



Non-CME Webinar Series
designed with the trainee in mind

first Tuesday of the month



Novel Minimally Invasive Interventions: Decompressions, Spacers, and Endoscopic Options

Tuesday, March 1, 2022

7-8:30 pm ET



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ENDOSCOPIC SPINE PROCEDURES & FULL ENDOSCOPIC SPINE SURGERY

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Disclosure: None

History of Spine Endoscopy

- 1975: Hijikata in Japan, posterolateral disc access with tubes and trephines under fluoroscopy and used pituitary rongeurs for 'perc nucleotomy'
- 1986: Kambin in Philadelphia refined the technique of 'percutaneous discectomy' through 'Kambin's triangle'
- 1989: Schreiber, Suezawa, and Leu got the idea to perform percutaneous nucleotomy under visual using endoscope (discoscopy)
- 1989: Mayer & Brock refined instruments in Germany (Berlin techniq)
- 1996: Hal Matthews & 1997 Tony Yeung - more lateral access for Transforaminal Endoscopy. Tony Yeung: cont. irrigation, inside out
- 2000: Hoogland (Germany) – Transforaminal outside in approach
- 2001: S Rutten (Germany) described interlaminar approach and application of arthroscopic techniques using high speed drills, laser etc.



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Given a Choice, Will you Fix the Problem or Mask it?

- Significant spine pathologies like large disc herniations, large facet cysts, epidural fibrosis (FBSS), large bulky and degenerated facet, degenerated disc osteophytes, Bertolotti's pseudo joint etc. can cause significant pain/nerve impingement.
- Severe lumbar spinal stenosis can cause compression and edema of cauda equina nerve roots
- Conservative treatments are not realistic at times as patients have severe pain and/or disability which likely won't respond to any therapy or injections in the short to interim term.
- Endoscopic approach can treat any single level or adjacent level pathologies anywhere in the spine. Sealing the annular rent & hardening the nucleus using bipolar radiofrequency cautery, prevents re-herniations: unique to endoscopy



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Don't Settle for Less

- No one likes to hear that they need to learn to live with weakness, numbness , paresthesia
- Pain relief is a good goal but so is a recovery of nerve function (SCS can't achieve the latter)
- Plasticity of nerves well documented
- Once spinal nerve compression is relieved their function recover quickly

Ref: Gray CM, Kumar S. Complete resolution of chronic pain, sensory impairment, and motor dysfunction following percutaneous transforaminal endoscopic decompression in a failed back surgery syndrome patient—a case report. J Spine Surg 2020;6(3):613-619. doi: 10.21037/jss- 20-586



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Can I get trained in Endoscopic Spine Surgery?

- At UF Endoscopic Spine Surgery is Performed only by Pain Physicians with Pain Medicine Fellows Participation & training
- (1st in country) Endoscopic spine fellowship starting at UF from 7/1/22, an extra year with certification for Pain Medicine physicians. Applications welcome from fellows who have stellar surgical skills and understanding
- Mastery of interpretation of MRI & CT images a must to get a 3D perspective. Understanding of Spinal architecture and stability must
- Very few spine fellowships run by NSGY incorporate Spine Endoscopy in their training so minimal formal training even in NSGY.
- Industry sponsored cadaver labs give some exposure
- Long and steep learning curve and needs a master trainer initially
- Spine Surgeons not happy with 'non surgeons' doing surgeries.
- Having an extra year (6th year) counters the argument of lack of training



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Many Firsts at UF Endoscopic Spine Surgery Program @ UF Pain Medicine

- Report of successful case series of facet cysts decompression by Pain Medicine Physicians at UF (1st by a Pain Physician)

(Brown H L, Kumar S (September 27, 2021) Transforaminal Endoscopic Decompression of Facet Cysts by Interventional Pain Physicians. Cureus 13(9): e18308. doi:10.7759/cureus.18308)

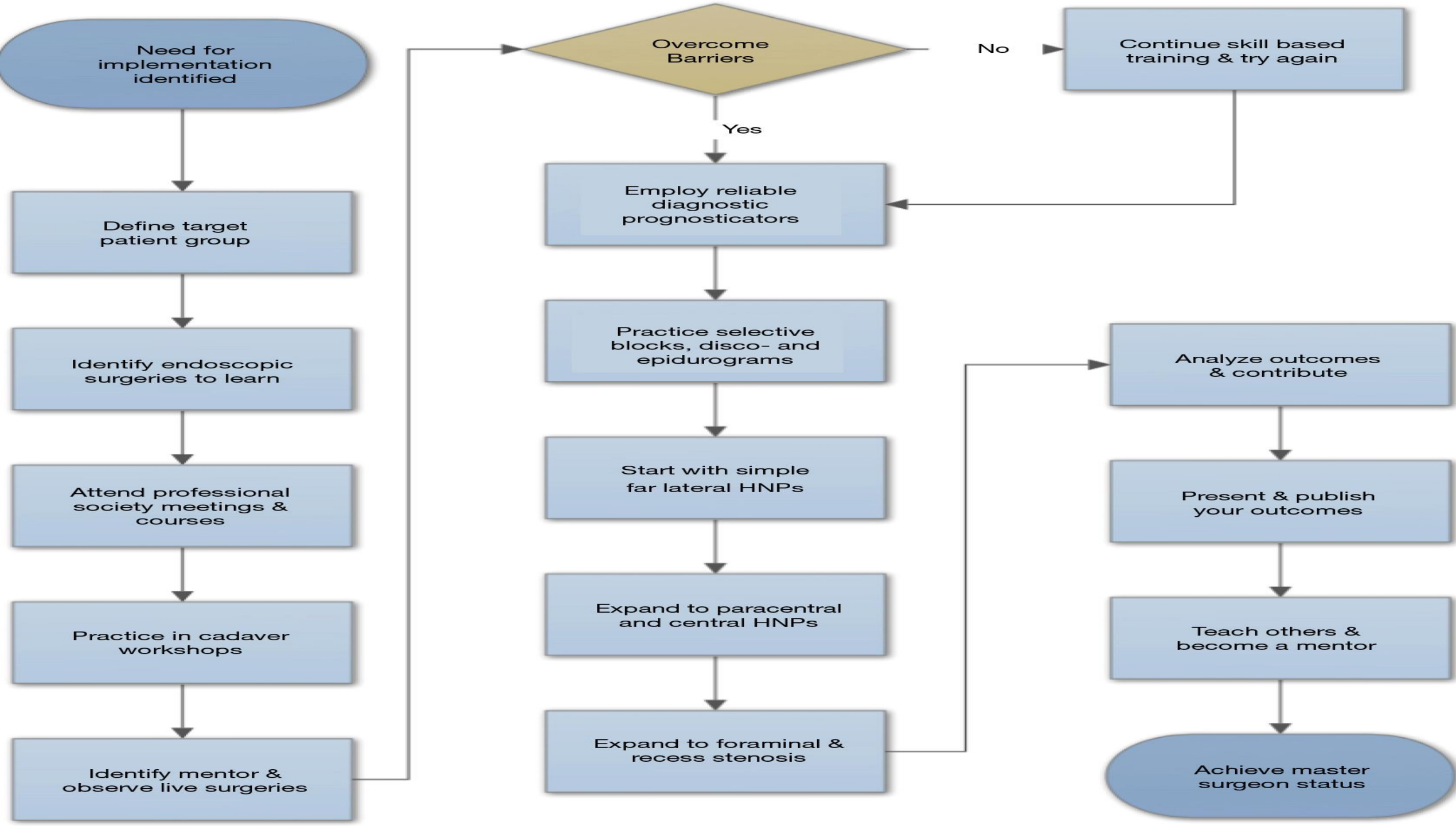
- Review of Pain outcomes after Endoscopic Surgery at an academic pain medicine program (1st by Pain Physicians)

(Panjeton G D, Brown H L, Searcy S, et al. (October 29, 2021) Endoscopic Spinal Decompression: A Retrospective Review of Pain Outcomes at an Academic Medical Center. Cureus 13(10): e19112. doi:10.7759/cureus.19112)

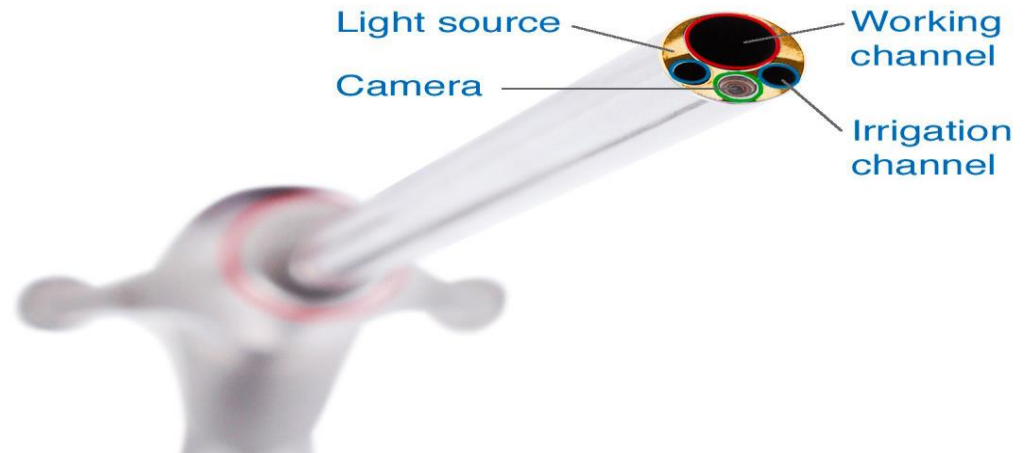
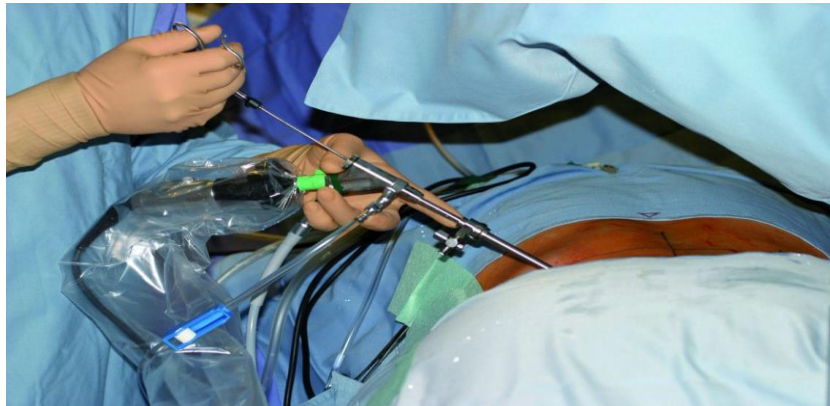
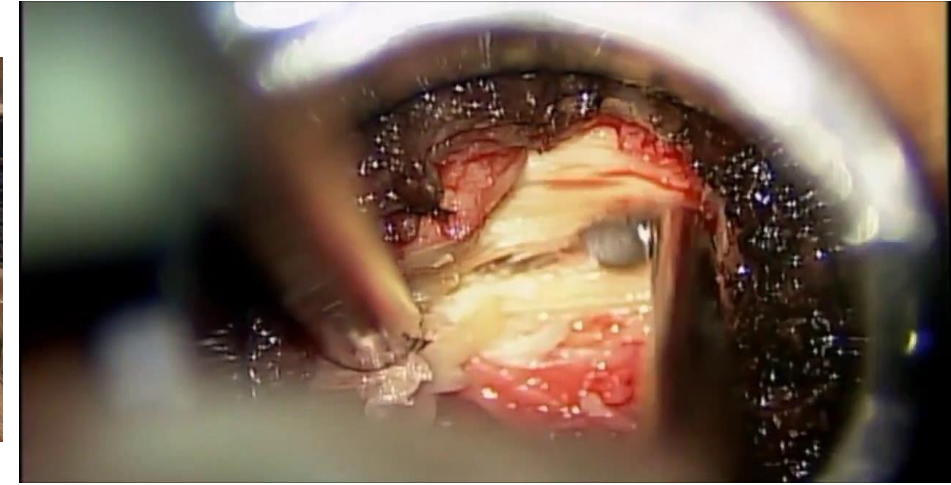
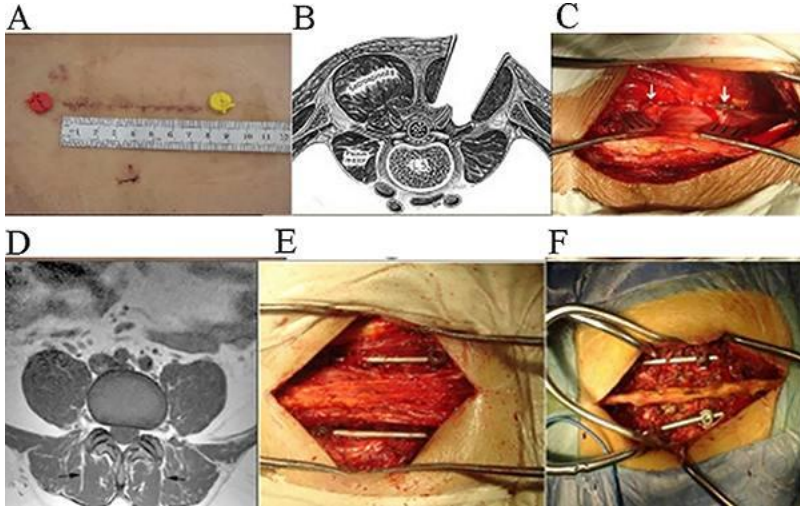
- First reported case of Endoscopic Resection of ossified Ligamentum Flavum by a Pain Physician & Decompression of severe spinal canal stenosis due to ossification

Sidronio T, Kumar S (October 25, 2021) Ossification of the Ligamentum Flavum of the Lumbar Spine. Cureus 13(10): e19023. doi:10.7759/cureus.19023

- First case series of Bertolotti's pseudo joint endoscopic resection with excellent outcomes by Pain Physician



Endoscopy: Least invasive approach & best visualization for spine pathologies (eye inside the spine)





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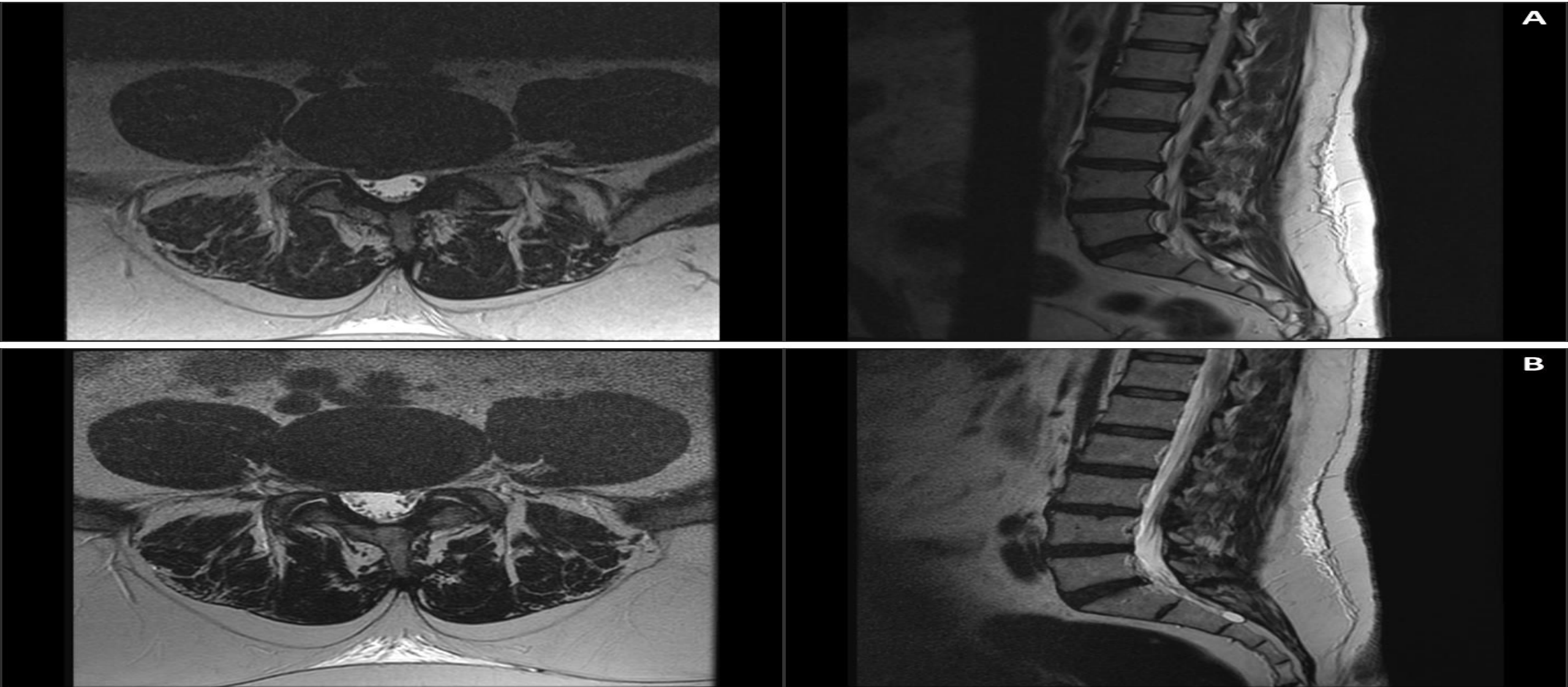
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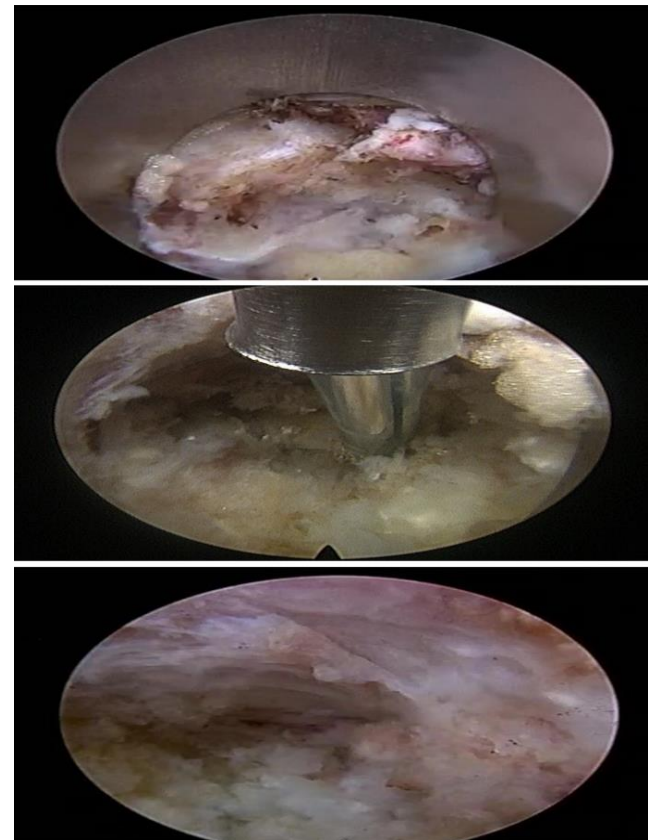
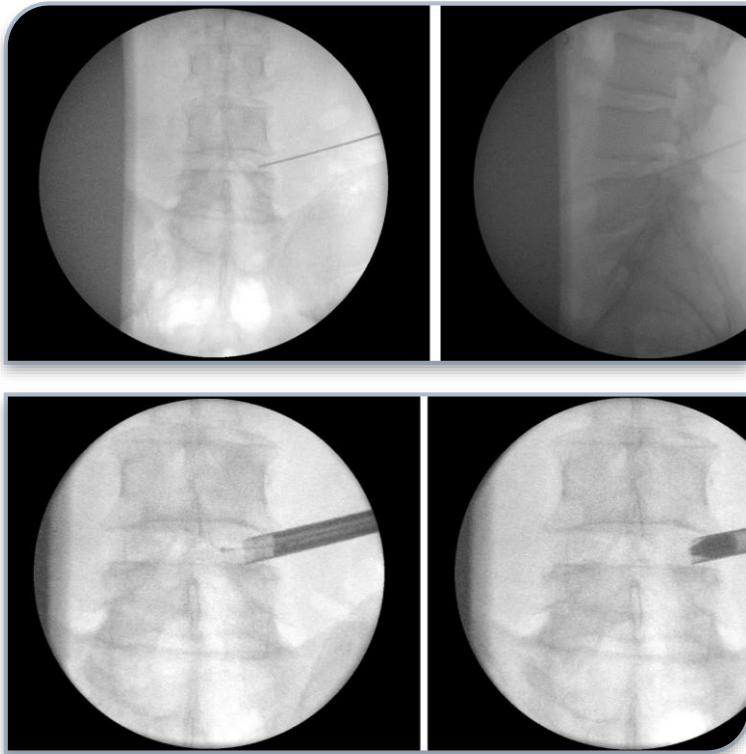
Starting out strategy for Pain Physicians

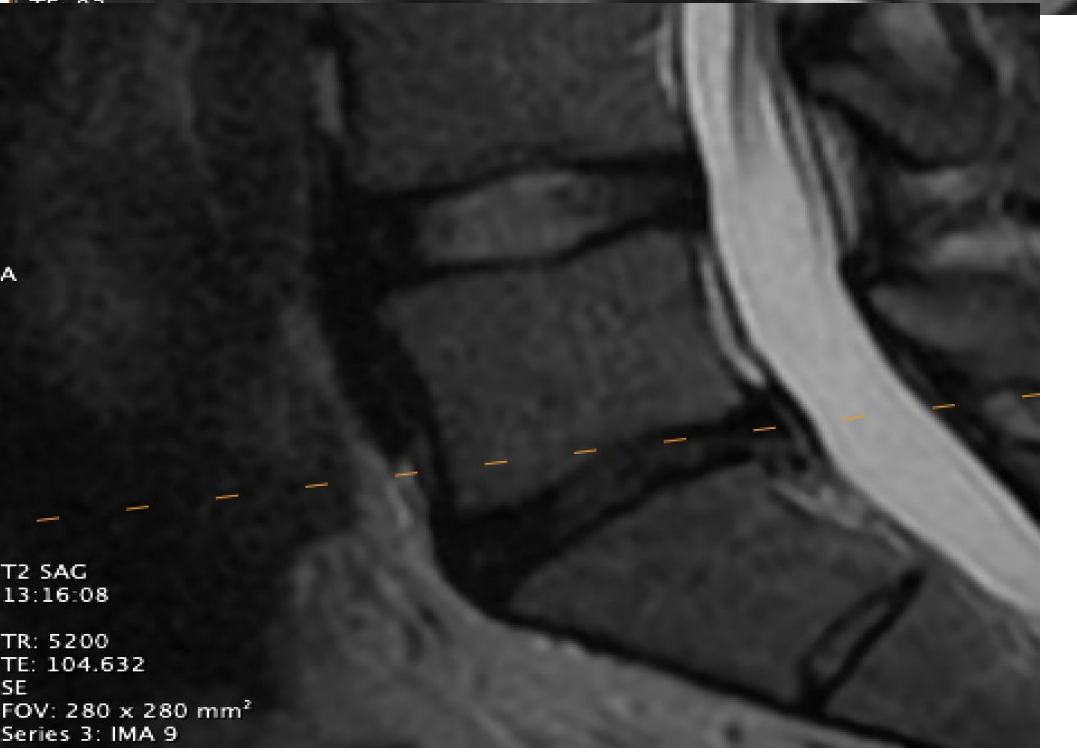
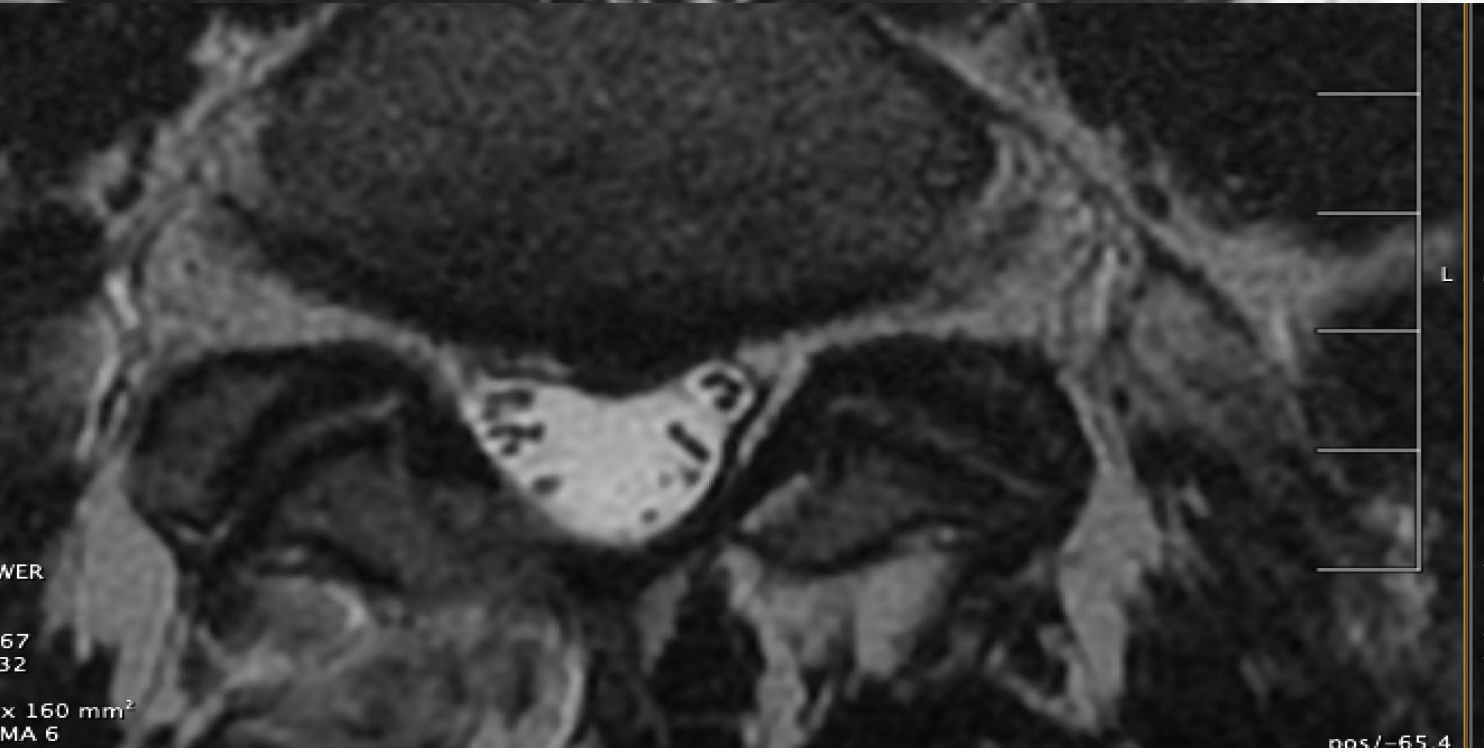
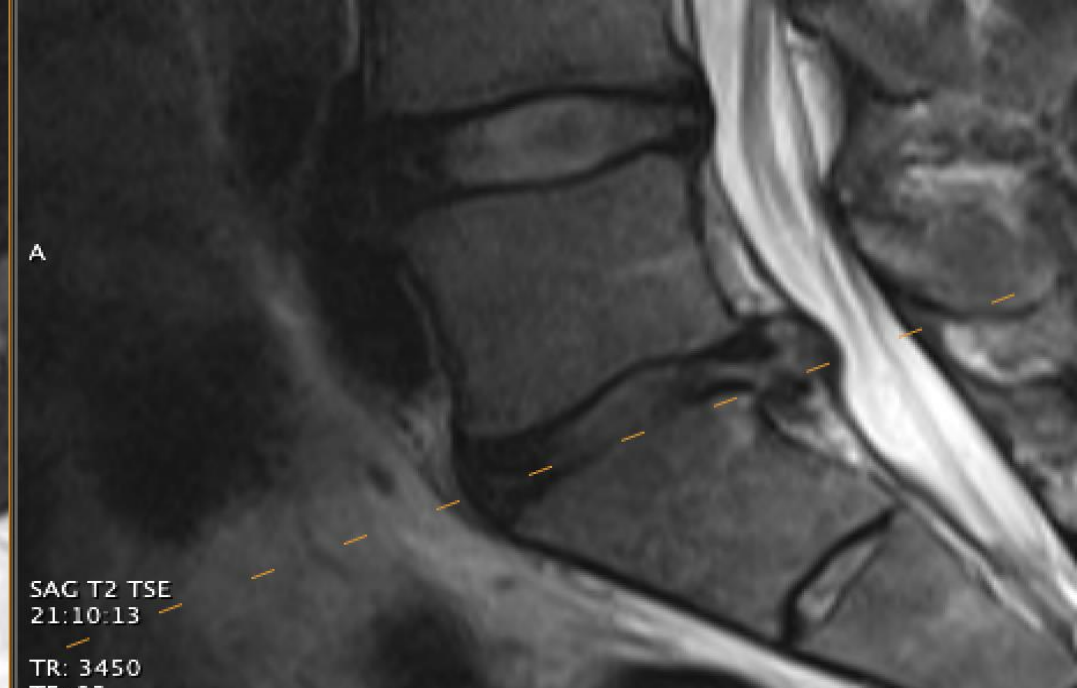
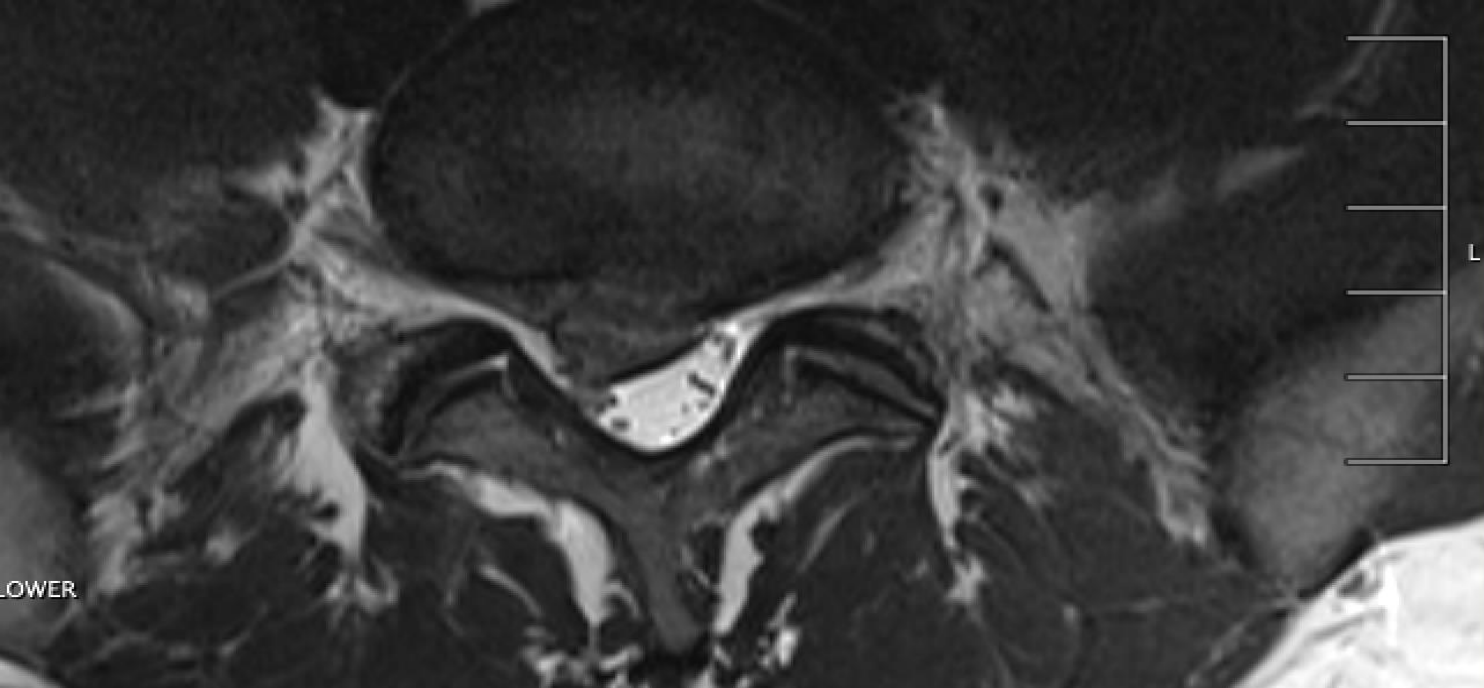
- 1) Reach out to NSGY & Orthospine in your institutions
- 2) Identify any barriers and strategies to overcome it
- 3) Shadow a mentor and observe live surgeries (remember it is a steep learning curve)
- 4) Attend meetings and cadaver workshops (NASS)
- 5) Get Credentialing and approval from malpractice insurance carrier
- 6) Start with Endoscopic Rhizotomy which is safe and you get used to holding the scope and using the instruments
- 7) Start with transforaminal Endoscopic Surgeries: Starting from foraminal herniation then paracentral herniation, central herniation
- 8) Interlaminar L5-S1 disc herniation x 10 then progress to higher levels as it involves bone resection.
- 9) Foraminal, lateral recess, central canal stenosis in that order
- 10) Thoracic stenosis decompression, posterior cervical decompression

A good starting case: right L4-5 paracentral herniation, transforaminal endo decompression

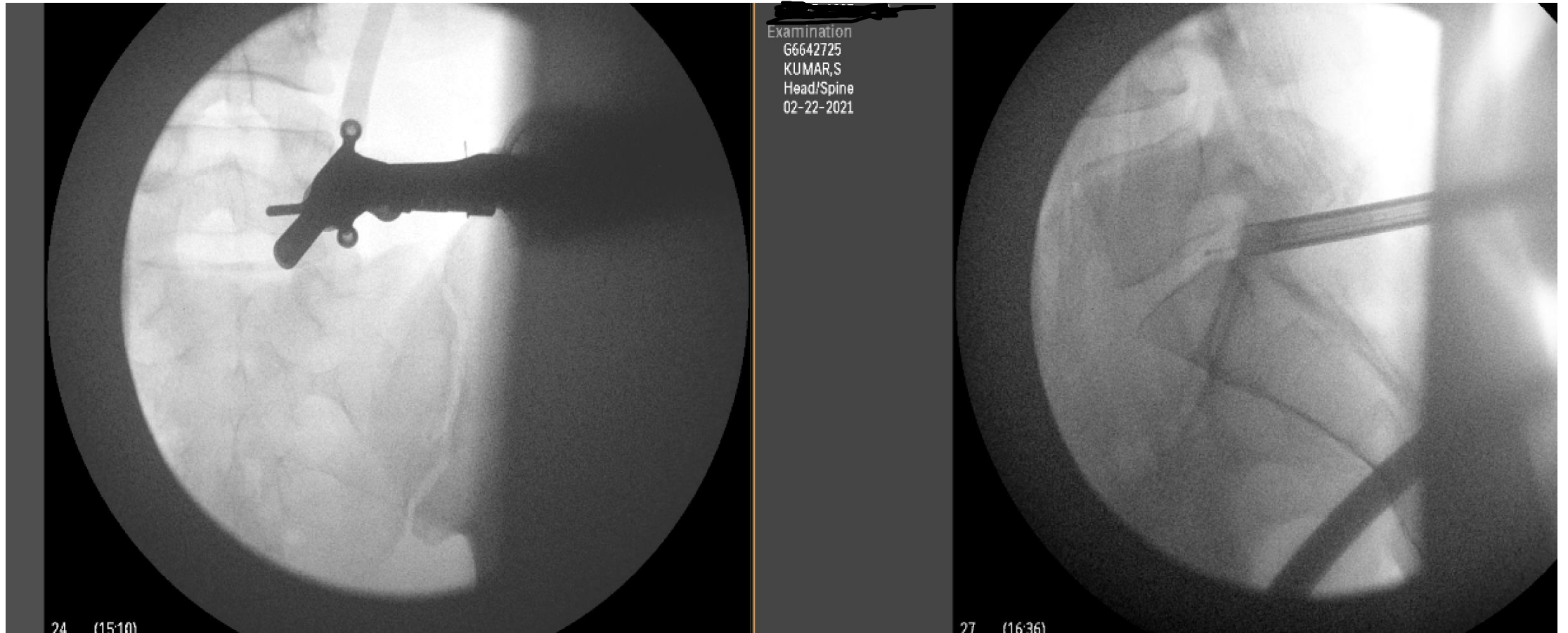


Fluoroscopic views and views from the scope of the same case

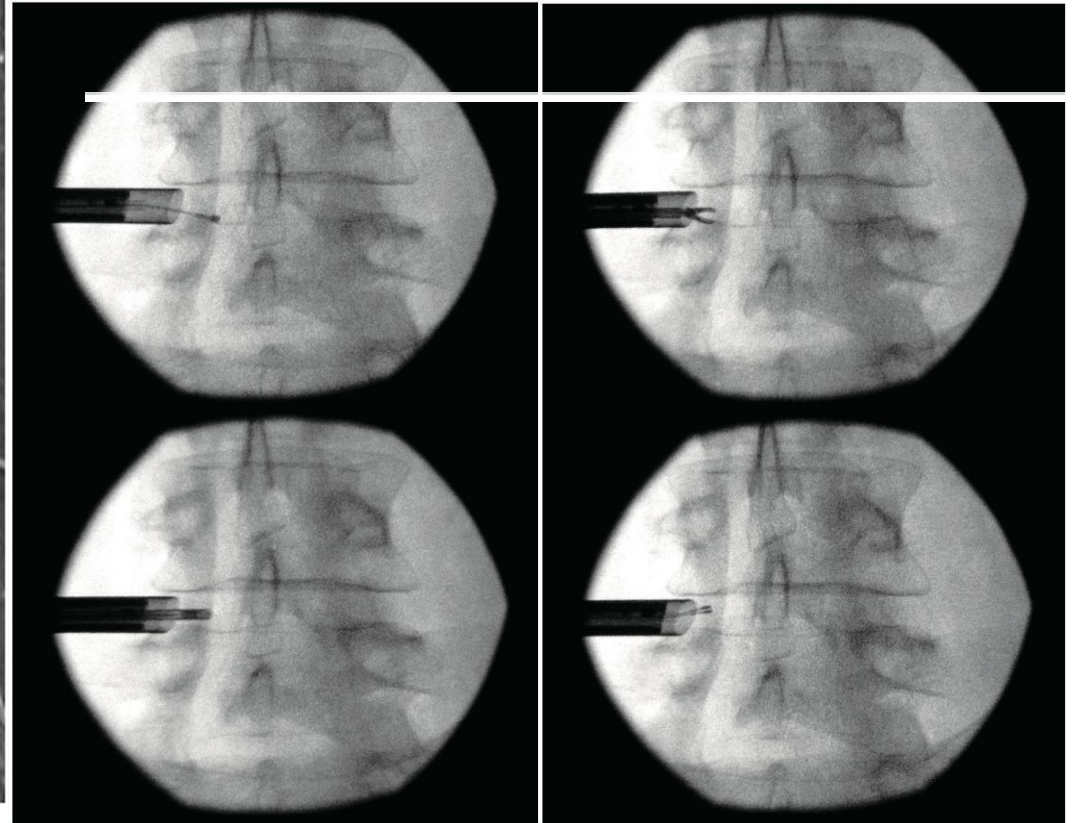
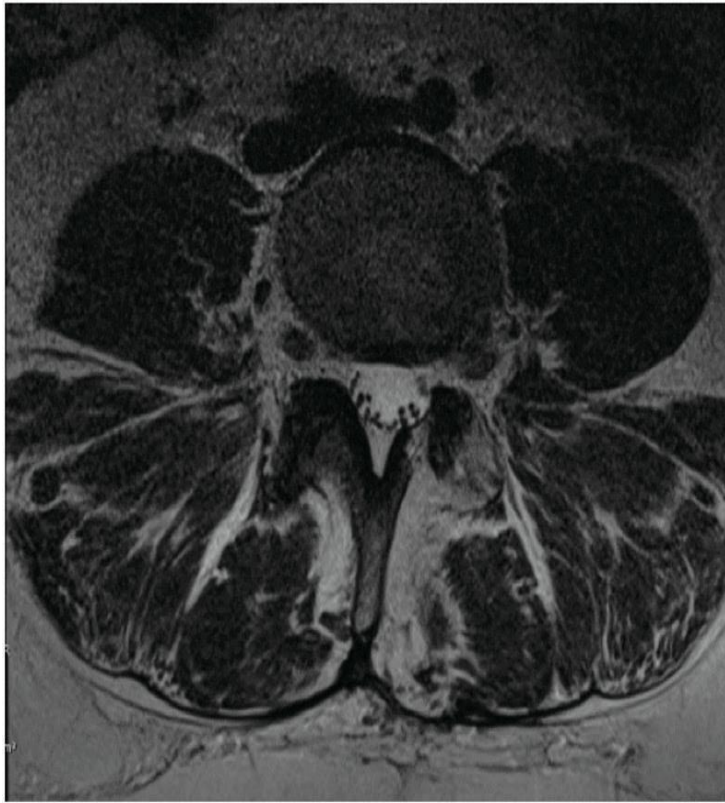




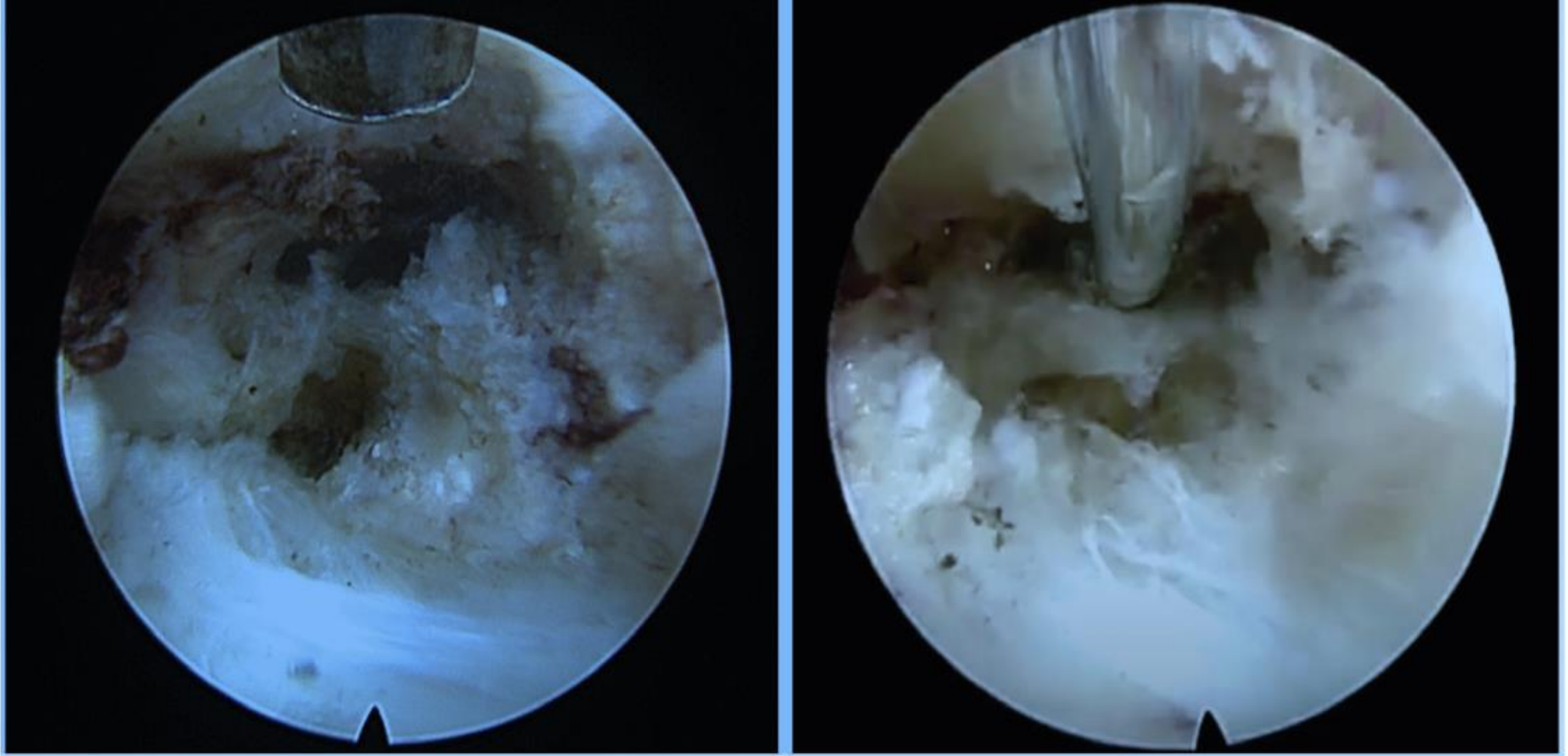
Fluoroscopic images from the previous surgery (Right L5-S1 interlaminar decompression)



Left L4-5 Transforaminal: Previous Hemi-Lami with epidural fibrosis encompassing L5 root causing foot drop

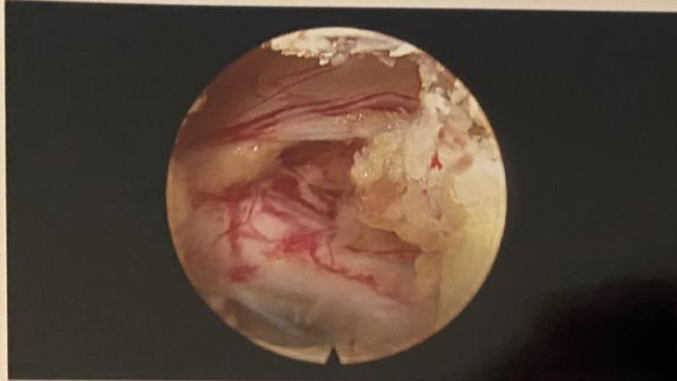


Endoscopic view of “Peeling the onion”: Close but not too close! L5 nerve root getting ‘cleaned & freed of surrounding scar’



Surgeon: Kumar, Dr

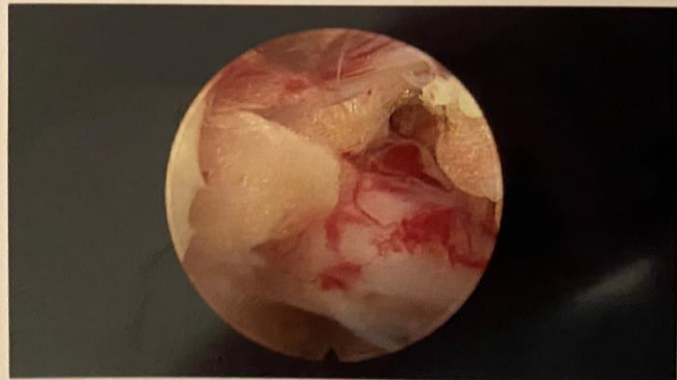
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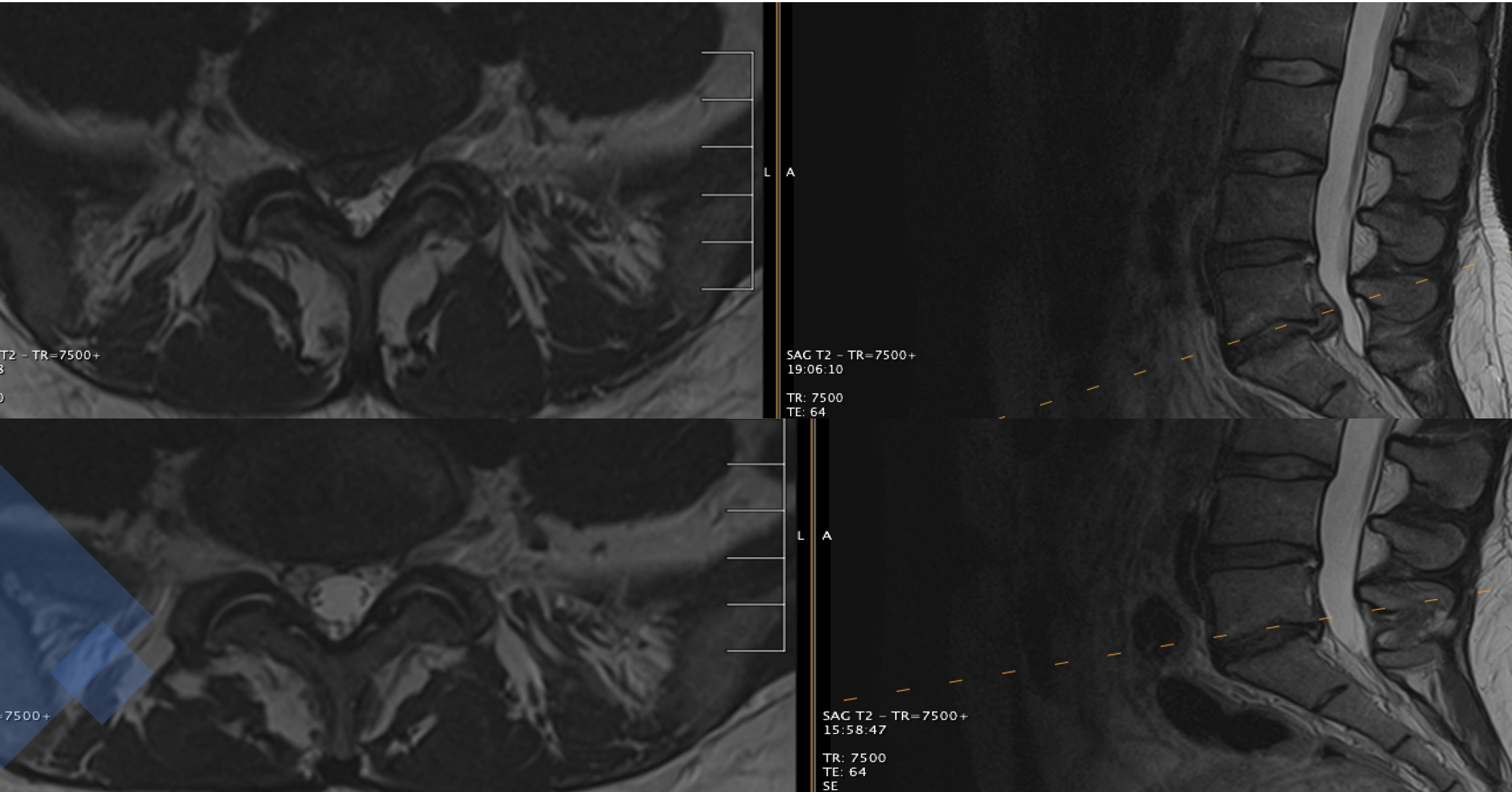
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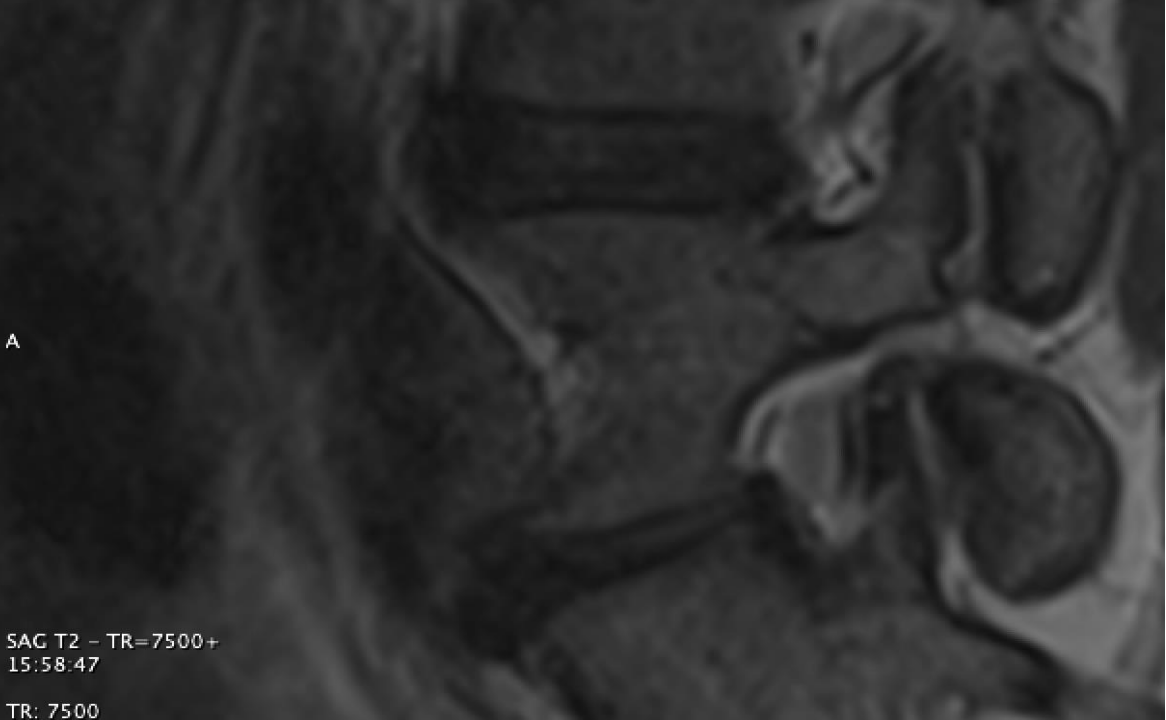
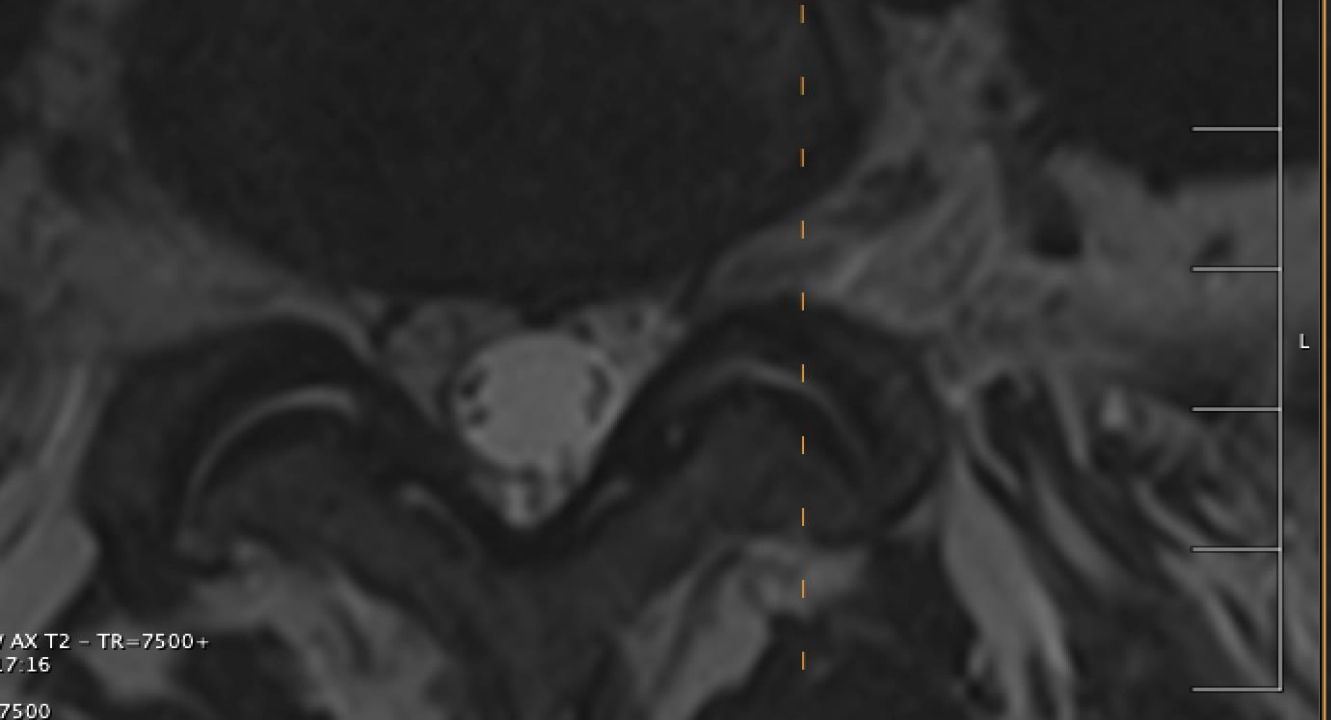
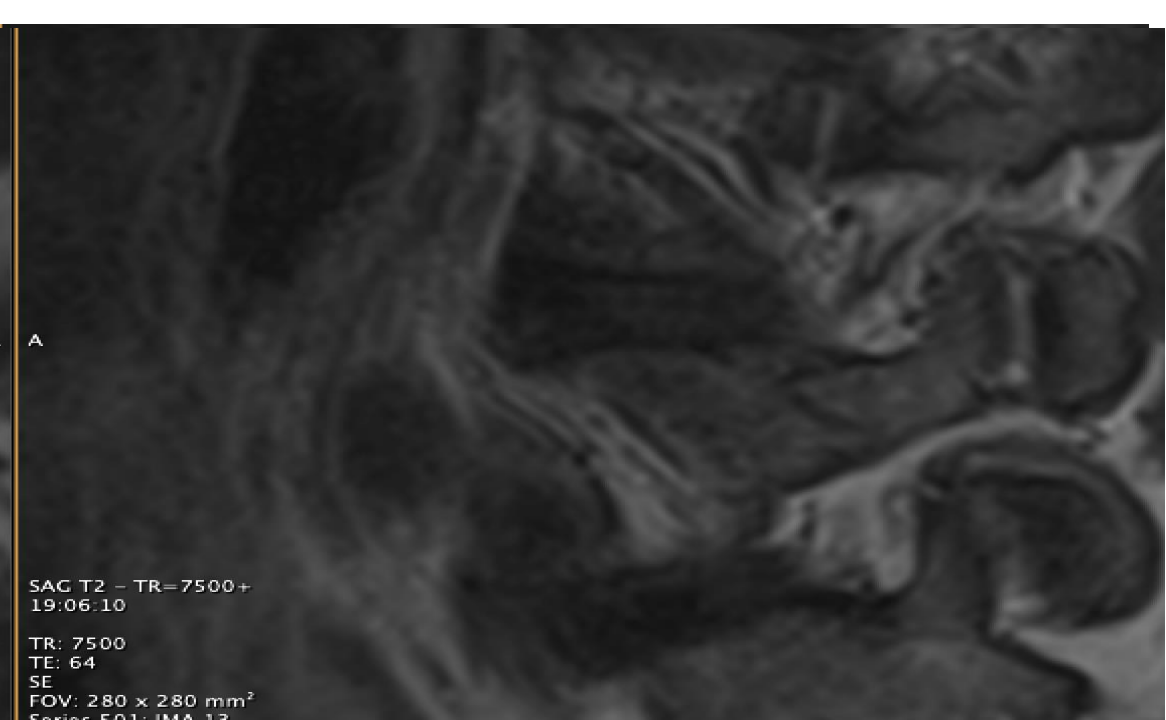
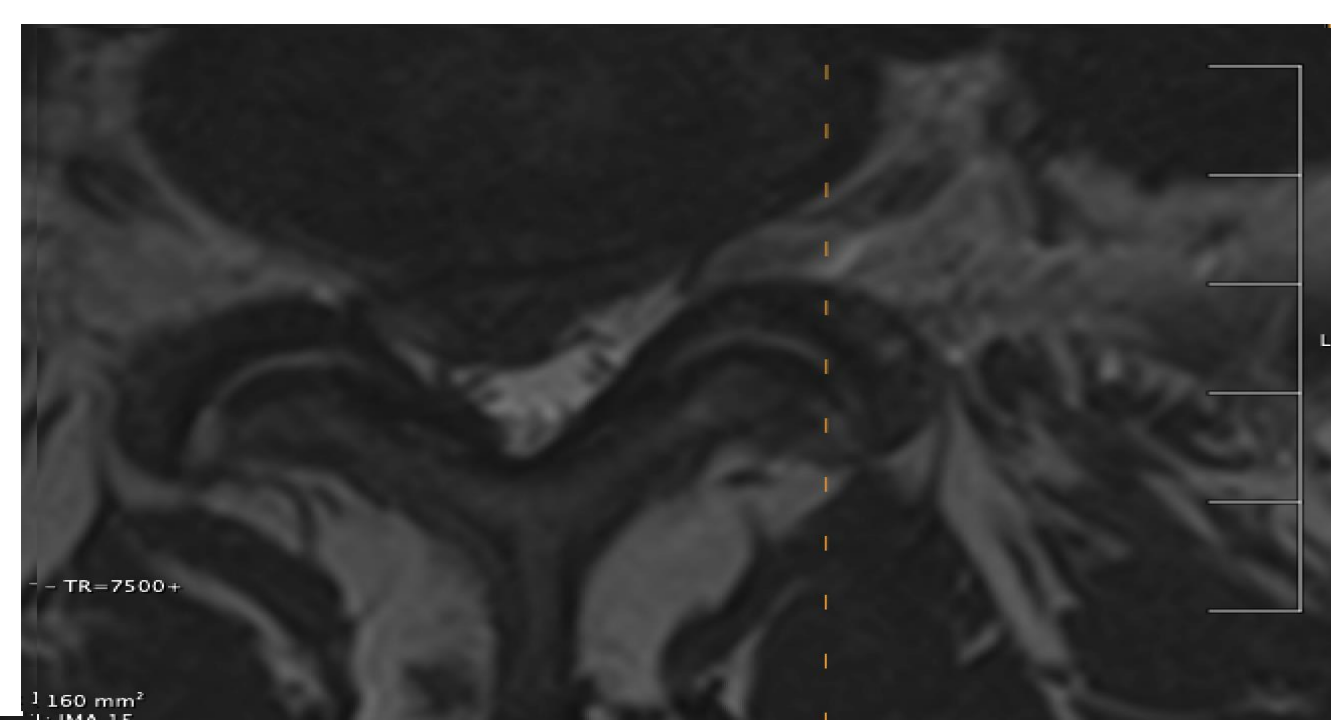


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Looking underneath the nerve & accessing the 'hidden zone': Very tough to achieve by traditional spine surgeries

Look Closely at the MRI Images: You might save someone from a major injury

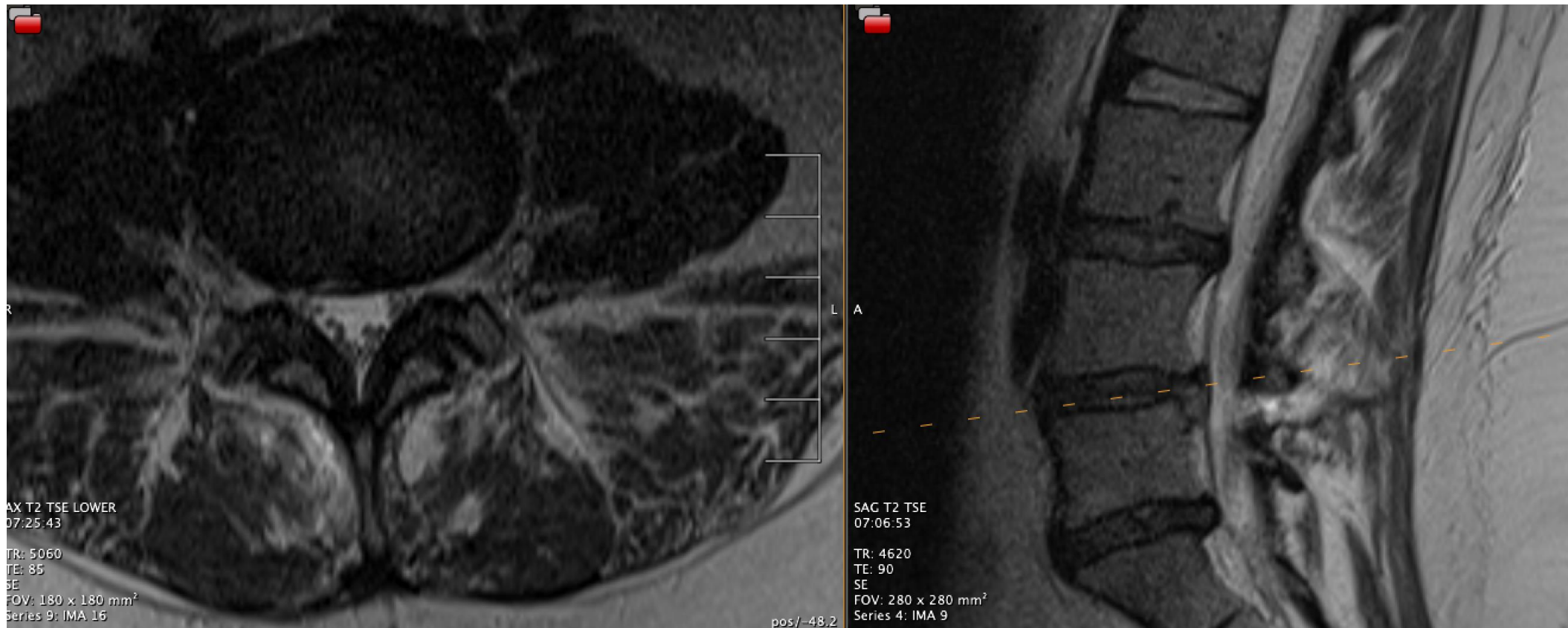




Large central disc herniation at L4-5 causing severe stenosis (Preop)

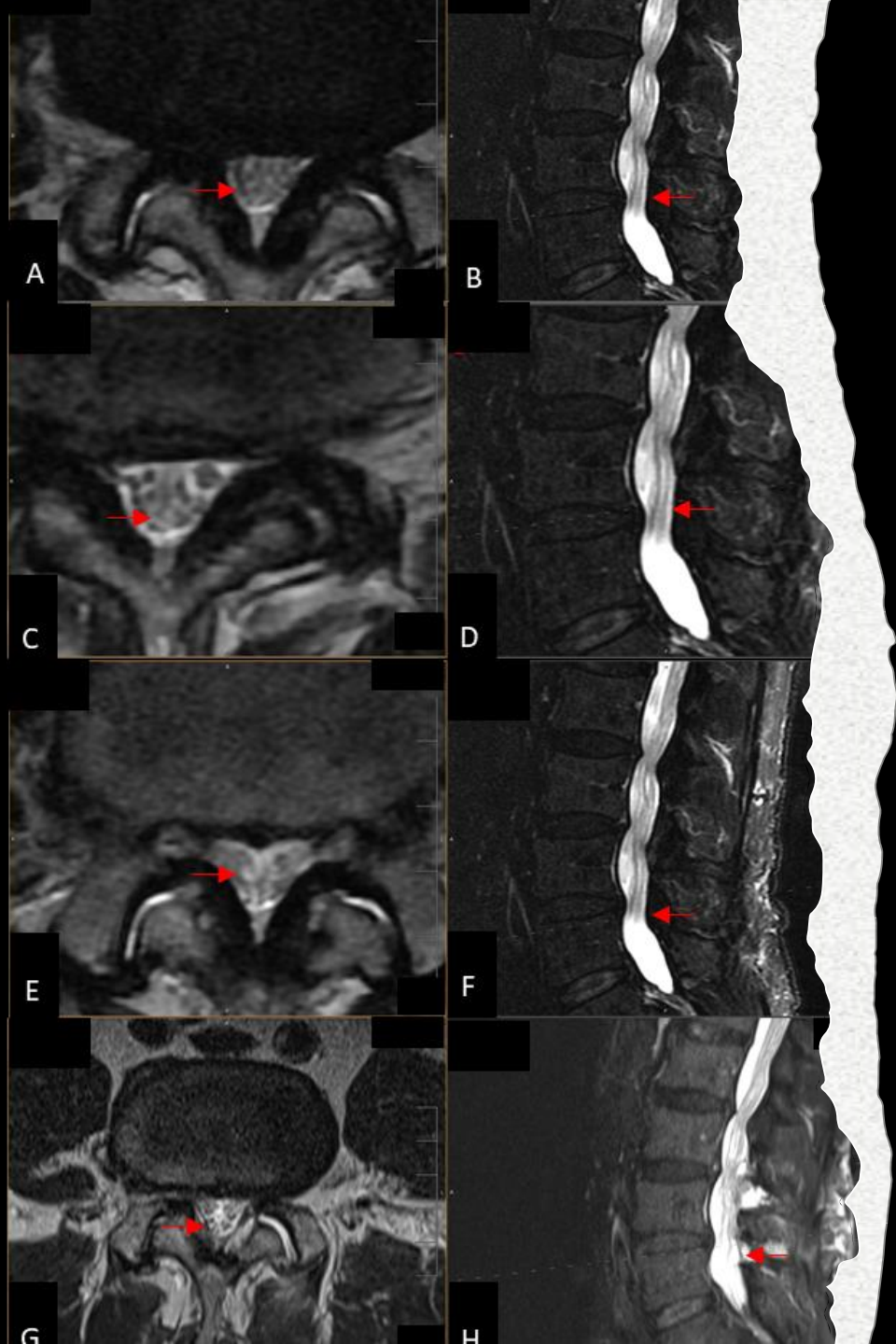


After L4-5 interlaminar Endoscopic Decompression of the herniated disc



Severe Stenosis in elderly

- Endoscopic Decompression is a safe outpatient surgical option
- Multilevel surgery can be done in the same setting
- ABCDEF preop images showing edema of the nerve roots above stenosis
- G & H postop images after 2 level endoscopic decompression with resolution of perineural edema



Change your mindset!

- CRPS is a diagnosis of exclusion and several supposed CRPS patients' have an ongoing irritation/compression of spinal nerve root/s which can be diagnosed by looking closely at MRI mages and is potentially curable
- Constant reinforcements by SCS reps doesn't let us think outside the 'box'
- Worldwide: Endoscopic Spine Surgery is the preferred form of treatment for spine pathologies (Simple Spine)
- It has been a slow adoption in US due to focus on 'high dollar value' surgeries and insurance limitations (Only CPT 62380 since 2016)
- Lately our spine surgeons have realized it's value and are aggressively promoting it. In 2021 AMA added to CPT 63030 - the words Endoscopic assisted

Benefits of Endoscopic Spine over traditional surgeries & Patient selection

- With preservation of bones, muscles and other soft tissues, spinal architecture is almost unchanged after spine endoscopy
- There is virtually none or very minimal scar tissue and recovery is very quick. Outpatient and some can be done under local/MAC
- It doesn't burn any bridges for traditional surgery
- Even old herniations with adhesions and scarring around them could be better managed and chance of Dural tears much less in good hands
- Dogma of "all spine surgeries are bad" doesn't hold true with endoscopy so earlier interventions prevents chronic pain & future degeneration/stenosis
- Endoscopy is not for unstable spine or complex spine so choose appropriately
- New Biportal approach & Endolif - Endoscopic assisted Lumbar Fusion is here which has expanded the horizons



Thank You For
Your Attention

Any questions please feel free to reach out to:

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