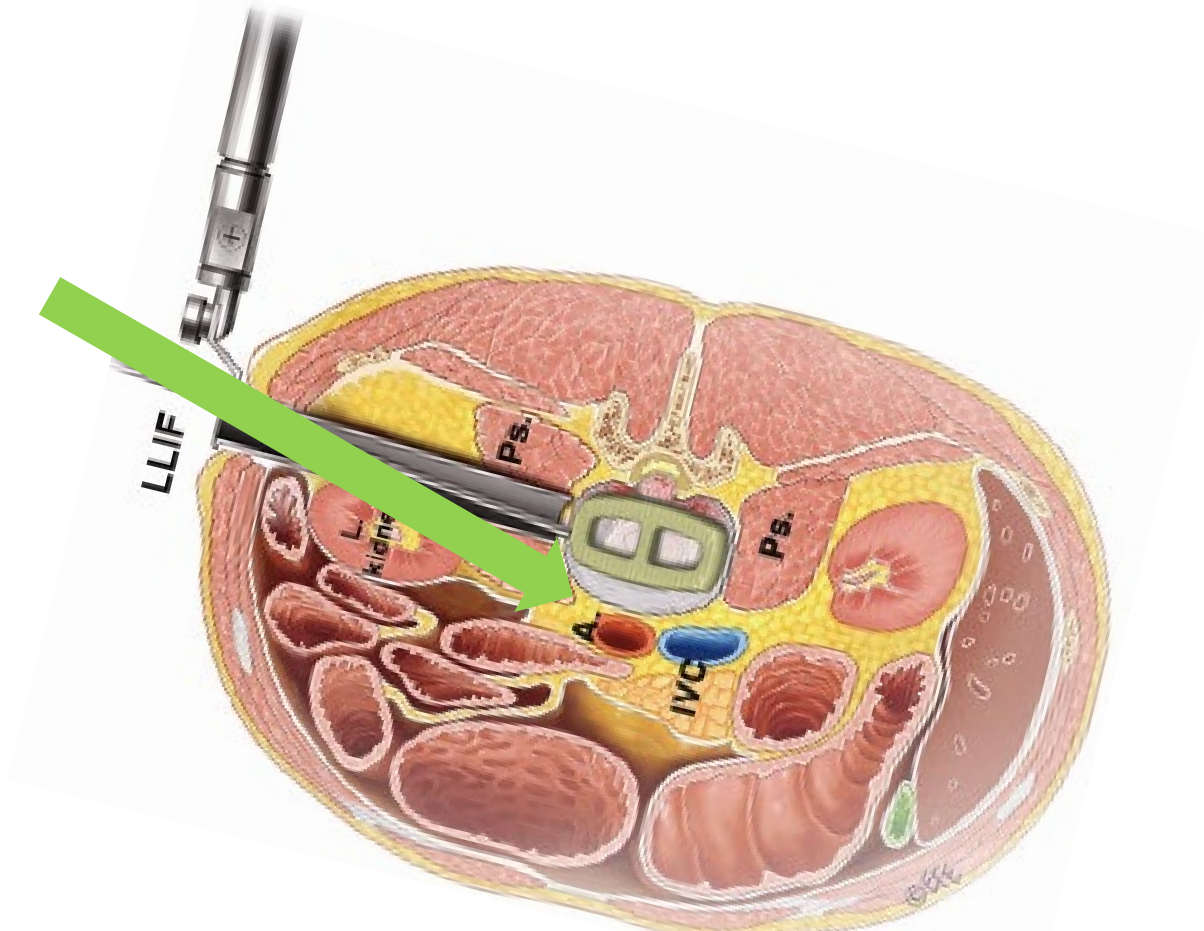
Aims/Objectives

- This study aims to investigate variability in interbody positioning while performing a p-LIF with bed rotation. During p-LIF, the bed can be rotated for better ergonomics and improved visualization.



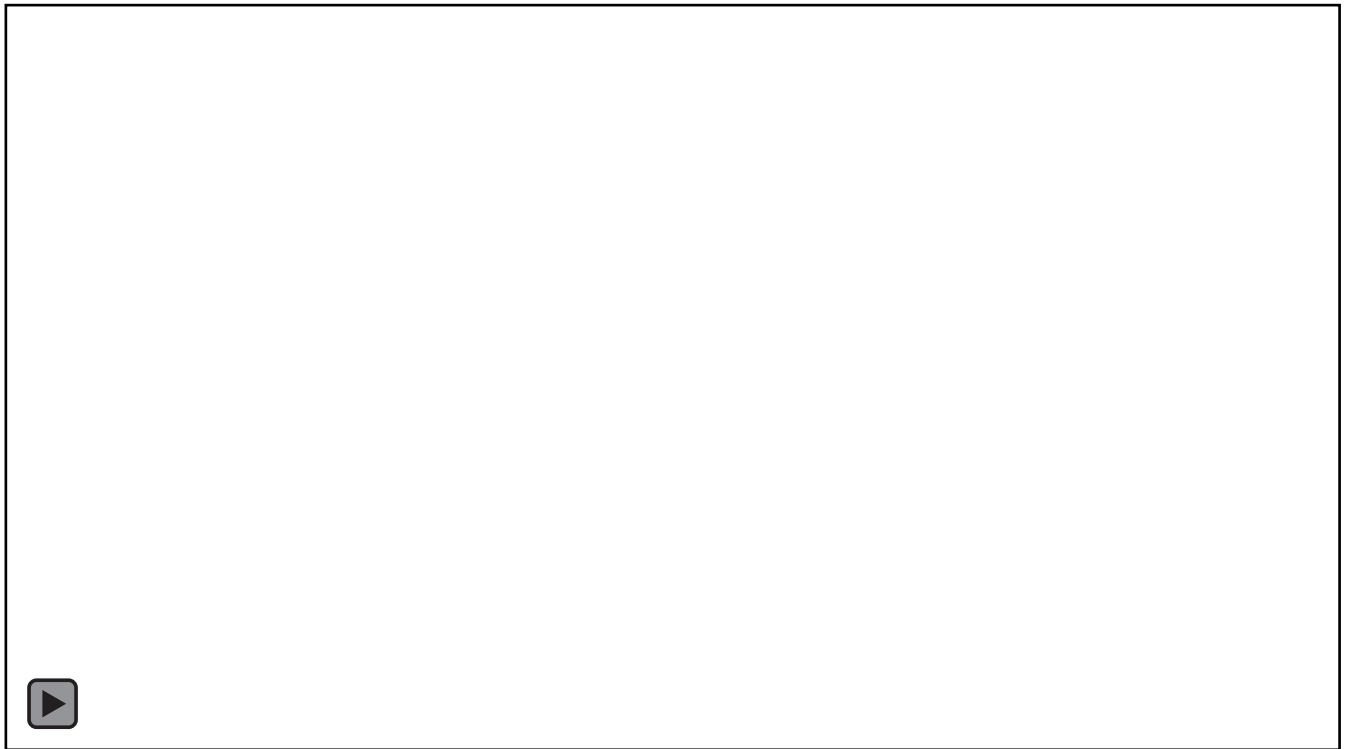
Aims/Objectives

- Although beneficial, bed rotation introduces variability that can cause implant malpositioning in the disc space or injury to neurovascular structures.



Methods

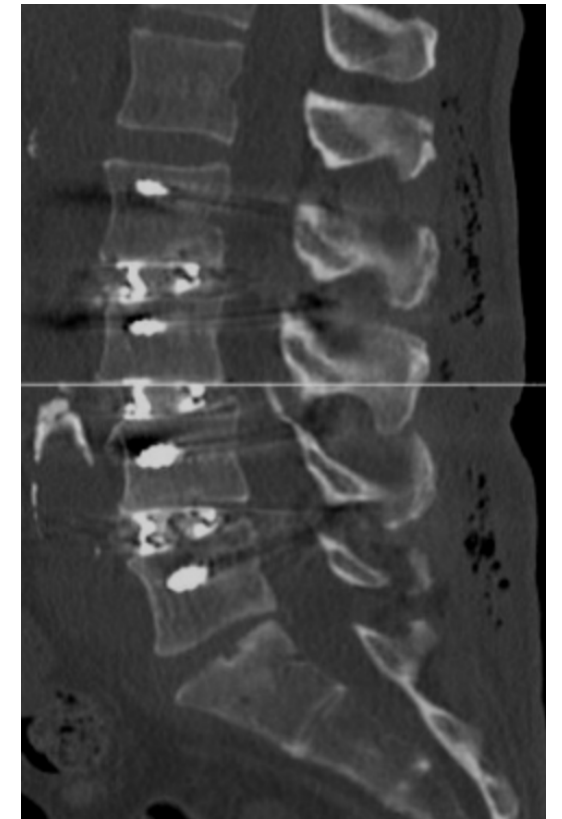
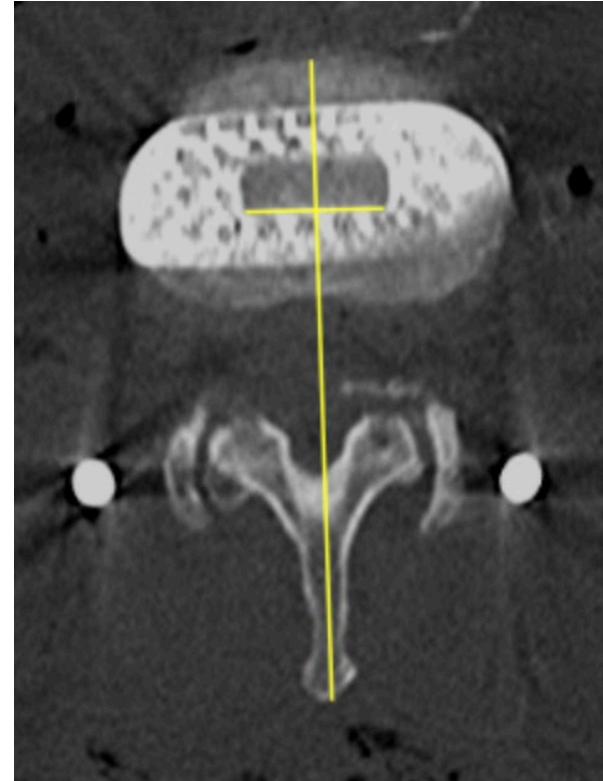
- After the 25th case, we implemented a process to anchor the retractor in a perfectly orthogonal position before bed rotation.
- The retractor handles were placed 90deg to the vertebra and used as a reference tool for disc prep and implant positioning.
- All patients obtained a fine CT scan to assess the implant position within the disc space.



Results

- 81 patients; 126 levels
- The average bed rotation was 7.5deg (min-max 5-10deg) away from the surgeon.
- Average implant position was 3.6degs (min-max 0.1-18.1degs) relative to orthogonal.

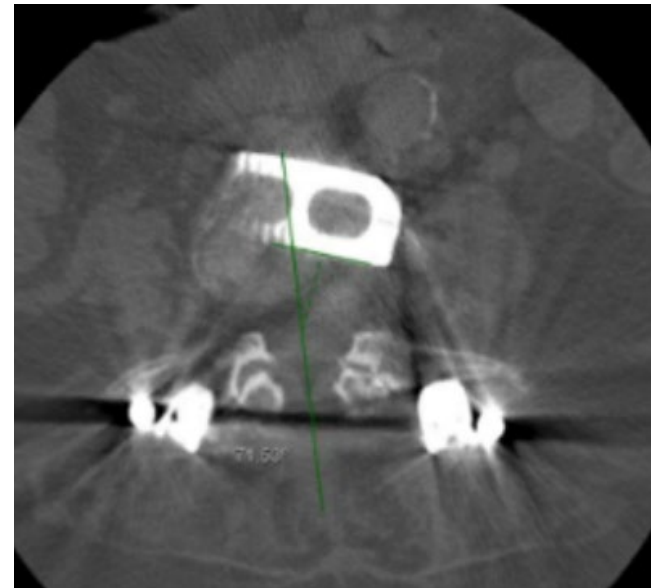
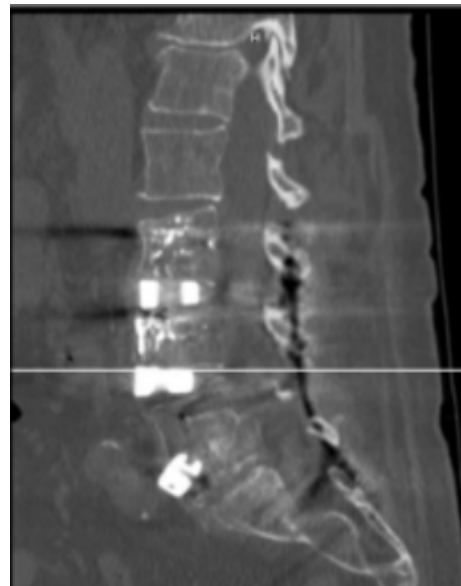
Cases	1 st 1/3	2 nd 1/3	3 rd 1/3
Rotation	4.8deg	3.6deg	2.8deg



Complications

Prior to standardized rotation process	After standardized rotation process
Two (2) unintentional ALL ruptures	No ALL ruptures
One (1) revision surgery for implant malposition causing contralateral nerve root irritation.	No revision surgeries for implant malposition

- There were no incidents of vascular or bowel injury.



Conclusion

- Our findings demonstrate an initial learning curve for optimal implant position in the disc space during p-LIF when rotating the operative bed.
- After developing a referencing system to aid in maintaining orthogonal alignment to the disc space, there was a significant improvement in satisfactory implant positioning and a reduction in technical complications.

