



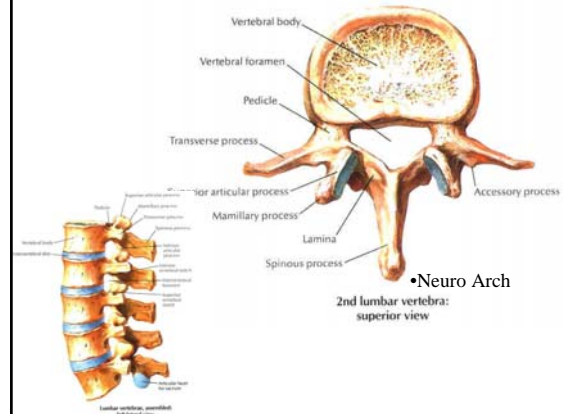
## DISCOGENIC PAIN

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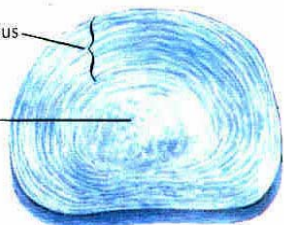
## OUTLINE

- Anatomy
- Approach to LBP
- Discogenic LBP
  - Herniated Nucleus Pulposus
  - Annular Tear
- Treatment
  - Non-Surgical
  - Surgical

- Facet Joints: bear 20% of weight
- Discs bear 80% of weight
- Neural Foramen
- Anterior Longitudinal Lig.
- Posterior Longitudinal Lig.

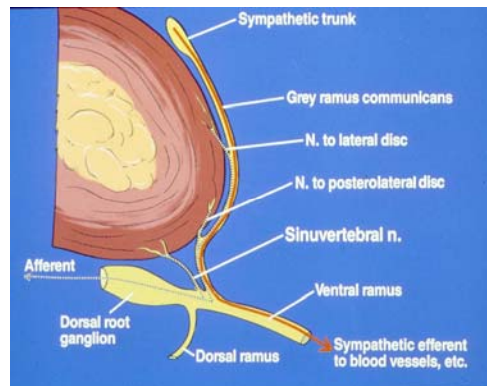


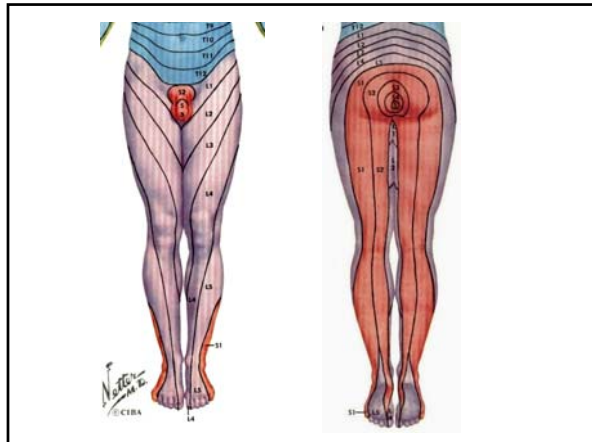
Annulus fibrosus  
Nucleus pulposus



Intervertebral disc

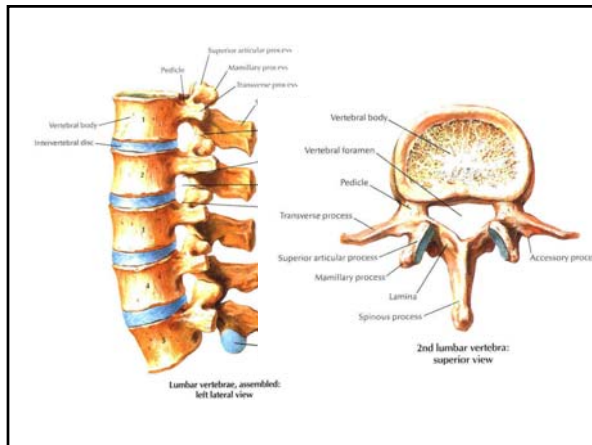
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**APPROACH**

**PAIN GENERATORS  
POSTERIOR TO ANTERIOR**



**DISCOGENIC LBP**

Non-Radicular (Without Leg Pain)  
Radicular (With Leg Pain)

**Without Leg Pain (Axial Pain)**

Annular Tear  
Degenerative Disc Disease

**With Leg Pain (Radicular)**

Disc Bulge, Protrusion, Extrusion,  
Sesquestration  
Neuro-Compressive Lesions

## TREATMENT

- NATURAL HISTORY of LUMBAR DISC DISEASE
- OUTCOME STUDIES OF NON-SURGICAL TREATMENTS vs SURGICAL TREATMENTS
- CLINICAL VIGNETTES

## NON SURGEONS vs SURGEONS

WHEN DO WE NOT vs WHEN DO WE DO OPERATE?

“TIMING HAS AN AWFUL LOT TO DO WITH THE OUTCOME OF A RAIN DANCE”

## LUMBAR DISC DISEASE

- 60-80% Lifetime incidence of LBP
- Natural History has a highly favorable outcomes
- Innovative Technological Treatments
- Timing of Rain Dance

## NORMAL POPULATION

- 35% Healthy Male Volunteers have significant DDD Paajenen et al
- 90% people age >50 have DDD Miller et al
- Analogy between LBP and Gallstones

## DISABILITY

- 95% Patients return to work within 3 months
- Otherwise → Poor prognostic factor
- 20% return to work after 1 year of disability
- 2% return to work after 2 years of disability

## NATURAL HISTORY

- 62% Disc Herniation Resorp Over Time
- The Larger → The More Resorption Matsubara et al
- Large Compressive Discs are usually symptomatic and Respond well to surgery
- Large Discs also have a high rate of clinical improvement with non-operative treatment Saals et al

## RISK FACTORS

- Driving of motor vehicles, Sedentary occupation, Vibration, Smoking, Previous full-term pregnancy, Physical inactivity, Increased body mass, and a Tall stature
- Physical fitness is not preventative
- Physical fitness will improve outcome

## NON-SURGICAL

- In 208 patients, 70% Improvement in 4 weeks
- 60% return to work in 4 weeks Weber et al
- In 64 patients, 90% satisfactory outcome in one year Saals et al
- In 168 patients, 86% satisfactory outcome in one year Bush et al

## SURGICAL

- Indications:
  - Cauda Equina
  - PROGRESSIVE Motor Loss
  - Intractable Pain

## Surgical Outcome Weber et al

- 126 Patients with Absolute Indications for Surgery
- Randomized to Surgery and Non Surgery
- 10 year follow-up

- At 1 year:
  - 90% good outcome with Surgery as compared to 60% with Non-Surgery
- At 4 years:
  - Surgery is slightly better (not statistical)
- At 10 years:
  - Same for both groups

Patients who met the indications for surgery

Patients who were operated within 3 months had better outcome in 10 years

Response to Transforaminal Epidural Injections correlated with positive surgical outcomes as high as 95% Stanley and Akkerveeke et al

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“TIMING HAS AN AWFUL LOT TO DO WITH THE OUTCOME OF A RAIN DANCE”

### Case #1

- 25 yo male with 2 days h/o LBP and right leg pain.
- Pain 8/10, 80% leg, 20% back
- Pain is debilitating and worsening

#### SHOULD YOU?

- Narcotics, Oral Steroids, PT, reassurance
- MRI
- Referral for Physiatry
- Referral for Surgery

MRI:

L5/S1 6 mm disc herniation

### Case #1

#### **WHAT I WOULD DO?**

- Narcotics
- MRI
- Epidurals
- 90-95% chance of substantial pain reduction
- PT
- 5% chance of needing surgery

### Case #2

- 26 yo male with 2 days h/o LBP and right leg pain, predominantly 80% leg pain.
- Pain is debilitating
- Right foot and toe weakness

#### **YOU SHOULD DO?**

- Narcotics, +/- Oral Steroids, Re-Evaluate
- Referrals for Physiatry
- Referrals for Surgery

### Case #2

- MRI: 3mm Right Disc Protrusion
- Right foot drop is same
  
- Do Nothing
- Referral for Epidurals
- Referral for Surgery

### Case #2

- Neurologically stable
- Young age
- Don't know long term outcome for discectomy
- Excellent long term outcome for non surgery

### What I would do:

- Narcotics, Cox 2
- Trial of epidurals
- Non-responsive → surgery within 3 months
  
- Aggressive intervention
- Control Pain
- Graduated and aggressive physical therapy

### Case #3

- 28 yo healthy male
- Onset: two weeks ago
- No incontinence
- Right foot weakness 4/5
- Stable Neuro Exam
- MRI: 9 mm L5/S1 disc herniation

### What would you do?

- Narcotics, +/- Oral Steroids, Re-Evaluate
- Referrals for Physiatry
- Referrals for Surgery

### Case #3

- Disc protrusion larger than 8 mm has lower success rate with epidurals
- Disc sequestration however does well conservatively
- Surgery is the best option
- No long term outcome study
- Due to young age → art of medicine

### Case #3

- Due to young age and acute nature
- Epidural
- Two additional Epidurals if continues to improve
- EMG/NCS 3 weeks after injury
- Aggressive exercise
- Surgery if course is protracted
- 70-80% will not need surgery
- Does the patient have the time for conservative care and willing to accept failure?

“TIMING HAS AN AWFUL LOT TO DO WITH THE OUTCOME OF A RAIN DANCE”

### Case #4

- 60-70 yo with axial low back pain for 2 years and vague intermittent leg pain.
- Usual medical history
- No cancer history
  
- Needs full work up, Labs, MRI, EMG's
- NSAIDS, 6 weeks of PT

### Case #4

- EMG is normal
- MRI: Moderate DDD at L4/5 and L5/S1, small disc bulge/protrusion at L4/5 L5/S1,
- Facet hypertrophy with mild foraminal narrowing and mild spinal stenosis

## Would You?

- Do nothing
- Refer patient to a Physiatrist
  - What could a physiatrist do?
- Refer patient to a Spine Surgeon
  - What would a spine surgeon do?

## Case #4

- Physiatrist
  - Trigger point injections
  - Facet injections
  - Epidurals
  - Discograms
  - CT Myelograms
- Surgeon
  - Foraminotomy
  - Decompressive Laminectomy
  - Discectomy and Fusion

## Case #5

- 75 yo with 6 months h/o low back pain and bilateral buttock and leg pain.
- Usual medical problems
- Used to walk ½ hour. Now only two blocks
- Neurogenic claudication
  - Better with rest
  - Worse with ambulation
  - Poor balance and clumsiness
- No incontinence

## Case #5

- MRI: Spinal Stenosis at L4/5 and L5/S1. In conjunction with facet and ligamentum hypertrophy result in central and foraminal stenosis.
- EMG/NCS: 1. Normal, 2. Single level radiculopathy, or 3. Polyradiculopathy

## What would you do?

- Surgery or NOT surgery?
- Modify lifestyle
  - or Conservative Treatment
  - or Epidural
  - or Spinal Decompression

## What I would do?

- If patient is healthy and active, we must do something!
- Epidurals are very effective
- Spinal decompression is very effective also. Has the best outcome of all spine surgeries.

### Case #6

- 40 yo professional with 2 years of intermittent low back pain and leg pain
- Acute exacerbation
- MRI: small disc protrusion at L5/S1
  
- Non surgical approach
- EMG is normal
- Epidurals give partial relief
- Able to work but not satisfied with result

### Case #6

- How far should we go with the work up?
- Discogram?
- Nucleoplasty, IDET, Surgery, Fusion????

### Case #6

- Exercise for 6 months → pain improves
- 2 years later → full activity, minimal pain
- Able to run on treadmill for one hour at 8.5 minute/mile. Able to play two sets of tennis at 4.0 level
- Not able to lift more than 20 lbs without pain

### Case #7

- 50 yo with 5 years h/o low back pain.
- No leg pain
- Has had all conservative measures
  - PT, Chiropractic, Accupuncture, Herbals
  - Pilates, Yoga
- Vicodin 6 tabs/day, Neurontin
- Norco
- Fentanyl patch

### Case #7

- MRI:
  - Disc dessication and disc bulge at L4/5 L5/S1
  - No spinal or foraminal stenosis
  - Mild facet arthropathy

### Physiatrist #1

- Trigger point injections
- Facet injections
- Epidural injections
- Discogram: Annular Tear at L4/5 with concordant pain
- Nucleoplasty
- IDET
- Intradiscal radiofrequency
- Patient becomes chronic Pain

### Physiatrist #2

- Facet Injections
- Epidurals
- Exercise Program
- Patient is functional

### Physiatrist #3

- Aggressive exercises
- Education and Psychological support
- Patient is able to manage pain and is functional

### Surgeon #1

- CT Myelogram
- Discogram
- Microdiscectomy L4/5
- Exercise Program
- Patient has residual pain but functional

### Surgeon #2

- Two level interbody fusion at L4/5 and L5/S1 with pedicle screws
- Patient has residual pain
- Fusion at L3/4
- Patient with more pain
- Spinal Cord Stimulator
- Epidural Pump
- Living with Pain.

### You are in control of your patient's destiny

- Large disc herniation does NOT always need surgery
- Neurologic loss is NOT an absolute indication for surgery
- Small disc bulge is NOT always normal
- Interventional pain management works but not 90% of the time
- Surgery does not have an 80% success rate
- Conservative treatment is reversible. Surgery is not.

### Take Home Points

- Stay conservative
- Think conservative
- Early intervention to reduce pain and return to activity
- **Thorough work up but DON'T OVERTREAT**
- Surgery: Cauda Equina, progressively neurologic loss, intractable pain
- Everything else: think NON-Surgical