Doctor My Back Hurts
Who Needs What?

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Disclosures

Neither I nor my spouse/partner has a relevant financial relationship with a commercial interest to disclose.

The *Almost* Commonest Neurological Diagnosis

Many diagnoses and
this is the problem.

Heterogeneity and Diagnosis

We can organize our thinking along axes

Layer: Myofascial - facet joint / bone - nerve
Nerve: non-neurological vs neurological (which nerve)
Mechanism: Inflammatory – mechanical – traumatic

Tempo

We can think of the timing

Acute: mechanical (compression fx, disc herniation)

Subacute: waxing and waning, lateral recess or foraminal stenosis, DDD

Chronic: nerve injury, chronic listhesis, neuropathy

Context

We can think contextually

- Traumatic
- Arthritic disease
- Obesity
- Occupational, situational
- Prior spinal diagnosis

Putting it Together

Integration

Anatomically – where is the generator?

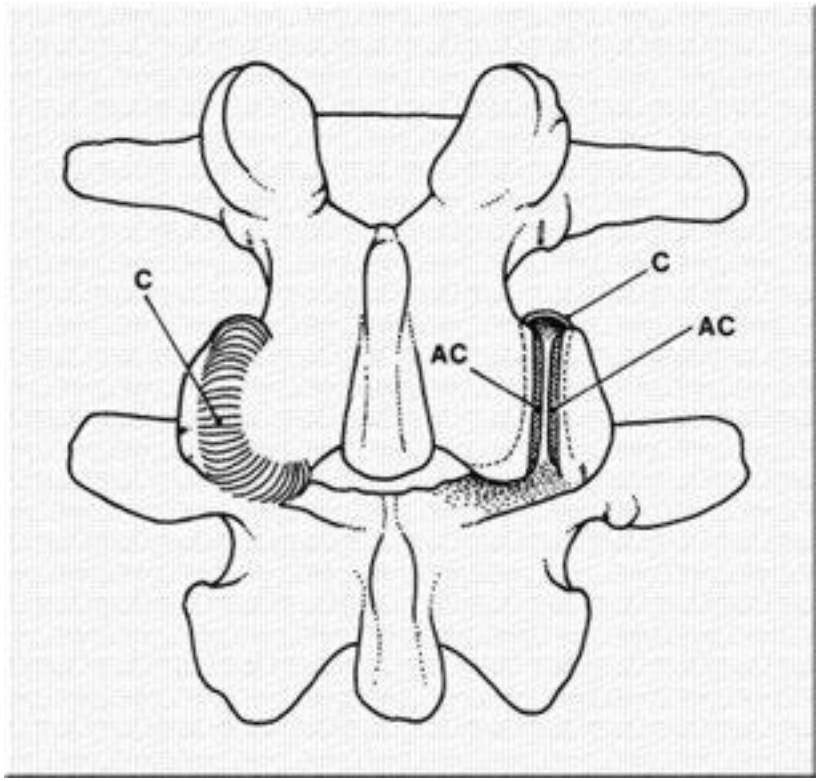
Temporally – what can give rise to these symptoms? What is the trend?

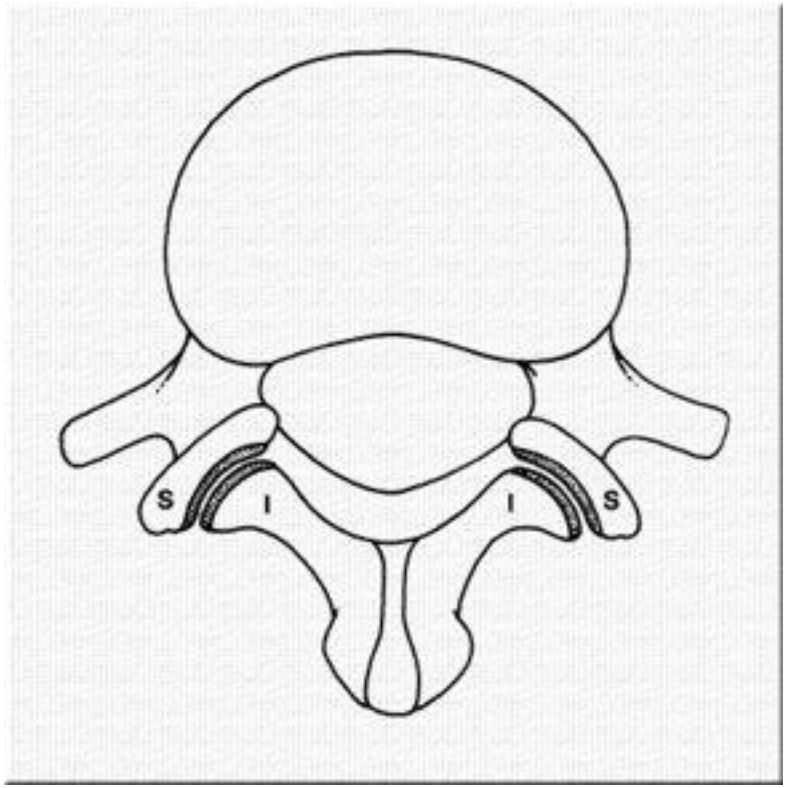
What is the context for the symptoms?

Back Pain without Radiculopathy

- Muscle vs. facet vs. bone
- Physical exam flexion vs. extension
- Neurological exam negative
- Facet provoking maneuvers
- SI joint
- Hip

The Facet Joint





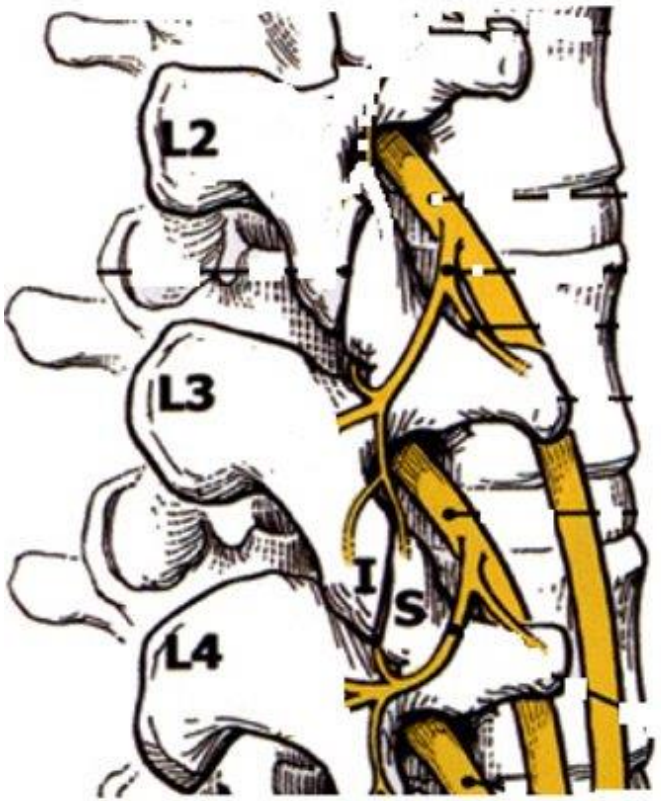
Clinical Anatomy of Lumbar Spine and Sacrum by Dr. Bogduk

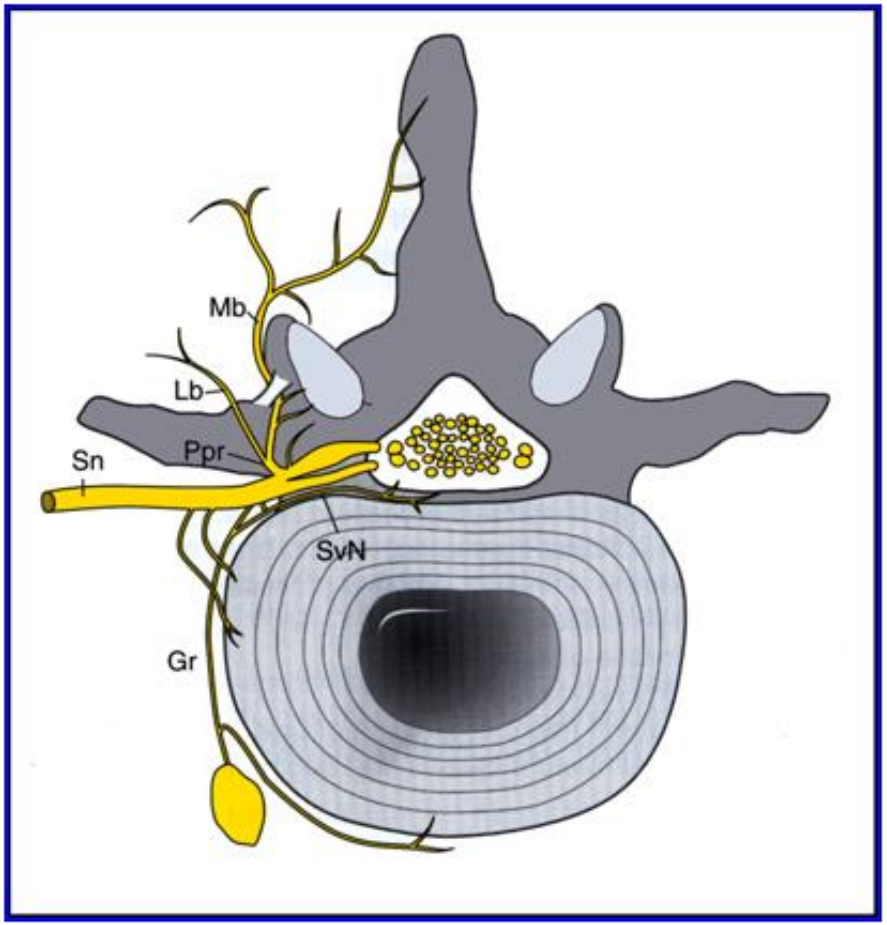
Facet Pain

Predictable / reproducible

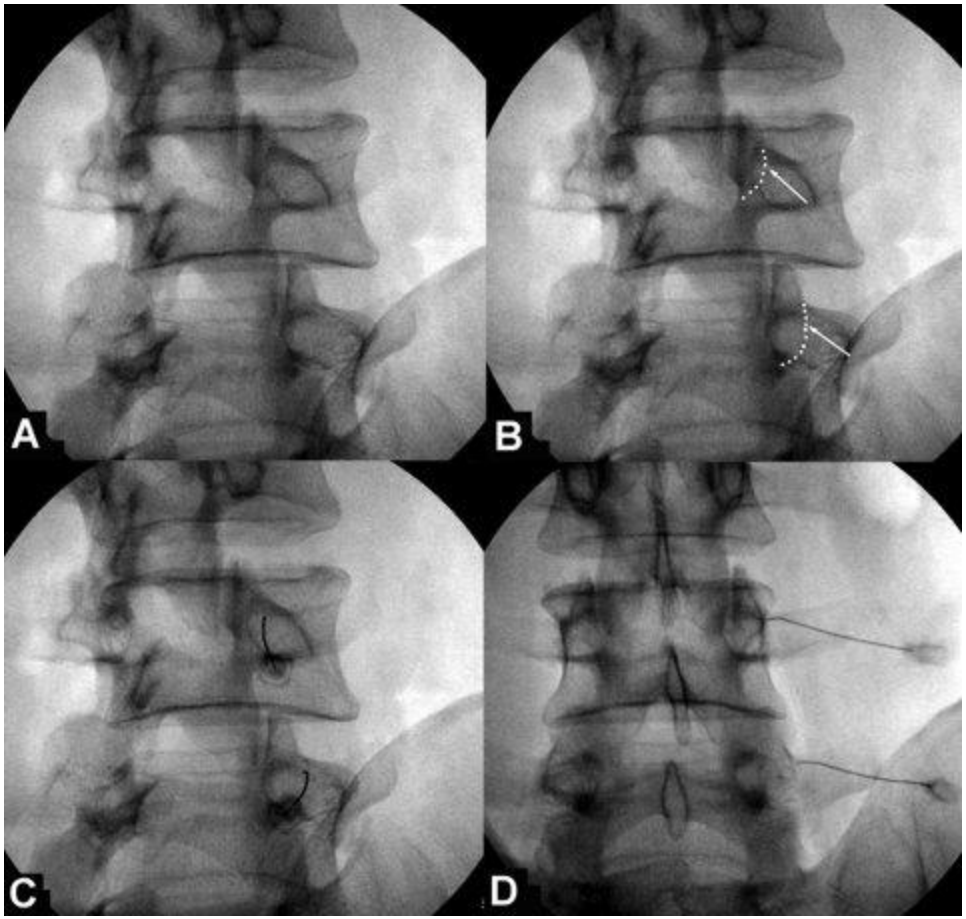
Worse with loading

Facets are Innervated

- 



Targeting the Facet Joints



Radicular Pain

- Most (5/6) improve over time
- 1/6 cause persistent symptoms that require surgery
- MRI scan indicated

L3/L4 or L5/S1

Exam findings (in addition to motor & sensory)

- Anterior vs posterior distribution
- Compensatory posture
- Nerve tension
- Gluteal pain
- Inguinal pain
- Significance of a limp

Resolving Disc Herniation

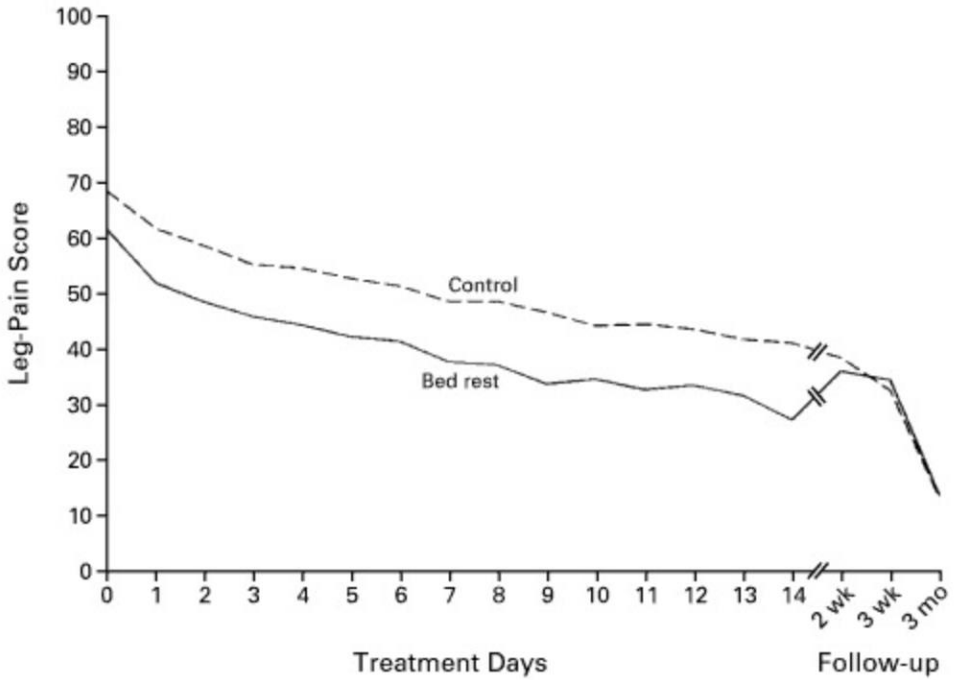
How Many Patients End Up Needing Surgery

ORIGINAL ARTICLE

Lack of Effectiveness of Bed Rest for Sciatica

Patrick C.A.J. Vroomen, M.D., Ph.D., Marc C.T.F.M. de Krom, M.D., Ph.D., Jan T. Wilmink, M.D., Ph.D., Arnold D.M. Kester, Ph.D., and J. André Knottnerus, M.D., Ph.D.

N Engl J Med 1999; 340:418-423



1999 Sciatica Study

			P Value for Comparison of Survival Curves
During follow-up			
Further follow-up (%)‡	40	40	
Diskectomy (%)‡	17	19	0.93
Median no. of days of work missed§¶	46	47	0.88
Work resumed during follow-up (%)¶	71	76	0.91

*Plus–minus values are means ±SD.

†The values shown are the differences in the scores between the bed-rest group and the control group, with adjustment for base-line score and age, sex, visual-analogue scores for the investigator's assessment of the severity of disease and the patient's assessment of the bothersomeness of the chief symptom, the presence or absence of nerve-root compression on the MRI, the presence or absence of paresis, duration of disease, and the history with respect to sciatica. CI denotes confidence interval.

‡Values are for outcomes during the first six months.

§There were 64 possible work days in the 12-week period.

¶Values are for outcomes during the first three months.

What to Do While we Wait

- Positional adjustment / activity modification
- PT
- Medication
- Steroid injections (?)

ESI: Stenosis vs Disc

A Randomized Trial of Epidural Glucocorticoid Injections for Spinal Stenosis

Janna L. Friedly, M.D., Bryan A. Comstock, M.S., Judith A. Turner, Ph.D., Patrick J. Heagerty, Ph.D., Richard A. Deyo, M.D., M.P.H., Sean D. Sullivan, Ph.D., Zoya Bauer, M.D., Ph.D., Brian W. Bresnahan, Ph.D., Andrew L. Avins, M.D., M.P.H., Srdjan S. Nedeljkovic, M.D., David R. Nerenz, Ph.D., Christopher Standaert, M.D., et al.

RESULTS

At 6 weeks, there were no significant between-group differences in the RMDQ score (adjusted difference in the average treatment effect between the glucocorticoid–lidocaine group and the lidocaine-alone group, −1.0 points; 95% confidence interval [CI], −2.1 to 0.1; P=0.07) or the intensity of leg pain (adjusted difference in the average treatment effect, −0.2 points; 95% CI, −0.8 to 0.4; P=0.48).

N Engl J Med 2014; 371:11-21

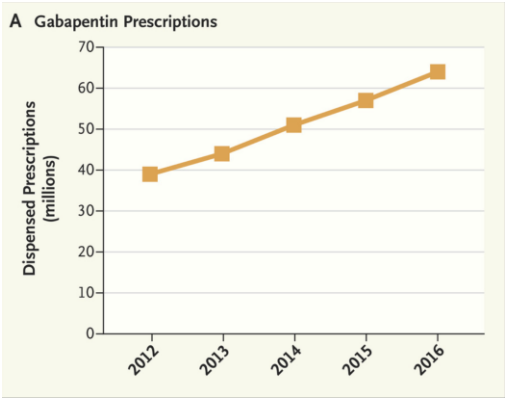
Overuse of gabapentin

Perspective

Gabapentin and Pregabalin for Pain — Is Increased Prescribing a Cause for Concern?

Christopher W. Goodman, M.D., and Allan S. Brett, M.D.

An increasing prevalence of diseases for which gabapentinoids are FDA-approved — or a growing tendency for clinicians to prescribe them for these conditions — probably can't explain the recent rise in gabapentinoid use. Rather, we suspect that clinicians who are desperate for alternatives to opioids have lowered their threshold for prescribing gabapentinoids to patients with various types of acute, subacute, and chronic noncancer pain. For some of these patients, NSAIDs are contraindicated; for others, previous courses of acetaminophen and NSAIDs have proven inadequate or the patient or clinician may perceive them as "not strong enough." Some patients, drawing on past experience, consider opioids to be their only source of adequate pain relief, and some specifically request opioid prescriptions. In such cases, clinicians may turn to gabapentinoids as one of the few nonopioid, non-acetaminophen, non-NSAID options.



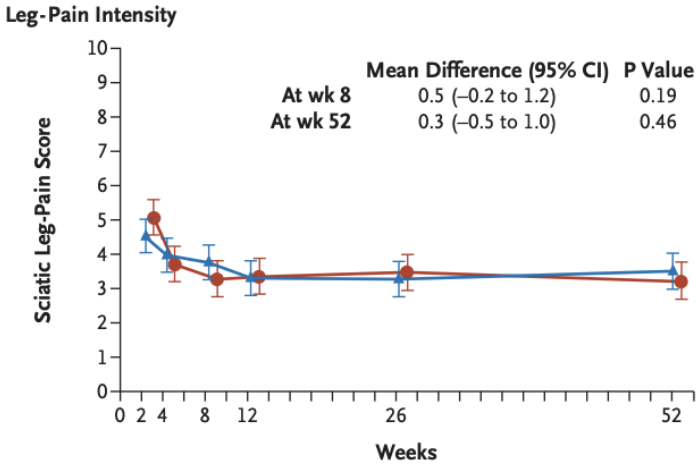
Overuse of gabapentin

Trial of Pregabalin for Acute and Chronic Sciatica

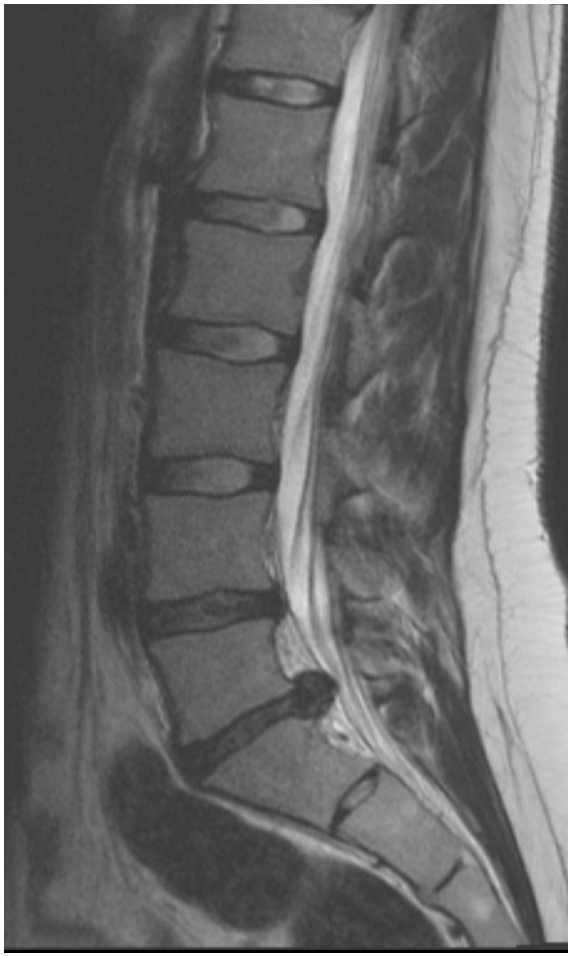
Stephanie Mathieson, M.Chiro., Christopher G. Maher, Ph.D., Andrew J. McLachlan, Ph.D., Jane Latimer, Ph.D., Bart W. Koes, Ph.D., Mark J. Hancock, Ph.D., Ian Harris, Ph.D., Richard O. Day, M.B., B.S., M.D., Laurent Billot, M.Sc., M.Res., Justin Pik, M.B., B.S., Stephen Jan, Ph.D., and C.-W. Christine Lin, Ph.D.

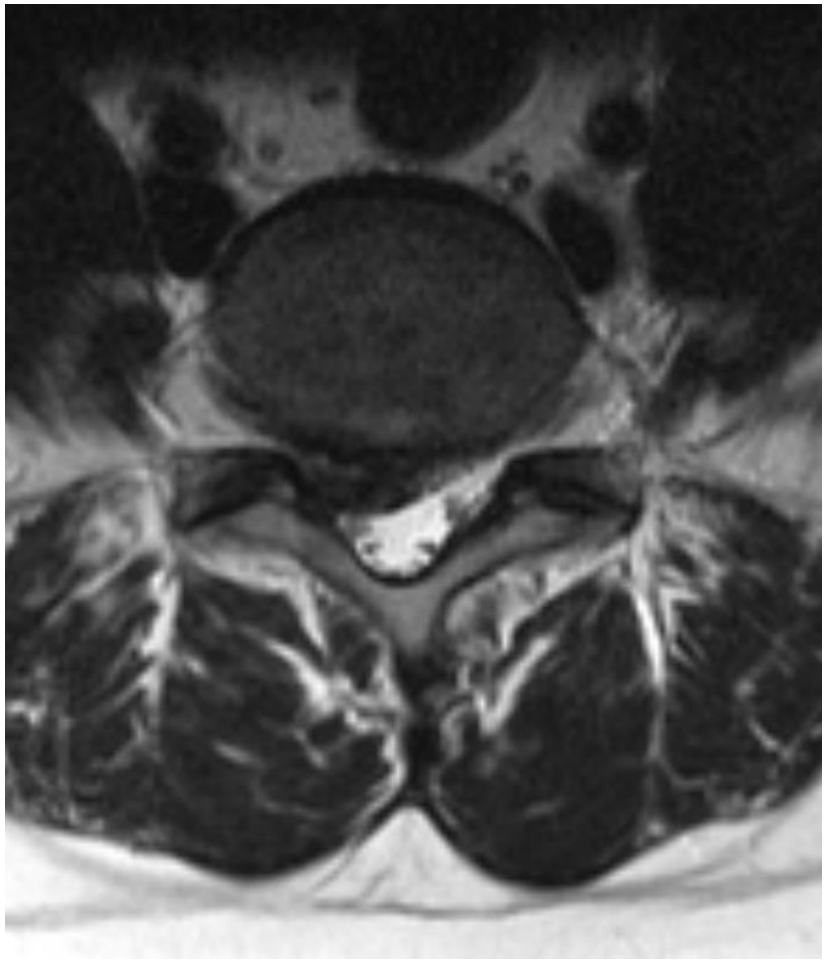
CONCLUSIONS

Treatment with pregabalin did not significantly reduce the intensity of leg pain associated with sciatica and did not significantly improve other outcomes, as compared with placebo, over the course of 8 weeks. The incidence of adverse events was significantly higher in the pregabalin group than in the placebo group. (Funded by the

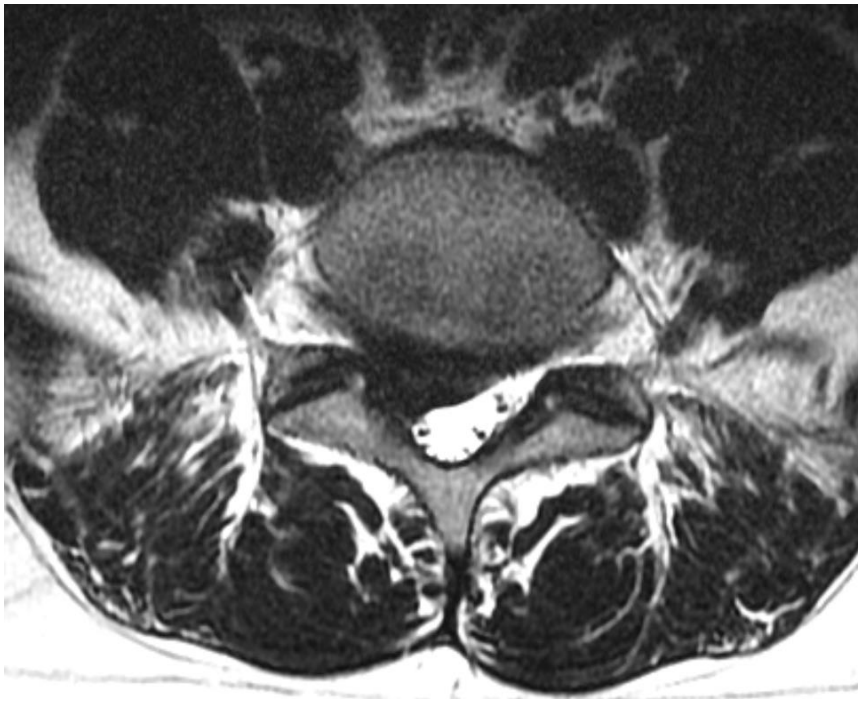


Non-Resolving Disc: Initial Scan





6 Months Later: Repeat Scan Indicated



Positional, Mechanical Symptoms

50-year-old physician, healthy, extremely active

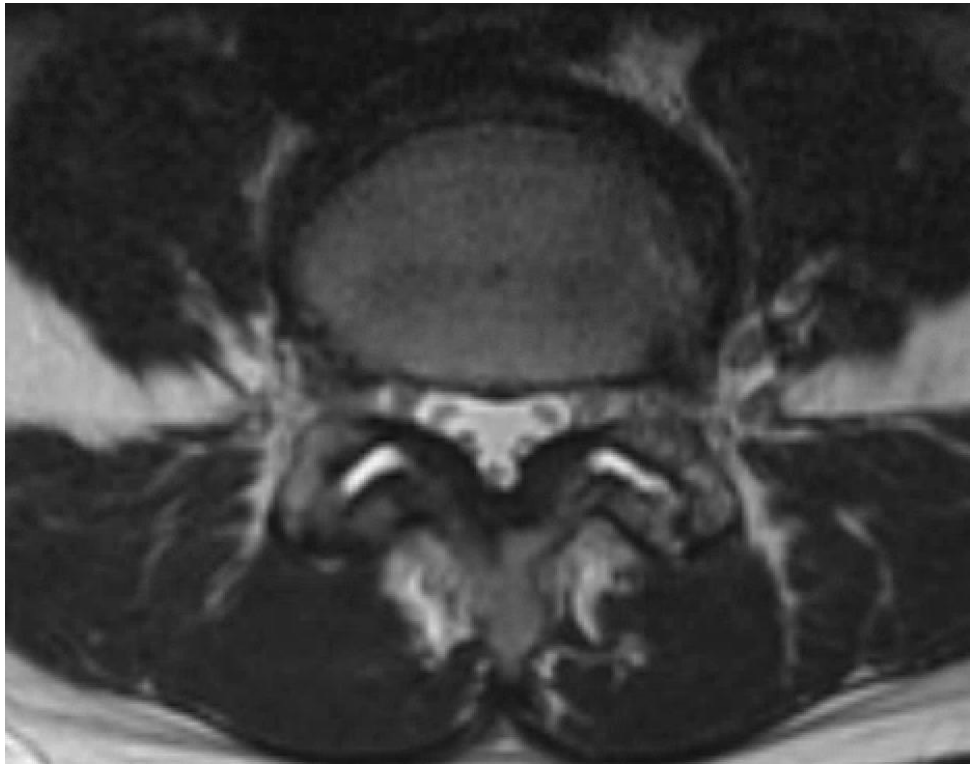
Pain (>3 months) in radicular distribution (L5) with running, kayaking.

Exam: normal

Symptoms are neurologic, mechanical,

longstanding and worsening

MRI Scan Equivocal



N.B. EMG negative, not indicated for intermittent, positional symptoms

Dynamic X-Rays Indicated

Fusion for spondylolisthesis

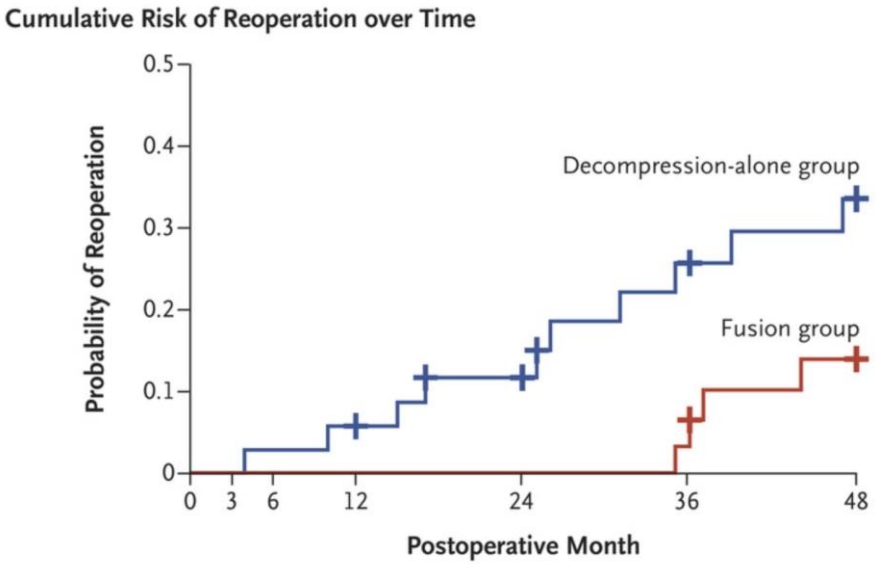
- Reduce movement
- Realign vertebrae

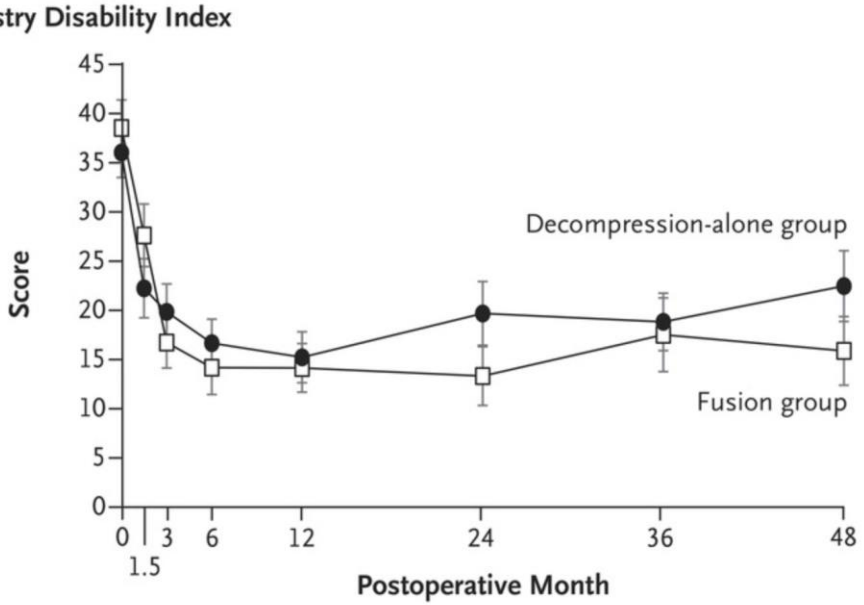
Indications for Fusion

ORIGINAL ARTICLE

Laminectomy plus Fusion versus Laminectomy Alone for Lumbar Spondylolisthesis

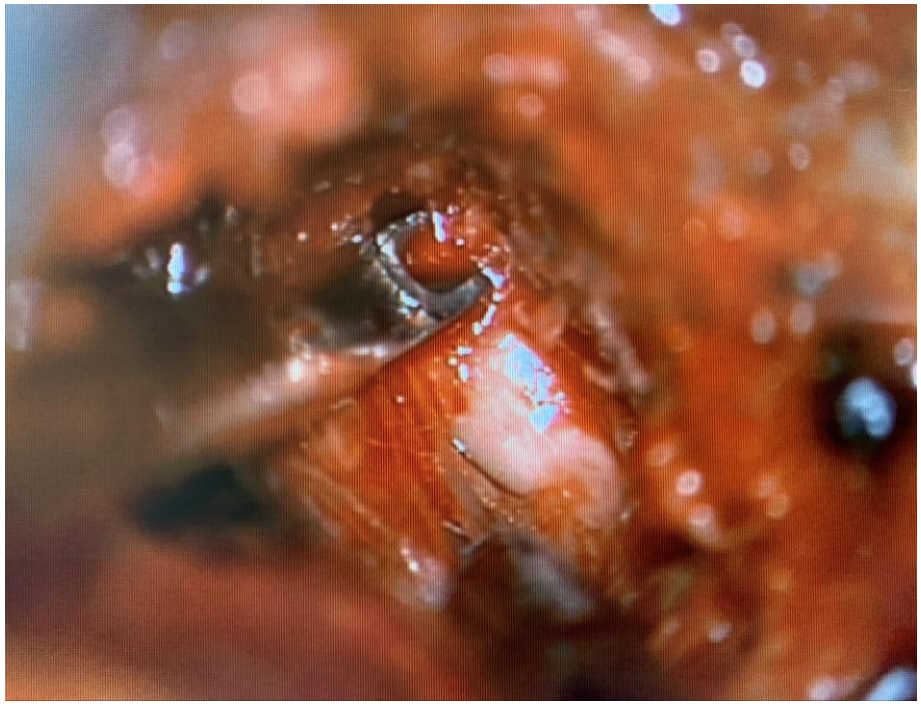
Zoher Ghogawala, M.D., James Dziura, Ph.D., William E. Butler, M.D., Feng Dai, Ph.D., Norma Terrin, Ph.D., Subu N. Magge, M.D., Jean-Valery C.E. Coumans, M.D., J. Fred Harrington, M.D., Sepideh Amin-Hanjani, M.D., J. Sanford Schwartz, M.D., Volker K.H. Sonntag, M.D., Fred G. Barker, II, M.D., et al.

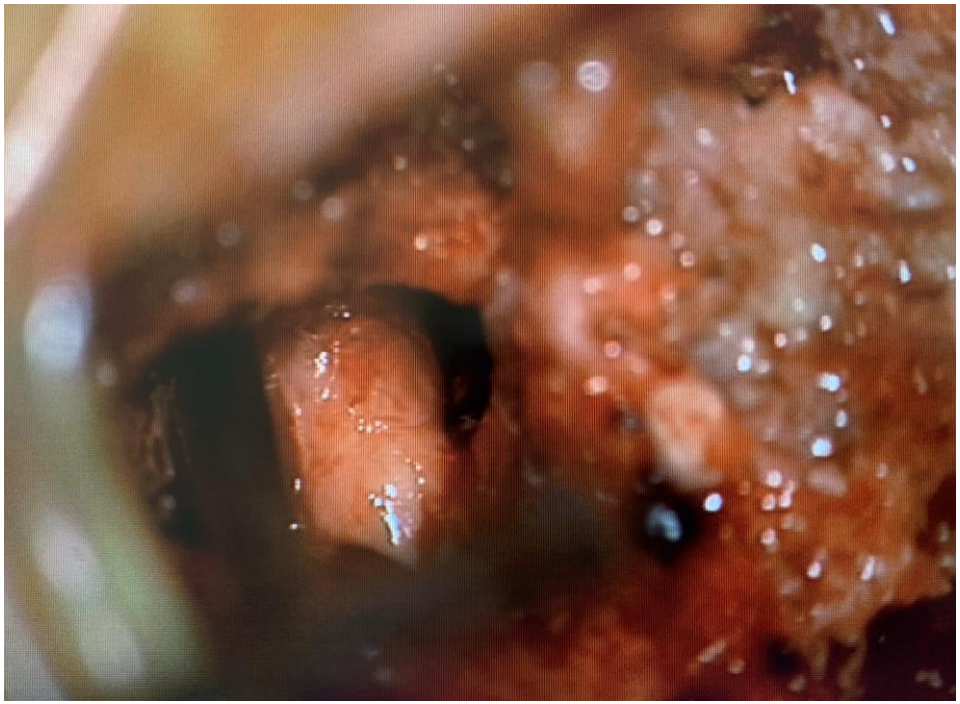




N Engl J Med 2016; 374:1424-1434

Foraminal Decompression





Spondylolysis without Spondylolisthesis

Surgical Emergencies

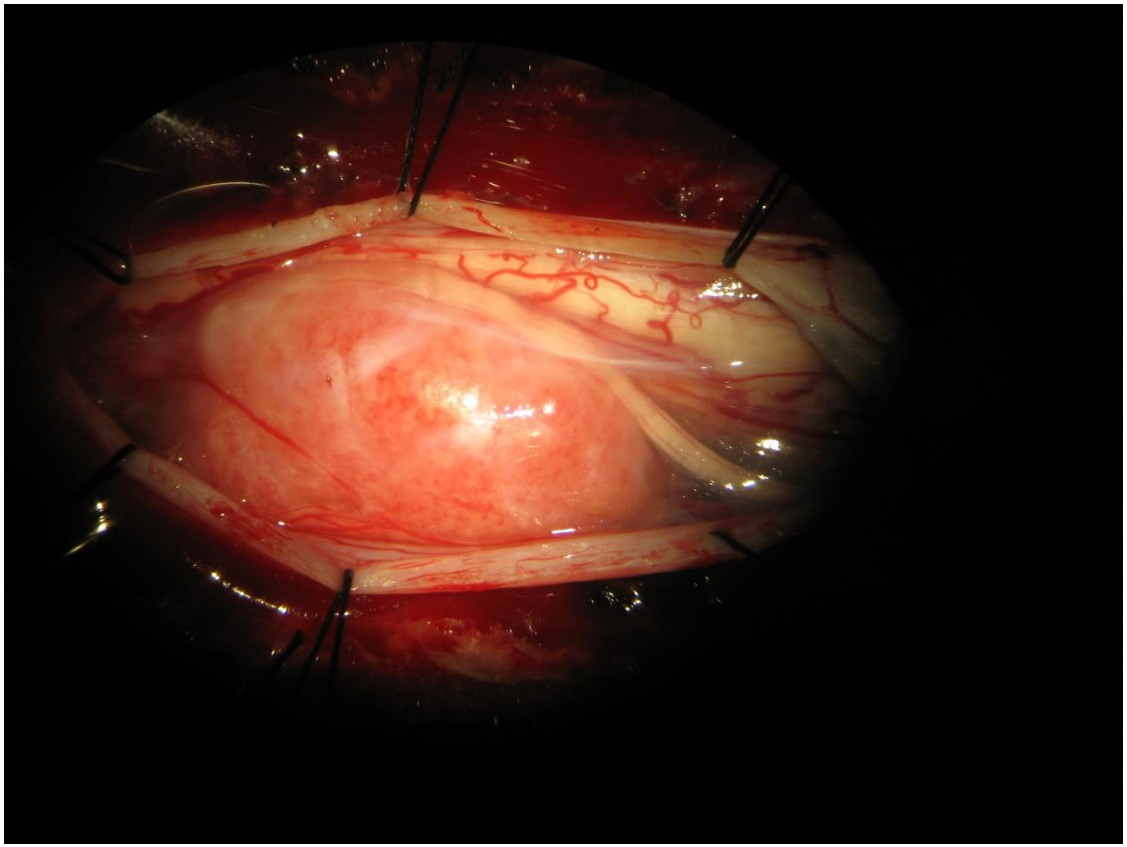
51 M with low grade back pain, referred to ED by chiropractor when he became suddenly unable to lie flat or extend.

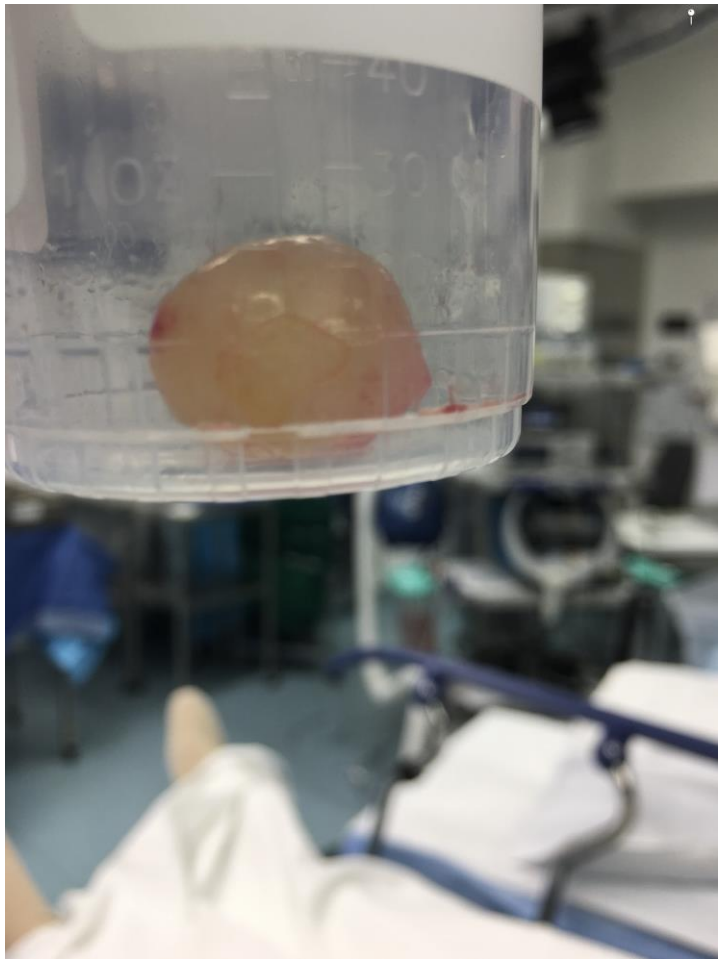
Severe bilateral radicular pain with back extension complicates the exam.

Sedation required for MRI scan.

Surgical Emergencies

Schwannoma

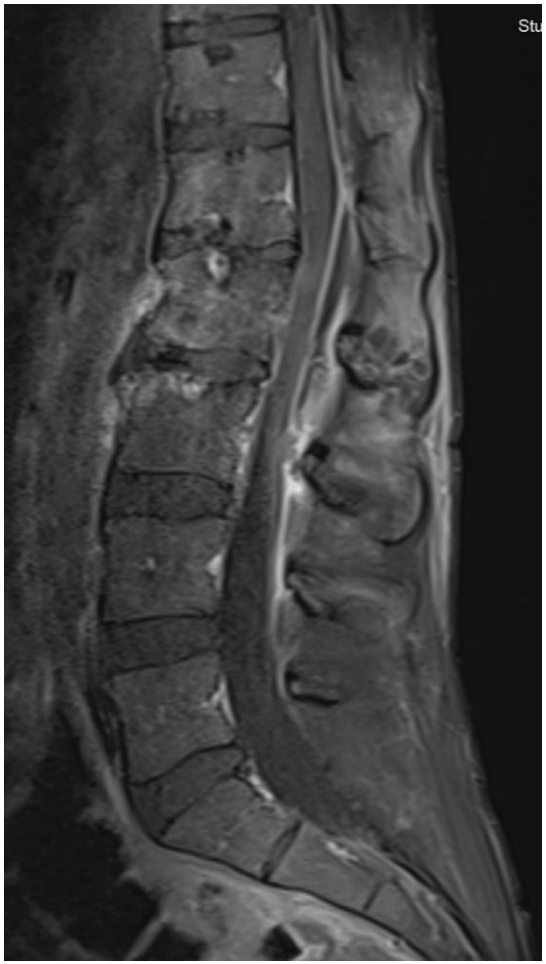


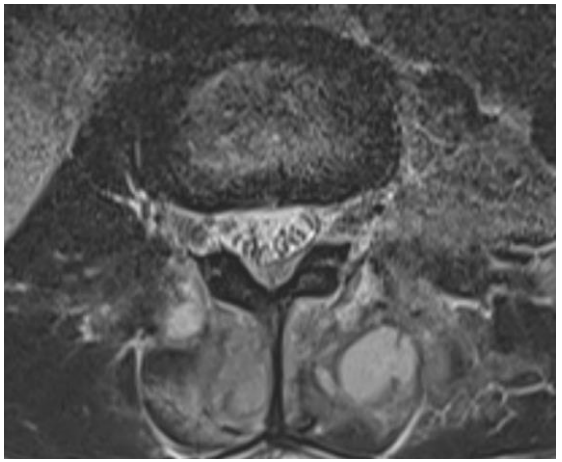


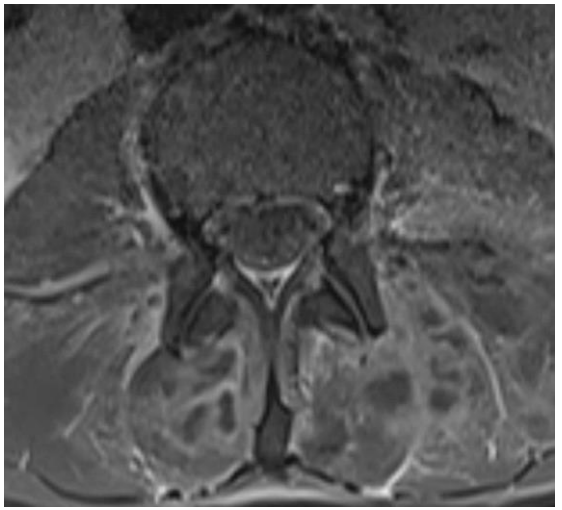
Surgical Emergency

- 38 M with opioid misuse, cellulitis presents to ED unable to stand straight with severe back and leg pain.
  - Afebrile, severe back tenderness, unable to give full effort on motor testing, normal sensation, marked nerve tension sign.
  - WBC 23 (90N, 4.5L, 3.8M)
  - ESR 69
  - CRP 242

Epidural Abscess



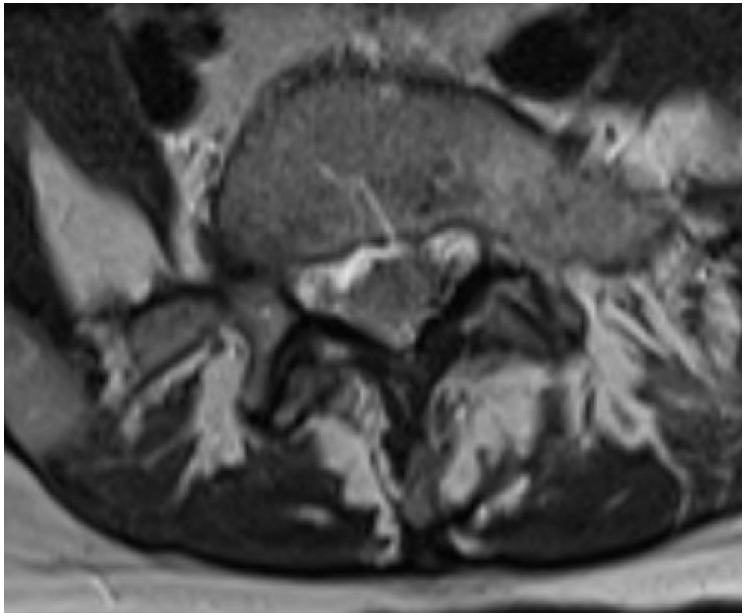




Surgical Emergency

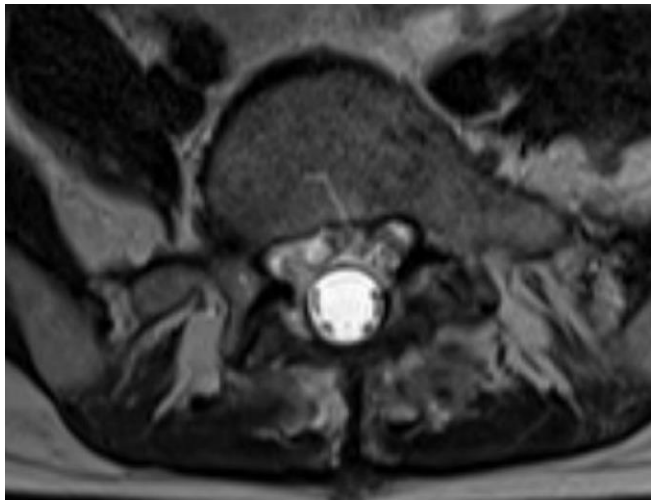
- 41 F very active
- 2-week h/o severe back and bilateral leg pain. Started with yoga class. Unable to sleep, takes minutes to empty bladder. Walks bent over.
- Exam: nerve tension sign. S1 and S2 numbness, good motor function, normal rectal tone

Sacral Root Compression



Disc Fragment

Numbness and Burning Pain Persist



Conclusion

- LBP is a nonspecific term
- Attention to anatomical cause can facilitate targeted treatment, especially in cases of mechanical or radicular symptoms