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Endoscopic Decompression for Radiculopathy in Adult Degenerative Scoliosis

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Introduction

Adult Degenerative Scoliosis (ASD)
- Common spinal disorder
- Progressive spinal deformity
- Due to asymmetric degeneration of the intervertebral discs and facet joints leading to vertebral rotation and lateral listhesis

Commonly presents with
- Chronic low back pain
- Neurogenic claudication
- Radiculopathy

Management often difficult due to complex interplay between **spinal deformity and stenosis**

Previous Surgical strategies
- Laminectomy/Laminotomy +/- fusion
- Foraminotomy +/- fusion
- Facetectomy +/- fusion
- Osteotomy
- Interbody Fusion

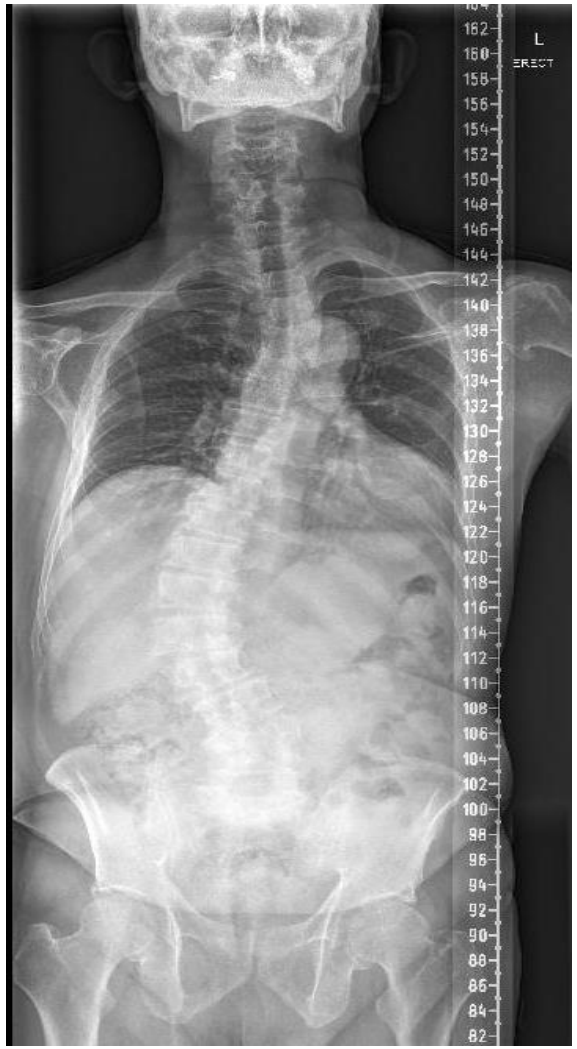
Endoscopic Decompression
- Minimally Invasive alternative to traditional open decompression procedures
- Gaining in traction due to advancements in endoscopic technology and surgical expertise – improving our ability to perform effect decompression in scoliotic spines through minimal access ports
- Indicated for ASD patients with **neurogenic claudication or radiculopathy**, **high surgical risk**

Case Report

65-year-old male
Nil significant PMH
Known degenerative scoliosis

H/P
- Long standing chronic back pain with Right LL radicular symptoms down to calf
- Trialed L4/5 ESI with good results
- Symptoms returned
- Offered decompression with deformity correction vs. MIS decompression L3/4 and L4/5 Right side

O/E
- No antalgic gait
- Bilateral LL neurology intact throughout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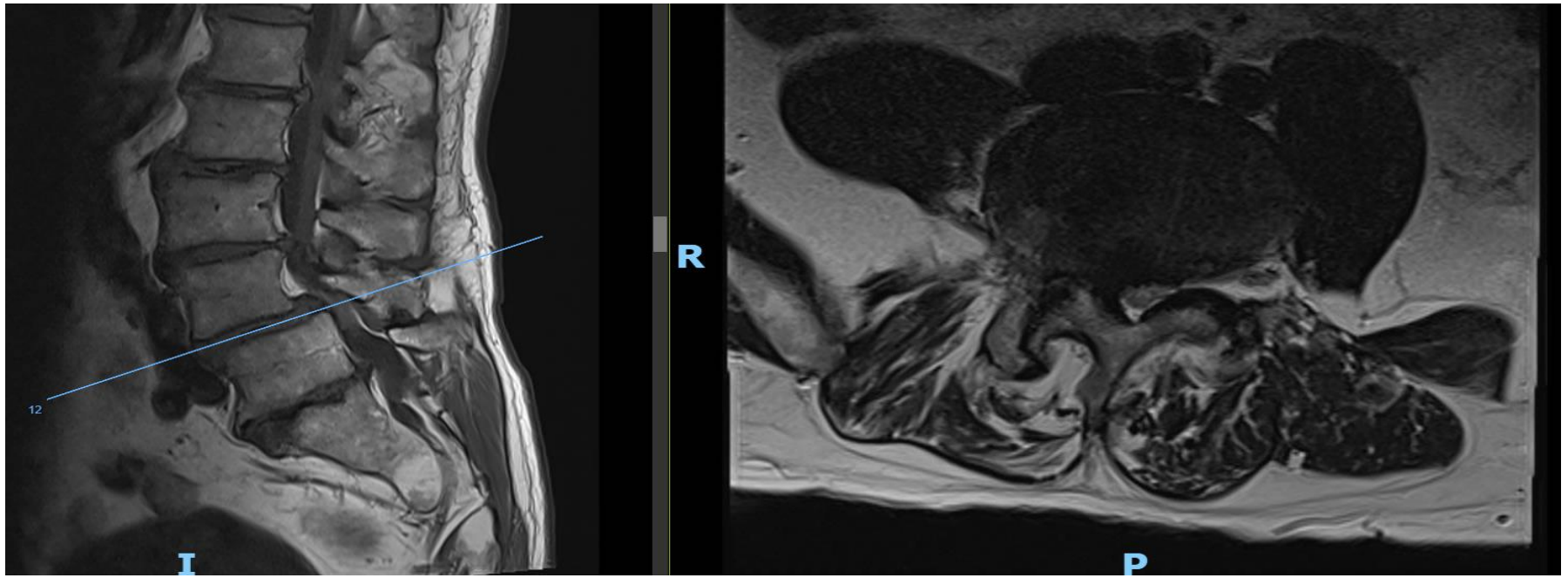
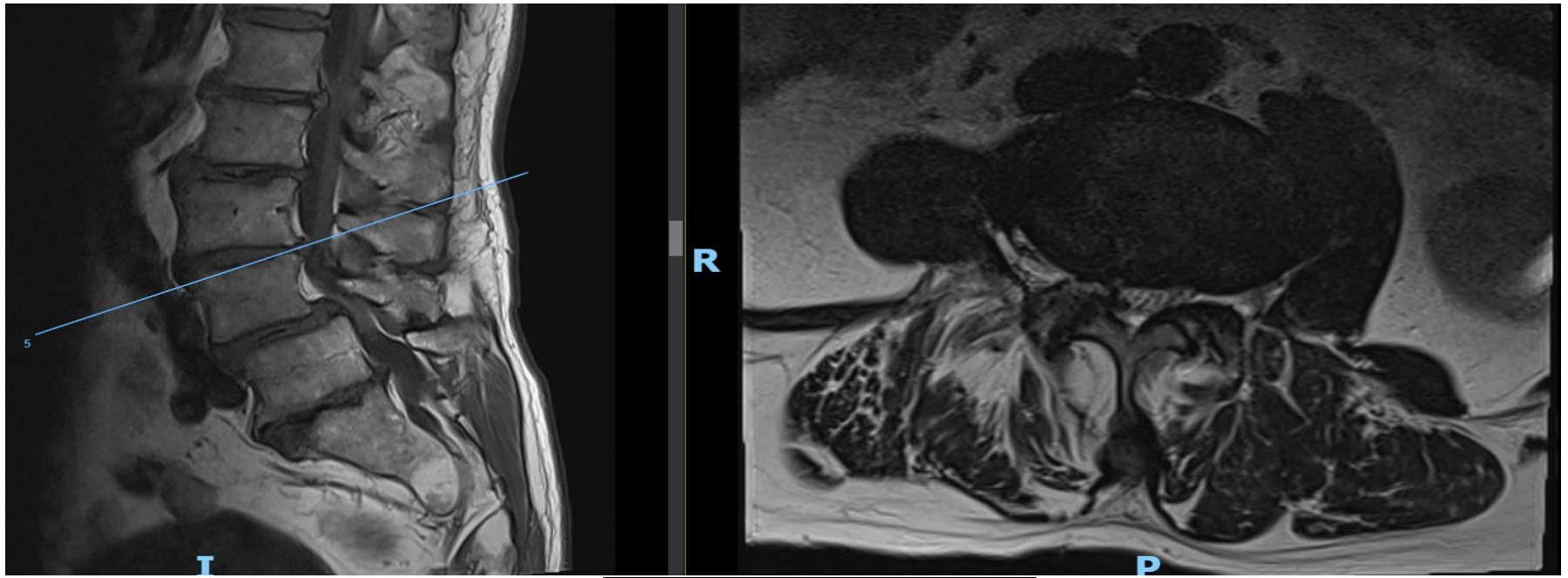
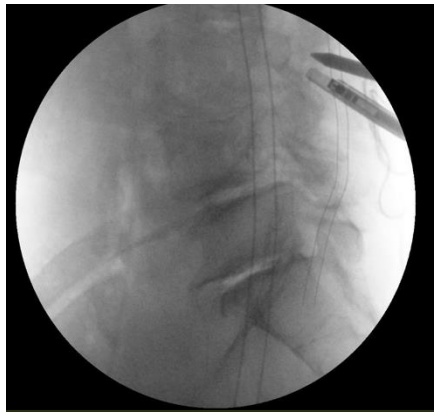
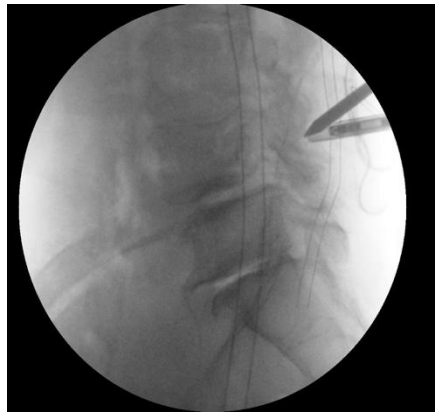




Restricted, Sensitive (Normal)

Endoscopic Decompression L3/4 and L4/5 (Right)





Operative Procedure

- Prone on Wilson Frame
- Levels marked
- Stab incisions made and plane developed
- Levels confirmed with imaging
- Bi-portal approach
- Laminotomy and Medial Facetectomy
- Flavum Removed
- Procedure repeated at next level

Post-Operatively

- Radicular symptoms resolved
- Back pain still persistent but manageable

Discussion / Conclusion

1. Good outcomes after endoscopic decompression for ASD

- Improvement in VAS scores for both back and leg pain / ODI scores
- High rates of patient satisfaction
- Lower rates of adjacent segment degeneration compared to open procedures
- Reduced blood loss and shorter hospital stays, Faster return to work compared to open procedures

2. Cost-effectiveness

- Shorter hospital stays and reduced complication rates
- Need to consider investment in equipment and training

3. Recent innovations in endoscopic procedures

- High-definition endoscopes with improved optics and illumination
- Specialized instruments including flexible drills and articulating forceps
- Navigation systems for improved accuracy
- Augmented reality (AR) systems for real-time imaging overlay
- Robotic assistance for improved precision
- Artificial Intelligence (AI) for preoperative planning and intraoperative decision-making

4. Complications and steep learning curve

- Dural tears, nerve root injury
- Incomplete decompression

Conclusion: Endoscopic decompression should be considered as a treatment option for Stenosis in ASD

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