

# Best Practices in Neurosurgery (and why we need you)

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# Disclosures

- Royalties: Medacta
- Consulting: SI Bone

# Why This Talk?

- Neurosurgery (or spine surgery, in this case) and Pain Management are NOT competitors
- We complement each other, and patients do better when we work together
- By training, the procedures we do, tend to not overlap
- This talk will address when we DON'T operate
  
- For surgeries, I will present the technique
- For PM procedures, I will present the indications, from my perspective (and I may ask you about the techniques ☺)

# Overview

- Elective surgery pre-selection
- Surgery vs. Pain Management
  - Cervical
  - Thoracic
  - Lumbar
  - Sacroiliac joint
- Complex situations
  - Failed back syndrome
  - Complex regional pain syndrome
- Vertebroplasty / kyphoplasty

# Elective Surgery Pre-Selection

- Age
  - When are we young?
  - When are we old?
  - How old are the last 2 Presidents?
- BMI
  - Cervical
  - Thoracic
  - Lumbar
- Diabetes / A1c
- Osteoporosis
- General health / “looks”
- Psychological factors

# Surgery vs Pain Management

- Elective case
- 55 years old
- Relatively healthy
- Non-smoker\*
- Has failed Physical Therapy and NSAIDs

# Occipital Neuralgia

- Aka Arnold's neuralgia
- Typical pain pattern over the ear
- Pain reproduced with pressure on Arnold's point
- Pain temporarily relieved with local Lidocaine injection
- Then what?
  - Fascial release (decompression)
  - Resection
  - Stimulator
- Complex refractory cases
  - C2 nerve block in the C1-2 foramen? Nerve transection?

# Anterior Cervical: Surgery

- We really have only one approach, but it works well for:
  - Myelopathy
  - Radiculopathy
  - Rarely, axial pain (CT-SPECT / discogram positive)
- After the discectomy, fusion vs arthroplasty depends on patient's imaging, age, osteoporosis, facet pathology etc



# Anterior Cervical: PM Procedures

- Cervical discogram
  - When is it indicated?
  - Disco-block or not?
- Stellate ganglion or cervical sympathetic blocks
- Trigger point injections\*
  - Anterior neck muscles

# Posterior Cervical: Surgery

- C1-C2 posterior fusion
  - May result in C2 radiculopathy
- **PCLF** vs laminoplasty – typically C3-C7
- MIS PCF – aka D-TRAX/Corus
- MIS posterior cervical foraminotomy



D-TRAX

# D-TRAX C6-7

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# Posterior Cervical: PM Procedures

- CESI (Cervical Epidural Steroid Injections)
  - For neck pain / cervical stenosis
  - Broad coverage
- TFESI
  - More targeted injection, but still diffuses
- Selective nerve root block
  - When a specific nerve root is suspected; Lidocaine only!
- MBB versus facet injections
  - What do you think / prefer?
- RFAs – fluoro guided or endoscopic
- “Cervical facet syndrome”

# Thoracic: Surgery

- Lateral (transthoracic) approach
  - Discectomy or corpectomy
- Posterior approach
  - **Laminectomy** (usually multilevel)
  - Fusion if instability is suspected

# T12-L1 Lateral Discectomy

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# Thoracic: PM Procedures

- Common:
  - Interlaminar ESI
  - Transforaminal ESI
  - SNRB
- Less common:
  - MBB / facet injections
  - RFAs
- Rare?
  - Costo-vertebral / costo-transverse joint injections

# Anterior Lumbar: Surgery

- ALIF
- XLIF/OLIF
  - Transpsoas / Anterior to psoas
- + percutaneous screws

# Anterior Lumbar: PM Procedures

- Lumbar discogram
  - Indications?
  - Disco-block
- Lumbar sympathetic block
- ViaDisc?

# Posterior Lumbar: Surgery

- Decompressions (open versus MIS versus endoscopic)
  - Discectomy
  - Laminectomy
  - Parsctomy
- Dynamic stabilization vs interlaminar fusion
  - Coflex, KeyLift, Vertiflex
- Fusions (open versus MIS versus endoscopic)
  - MI TLIF is my go-to for one or two levels



# Microdiscectomy

## Left L5-S1 Microdiscectomy

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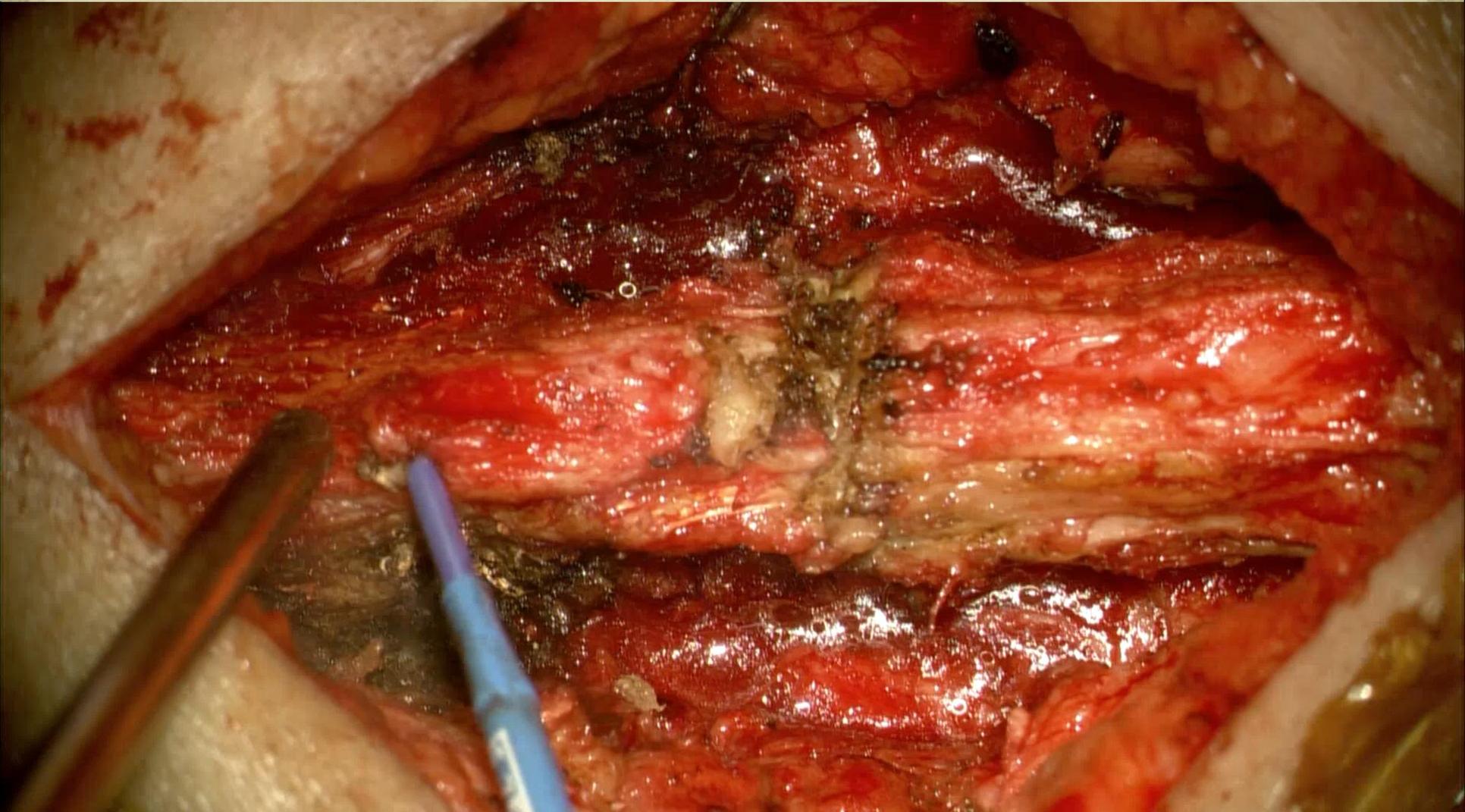


# L4-5 MIS Laminectomy

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# Coflex



# Left L5-S1 MI TLIF Two-Blade Retractor

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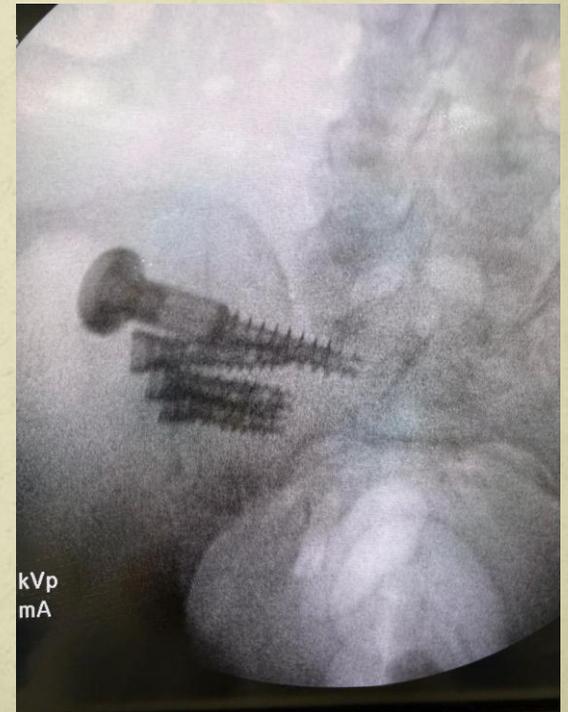
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# Posterior Lumbar: PM Procedures

- Interlaminar ESI
  - Works particularly well for spinal stenosis
- Transforaminal ESI / SNRB
  - For radicular pain / diagnosis
- MBB/facet joint injections
  - Followed by RFAs if successful

# Sacroiliac Joint: Surgery

- SI Bone has most of the literature
- I use Osteocentric for revisions
  - Higher risk for nerve injury



# Sacroiliac Joint: PM Procedures

- Diagnostic injections
  - Must be fluoroscopy guided / recorded
- Branch blocks / RFAs – may or may not work
- Posterior fusions – debated

# Vertebroplasty / Kyphoplasty

Randomized Controlled Trial > N Engl J Med. 2009 Aug 6;361(6):557-68.

doi: 10.1056/NEJMoa0900429.

## **A randomized trial of vertebroplasty for painful osteoporotic vertebral fractures**

Rachelle Buchbinder <sup>1</sup>, Richard H Osborne, Peter R Ebeling, John D Wark, Peter Mitchell, Chris Wriedt, Stephen Graves, Margaret P Staples, Bridie Murphy

Randomized Controlled Trial > N Engl J Med. 2009 Aug 6;361(6):569-79.

doi: 10.1056/NEJMoa0900563.

## **A randomized trial of vertebroplasty for osteoporotic spinal fractures**

David F Kallmes <sup>1</sup>, Bryan A Comstock, Patrick J Heagerty, Judith A Turner, David J Wilson, Terry H Diamond, Richard Edwards, Leigh A Gray, Lydia Stout, Sara Owen, William Hollingworth, Basavaraj Ghdoke, Deborah J Annesley-Williams, Stuart H Ralston, Jeffrey G Jarvik

Randomized Controlled Trial > Lancet. 2009 Mar 21;373(9668):1016-24.

doi: 10.1016/S0140-6736(09)60010-6. Epub 2009 Feb 24.

## **Efficacy and safety of balloon kyphoplasty compared with non-surgical care for vertebral compression fracture (FREE): a randomised controlled trial**

Douglas Wardlaw <sup>1</sup>, Steven R Cummings, Jan Van Meirhaeghe, Leonard Bastian, John B Tillman, Jonas Ranstam, Richard Eastell, Peter Shabe, Karen Talmadge, Steven Boonen

# CRPS / Failed Back Syndrome

- Pain pumps
- Spinal cord stimulators

# Conclusions

- We work together for the good of the patients
- There should be open communication
- Keep track of your results



THANK YOU!