HAMID MIR M.D.

Board Certified Orthopedic Spine Surgeon

Improving Outcomes of Spine Surgery

www.hamidmirmd.com

- **8/94-5/98**
- ***M.D.:*** **State University of New York, HSC at Brooklyn**
- **College of Medicine, Brooklyn, NY**
- **Cum Laude**
- **Alpha Omega Alpha Honor Medical Society**

- **6/98-6/99**
- ***Internship:*** **General Surgery**
- **University of Illinois at Chicago Chicago, IL**

6/99-6/03

Residency: **Orthopaedic Surgery**

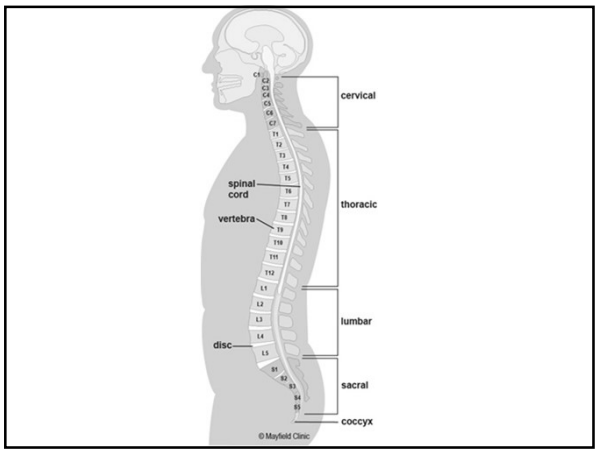
- **University of Illinois at Chicago**
- **Chicago, IL**
  - **Christopher Pavildes Award for "Excellence in Orthopaedic"**

9/03-9/04

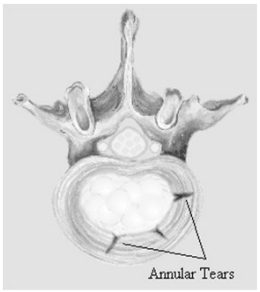
Fellowship: **Combined Orthopedic/Neurosurgical**

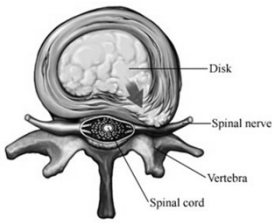
- **Spinal Surgery Fellowship, Institute for Spinal Disorder Cedars- Sinai Medical Center, Los Angeles, CA**

"Dedicated to the Advancement of Spinal Sciences"



Disc Herniation

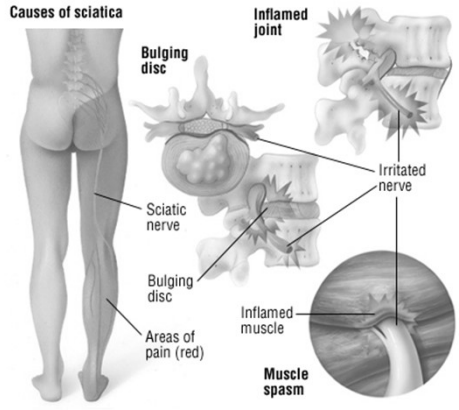




RISK FACTORS

Lumbar disorders and Disc Herniation

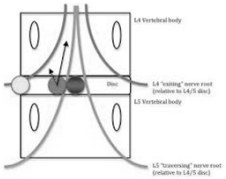
Age
Jobs requiring heavy lifting
Lifting in a twisted or asymmetric posture
Cigarette smoking
Exposure to prolonged vibration in the range of 4-5 Hz.

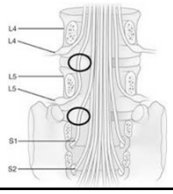


Type of Herniation

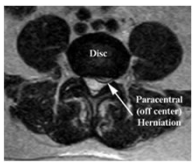
Location

- **Postero-lateral, 80%**
- **Far-lateral, 5%**
- **Central, 15%**



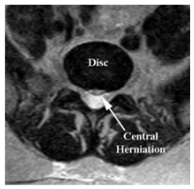


Postero-lateral Disc Herniation



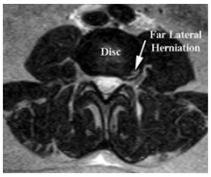
Leg pain, numbness, weakness
Back pain

Central Disc Herniation



Back Pain
+/- radiculopathy

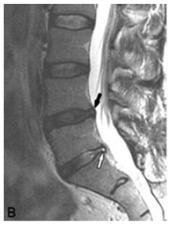
Far lateral Disc Herniation



Leg pain, numbness, weakness
Back pain

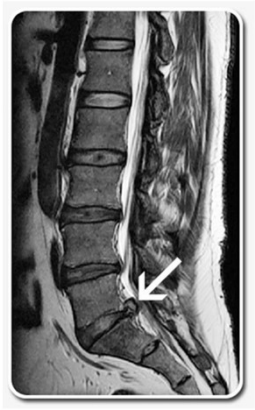
Type of Herniation

- **Disc Bulge**
  - **Is not a disc herniation/protrusion**
  - **Diffuse outpouching of the anulus fibrosis**
  - **Degenerative disc disease and collapse**



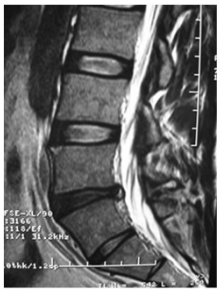
Types of Herniation

- **Protrusion**
- **Extrusion**
- **Sequestrated**



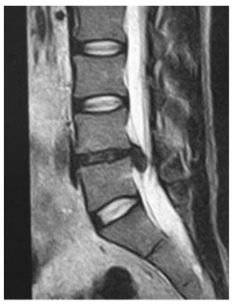
Type of Herniation

- **Protrusion**



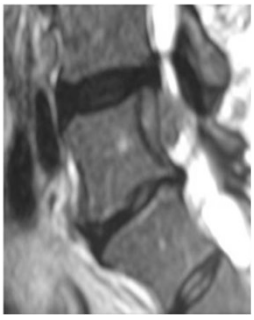
Type of Herniation

- **Extrusion**

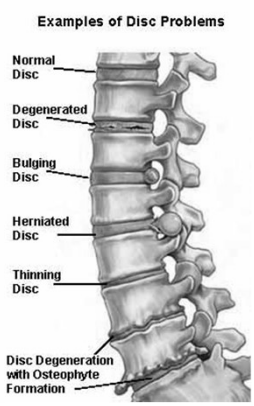


Type of Herniation

- **Sequestration**

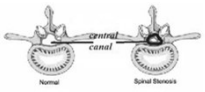


Examples of Disc Problems

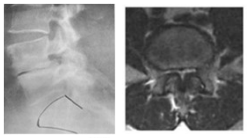


Types of Stenosis

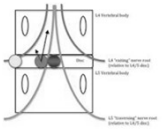
- **Central Stenosis**



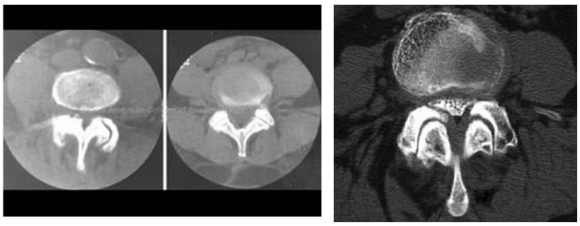
- **Lateral Recess Stenosis**



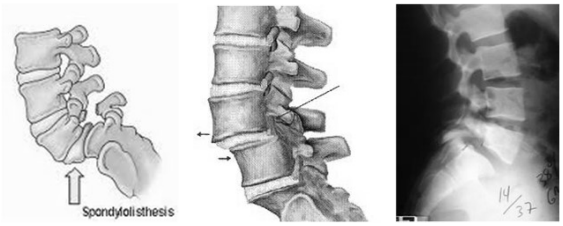
- **Foraminal Stenosis**



Degenerative Stenosis



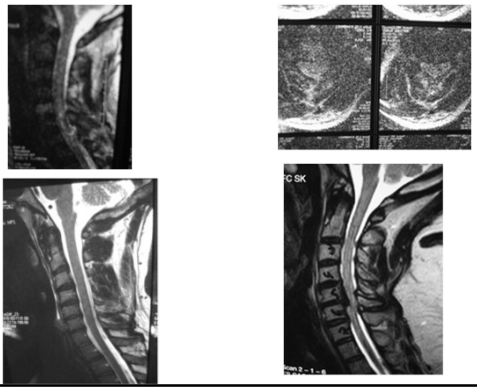
Spondylo-listhesis



Imaging

- **X-rays**
- **MRI**
- **CT scan**
  - **Correlation between clinical findings and imaging studies is critical**
    - **37% incident of disc abnormality in asymptomatic patients**

Quality Diagnostic Studies



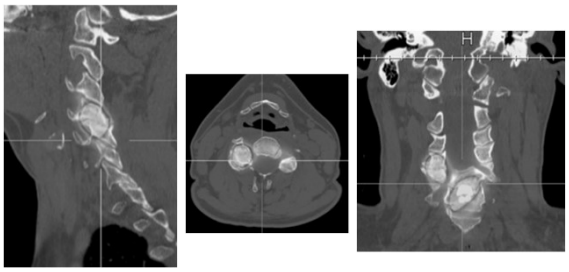
Quality MRI

- Magnet 1.5 Thelsa
  - Closed
  - Contiguous cuts, minimum, 5 mm
- Service
  - Delivery service
  - Storage
- Radiologist

CT Myelogram

- Failed spine surgery with instrumentation

SPECT fused with CT Scan



Neurophysiologic Testing EMG/NCV

- Not necessary to confirm the presence of radiculopathy
  - Not part of the standard work-up
- It is technician dependent
- It may help with
  - Severity
  - Chronicity of spinal root lesions
  - Differentiate between the level of involvement
    - Root vs. Peripheral nerve

Treatment

- **Non-Surgical**
  - **Acute, 2-3 days of rest may be appropriate**
  - **Steroids**
  - **NSAIDS**
  - **Muscle Relaxer**
  - **Therapy**

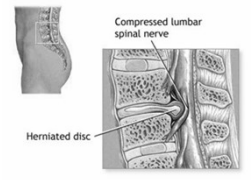
Best Predictors of Outcome in NON-SURGICAL Patients

- **Symptoms of < 6 months**
- **No litigation**

Treatment

Pathophysiology

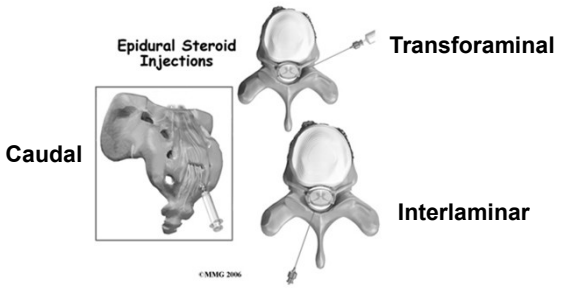
- Mechanical component
- Chemical component



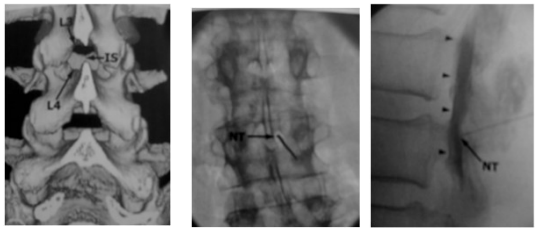
Treatment

- **<u>Epidural steroids injections</u>**
  - **50% long-term relief**

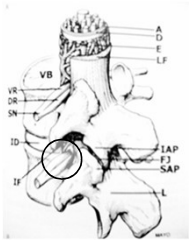
1. Inter-laminar ESI
2. Trans-foraminal ESI
3. Caudal ESI

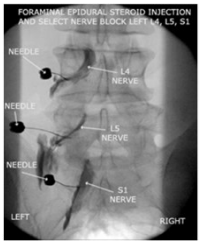


Inter-Laminar ESI

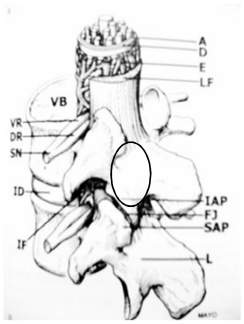


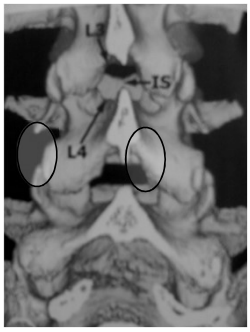
Trans-foraminal ESI





Facet Injections

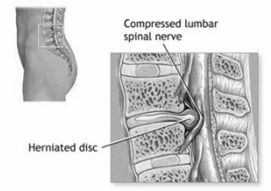




Treatment

Pathophysiology

- Mechanical component
- Chemical component



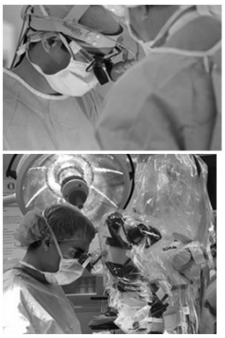
Minimally Invasive Spine Surgery

- **Surgical Technique**
- **Surgical Decision Making**

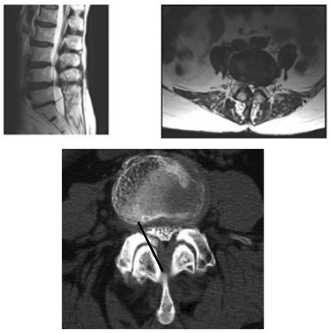
Less is more
Least Invasive Approach

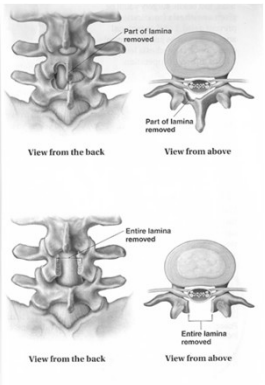
Surgery

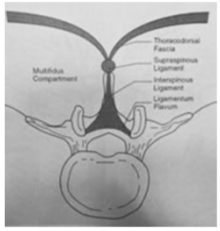
- **Loops vs. Microscope**
  - **Microscope**
    - **Shorter Inpatient stay**
    - **Less time off work**
    - **Better results**



Minimally Invasive Spine Surgery
Laminectomy vs Laminotomy



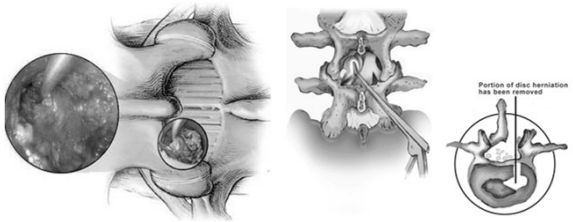


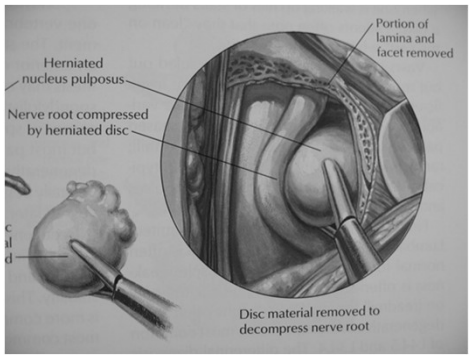


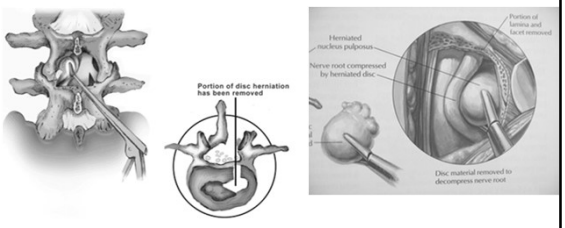
Laminotomy

- Not destabilizing
- Reduces risk of future surgery
  - Lowers the risk of progressive degeneration
- Less blood loss
- Quicker recovery

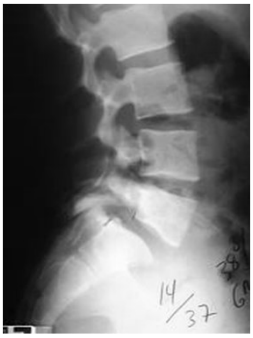
Lumbar Discectomy



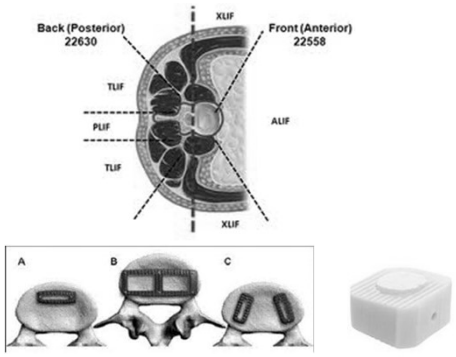


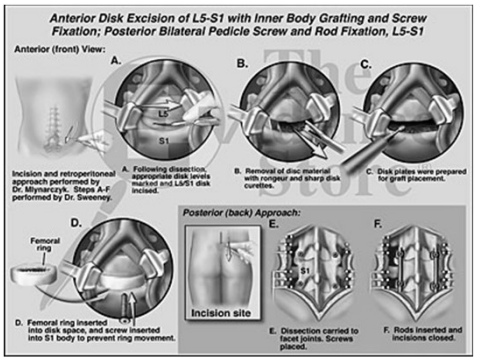


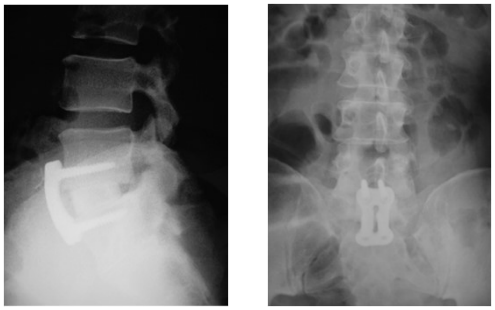
Stabilization-Fusion

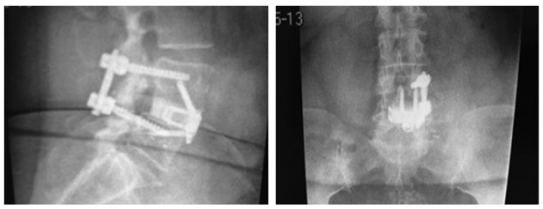


Approaches for Lumbar Fusion




Anterior Disk Excision of L5-S1 with Inner Body Grafting and Screw Fixation; Posterior Bilateral Pedicle Screw and Rod Fixation, L5-S1
Anterior (front) View:
A.
B.
C.
L5
S1
Incision and retroperitoneal approach performed by Dr. Mlynarczyk. Steps A-F performed by Dr. Sweeney.
A. Following dissection, appropriate disk levels marked and L5/S1 disk incised.
B. Removal of disc material with rongeur and sharp disk curettes.
C. Disk plates were prepared for graft placement.
Posterior (back) Approach:
D.
Femoral ring
E.
F.
Incision site
D. Femoral ring inserted into disk space, and screw inserted into S1 body to prevent ring movement.
E. Dissection carried to facet joints. Screws placed.
F. Rods inserted and incisions closed.





Satisfactory Outcome

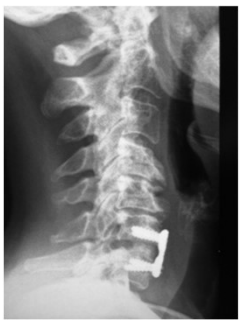
- **Indication**
- **Patient selection**
- **Correct diagnosis**
- **Good technique**

Satisfactory Outcome

Minimally Invasive Techniques
Laminotomy not laminectomy
Strict Criteria for fusion
Avoiding multi-level fusions

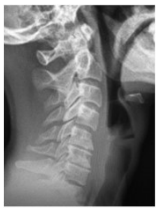
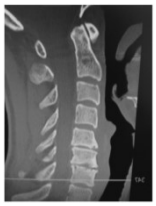
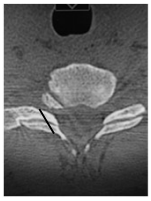
Limited Fusion

75 year old with spinal cord compression at C6-7

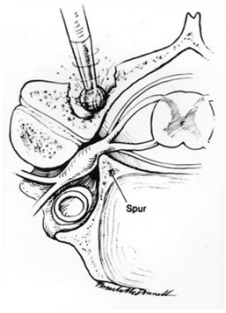


Minimally Invasive Spine Surgery
Posterior cervical foraminotomy

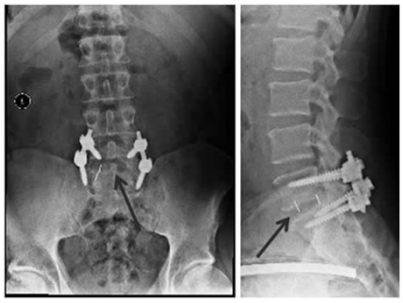
42 year old female, Yoga Instructor with right arm pain and weakness

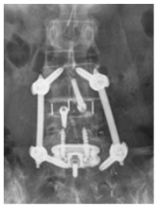
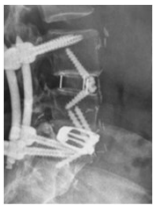




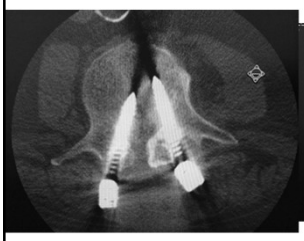
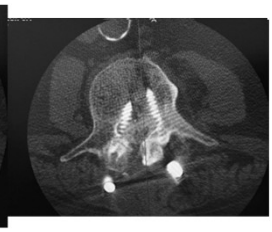
Minimally Invasive Spine Surgery
Posterior cervical foraminotomy/discectomy



Pseudoarthrosis



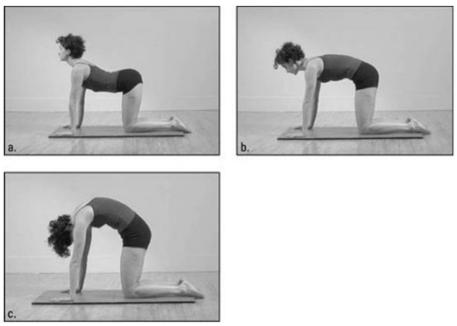



Healthy Spine

- Nutrition
- Weight control
- Lifting precautions
- Smoking
- Exercise
  - Stretching
  - Core Strengthening

Stretching



Stretching

Hamstring Stretch

Back Strengthening

Thank You

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