

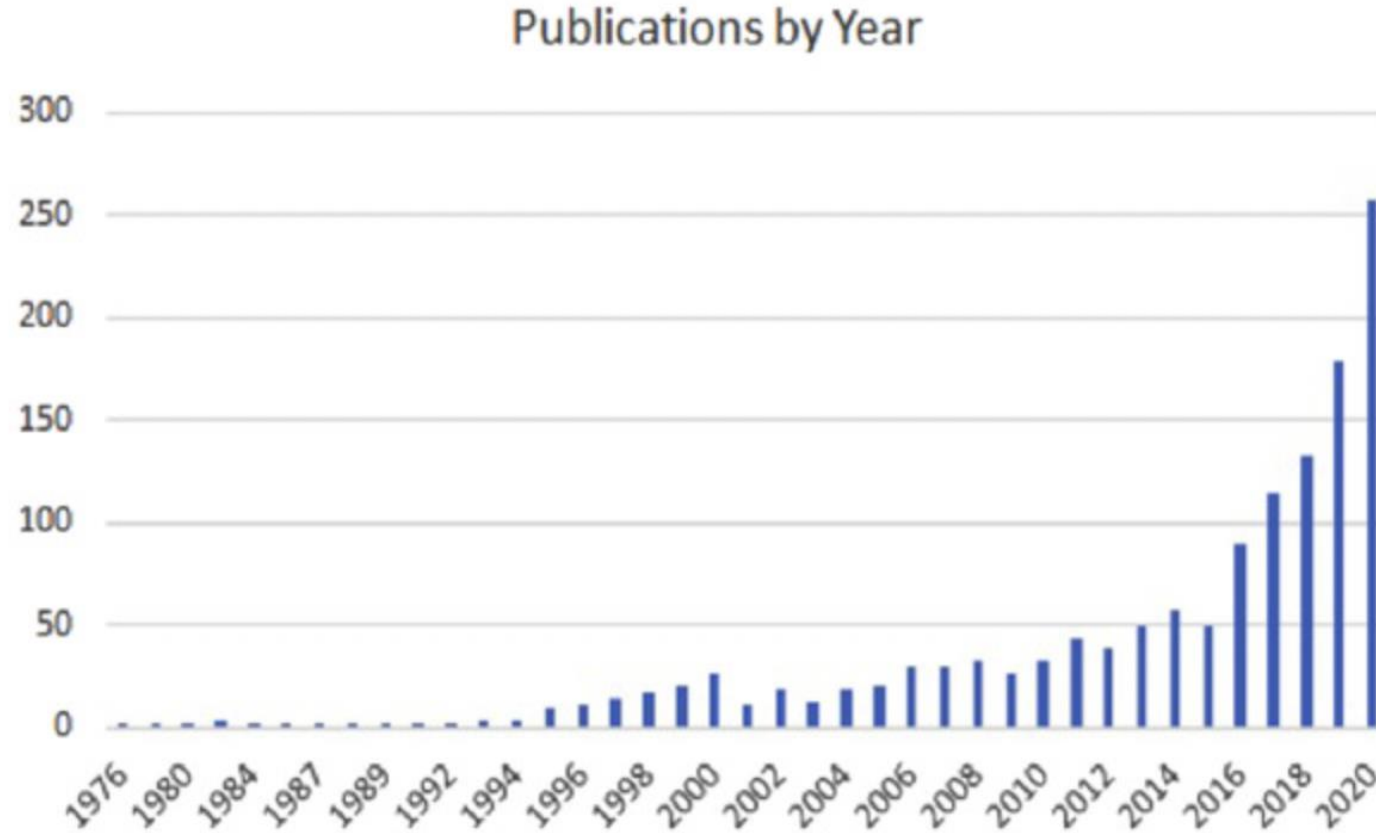
**Endoscopic Spine
Surgery:**
*The key(hole) to the
Future*

Dr Chris Tsimiklis
(Neurosurgeon)

What?

- Endoscopic spine surgery (ESS) is an emerging technique which is having a dramatic impact on the practice of spine surgery worldwide
- In Australia, interest is increasing as the advantages are being recognised and more spinal surgeons are adopting the technique

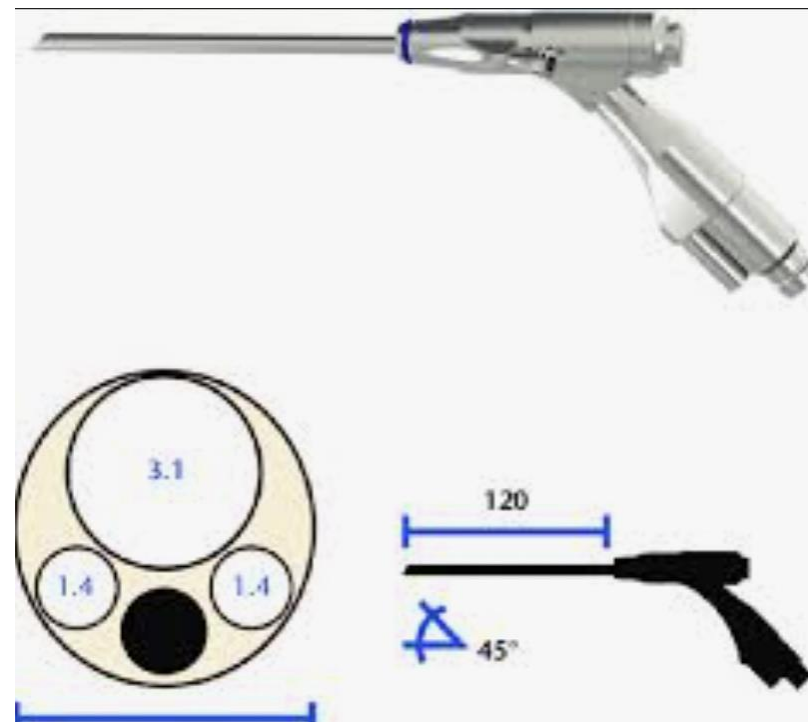
What?



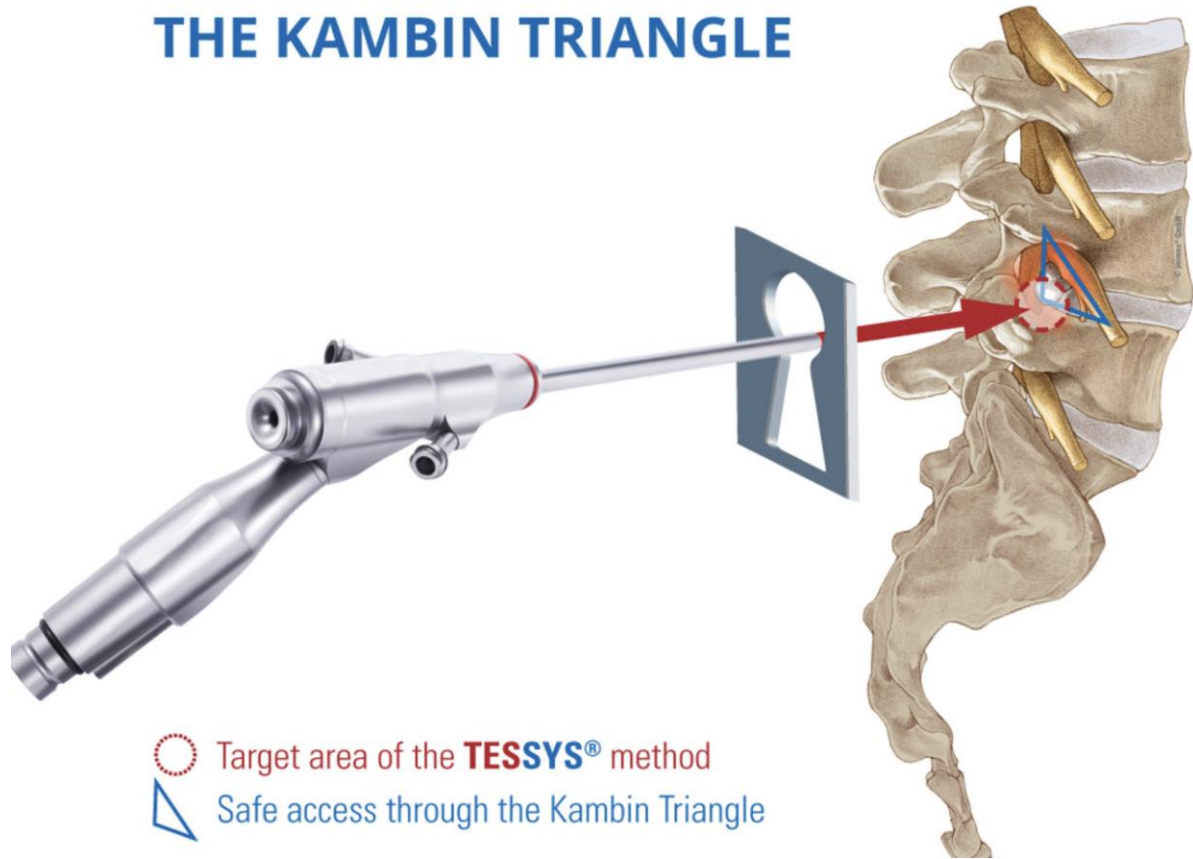
Publication trends in endoscopic spine surgery as queries on Pubmed.

What?

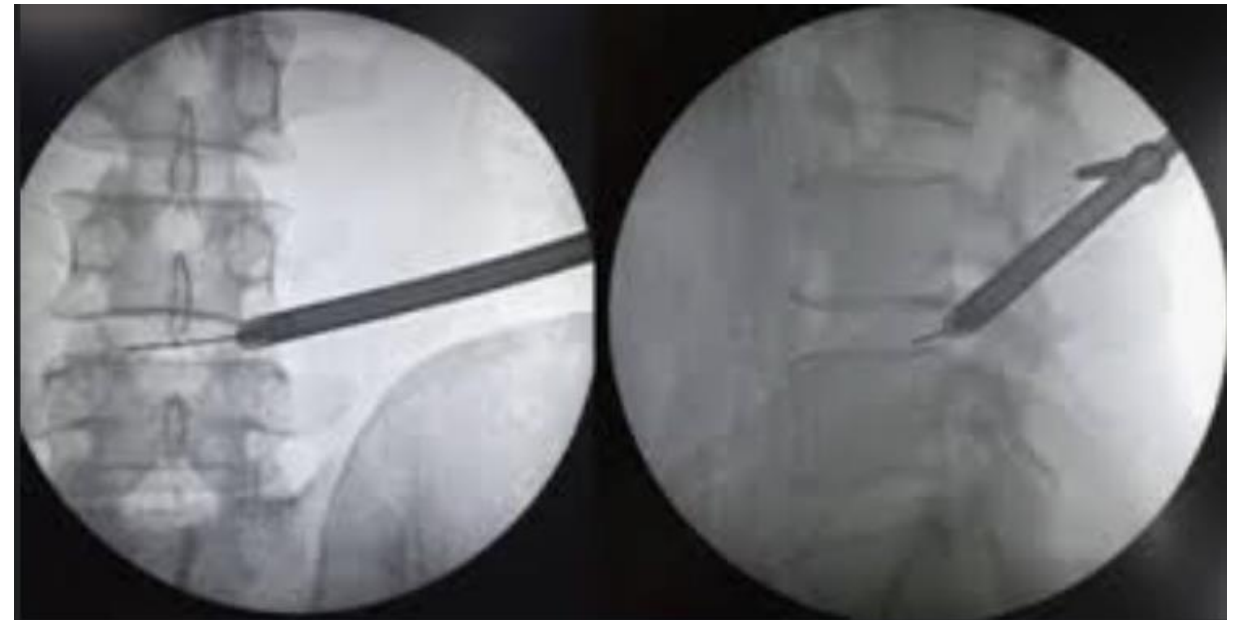
- ESS is an ultra-minimally invasive form of spine surgery, combining tiny incisions with high-definition endoscopic visualisation of the anatomy (including disc and neural structures)
- Encompasses discectomy, decompression/laminectomy and even fusion



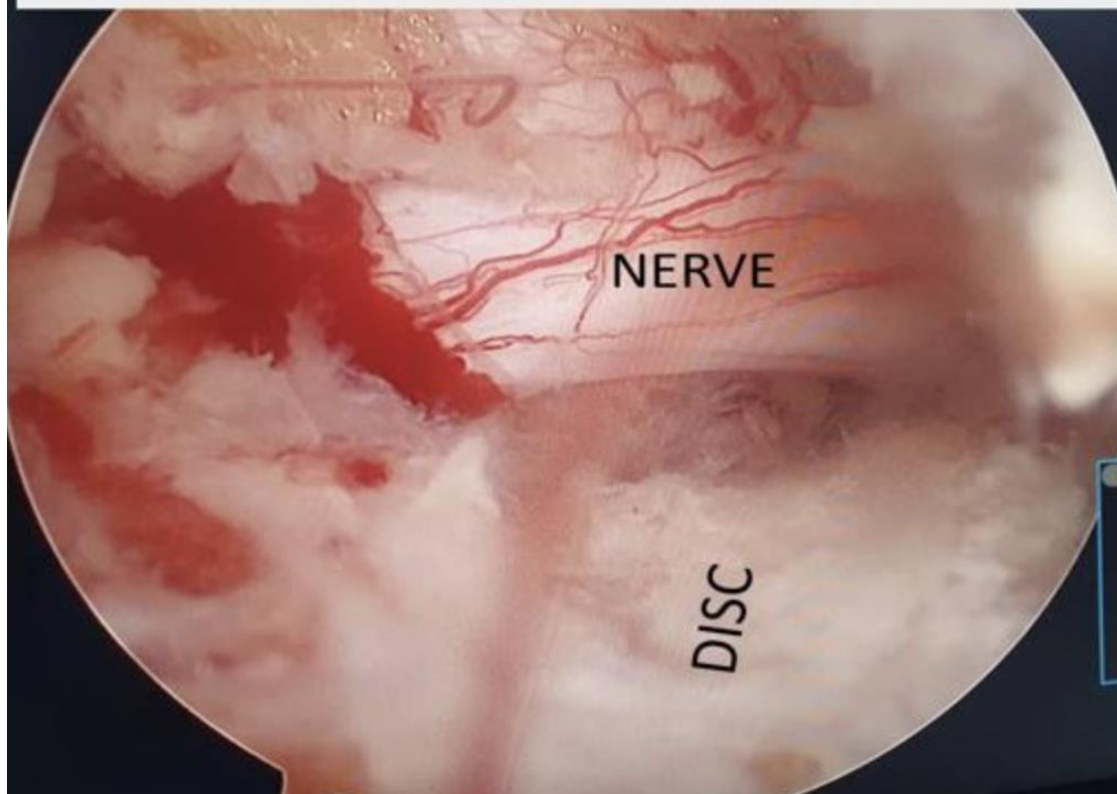
THE KAMBIN TRIANGLE



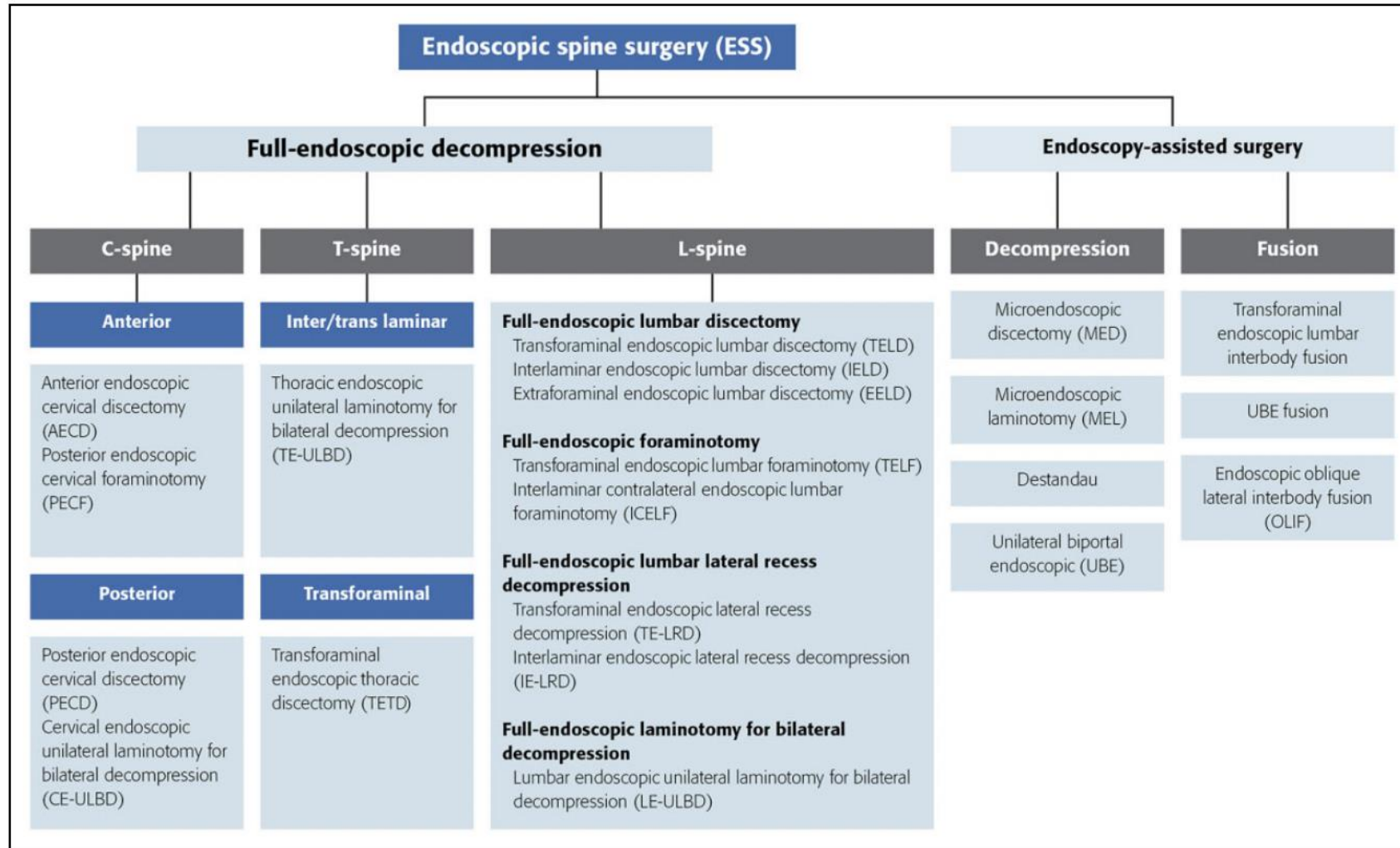
- Target area of the **TESSYS**® method
- △ Safe access through the Kambin Triangle



ENDOSCOPIC VIEW INSIDE THE SPINE



What?



What?

- Transforaminal endoscopic lumbar discectomy (TELD) – <https://www.youtube.com/watch?v=RK3v6DxoNnQ&t=7s>

Why?

- Benefits:
 - Less trauma to the muscles and soft tissue on approaching the pathology
 - Less post-operative pain related to the procedure itself
 - Quicker recovery and return to activities (eg. driving and work)
 - Shorter hospital stay (day cases possible)
 - Reduced surgical risks – dural tear/CSF leak, infection, bleeding
 - Tiny incision (8 mm)
 - Equally as effective as open from pain resolution perspective
 - Recurrence rate of disc herniation no worse cf. open
 - Can be done under LA*

Why?

- Limitations:

- Cannot replace traditional spine surgery in the setting of severe spinal deformity, mechanical instability and trauma
- Learning curve for the surgeon – is a formal Fellowship necessary?
- Limited data on long term outcomes

Full endoscopic versus open discectomy for sciatica: randomised controlled non-inferiority trial

Pravesh S Gadjradj,^{1,2} Sidney M Rubinstein,³ Wilco C Peul,⁴ Paul R Depauw,⁵ Carmen L Vleggeert-Lankamp,⁴ Ankie Seiger,³ Job LC van Susante,⁶ Michiel R de Boer,^{3,7} Maurits W van Tulder,³ Biswadji S Harhangi¹

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<http://dx.doi.org/10.1136/bmj-2021-065846>

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Volume 12, Issue 5, June 2022, Pages 1012-1026
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<https://doi.org/10.1177/21925682211020696>

Review Article

Comparison of Endoscopic Discectomy Versus Non-Endoscopic Discectomy for Symptomatic Lumbar Disc Herniation: A Systematic Review and Meta-Analysis

Wei-Shang Li, MD¹, Qi Yan, MD², and Lin Cong, PhD ¹

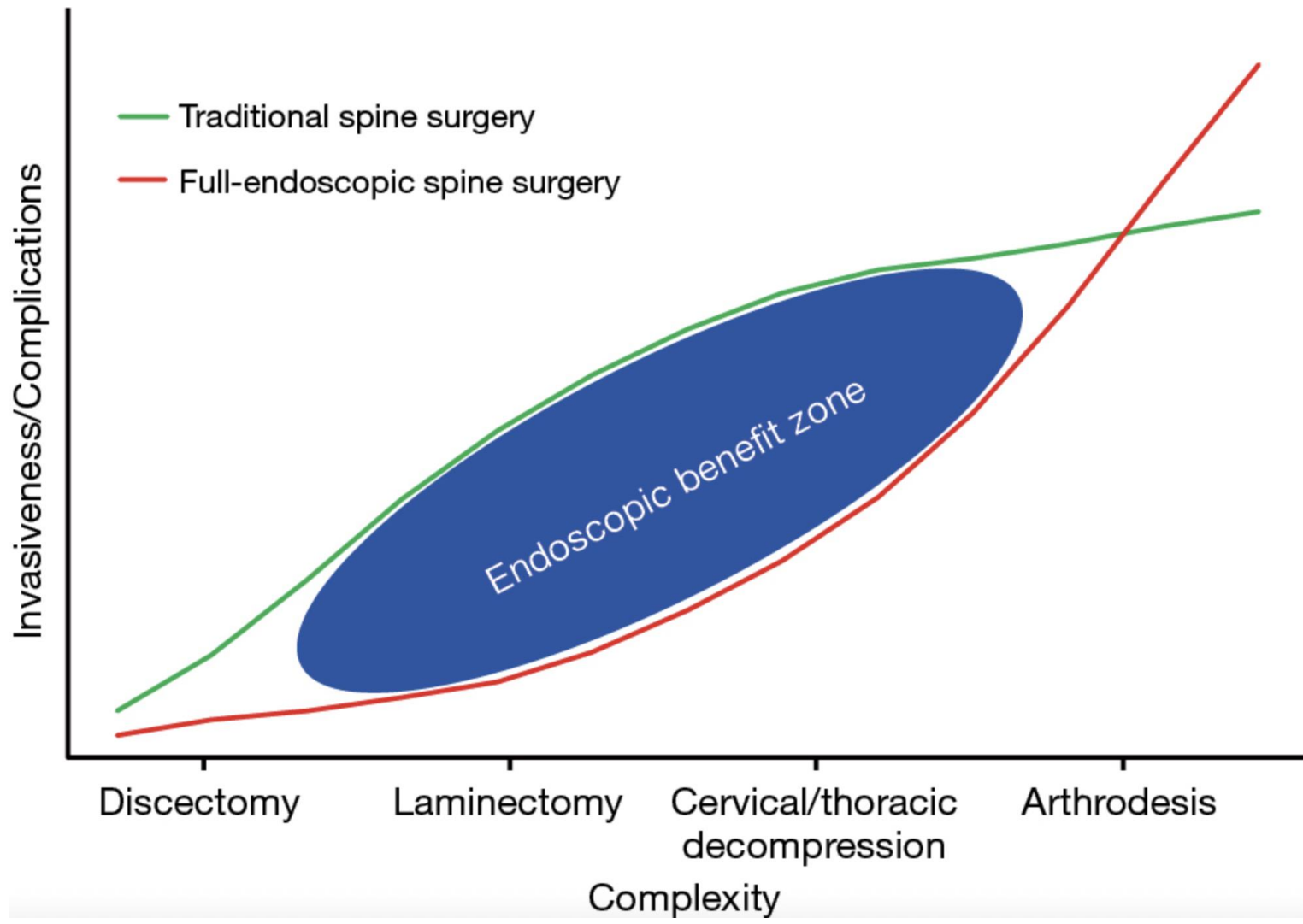
Evaluation of Endoscopic Versus Open Lumbar Discectomy: A Multi-Center Retrospective Review Utilizing the American College of Surgeons' National Surgical Quality Improvement Program (ACS-NSQIP) Database

Paul S. Page , Simon G. Ammanuel, Darnell T. Josiah

Published: May 22, 2022 ([see history](#))

DOI: 10.7759/cureus.25202

Cite this article as: Page P S, Ammanuel S G, Josiah D T (May 22, 2022) Evaluation of Endoscopic Versus Open Lumbar Discectomy: A Multi-Center Retrospective Review Utilizing the American College of Surgeons' National Surgical Quality Improvement Program (ACS-NSQIP) Database. *Cureus* 14(5): e25202. doi:10.7759/cureus.25202



How?



How?

- My education journey:

- Online ESPINEA webinars (multiple)

- Level 1-2 ESPINEA cadaver lab (June 2022 – Tonsley Innovation District, Adelaide*)

- Cadaver lab (July 2022 – Brisbane⁺)

- Level 1-2 ESPINEA cadaver lab (July 2022 – Singapore*#)

- Level 3-4 ESPINEA cadaver lab (July 2022 – Singapore*#)

- ESPINEA APAC community meeting (July 2022 – Singapore*#)

*Supported by LifeHealthcare/Joimax

+Supported by Matrix/Elliquence

#Supported by the NRF

How?

-Visitation to live cases with Dr Yingda Li (September 2022 – Norwest Private Hospital, Sydney*)

-Cadaver lab (October 2022 – New York^{+#})

-Level 1-2 ESPINEA cadaver lab (October 2022 – Karlsruhe, Germany*#)

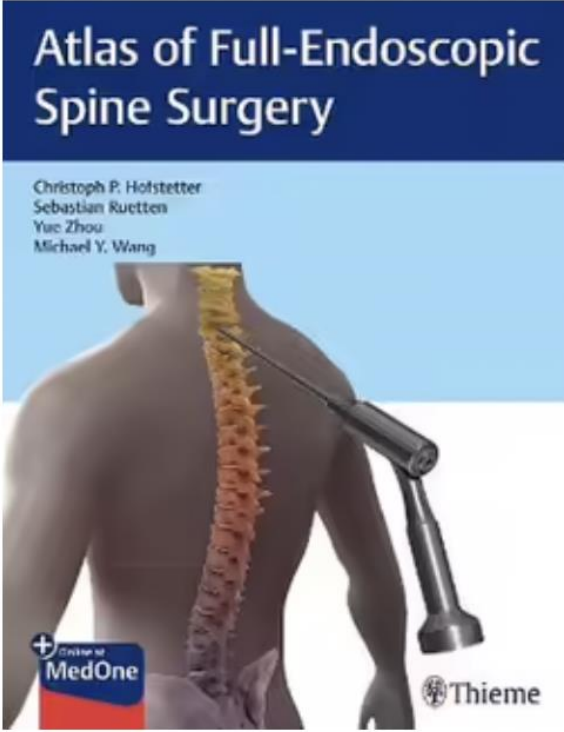
-Level 3-4 ESPINEA cadaver lab (October 2022 – Karlsruhe, Germany*#)

*Supported by LifeHealthcare/Joimax

+Supported by Matrix/Eliquence

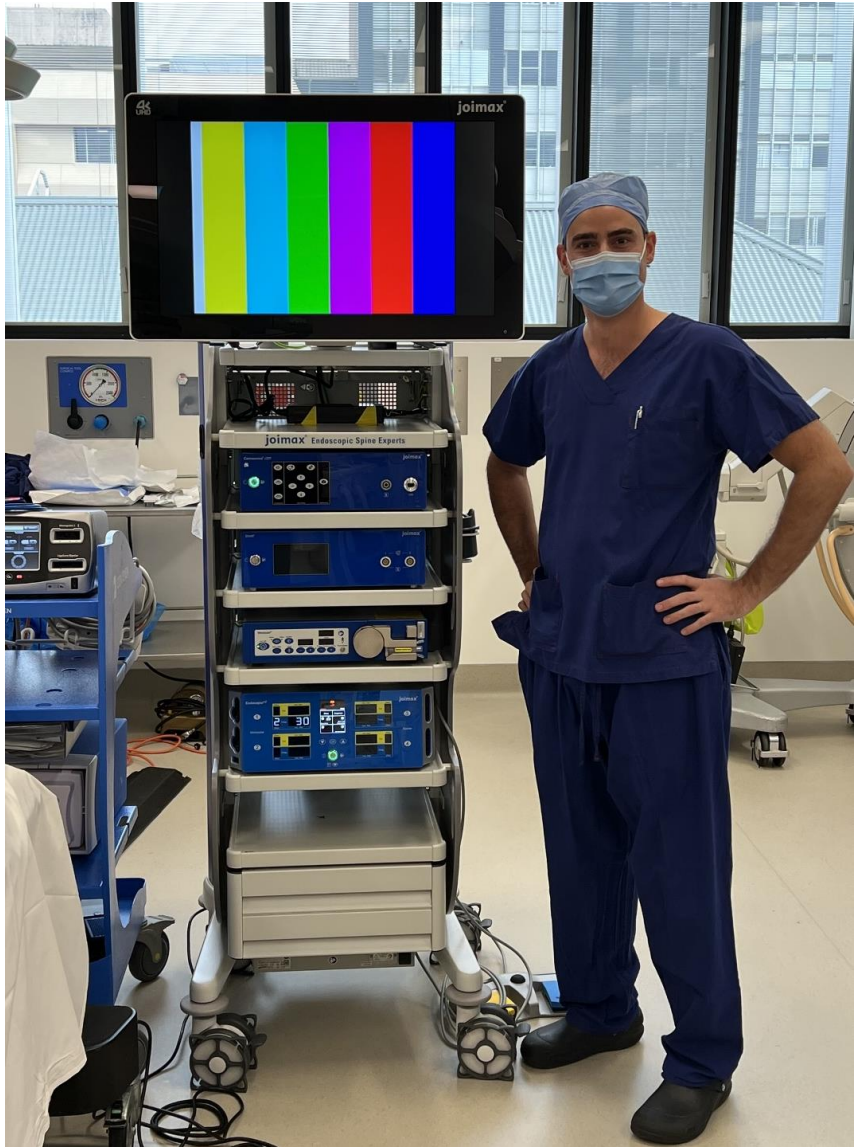
#Supported by the NRF





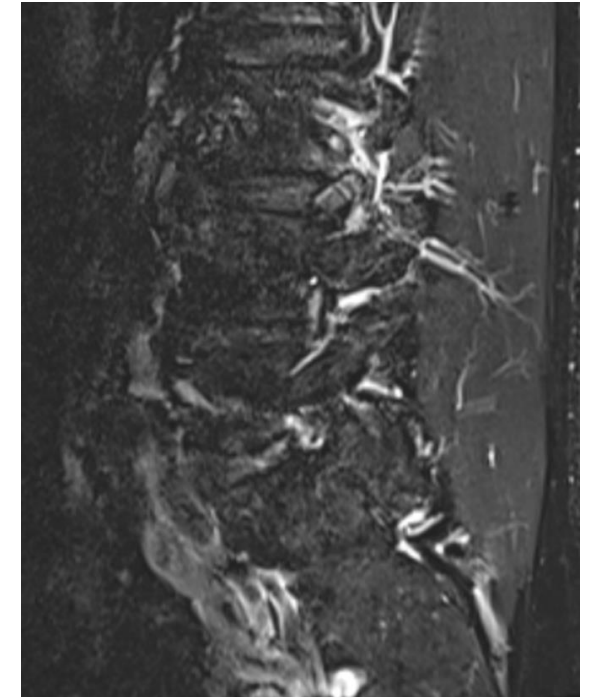
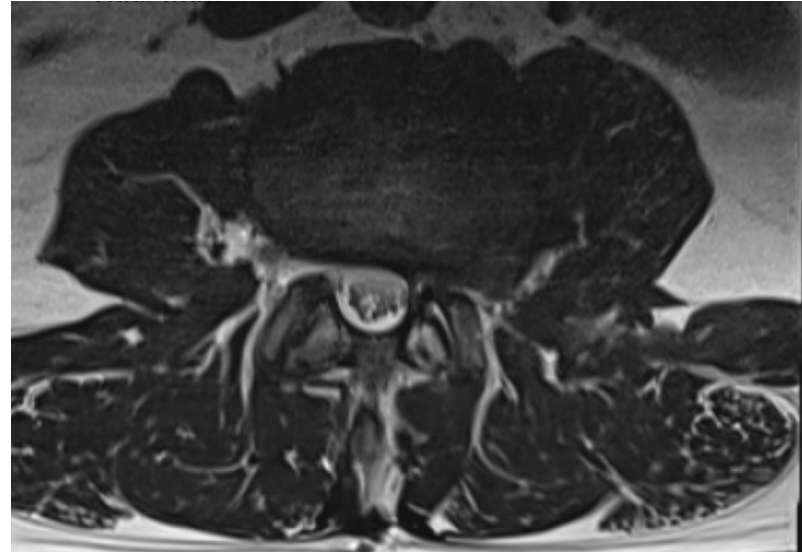
When?

- First cases in Adelaide in December 2022 at The Memorial Hospital
- 10 cases as of 17/3/23*



Case examples

- 64 yo male with severe L radicular leg pain
- Far-lateral L L3/4 disc herniation with compression of exiting L L3 nerve root
- Failed conservative measures; good but transient response to L L3/4 foraminal cortisone injection
- **Procedure:** L L3/4 extraforaminal endoscopic lumbar discectomy (EELD)





Case examples

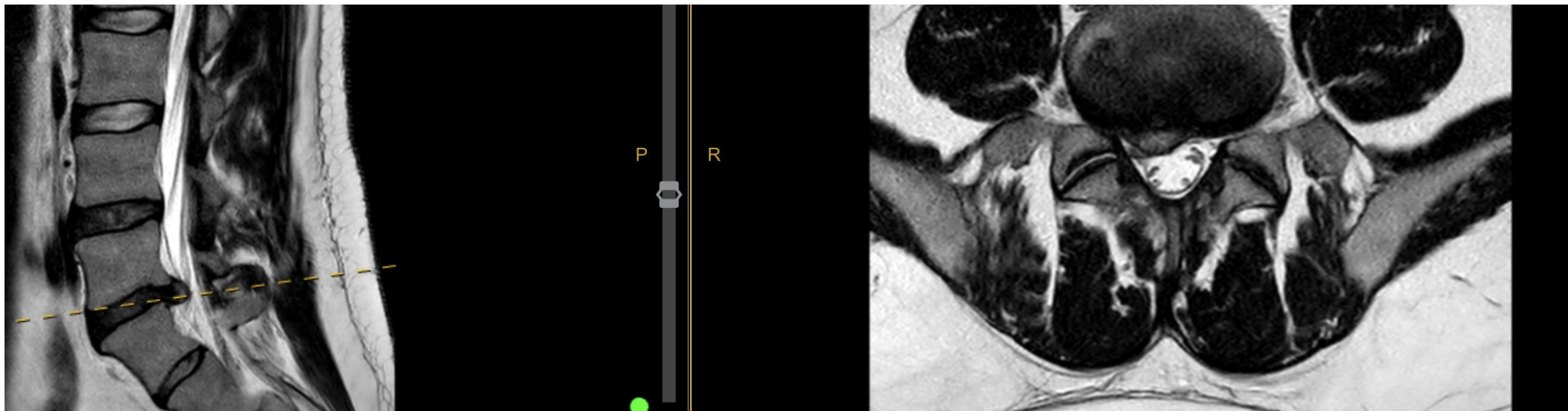
- 8 mm incision
- Immediate relief of radicular leg pain with minimal pain from the surgery
- Discharged home the following morning with plan to review at 6 weeks post-op

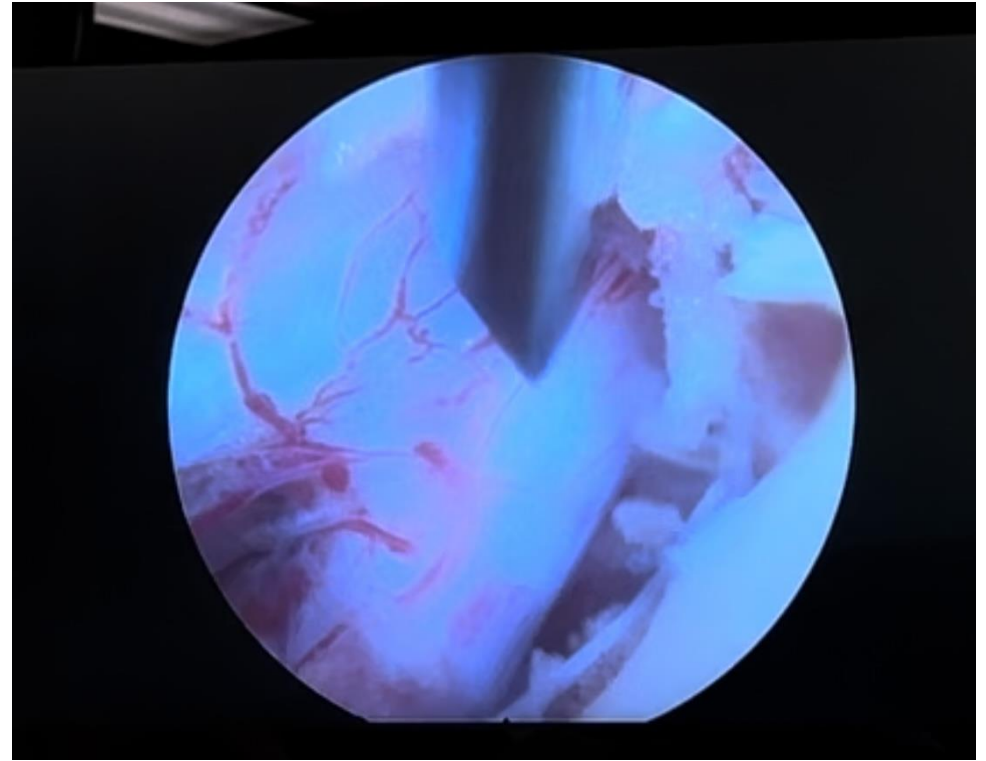
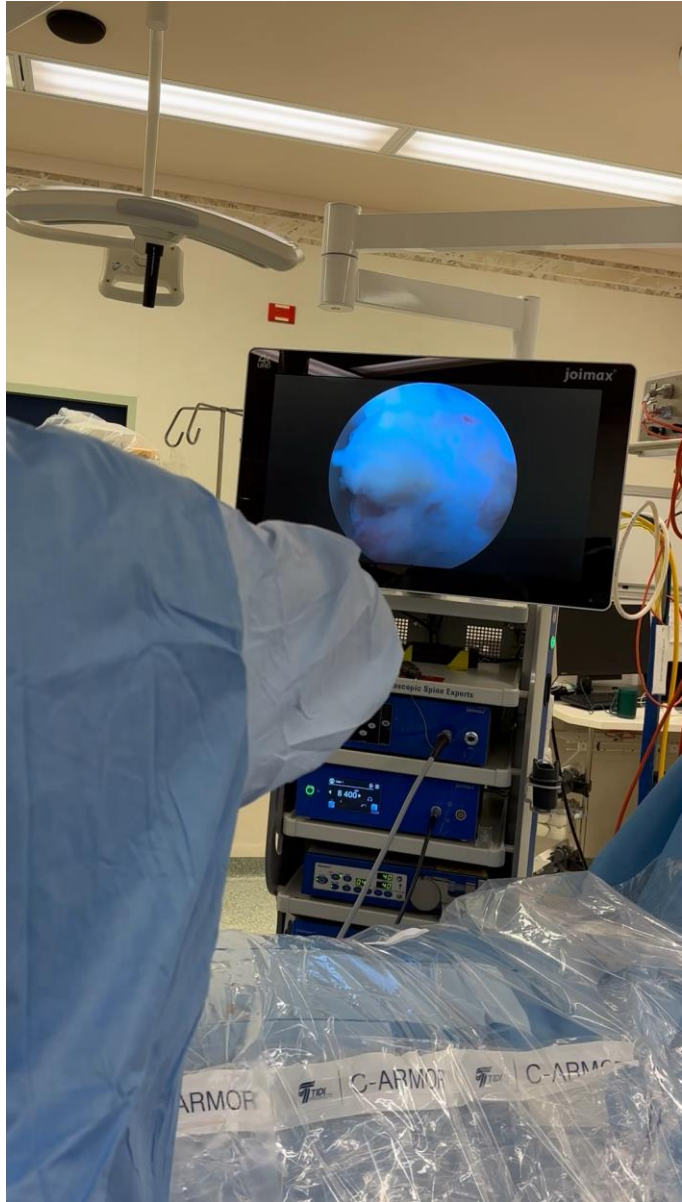
Case examples

- Comparison to traditional far-lateral microdiscectomy:
 - 5-8 cm incision
 - Muscle dissection/bleeding
 - Irritation of the DRG and post-op dysaesthesia not uncommon (granted can also occur in ESS)
 - Challenging surgery technically, especially at L5/S1 and with larger patients
 - Home 2-3 days post-op

Case examples

- 34 yo male with severe R radicular leg pain
- R paracentral disc herniation with compression of descending R S1 nerve root
- Failed conservative measures; good but transient response to R S1 NRB
- **Procedure:** R L5/S1 interlaminar endoscopic lumbar discectomy (IELD)





Case examples

- Immediate relief of radicular leg pain with minimal pain from the surgery
- Persisting chronic lumbar back pain managed by chronic pain/rehab physician



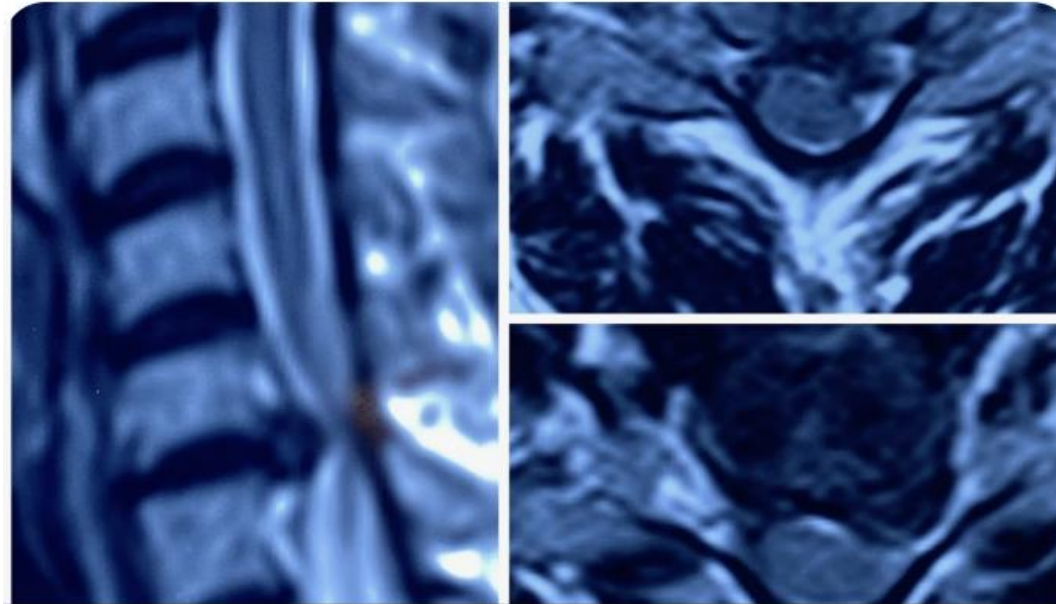
**Saqib Hasan on LinkedIn: #endoscopicspine #spinesurgery
#minimallyinvasivespine #spine**

linkedin.com

https://www.linkedin.com/posts/saqib-hasan-320a5140_endoscopicspine-spinesurgery-minimallyinvasivespine-ugcPost-7040762580327403520-cQF4?utm_source=share&utm_medium=member_ios

The future

- Training of other surgeons (Orthopaedic Spinal Surgeons and Neurosurgeons) in Adelaide and support of each other as a community to benefit our patients in SA
- Ongoing “upskilling” for proficiency in endoscopic cervical and thoracic spine surgery and biportal techniques
- Vision to offer services in both public and private sectors within 12 months (working on acquisition of Joimax[®] stack at both FMC and RAH)*



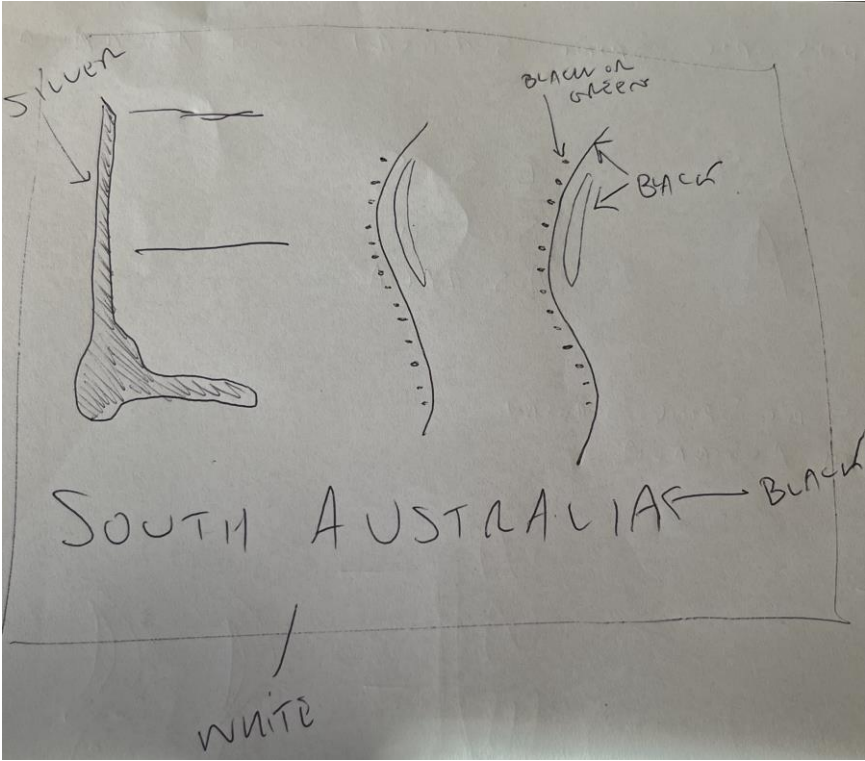
Dr. Sukumar Sura on LinkedIn:
#fullendoscopicspinesurgery #leastinvasive
#asianspinehospital #riwospine... | 14 comments

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The future

“Endoscopic Spine Surgery South Australia”



Thank you

- Dinning family/NRF – Inaugural recipient of the Dinning Memorial Neurosurgical Fellowship
- Industry – LifeHealthcare, Matrix
- Therapia Sports and Spine

References

- Hofstetter, C.P. et al. 2020, 'AOSpine Consensus Paper on Nomenclature for Working-Channel Endoscopic Spine Procedures', *Global Spine Journal*, vol. 10(2S), 111S-121S.





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