Subacute and Chronic low back pain

Diagnosis and treatment

Epidemiology

- 84% of adults experience low back pain
  - 90% initially seen in primary care do not seek care after three months
- Second most common cause of disability in US

Subacute: 4-12 weeks

Chronic: 12 + weeks

Treatments for chronic low back pain

- Physical therapy
- Medications
  - NSAIDS, muscle relaxants, antidepressants, neuromodulators, antiseizure meds, narcotics, topical meds
- Injections
  - Epidurals- transforaminal, interlaminar, caudal with guided catheter
  - Medial branch blocks in prep for Radiofrequency ablation
  - Facet joint
  - Sacroiliac joint
  - Trigger point
- Pain psychology
- Implantable devices
  - Spinal cord stimulators
  - Pain pumps
- Surgery
- Integrative medicine options-
  - Acupuncture
  - Chiropractic care
  - Craniosacral therapy

Opioids

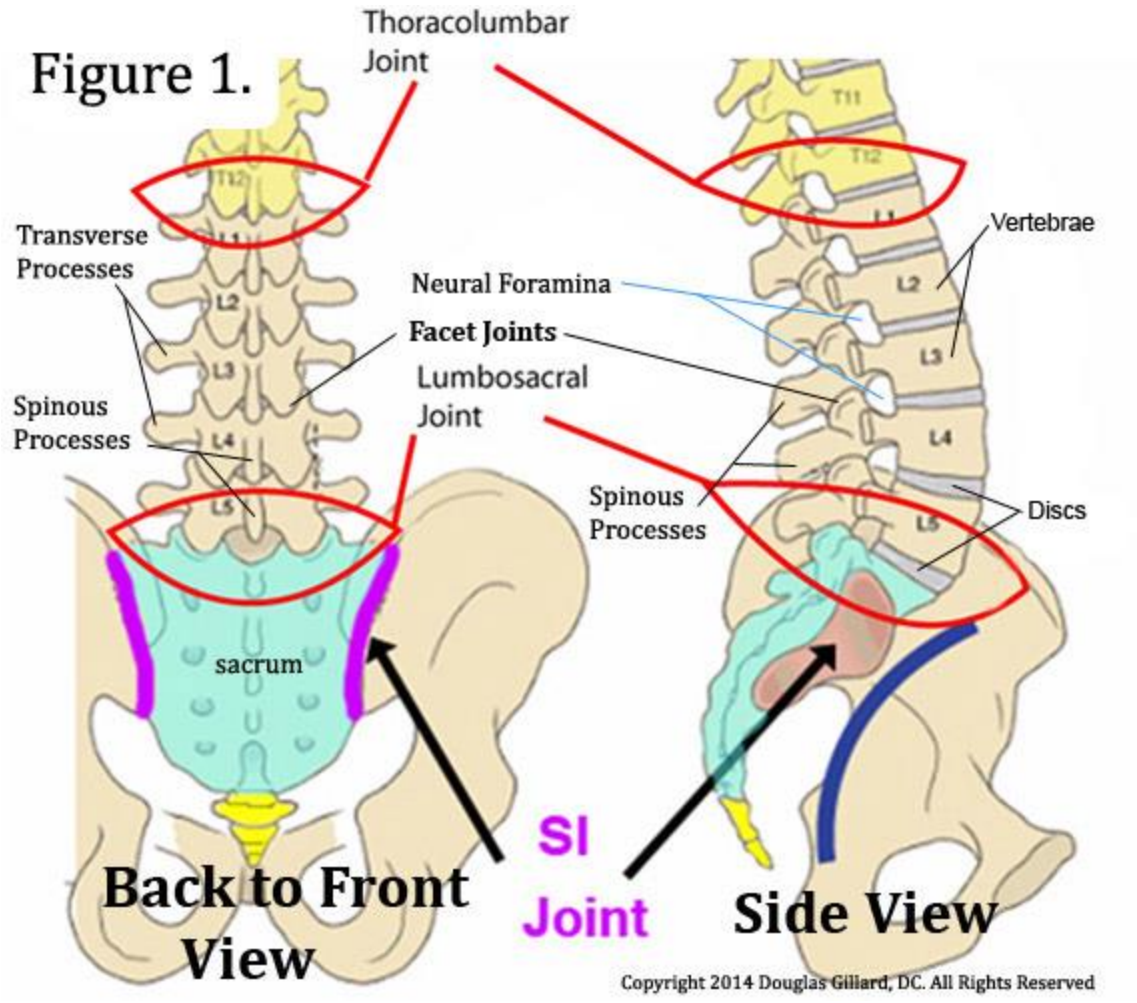
- CDC guidelines for Chronic pain
  - https://www.cdc.gov/drugoverdose/pdf/Guidelines_Factsheet-a.pdf
  - Focus on goals, function, alternative therapies, risk assessment

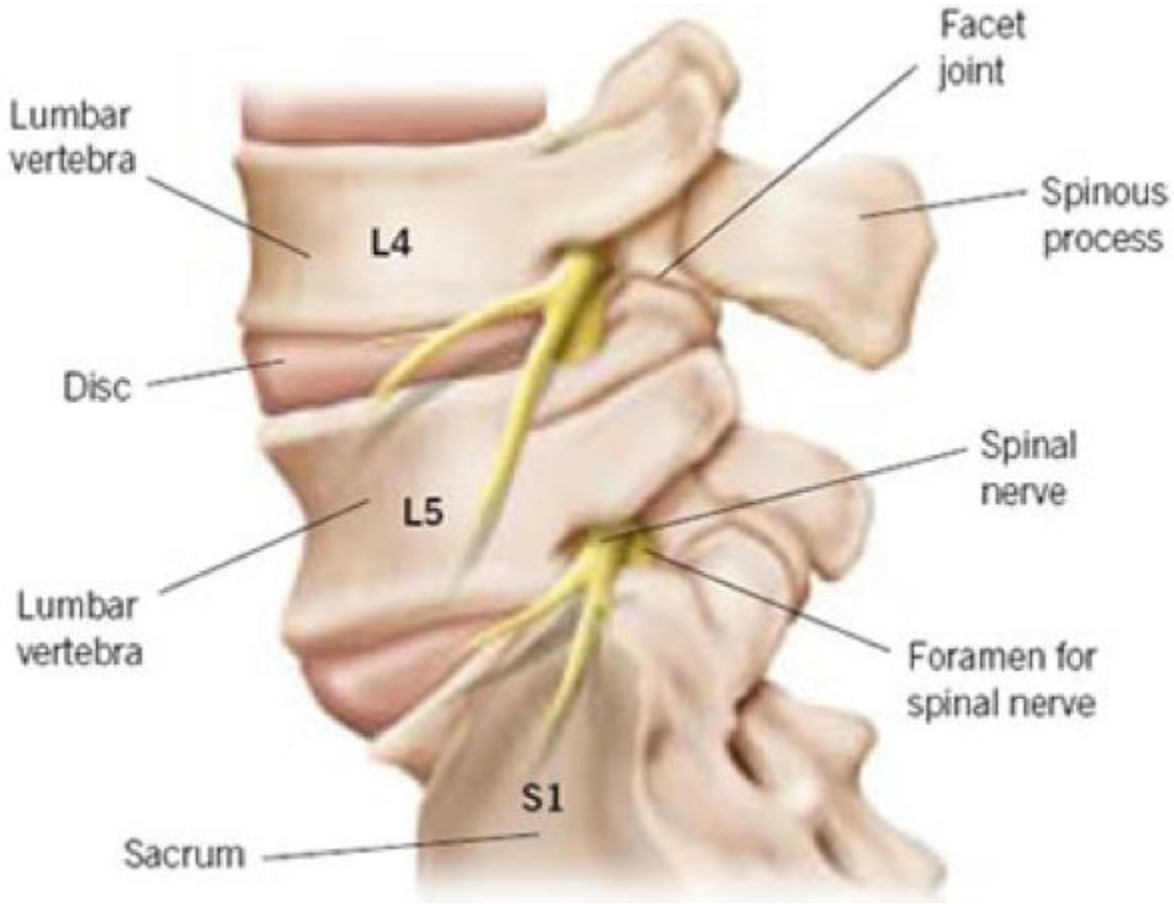
http://www.choosingwisely.org/patient-resources/medicines-to-relieve-chronic-pain/

Chronic low back pain

- Common diagnoses
  - Lumbar facet dysfunction (lumbar spondylosis without myelopathy
  - Sacroiliac joint (SI) dysfunction
  - Discogenic low back pain
  - Lumbar radiculopathy- disc issue vs foraminal narrowing
  - Spinal stenosis
  - Myofascial pain
  - Multifactorial low back pain/Mechanical low back pain

Anatomy Review




Facet joint
Lumbar vertebra
Spinous process
L4
Disc
Spinal nerve
L5
Lumbar vertebra
Foramen for spinal nerve
S1
Sacrum

History

- OLDCARTS really works well for pain
- Red flags
- Risks for infection
- History of cancer
- Previous back pain and treatment
- Failed treatments
- Recent physical therapy

Red flags

- Fevers, chills- previous spine procedure, drug use, bacteremia
- Loss of bowel or bladder control- Post void residual
- Saddle anesthesia
- Progressive neurologic deficits

Red Flags continued

- Cancer hx, unexpected weight loss
  - Spine is third most common site of mets after lung and liver
- Pain that wakes you
- Vertebral tenderness- compression fx, obtain xrays
- Morning joint stiffness greater than ½ hour

Physical exam

- Inspection
- Palpation- spinous processes, paraspinous muscles, SI joints, Sciatic notch, greater troch
- ROM
- Manual muscle tests, single leg toe rises, formal hamstring testing, single leg squats
- Sensation
- Reflexes
- Special tests

Don’t forget the hip

Check hip IR and ER and hip adductor quadrant test

Similar referral patterns

Imaging

- ACP recs: should not routinely obtain imaging for nonspecific low back pain
  - Reassurance
  - Obtain xrays- compression fx, mets
- MRI
  - Red Flags
  - After 4-6 weeks conservative care if patient has developed neuro deficits
  - Prior to invasive therapies
  - Concern for hardware from prev sx

Labs

- Morning joint stiffness greater than ½ hour
  - Arthalgia panel
  - If suspecting ankylosing spondylitis, obtain XR SI joints (gold standard is MRI SI joints)
- Concern for infection
  - ESR, CRP

Waddell Signs
3 out of 5

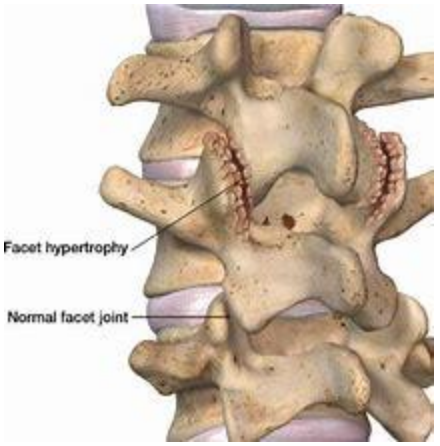
Suggest psychologic component

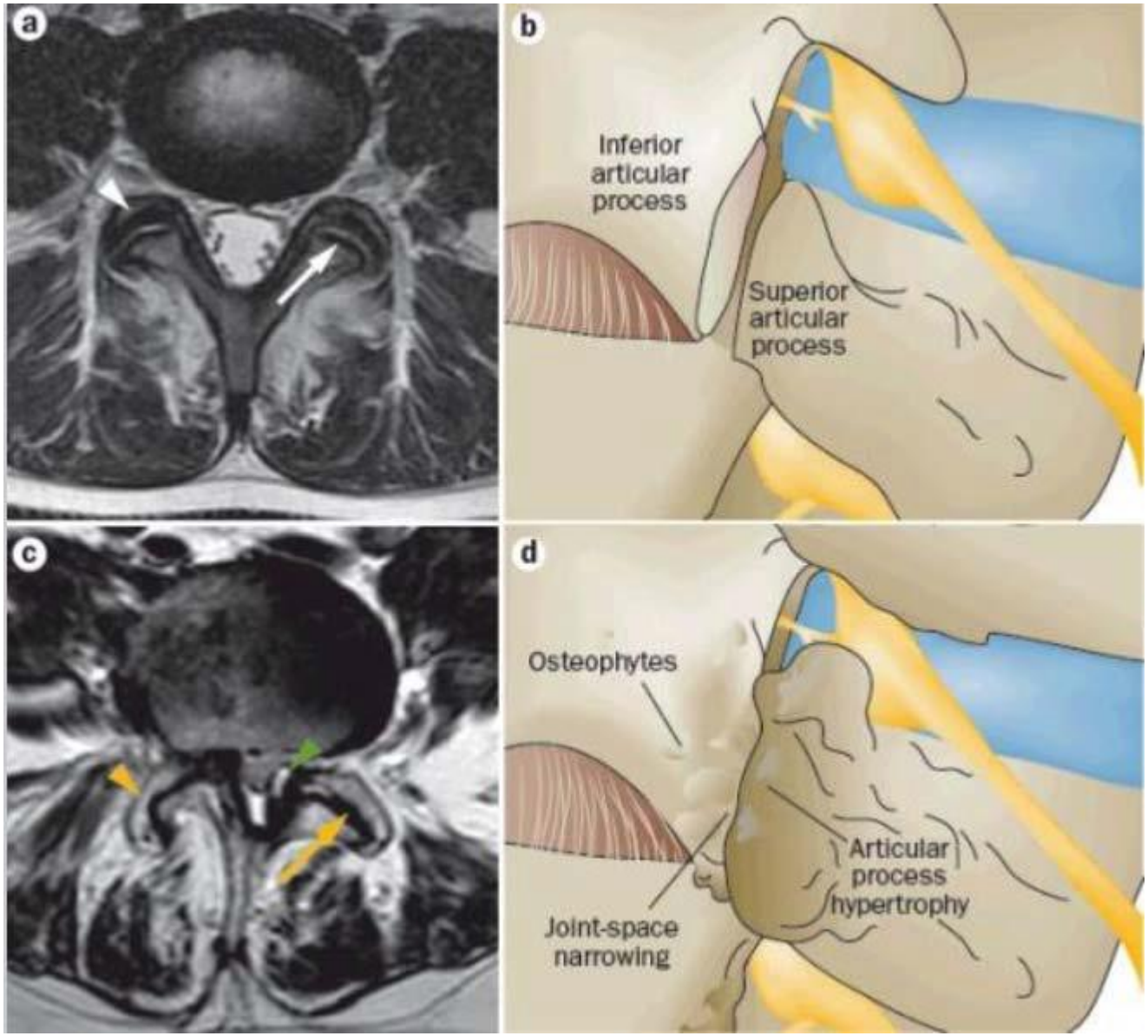
- Skin tenderness
- Deep tenderness over large area
- Axial loading recreating low back pain
- Rotation with hands on hips
- Distraction with straight leg raise
- Giveway weakness of multiple muscle groups
- Nonanatomic sensory loss

Lumbar facet dysfunction

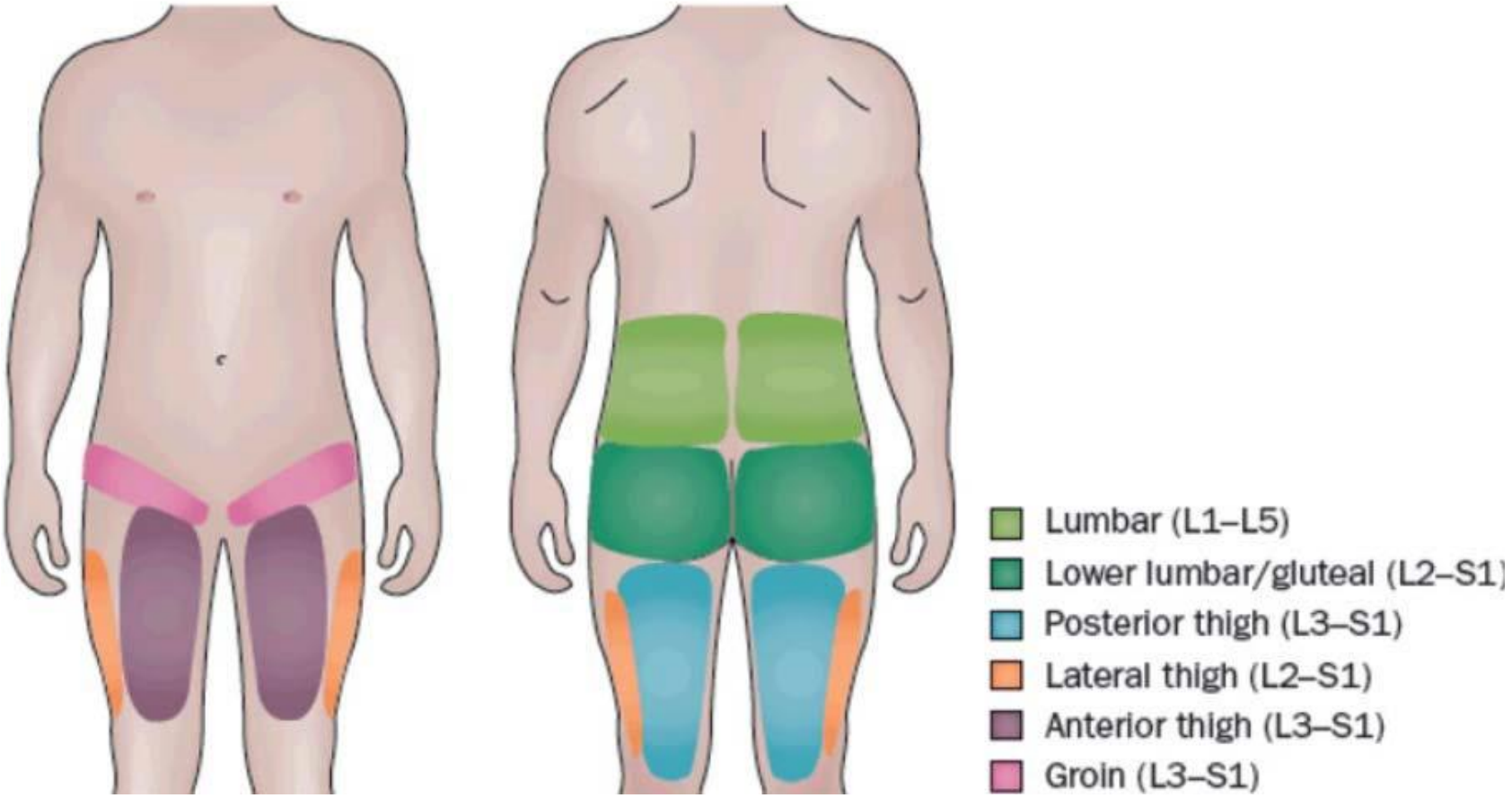
Lumbosacral spondylosis without myelopathy

- Secondary to arthritic changes in facets
- Key History:
  - Deep toothache type pain
  - Worse with standing and walking
  - Can be localized to one side
  - Can radiate into buttock and leg occasionally
- Can cause foraminal narrowing with radicular symptoms




a
b
Inferior
articular
process
Superior
articular
process
c
d
Osteophytes
Articular
process
hypertrophy
Joint-space
narrowing

Lumbar facet- Referral pattern



Lumbar facet dysfunction

- Physical exam findings
  - Tender to palpation over paraspinous muscles
  - extension with axial rotation to the ipsilateral side painful
  - Lateral bending to the ipsilateral side painful
  - Consider repeating ROM after exam finished

- No reliable way to dx with history and physical exam alone
  - Dual comparative medial branch blocks
    - Single blocks have false-positive rate greater than 30%

Treatment of lumbar facet dysfunction

- Physical therapy- flexion bias, avoid extension
  - 1-2 visits per week for 6 weeks
  - Imaging if not improving, new sx, red flags

Meds for Facet

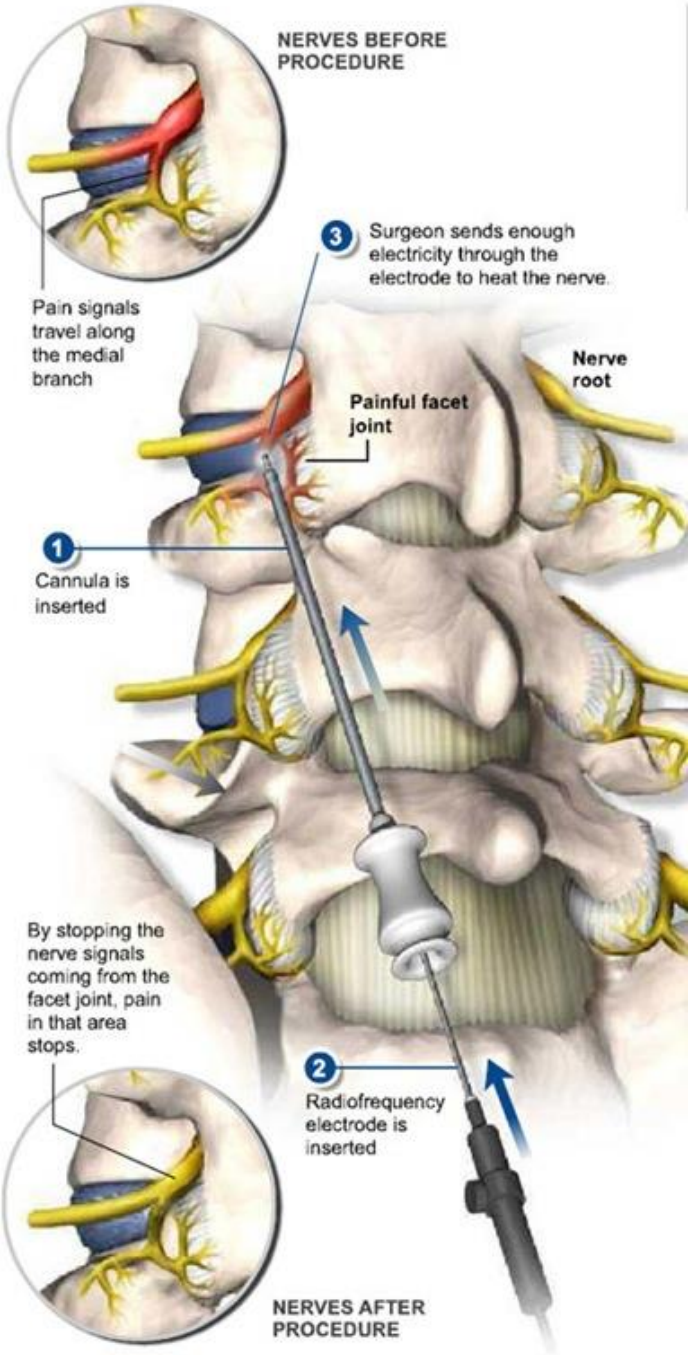
- NSAIDs- Meloxicam, Etodolac, topical diclofenac with lidocaine
- Duloxetine 30 mg initially and titrate to 60 mg q day
- Muscle relaxants
- Tramadol 1 tab TID x 1 week, then ok to increase to 1-2 tabs TID. Acetaminophen increases efficacy

Facet joint injection (zygapophysial joint)

- Controversial
- Evidence of efficacy is scarce
- In our practice, at times will perform facet injection in combination with medial branch block

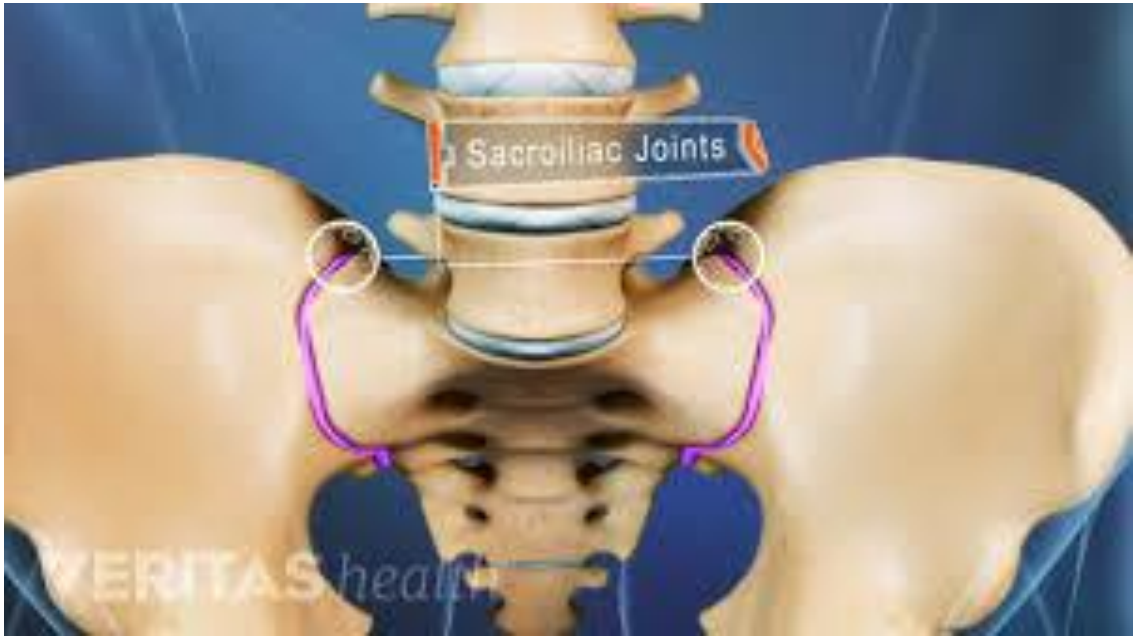
Radiofrequency ablation

- Most common levels- L4/L5, L5/S1
  - 2-3 Medial branch nerves innervate each facet
- Fluoroscopically guided
- 2 medial branch blocks prior to procedure
  - Short acting local
  - Long acting local
    - How long did relief of greater than 80% last for each block
- Radiofrequency energy used to disrupt nerve function
- Duration: 6 mo – 2 years, can repeat

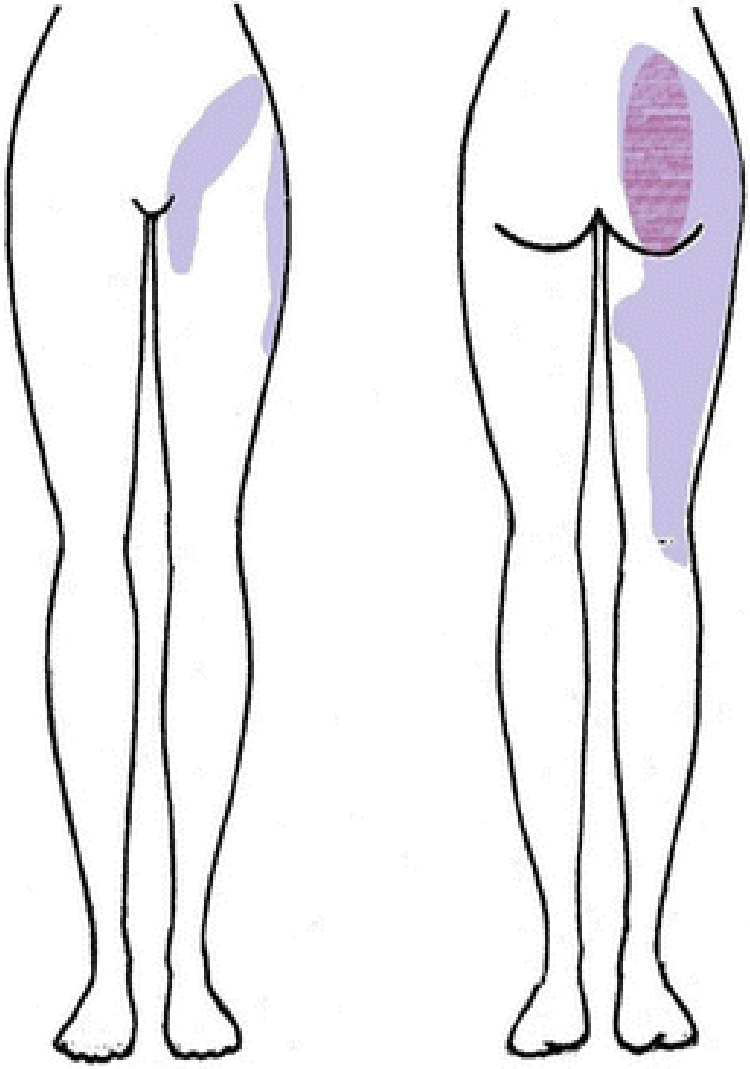

NERVES BEFORE PROCEDURE
Pain signals travel along the medial branch
3
Surgeon sends enough electricity through the electrode to heat the nerve.
Nerve root
Painful facet joint
1
Cannula is inserted
By stopping the nerve signals coming from the facet joint, pain in that area stops.
2
Radiofrequency electrode is inserted
NERVES AFTER PROCEDURE

Sacroiliac joint dysfunction

- History
  - Pain with transitional movements, stabbing
    - Feeling of getting stuck due to pain
  - s/p childbirth
  - Usually can point to SI joint as the most painful area


Sacroiliac Joints

Sacroiliac joint referred pain



Sacroiliac joint dysfunction

- Physical examination
  - Tender over SI joint
  - Active SLR with pelvic compression alleviates pain
  - Patrick's test
  - Gapping test
  - Yeoman's
  - Gaenslen's test

Sacroiliac joint dysfunction

- Treatment
  - Physical therapy, Sacroiliac joint belt
  - Chiropractic care
  - NSAIDs, topical
  - Duloxetine
  - Tramadol
  - Skeletal Muscle relaxants (not benzodiazepines)
  - If incapacitating- consider SI joint injection

Discogenic low back pain

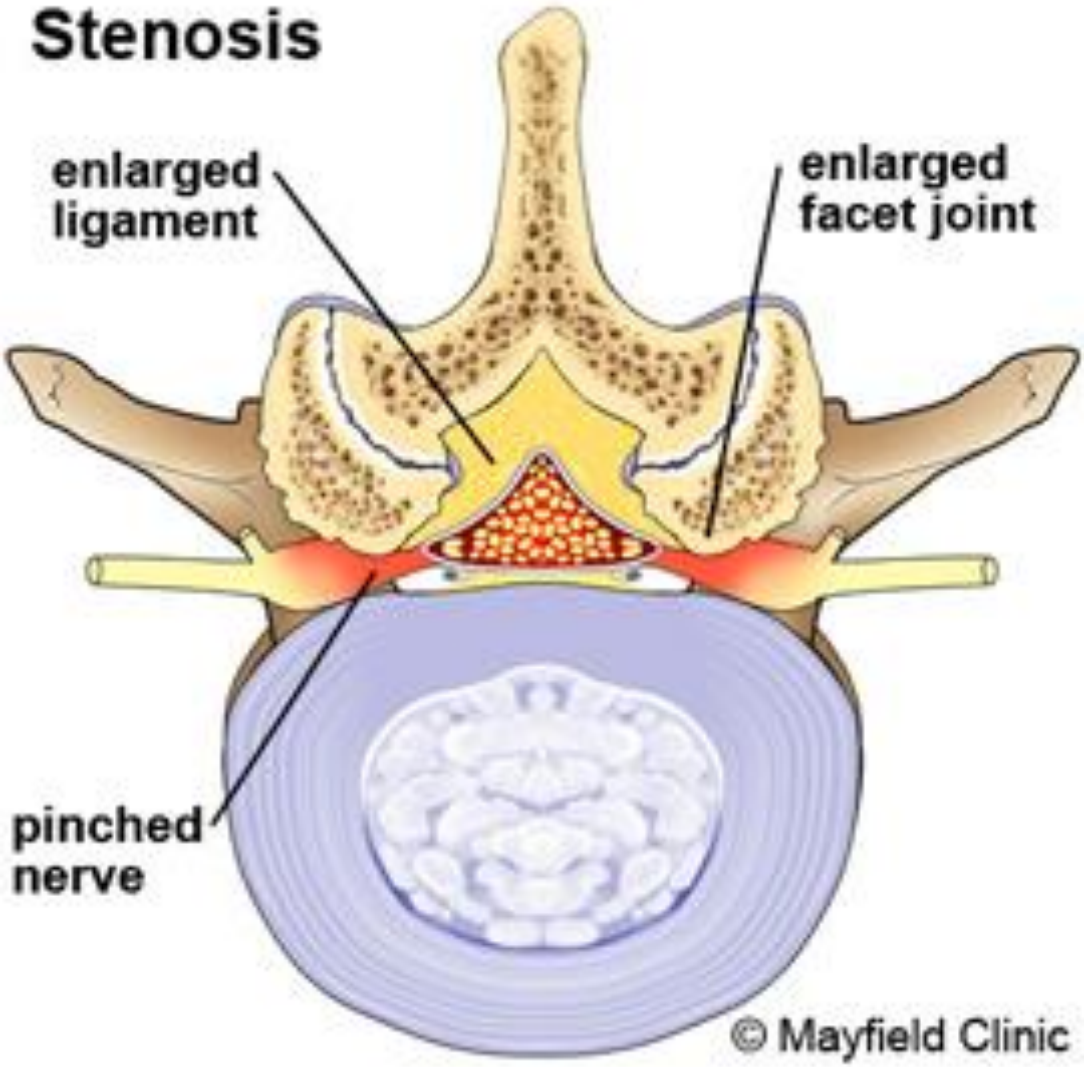
- Can be a combination of nociceptive and neuropathic pain
- Gabapentin
- Pregabalin
- Keppra
- Topamax

Spinal stenosis vs Foraminal stenosis

- Spinal stenosis- degenerative changes in spinal canal lead to decreased space
- Foraminal stenosis- narrowing where spinal nerve exits
  - Facet changes, ligamentum flavum, posterior longitudinal ligament

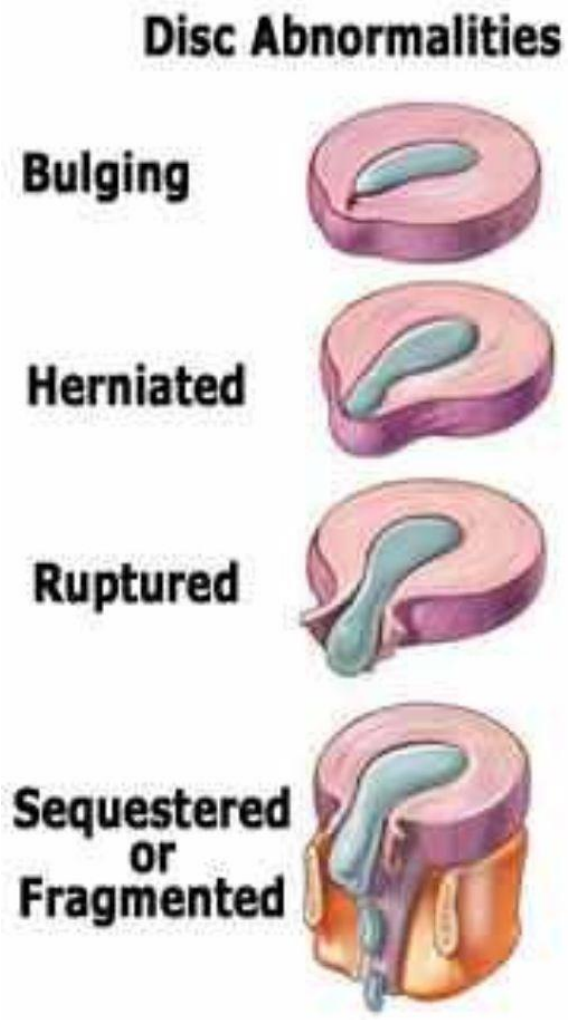
Spinal/foraminal stenosis

- Provocative features:
  - walking
  - Standing
  - Extension based activities painful
- + shopping cart sign- alleviated with forward flexion
- Neurogenic claudication
- Physical exam: Axial rotation with extension
- Seated slump can be normal


Stenosis
enlarged ligament
enlarged facet joint
pinched nerve
© Mayfield Clinic

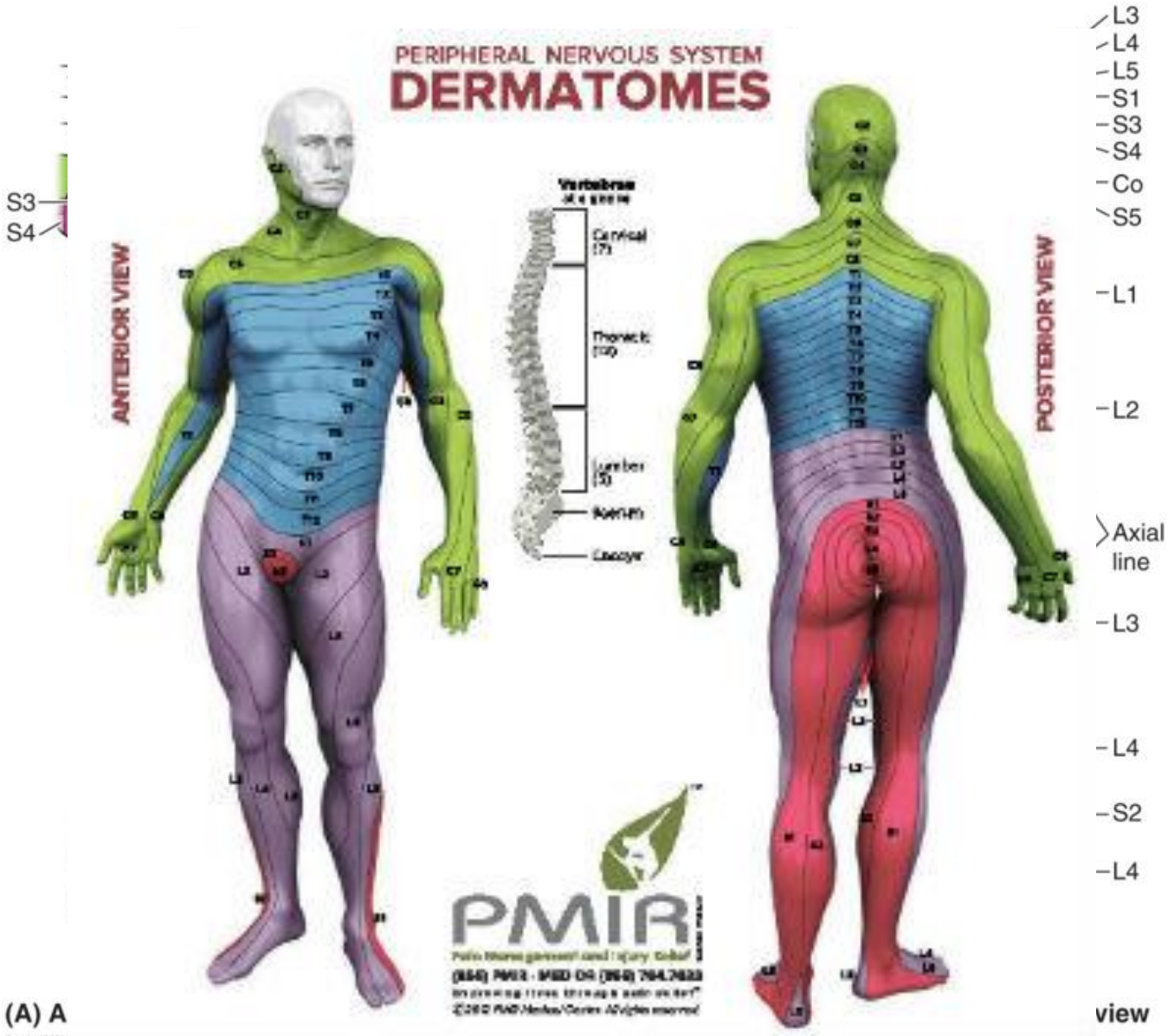
Lumbar radiculopathy

- Disc herniation
- Disc protrusion
- Disc extrusion
- Annular tear



History for lumbar radiculopathy

- Doesn't have to be traumatic
- Pain in back and radiates into buttock and or leg- dermatomal distribution
- Can refer into groin
- Quality: Shooting, electric, burning
- Paresthesias
- Pain with sitting- lean away from herniation
- 80-90% of lumbar flexion/extension occurs at L4-L5 and L5-S1



(A) A

view

Physical examination

- Supine straight leg raise
- Seated slump test
- Manual muscle testing while seated
  - Heel and toe walking to assess dynamic weakness
  - Formal hamstring testing
  - Single leg toe rises
  - Single leg squats
- Sensory testing
  - Light and sharp touch
- Reflexes

When to get an EMG

- If MRI is negative, but neuro deficits present
- Nerve pain must be present at least 4-6 weeks
- Nerve involvement doesn’t affect specific dermatome
- Muscle fasiculations- eval for ALS

Treatment of lumbar radiculopathy

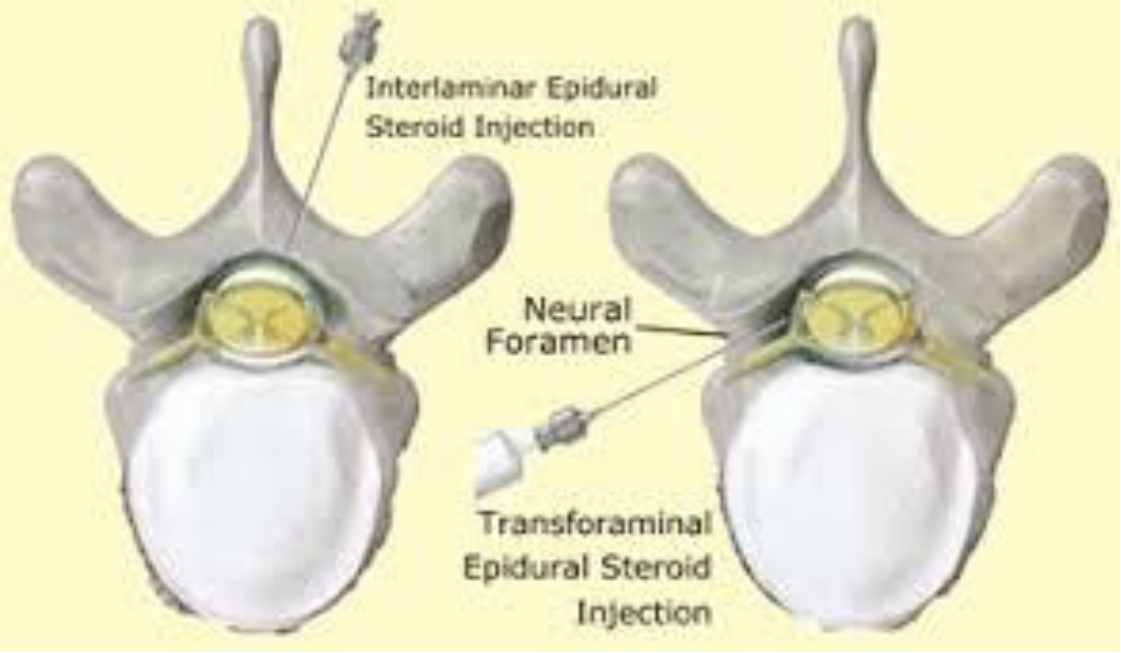
- Physical therapy- lumbar spine stabilization program with core strengthening, lower extremity stretch and strengthening
- NSAIDs
- Gabapentin, Pregabalin, Levetiracetam, Topiramate, Lamotrigine
- Muscle relaxants
- Tramadol

Do I need surgery?

- NASS guidelines:
  - Discectomy suggested to provide more effective relief than medical/interventional care in patients **whose symptoms warrant surgery**
  - Red Flags
    - Better outcome <6 mo symptoms
  - Less Severe symptoms- surgery or medical/interventional care effective for both short and long term relief

Epidural injections

- Selecting an epidural-
  - Spread of medication goes cephalad
  - Epidural lipomatosis is a relative contraindication
- Routes:
  - Transforaminal
  - Interlaminar
  - Caudal with guided catheter



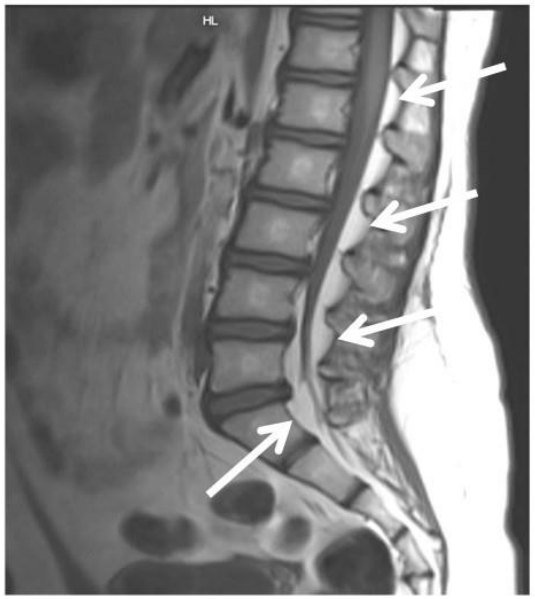
Epidural Considerations:

- Guideline of three steroid exposures per year, no evidence on optimum frequency
- May take 2-3 weeks to see effect
- Incapacitating pain or failed conservative cares
- Generally more effective for radicular pain than axial back pain
- Stop blood thinner prior to
- 2-3 week follow up

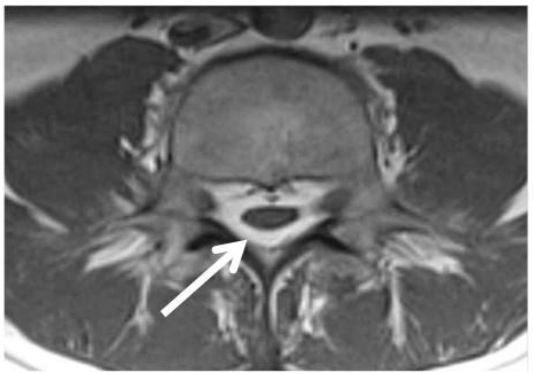
Epidural lipomatosis

- Treatment: weight loss

A



B



Myofascial low back pain

- Tender over paraspinous muscles
- Extension with axial rotation causes pain on contralateral side
- Lateral bending causes pain on contralateral side
- Topical NSAIDS, muscle relaxants, sometimes gabapentin
- Trigger point injections

Mechanical low back pain

- Does not fit specific pattern of pain
- can trial similar meds
- Physical therapy
- Most chronic LBP involve mixed nociceptive and neuropathic etiologies

Alternative treatments

- Pain psychology
- Acupuncture
- Dry needling- can be performed in PT
- Craniosacral therapy
- TENS unit
- Spinal cord stimulators
  - Psychology clearance first
  - Failed back surgical syndrome
  - Peripheral neuropathy
  - Now approved for discogenic low back pain

Questions?

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