

Common Spine Surgeries: Indications and Complications

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Common Cervical Spine Surgeries

- ACDF
- ACCF
- ACDA
- Posterior Cervical Laminectomy and Fusion
- Posterior Cervical Laminoplasty
- Posterior Cervical Foraminotomy

ACDF

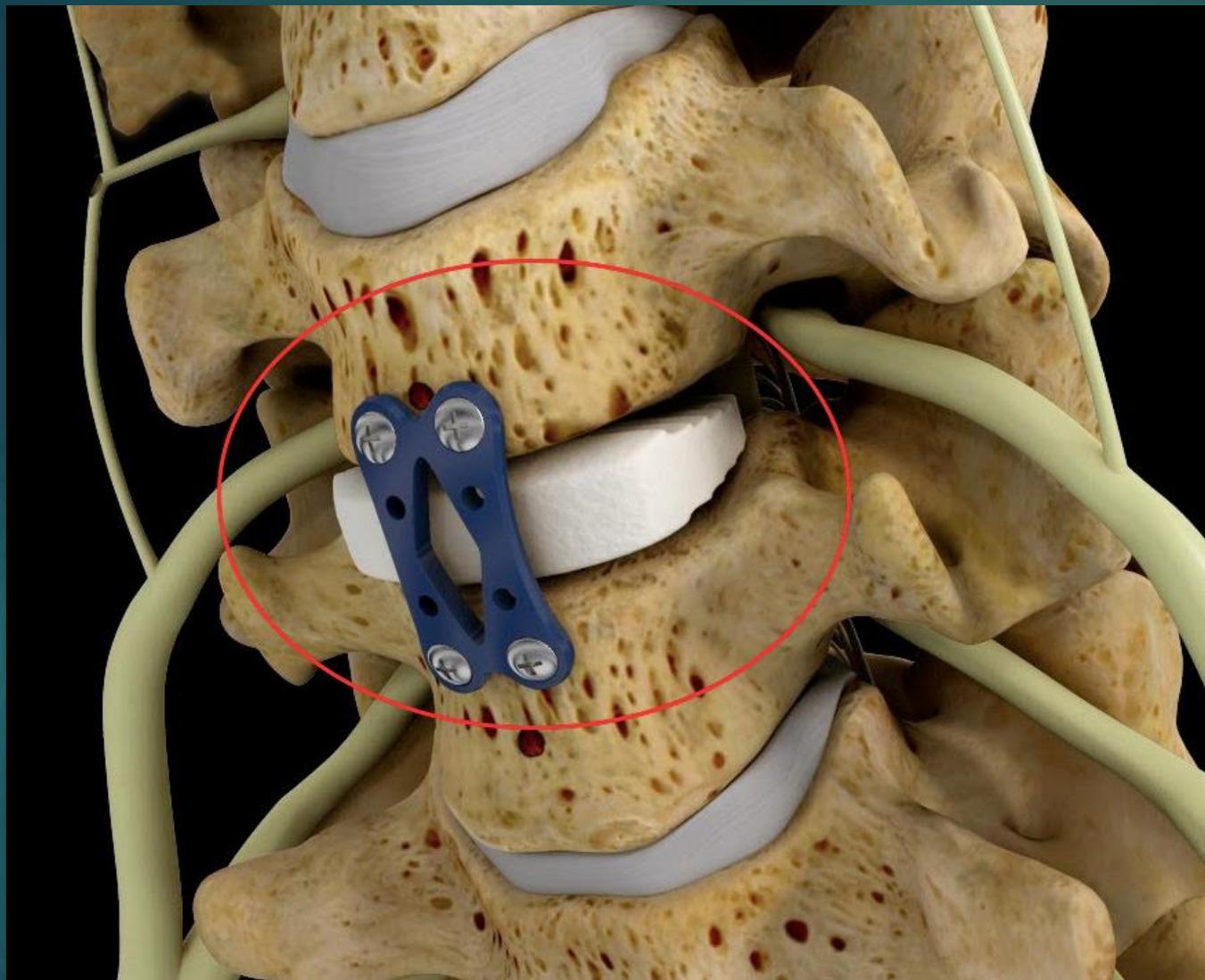
Anterior Cervical Discectomy and Fusion

INDICATIONS

- ▶ Gold standard in surgical treatment for cervical radiculopathy
- ▶ Disc herniation
- ▶ Degenerative cervical spondylosis (osteophytes, discosteophyte complex)
- ▶ OPLL
- ▶ Cervical kyphosis

COMPLICATIONS

- ▶ OR complications: vertebral artery injury, recurrent laryngeal nerve injury (1%), dural tear, spinal cord injury
- ▶ Immediate post-op complications: retropharyngeal hematoma, **dysphagia**, dysphonia, graft dislodgement
- ▶ Long term complications: **pseudarthrosis**, adjacent Segment disease (3%), instrumentation failure, loss of motion



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Anterior Cervical Corpectomy and Fusion

Indications

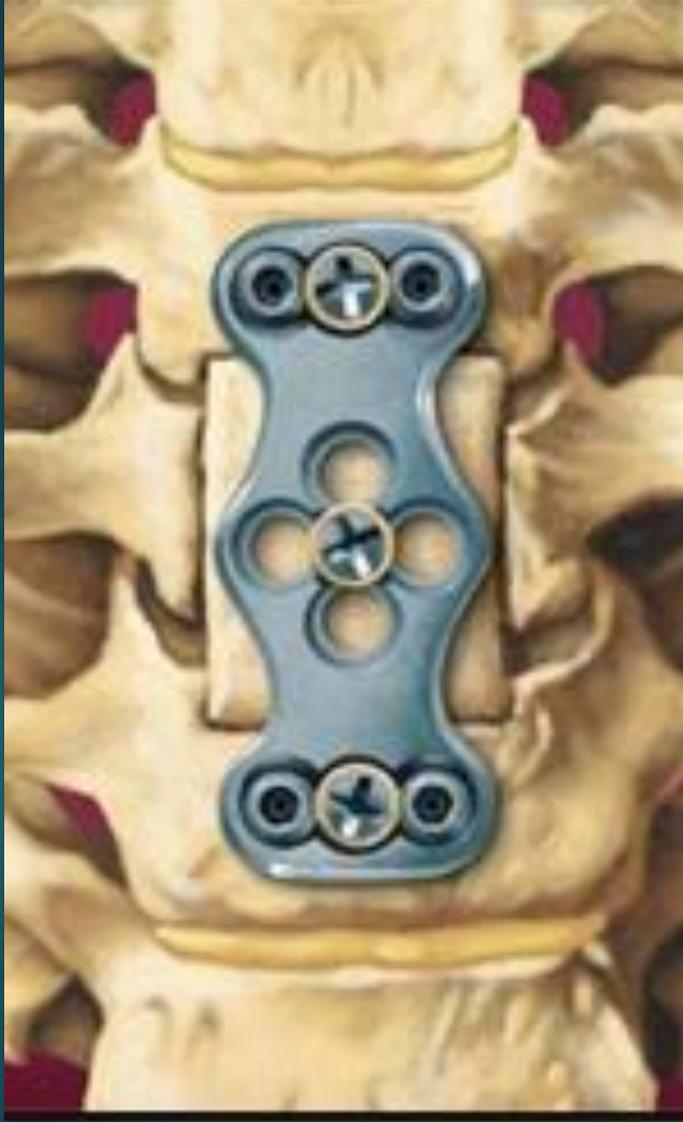
- ▶ Bone tumor
- ▶ Bone infection
- ▶ Trauma to the vertebral body
- ▶ Extensive degenerative bone changes / osteophytes

Complications

Same as ACDF

5% to 20% rates of graft migration





ACCF

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Anterior Cervical Disc Arthroplasty

Indications :

- Single level disease with minimal arthrosis of the facets
- When we want to preserve mobility
- When trying to avoid adjacent disc disease

Complications:

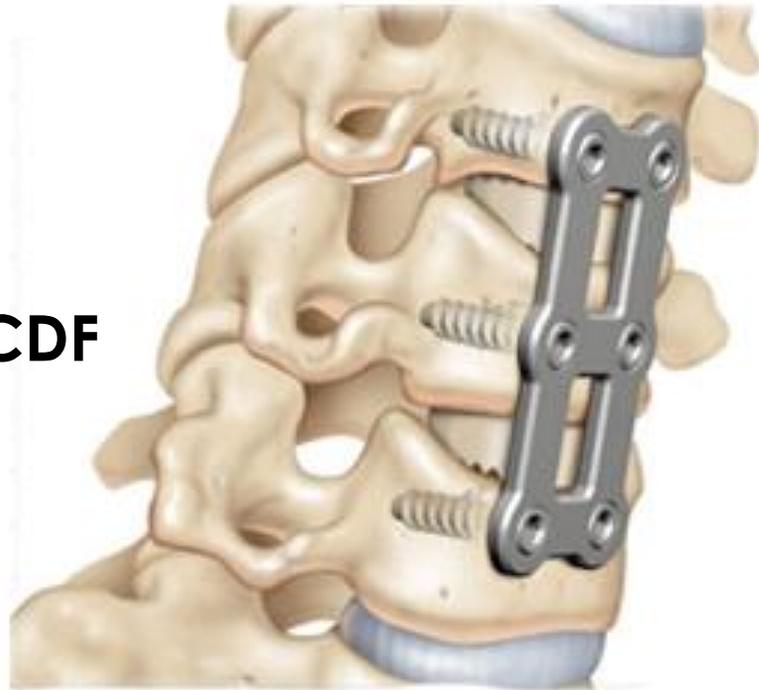
Similar to ACDF:

- Minimal blood loss/minimal pain/minimal risk of infection
- Dysphagia due to soft tissue swelling
- Laryngeal nerve injury
- Hemangioma
- Graft dislodgement

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Posterior Cervical Instrumentation Fusion

laminectomy, laminotomy, foraminotomy

Indications:

- ▶ Multilevel compression/ degenerative changes with kyphosis of < 10 degrees
- ▶ Neck pain associated with degenerative facets
- ▶ Congenital central stenosis

Complications :

- ▶ Higher rates of infection
- ▶ Higher blood loss compared to anterior approach
- ▶ Postoperative neck pain
- ▶ Wound breakdown
- ▶ C5 palsy
- ▶ Injury to the vertebral artery
- ▶ Degeneration of disk levels above or below surgery level
- ▶ Stretch on the nerves from the spinal cord drifting backwards





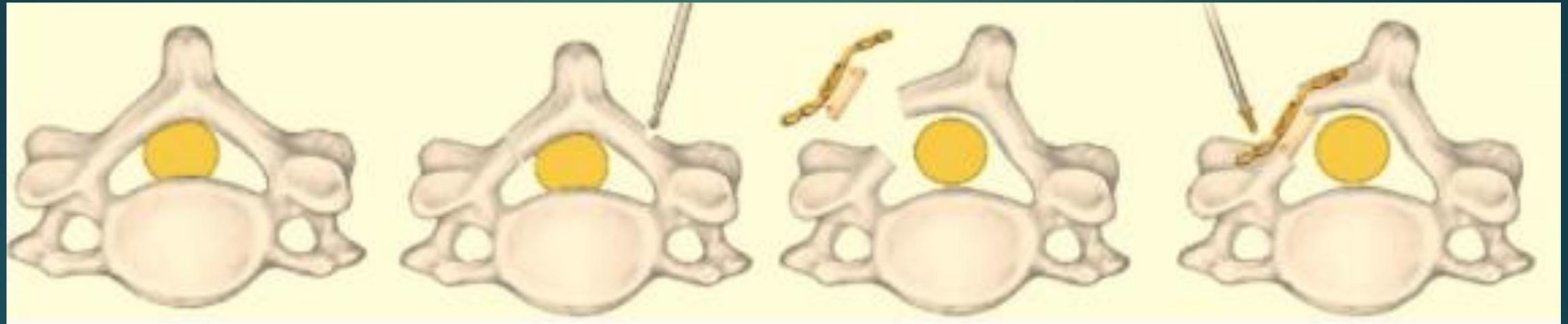
Posterior Cervical Laminoplasty

Indications:

- ▶ Congenital cervical stenosis
- ▶ Useful when maintaining motion is desired
- ▶ Avoids complications of fusion so may be indicated in patients at high risk of pseudoarthrosis

Complications:

- ▶ Late instability or deformity
- ▶ Postoperative neck pain
- ▶ Higher infection rates compared to anterior approach





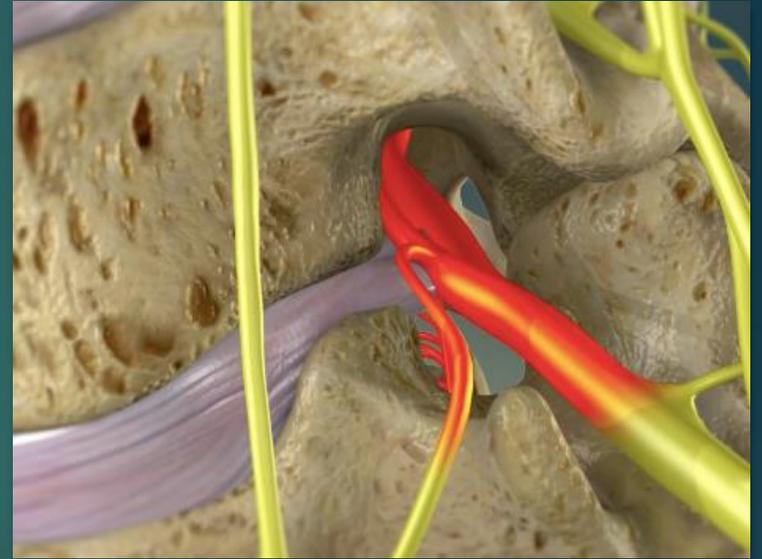
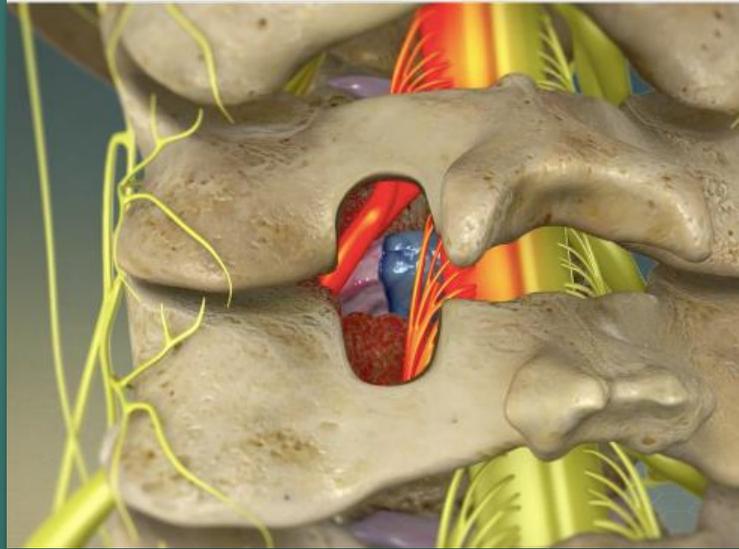
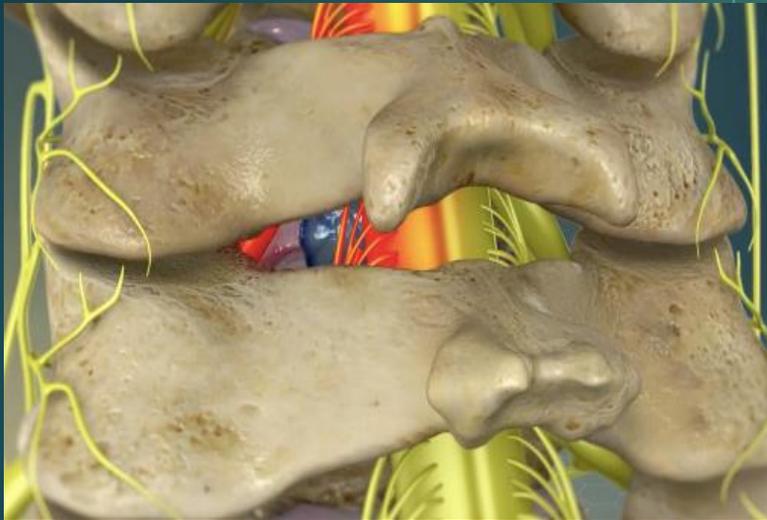
Posterior Cervical Foraminotomy

Indications:

- ▶ Foraminal disc herniation causing cervical radiculopathy
- ▶ Osteophytic foraminal narrowing

Complications:

- ▶ Post-operative neck pain /stiffness
- ▶ Nerve injury
- ▶ Recurrent disc herniation



Common Lumbar Surgeries:

- Microdiscectomy
- Lumbar Decompression
- PSSIF
- PSSIF with PCO, PSO and VCR

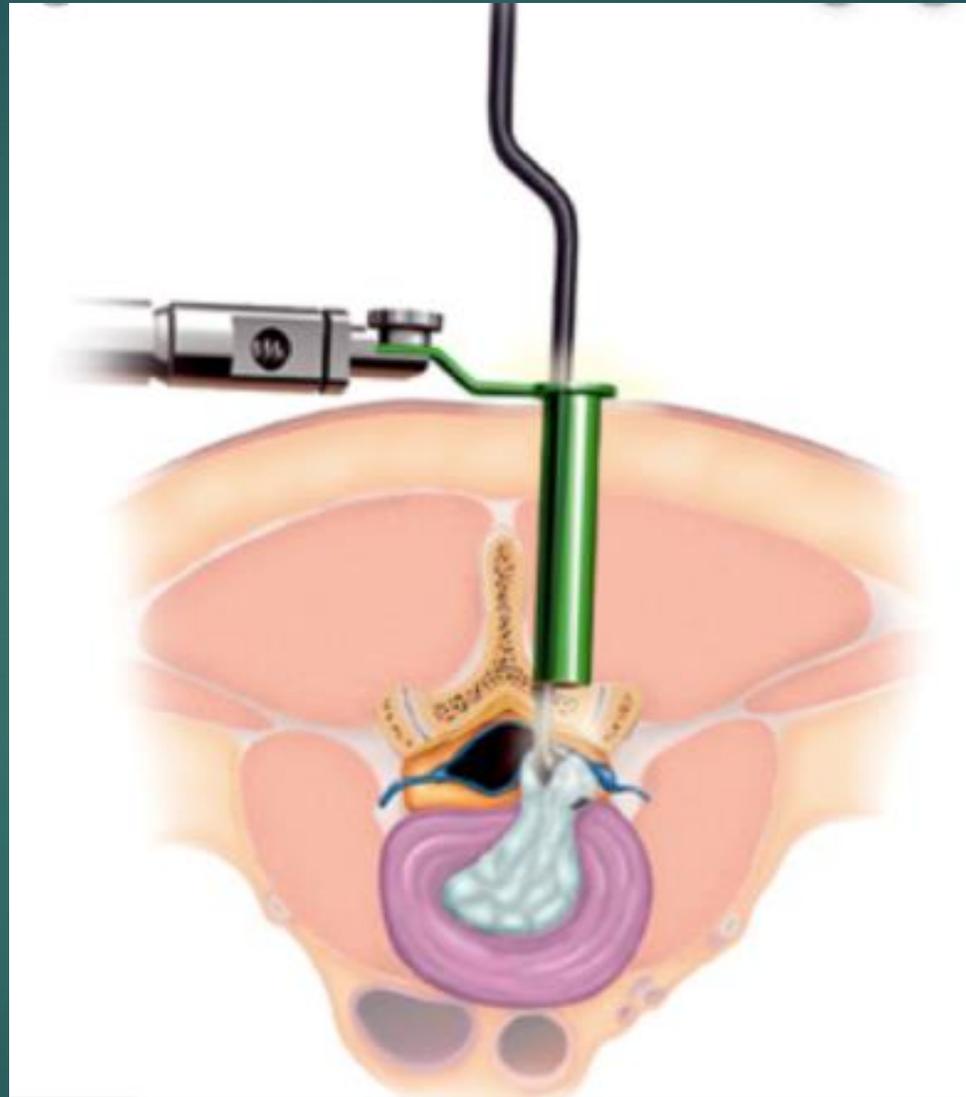
Lumbar Microdiscectomy

Indications:

- ▶ Persistent, worsening pain, due to disc herniation
- ▶ Significant weakness
- ▶ Cauda equina syndrome

Complications- minimal :

- ▶ Dural tear (1%)
- ▶ Recurrent HNP
- ▶ Discitis (1%)



Lumbar Decompression

laminectomy, laminotomy, discectomy,
foraminotomy

Indications

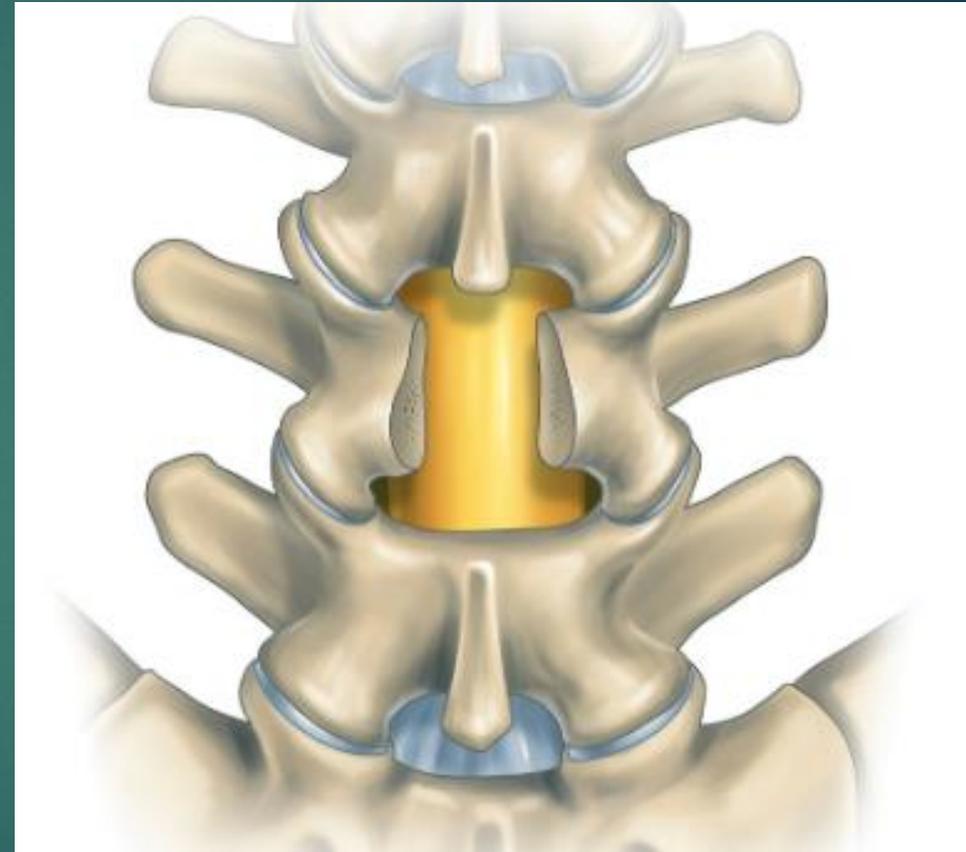
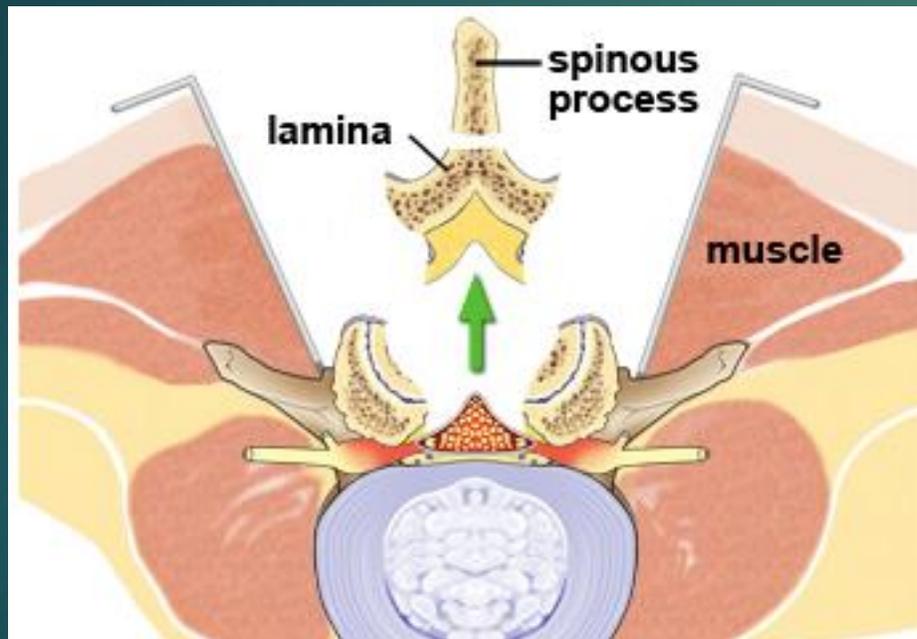
Spinal stenosis causes by:

- ▶ Disc herniation
- ▶ Degenerative changes such as overgrowth of the ligament, osteophytes,, facet arthropathy

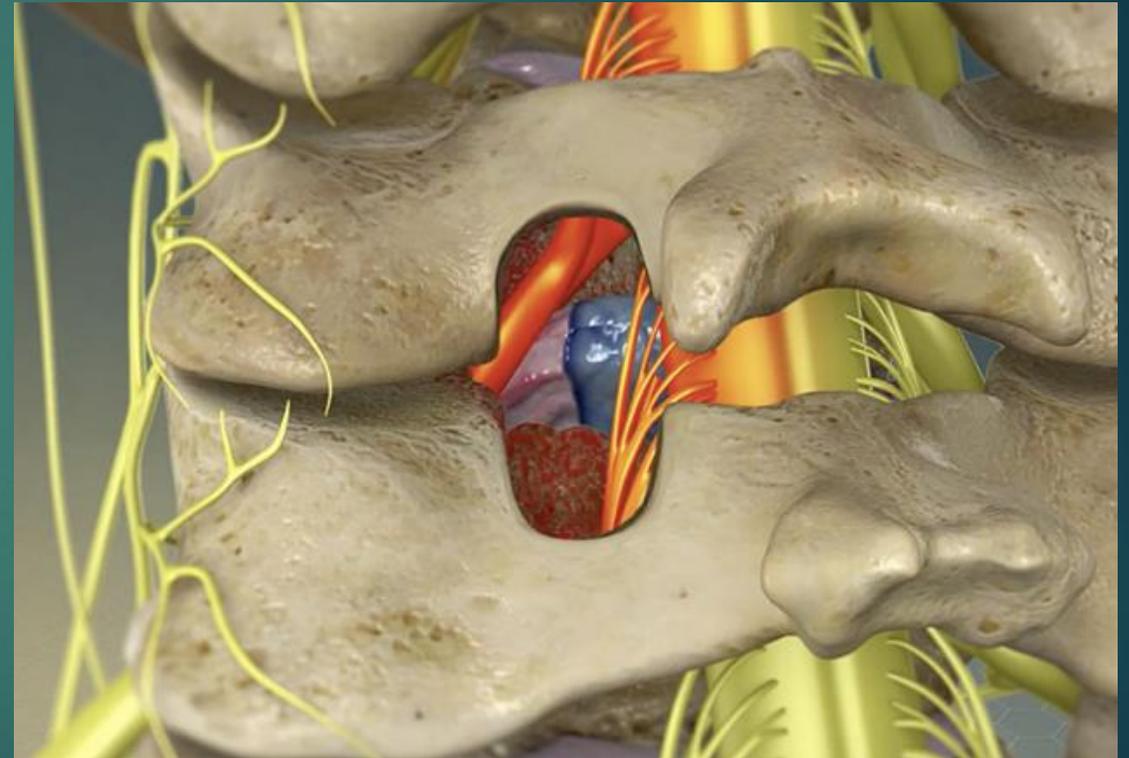
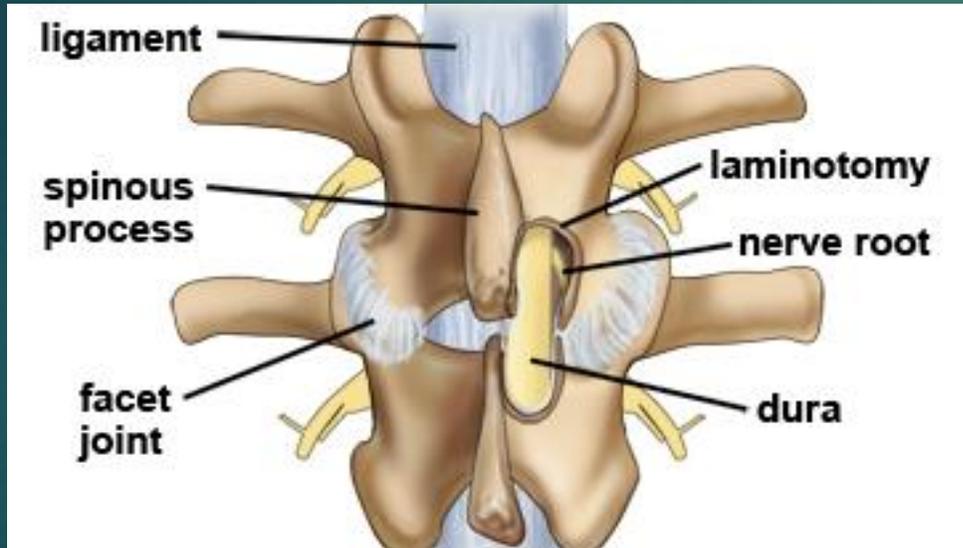
Complications

- ▶ Infection
- ▶ Dural tear
- ▶ Epidural hematoma
- ▶ Instability

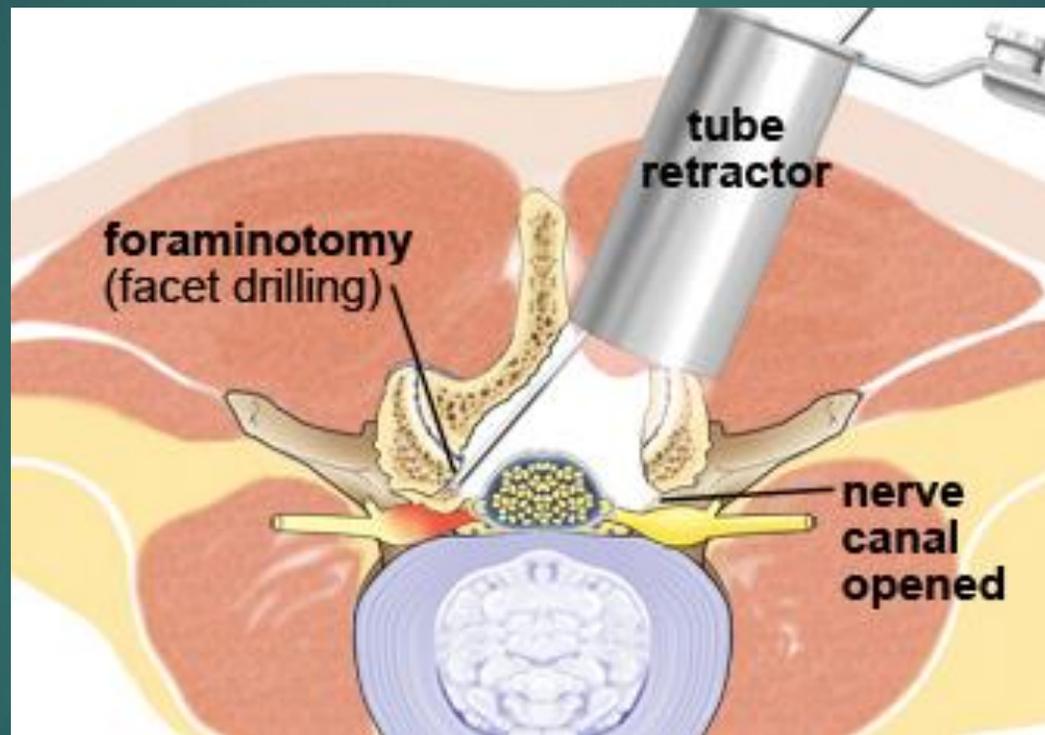
Laminectomy



Laminotomy (unilateral)



Foraminotomy



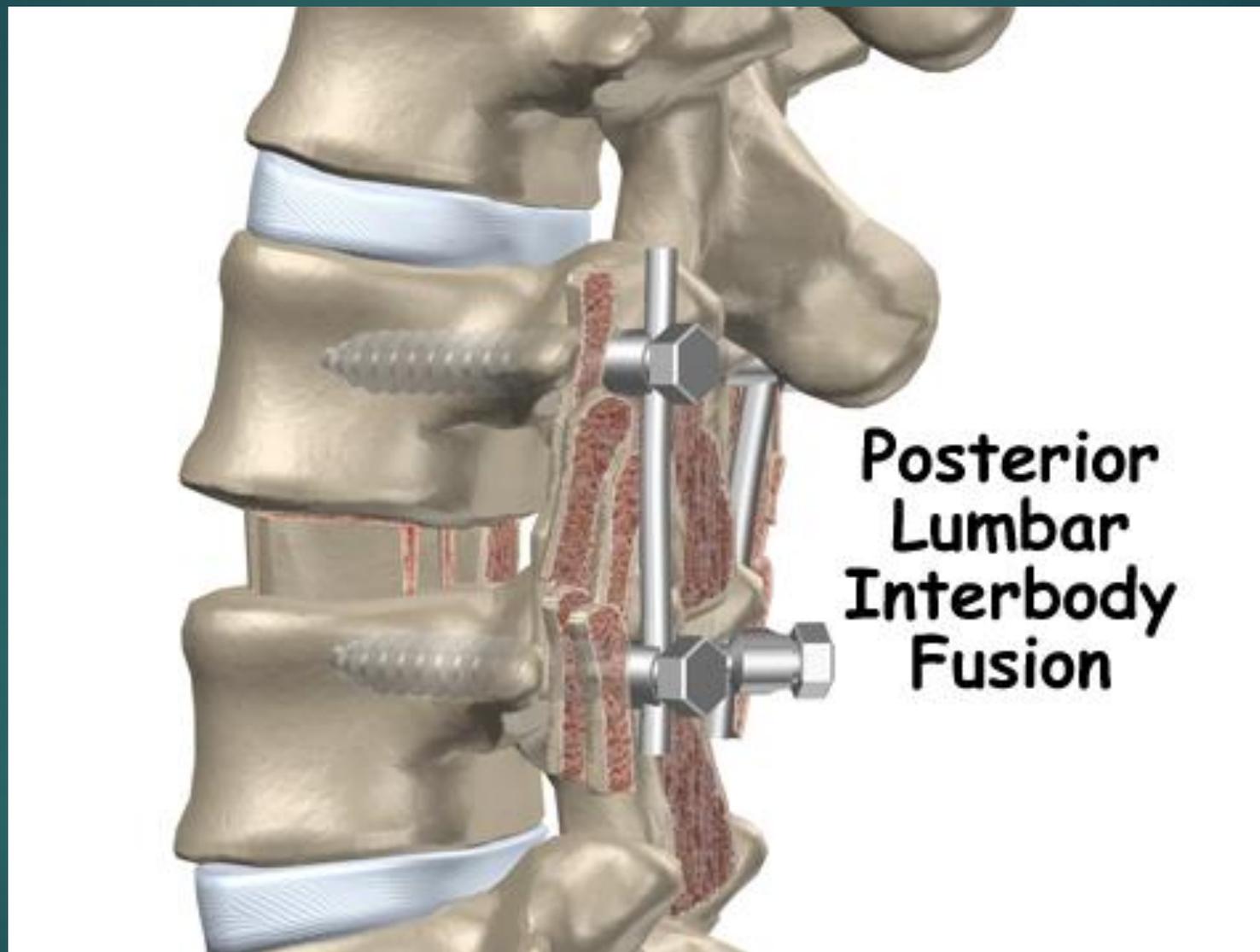
Posterior lumbar decompression and fusion (PLIF, TLIF)

Indications

- ▶ Multilevel decompression where big portion of the lamina needs to be removed / high risk for instability
- ▶ Spinal instability
- ▶ Spondylolisthesis
- ▶ Spondylosis
- ▶ Degenerative scoliosis

Complications

- ▶ Dural tear
- ▶ Nerve damage
- ▶ Wound infection (10%)
- ▶ Pneumonia (5%)
- ▶ Risk of adjacent segment degeneration >30% at 10 years



**Posterior
Lumbar
Interbody
Fusion**

T10-pelvis PSSIF



PSSIF with osteotomies (PCOs, PSOs, VCRs)

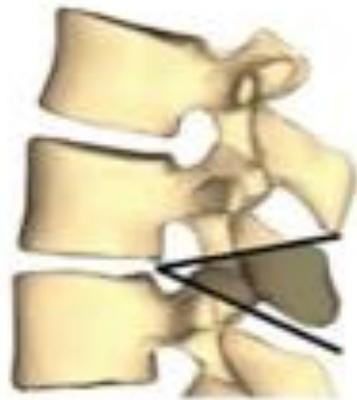
▶ Indication

- Progressing spinal deformity
- Idiopathic scoliosis (thoracic)
- Degenerative scoliosis (lumbar)
- Congenital kyphosis
- Curve > 50 degrees
- Sagittal imbalance
- Cosmetic
- Cardiopulmonary decline

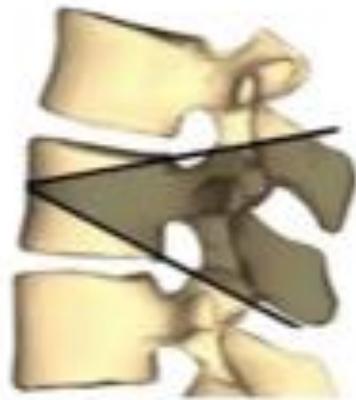
▶ Complications

- ▶ Neurological deficits
- ▶ Pseudarthrosis
- ▶ Venous thromboembolism
- ▶ Dural tear (3%)
- ▶ Infection (1.5%)
- ▶ Implant Failure
- ▶ DVT/PE

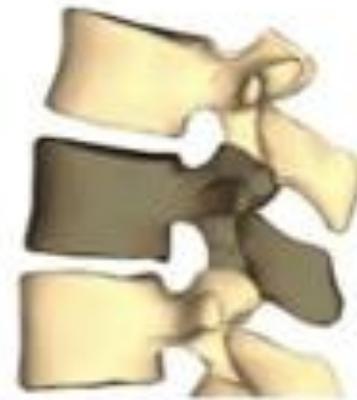




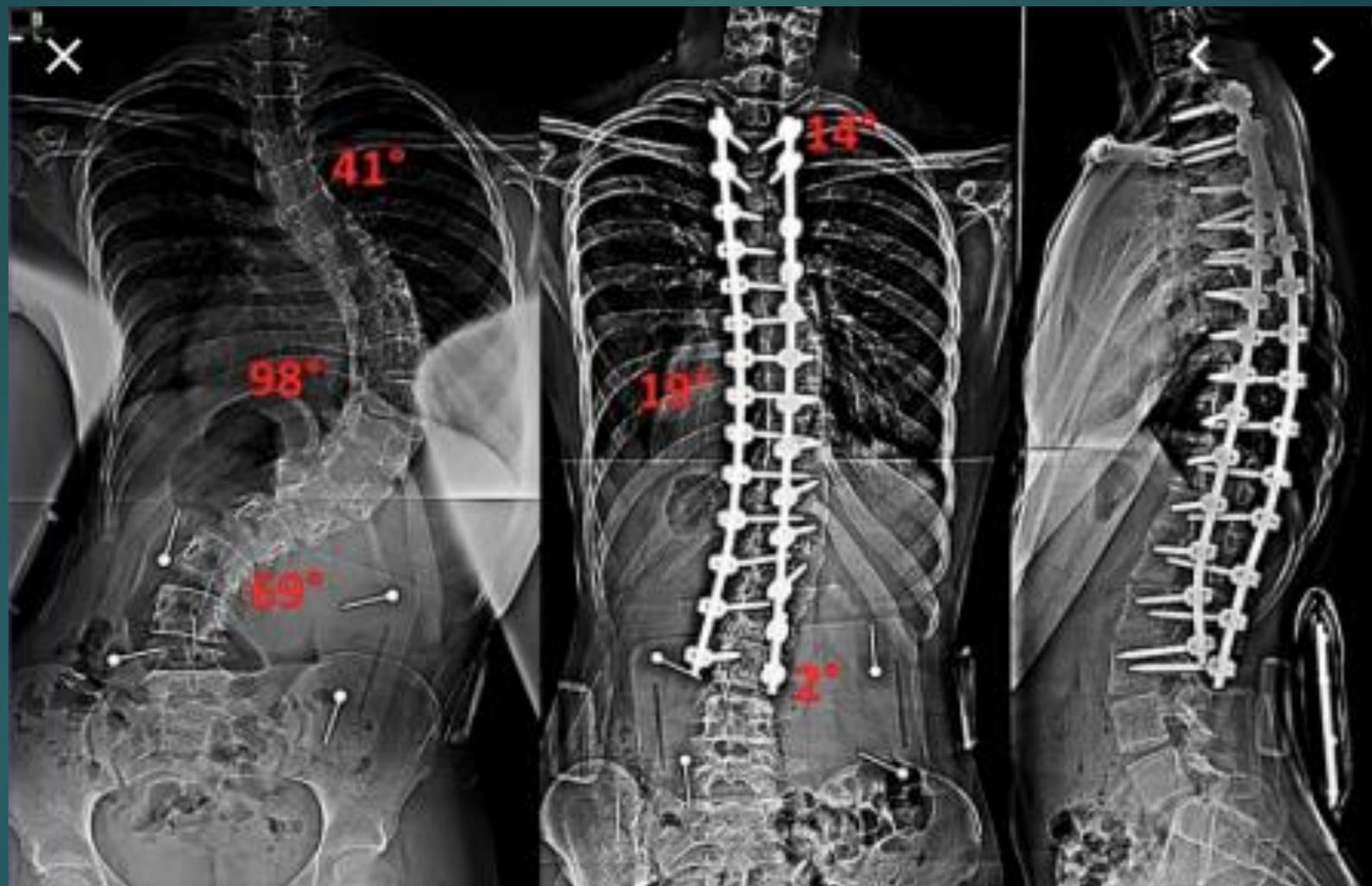
A: Posterior Column Osteotomy (PCO)



B: Pedicle Subtraction Osteotomy (PSO)



C: Vertebral Column Resection (VCR)





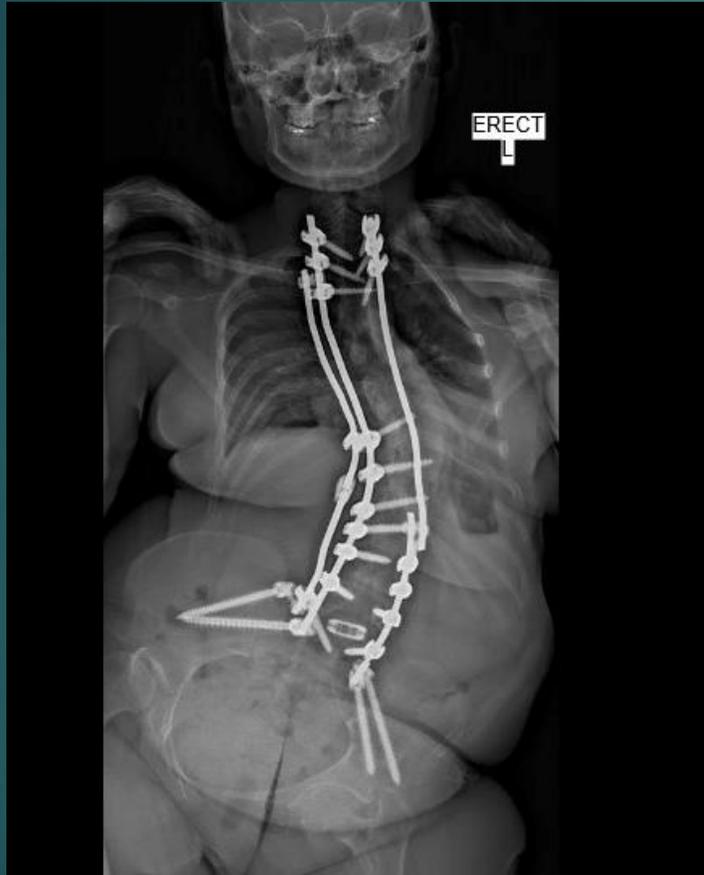
28y/o with Marfan's syndrome



23 y/o patient, diagnosed with spinal cord cyst at age of 2, which led to temporary loss of upper and lower extremity functions, then chronic weakness and following severe trunk weakness, progressive kyphoscoliosis, worsening deformity, atrophy of her left LE







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Thank You