

Minimally Invasive Spine (MIS) Surgery: Which Patients Benefit and When to Refer

Ryan Khanna, MD, MBA

Spine Neurosurgery

Community Medical Center

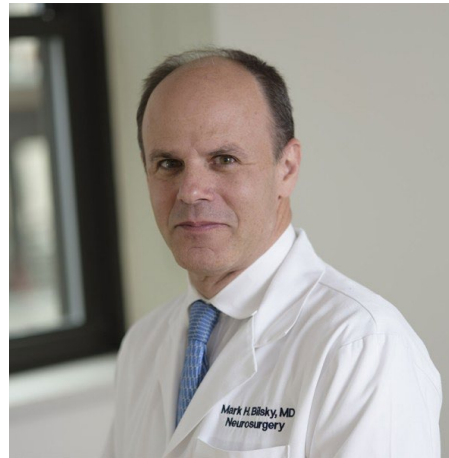
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Disclosures

Involved with the Society for Minimally Invasive Spine Surgery

About Me

- Residency at Rush NSG heavily trained in MIS
- Spine Onc Fellowship at MSK
- Ortho Deformity Fellowship at Scripps



Most Back Pain does NOT need surgery

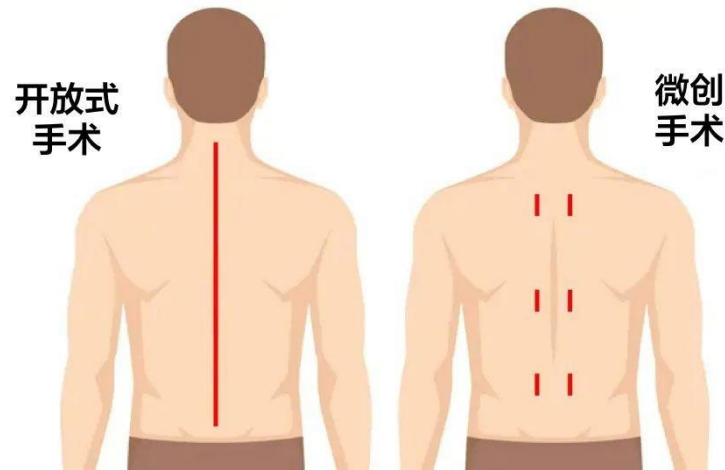
- Back Pain is Common
- Most improves conservatively
- Surgery is for *selected* structural pathology
- Most patients benefit from “**conservative treatment**”
 - PT
 - Medications
 - Injections
 - Weight Loss/Conditioning

What is MIS Spine Surgery?

- MIS= Achieving Decompression/stability through less disruptive approaches

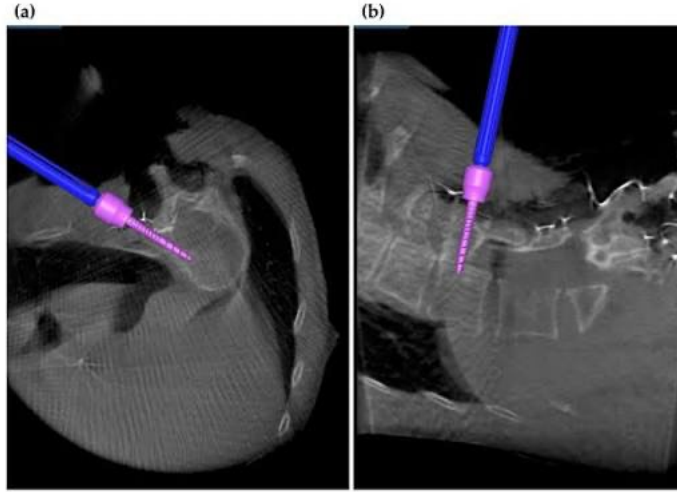
Benefits

- Smaller Incisions
- Less Muscle Injury
- Less Blood Loss
- Faster Mobilization
- Shorter LOS



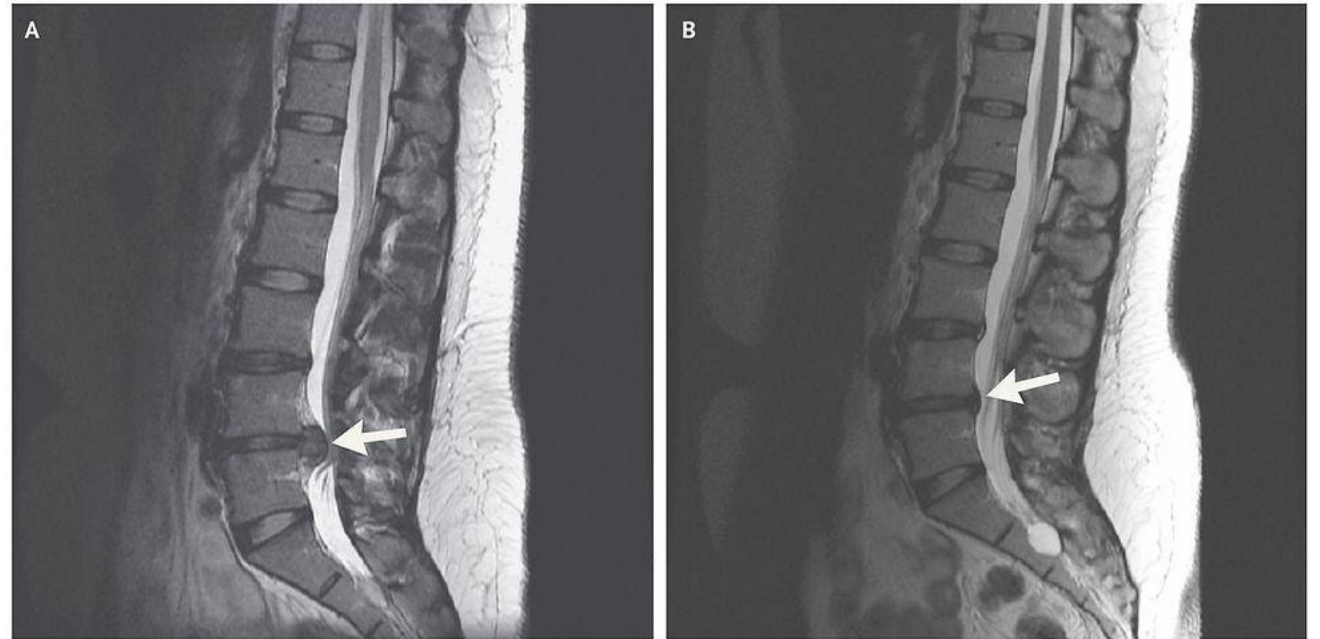
MIS Toolbox

- **Decompression**
 - Microdiscectomy
 - Tubular Decompression
 - Endoscopy
- **Stabilization**
 - Percutaneous Screws with Robot
 - MIS Fusion
 - Kyphoplasty
- **Reconstruction**
 - Lateral Surgery
 - Hybrid Surgery
 - Tumor Surgery



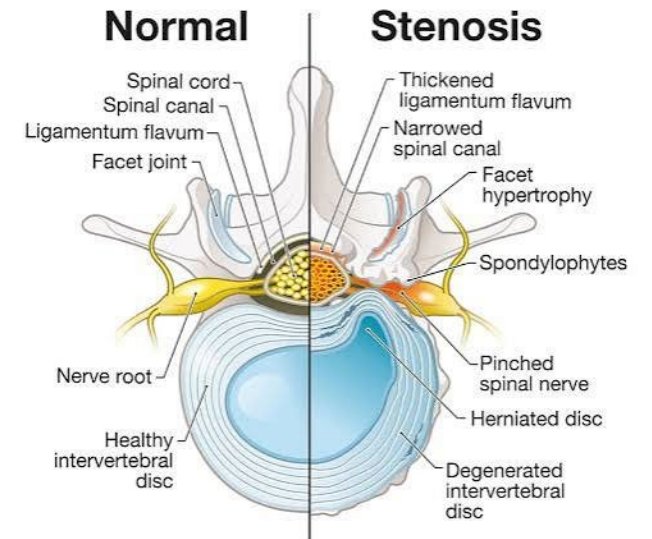
Referral Bucket #1: Disc Herniation/Radiculopathy

- **Symptoms**
 - Leg Pain > Back Pain
 - Numbness
 - Weakness
 - Sciatica
- **When to send?**
 - Failed Conservative Care
 - Progressive Weakness
 - Disabling Pain



Referral Bucket #2: Lumbar Stenosis (Neurogenic Claudication)

- **Symptoms**
 - Walking intolerance
 - Heavy Legs
 - Relief leaning forward
 - "Shopping cart sign"
- **When to send?**
 - Worsening Gait
 - Reduced Walking Distance
 - Recurrent Falls



Referral Bucket #3: Instability/Fractures

- **Symptoms**
 - Spondylolisthesis
 - Traumatic Fractures
 - Pathologic Fractures
- **When to send?**
 - Severe Mechanical Pain (Pain when standing)
 - Progressive Collapse
 - Instability



Referral Bucket #4: Spine Tumors

- **Symptoms**
 - Cancer History
 - Night Pain
 - New Neurologic Symptoms
- **When to send?**
 - Epidural Disease
 - Instability or mechanical pain in the setting of pathologic fracture



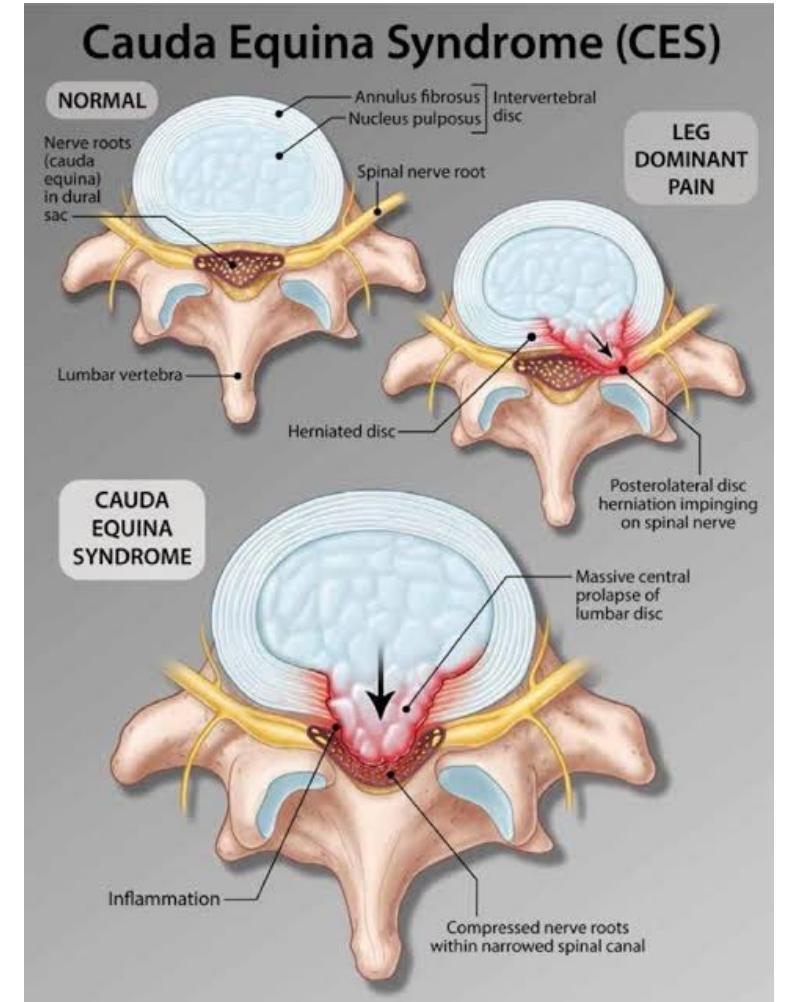
When NOT to refer for surgery?

- **Usually nonoperative:**
 - Isolated axial back pain
 - Mild MRI Degeneration
 - Acute Pain < 6 weeks
 - No Neurologic deficits



Same Day/Urgent/ER Referral

- **Call Same day if:**
 - Foot drop
 - Progressive weakness limiting ambulation
 - Bowel/bladder dysfunction

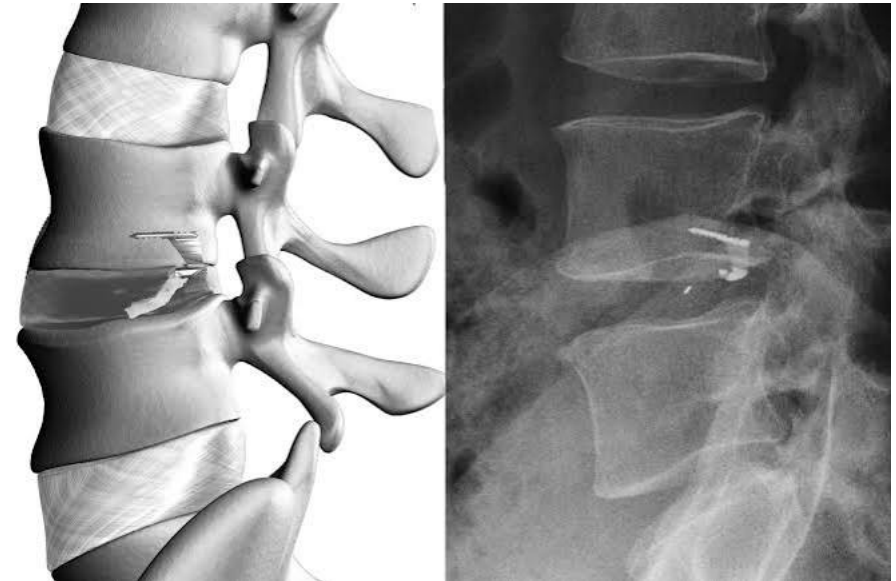
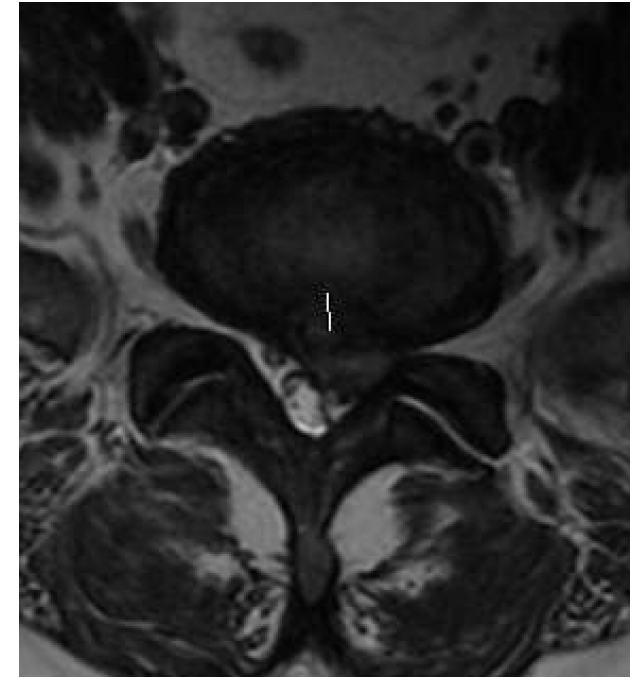


3 Case Examples

- **Disc**→ MIS Tubular Decompression
- **Metastatic Fracture**→ Stabilized for radiation
- **Stenosis**-> Walking Restored

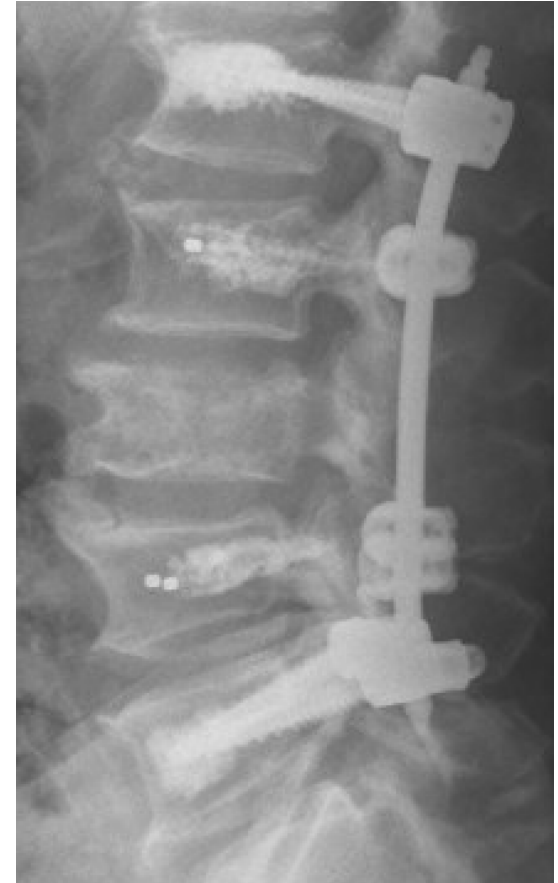
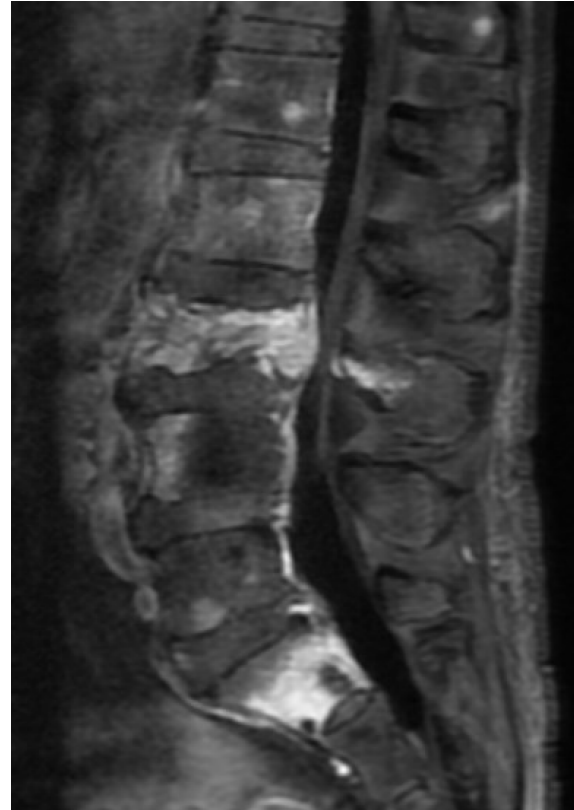
Herniated Disc

- 58 F with no PMH presenting with 3 months of left lower extremity pain, tingling, numbness limiting her ability to ambulate
 - Failed PT and 3 ESI
- Decision made to pursue left L5-S1 MIS discectomy with annular repair device
- **PAIN FREE AT 6 MONTHS**



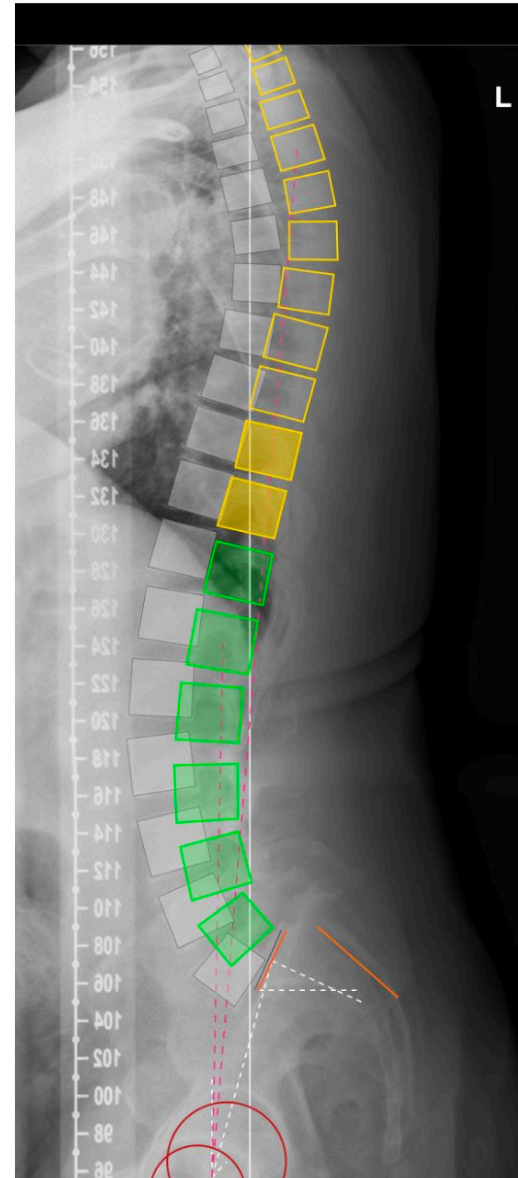
Metastatic Fracture

- 73 M with newly diagnosed metastatic lung adenocarcinoma referred for left leg weakness and inability to stand or sit due to pain for 6 weeks
 - Recent palliative radiation
- Percutaneous L1-5 fusion with cement and tubular foraminotomy at L3
- **PAIN FREE and ability to ambulate POD 1**



Lumbar Spondylolisthesis

- 48 M with PMH obesity, aortic valve replacement x 2 on warfarin presenting with severe low back pain and bilateral radiculopathy
- **Dx:** Grade III L5-S1 spondylolisthesis



Pre Op / Plan

Parameters	Pre-Op	Plan
PI	81°	81°
PT	14°	15°
SS	66°	65°
SVA	39.1 mm	18.4 mm
LL true	-82°	-79°
LL L4S1	-42°	-50°
TK true	40°	38°
L1 PA	20°	14°
T4 PA	13°	11°
C2 PA	-	-

Back Type Roussouly

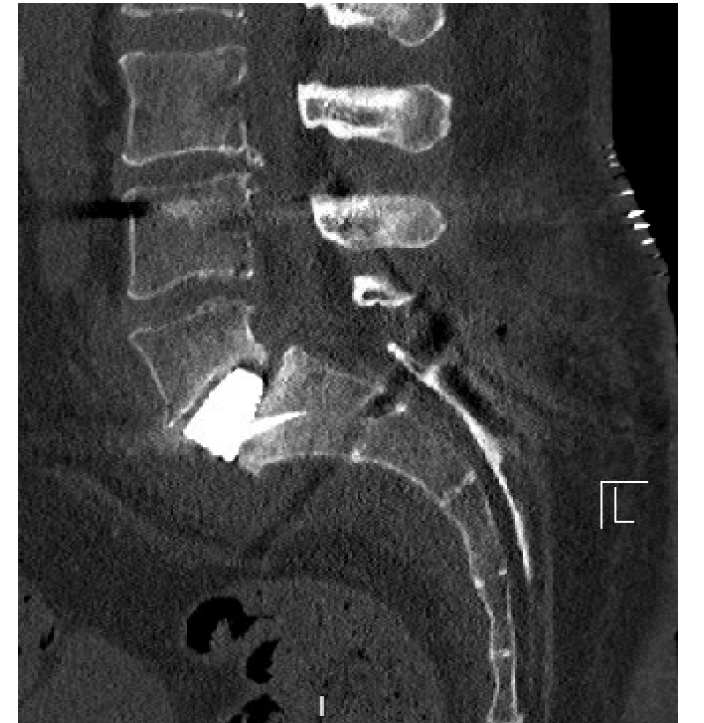
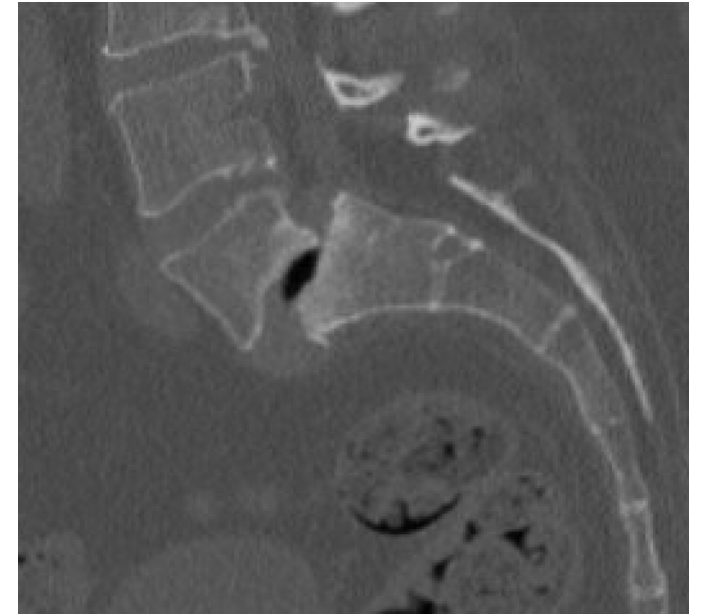
Pre-Op	Unbalanced Type 4
Plan	Balanced Type 4

Rod Type : K-ROD

Diameter	Length	Material
L: Ø 6mm	60mm	Titanium
R: Ø 6mm	64mm	Titanium

Lumbar Spondylolisthesis

- S/P L5-S1 anterior fusion and percutaneous L4-Pelvis posterior fusion
- **Early resumption of anticoagulation and PAIN FREE AT 3 months**
- **No longer on opioids**
- **No longer uses a walker**



Thanks!

Please send me patients with:

- Persistent radiculopathy
- Neurogenic claudication
- Pathologic Fractures
- Spine Tumors
- Progressive neurologic deficits

