Disc Herniation

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- BHB,MBChB 2000

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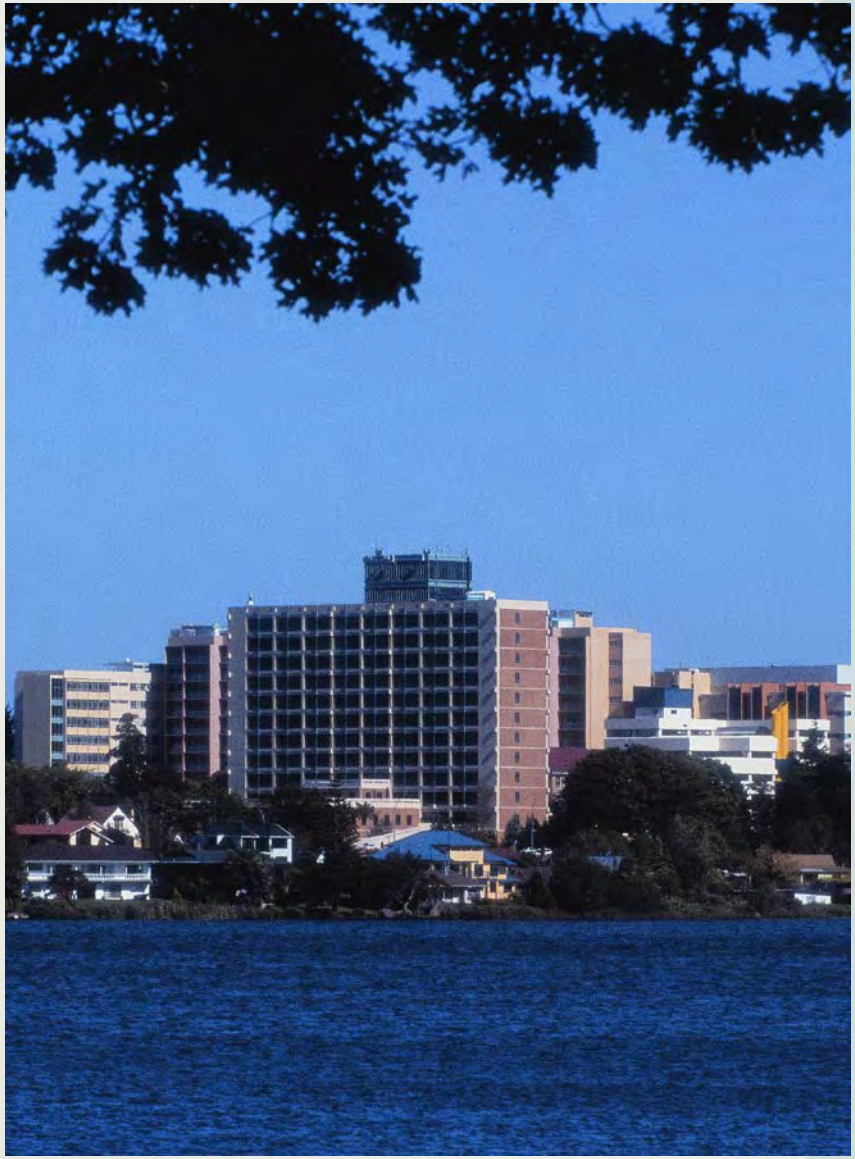
- BHB,MBChB 2000
- House Surgeon Waikato Hospital



- BHB,MBChB 2000
- Orthopaedics since 2003
- FRACS (Ortho) 2009

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Spine Fellowships

- RNSH Spinal Unit, Sydney 2010

- BCCH, Vancouver 2012

2011 Spine Surgeon, Wellington

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Mr Dean Mistry FRACS

Spine Surgeon

Orthopaedic Surgeon

For Appointments
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Welcome to Our Practice

I'm Mr Dean Mistry, Orthopaedic Spine Surgeon. Thank you for visiting our website. I am a New Zealand trained doctor and orthopaedic surgeon with further international training in the specialty of spine surgery. I confine my practice to conditions affecting the spine and offer expertise on the full range of non-operative and operative treatments. Please have a look around our site, there's information on varying spinal conditions and the treatments we can offer for you. If you wish to make an appointment our number's at the top.

Read more

Welcome to Our Practice | Conditions Treated | Procedures | The Facilities

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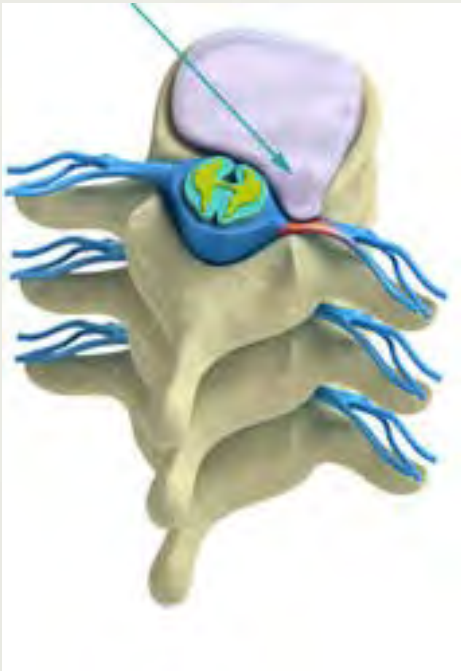
Cervical and Lumbar Disc Herniation



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The Epidemiology of Neck and Back Pain

- Major episode of LBP 80%
- Major episode of Neck Pain 60%
  - 50% relapse rate
  - 30% work absence rate

- Sciatica 10%
- Sciatica >2 weeks 1.6%

- 40-60 yr 23.7%

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PATIENTS

- 37M
- Lifting weights at gym
- “It hurts..”

- 43F
- Digging clay from under her house
- ‘It hurts….’

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Now what?

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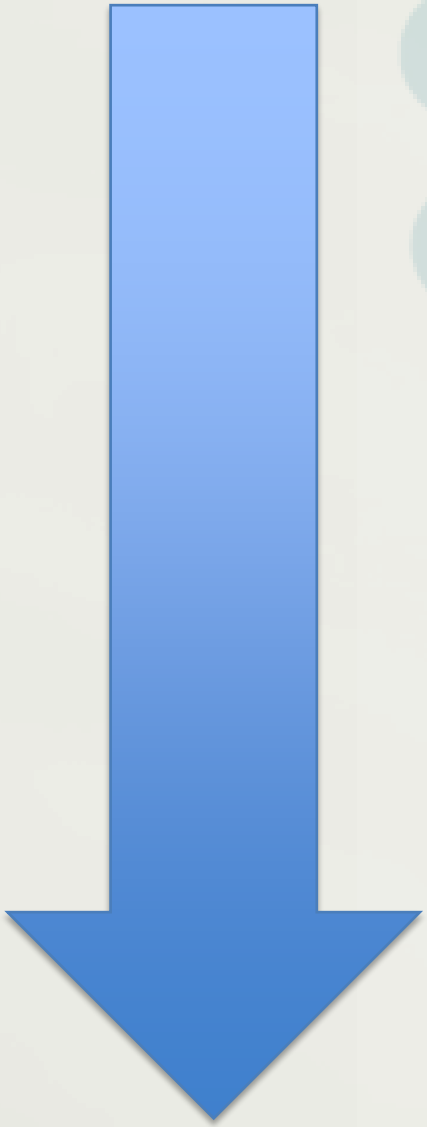
GOALS

- CATEGORISE
  - Neurogenic
  - LBP

+/- RED FLAGS

- Urgently refer or arrange Ix for RF's
- Reassure appropriately
- Make them comfortable
- Keep them active
- Watch them get better….
- OR, if not getting better, Refer them on



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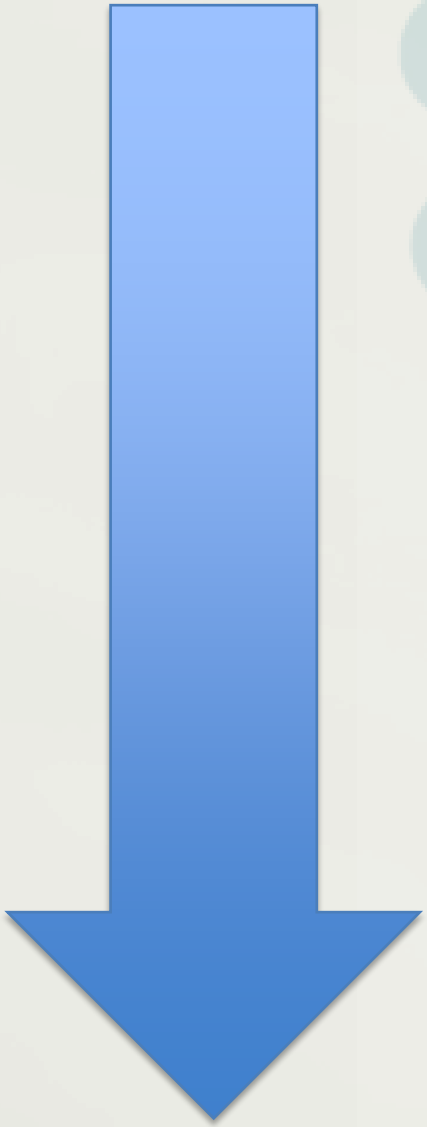

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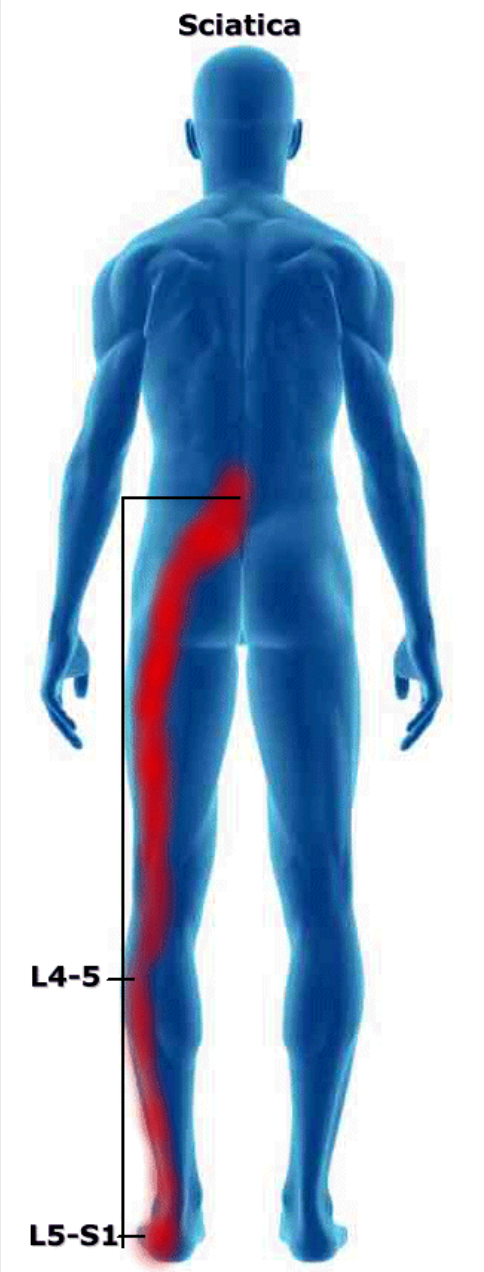
SCIATICA

- Sciatica – a pain radiating down from the buttock and thigh into the calf

- Descriptors
  - Shooting
  - Aching
  - Sharp
  - Pins and needles



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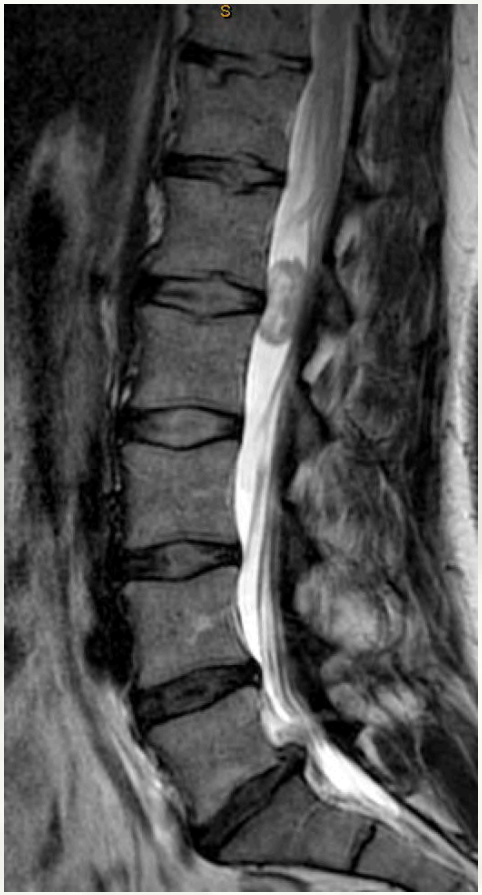
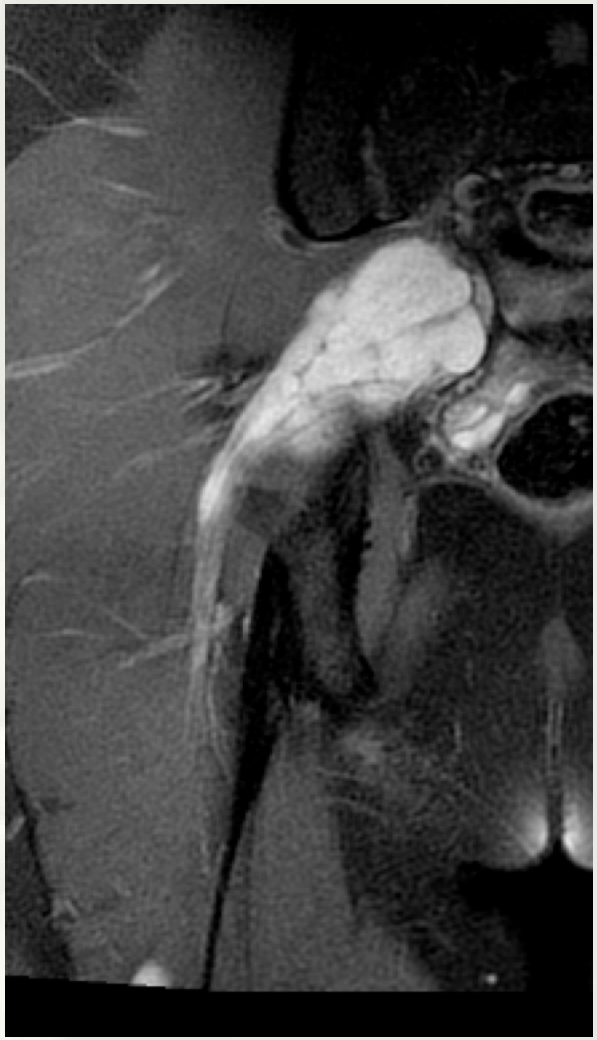
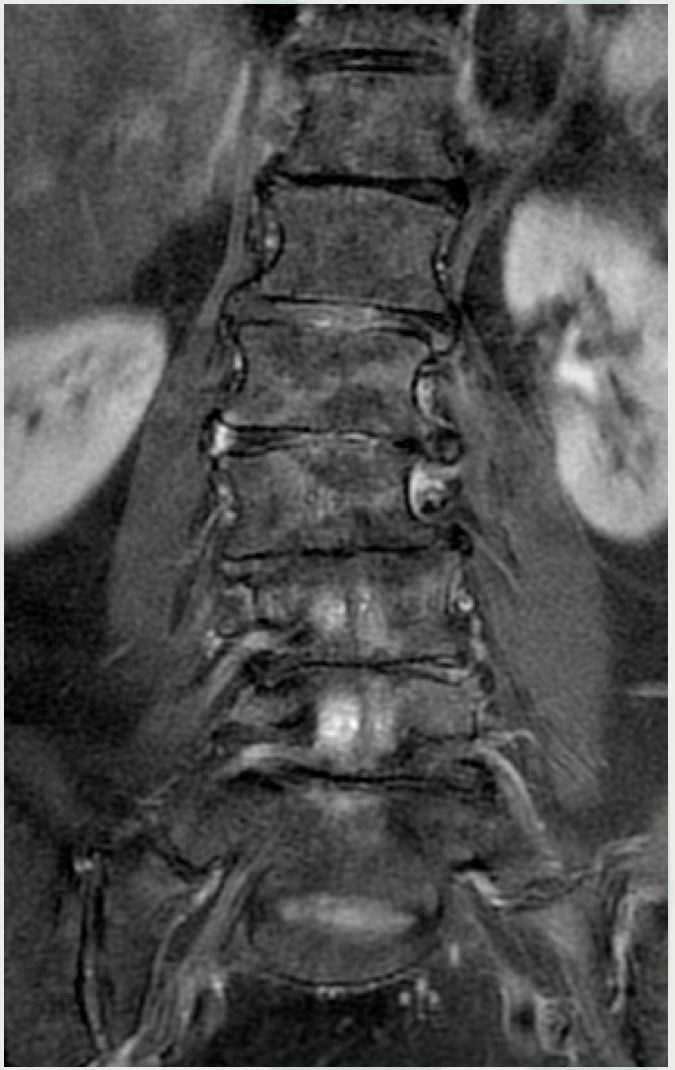
MANY CAUSES……







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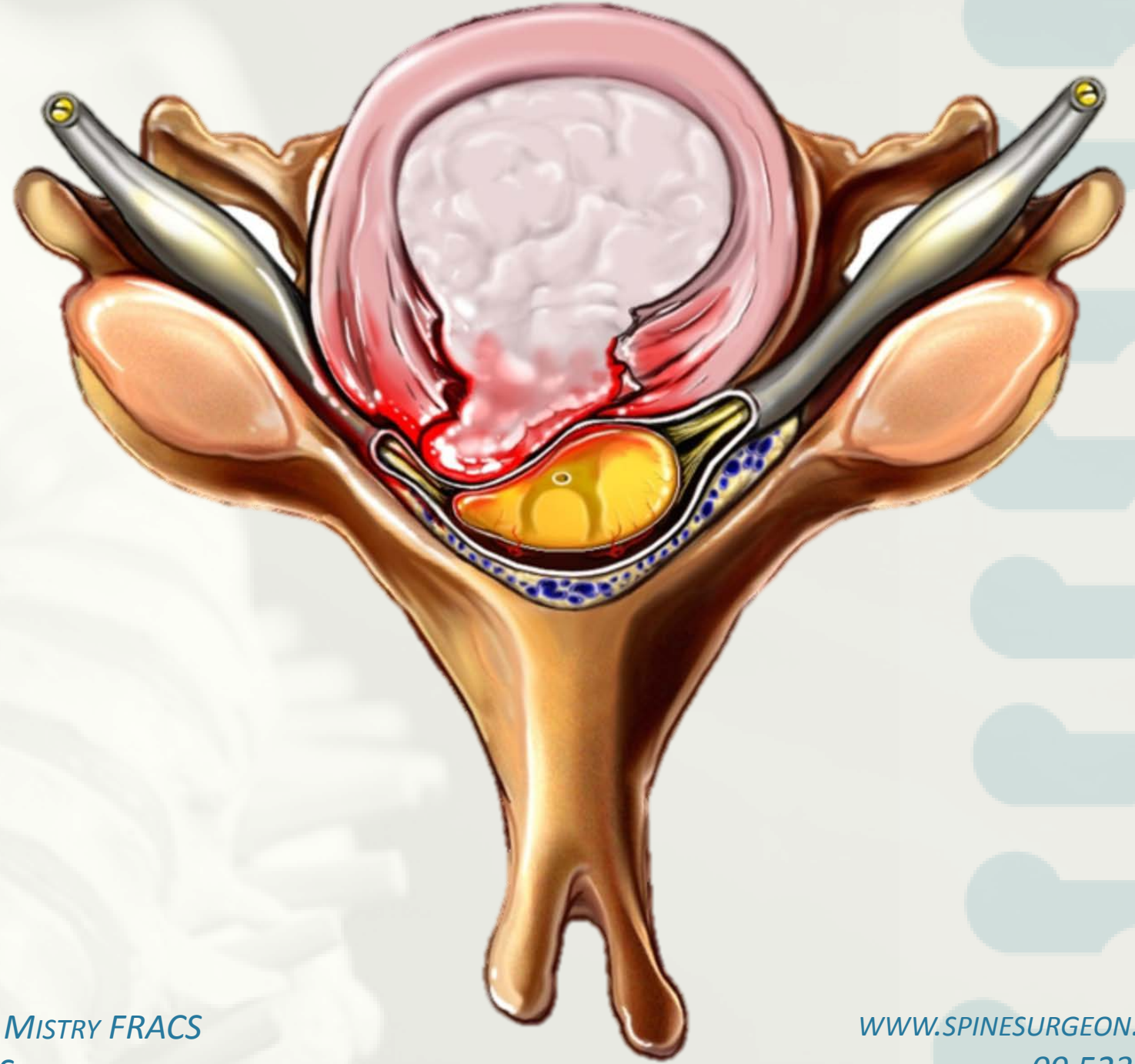

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BRACHIALGIA

- Pain in a radicular pattern in one or both upper extremities related to compression and/or irritation of one or more cervical nerve roots.

- Frequent signs and symptoms include sensory, motor, and reflex changes as well as para/dysesthesias and related to nerve roots without evidence of spinal cord dysfunction (myelopathy)

(An evidence-based clinical guideline for the diagnosis and treatment of cervical radiculopathy from degenerative disorders. The Spine Journal 11 (2011) 64–72. CM Bono et al)

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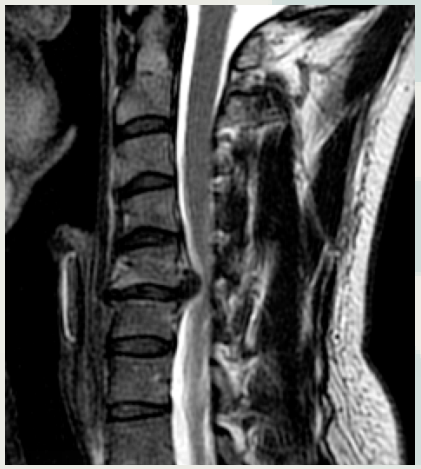
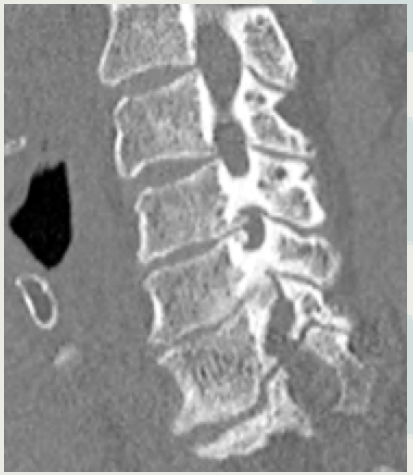
AETILOGY

- Acute Disc Herniation

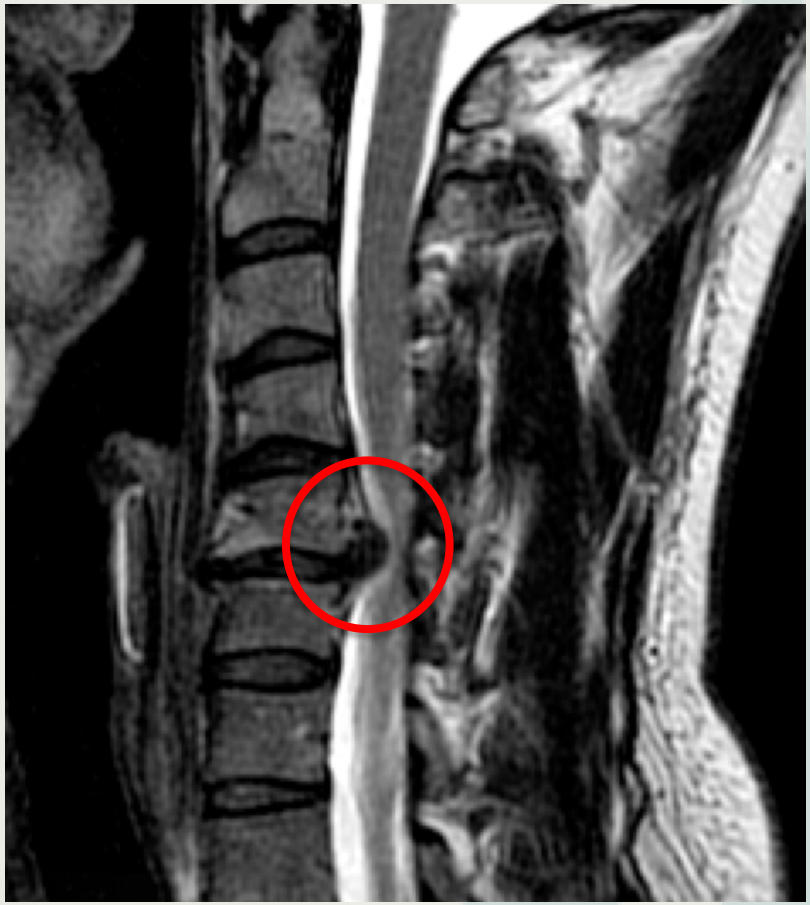


- Foraminal Stenosis



AETILOGY

- Acute Disc Herniation
  - Acute herniation of soft disc
  - Younger age group, <40y
  - Can still be superimposed on top of pre-existing degenerative change/osteophytes



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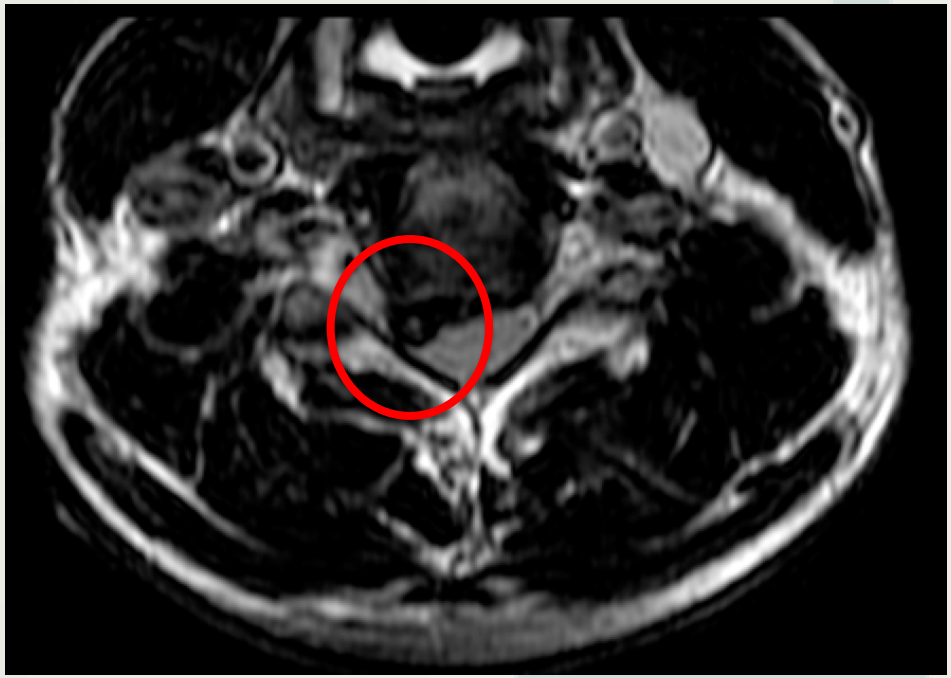
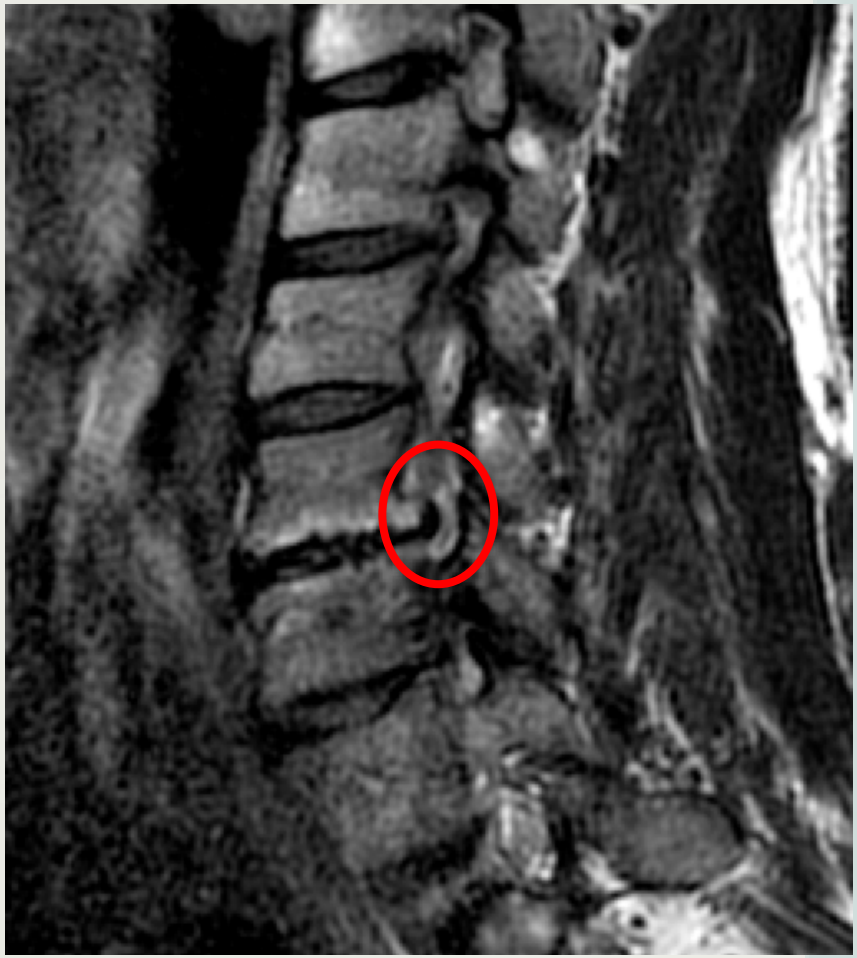


AETILOGY

- Degenerative foraminal stenosis
  - Due to a combination of
    - Disc height loss
    - Osteophyte formation
  - More common in older age group
  - Often have multilevel pathology



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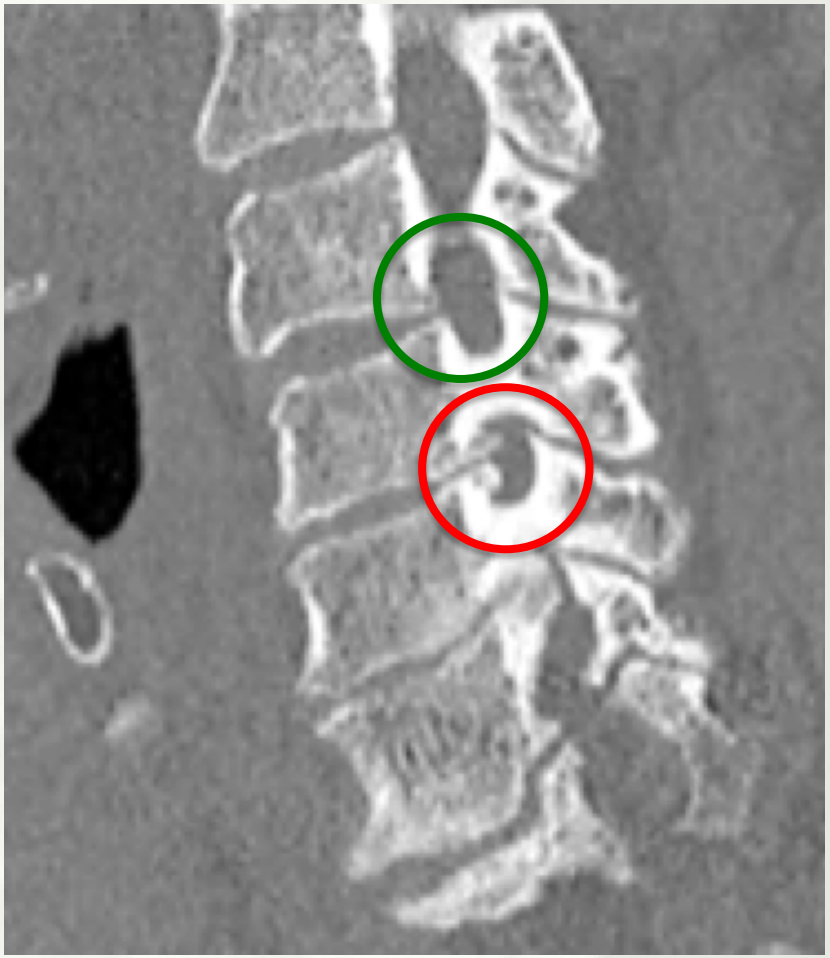

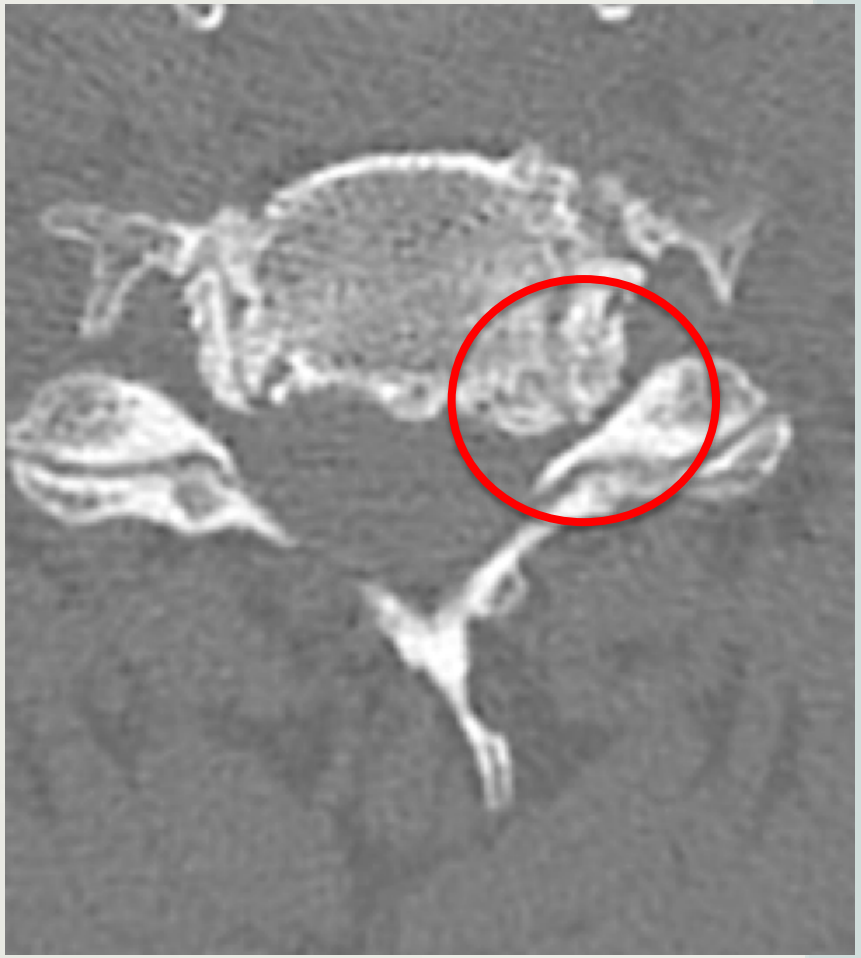

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GOALS

- Categorise
  - Neurogenic
  - LBP

+/- RED FLAGS

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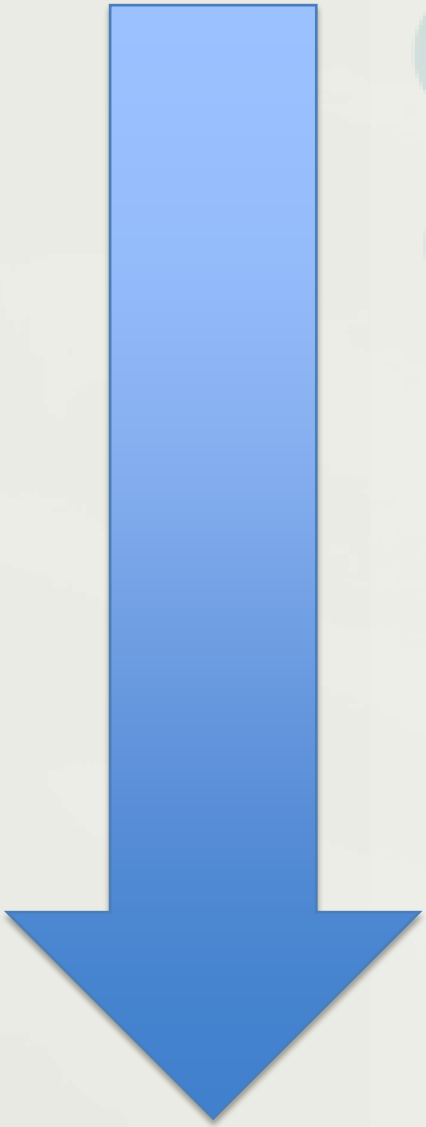

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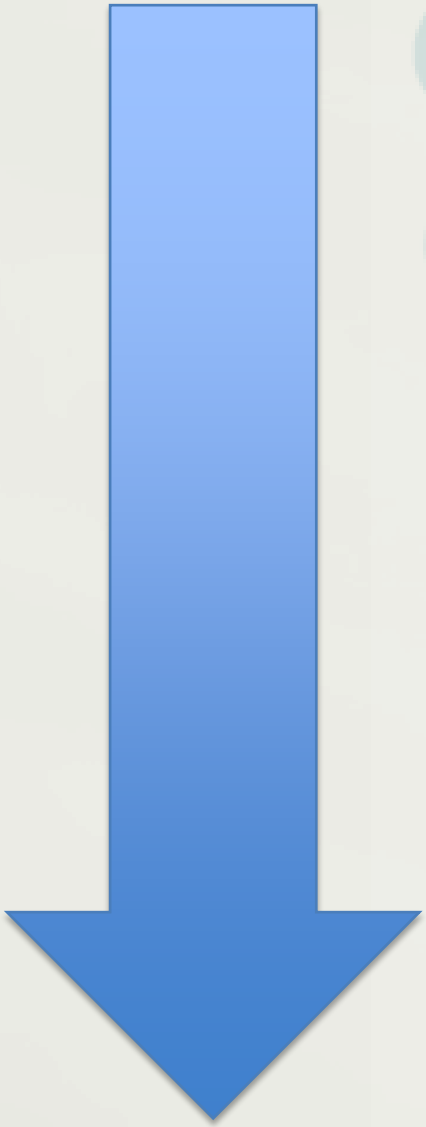

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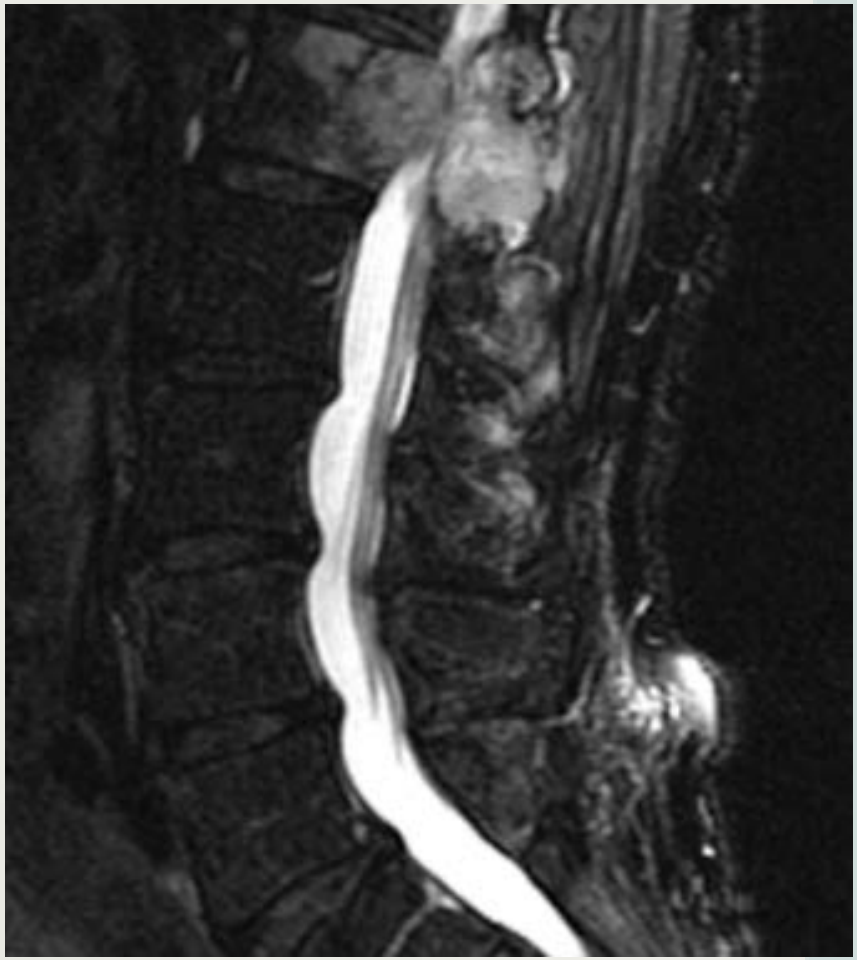
Red Flags

- Pain
  - Night Pain worse
  - Thoracic Pain
  - Severe Pain despite lying down
- Neurological
  - Bilateral Radicular Pain
  - Saddle Anesthesia
  - Bladder/Bowel Incontinence
- Constitutional
  - Fevers/Night Sweats/Unexplained weight loss
  - Lethargy



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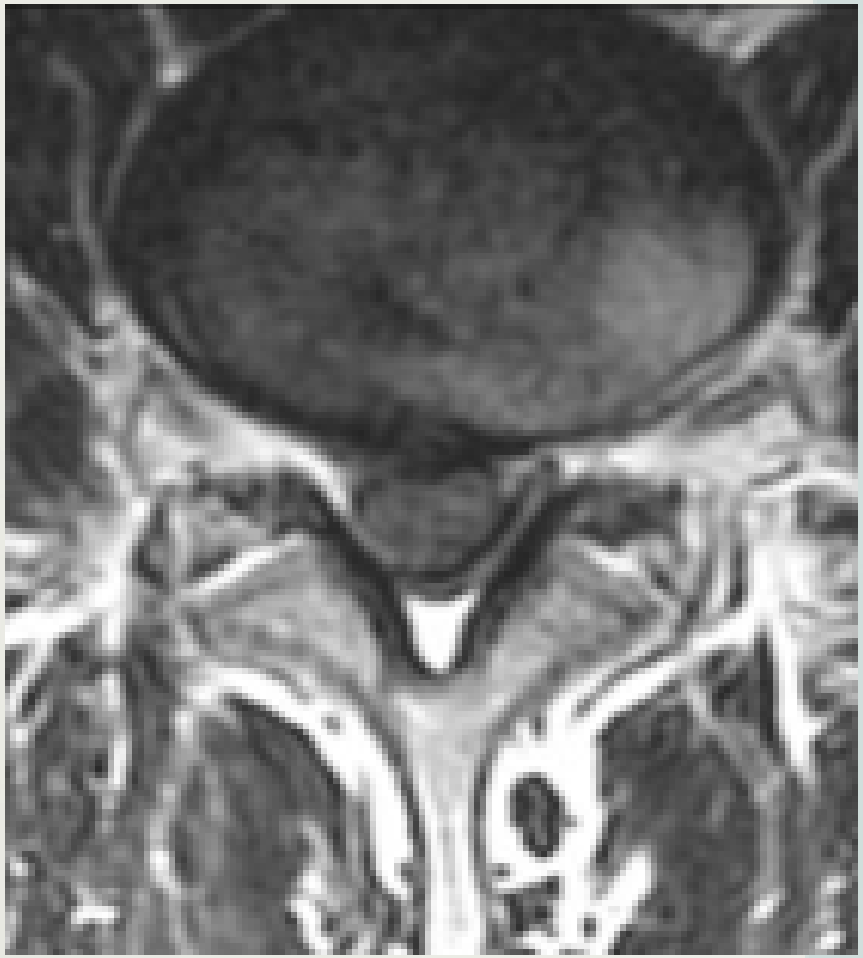
Cauda Equina Syndrome

- A large, space occupying lesion in the lumbosacral spinal canal
- Associated with
  - Bowel and bladder dysfunction
  - Saddle anaesthesia
  - Bilateral leg pain and weakness



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Red Flags

1. Serious Pathology
   - pulsatile abdominal mass, recent B&B changes, unexplained neurological deficit)
- REFER ASAP

2. Intermediate risk factors
   - Cancer history, long-term cortiocosteriod use, metabolic bone disorder history, > 50 years old, unexplained weight loss, failure of conservative management then
- Appropriate Hx/Ex/Ix
- Refer expiditiously

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No Red Flags?

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KEEP
CALM
AND
CARRY
ON

GOALS

- Categorise
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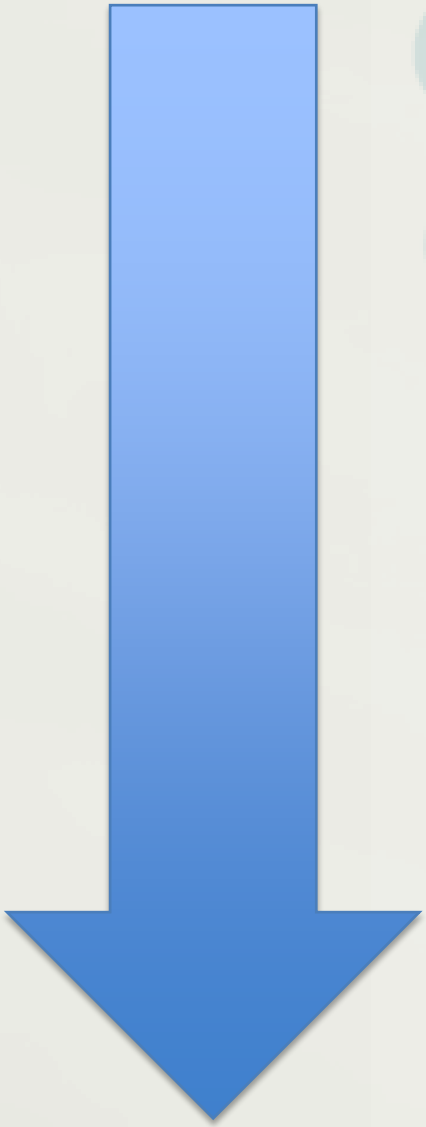

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NATURAL HISTORY - LDH

Time to significant improvement

6wk	80%
12wk	90%
24wk	93%

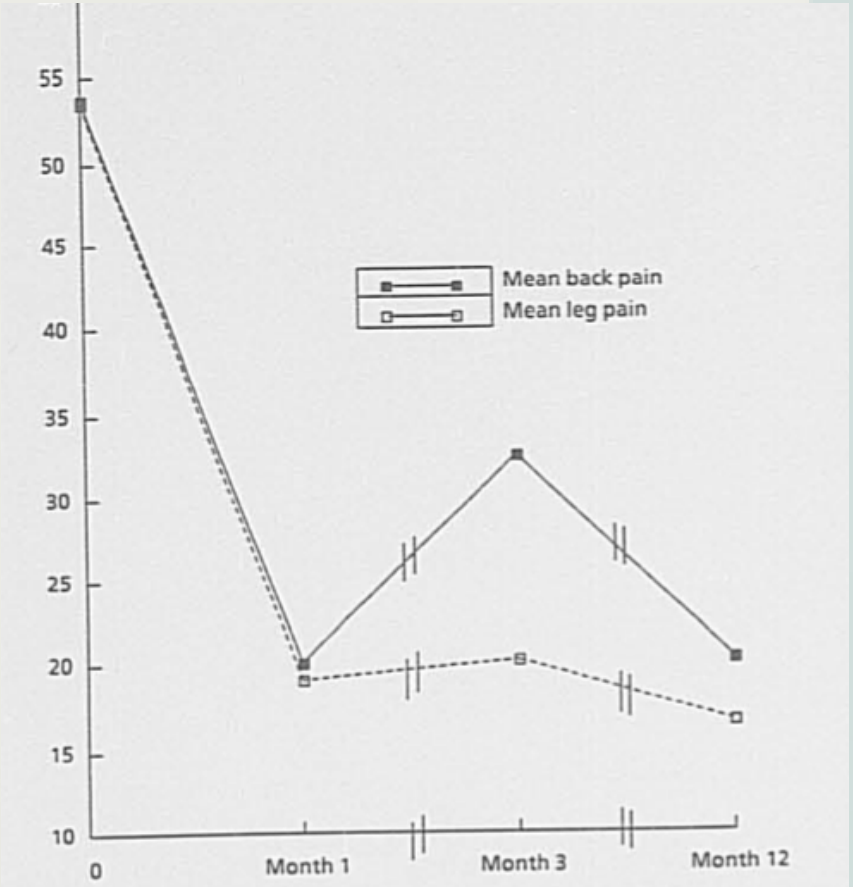

Figure 7. 'Development of mean back and leg pain by time (visual analog scale 1–100 mm at zero to 4 weeks, question-

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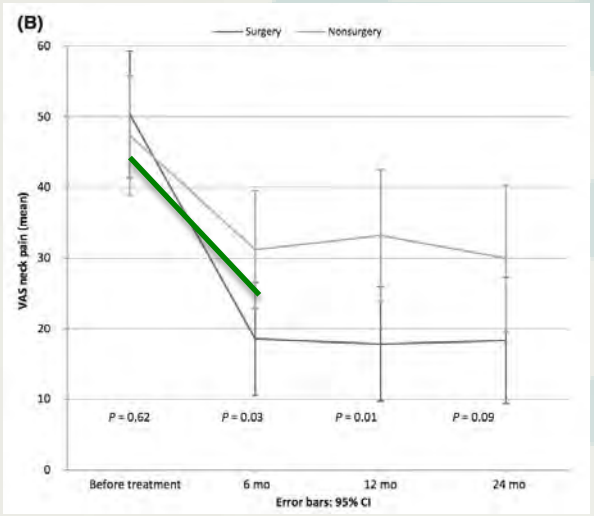
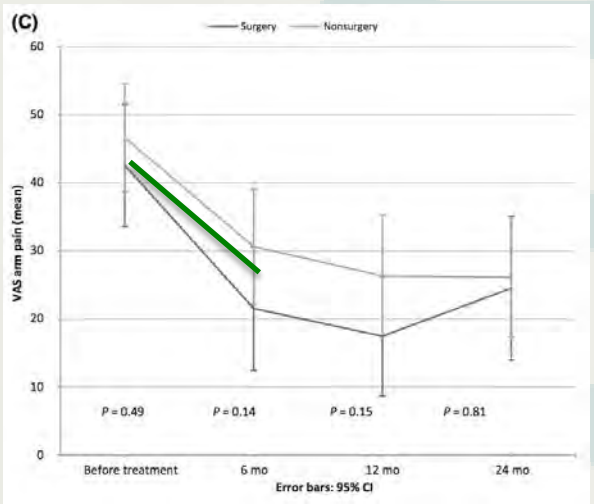
NATURAL HISTORY – CX DISC

- There are no natural history studies of sufficient quality

- 50-75% settle
- Significant improvement takes 4- 6 months





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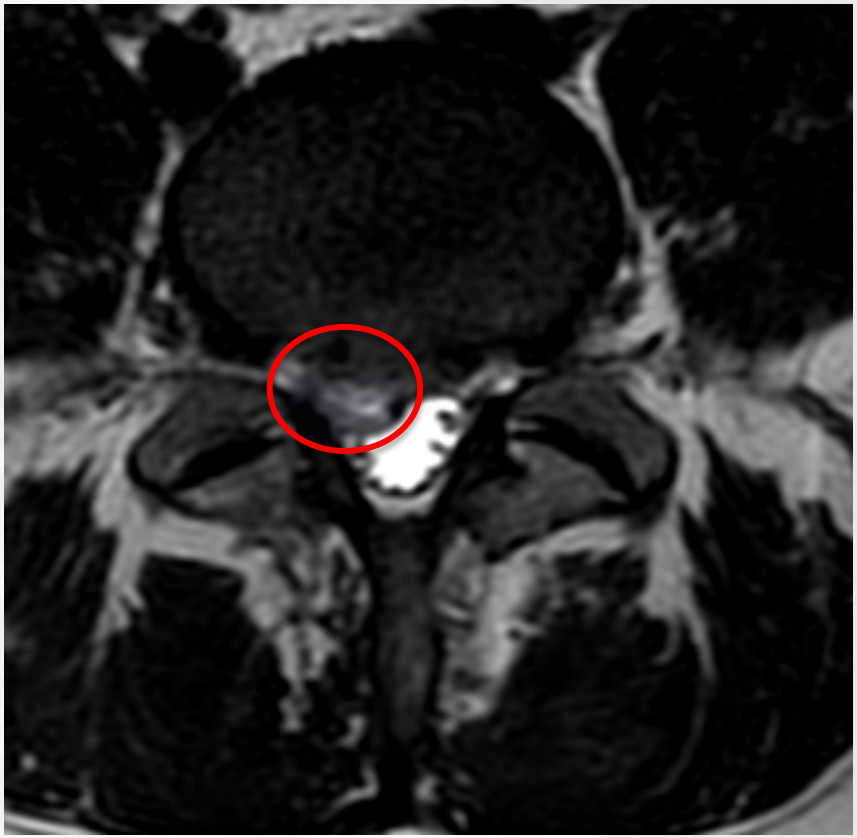
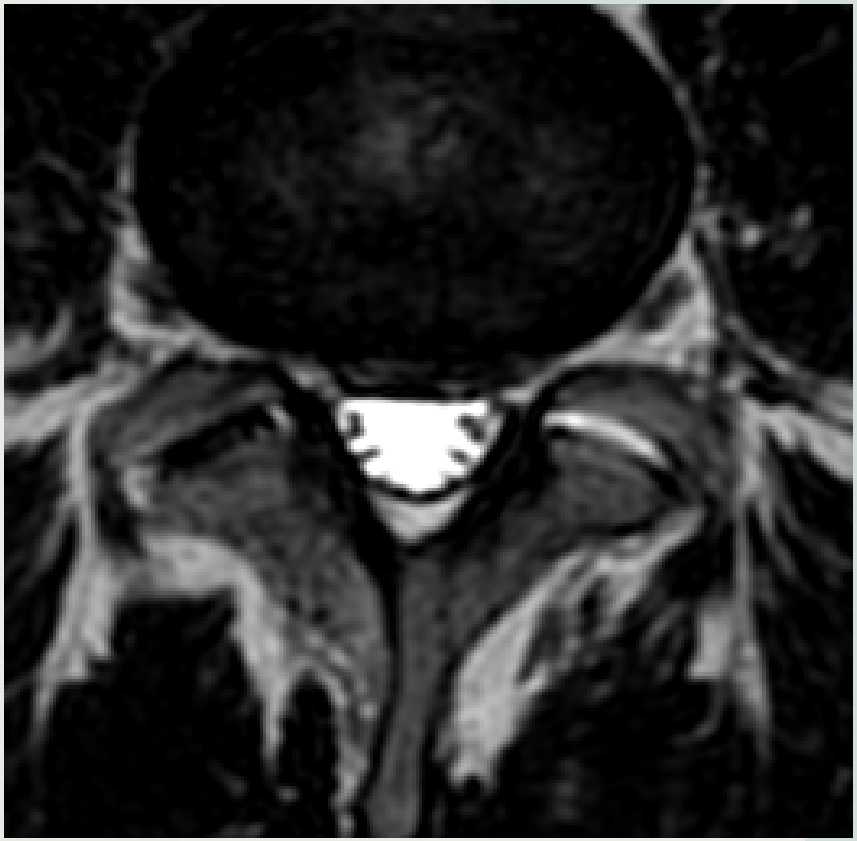
80% OF DISC PROTRUSIONS REGRESS BY 50% OVER ONE YEAR

5 Sept 2012



5 Jun 2013



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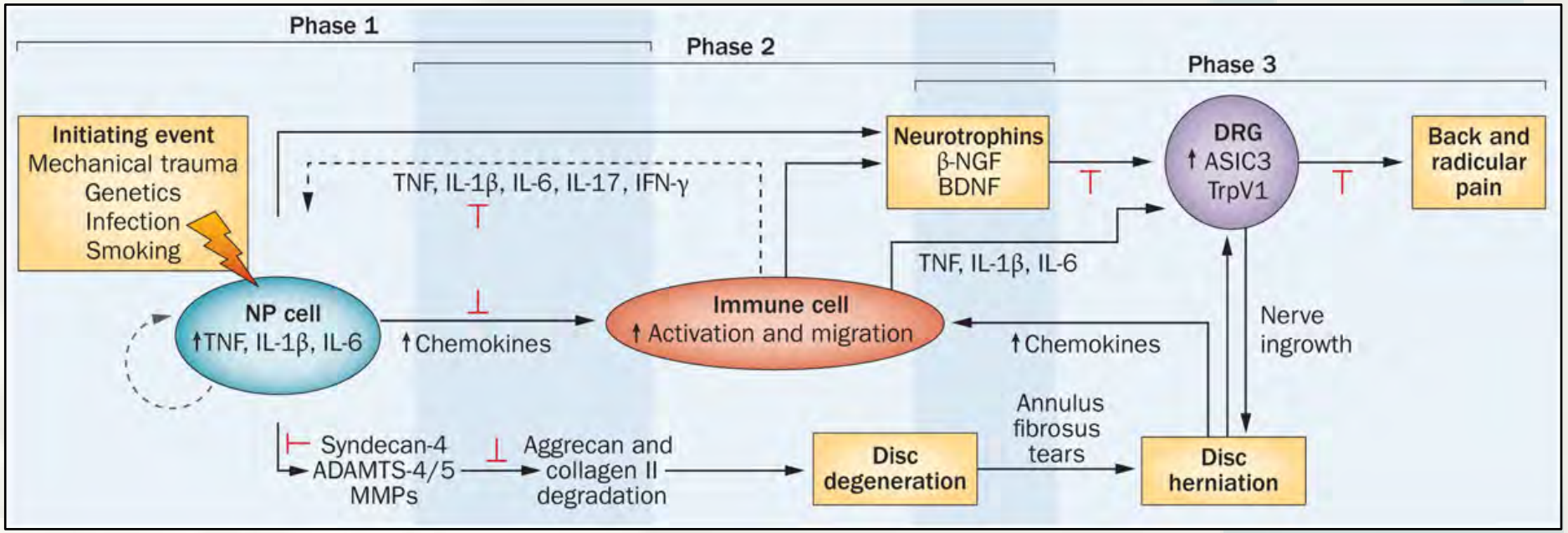
Inflammatory Mediators



Risbud, M. V. & Shapiro, I. M. (2013) Role of cytokines in intervertebral disc degeneration: pain and disc content
Nat. Rev. Rheumatol. doi:10.1038/nrrheum.2013.160

ALL'S WELL THAT ENDS WELL

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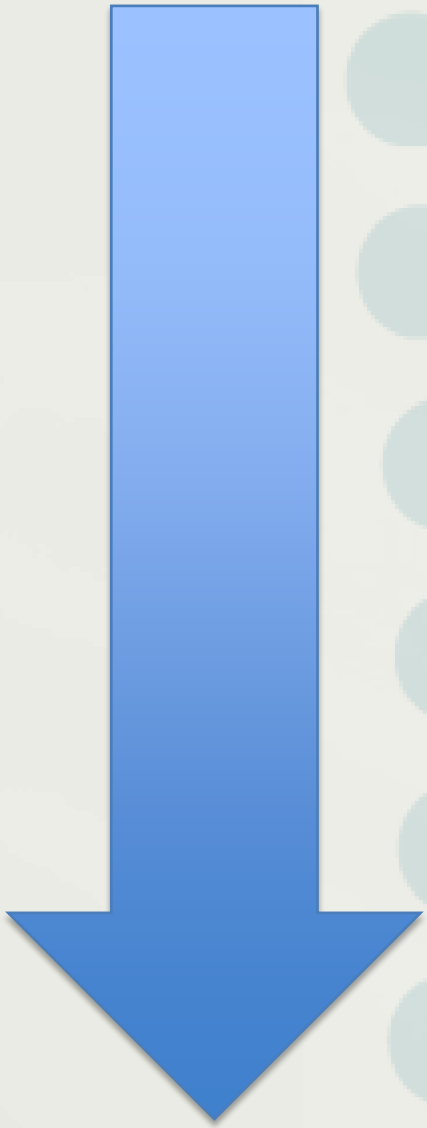

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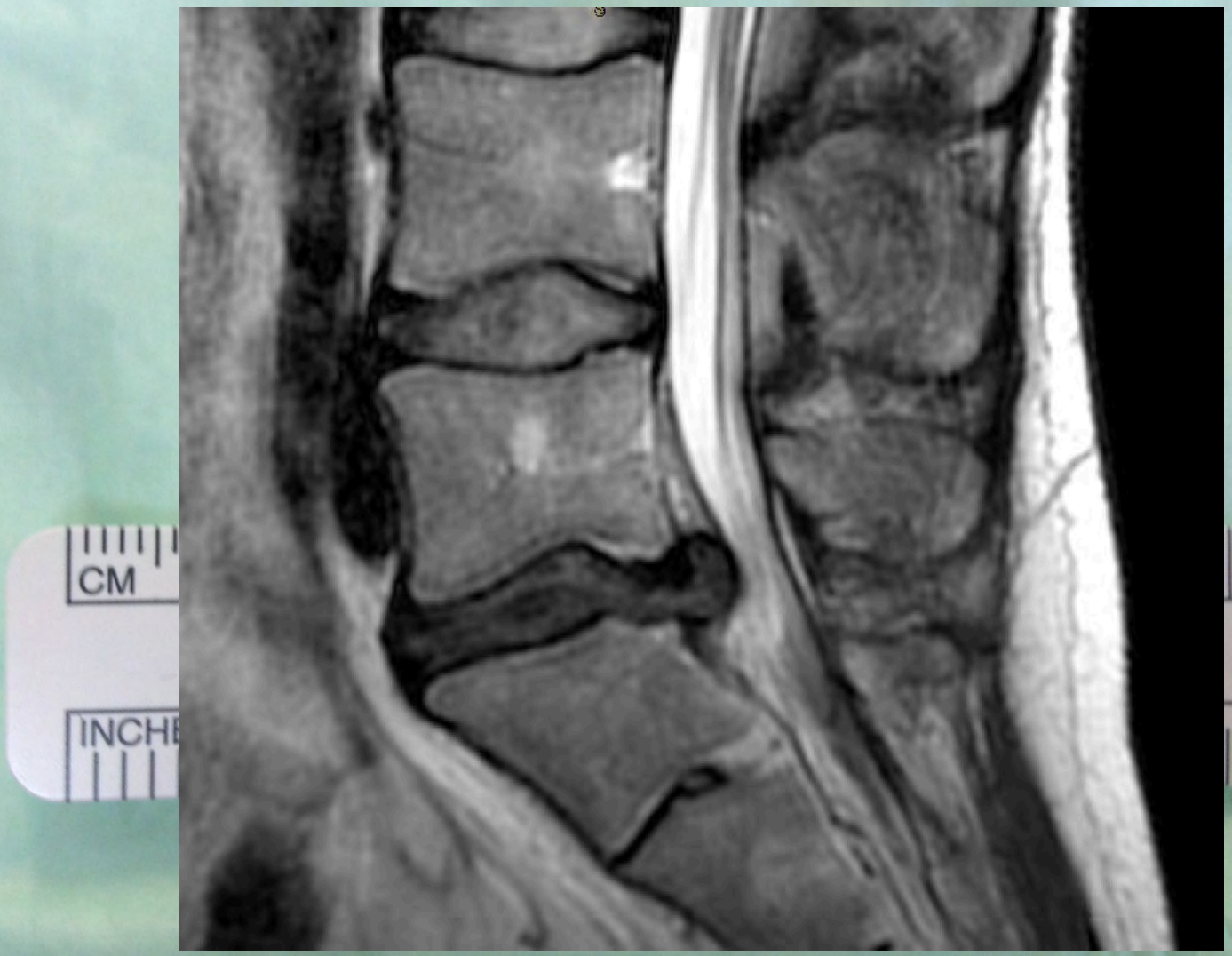
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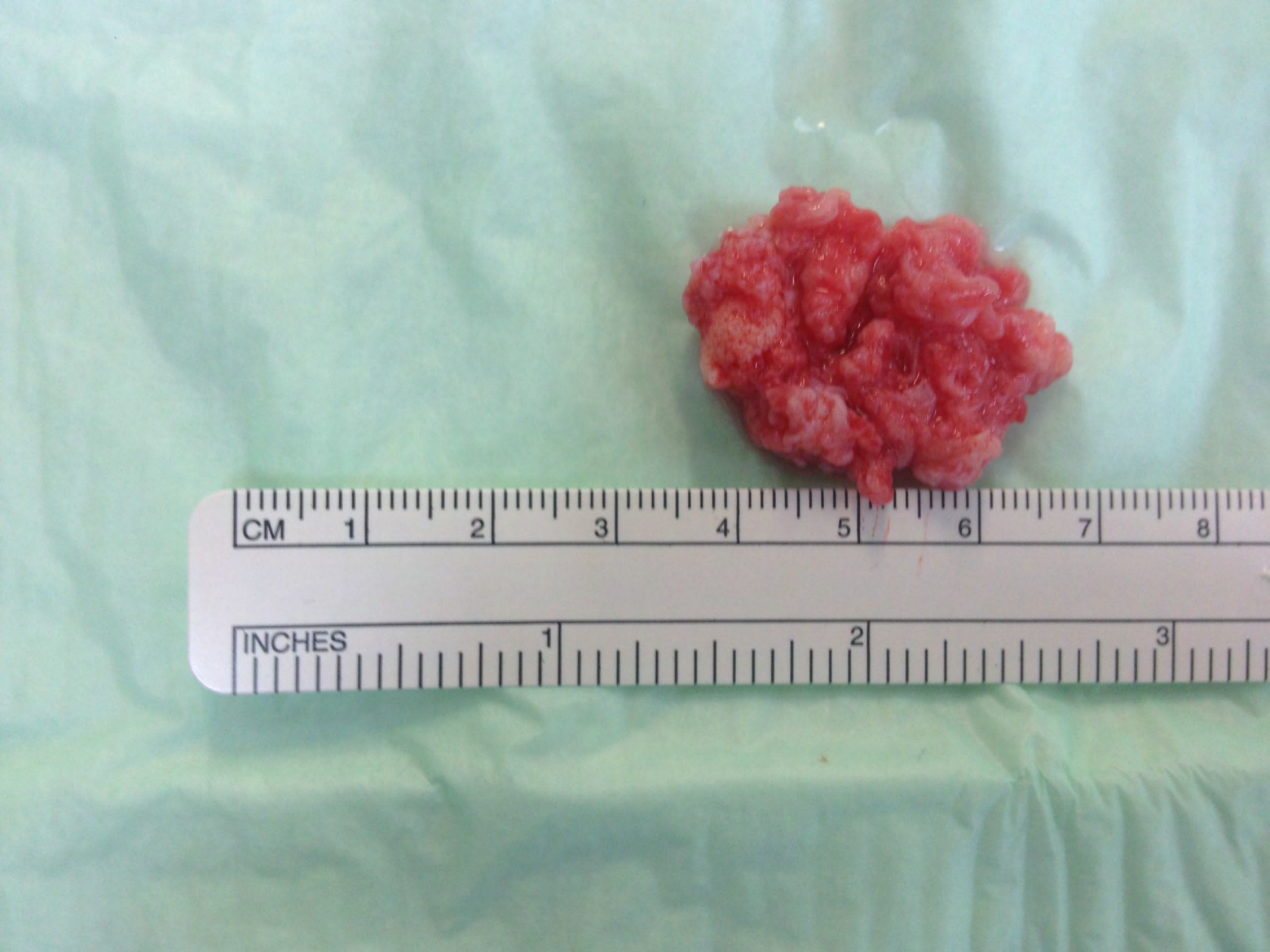
CM 1 2 3 4 5 6 7 8
INCHES 1 2 3

SPINE Volume 18, Number 11, pp 1433–1438

The Natural Course of Acute Sciatica with Nerve Root Symptoms in a Double-Blind Placebo-Controlled Trial Evaluating the Effect of Piroxicam

Henrik Weber, MD, Ingar Holme, PhD, and Even Amlie, MD

- At one year
  - 30% still have persistent pain and restrictions at work or with recreational activities
  - 20% out of work

Surgical vs Nonoperative Treatment for Lumbar Disk Herniation

The Spine Patient Outcomes Research Trial (SPORT): A Randomized Trial

JAMA, November 22/29, 2006—Vol 296, No. 20

- 23% out of work at one year

Predicting Recovery

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PREDICTING RECOVERY

J Neurosurg Spine 19:301–306, 2013

The impact of early recovery on long-term outcomes in a cohort of patients undergoing prolonged nonoperative treatment for lumbar disc herniation

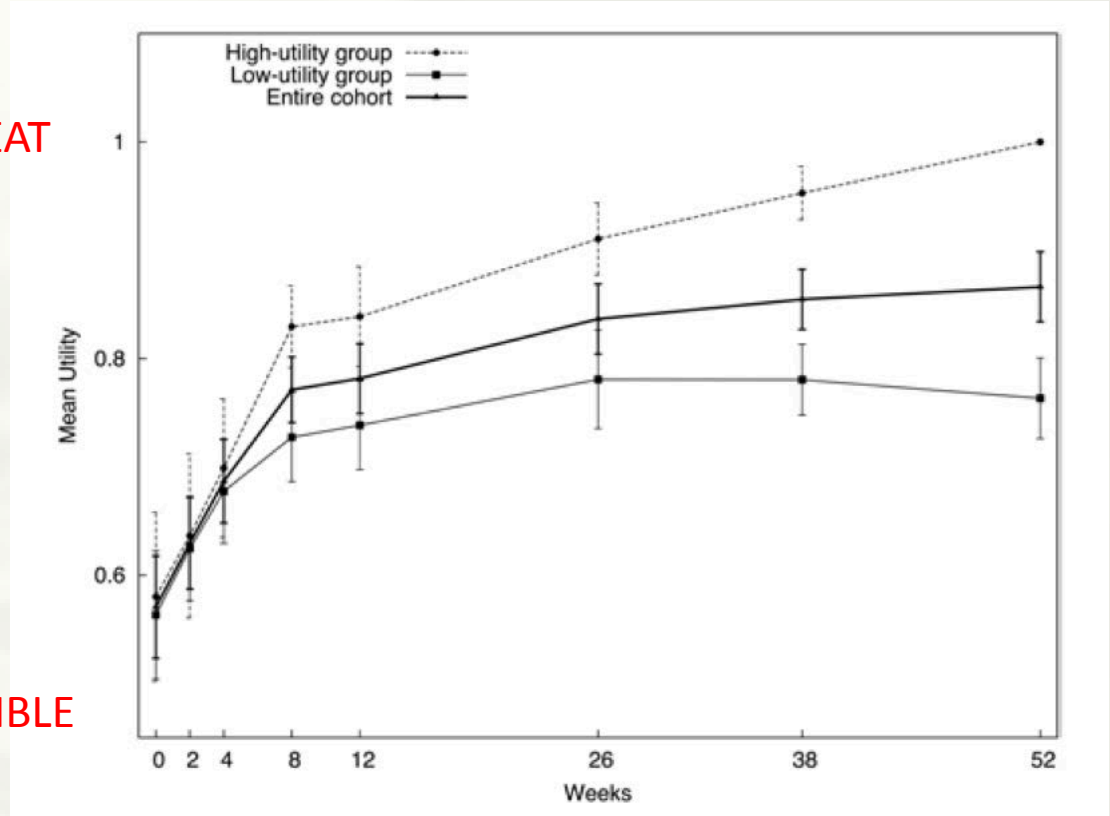
Clinical article

MATTHEW C. COWPERTHWAITE, PH.D.,[1,2] WILBERT B. VAN DEN HOUT, PH.D.,[3] AND K. MICHAEL WEBB, M.D.[1]

Weeks

PREDICTING RECOVERY

GREAT



TERRIBLE

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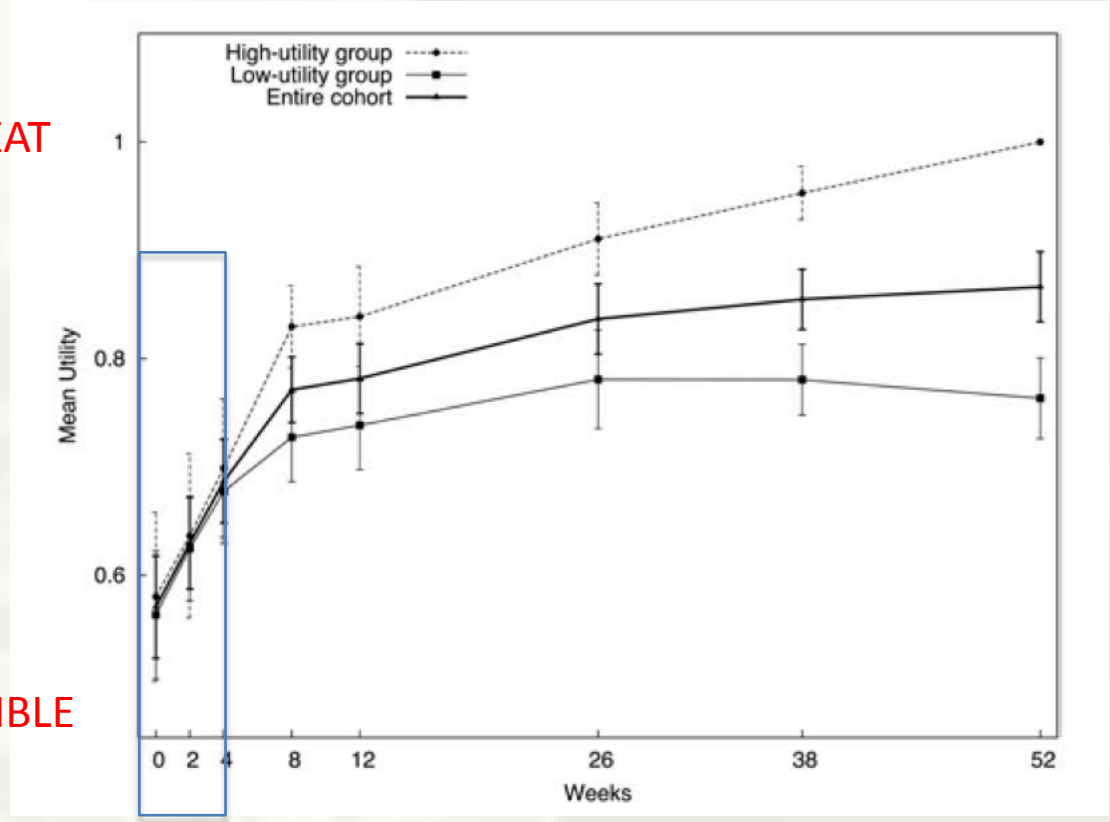
PREDICTING RECOVERY

GREAT



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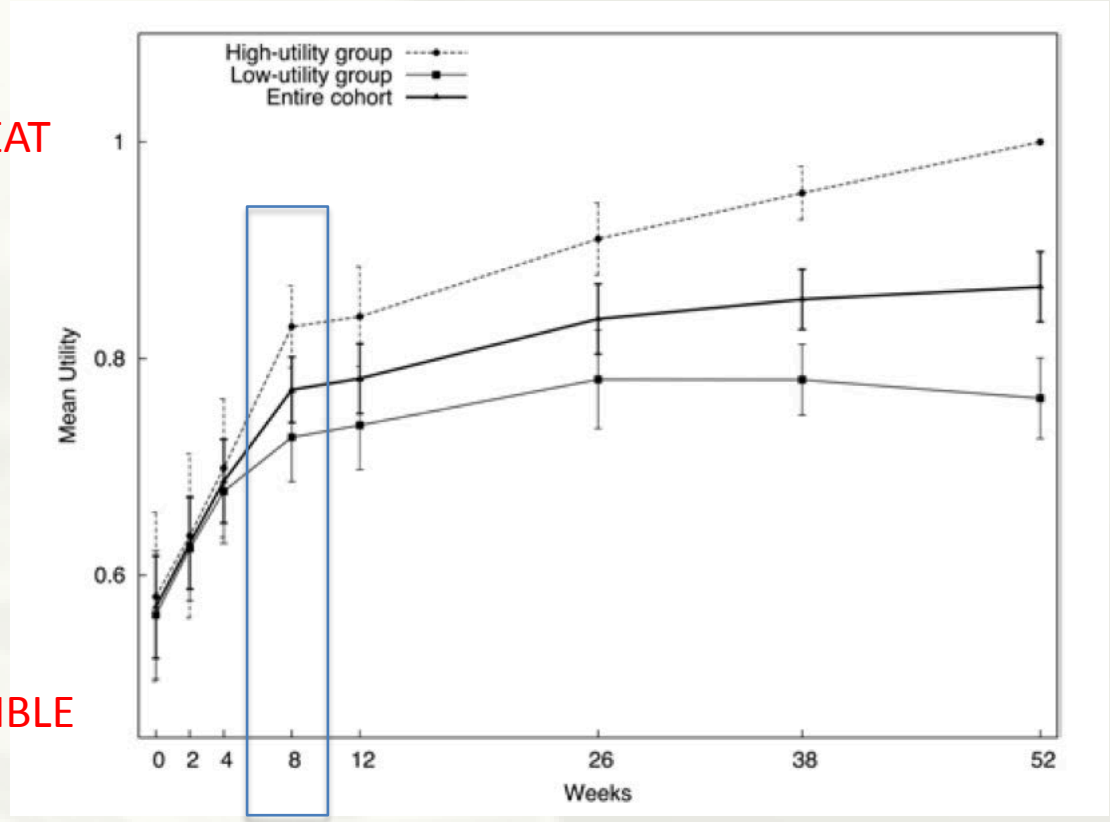
PREDICTING RECOVERY

GREAT



TERRIBLE

8 WEEKS

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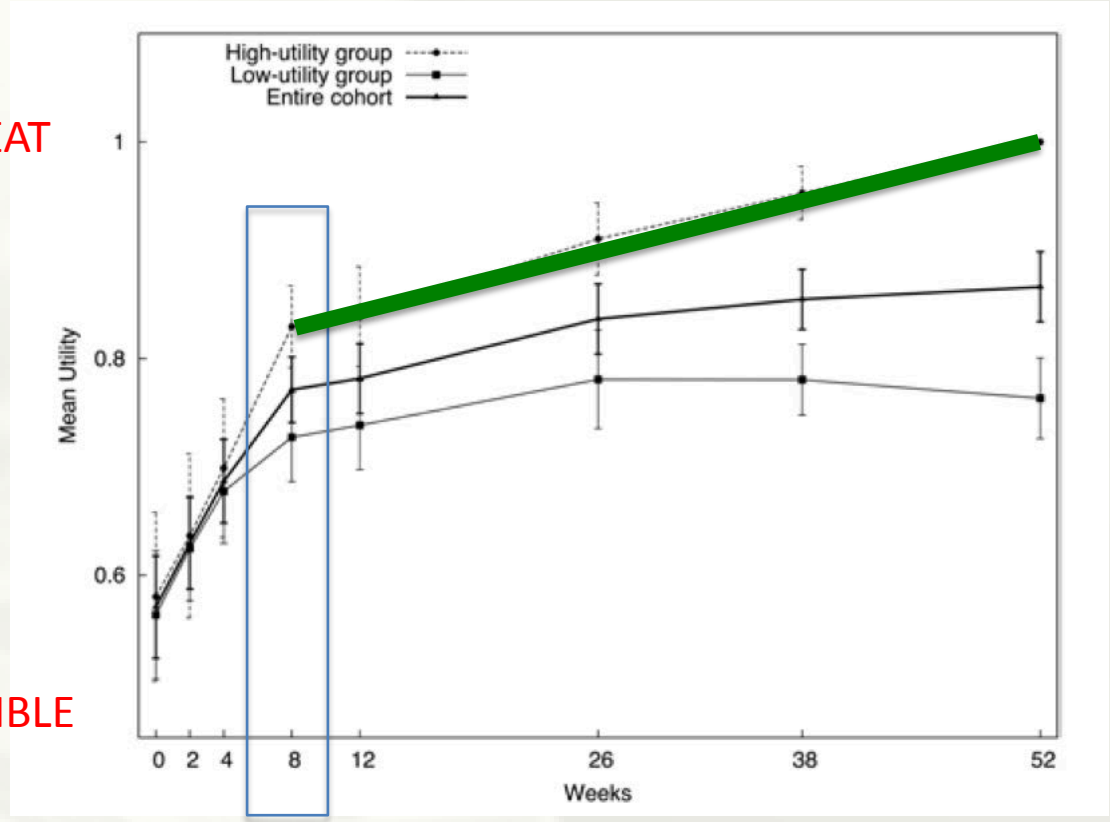
PREDICTING RECOVERY

GREAT



TERRIBLE

HIGH FUNCTION

8 WEEKS

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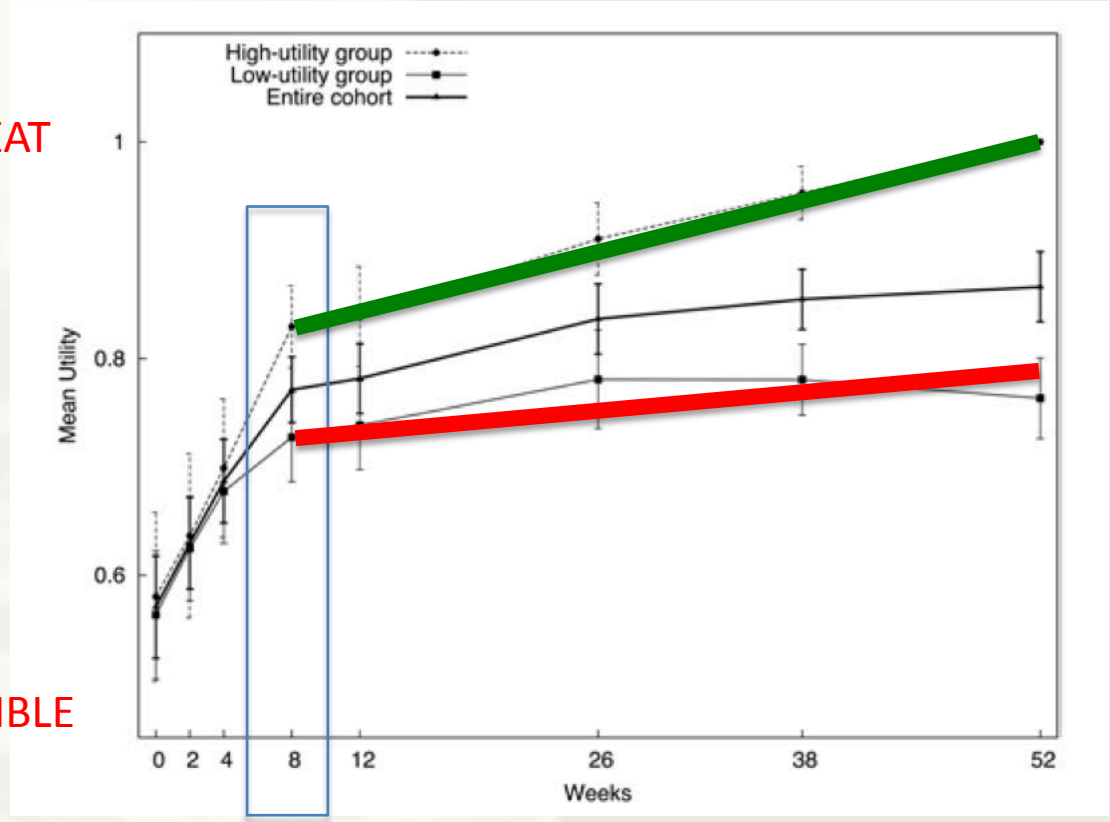
PREDICTING RECOVERY

GREAT



TERRIBLE

HIGH FUNCTION

LOW FUNCTION

8 WEEKS

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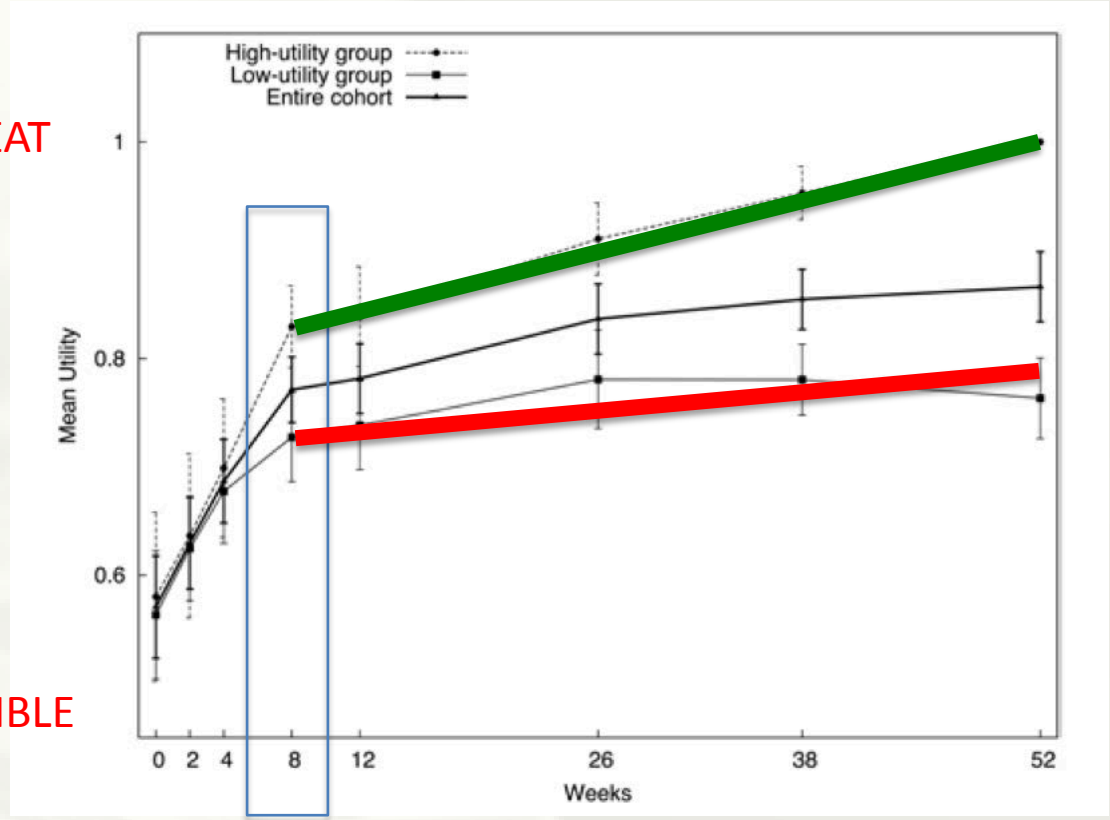
PREDICTING RECOVERY

GREAT



TERRIBLE

8 WEEKS

HIGH FUNCTION

3 %

LOW FUNCTION

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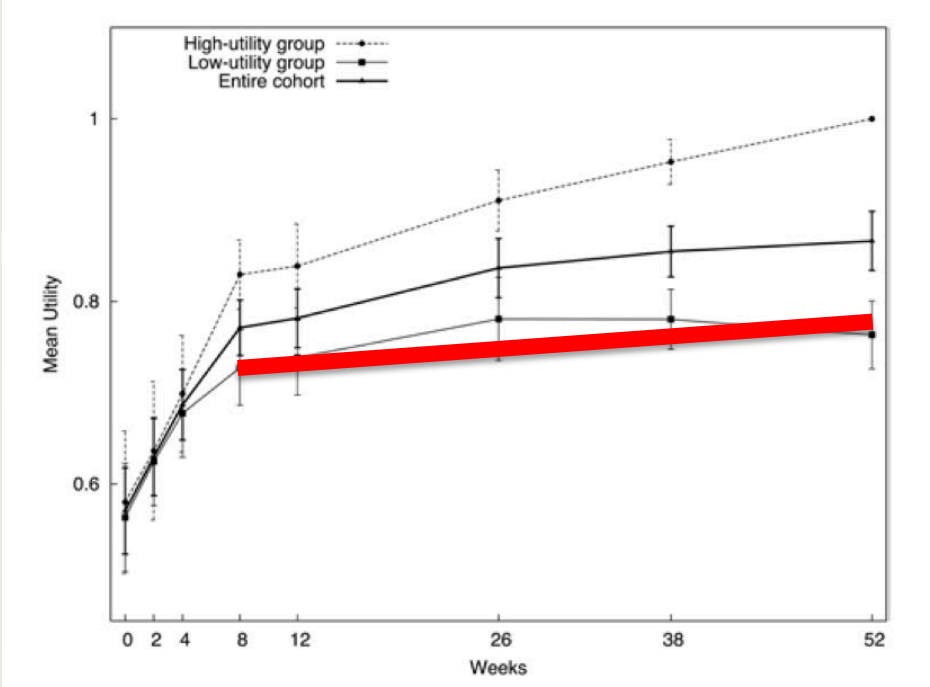
Predicting Recovery

- If by 8-12 weeks your patient is not doing well, they are likely to end up with poor function with continued conservative therapy



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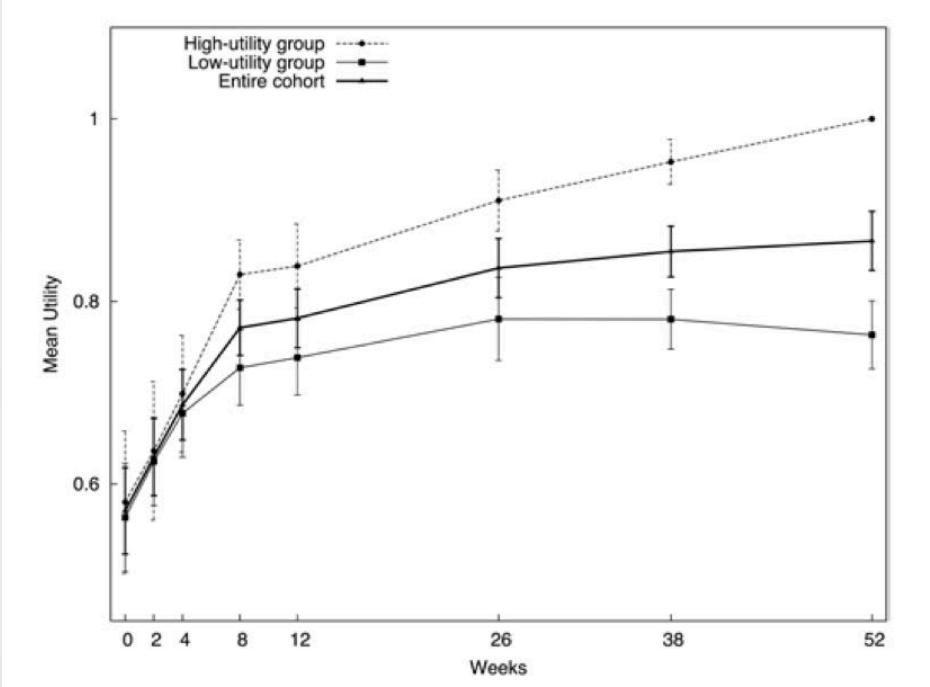
Predicting Recovery

- If by 8-12 weeks your patient is not doing well, they are likely to end up with poor function with continued conservative therapy



8 weeks marks an appropriate time to start referring a poorly functioning patient for further assessment

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When is too late?

- Results significantly worsen after 12 months of symptoms

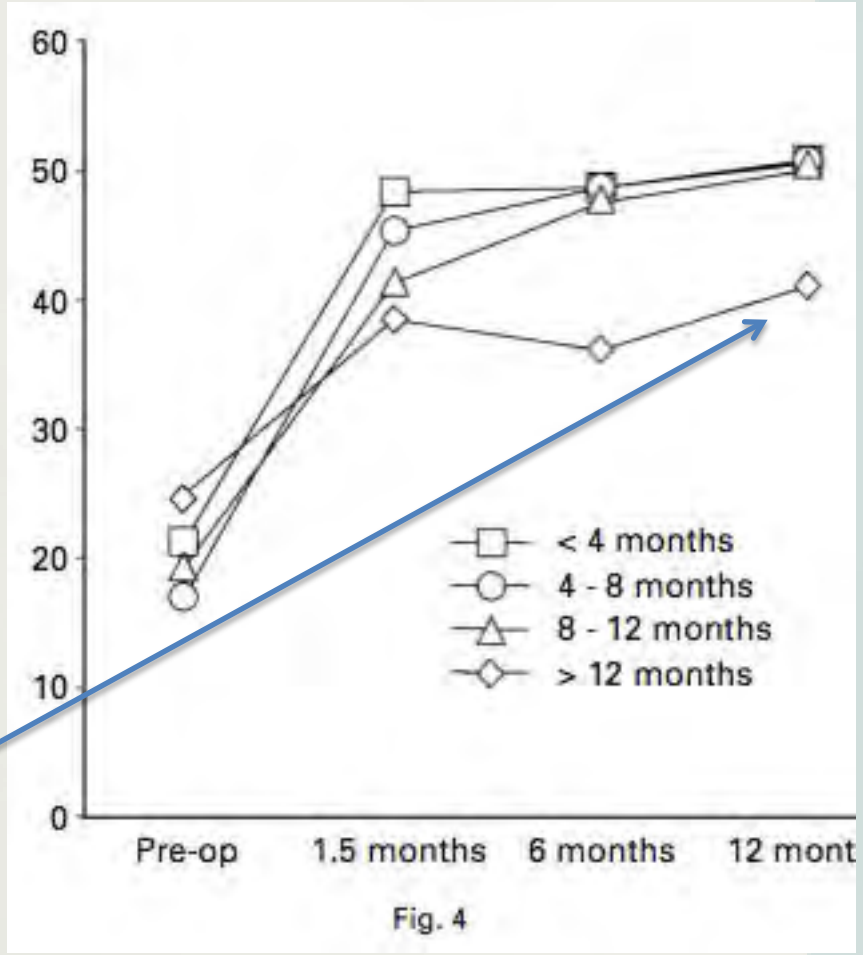

Fig. 4

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When is too late?

- Results significantly worsen after 12 months of symptoms

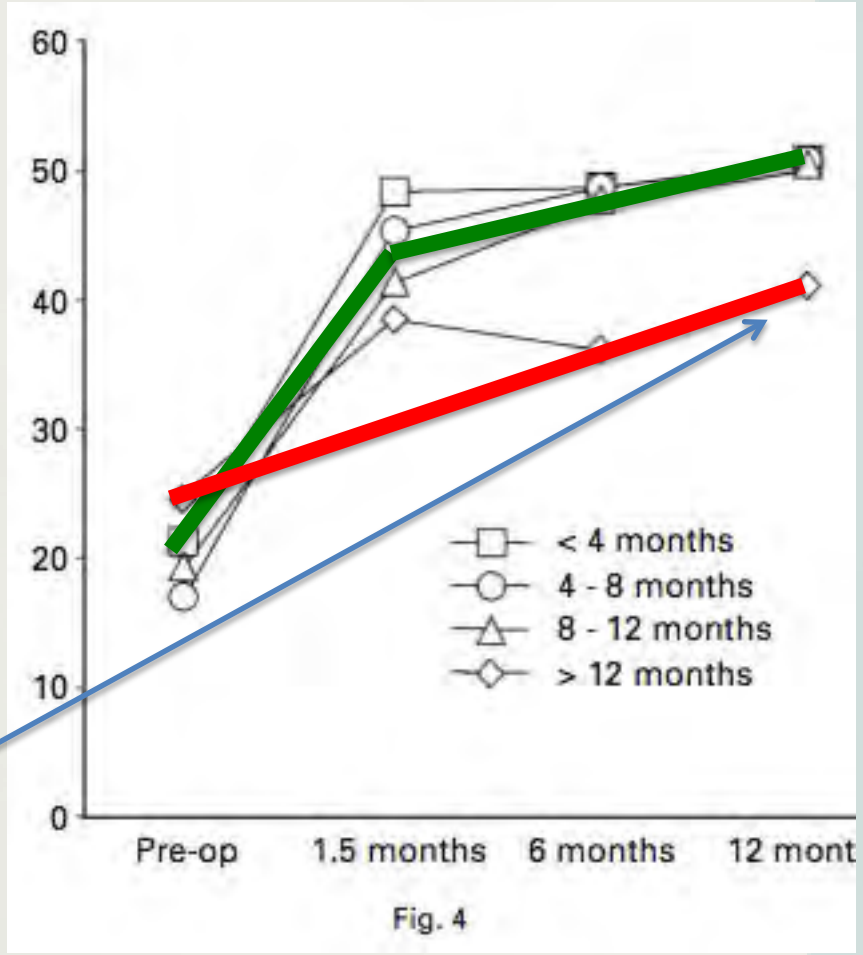

Fig. 4

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When is too late?

Please refer before 8-10 months if possible

- Results significantly worsen after 12 months of symptoms

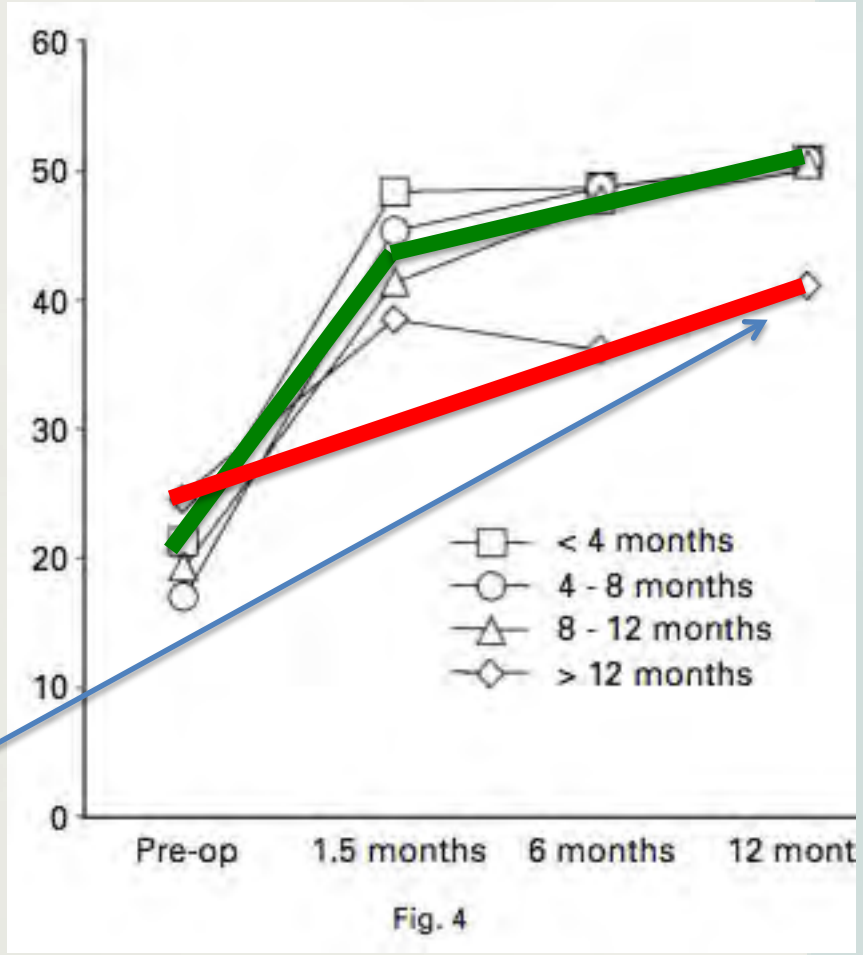

Fig. 4

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CLINICAL

- Symptoms
  - Pain
  - Sensation
  - Power
  - Red Flags

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Pain and Sensory changes

Felt in the muscles and skin supplied by the nerve

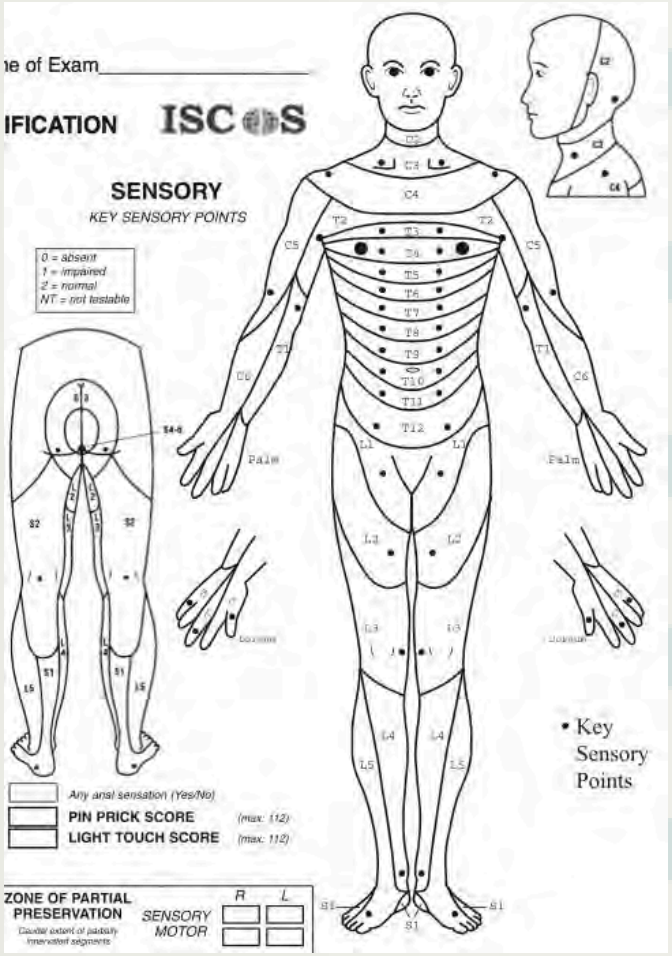
L2/3 – Anterior Thigh

L4 – Anterior Lower leg

L5 – Lateral Lower leg and top of foot

S1 – Calf and sole of foot

Sensory changes more reliable correlation with nerve involved as opposed to pain



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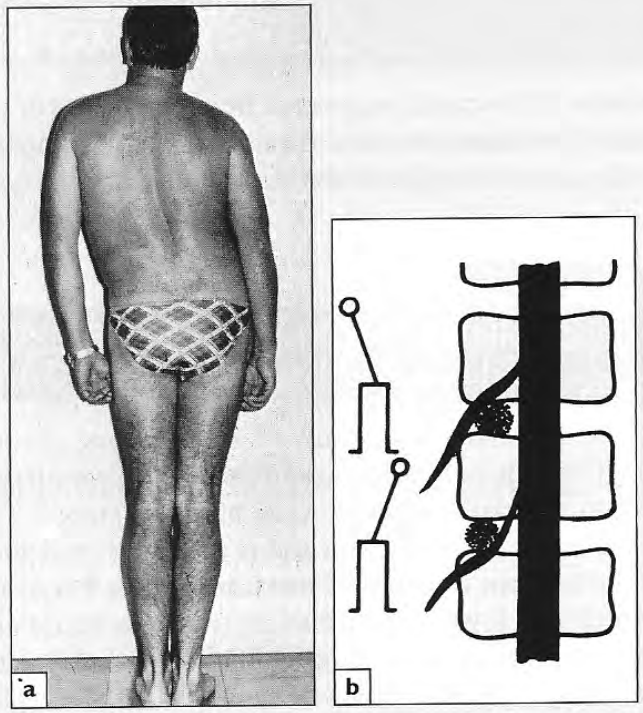
EXAMINATION

- Standing
  - Muscle wasting
  - Tilt
  - Stooping forward
  - Flexion/Extension
- Gait
  - Toe walking
  - Heel Walking
  - Heel-Toe (Ataxia)



18.29 Lumbar disc – signs (**a**) The patient has a sideways list or tilt. (**b**) If the disc protrudes medial to the nerve root the tilt is towards the painful side (to relieve pressure on the root); with a far lateral prolapse (lower level) the tilt is away from the painful side.

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EXAMINATION

- Standing
  - Muscle wasting
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  - Stooping forward
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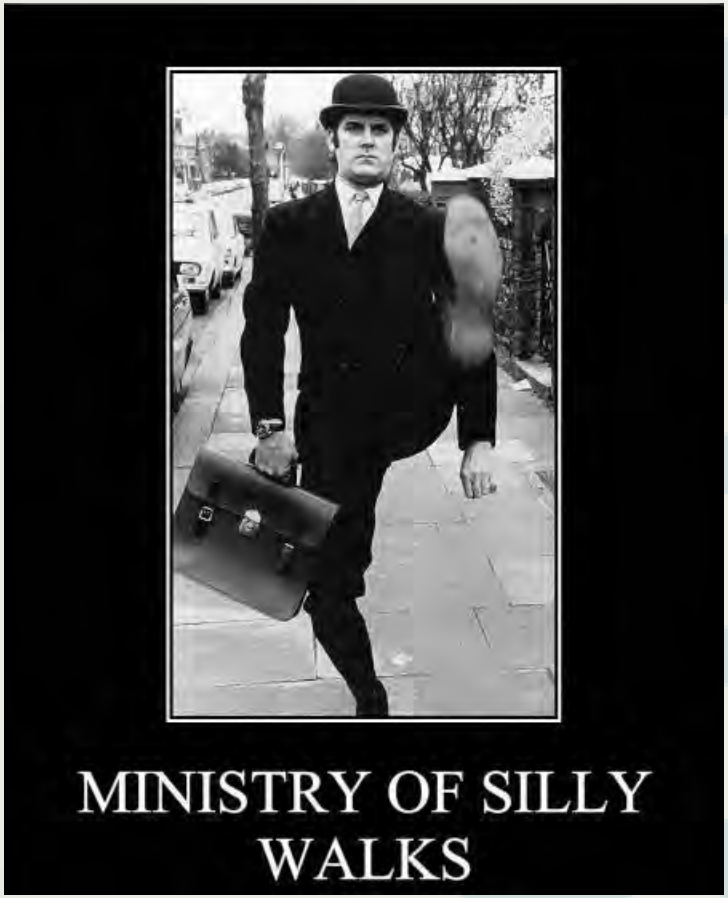

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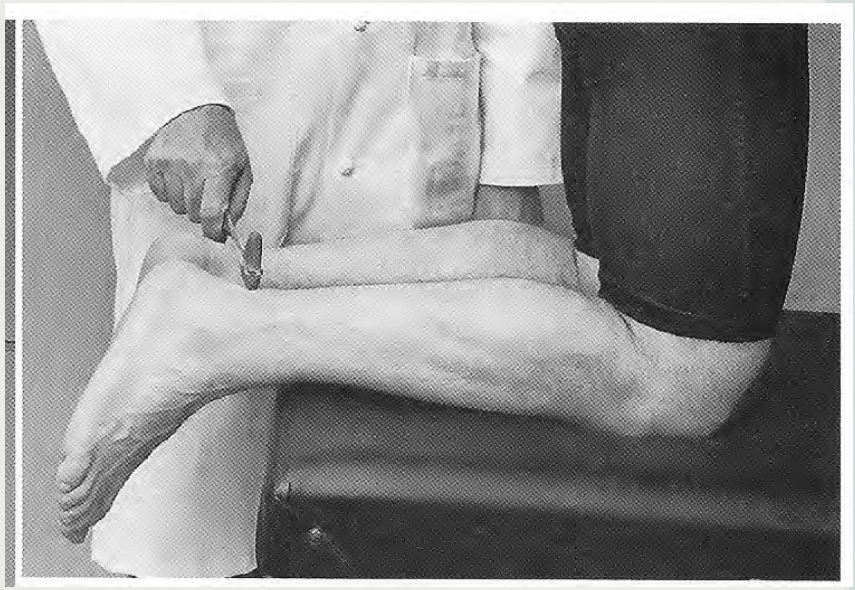
- Kneeling
  - Ankle Reflexes (S1)
  - Unilateral Absent Reflexes are an excellent predictor of nerve root involvement



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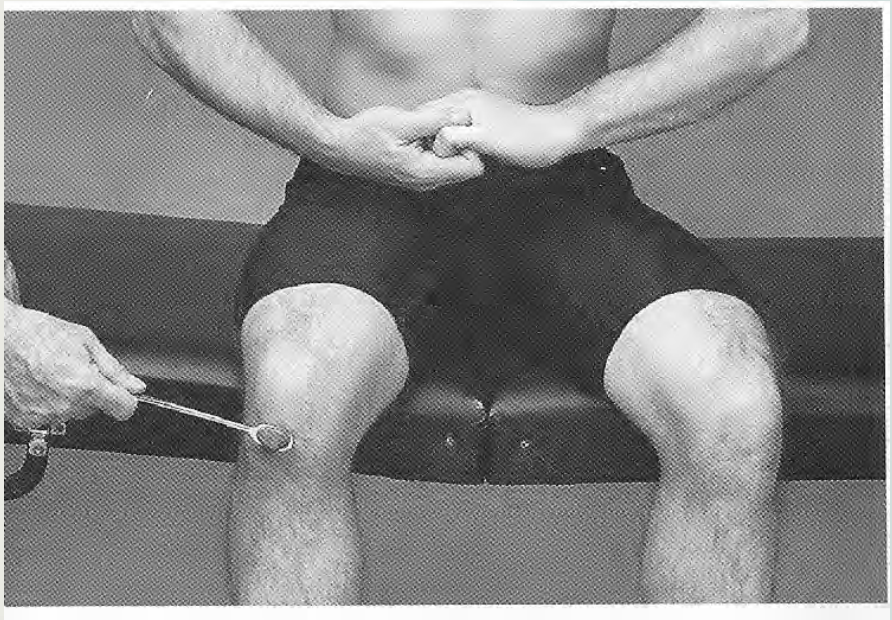
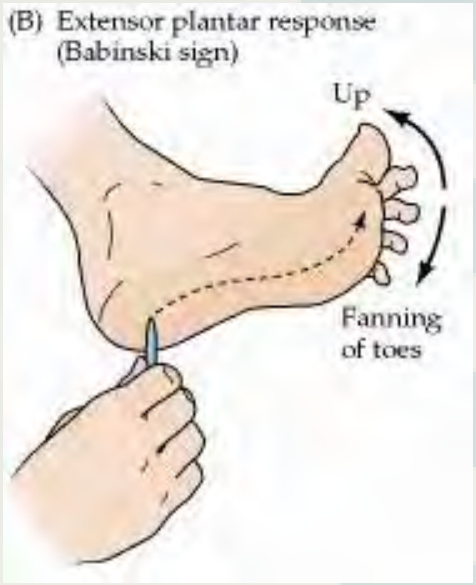
- Sitting
  - Knee Jerks (L3/4)
  - Muscles
    - Hip Flexors
    - Quads
      - Bonus Slump Test!



- Lying Supine
  - Babinski Sign
  - Clonus
  - Pulses
  - Sensation
  - Motor Power
  - Nerve Root Tension Signs



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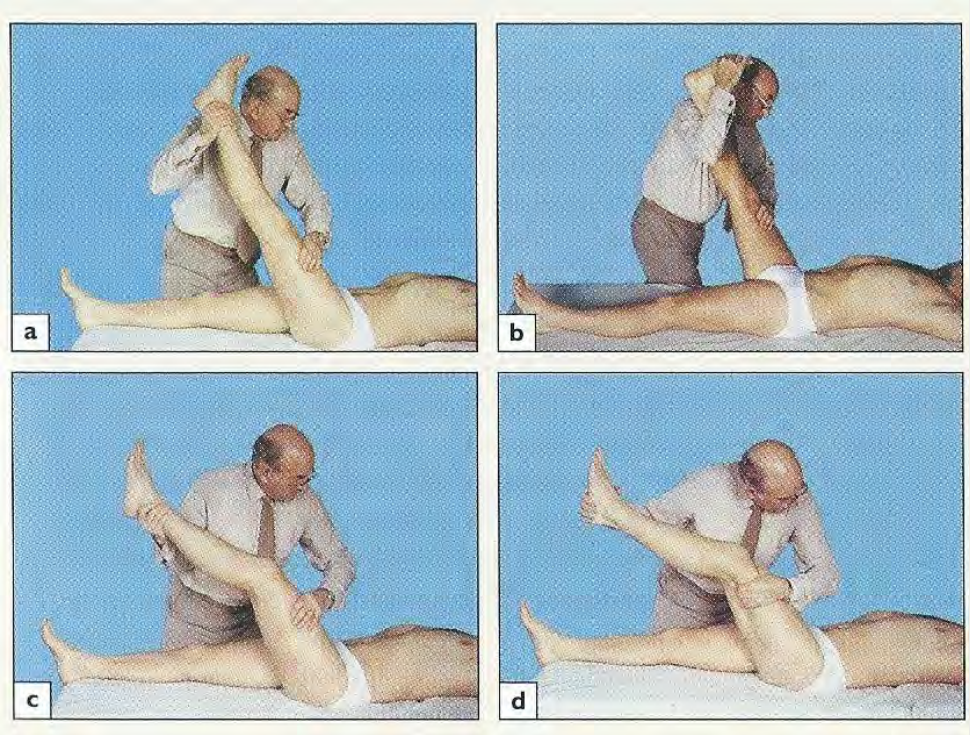
Nerve Root Tension Signs

- Average Excursion of Nerve Roots
  - L4 1.5mm
  - L5 3.0mm
  - S1 6.0mm



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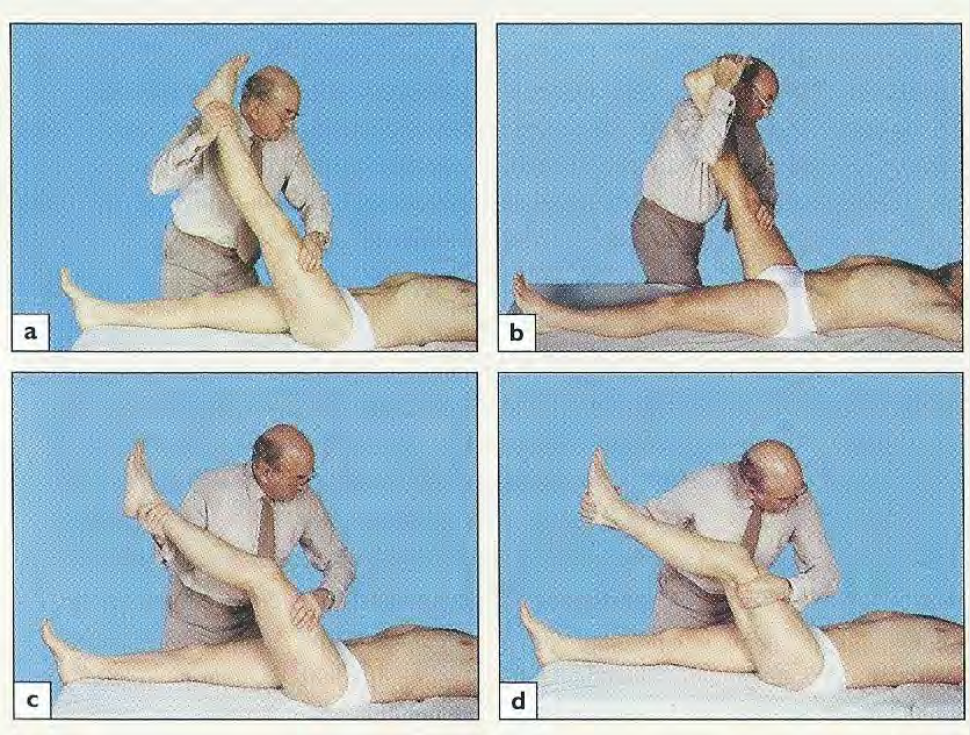
Nerve Root Tension Signs

- Straight Leg Raise
  - Reproduces pain below knee
  - Sensitive
  - Cross over sign, 97%
- Lasègue's Sign
- Bowstring Test
- +ve SLR indicative of more severe pathology. Persistence indicates a significant lack of improvement.



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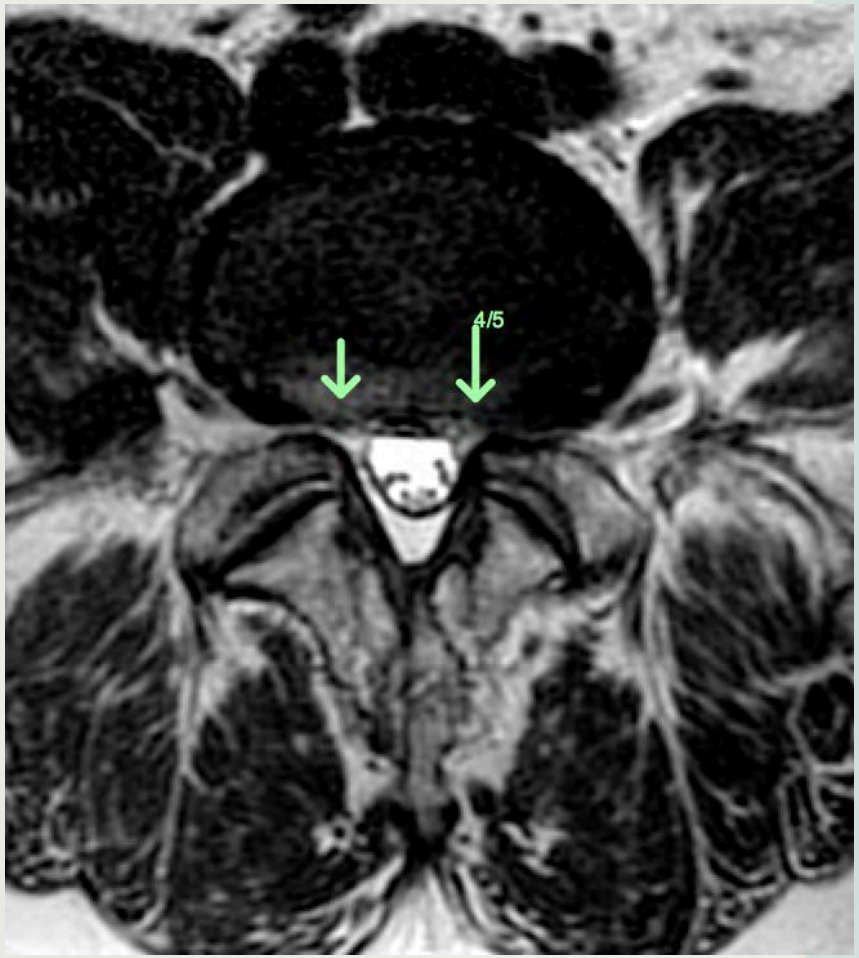
- Hips!!!



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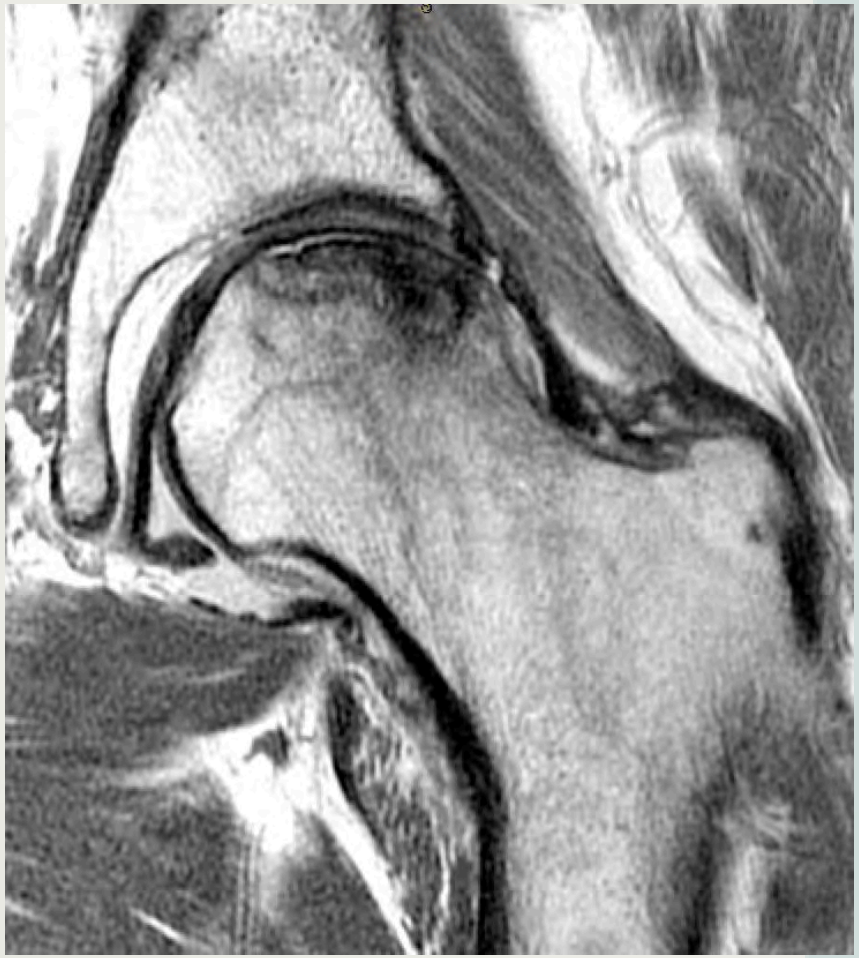
- Hips!!!



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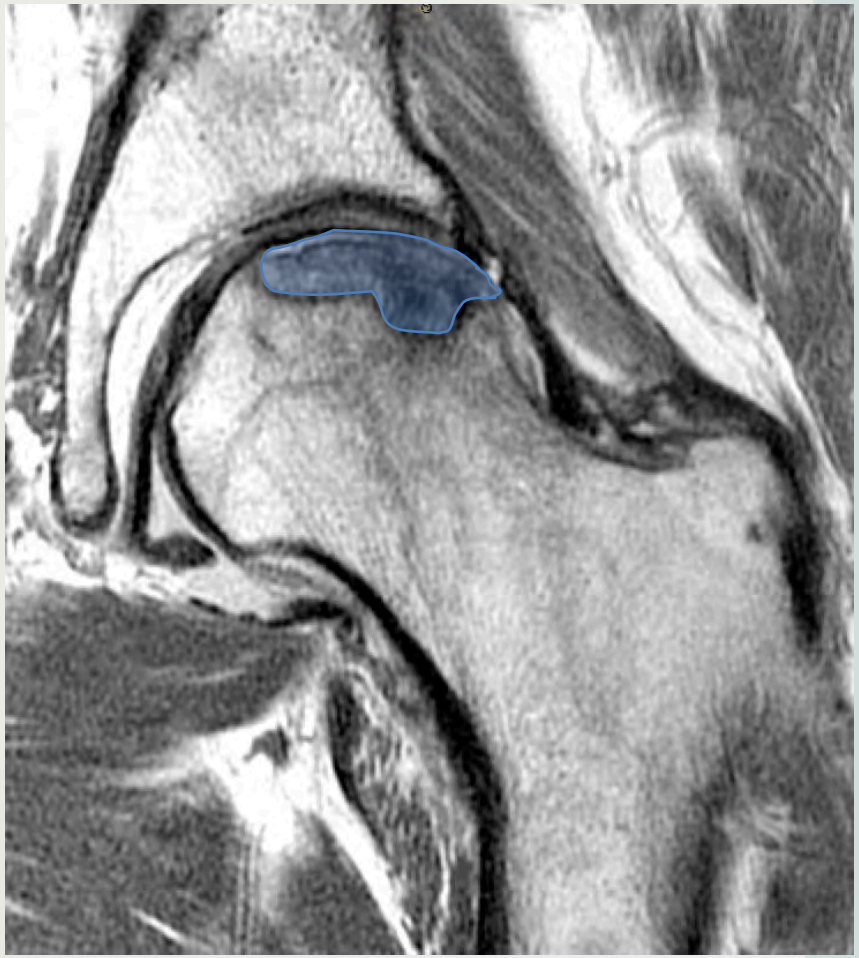
- Hips!!!



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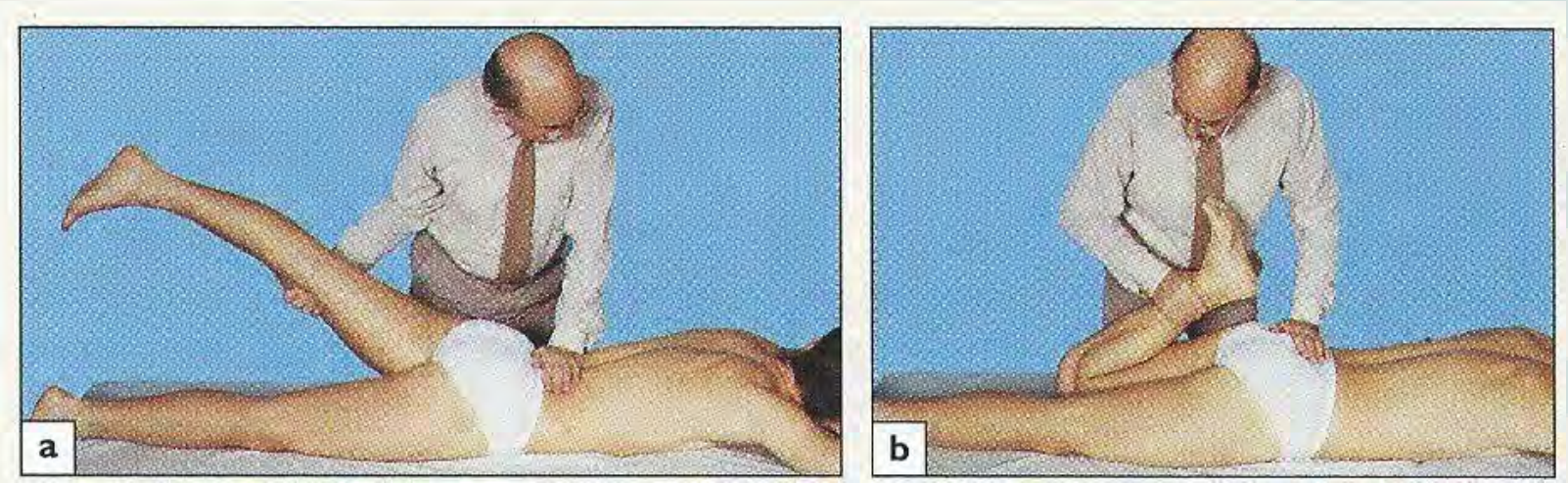
Nerve Root Tension Signs

- Femoral Nerve Stretch Test



Really useful for patients with anterior thigh pain. If +ve then refer spine, if –ve examine hips.

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Examination Cervical Spine

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Cervical Spine Exam

- Look
- Feel
- Move
- Neuro
  - Sensation
  - Power
  - Reflexes
  - Test for Myelopathy
  - Peripheral Neuro

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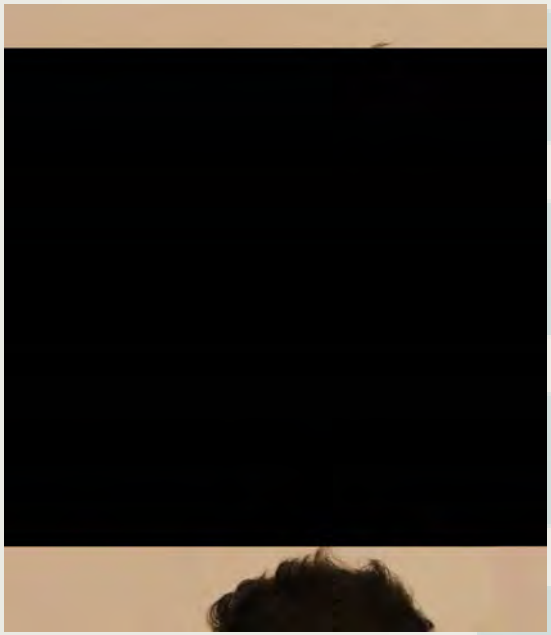
Look

- From the front

- From the side
- From the back



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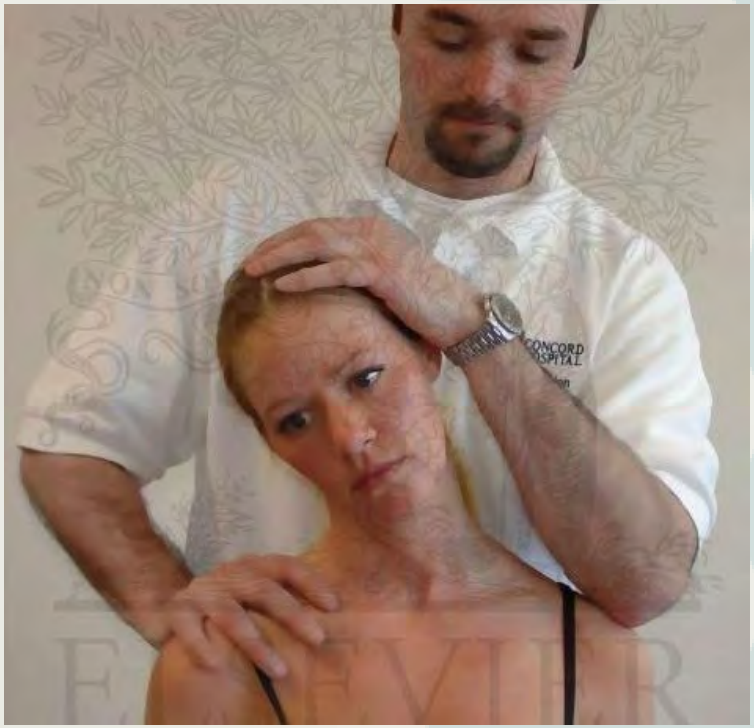
Feel

- Can check for lumps
- Utility of discrete tenderness is low

Movement

- Stand in front of the patient so you can see when it hurts

- Flexion (L'hermitte's)
- Lateral Rotation
- Extension
- Extension and rotation (Spurling's Test)



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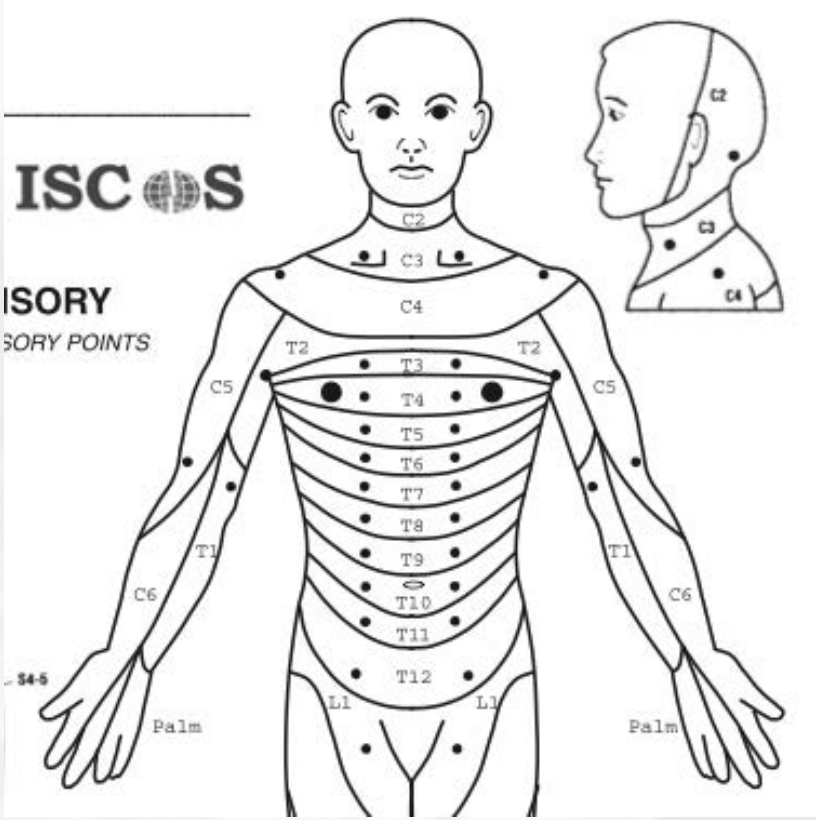
NEURO - SENSORY



- C4 – Point of shoulder
- C5 – Lateral Elbow
- C6 – Thumb
- C7 – Middle Finger
- C8 – Little Finger
- T1 – Medial Elbow

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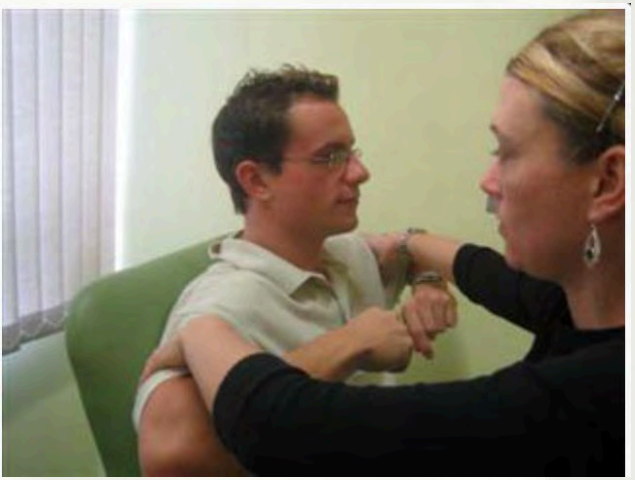
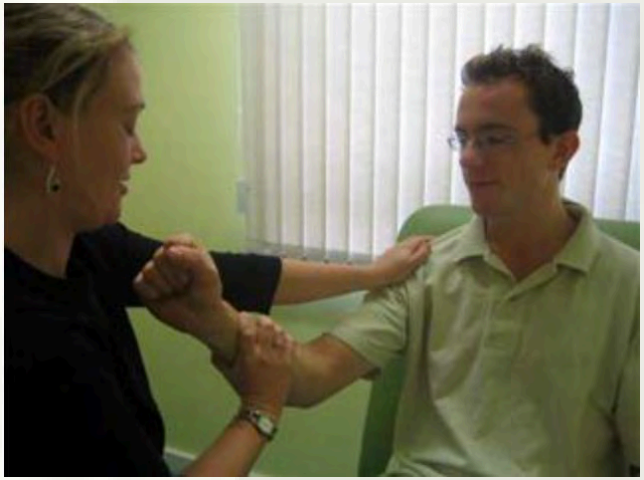
NEURO - MOTOR





- C4 – Shoulder Shrug
- C5 – Deltoid/Biceps
- C6 – Wrist Extension
- C7 – Triceps
- C8 – Finger Extension
- T1 – Finger ABduction

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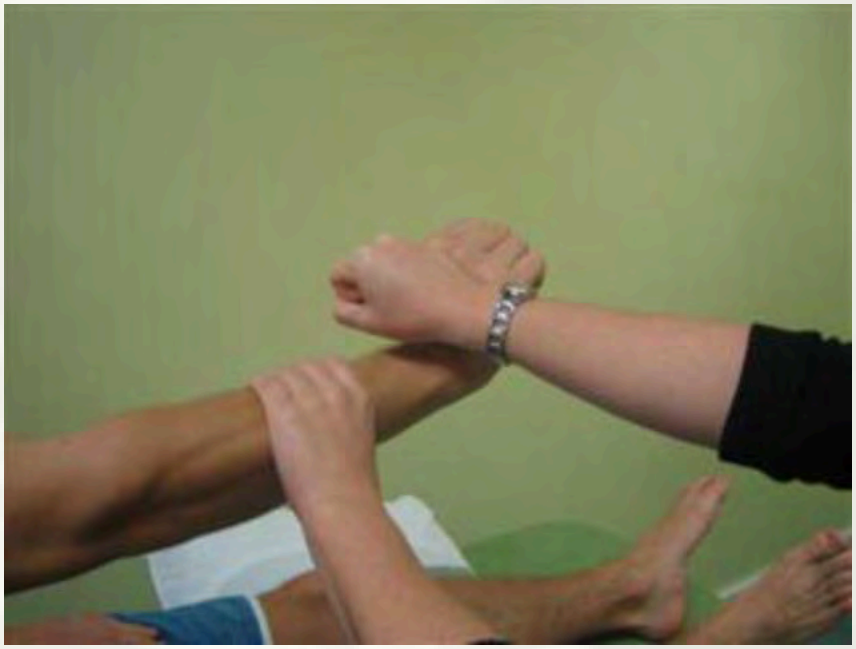
Neuro - Motor



- C4 – n/a
- C5 – Deltoid/Biceps
- C6 – Wrist Extension
- C7 – Triceps
- C8 – Finger Extension
- T1 – Finger ABduction

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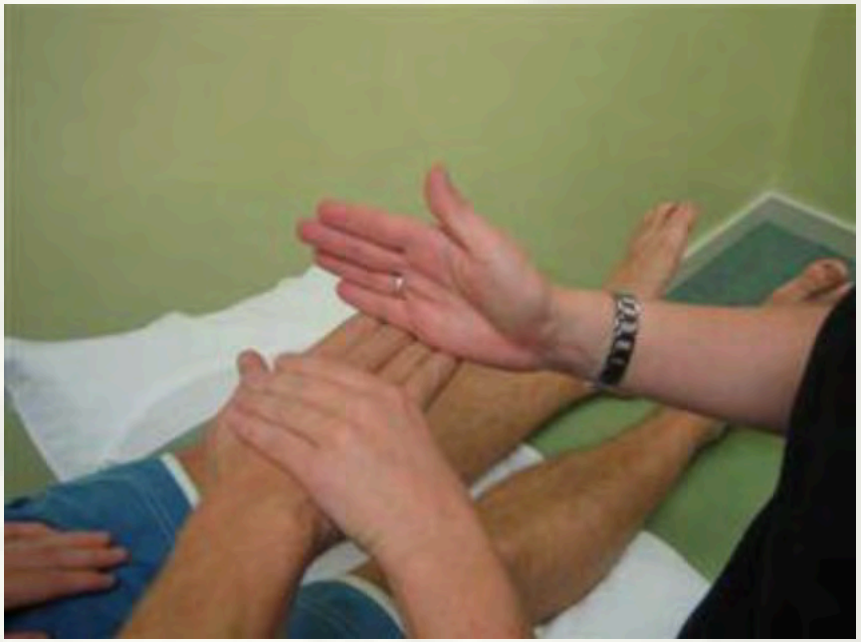
NEURO - MOTOR



- C4 – n/a
- C5 – Deltoid/Biceps
- C6 – Wrist Extension
- C7 – Triceps
- C8 – Finger Extension
- T1 – Finger ABduction

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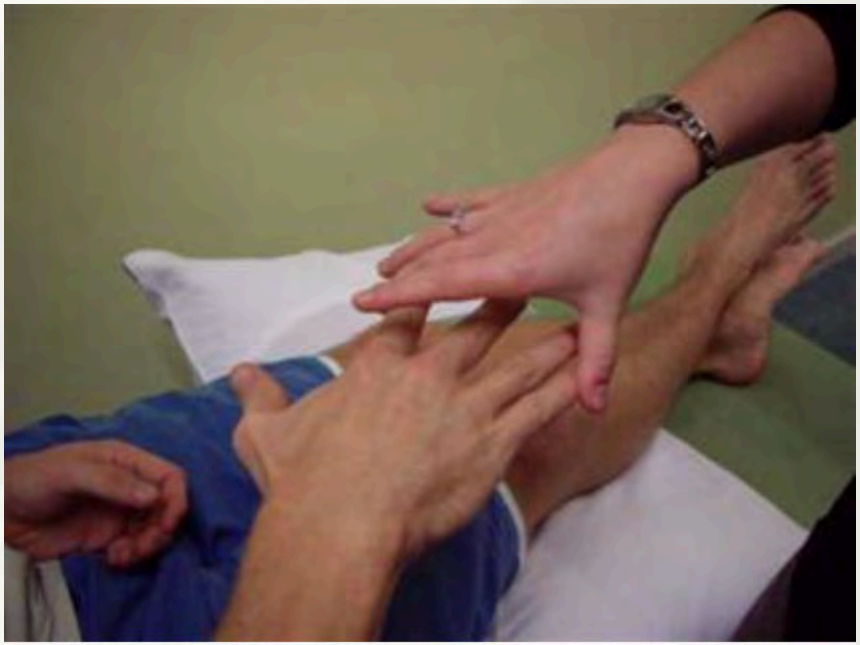
Neuro - Motor



- C4 – n/a
- C5 – Deltoid/Biceps
- C6 – Wrist Extension
- C7 – Triceps
- C8 – Finger Extension
- T1 – Finger ABduction

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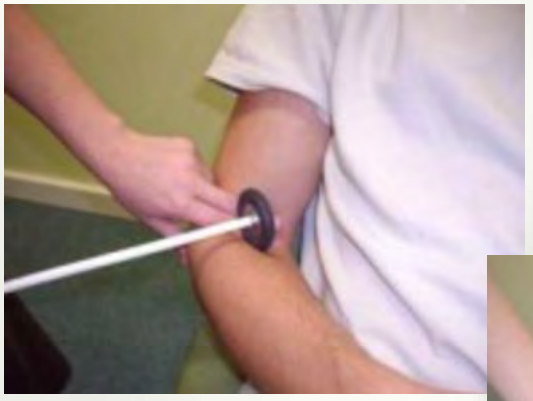
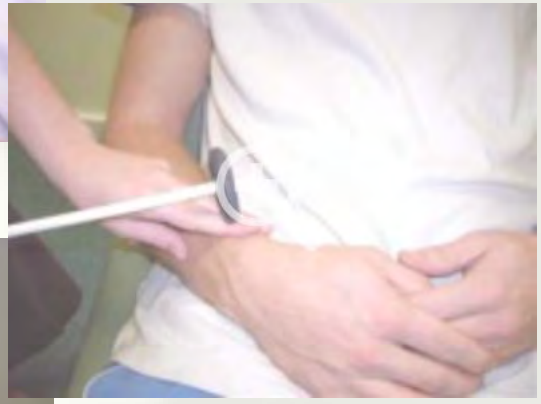
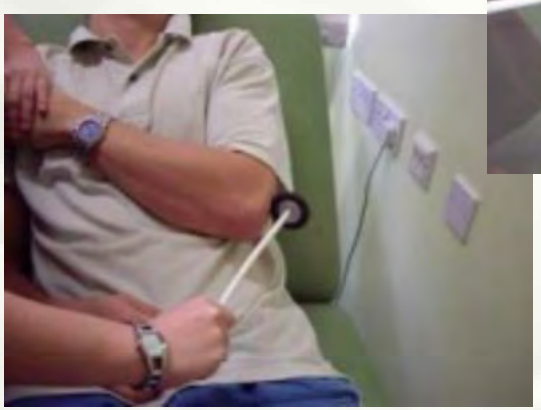
NEURO - REFLEXES



C5 –Biceps



C6 – Brachoradialis



C7 – Triceps

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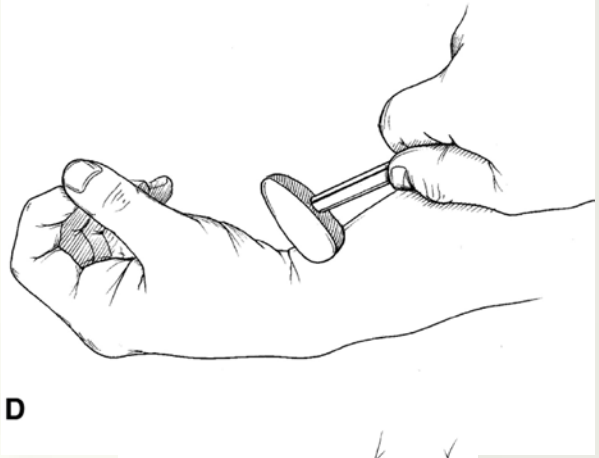
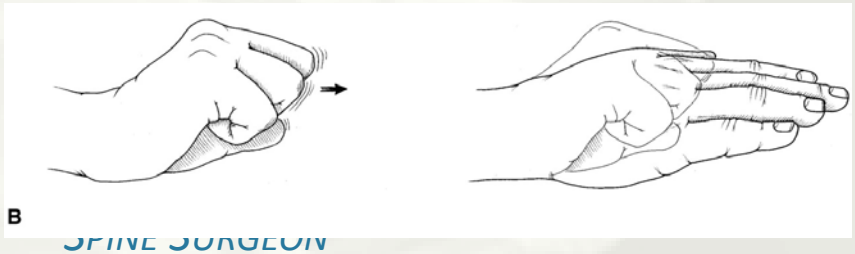
NEURO - MYELOPATHY



Inverted Radial (aka Inverted Supinator) Reflex

Hoffman's Sign

Finger Escape



Grip and Release Test

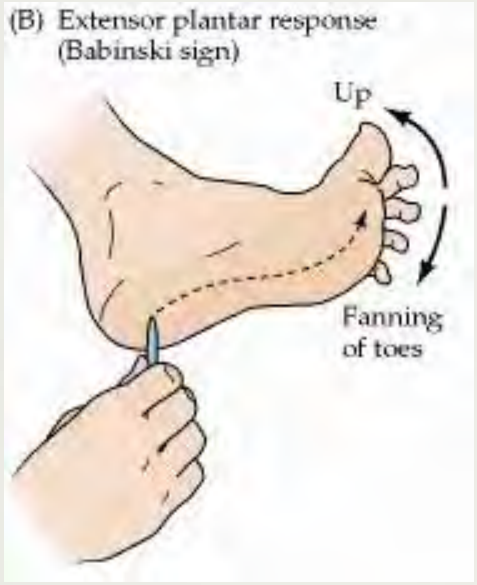
NEURO - MYELOPATHY

Gait - Ataxia

Rhomberg's Test

Babinski

Clonus



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CERVICAL MYELOPATHY

• Positive Rhomberg	Sp 100%	Sn unknown
• Finger Escape sign	Sp 100%	Sn 55%
• L'hermittes	Sp 97%	Sn Poor
• Biceps hyper-reflexia	Sp 96%	Sn 18%
• Clonus	Sp 96%	Sn 11%
• Inverted supinator sign	Sp 78%	Sn 61%
• Hoffman test	Sp 75%	Sn 44 %

OTHER

- Tinel's over cubital tunnel
- Flexion compression of carpal tunnel

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INVESTIGATIONS

- MRI
  - Gold standard
  - Only useful when correlated with clinical findings
- XR
  - useful for alignment and listhesis
  - Do ERECT
  - INDICATIONS:
    - Red flags (tumour, fracture)
    - Operative planning
- CT
  - Very useful for cervical spine
  - Highlights bony pathology (osteophytes/fractures)
- NCS - adjunct for equivocal findings or multiple pathologies (peripheral neural entrapment)
- Local Anaesthetic Injection – useful for confirming pathology

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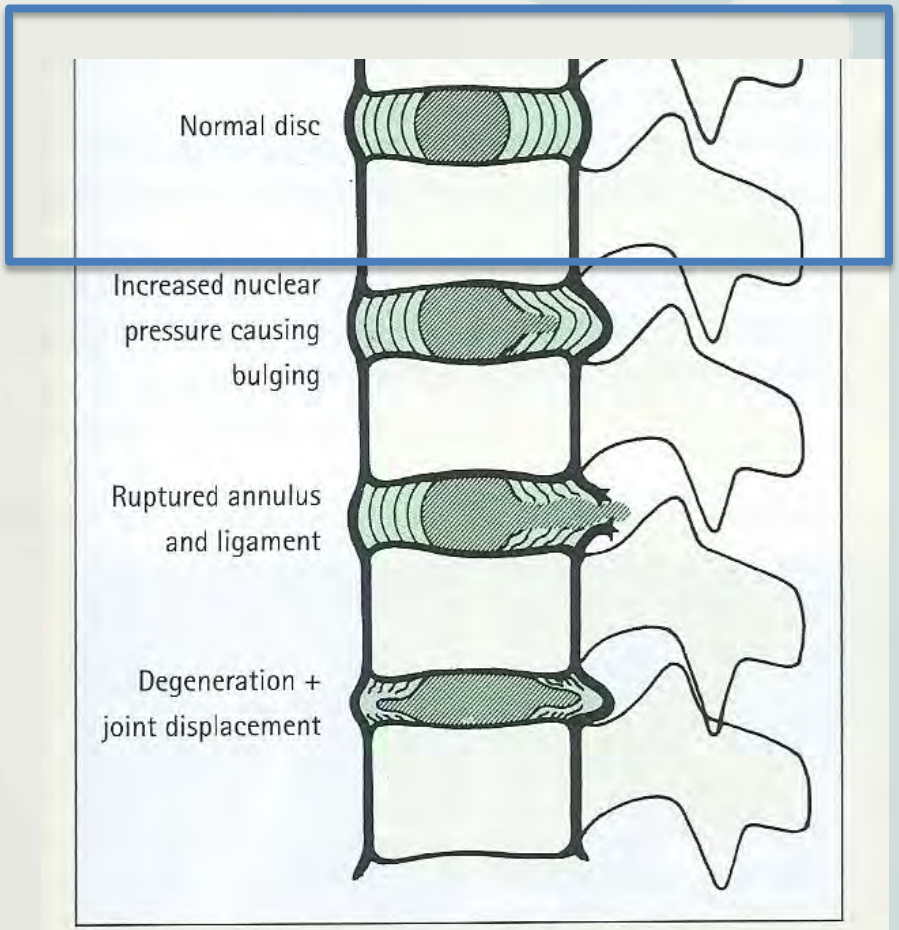
IMAGING -MRI

- Normal Disc
  - Outer Annulus
    - Multilaminar collagen fibres
    - Nerve endings on outer surface
  - Inner Nucleus Pulposus
    - Hydrated gel
    - Bioactive "irritant" molecules



18.27 Disc lesions – pathology (2) From above, downwards: an abnormal increase in pressure within the nucleus causes split-

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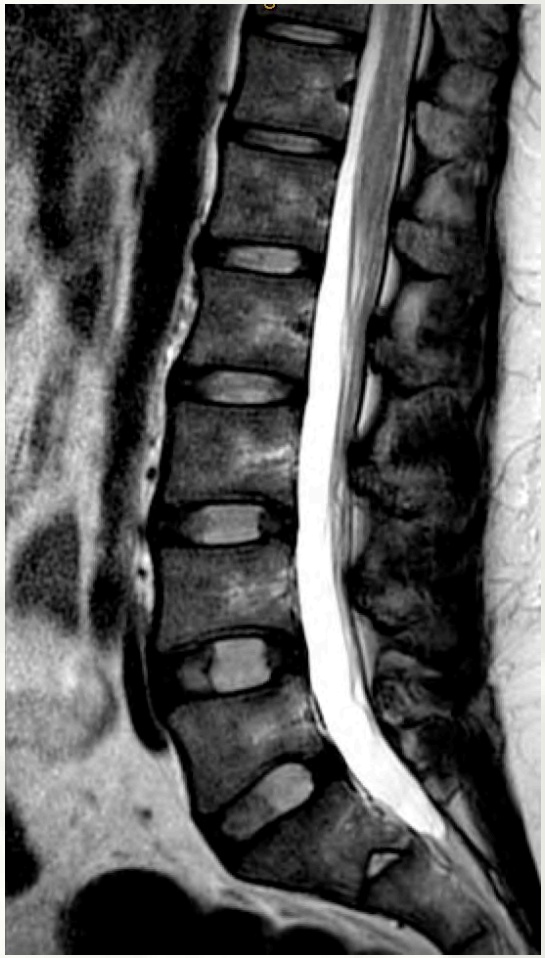
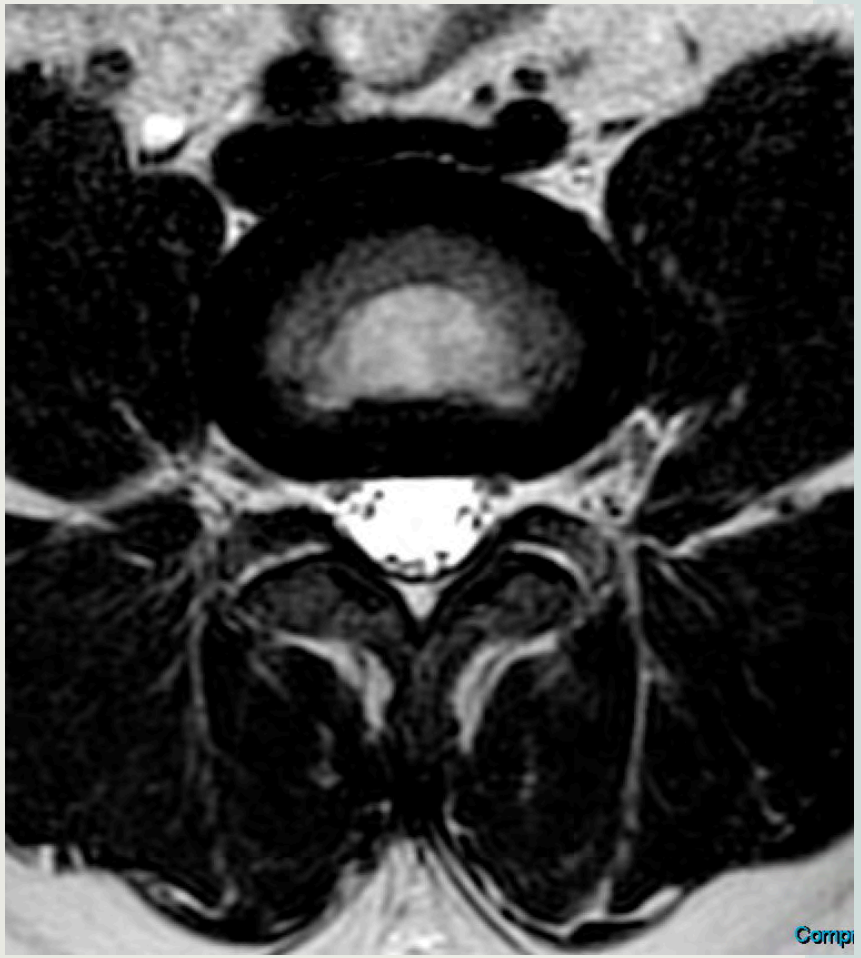
NORMAL DISC





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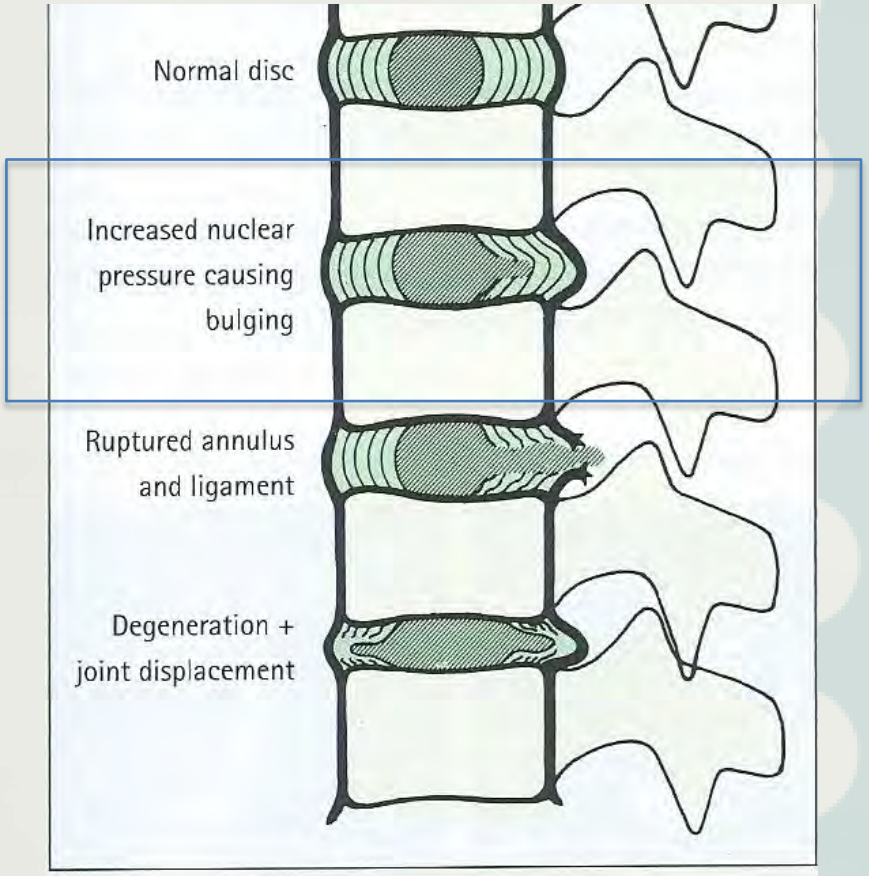
- Bulging Disc
  - Annular fibres tear and weaken
  - Nucleus pushes against the weakened fibres



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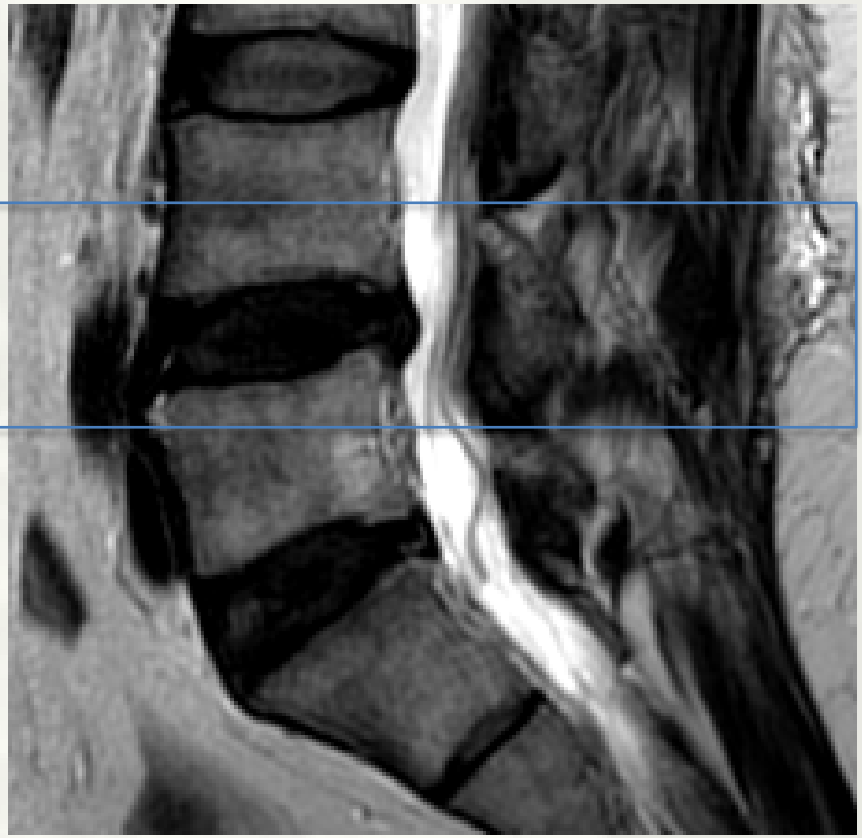
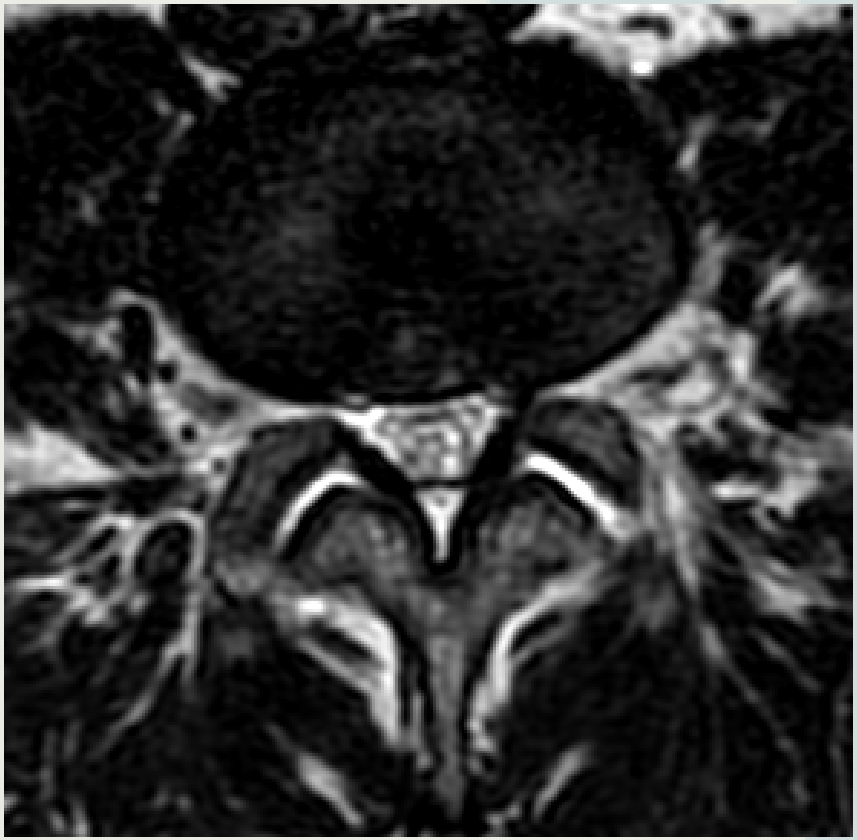
- Bulging Disc





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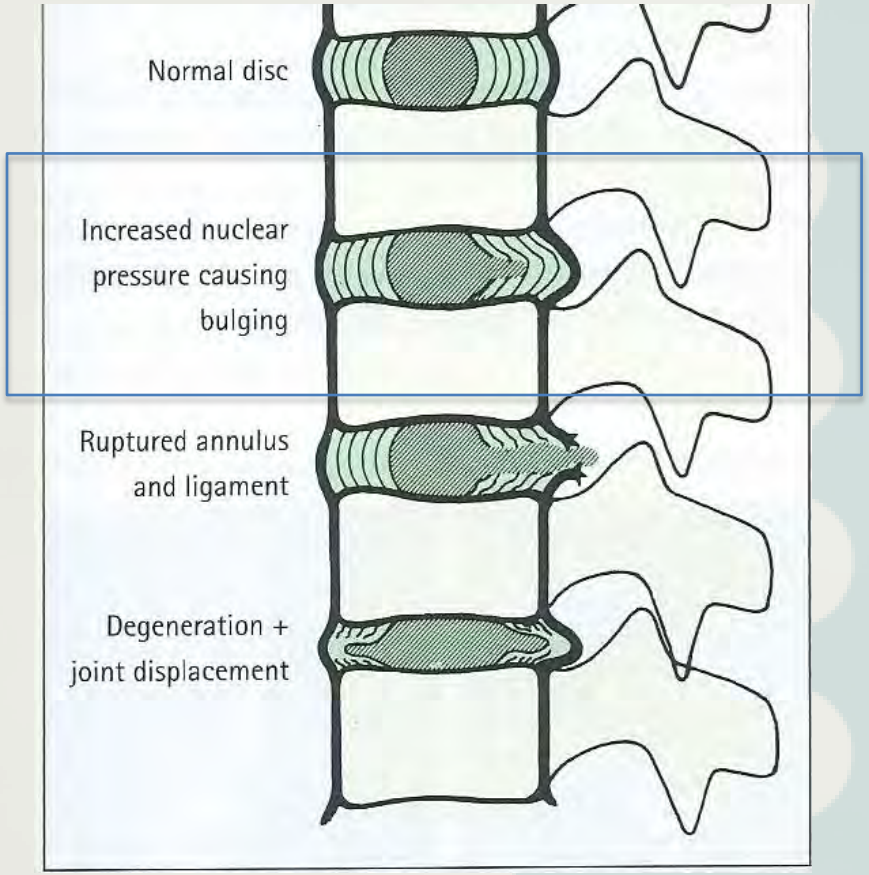
- Protrusion
  - Focal displacement
  - Nucleus pushes against the weakened fibres but does not break through



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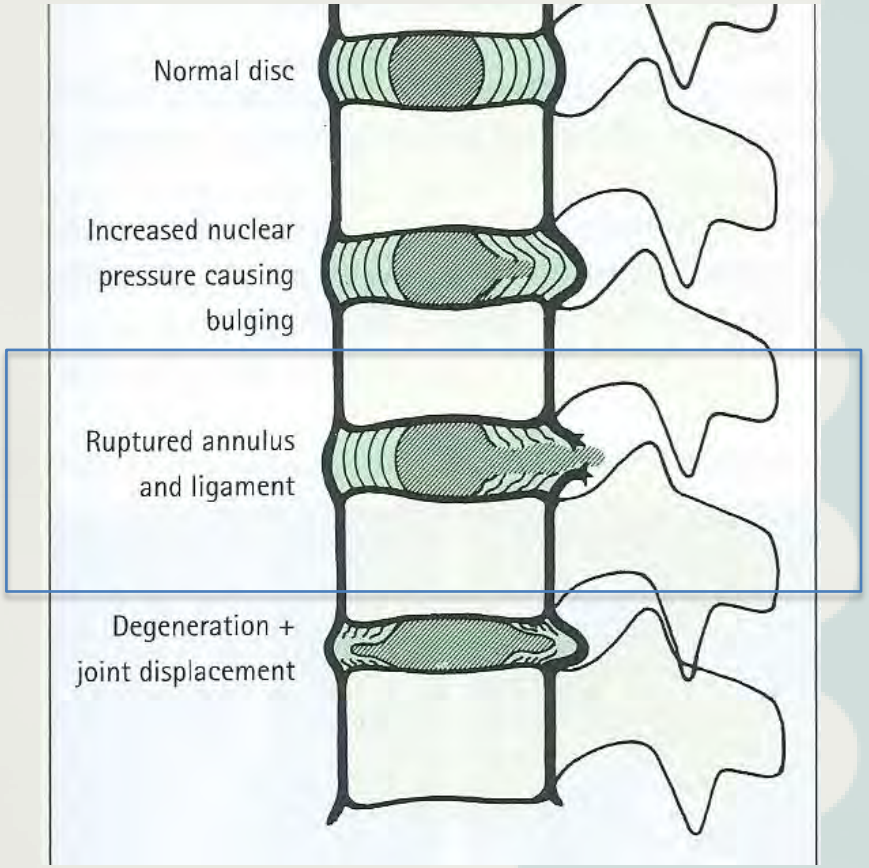
- Protrusion
  - Focal displacement
  - Nucleus pushes against the weakened fibres but does not break through
- Extrusion
  - Focal displacement
  - Nucleus pushes and breaks through the annulus



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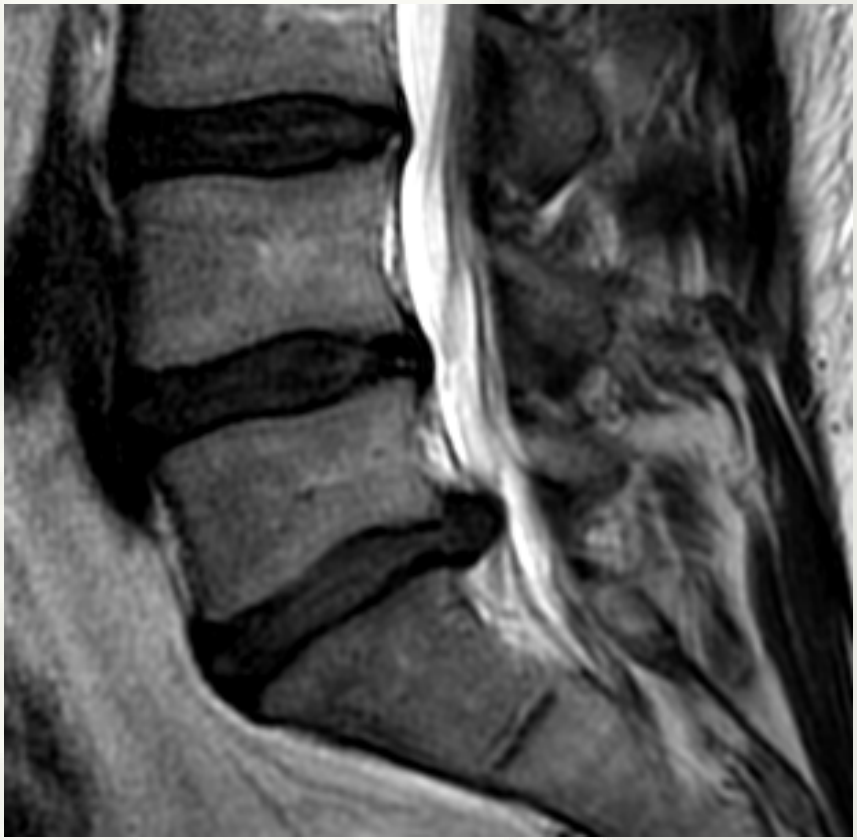
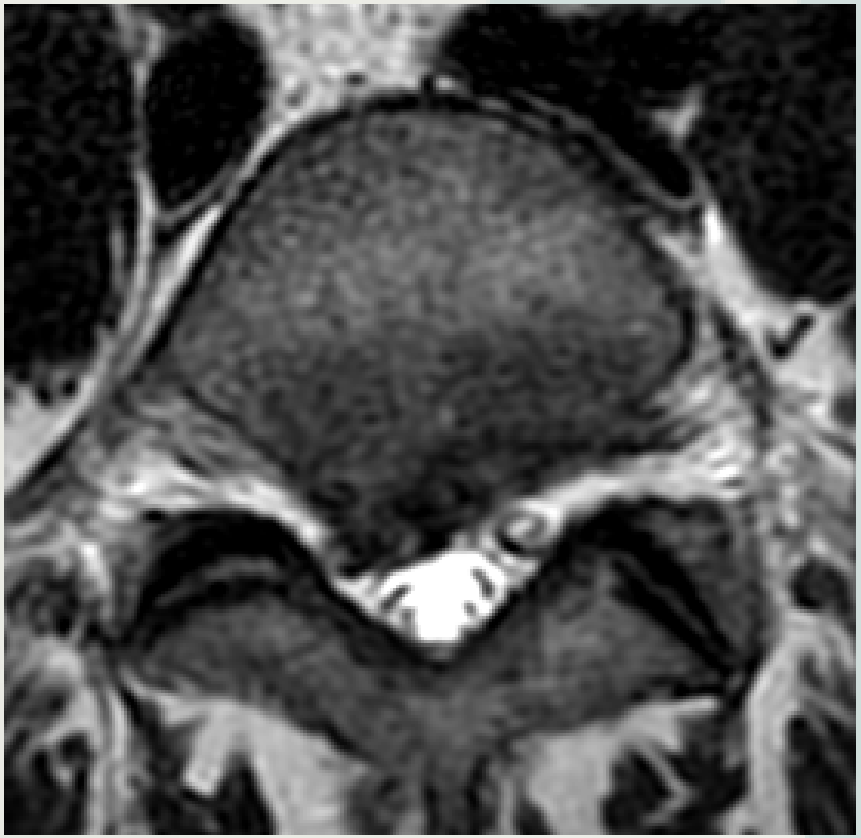
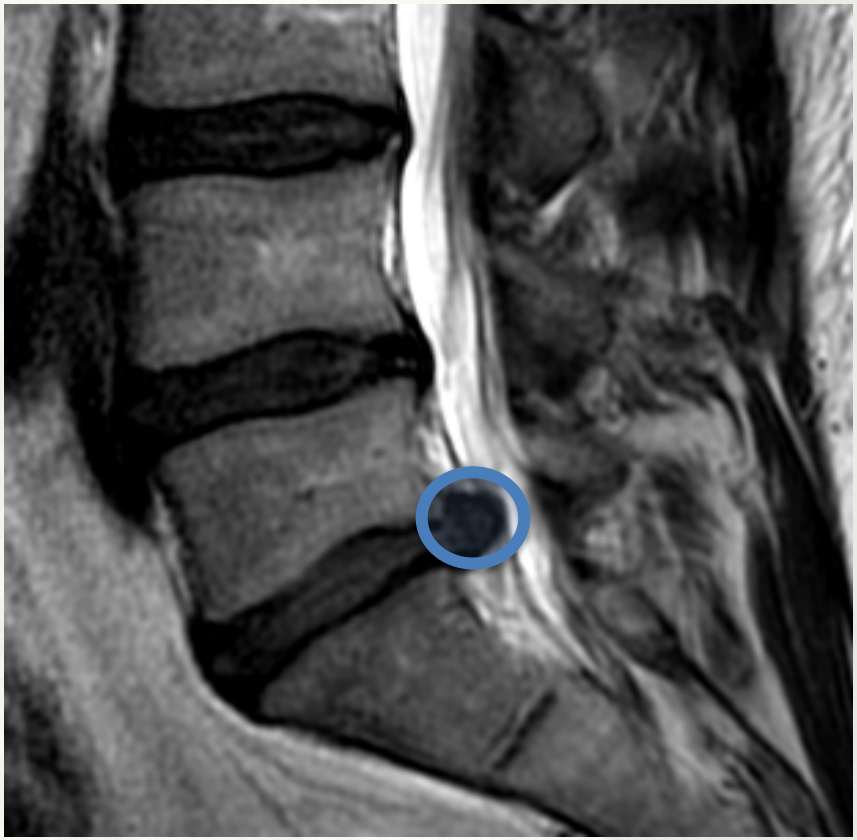
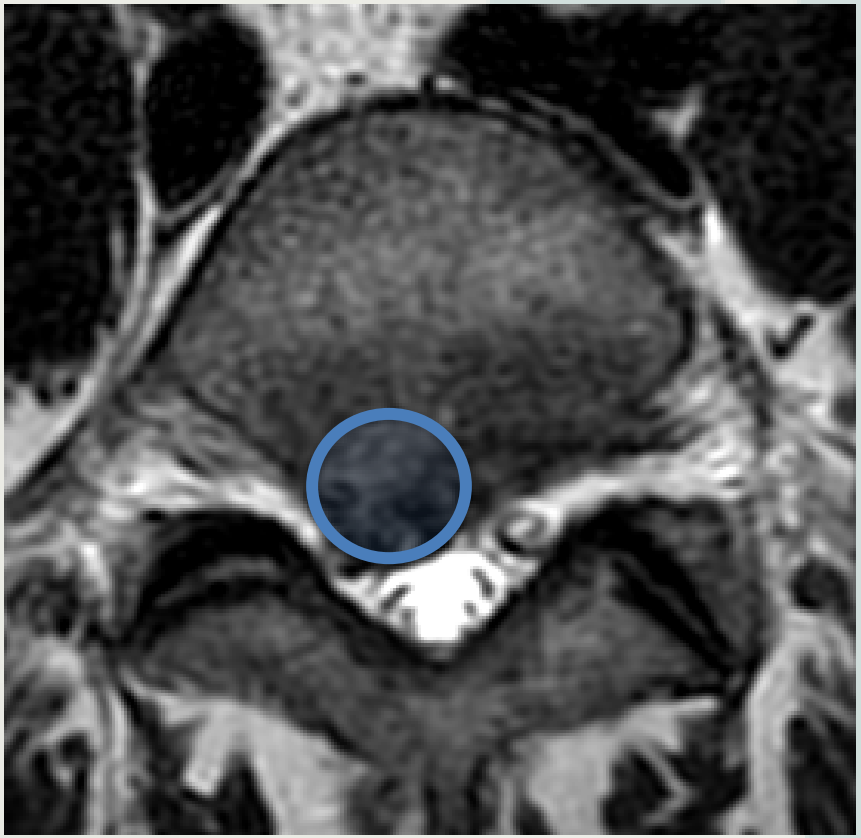
- Extrusion





- Extrusion





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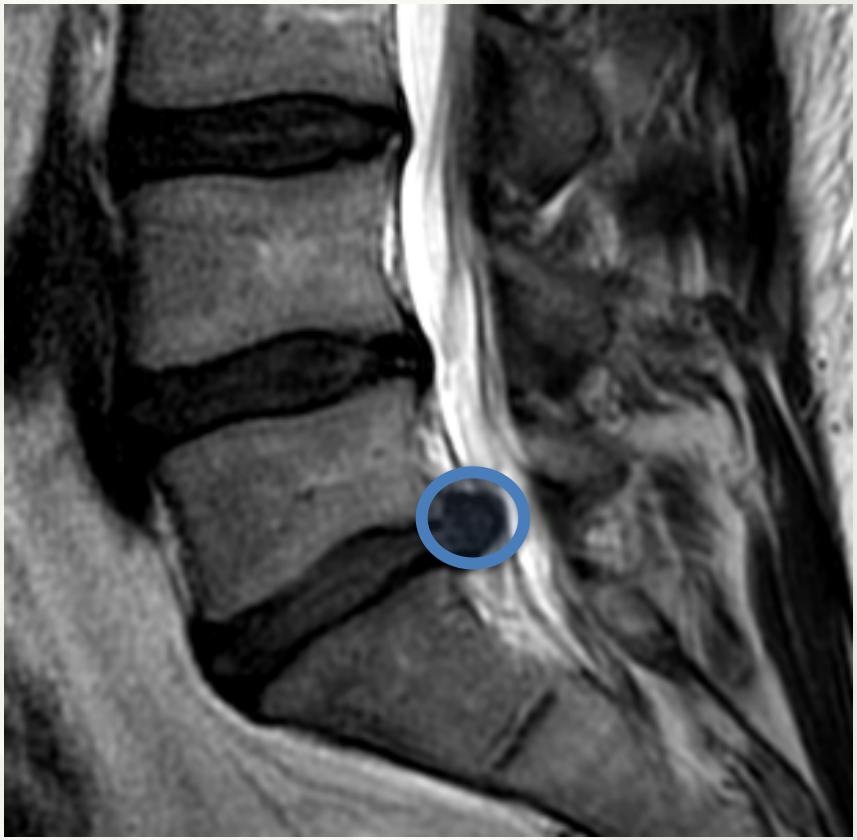

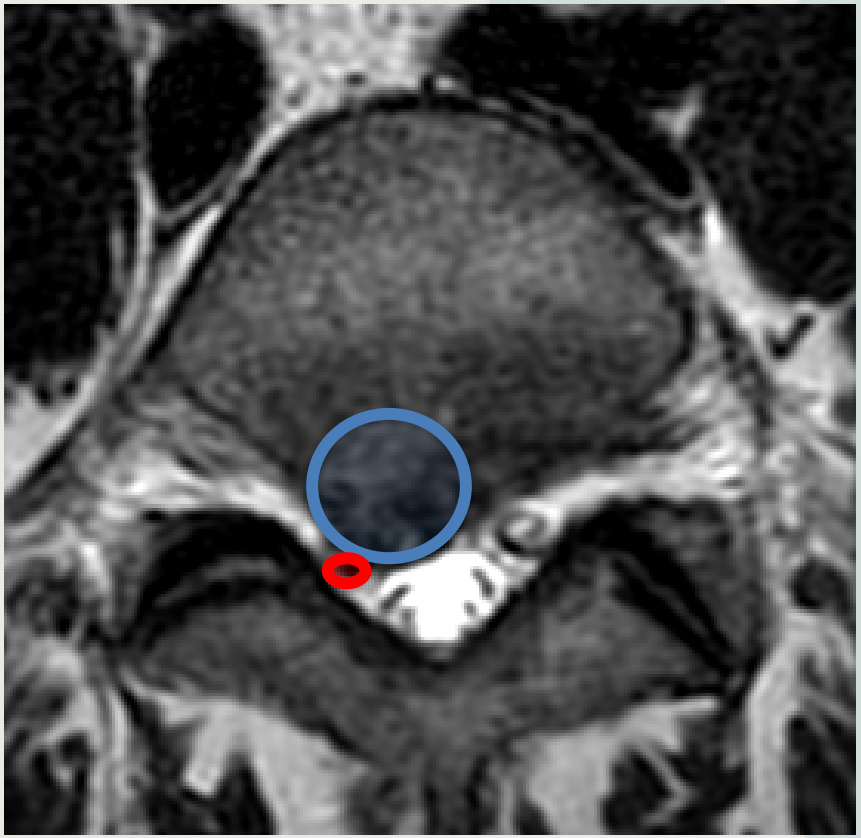

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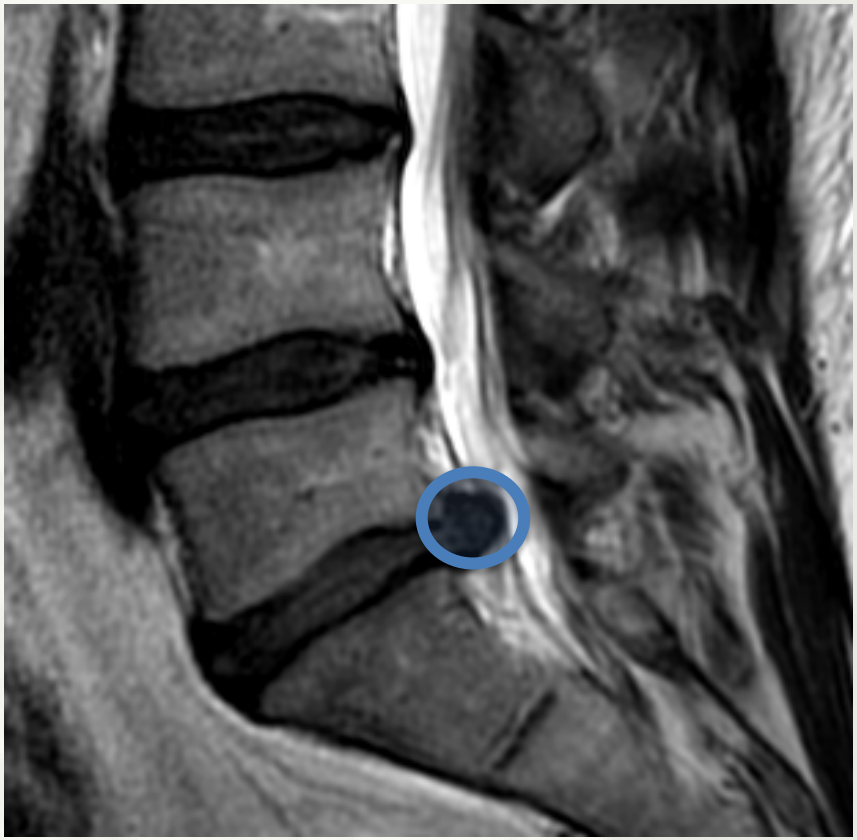
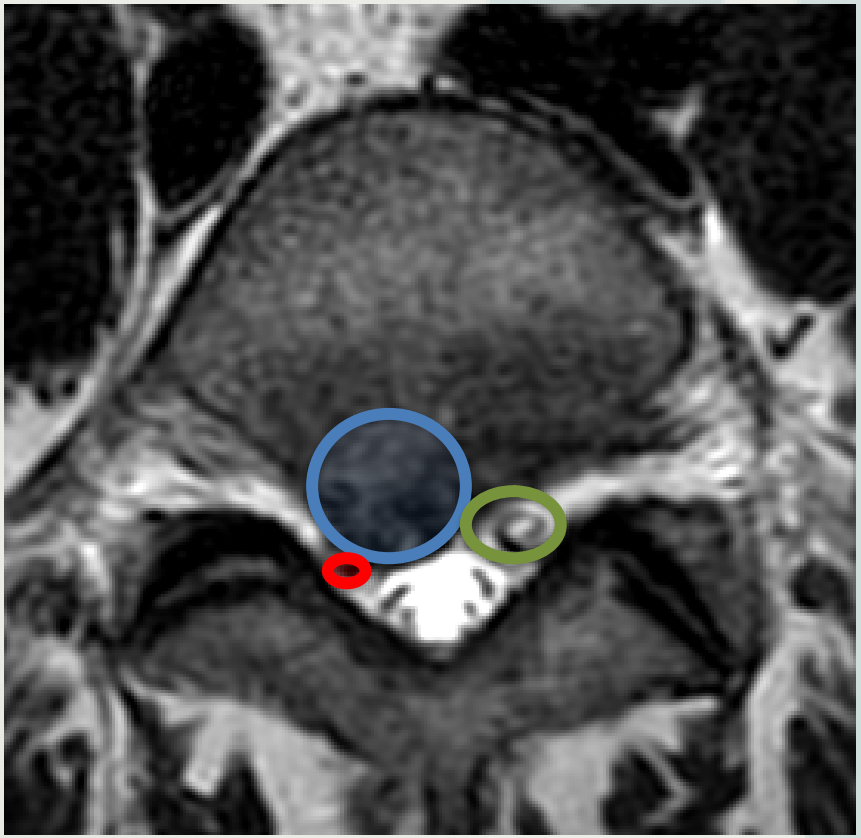
- Extrusion





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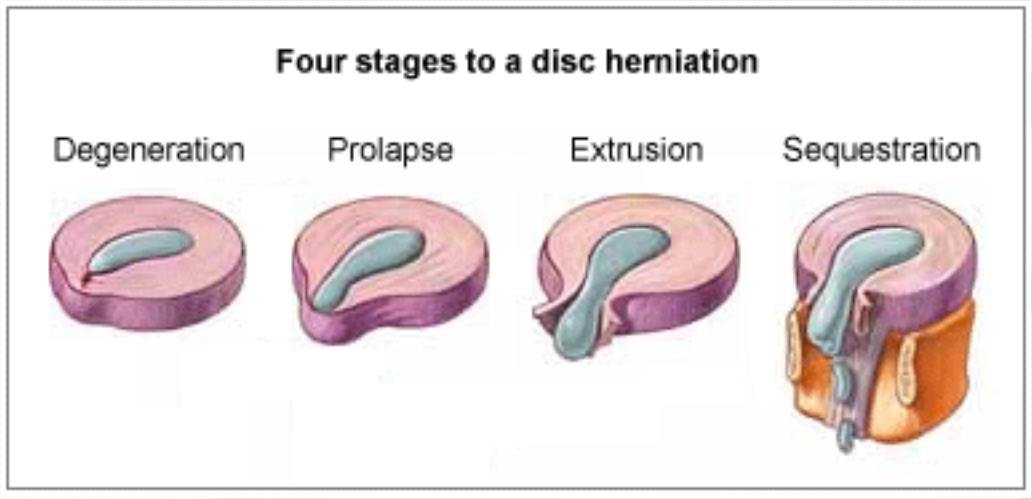
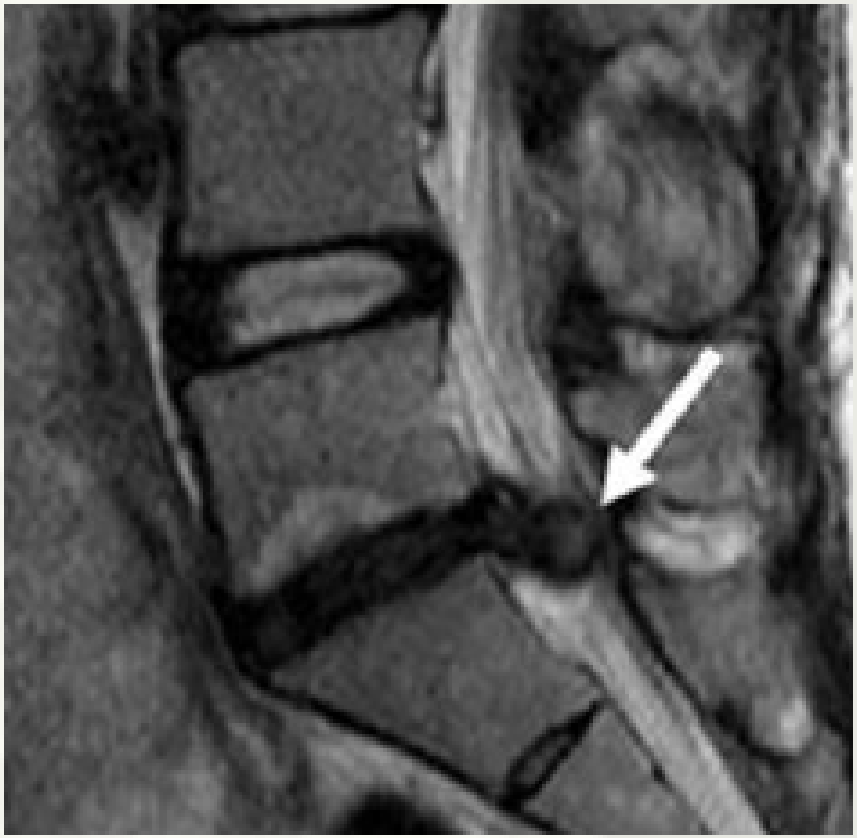
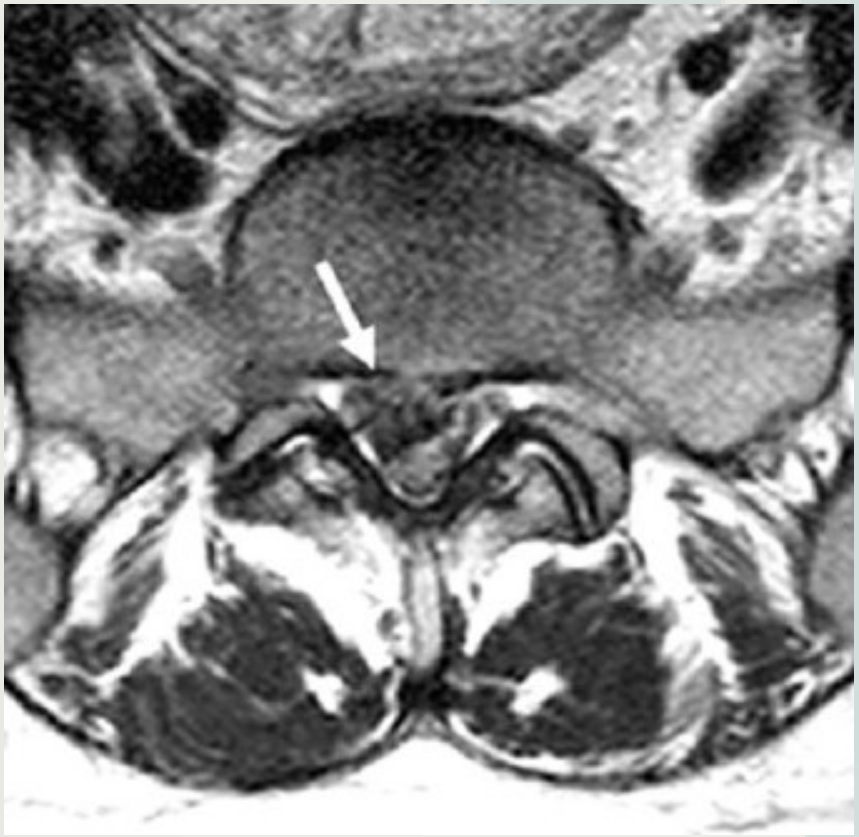
- Sequestration
  - Nuclear fragment separates from it's origin

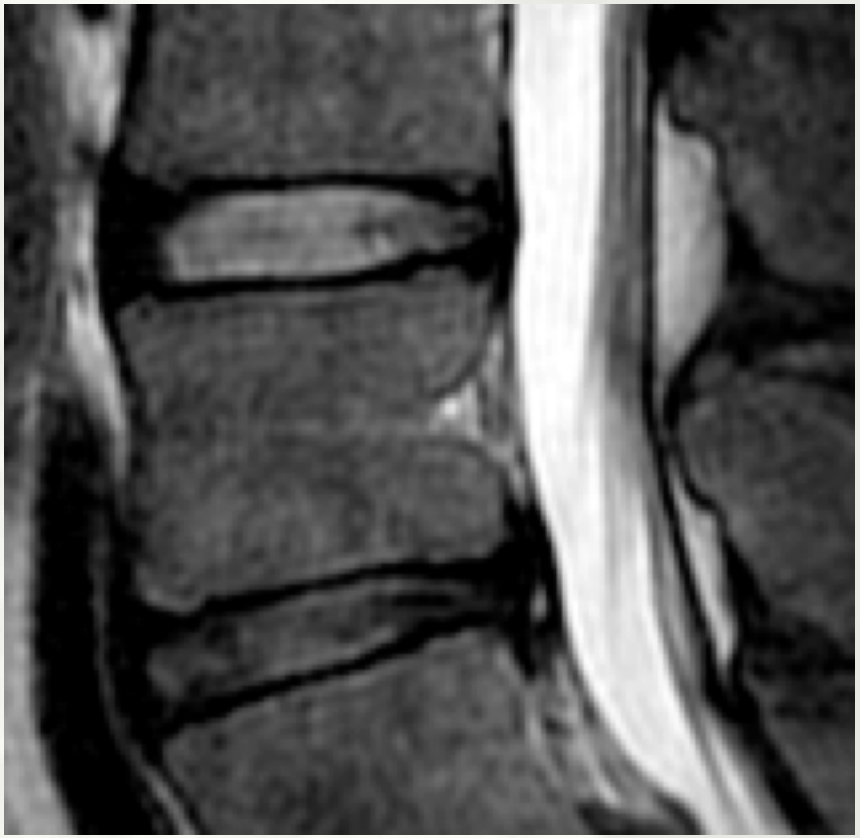


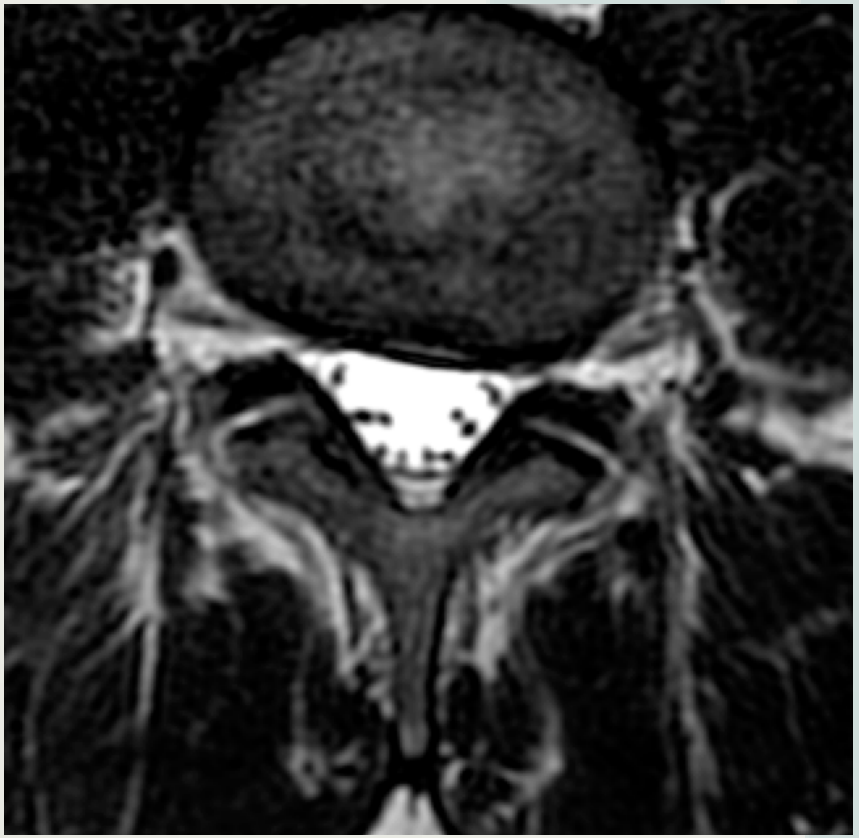
- Sequestration





Annular Tear





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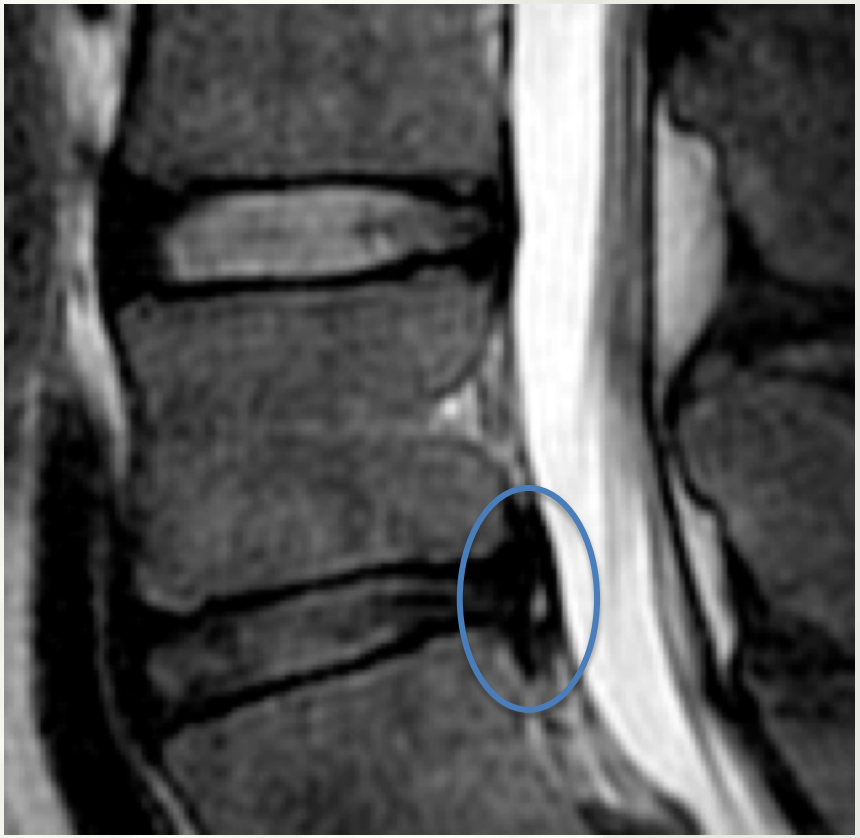
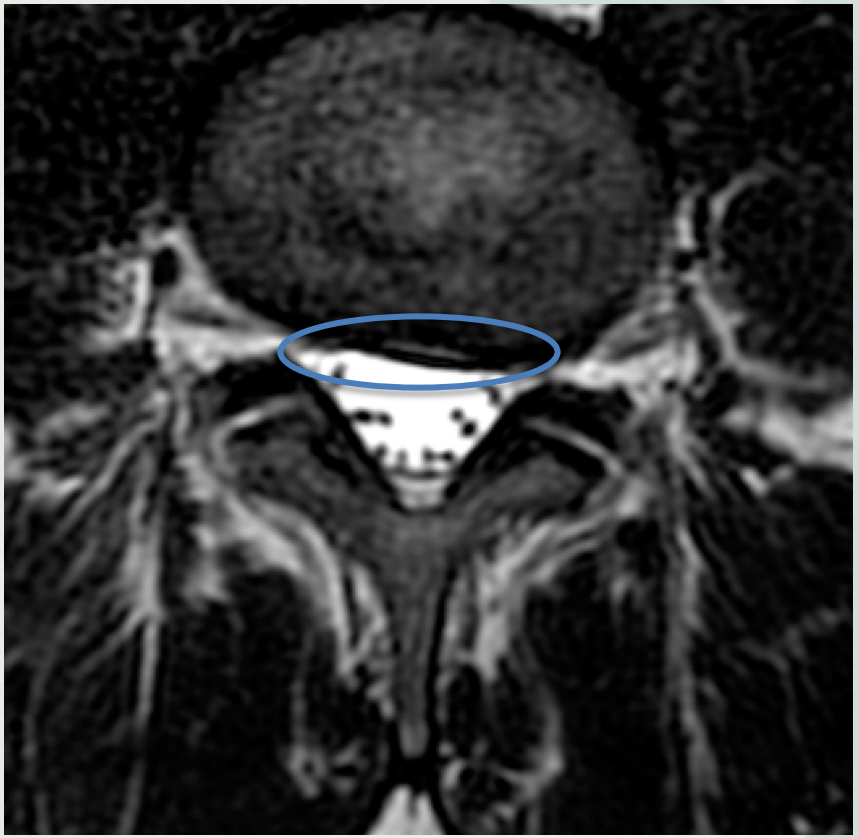
Annular Tear





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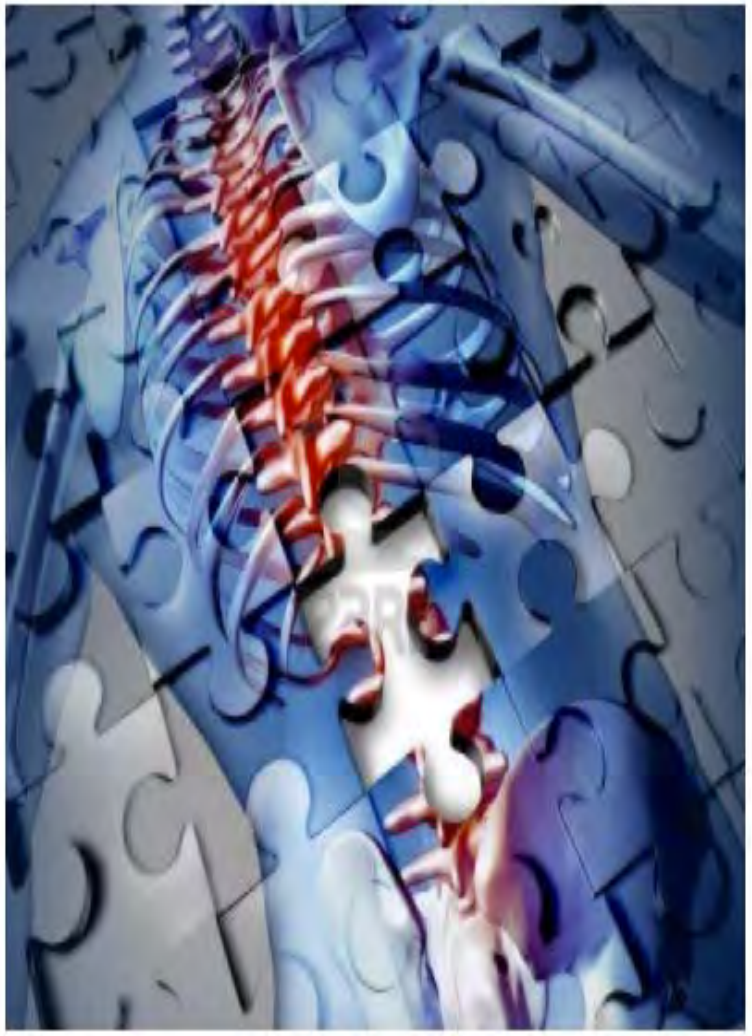
TREATMENTS

- Non-operative
  - Keep them comfortable
  - Keep them active
  - Review (educate regarding RF's)
  - Refer if not improving/severe



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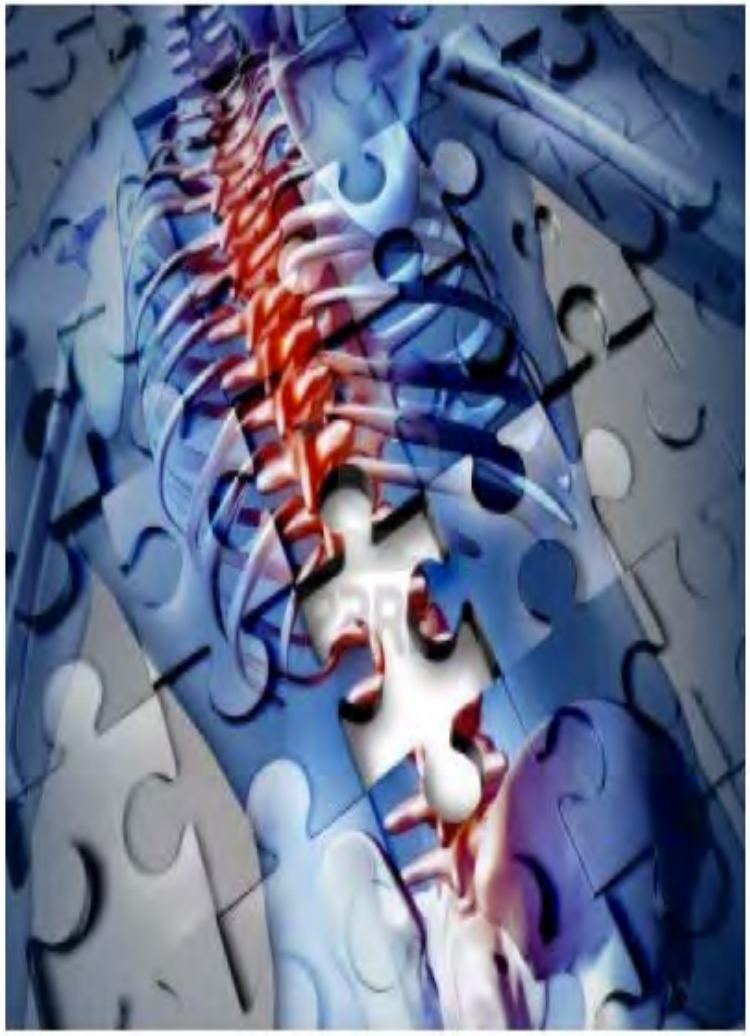
TREATMENTS

- Non-operative
  - Exercise
    - Core Strength
    - Cardio
    - Stretching
  - Medications
  - Activity Modification
  - Weight loss
  - Smoking cessation
  - Physical Therapy
  - Targeted Steroid Injections



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EXERCISE

- Focus on
  - Preserving motion and strength
  - Prevention of further injury
  - Self-management

Core Strength

- Important for the normal biomechanics of the spine

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CORE ~~STRENGTH~~

- Important for the normal biomechanics of the spine

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Core Training

- Important for the normal biomechanics of the spine
- Focus is on co-ordination and endurance
- Predominantly helps with ability to continue with ADL's
- May help prevent recurrence

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Core Training

- How do you know your patient is getting adequate physiotherapy?

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Core Training

- Adequate Physiotherapy
  - Education based
  - Exercise based
  - Function based
  - Home exercise programme

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PHYSIOTHERAPY

- What to expect:
  - Thorough musculoskeletal examination including neurological examination
  - Assessment of range of motion and pain
  - Trial of repeated movements (McKenzie) or mobilisation
  - Re-assessment of movement and pain during the session to ensure there is a positive mechanical response to the exercises
  - Monitoring of neurology after treatment and between sessions

PHYSIOTHERAPY

- Treatment should involve:
  - Home exercise prescription based on assessment findings
  - Patient education
  - Postural correction (including work space advice)
  - Treatment may also include adjuncts such as trigger point release, soft tissue massage, mobilisation and acupuncture for pain relief
  - Generally patients should see improvement in 3-6 sessions

Cardiovascular Exercise

- Multiple studies demonstrate aerobic exercise to be associated with
  - Decreased pain
  - Increased Function
- Swimming
  - Low impact
  - High Core Strength
  - High Cardiovascular fitness

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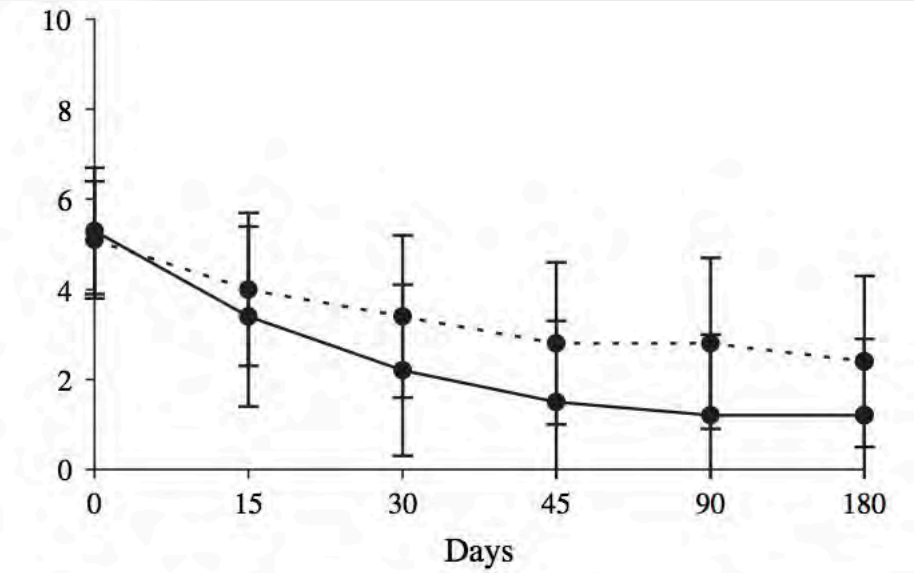
MANIPULATIVE THERAPIES



Chiropractic manipulation in the treatment of acute back pain and sciatica with disc protrusion: a randomized double-blind clinical trial of active and simulated spinal manipulations

Valter Santilli, MD[a], Ettore Beghi, MD[b,*], Stefano Finucci, MD[c]

The Spine Journal 6 (2006) 131–137

THE SPINE JOURNAL

Manipulative Therapies

Manipulation of Cervical Spine

- "…careful consideration should be given to evidence suggesting that manipulation may lead to worsened symptoms or significant complications when considering this therapy. Pre-manipulation imaging may reduce the risk of complications."

  (Work Group Consensus Statement, NASS 2013)

- Not in pt's with myelopathy
- Recommend imaging prior to treatment

Braces and Collars

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Medications

- Simple
  - Paracetamol
  - NSAID's
- Codeine
- Tramadol
- Anti-depressants and anticonvulsants
- Muscle Relaxants
- Opiods

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Medications

- Simple
  - Paracetamol
    - Equivalent pain relief to NSAIDs
  - NSAID's
    - No one NSAID more effective than any other
    - Ibuprofen consistently ranks lower in adverse events
    - Can mitigate GI upset with concomitant use of PPI's.
    - Can consider Celebrex
  - Synergistic Activity

MEDICATIONS

- Anti-depressants and anticonvulsants
  - Amitriptyline, Nortryptiline, Gabapentin
  - Gabapentin has significant evidence for effectiveness at relieving leg pain when cf placebo (Yildirim K et al. The effectiveness of gabapentin in patients with chronic radiculopathy. Pain Clinic 2003;15:213-8)

MEDICATIONS

- Goal: 20-30% relief
- Limited evidence for the efficacy of all of the drugs we commonly use
  - Paracetamol/NSAID: modest effect
  - Gabapentin: moderate effect
- About 1 in 5 pts will have an adverse event from analgesia

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MEDICATIONS

What do I do?

- Paracetamol qid
- Diclofenac/Ibuprofen
- Omeprazole

- Gabapentin 300mg bd/tds

- If sleeping well → Nortryptiline 10mg

- If disturbed sleep →
- Amitrip 10mg

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PAIN RELIEF MEDICATION

Mr Mistry may have prescribed you one or more of the following medications. Please read the patient information leaflet provided from the pharmacist for further information.

Along with their useful effects, most medicines can cause unwanted side-effects although not everyone experiences them. These usually improve as your body adjusts to the new medicine, but speak with your GP or pharmacist if side-effects continue or become troublesome.

Always let your doctor know your medical history and what medications you are taking before being prescribed a new medication. Inform your doctor if you might be pregnant, or if you have any allergies to medication.

Paracetamol 1g (2 tablets) Regularly every 4 hours, with a maximum of 8 tablets in 24hours. Breakfast, lunch, dinner, bedtime.

Codeine 30mg up to every 4 hours as required. Constipation is common.

Paracetamol plus Codeine (ParaCode, Panadeine, etc)
Do not take at the same time as regular Paracetamol or Codeine.

Anti-Inflammatories
May be used on an "as required" basis, or regularly for background pain relief.
Diclofenac SR (Slow Release) 75mg every 12 hours, maximum twice per day
Or **Ibuprofen** 400mg every 8 hours, maximum 3 times per day
Take with food. They can irritate the stomach, so Mr Mistry may have also prescribed **Omeprazole** 40mg once per day to protect the stomach lining. Anti-inflammatories should be avoided if you have kidney disease; or ever had gastrointestinal bleeding or ulcers. They can worsen asthma in some people.

Tramadol 50-100mg every 6 hours as required, up to four times daily
Should be avoided if you have a seizure disorder. Caution if taking certain antidepressants. Common side effects include nausea, dizziness, drowsiness, constipation, or dry mouth.

Norflex 100mg twice daily as required to relieve muscle spasm. Should be avoided if you have glaucoma (high pressure in the eye); enlarged prostate, bladder obstruction, or intestinal obstruction. The most common side effect is a dry mouth. Tell your doctor if you notice a change in your vision, or difficulty passing urine while on this medication.

Gabapentin (Neurontin, Nupentin) Start at 300mg twice daily, with the first dose at bed time. Helps pain caused by irritated nerves. The most common side effects are sleepiness, dizziness, dry mouth, clumsiness or unsteadiness, and nausea. If after a week your pain relief has not improved, and you do not have significant side effects, visit your GP to discuss increasing your dose.

Amitriptyline 10mg or **Nortriptyline** 10mg at bedtime

Helps the burning, shooting or stabbing pain caused by irritated nerves. These drugs work best if taken regularly and not so well on an 'as required' basis. This is because they gradually alter chemicals in the spine and brain that are involved in registering pain messages. It can take 2 or more weeks to get the full benefit of the pain relief.

Dry mouth, constipation and sleepiness are common side effects. These usually reduce over the first few days of treatment. If sleepiness is problematic, reduce your dose to 5mg (half a tablet). You can then increase the dose back up to 10mg after a week if the sleepiness has improved.

If, after 3-4 weeks, you feel that your pain relief has not improved, and if you are not experiencing significant side effects due to this medication, you can increase the dose to 20mg at night for amitriptylline, or 25mg for nortriptylline.

Side-effects	What can I do if I experience this?
Dry mouth	Try chewing sugar-free gum or sweets. Saliva substitutes are available from the pharmacist.
Constipation	Try to eat a well-balanced diet containing plenty of fibre, and drink plenty of water. Try kiwifruit, pineapple, papaya, or "Kiwicrush" (in the frozen food section of the supermarket). Try fibre supplements such as "Benefiber" or "Metamucil"
Feeling of a fast or irregular heartbeat	Speak with your GP
Feeling dizzy, faint or light-headed when getting up	Getting up more slowly may help. If you begin to feel faint, sit down until the feeling passes
Feeling sleepy, blurred vision, Clumsy, unsteady	If this happens, **do not drive** or use dangerous machines. Do not drink alcohol
Nausea	Eat simple foods. Eat smaller meals but more often

Alcohol should be avoided with tramadol, amitriptyline, nortriptyline, norflex, codeine, and gabapentin. Use with caution with anti-inflammatories and paracetamol.

Do not double doses of medication, even if you missed the previous dose.

Mr Dean Mistry FRACS
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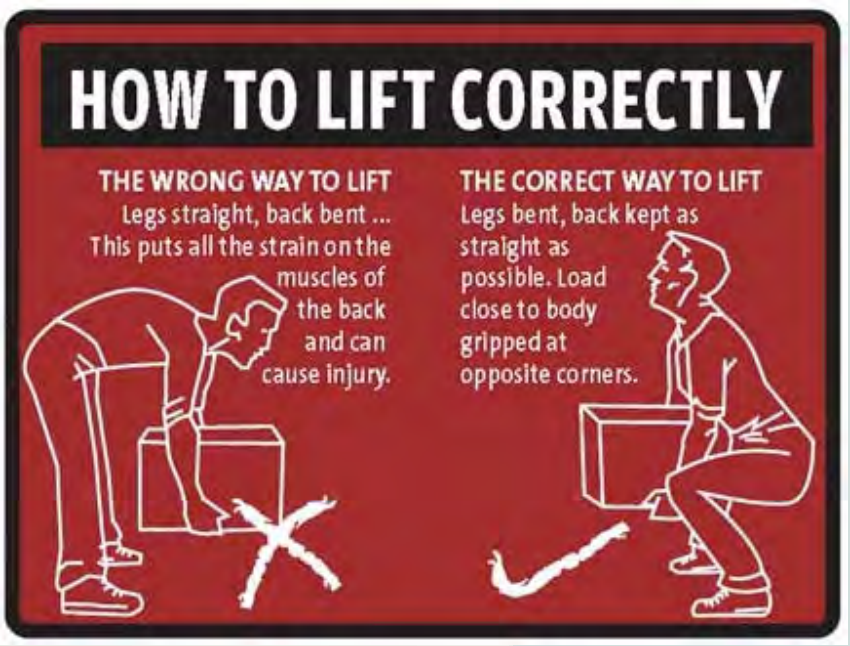
Orthopaedic Surgeon

Activity Modification and Postural training

- Limit bed rest to less than 48H
- Avoid bending, lifting, twisting
- Avoid jarring forces



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TRANSFORAMINAL STEROID INJECTIONS

Pain Medicine 2010; 11: 1149–1168
Wiley Periodicals, Inc.

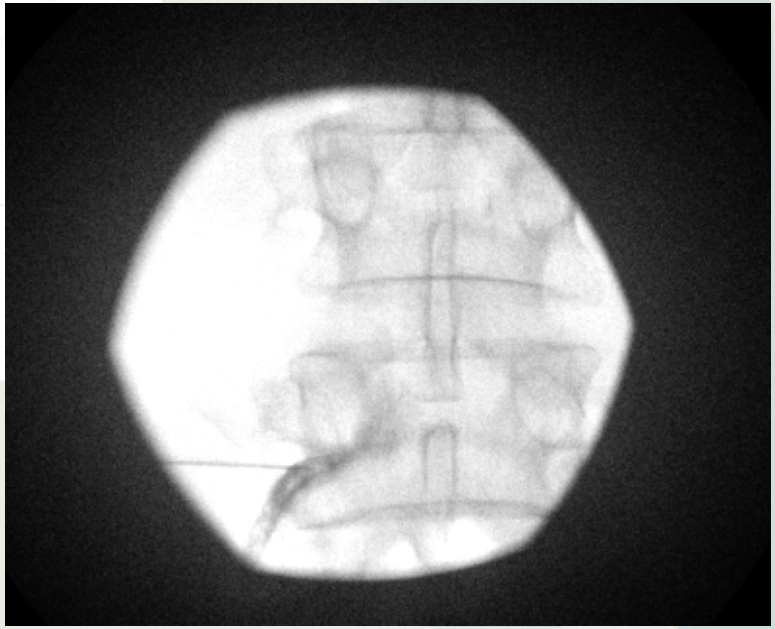
SPINE SECTION

Original Research Articles

The Efficacy of Transforaminal Injection of Steroids for the Treatment of Lumbar Radicular Pain

Ali Ghahreman, FRACS,* Richard Ferch, FRACS,* and Nikolai Bogduk, MD†

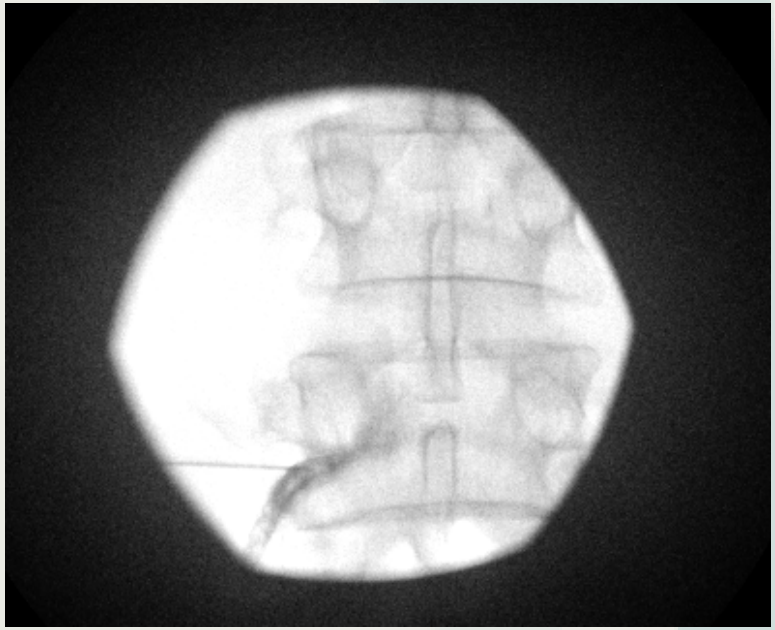
*Department of Neurosurgery, John Hunter Hospital;



- 60% rate of clinically significant pain reduction by one month

Transforaminal Steroid Injections

- 60% pts achieved greater than 50% reduction of pain by one month
- 65% had pain relief lasting 6 months or more
- 30% had pain relief lasting over 12 months
- 30% required a second injection (50% success rate), 0% required a third injection
- 30% eventually required surgery



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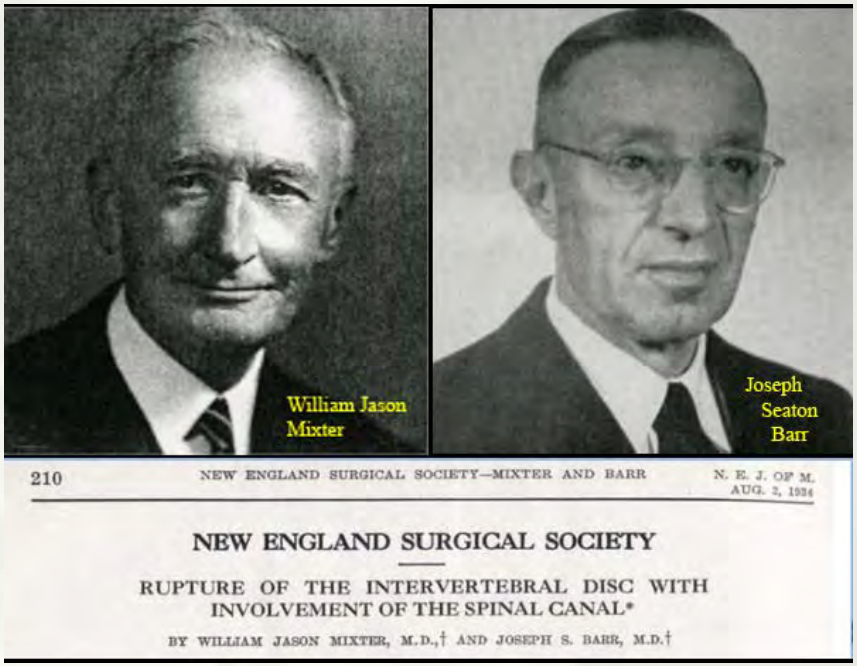
TREATMENT – OPERATIVE

LUMBAR



CERVICAL

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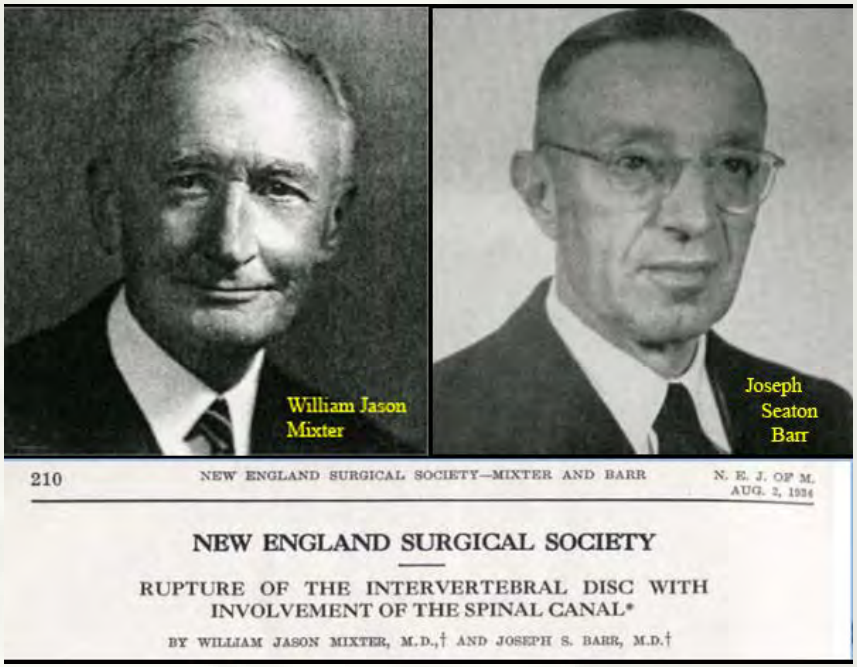
TREATMENT – OPERATIVE

LUMBAR



CERVICAL

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Treatment – Lumbar Microdisctomy

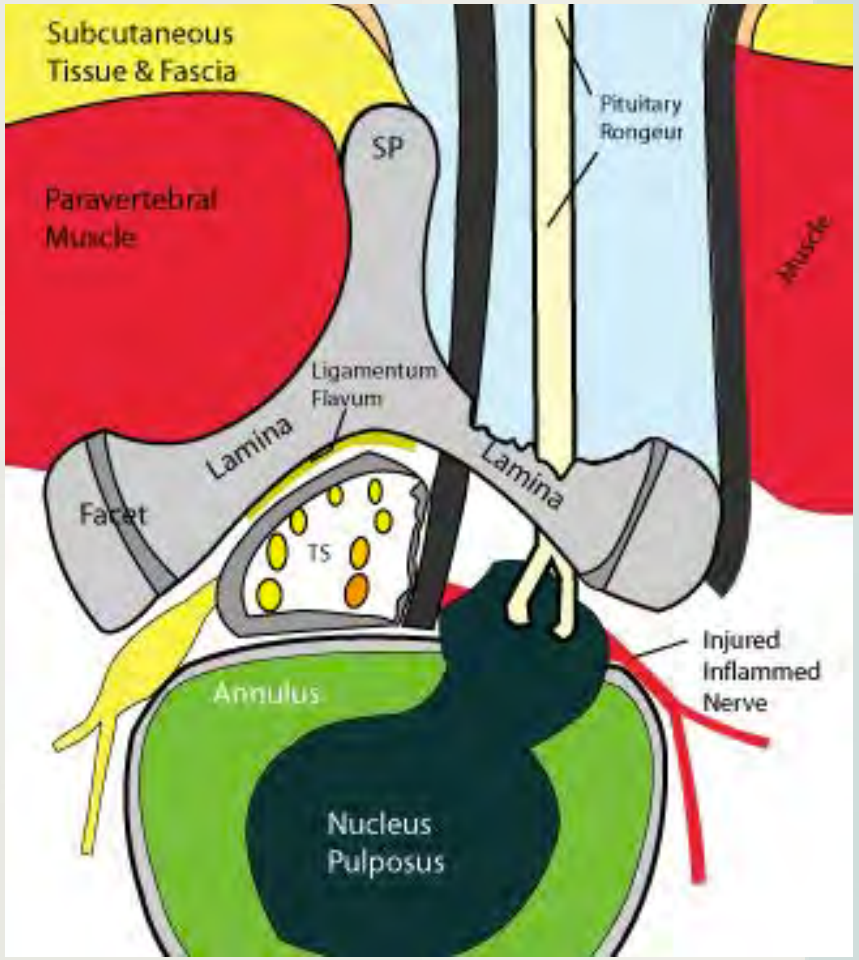
- Operative Indications
  - Cauda Equina Syndrome
  - Pain that doesn't settle after 6-8 weeks or is severe despite adequate analgesia
  - Progressive neurological deficit
  - Recurrent episodes of severe pain
  - Ongoing motor deficit WITH nerve root tension signs
  - NOT for isolated numbness or weakness

Technique – Lumbar Microdiscectomy

Goal is to relieve pressure on the traversing nerve root

This is done by removing the disc material and by removing the overlying ligamentum flavum and bone

Use of the microscope gives both magnification and coaxial lighting allowing greater precision and smaller exposures



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RS 30F

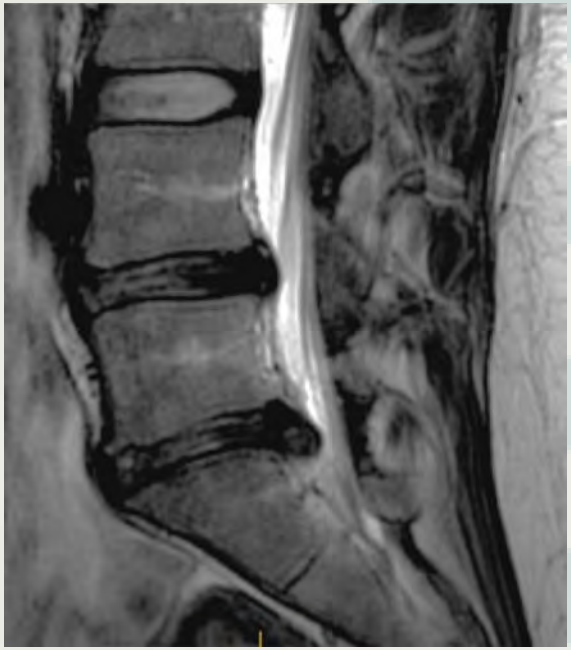
11 months of right leg radicular pain after lifting a heavy suitcase out of a car

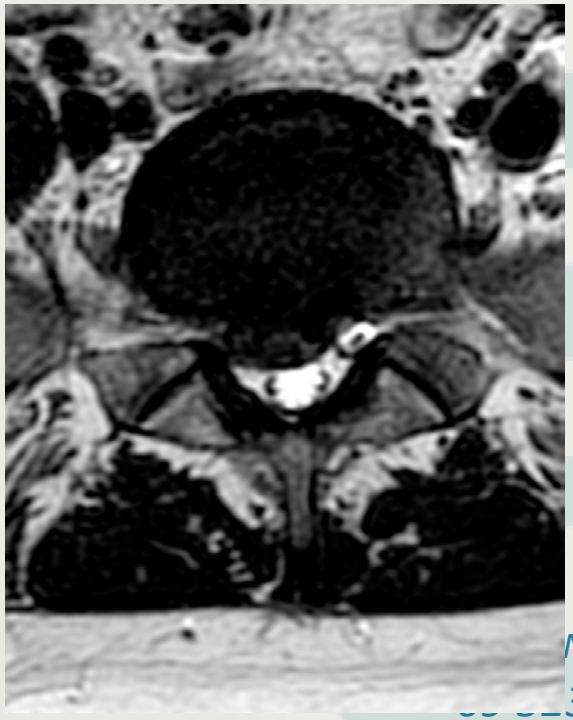
Initially settled to a moderate level of pain after 6 weeks

4 months post event flared up again

Settled again with TFI for 2 weeks then flared up again

11 months post injury underwent Right L5/S1 microdiscectomy





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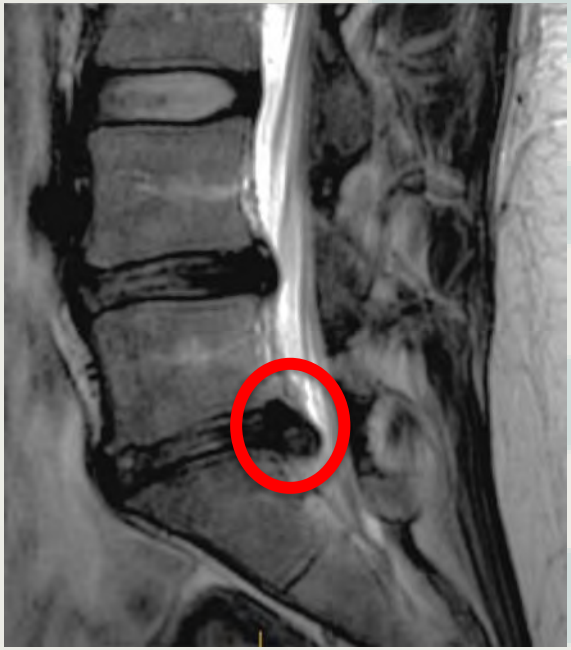
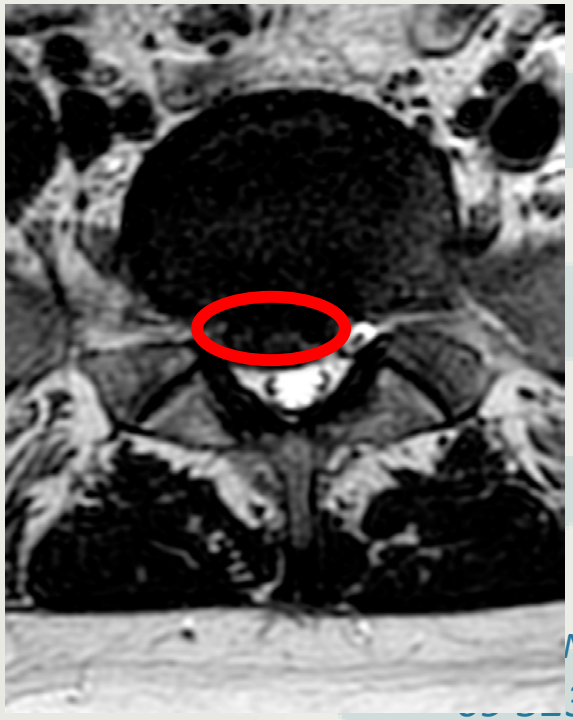
RS 30F





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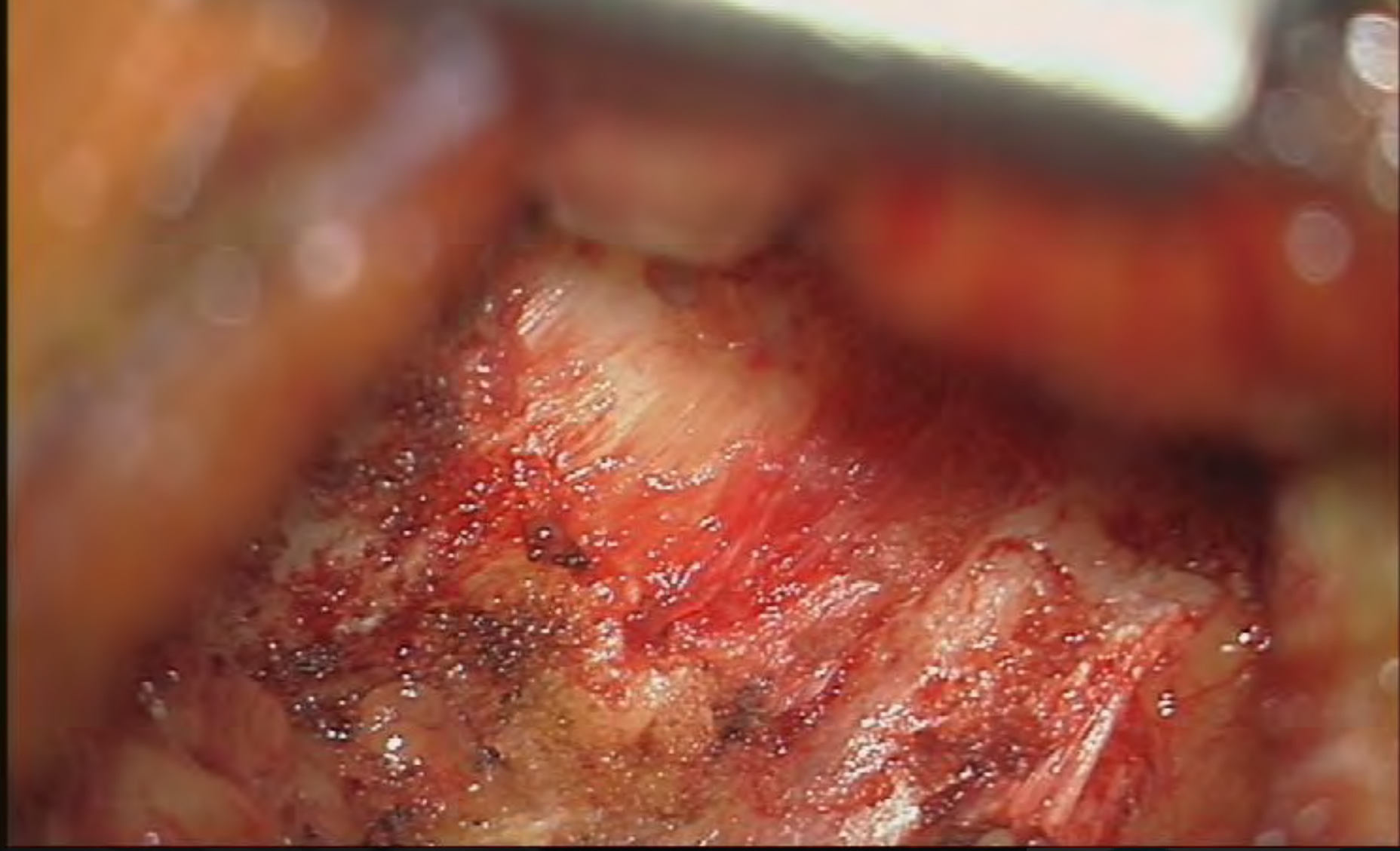

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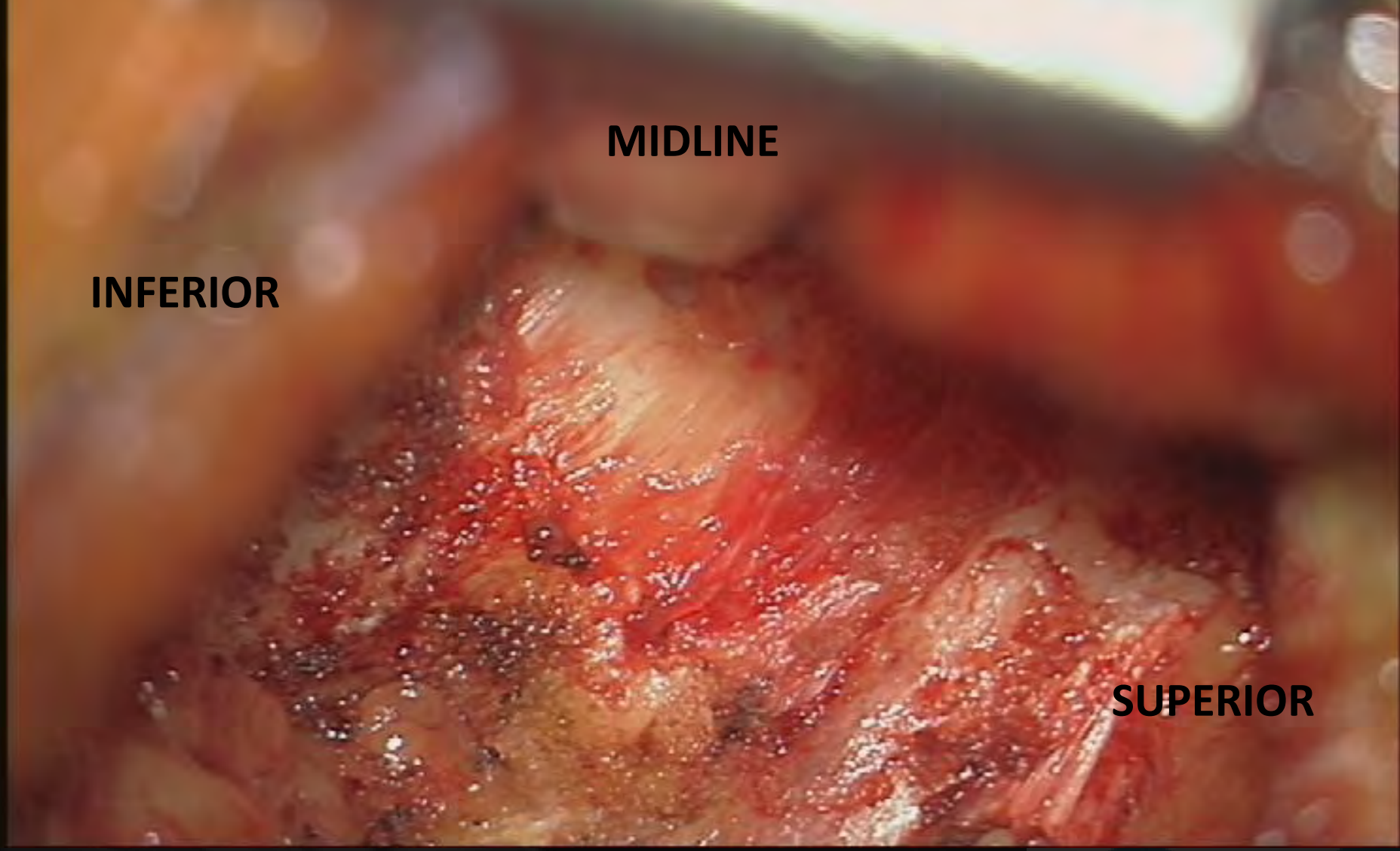

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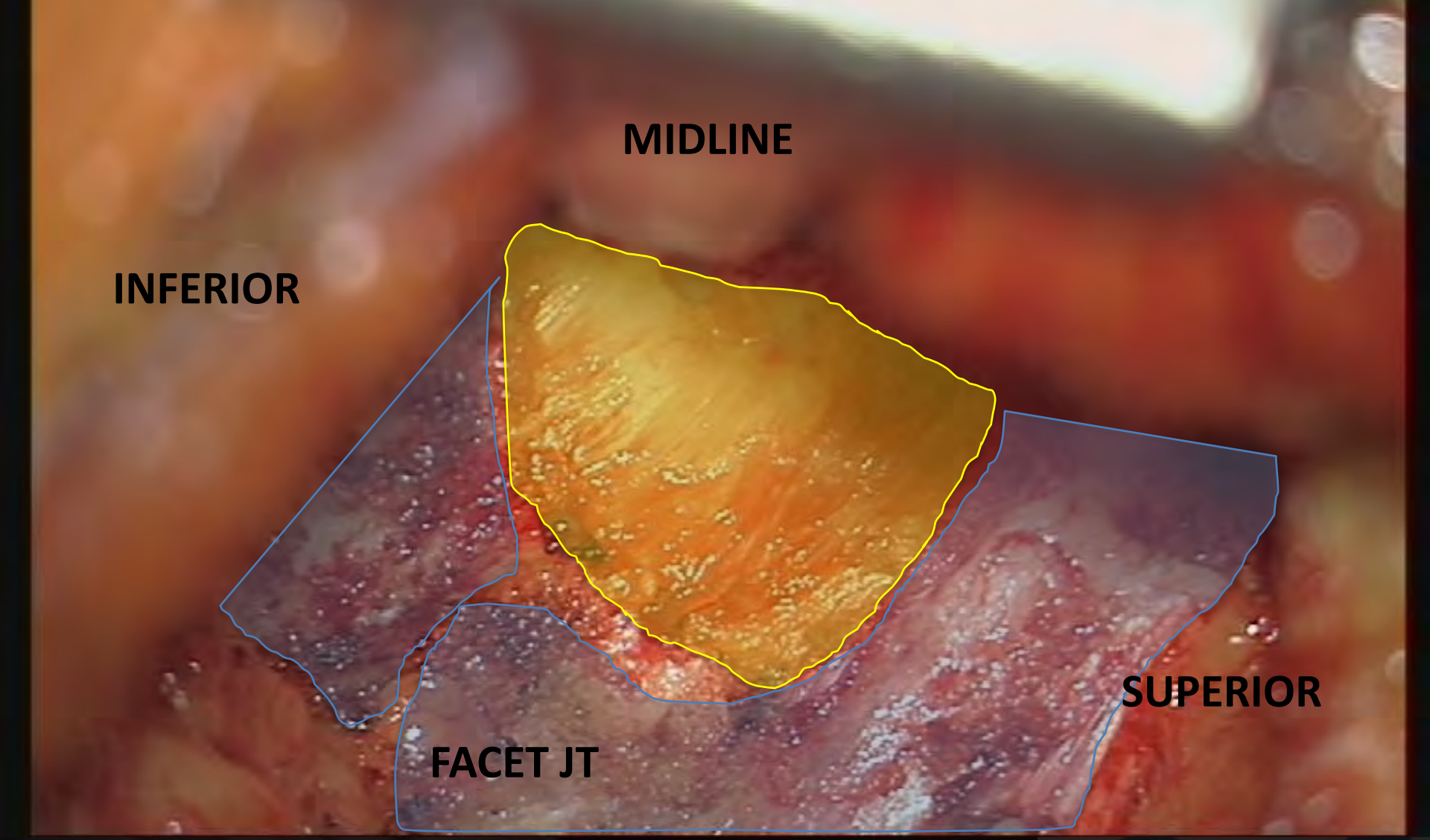

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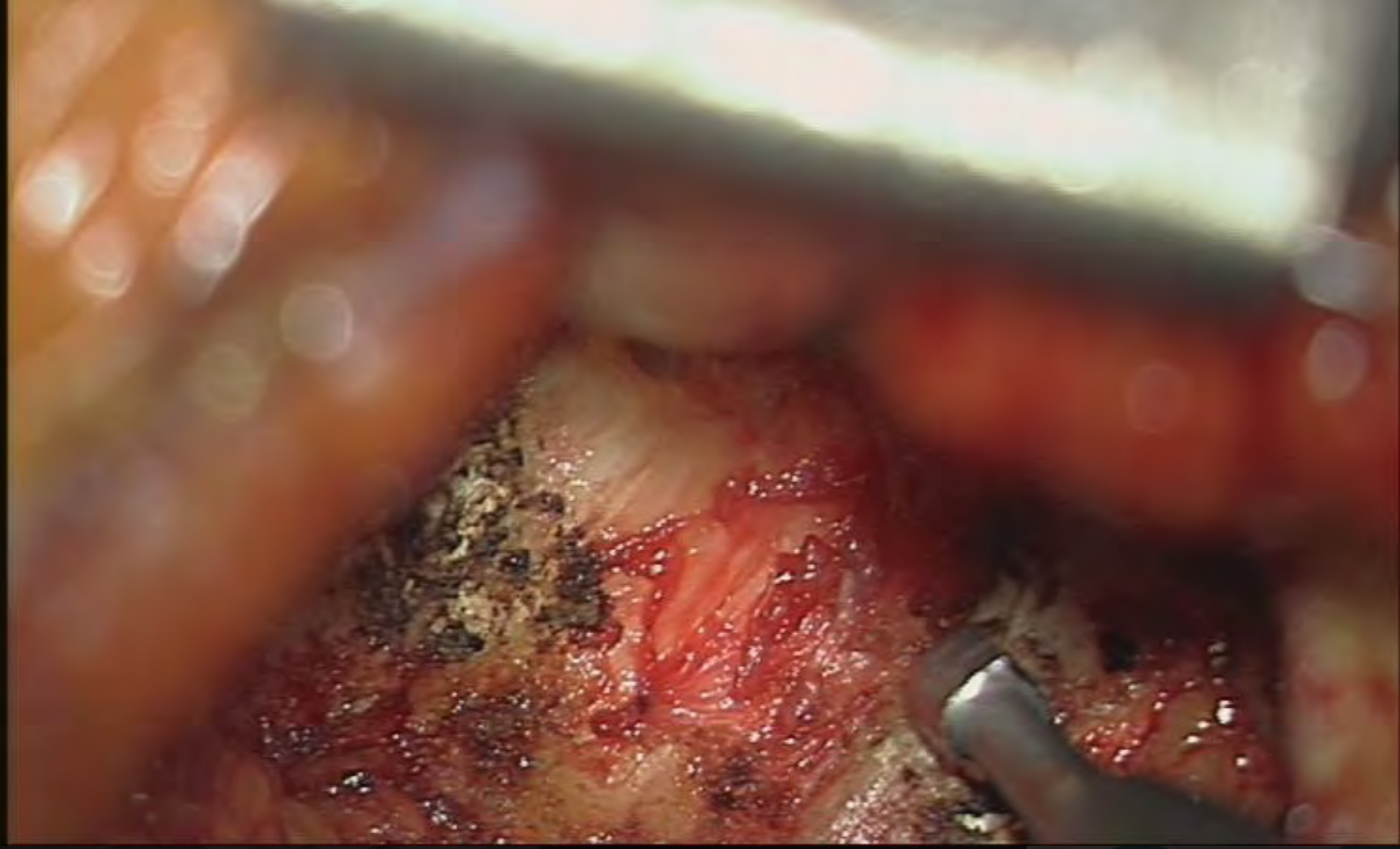

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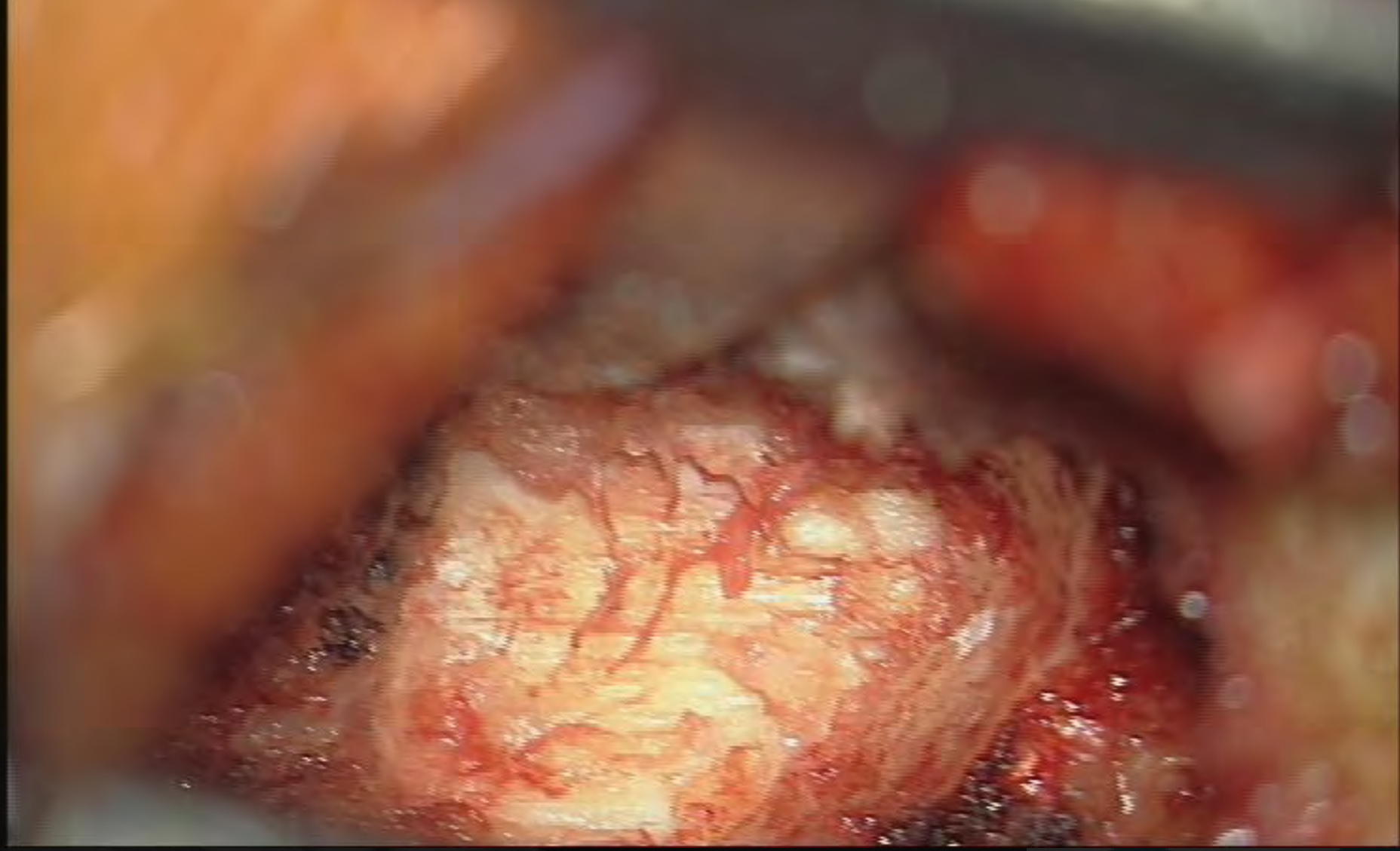

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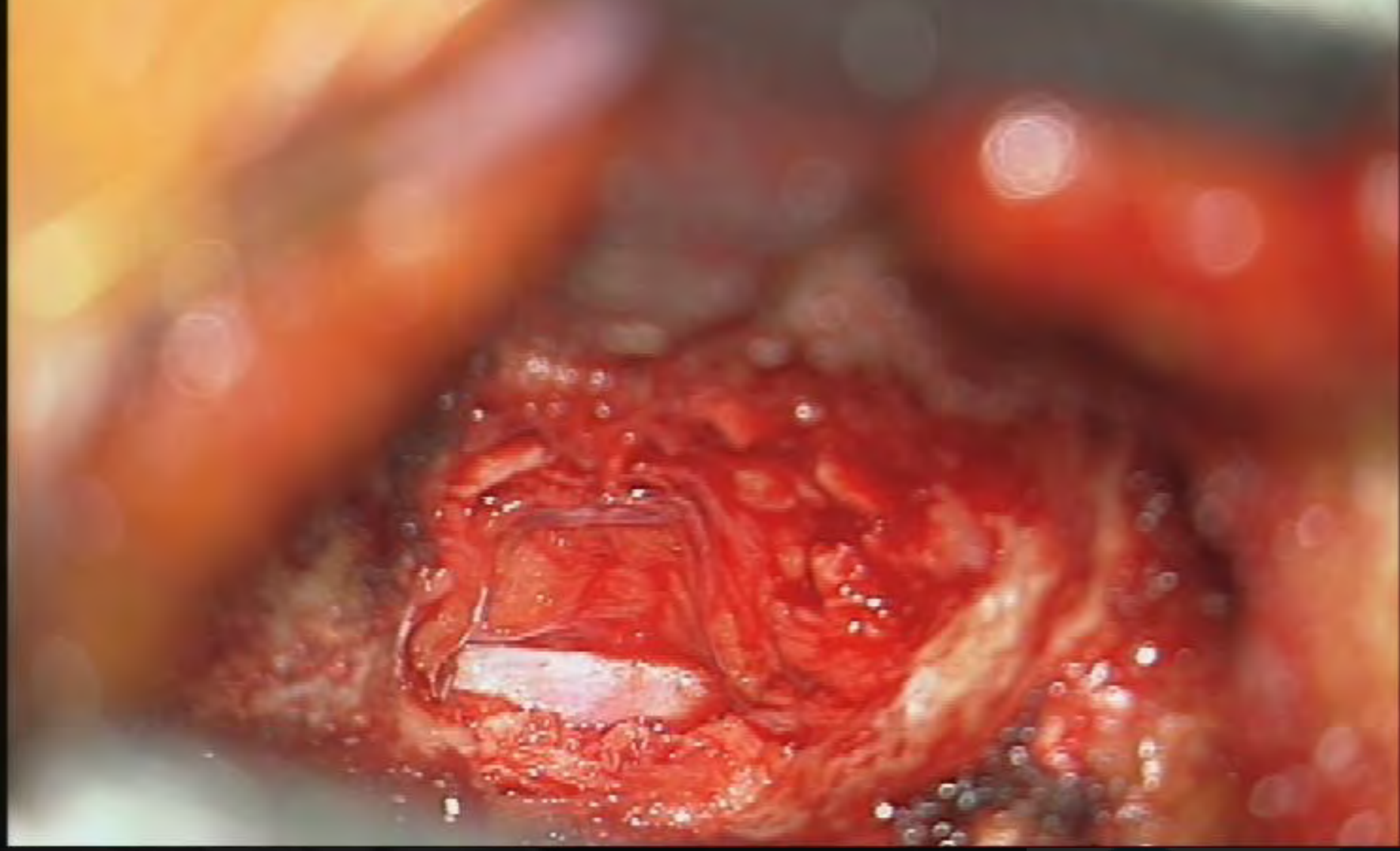

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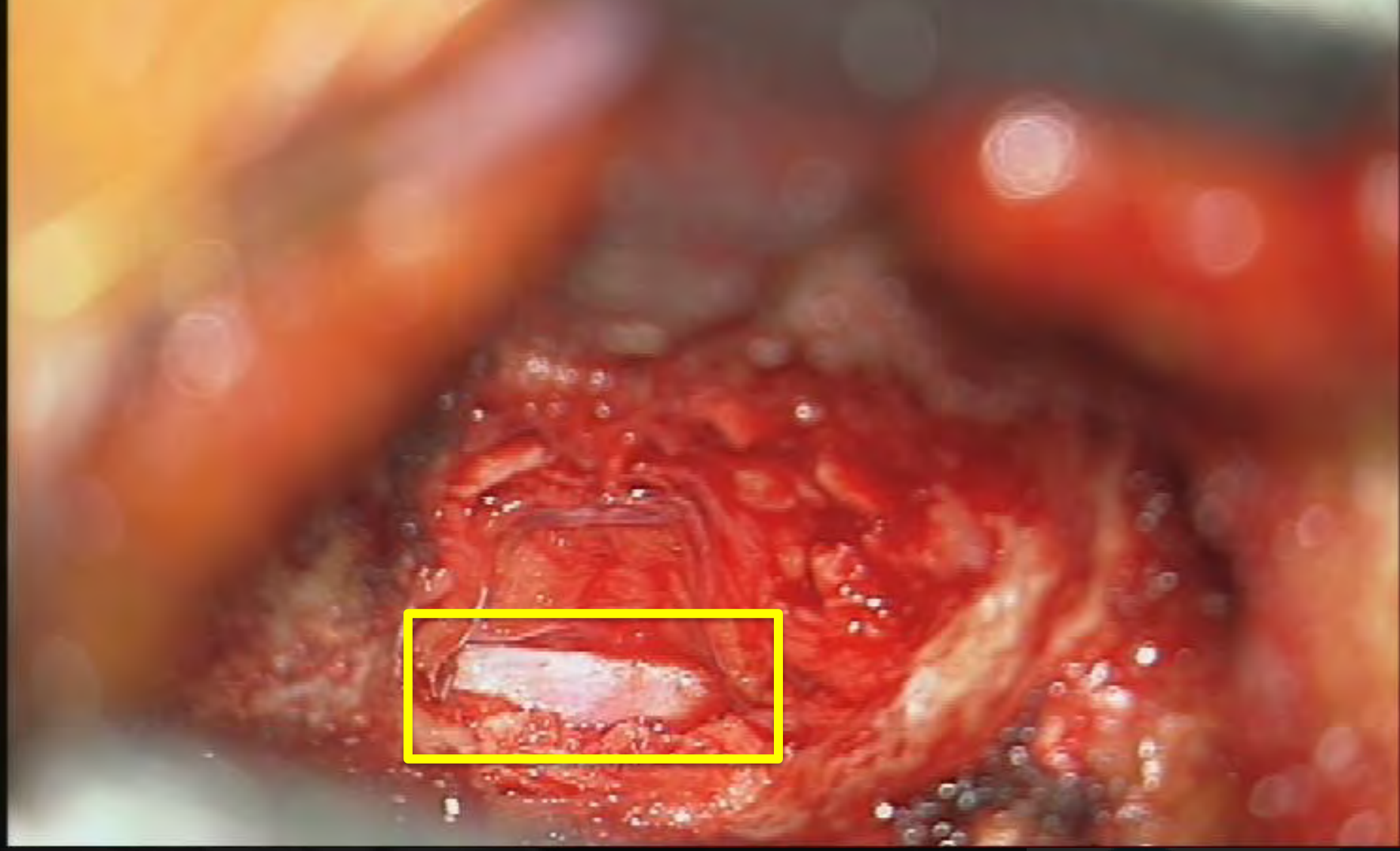

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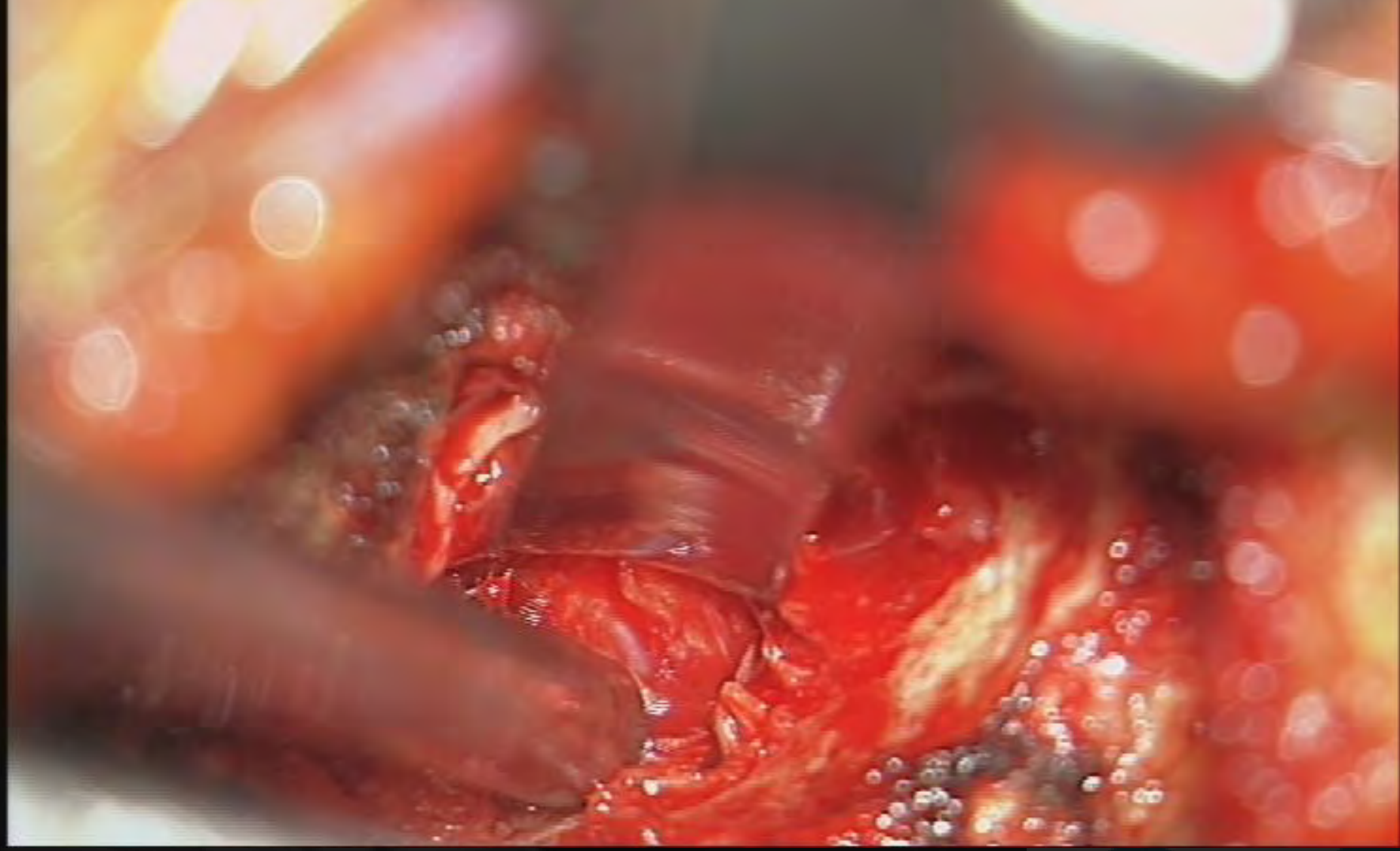

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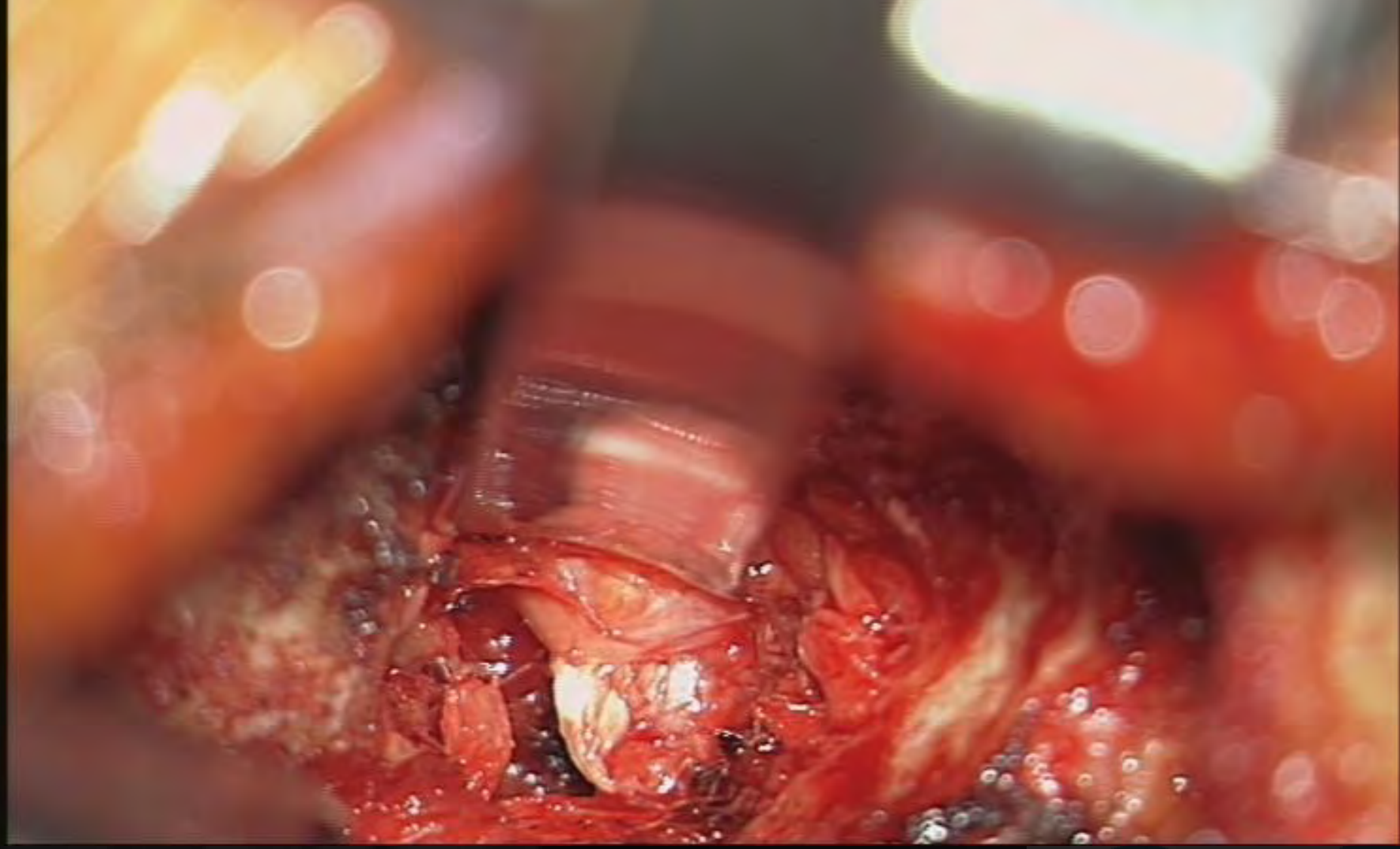

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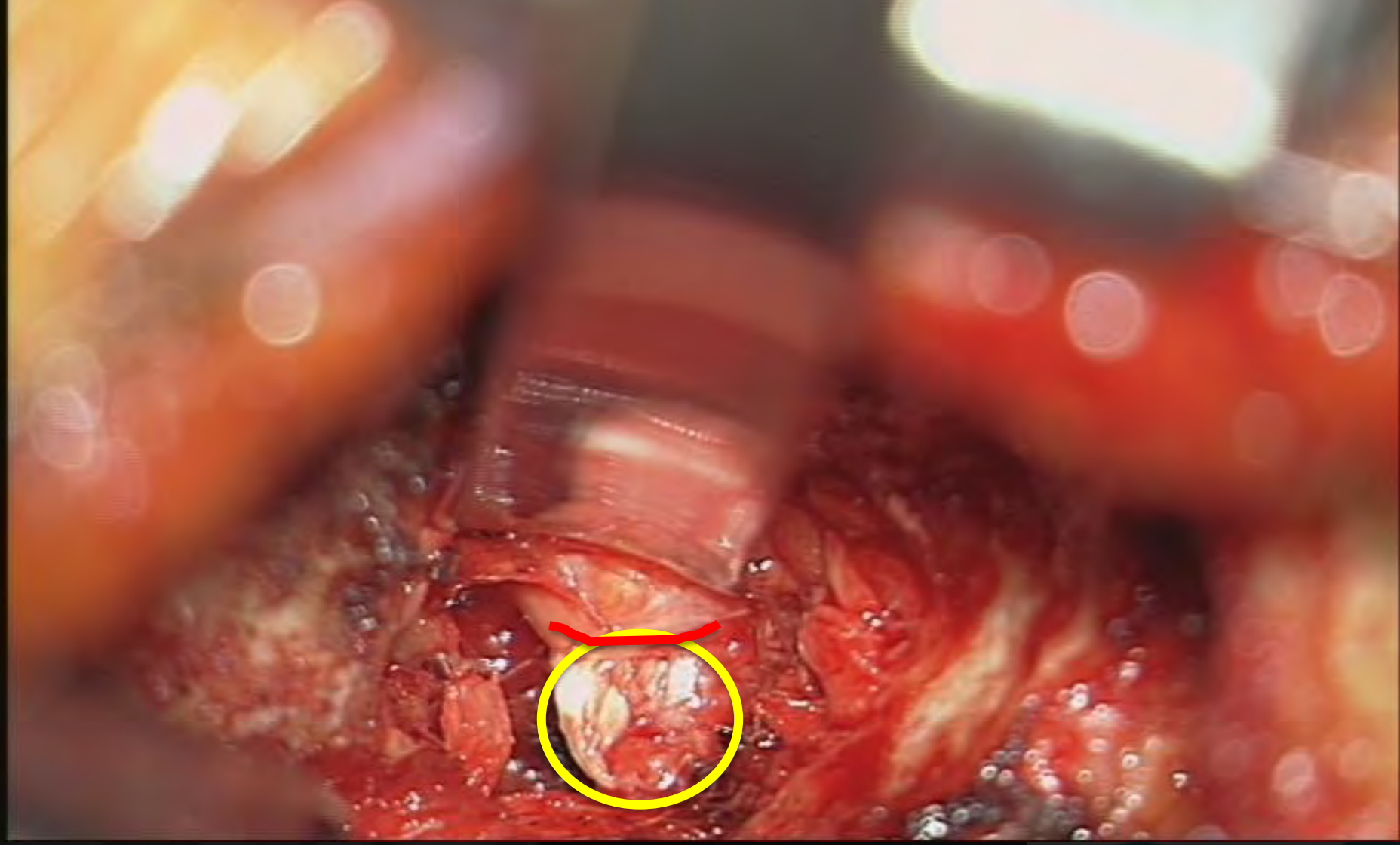

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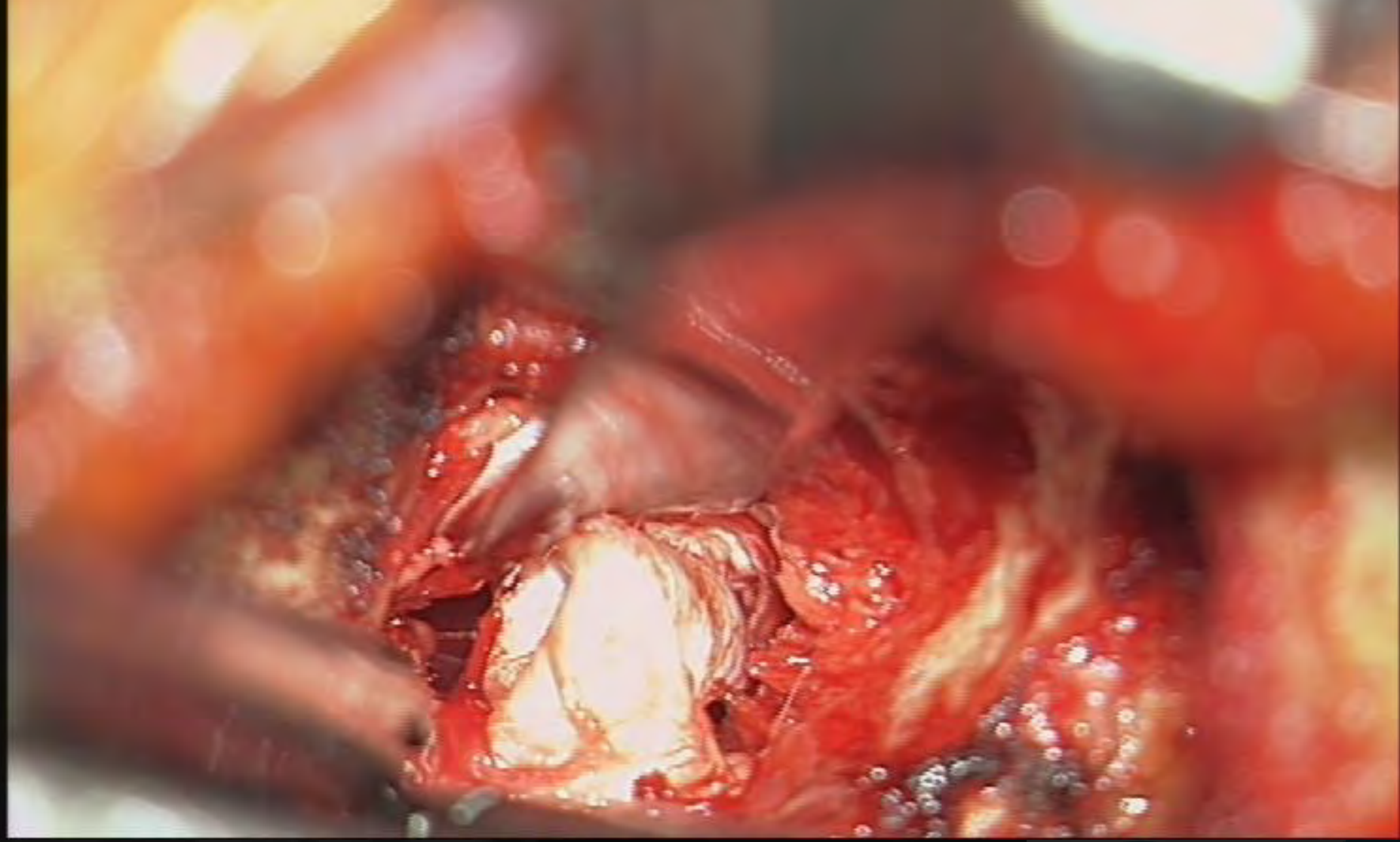

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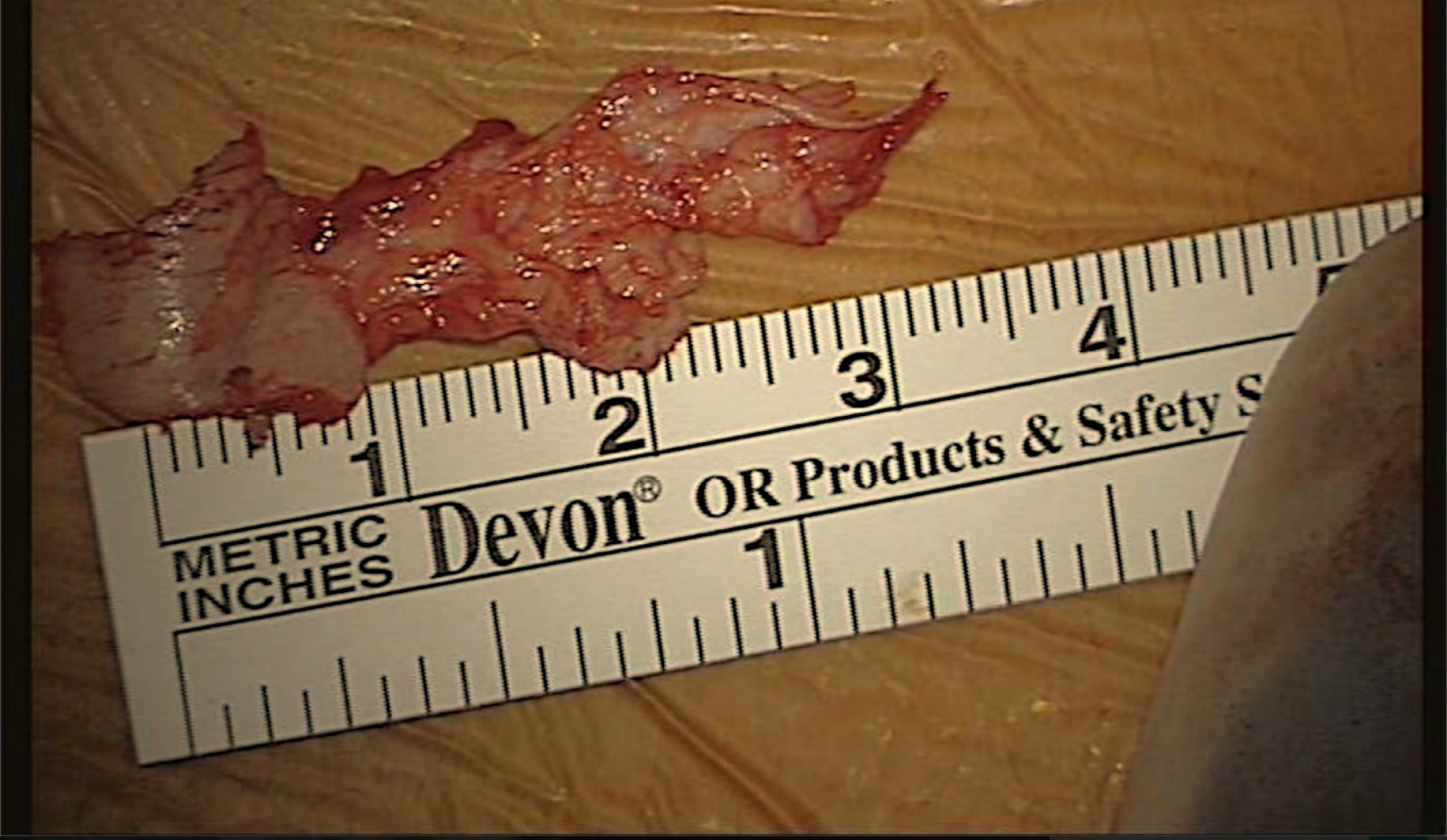

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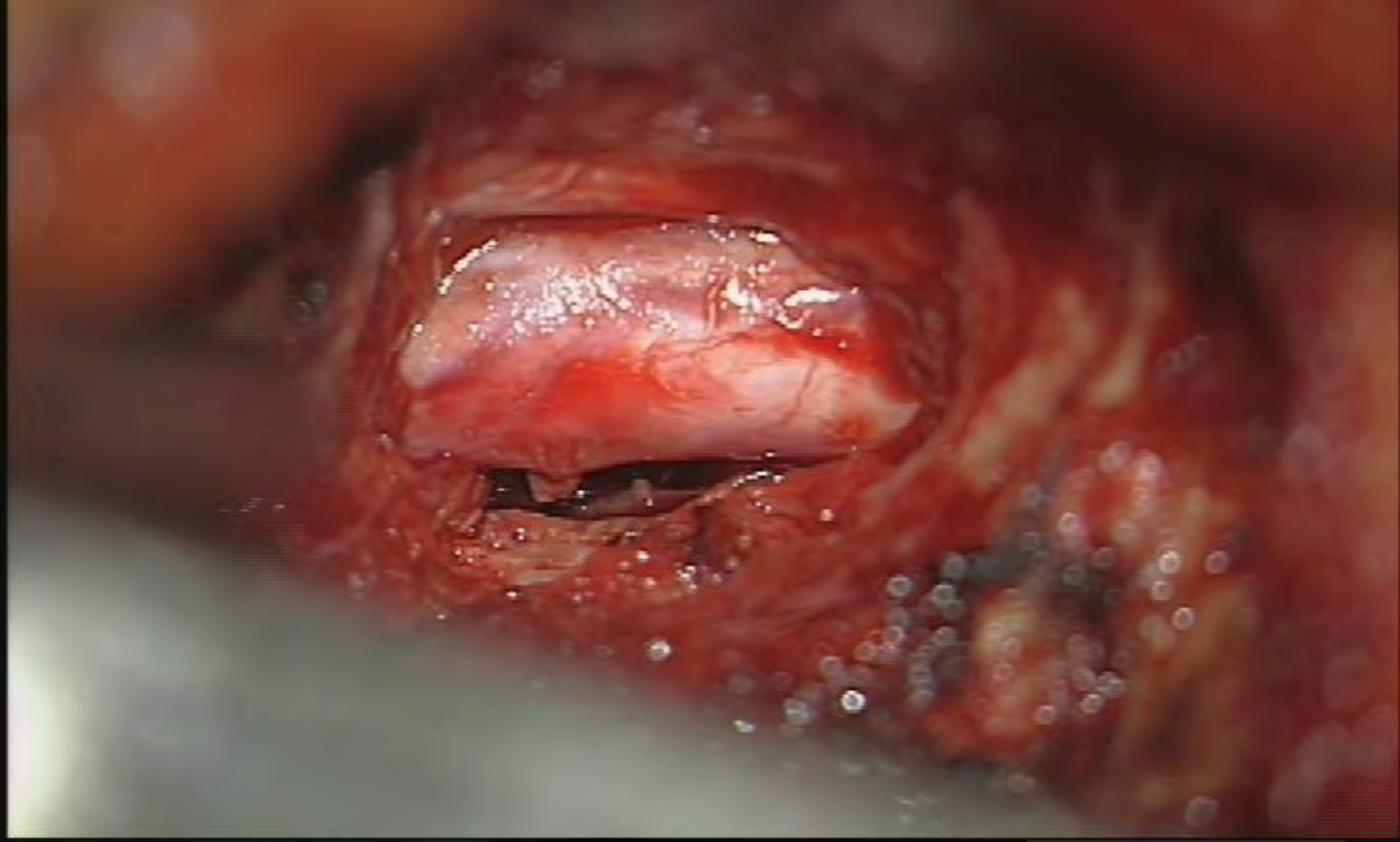

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- Mobilise immediately
- Discharge within 1-2 days
- Wound needs to stay clean and dry for 2 weeks
- Back to sedentary occupations at about 4 weeks
- No heavy lifting for 3 months

OUTCOMES

Surgical vs Nonoperative Treatment for Lumbar Disk Herniation

The Spine Patient Outcomes Research Trial (SPORT): A Randomized Trial

JAMA, November 22/29, 2006—Vol 296, No. 20

- Multicenter, RCT and Observational study with 501 randomised patients and 743 observed patients

SPINE Volume 33, Number 25, pp 2789–2800
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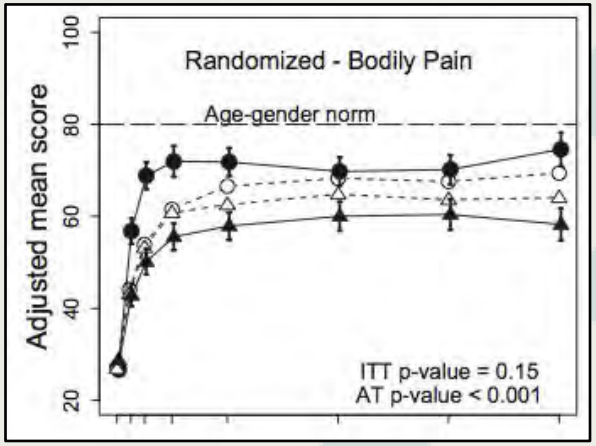
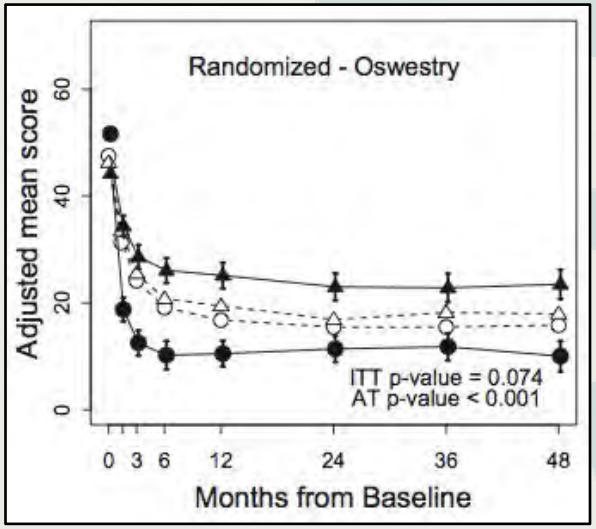
Surgical *Versus* Nonoperative Treatment for Lumbar Disc Herniation

Four-Year Results for the Spine Patient Outcomes Research Trial (SPORT)

James N. Weinstein, DO, MS,* Jon D. Lurie, MD, MS,* Tor D. Tosteson, ScD,*

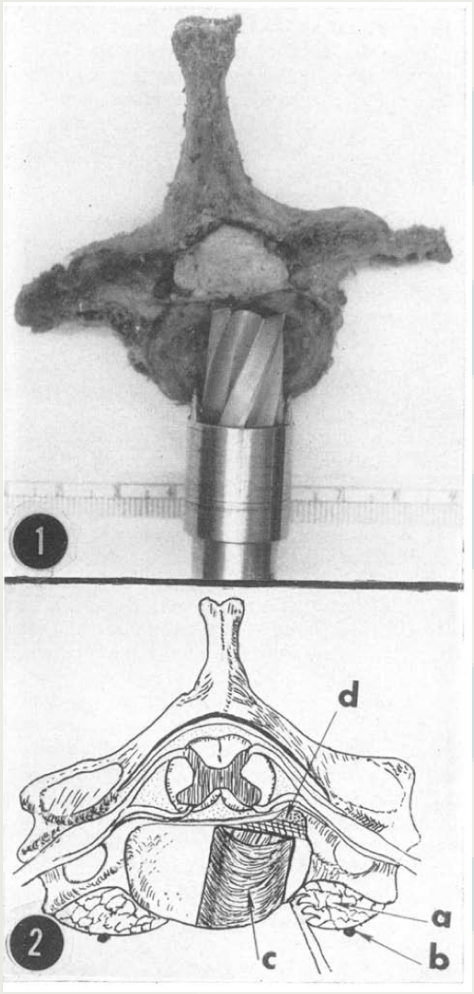
- When analysed by treatment the surgical arm did better in all measures at all time points, though differences started to lessen after four years





Treatment – Cervical Discectomy

- Excellent for rapid relief of severe symptoms, or symptoms not settling with conservative care
- Trends towards better average resolution of neck and arm pain than conservative treatment
- Gold Standard: ACDF



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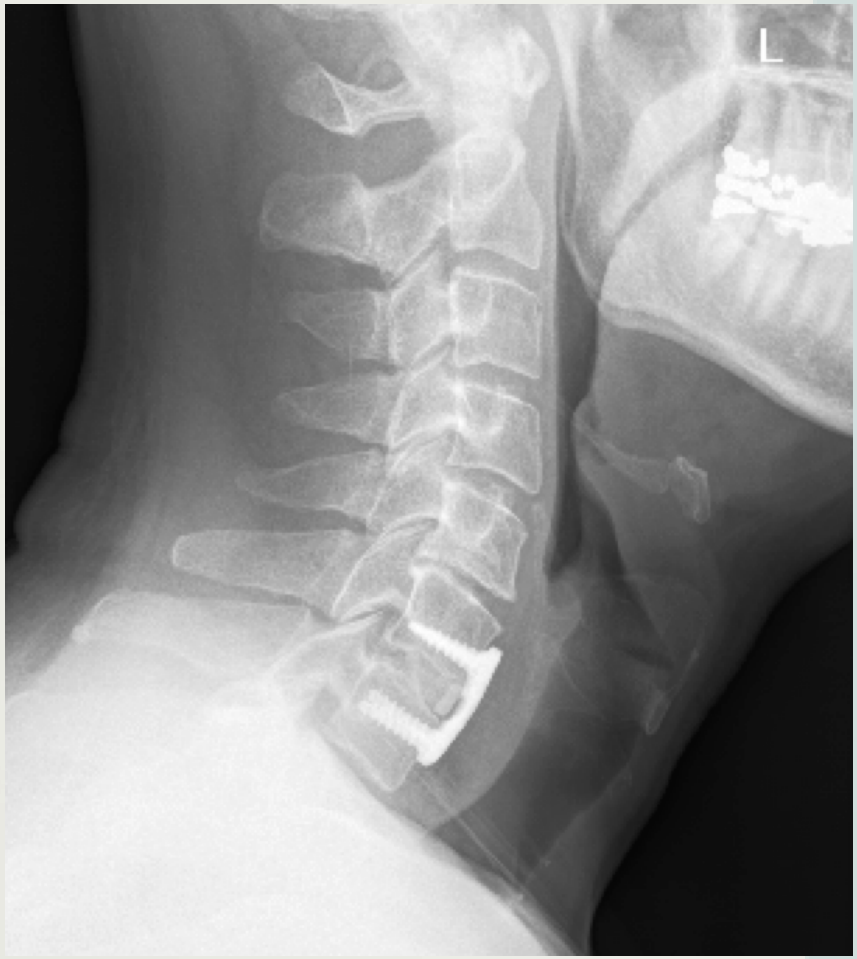
Anterior Cervical Discectomy and Fusion

- 90% success rate for relieving arm pain
- Traditionally held to be less effective at relieving neck pain



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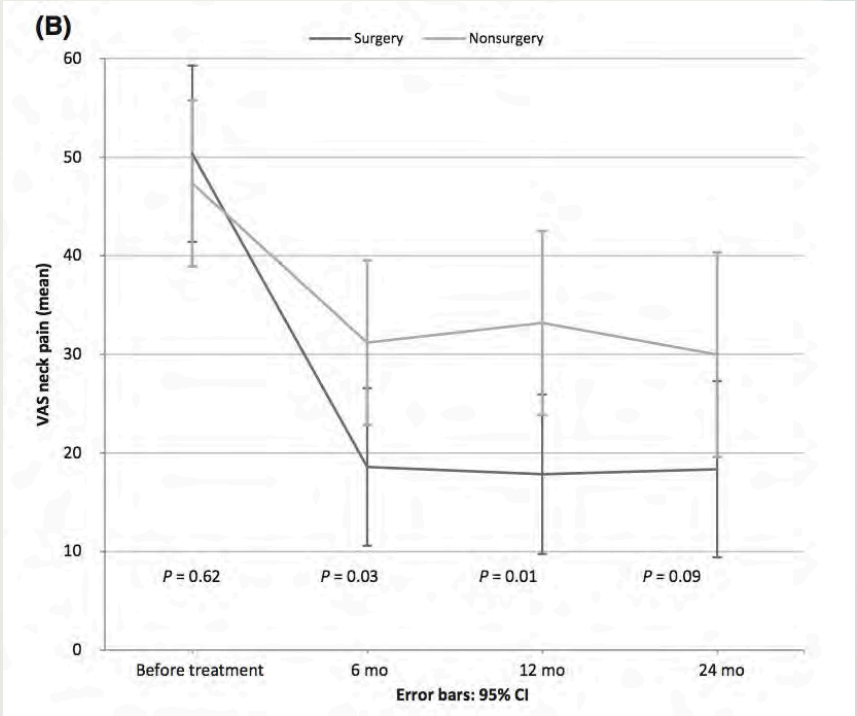
Anterior Cervical Discectomy and Fusion

- 90% success rate for relieving arm pain
- Traditionally held to be less effective at relieving neck pain, but…



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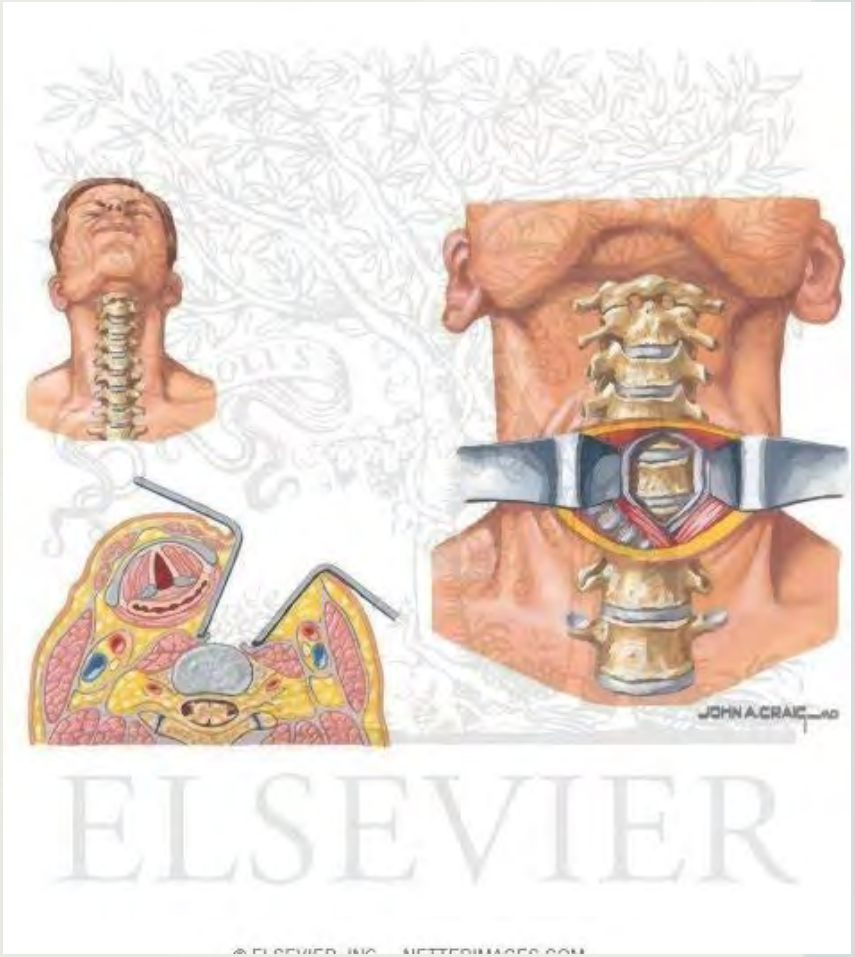
Anterior Cervical Discectomy and Fusion Technique

- Goal is to remove disc and osteophyte impinging on the foraminal part of the nerve root
- 4-6cm skin incision with dissection through a plane between the midline structures (airway, oesophagus) and the carotid vessels
- Disc is removed and the PLL at the back of the disc space visualised



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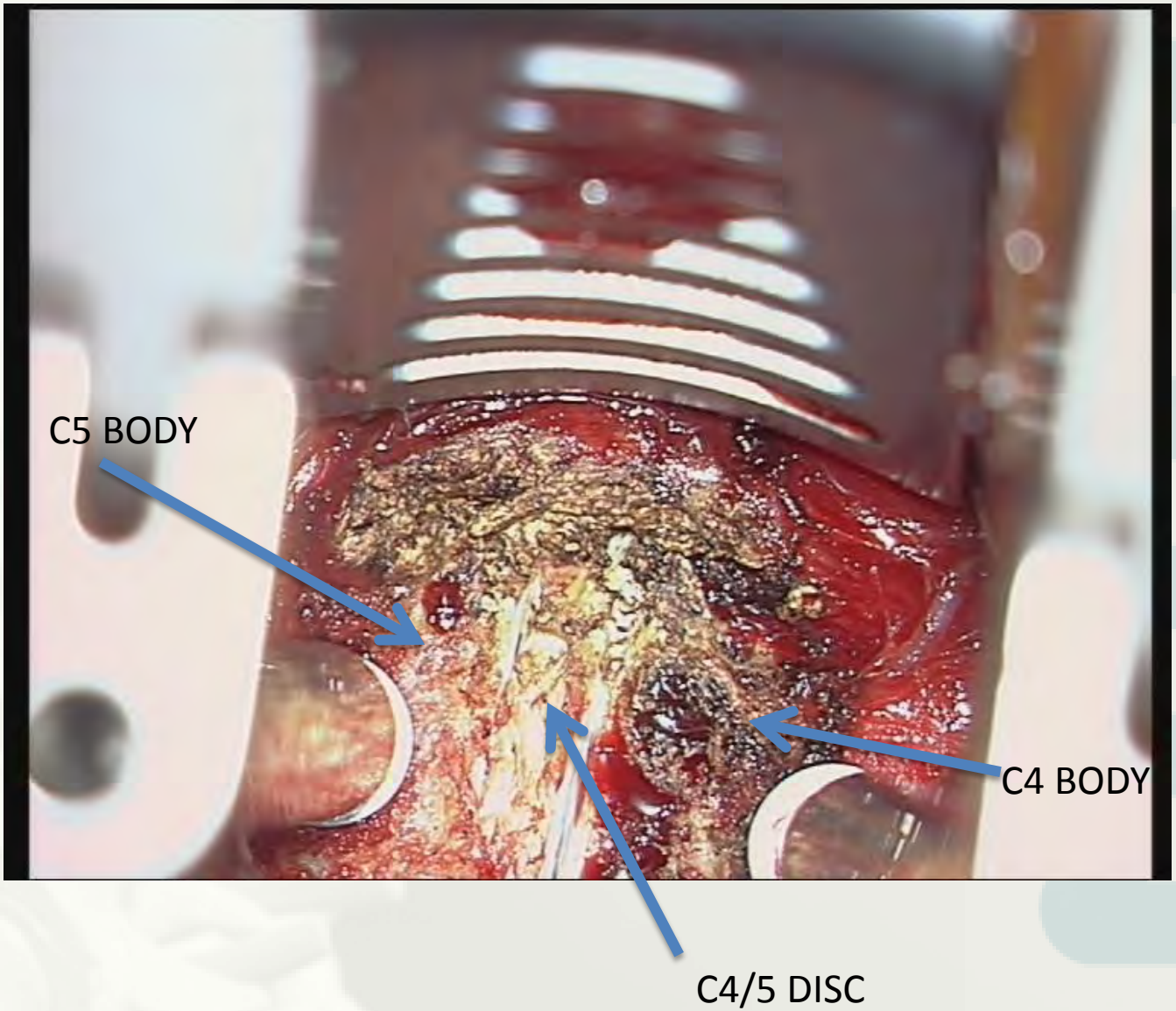

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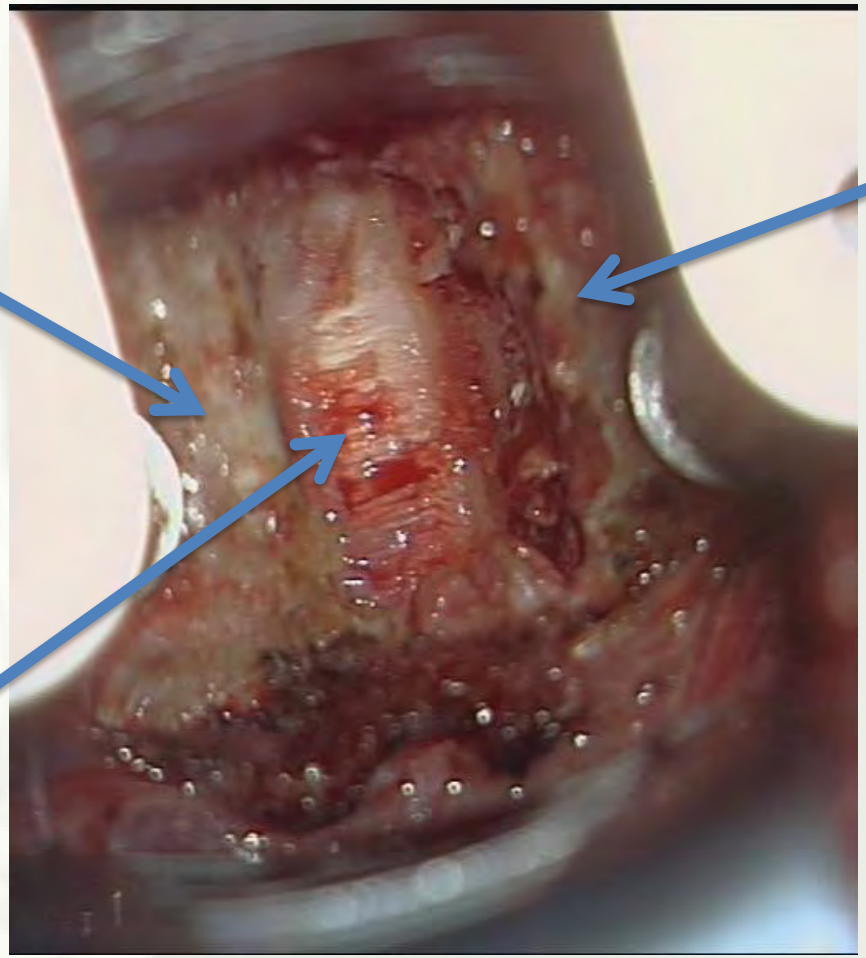

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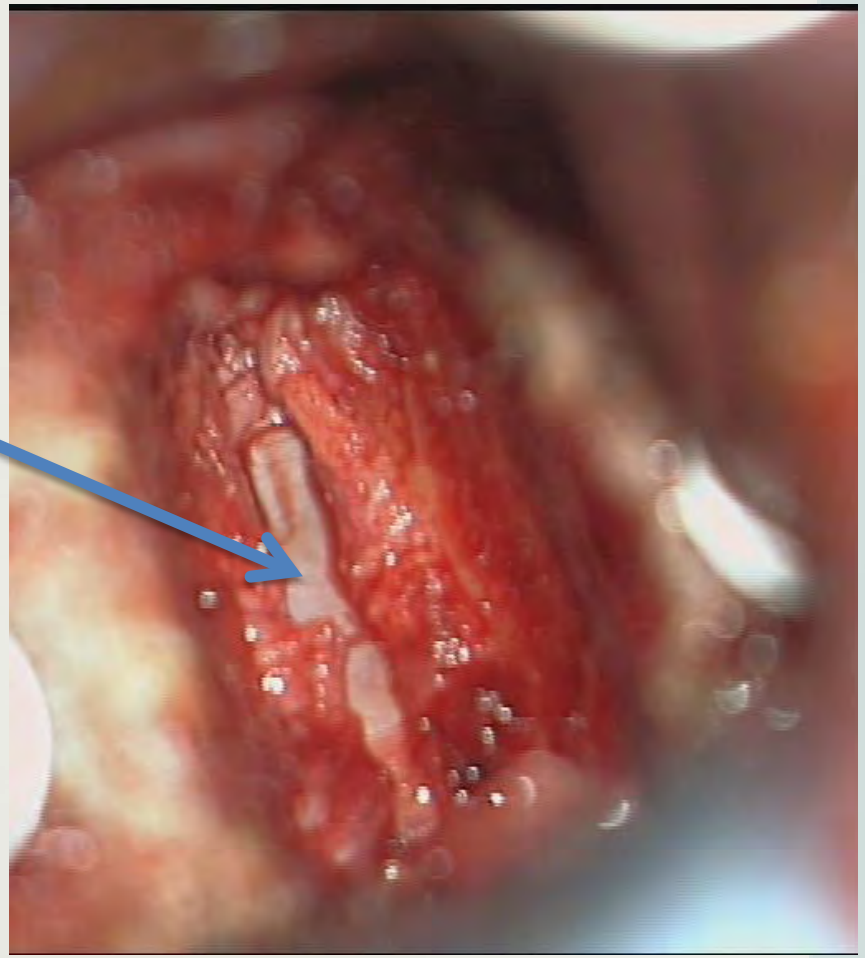
- PLL taken down
- Dura visable



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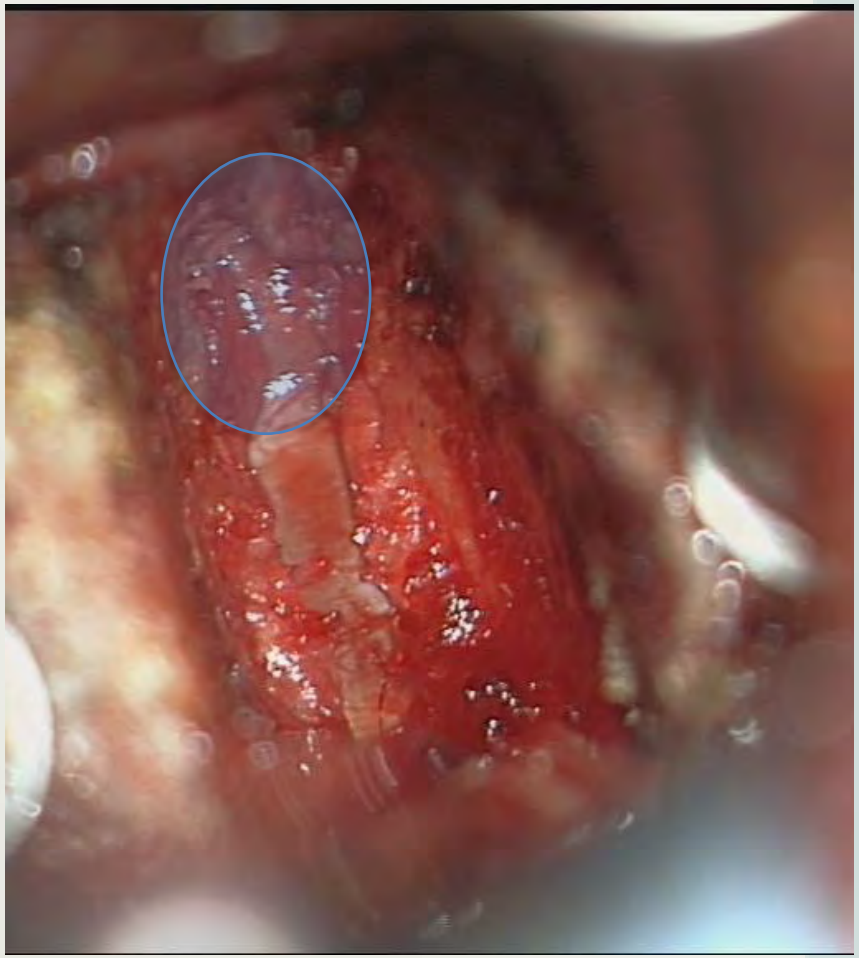
- Dissection carried out laterally until nerve visualised and free of compression from bone or disc



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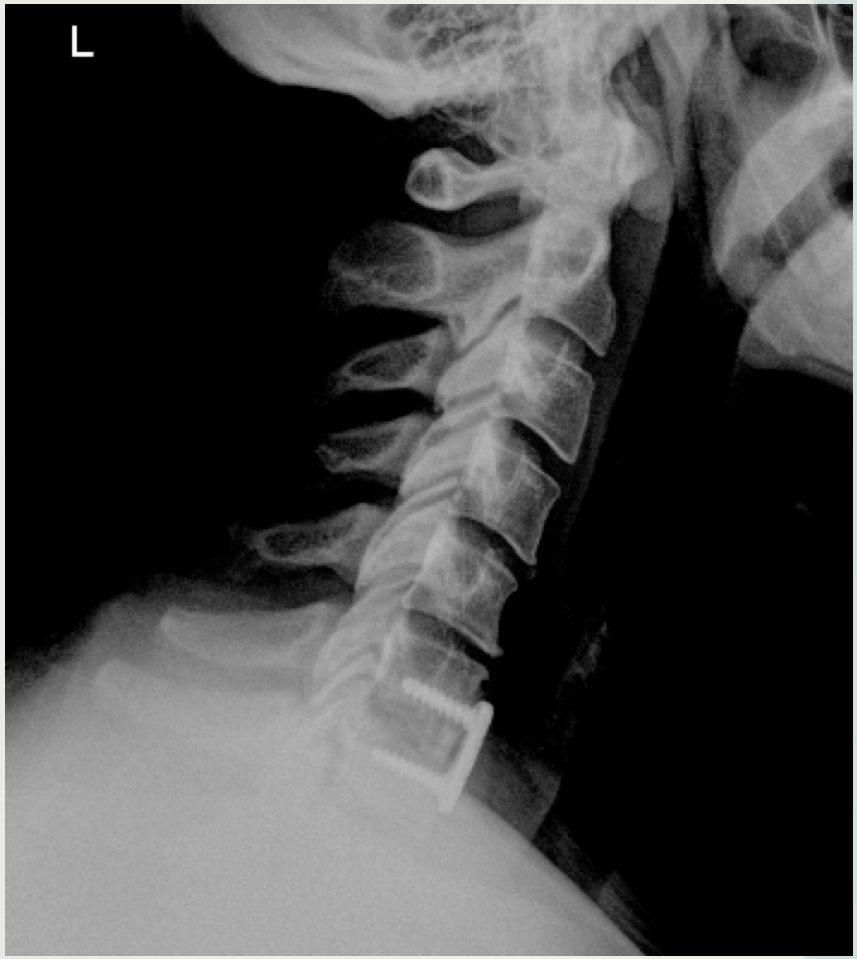
- Graft inserted
- Plate inserted



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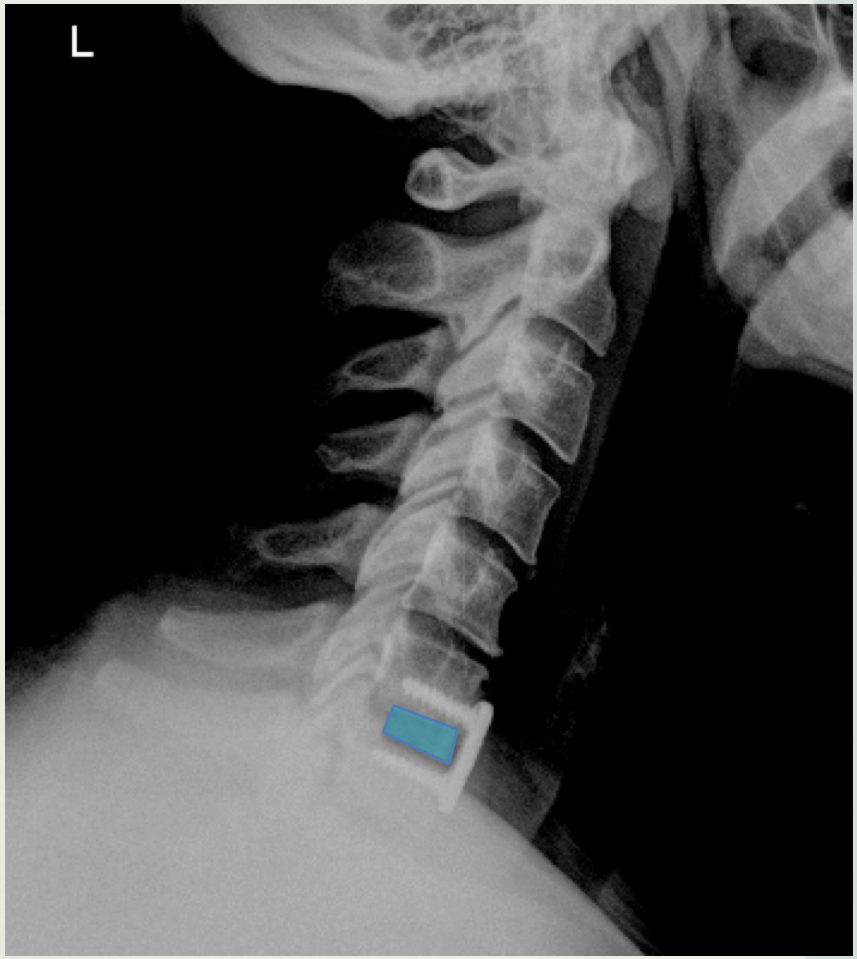

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POST OP

- May have short term difficulty with swallowing or speaking
- Collar – optional, but can be very useful for comfort for first 6 weeks
- Return to activities as tolerates. Return to heavy manual labour 6-9 months, depending on evidence of radiological fusion

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Non-operative vs Operative

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NON-OPERATIVE VS OPERATIVE

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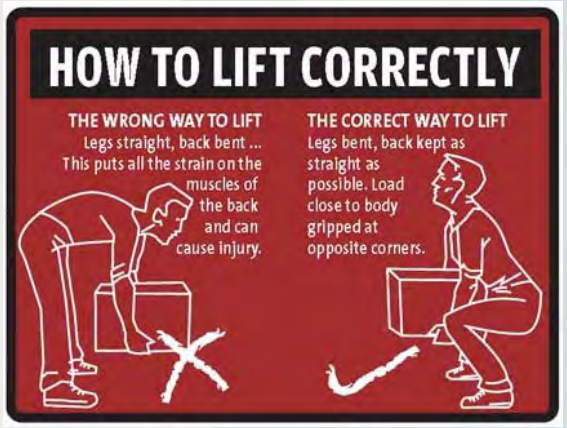
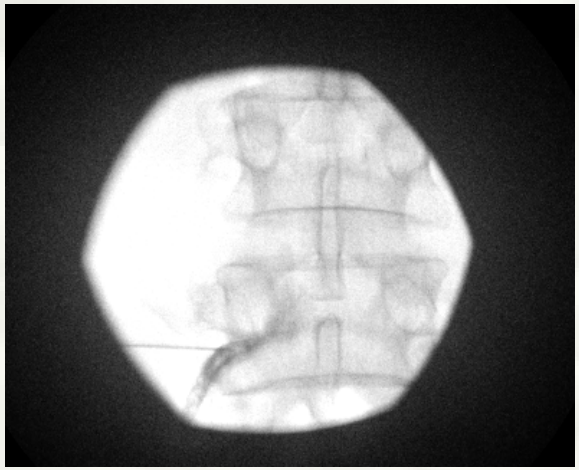
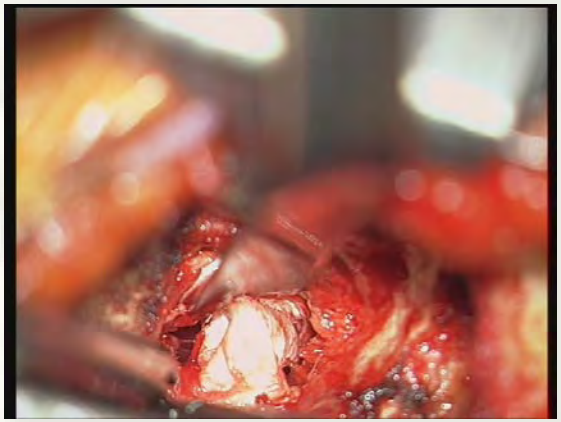
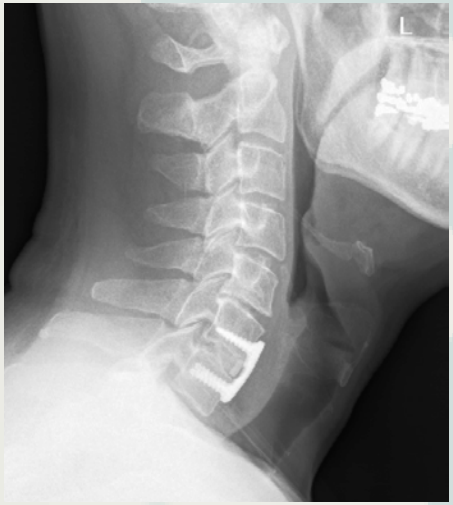


NON-OPERATIVE & OPERATIVE







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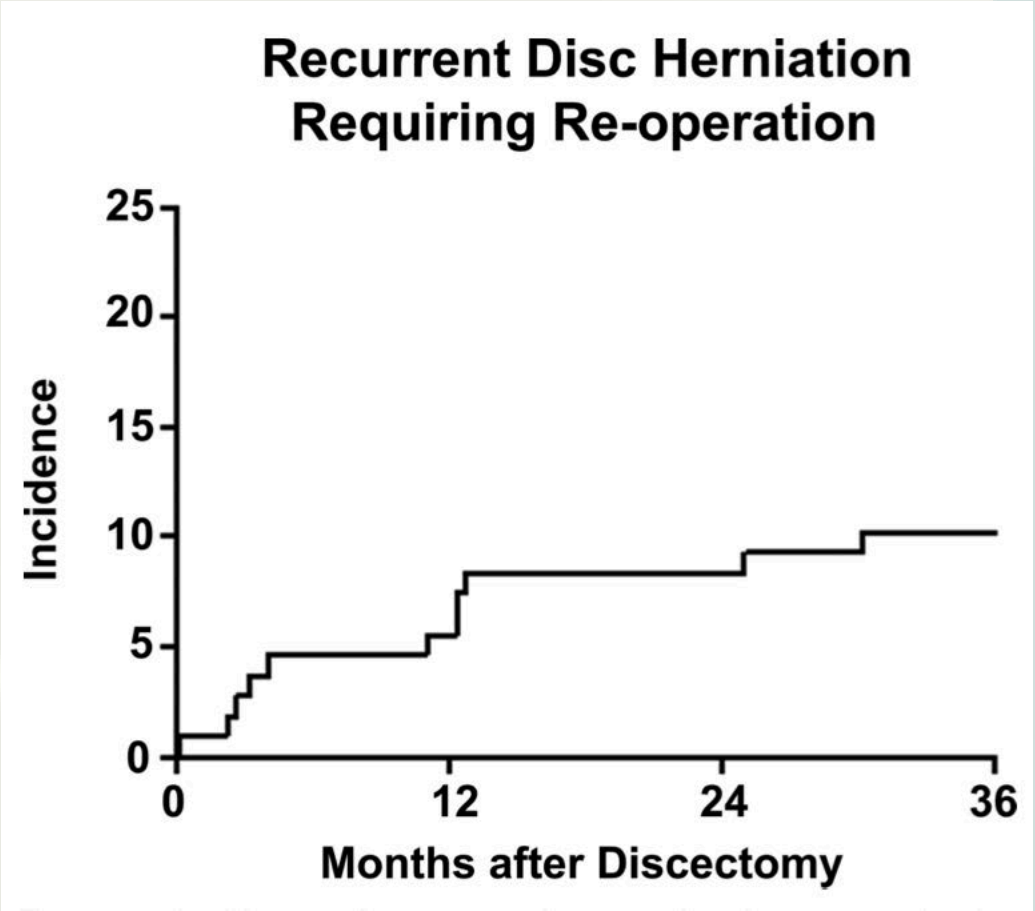
Return to Work and Activities

- Factors
  - Recurrence
  - Pain/Work Evironment

Return to Work and Activities

- Factors
  - Recurrence



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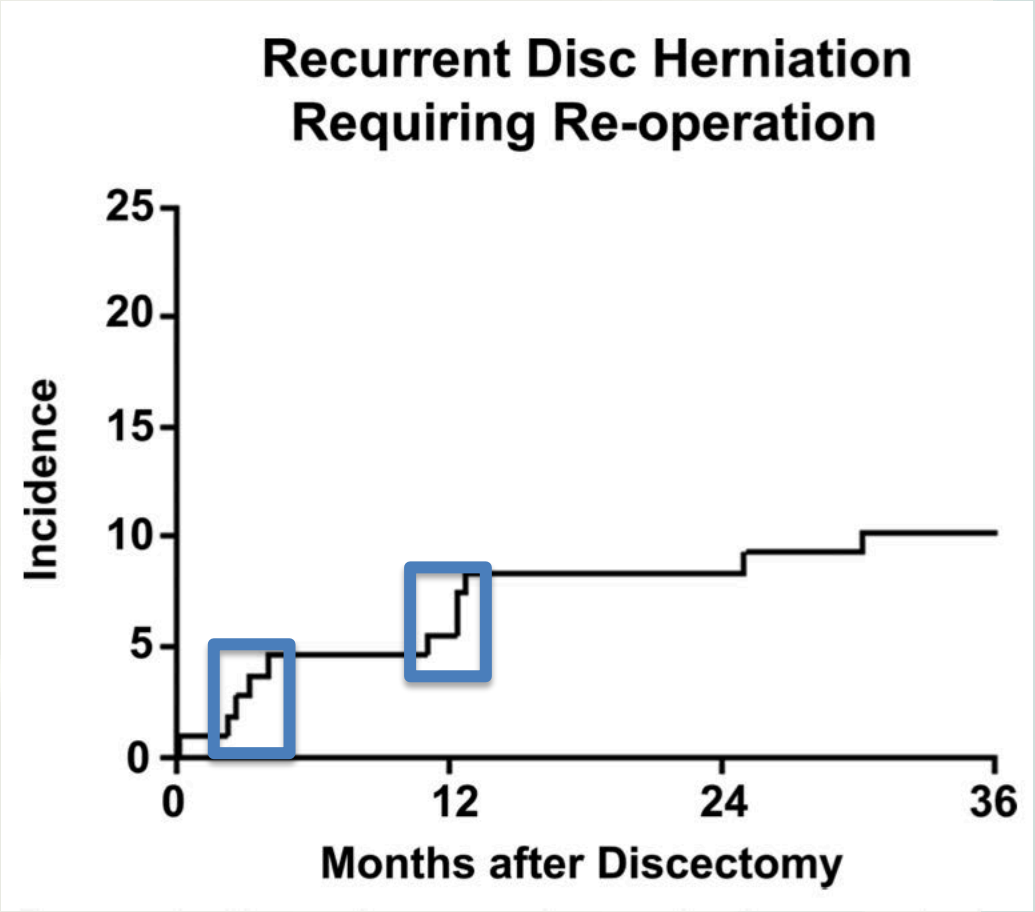
Return to Work and Activities

- Factors
  - Recurrence 10%
  - 90% happen
    - <4 months
    - >11 months
  - More to do with type of herniation than work duties
  - Sensible to limit heavy lifting in first 3 months



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When to call a patients surgeon

- Wound
  - Redness extending further than the immediate wound line
  - Expressible Pus/clear fluid
  - Fever
- Cauda Equina – call ambulance
- Recurrent or progressive neurology – analgesia and call rooms

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When to refer

- Red Flags/Cauda Equina → refer urgently to public hospital

When to refer

- Persistent dysfunction and significant pain beyond 6 weeks
- Not coping on standard analgesics, if needing opiates
- Significant sensory loss or motor weakness or tension signs
- Any worsening neurology

Referral Information

- Back vs Leg Pain
- DOI and Hx of any injury
- Duration
- Severity – can they work?
- Any notes of concern (red flags)
- PMHx/Meds
- Imaging – where was it done?

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THANK YOU

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