



SOUTHWEST OHIO
PAIN INSTITUTE

Patient Care Education Research

Back Pain: Why it hurts so much

Muhammad A. Munir, MD

Diplomat American Board of Anesthesiology
and Pain Management

Overview of today's talk

- How common is Back Pain
- What causes Back Pain
- How do we diagnose Back Pain
- What are the treatments for Back Pain
- Is there any thing that I can do to prevent back pain?

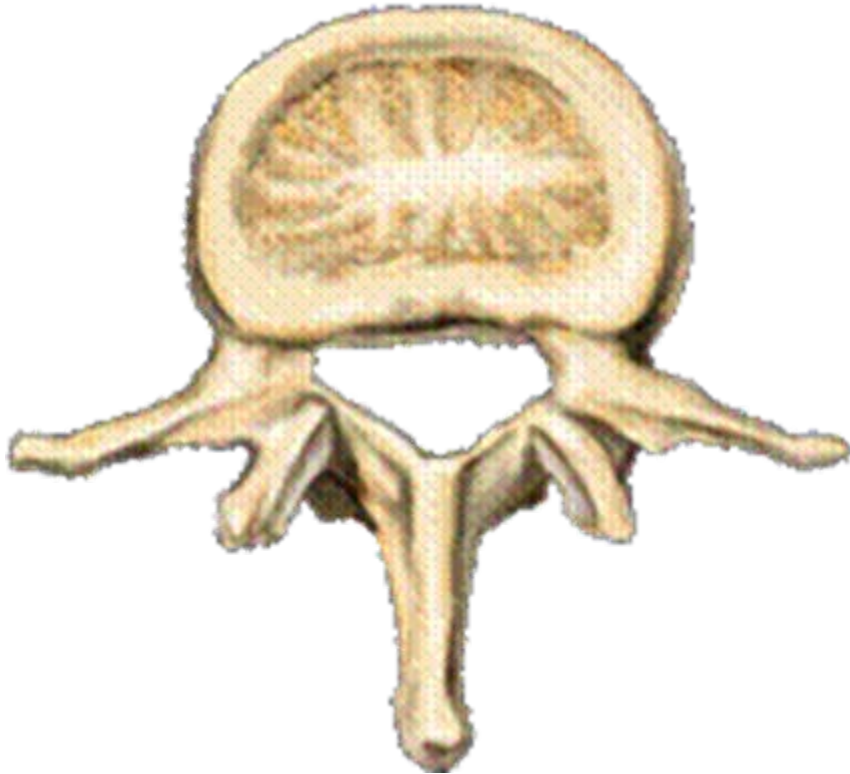
Economics of Low Back Pain

- Second to HA for pain complaints
- Most common reason for disability in the working years
- 75% of US population will have low back pain
- 10-15% of work absences
- 2-8% of the workforce is disabled by LBP

Causes of Low Back Pain: Aging of the Lumbar Spine

- First visible sign of aging
- Holt – Discograms
 - 34% of subjects showed elements of aging by age 23 in one of the two lower L-spine discs
 - Necropsy studies – aging changes 75% by age 28

Anatomy



- Vertebral body
- Pedicle
- Transverse process
- Spinous process
- Facet
- Disc

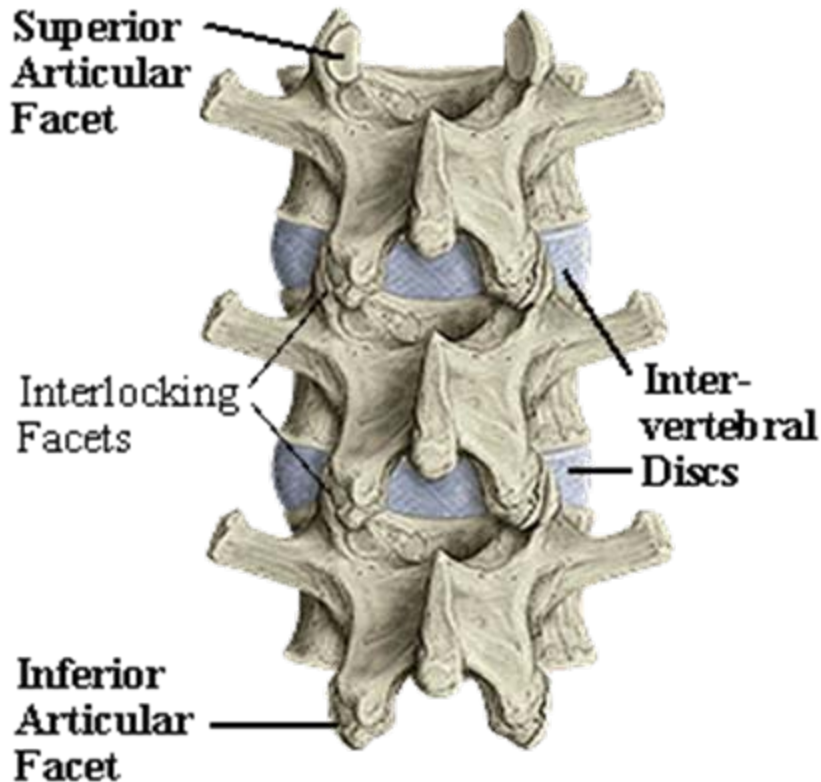
Muscle Strain and Spasm



- Usually respond to conservative measures
- Muscle injury leads to spasm
- Diagnosed by History and exam
- Acupuncture
- Massage
- Trigger point injections

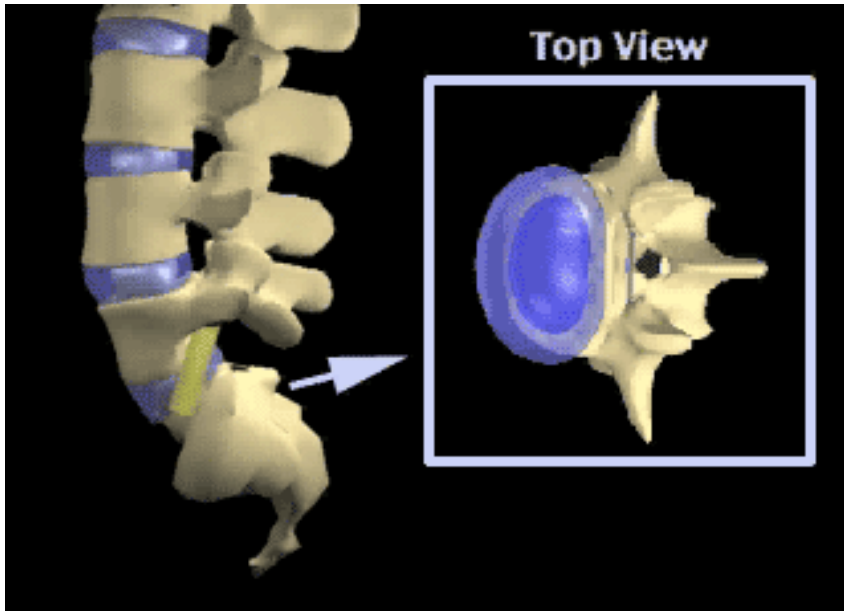
Musculoskeletal back pain

Facet



- Capsule can be stretched/damaged with axial loads – esp. extension
- Richly innervated by branches from dorsal ramus (posterior nerves)
- Limits axial rotational movements

DISC

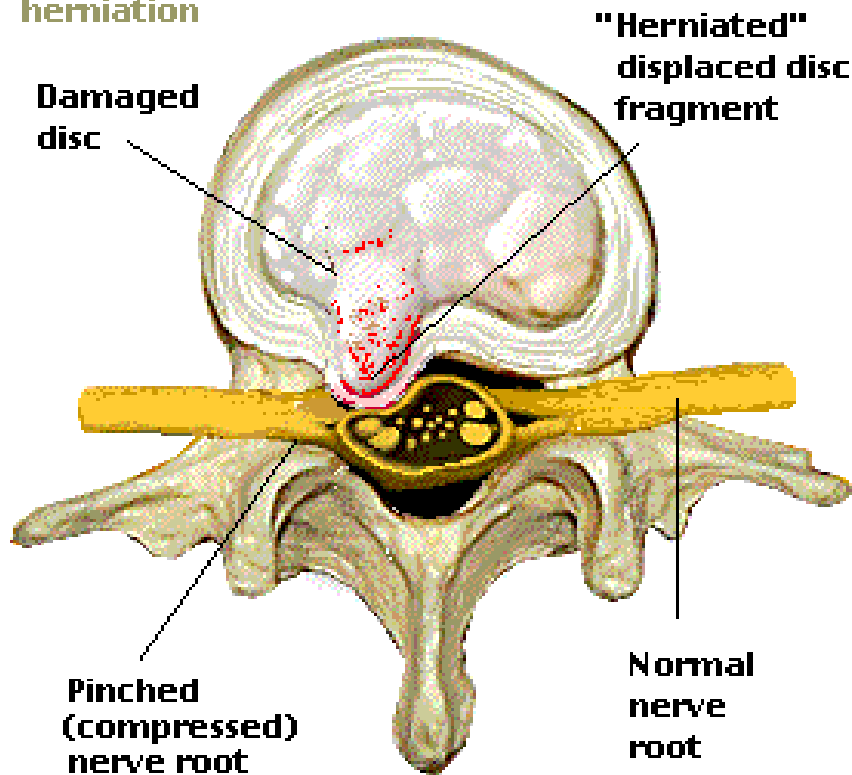


- Central portion
- Peripheral portion
- Degeneration of the outer portion and loss of water from the inner portion
- Disc bulges and herniation

Disc Herniation

Herniated disc

Top view after
herniation



- History of sciatica/radiculopathy
- Classically low back pain precedes leg pain
- May be asymptomatic (21-28%)
- Most common at L4/L5
- Webers study of conservative versus surgical mgmt.
 - No statistical difference at 4 and 10 year intervals.

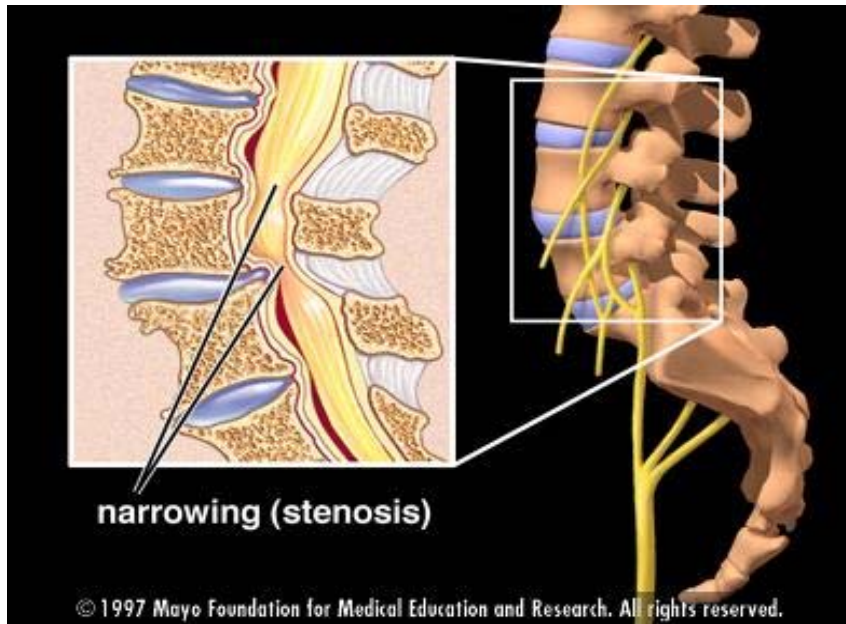
Disc Herniation



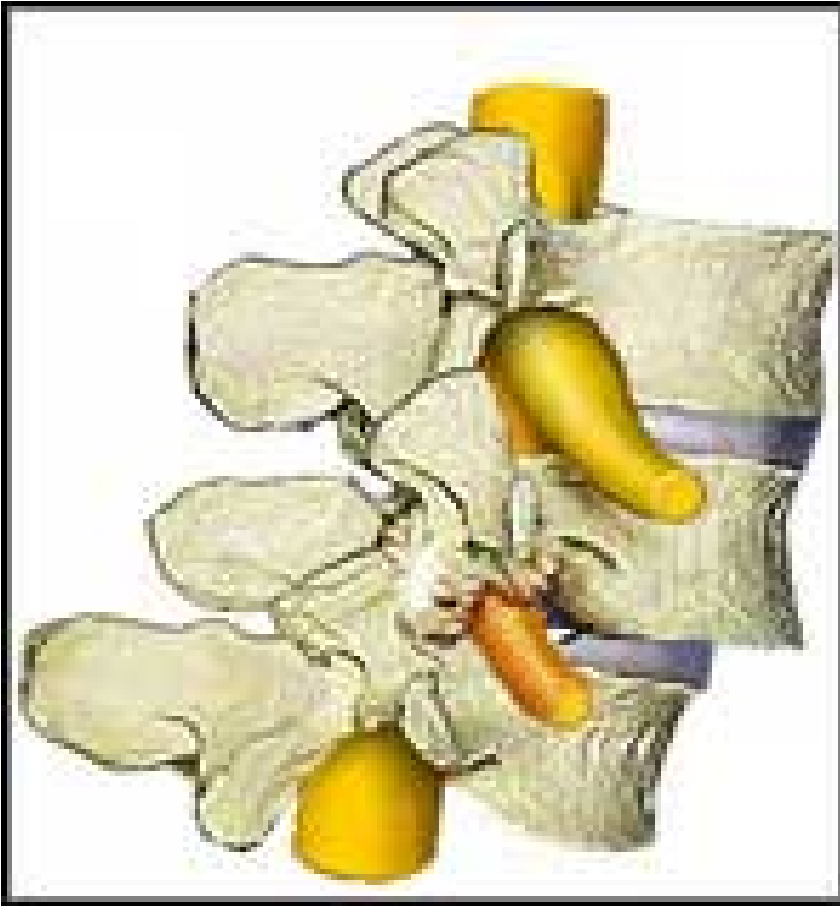
- L5/S1 Herniation

Spinal Stenosis

- Osteoarthritis of the spine resulting in narrowing of spinal canal
- Intermittent back pain – radiating to one or both legs especially with walking upright
- Calf pain/tightness
- Worse with standing/walking
- Better with leaning forward

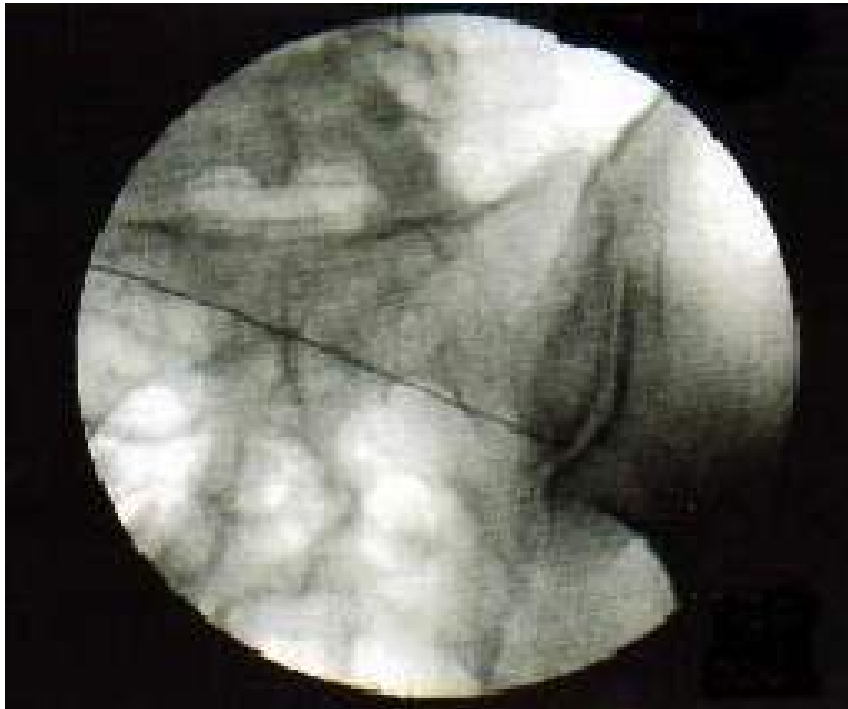


Spondylolisthesis



- 3.5 % of population have slippage of either L4 or L5
- Due to bony disruption between the facets
- Limb findings can be vague
- Often asymptomatic until superimposed on spinal stenosis

Sacroiliac Joint Dysfunction



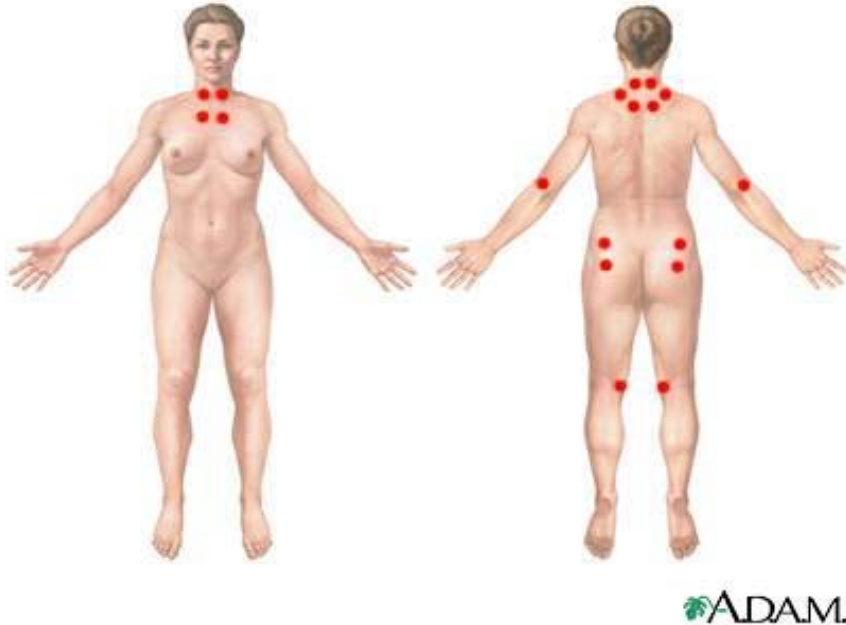
- Pain in the low back and thigh
- Pain in the buttocks that is worse by crossing the legs
- Also worse with pressure from hip pocket wallet.
- May sometimes mimic sciatica
- Usually from arthritis
- TB/Tumor/Ank.Spon./Reiters.

Vertebral Compression Fractures



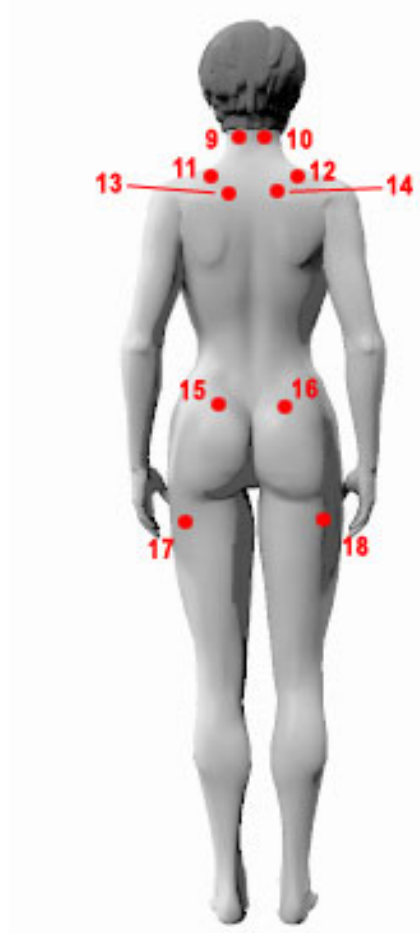
- Associated with osteoporosis and bone weakening, trauma, tumor, infection
- Localized pain on deep palpation
- May affect patients breathing abilities and daily life activities, increase risk of lung infections

Fibromyalgia



- Musculoskeletal pain of unknown etiology
- Widespread pain
- Decreased pain thresholds
- Elevated Substance P in CSF
- Characteristic Tender Points (18)
- Suggestion of involvement of nerves and sensitization of nerves as well deconditioning

Fibromyalgia II



- Low dose tricyclic
- Sedative/ hypnotic
- Analgesic doses of NSAIDS
- Controversial role of narcotics

Other Causes of Low Back Pain

- Infection
- Tumor
- Failed back surgery syndrome

Diagnosis of LBP

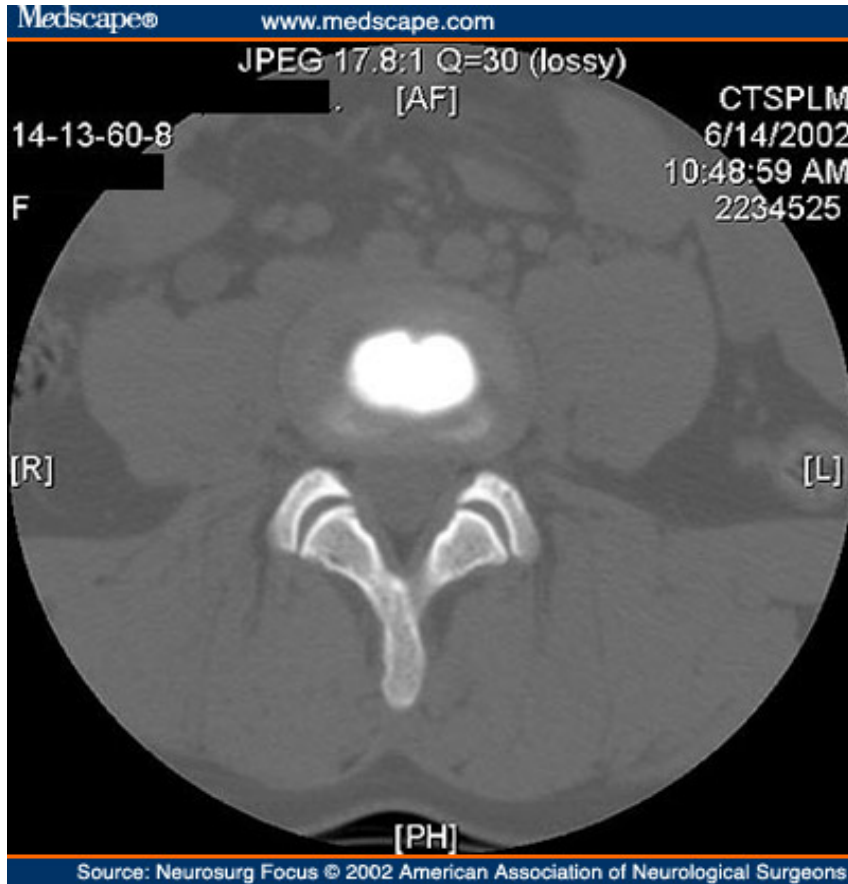
- History and Physical Examination
- Imaging studies
- Laboratory tests
- Diagnostic injections

Diagnosis of LBP: X-ray



- X-Ray – good for detail of the bone structures in the spine
- Used to check for instability (spondylolisthesis), tumor and fractures

Diagnosis of LBP: CT Scan



- Superior bony detail c/w MRI
- Good for soft tissues (discs, nerve)
- Also used for s/p discography

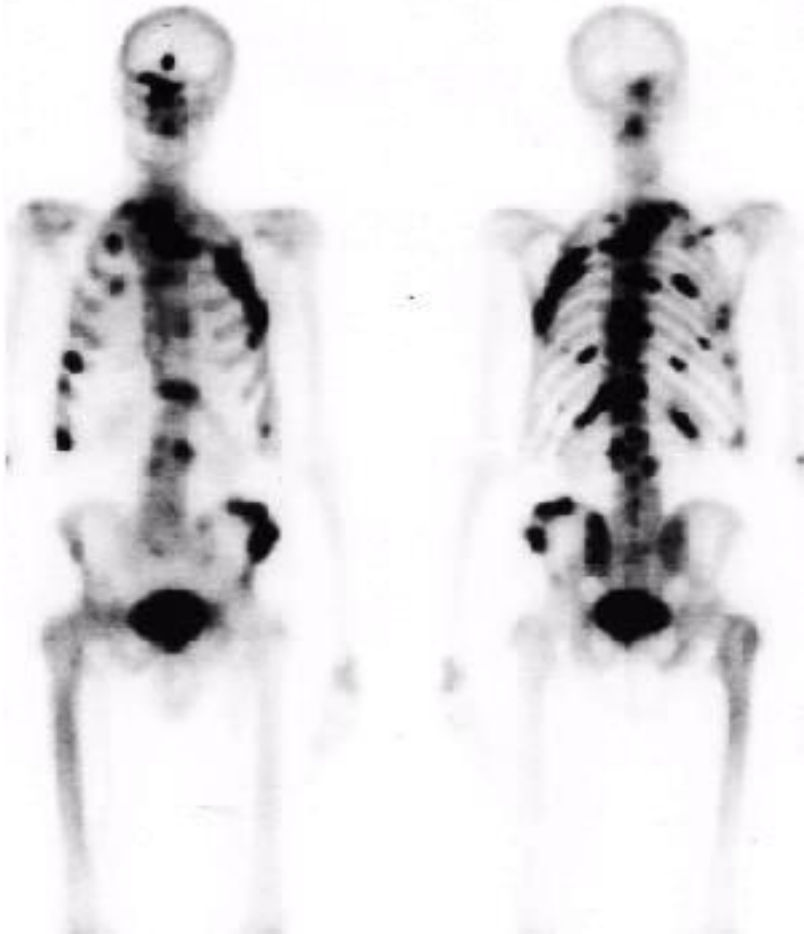
Diagnosis of LBP: MRI



- Excellent for soft tissues such as nervous tissue, discs
- Best tissue contrast resolution
- Inability for some patients with implantables
- Limitations include bony detail/cost and time

Diagnosis of LBP

Bone Scan



- Usually Technetium 99
- Extremely sensitive but non-specific
- Inexpensive
- Accumulate in metabolically active areas

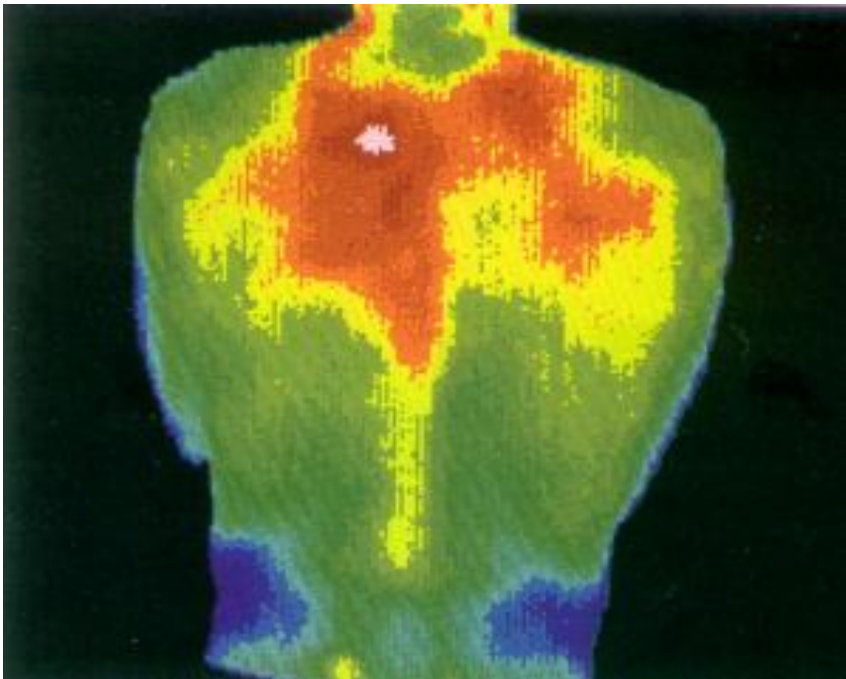
Treatment of Low Back Pain

- Medical Management
- Injection therapy
- Physical Therapy and modalities
- Biofeedback and relaxation therapies
- Surgery

Treatment Modalities

Conservative Management

- Apply cold then heat
Ice 20 min periods
several times
Then apply heat for 20
min periods
Meds (NSAIDS for
inflammation and tylenol
for pain, muscle relaxant)
- Physical Therapy

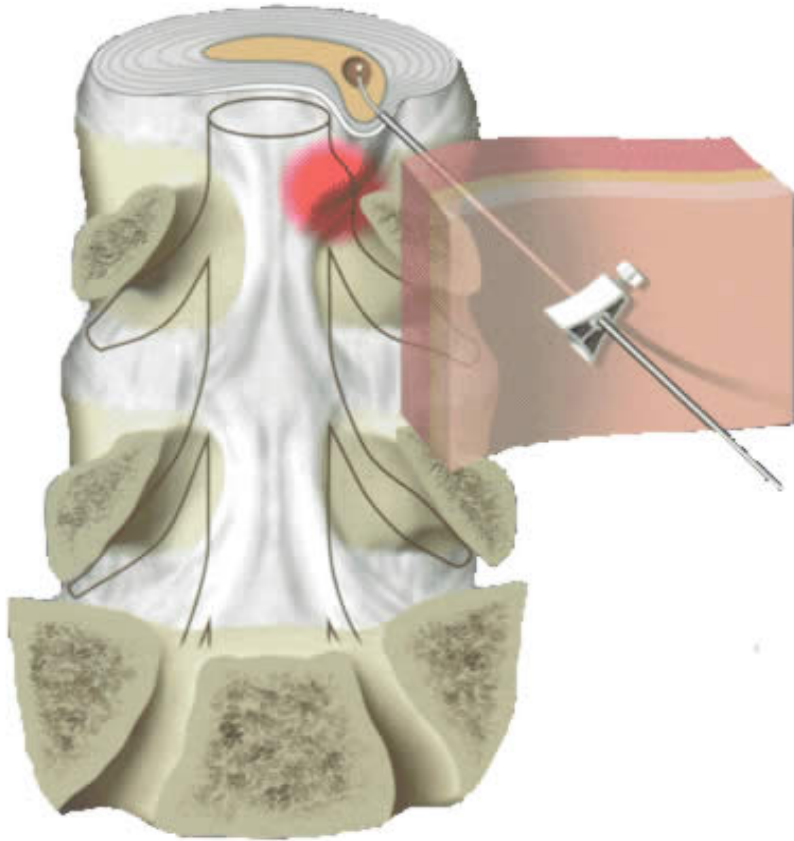


Treatment Modalities

- Less aggressive to more aggressive
- Epidural injections
- Nerve root block
- Facet Injections
- Radiofrequency ablation of nerves

Treatment Modalities

Moderate



- Laser endoscopic spinal endoscopy
- For contained disc herniations
- Laser/illumination/imaging/irrigation and aspiration on handheld catheter
- YAG laser – energy absorbed in 0.5 mm of tissue

Treatment Modalities

Moderate

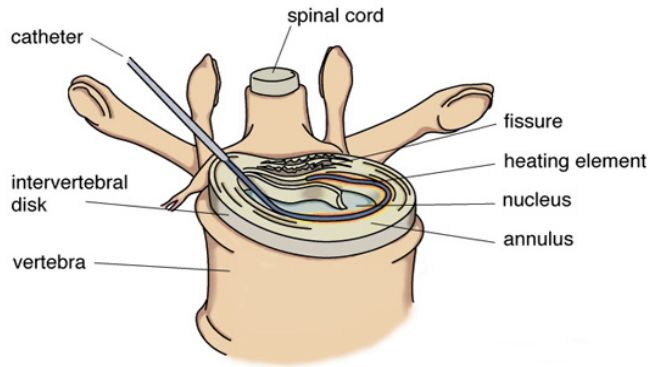
- Nucleoplasty
- “Coblation”
- Combines ablation of disc tissue and coagulation of surrounding tissue for disc decompression
- Percutaneous diskectomy



Treatment Modalities

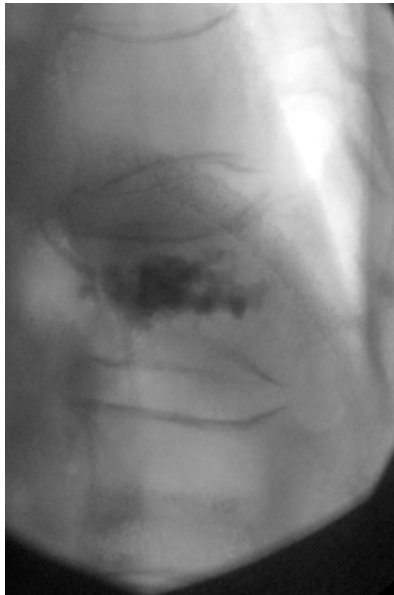
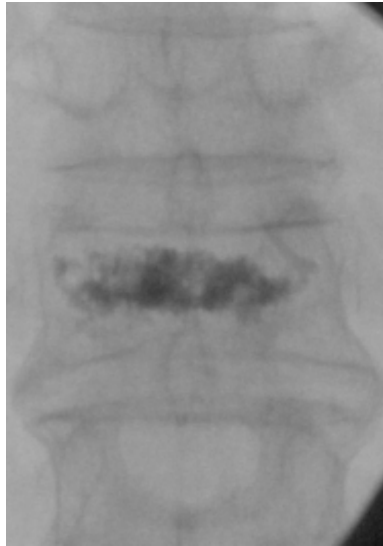
Moderate

- IDET
- Alternative for spinal fusion in a group of young patients



Treatment Modalities

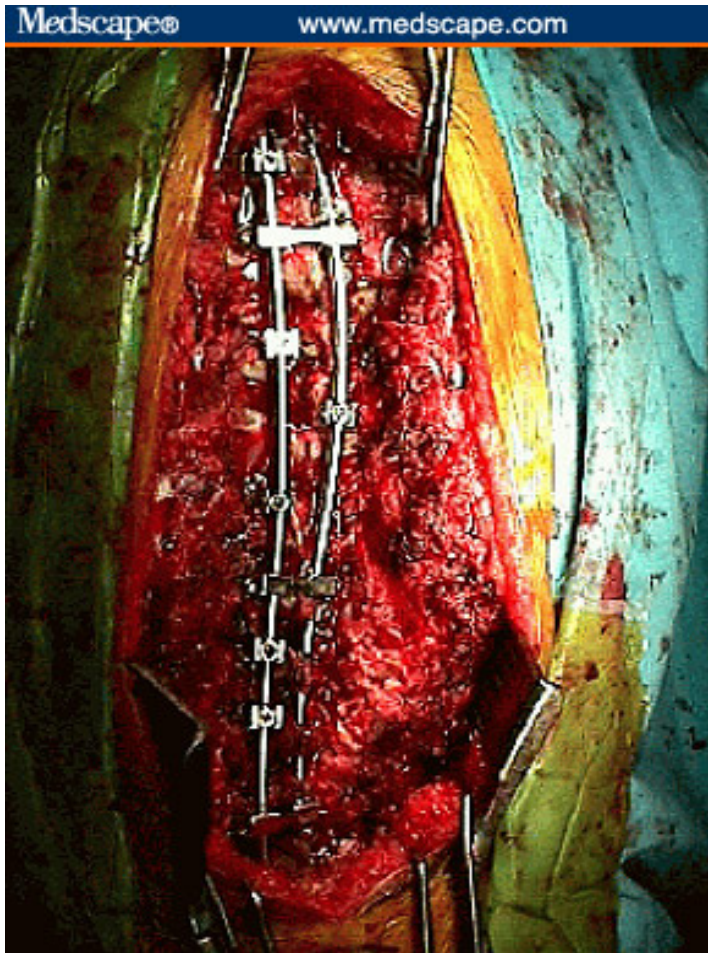
Moderate



- Vertebroplasty and Kyphoplasty
- Painful vertebral body fracture secondary to osteoporosis
- Reduces pain, stabilizes fracture and helps in return to previous level of functioning

Treatment Modalities

Surgical Options



- Spinal decompression
- Laminectomy
- Discectomy
- Spinal fusion
- Artificial disks

Prevention of LBP



- Proper lifting techniques
- Regular exercise
- Maintaining proper body weight
- Avoidance of smoking
- Maintaining proper posture when standing and sitting
- Abdominal musculature