

Diseases of the spine

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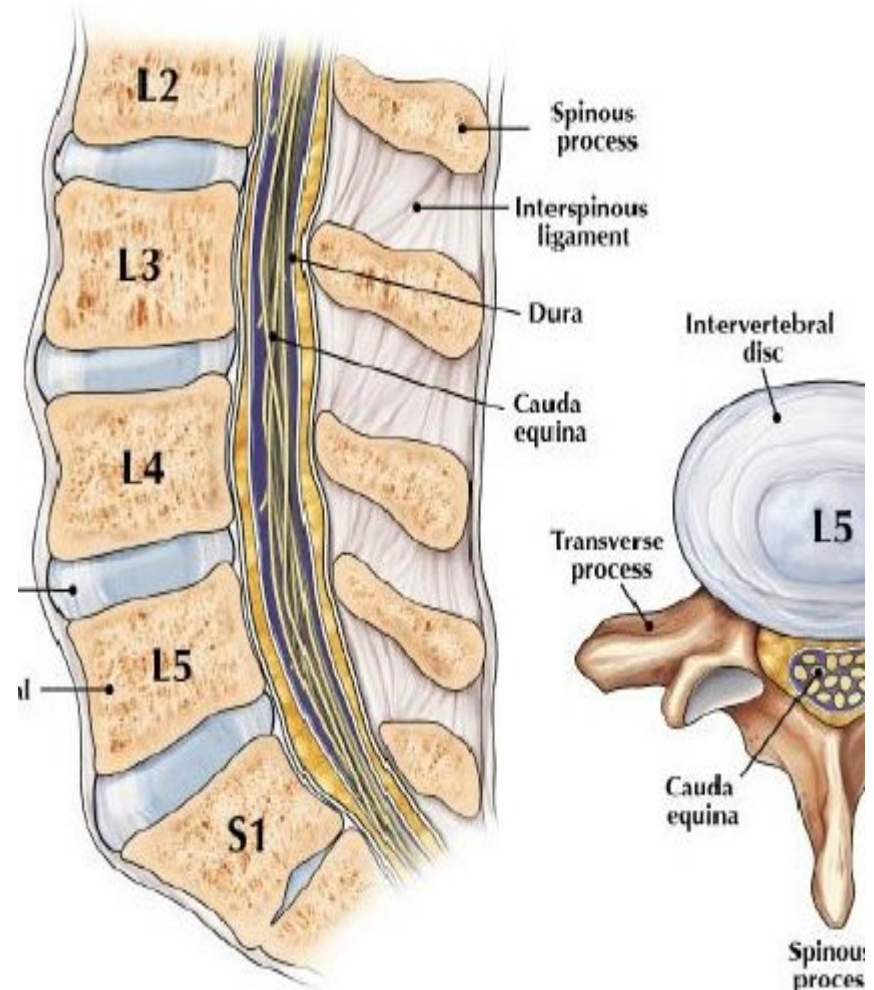
What do we mean by the word (SPINE)?

Two integrated systems

1-A musculoskeletocartilagenous-skeletal system

2-A neurological system

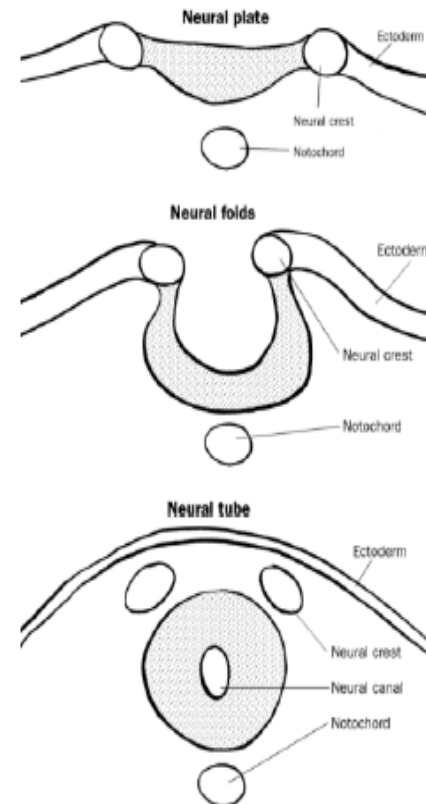
Both are integrated functionally and anatomically



Types of diseases that can involve the spine

1-Congenital-neural tube defects-spinal dysraphism

e.g,--Myelomeningocele



Spina bifida occulta

-Definition: congenital absence of spinous processes and variable amount of lamina, no visible exposure of neural tissue.

-Occurs in L5 or S1 vertebrae in about 20% of otherwise normal people.

-Often incidental finding(in minor form the only evidence of its presence may be a small dimple with a tuft of hair arising from it).

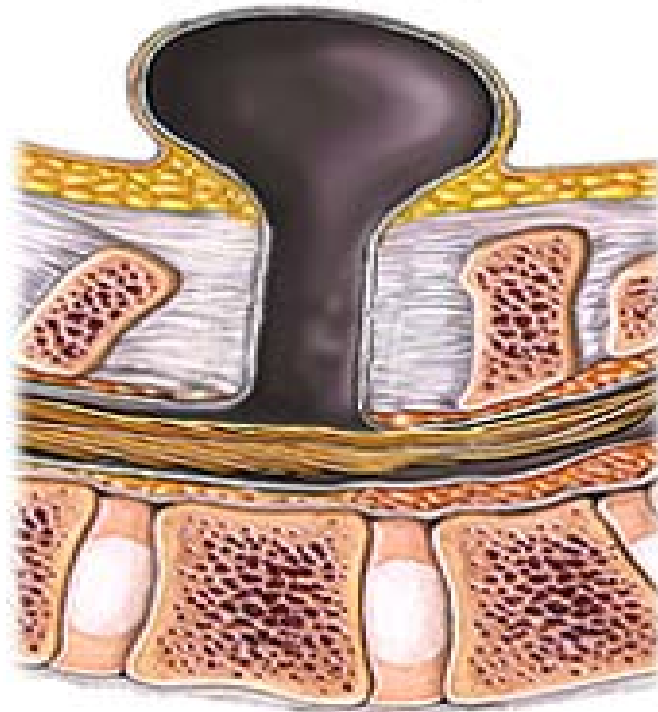
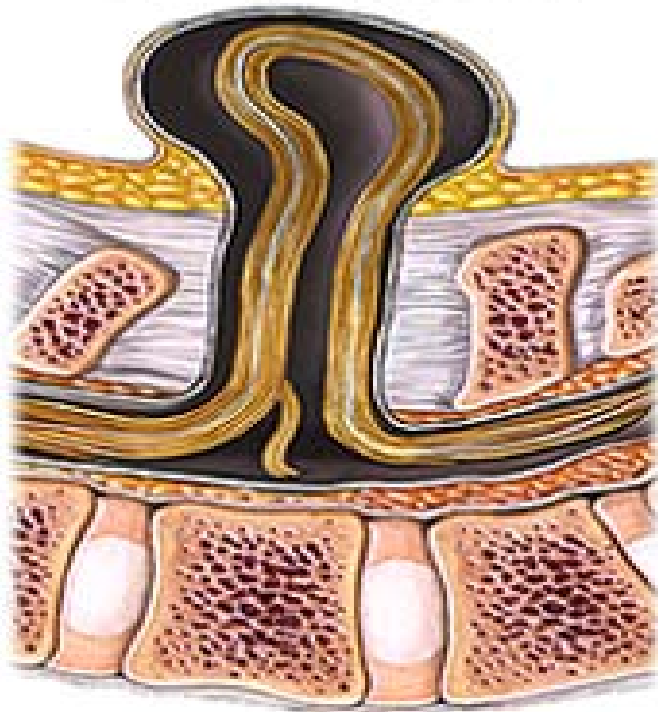


Spina bifida aperta



Meningomyelocele

Meningocele



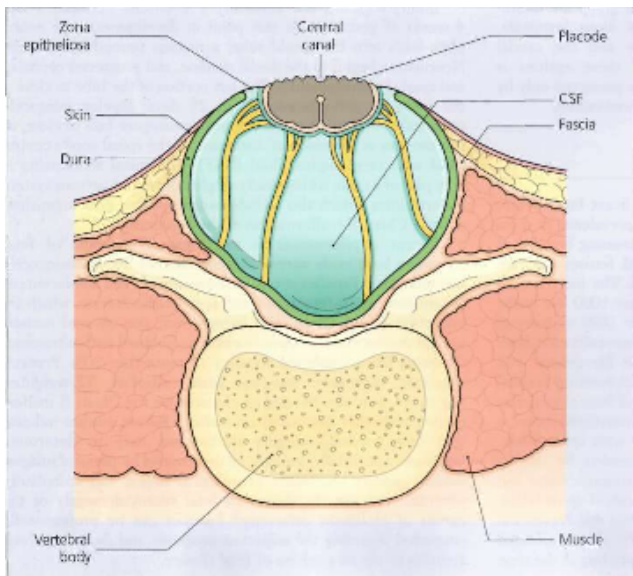
Risk factors:

*Maternal folate deficiency.

*Prior history of child with myelomeningocele (5% risk)

*Presence of relatives with history of myelomeningocele.

*valproic acid (1-2% risk if taken during pregnancy)

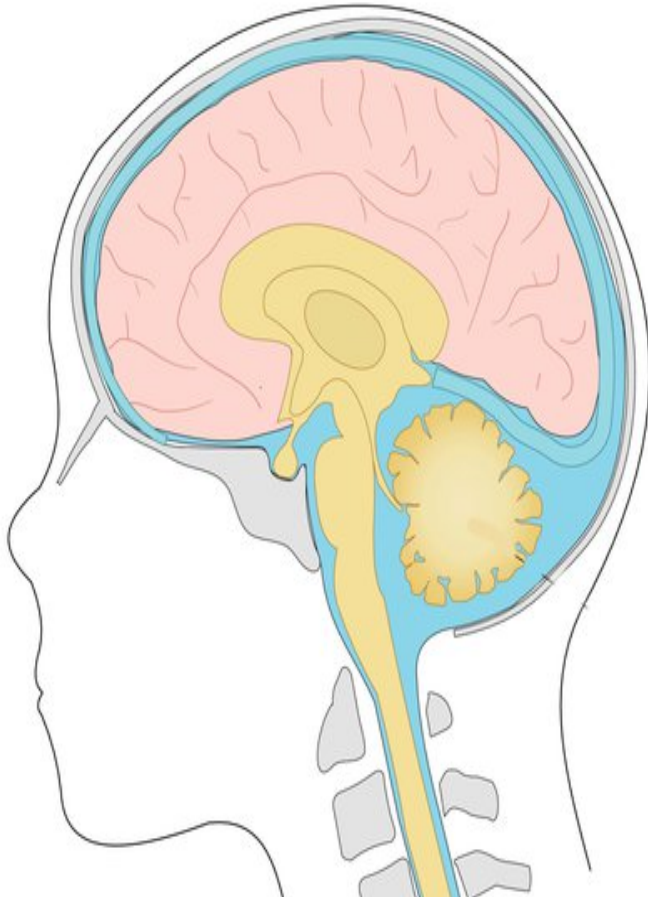


Associated Conditions:

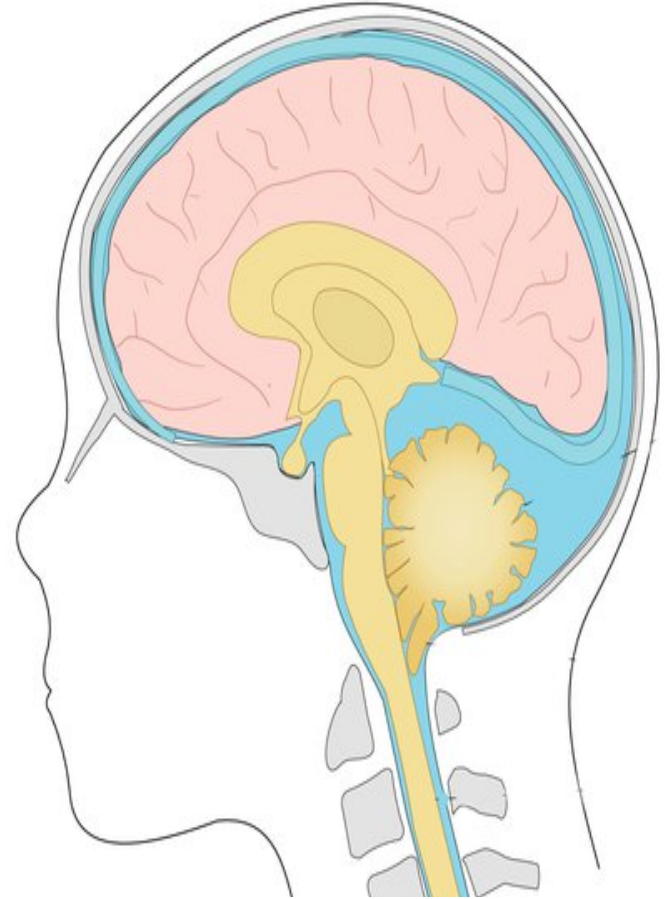
- Hydrocephalus and Chiari II Malformation (80% of cases).
- Neurogenic bladder.
- Urinary Incontinence.
- Stool Incontinence.
- Meningitis.



Normal

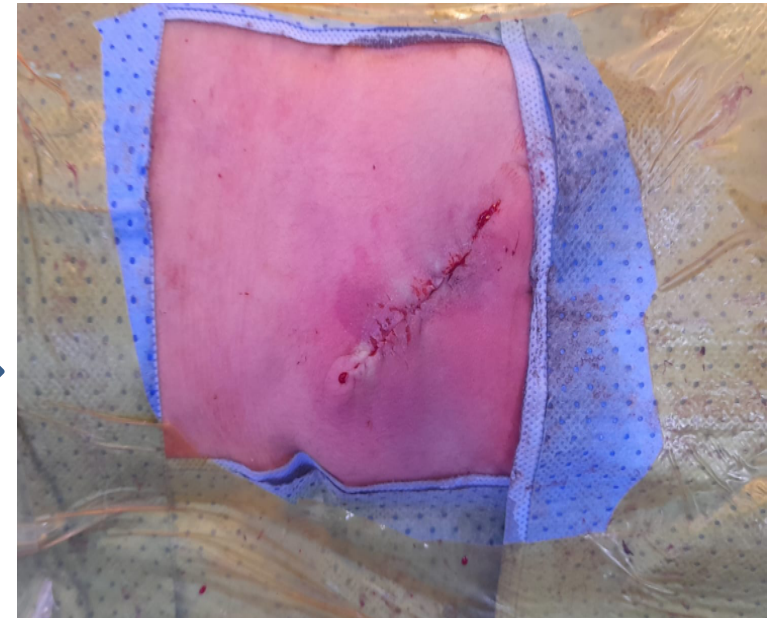


Chiari malformation

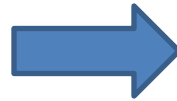
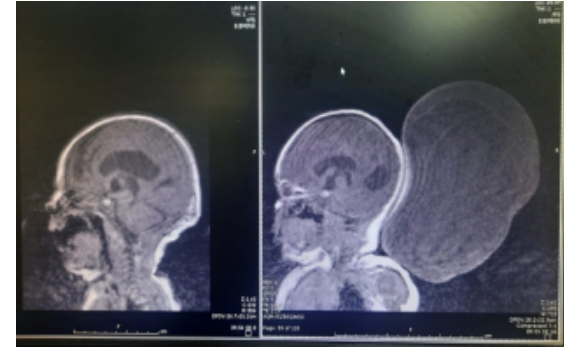


Treatment--repair

- Aims -to prevent meningitis
-cosmetic and nursing care

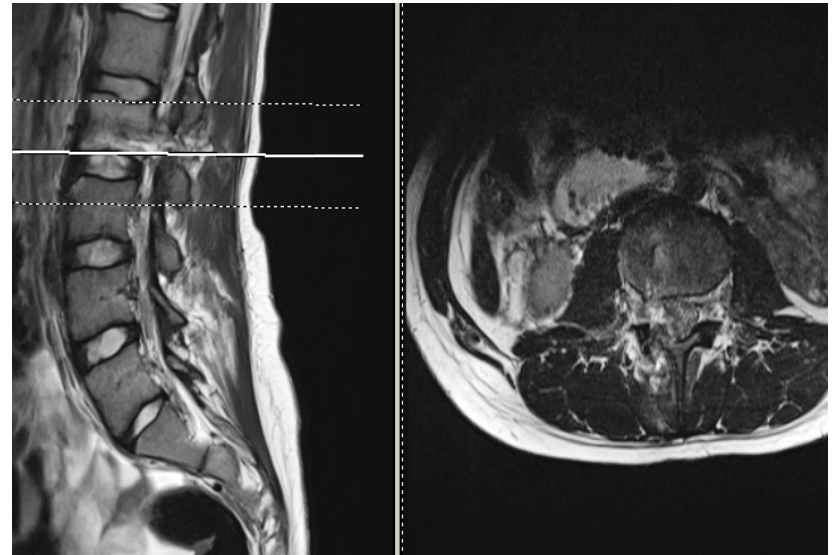


Encephalocele



2-Traumatic

- Bone and ligamentous injuries_+spinal cord injuries



Spinal cord injuries



3-Neoplastic

Can be classified anatomically into

1-Extradural tumors

e.g. metastasis

2-Intradural
extramedullary

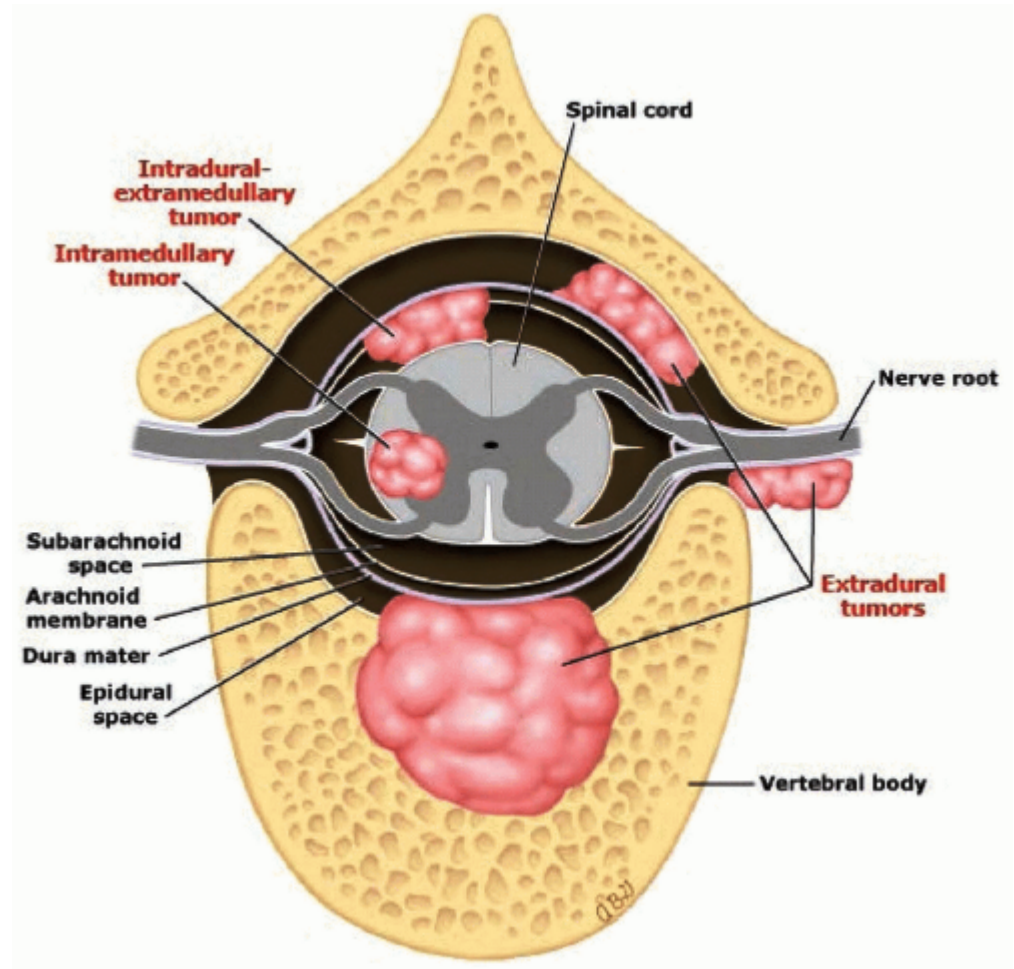
e.g. meningioma

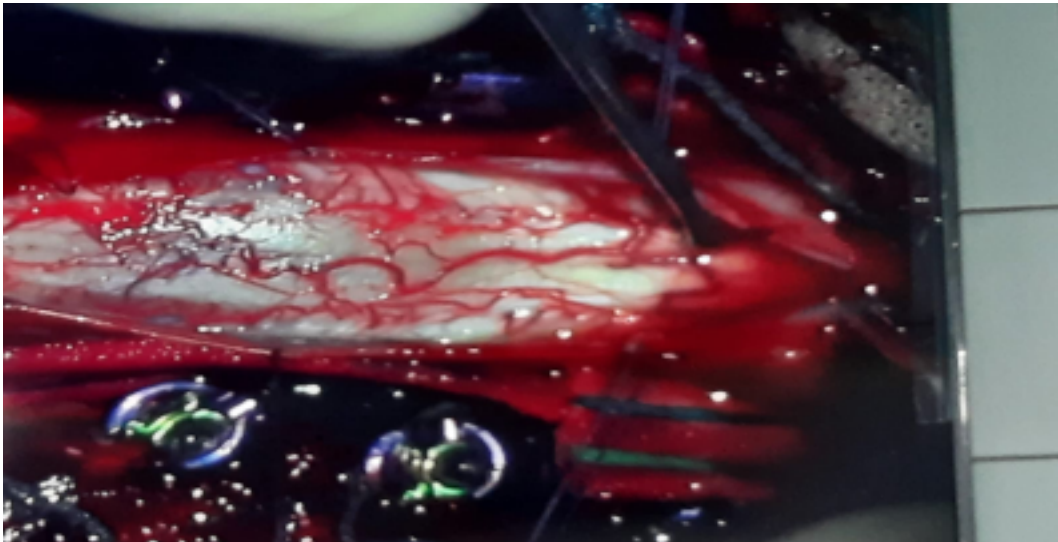
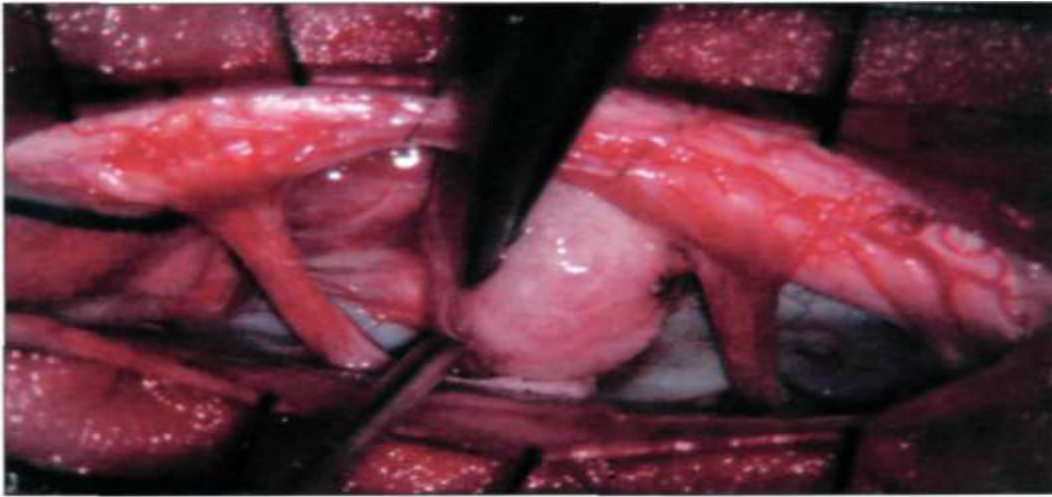
& nerve sheath tumors

3-Intramedullary

astrocytoma

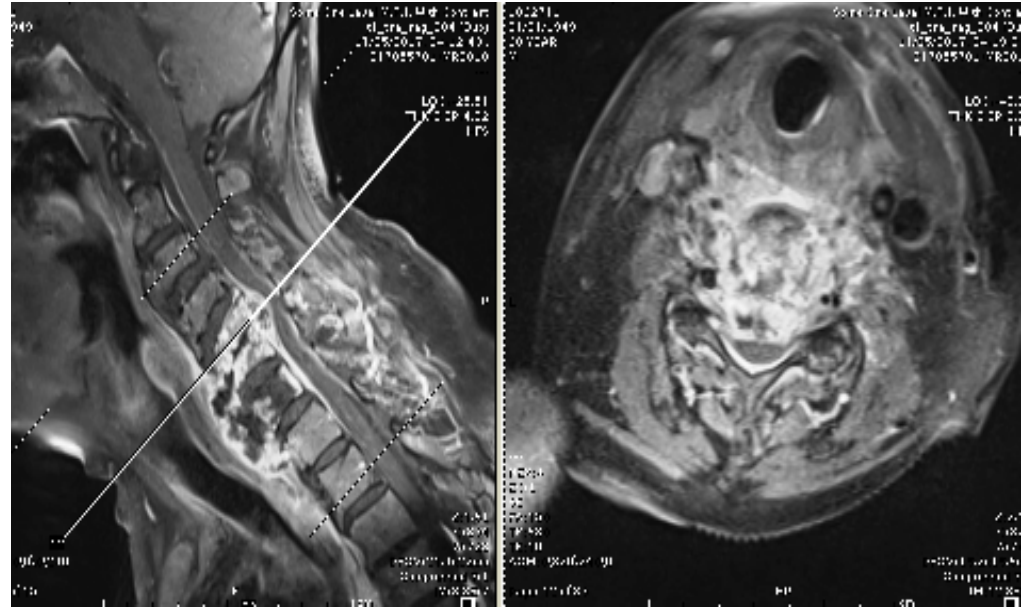
& ependymoma





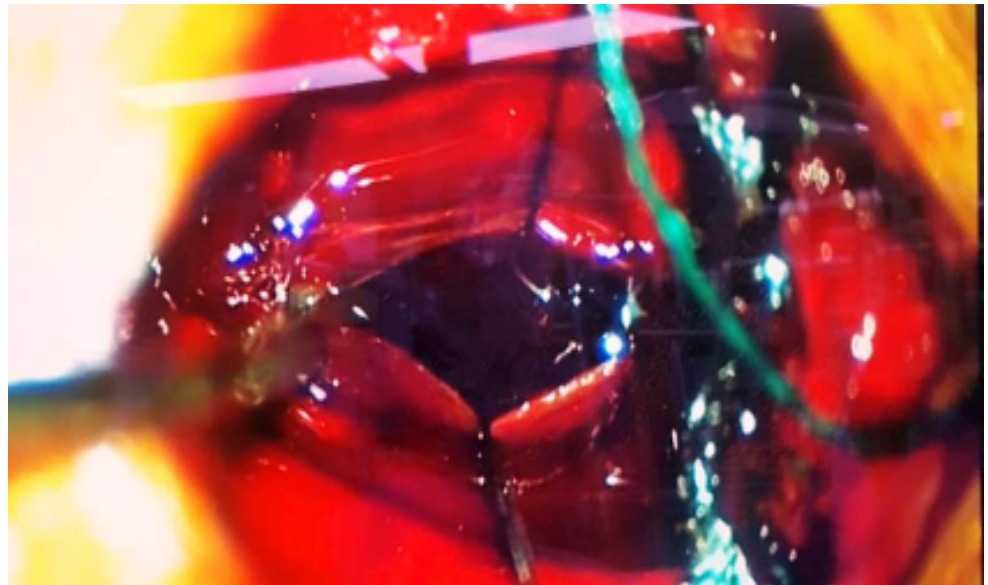
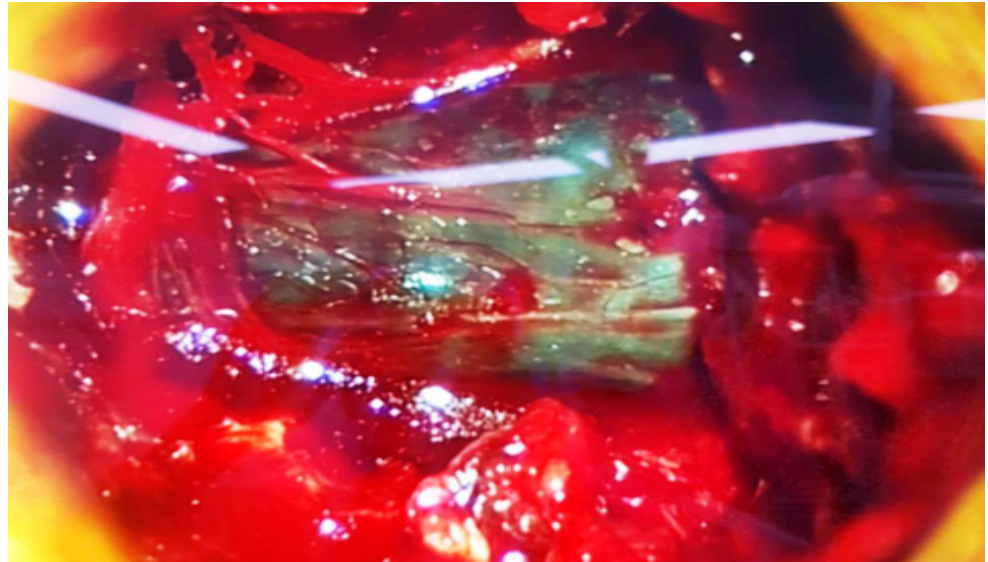
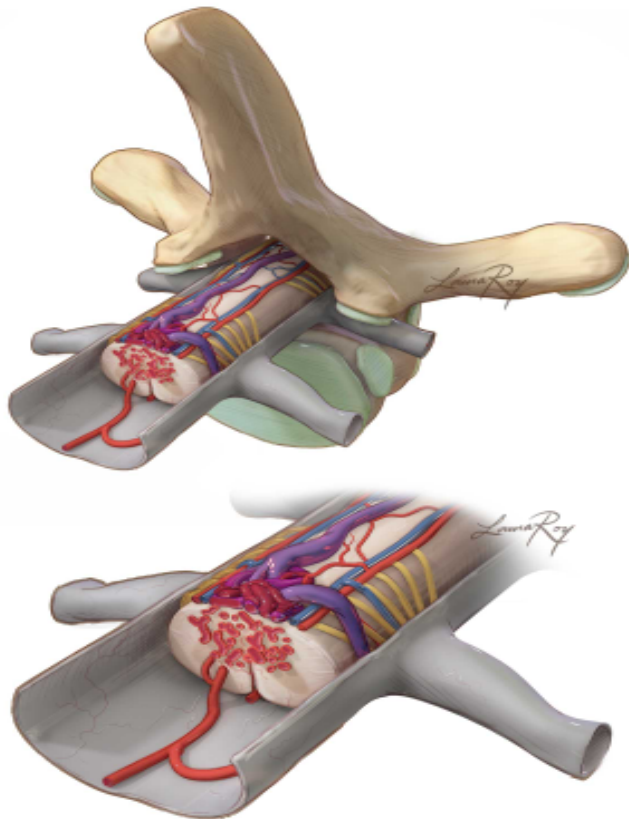
4-Infalmmatory

Infectious and noninfectious



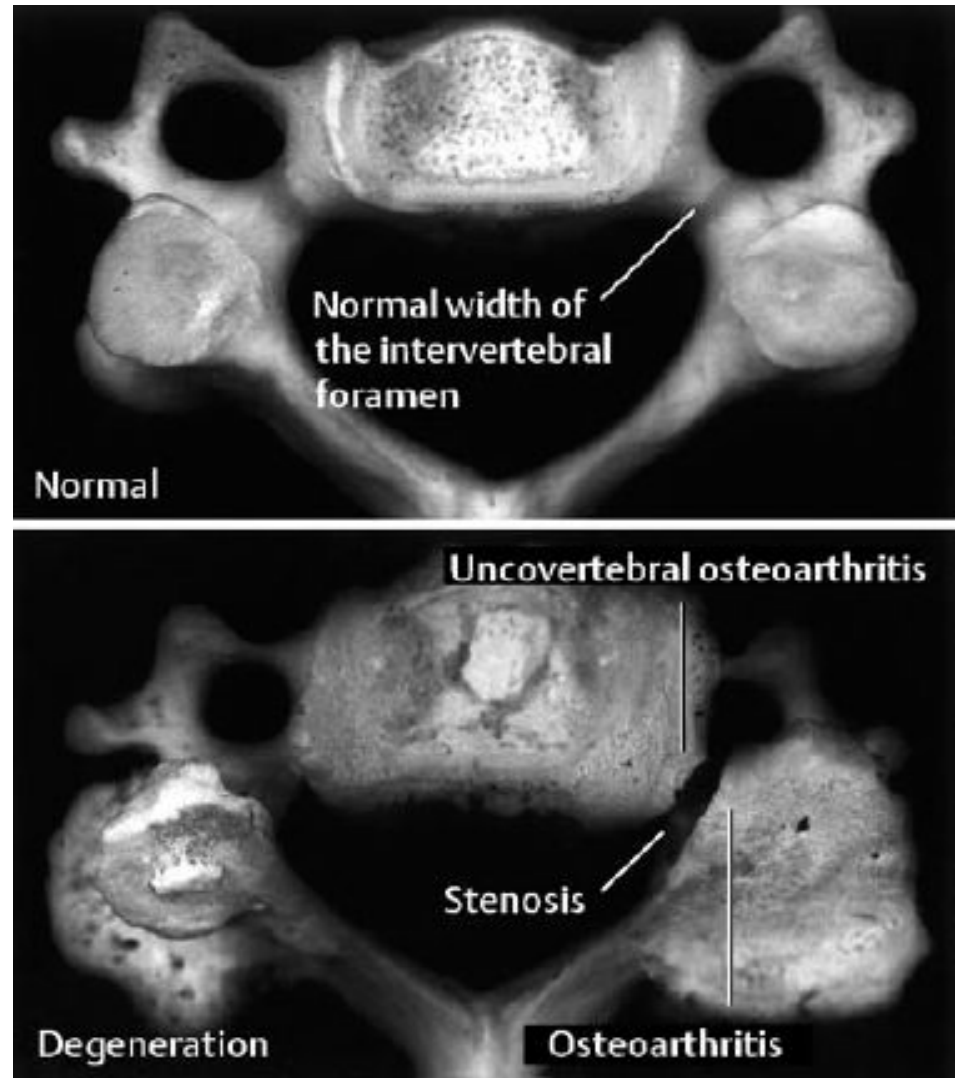
5- Vascular diseases

rare



6 -The degenerative spinal(disc)diseases

- Are the most common
- A spectrum of diseases
- All are age related—tear and wear
- Some use the term spondylosis
- These changes diffusely involve the :
 - Intervertebral disc
 - The joint --facet
 - The bone
 - The ligament and soft tissues



The degenerative spinal(disc)diseases

- Degenerative spine conditions involve the gradual loss of normal structure and function of the spine over time. They are usually caused by aging, but may also be the result of tumors, infections or arthritis. Pressure on the spinal cord and nerve roots caused by degeneration can be caused by:
Slipped or herniated discs

Degenerative spinal diseases

1-Disc herniation_prolapse.

2-Canal stenosis.

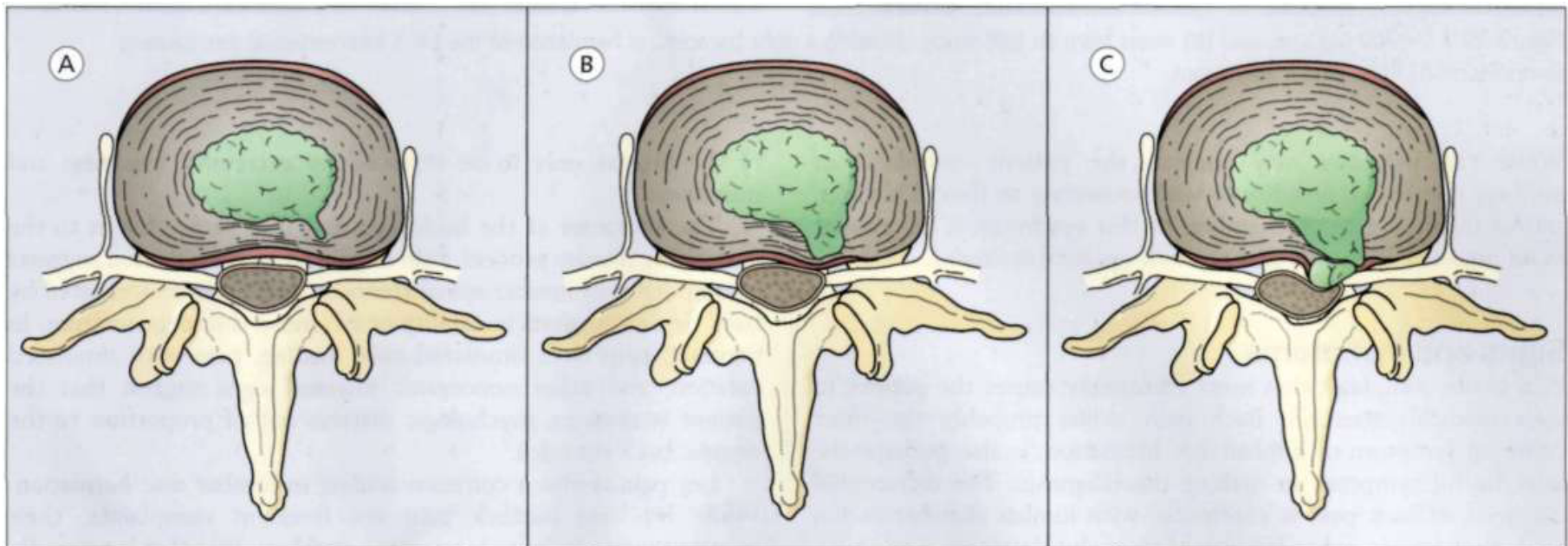
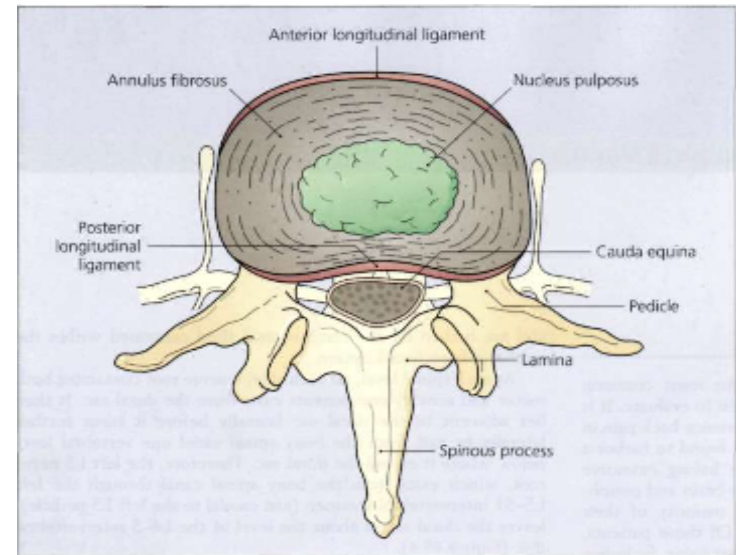
3-Spondylolesthesis.

Intervertebral disc herniation

90% lumbar

9% cervical

1% thoracic(dorsal)

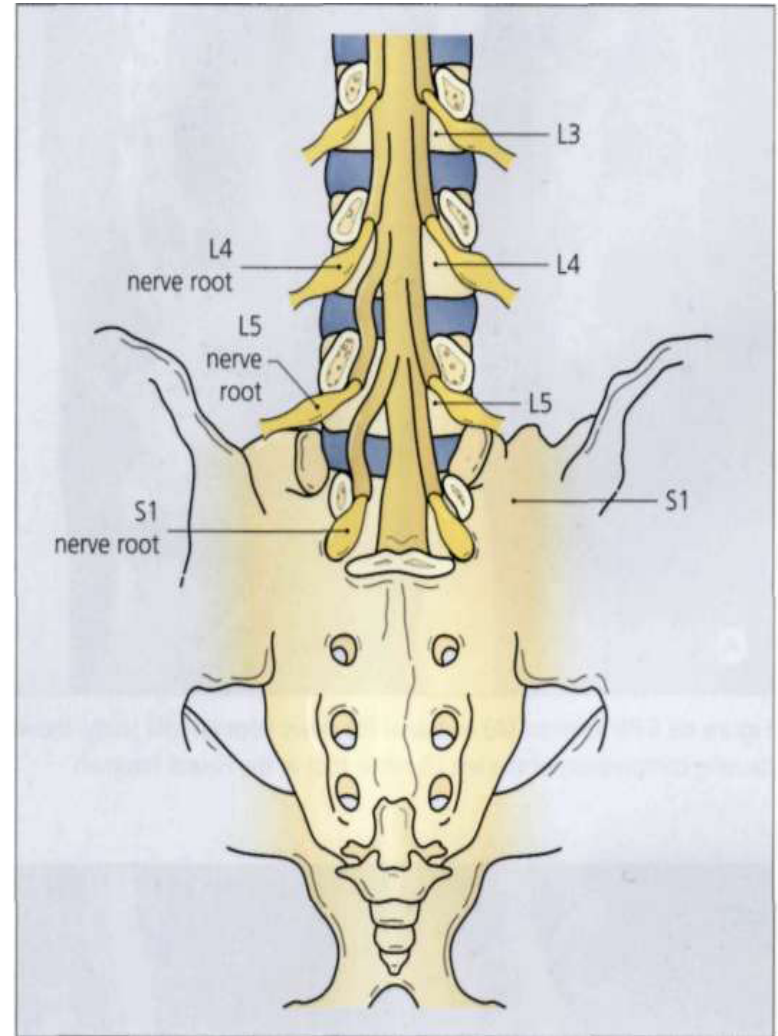


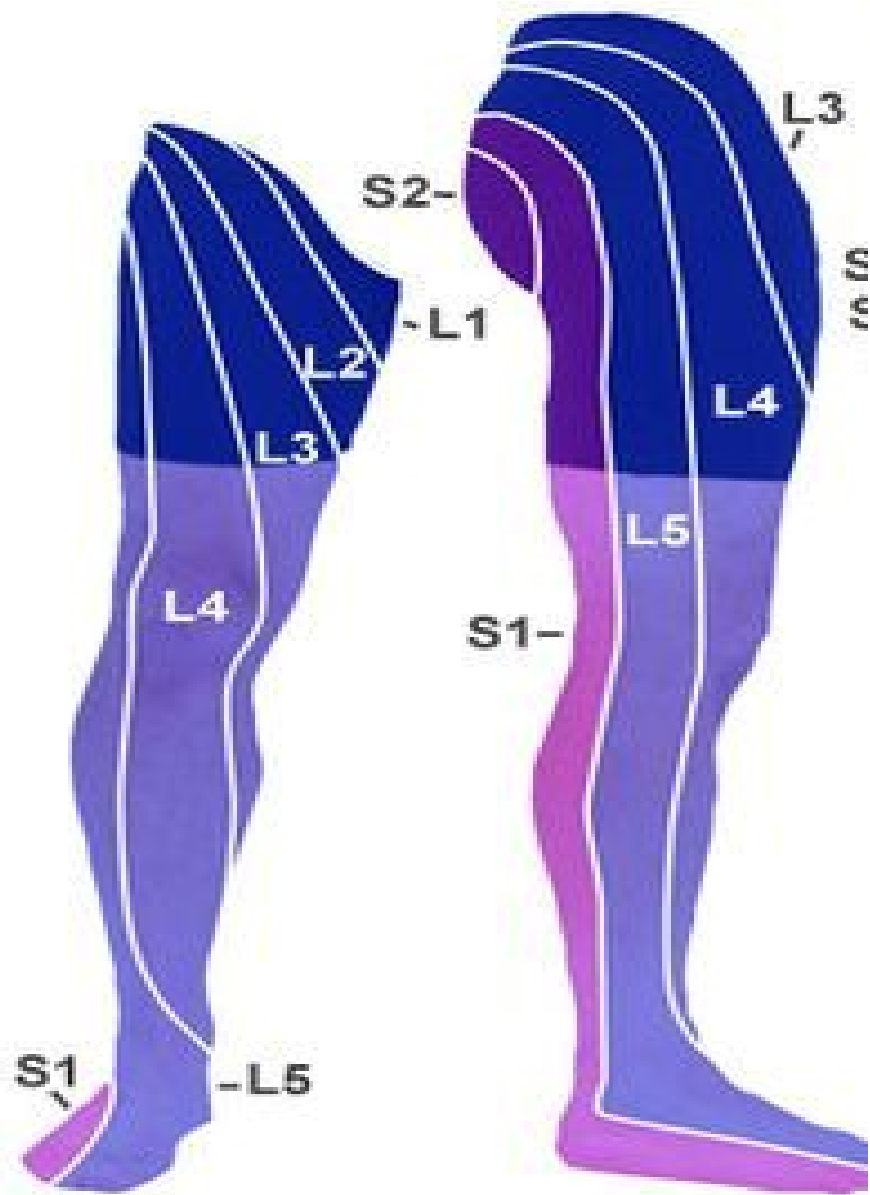
Lumbar disc herniation-symptoms and signs:

1-Axial back pain

2-Root pain –sciatica (L4L5/L5S1)

3-Symptoms of roots dysfunction
–numbness, weakness or sphincteric disturbances





Physical signs

1-straight leg raising test

30-60 degrees

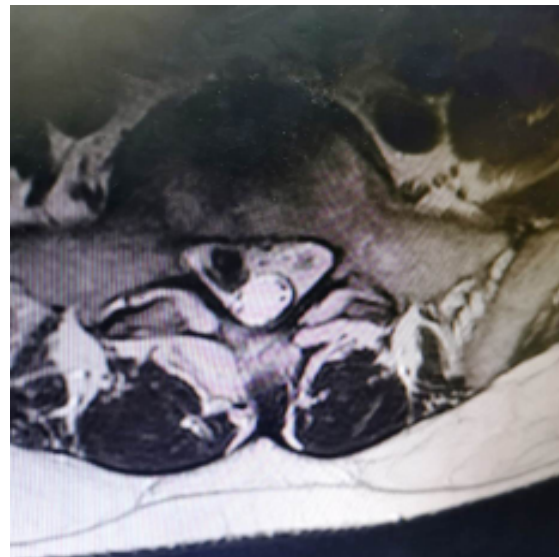


Neurological deficits

Disc	Nerve root	Pain	Paresthesias, numbness	Weakness	Reflexes
L3-4	L4	Lower back buttock lateral/ anterior thigh, anterior leg	Anterior thigh, anterior leg	Quadriceps femoris femoris (extension of knee)	Knee jerk diminished or absent
L4-5	L5	Lower back, buttock, lateral thigh, anterolateral calf, occasionally groin	Anterolateral calf to great toe	Extensor hallucis longus (extension of great toe)	Usually no changes
L5-S1	S1	Lower back, buttock, lateral thigh and calf	Lateral calf to small toe	Gastrocnemius (plantarflexion of ankle)	Ankle jerk diminished or absent

Investigations

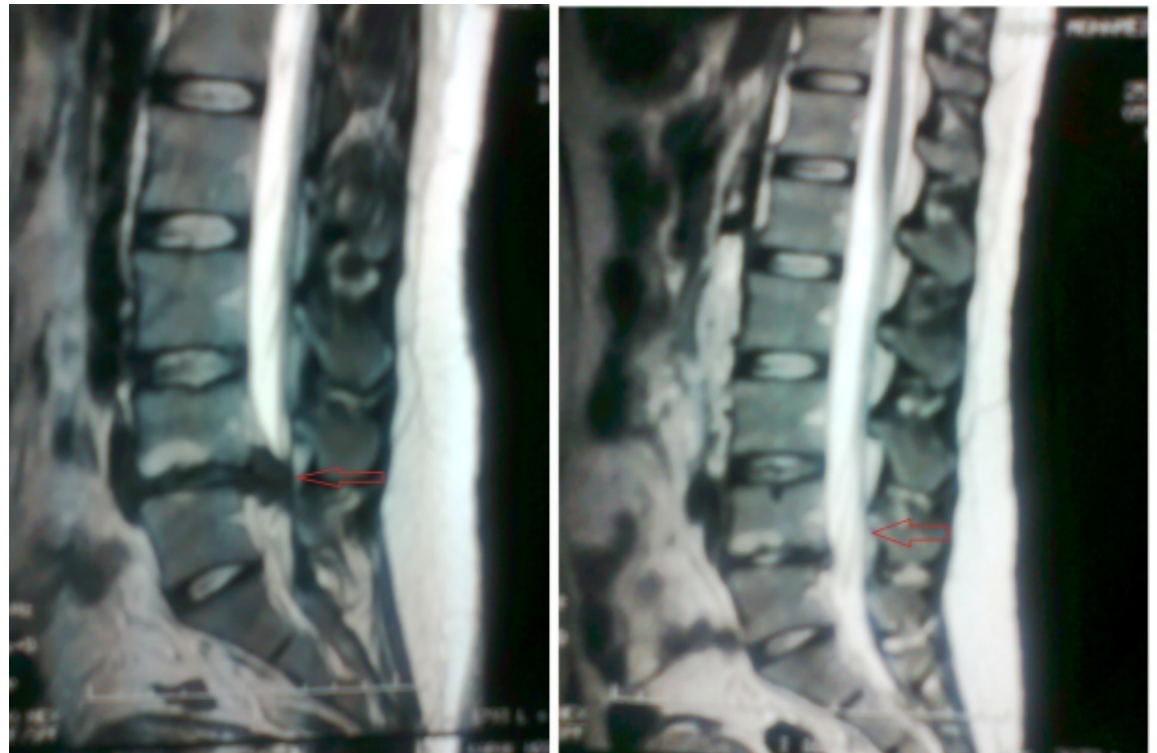
Spine MRI-is the best



Treatment

Conservative nonsurgical

Success — up to 80%



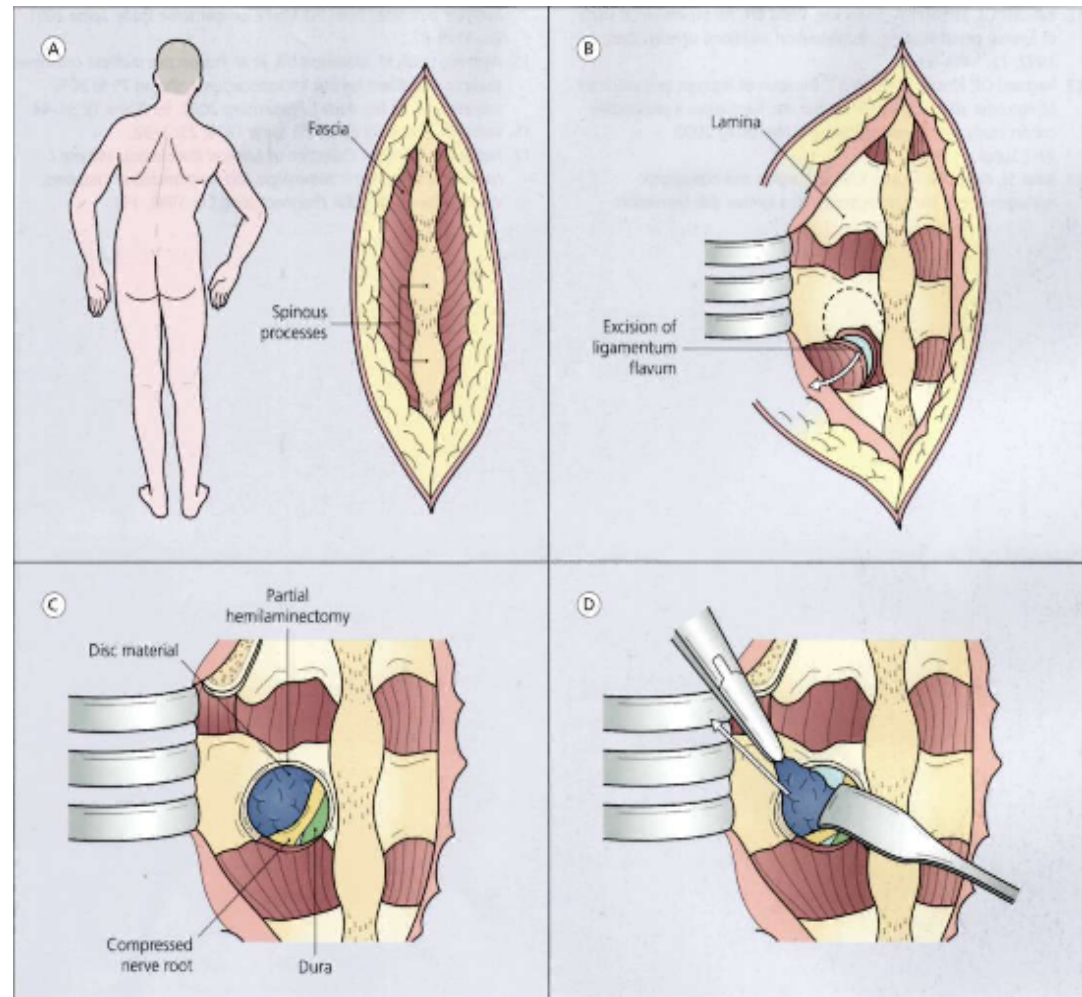
Surgery

-Microdiscectomy

Indications:

-severe sciatica

-neurological deficit-weakness





Cervical disc prolapse

It can produce:

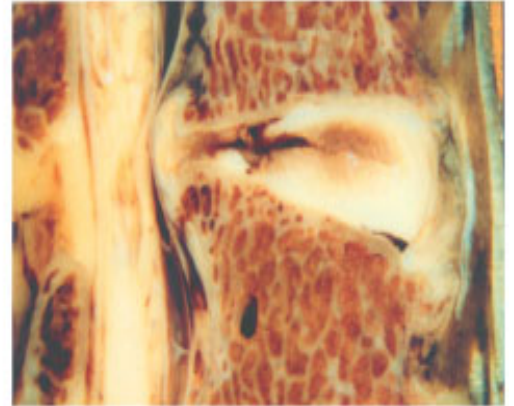
1-Radiculopathy—root
compression

1-Myelopathy-spinal cord
compression

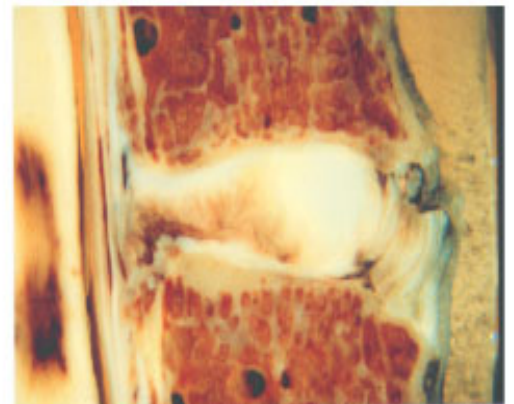
A



B



C

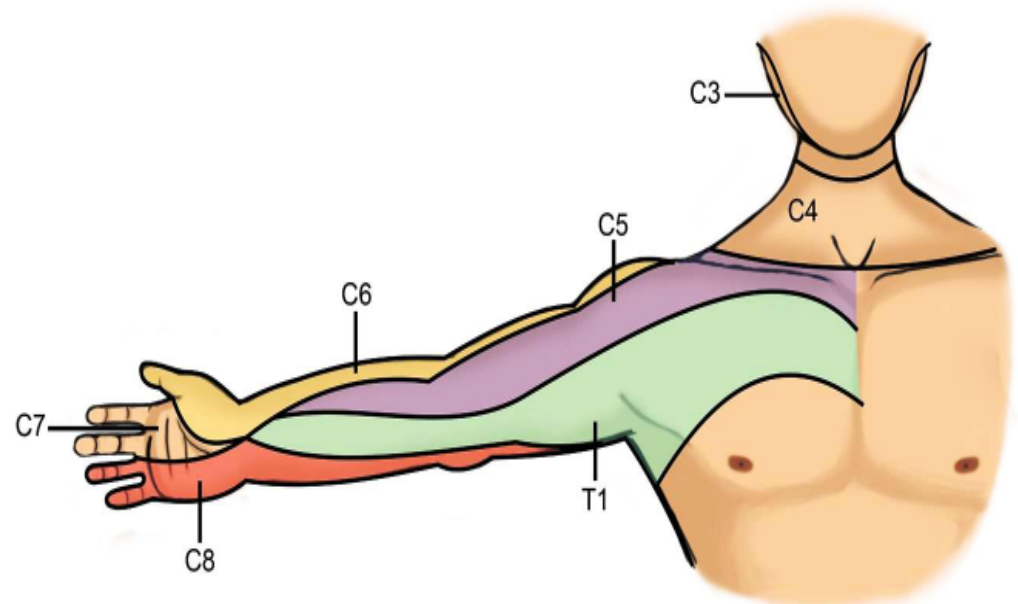


Cervical radiculopathy

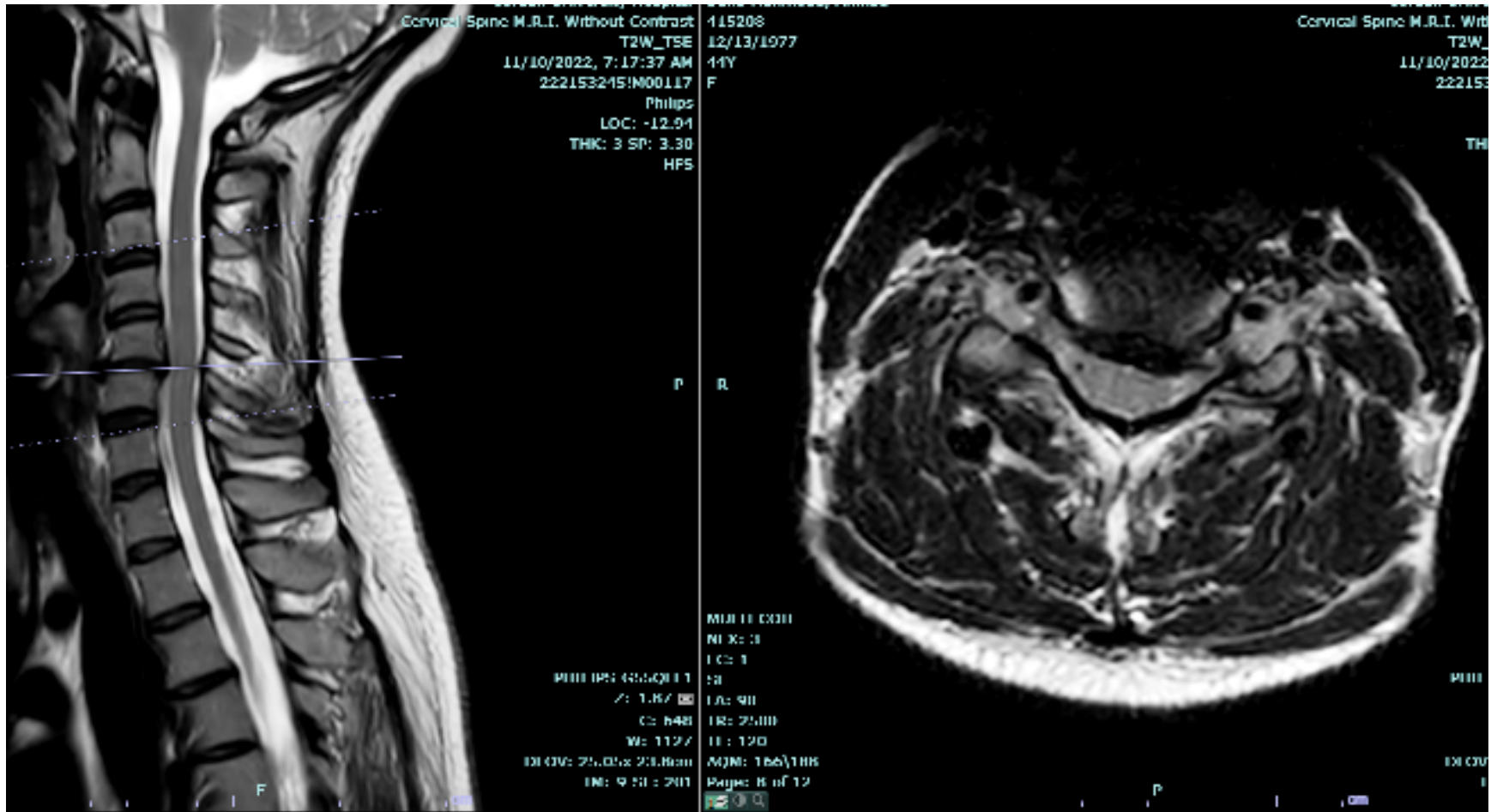
Nerve Root Motor Function	
Nerve Root	Test
C5	Elbow Flexion
C6	Wrist Extension
C7	Wrist Flexion, Finger Extension
C8	Finger Flexion
T1	Finger Abduction

Root Values for Tendon Reflexes	
Root Value	Tendon Reflexes
C5	Biceps
C6	Brachioradialis
C7	Triceps

Upper Extremity Dermatome Anterior View



Left C5-C6 PID



Cervical myelopathy

Will affect both upper and lower limbs-with all signs of upper motor neuron lesion

Common symptoms

- Clumsy or weak hands
- Leg weakness or stiffness
- Neck stiffness
- Pain in shoulders or arms
- Unsteady gait

Common signs

- Weakness of the hand musculature
- Hyperreflexia
- Lhermitte sign (electric shock-like sensation down the center of the back following flexion of the neck)
- Sensory loss



Treatment of cervical disc prolapse

1-Cervical discectomy and fusion(ACDF)

Or

2-laminectomy



Lumbar canal stenosis

-Long standing
circumferential stenosis of
the lumbar canal

-Caused by

1-diffuse disc bulge

2-ligaments hypertrophy

3-facet joint hypertrophy

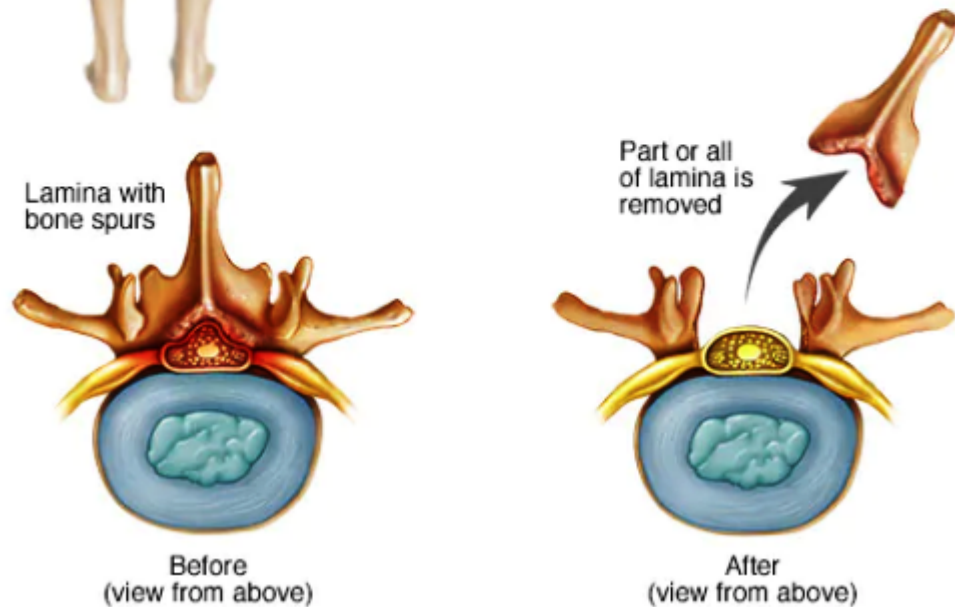
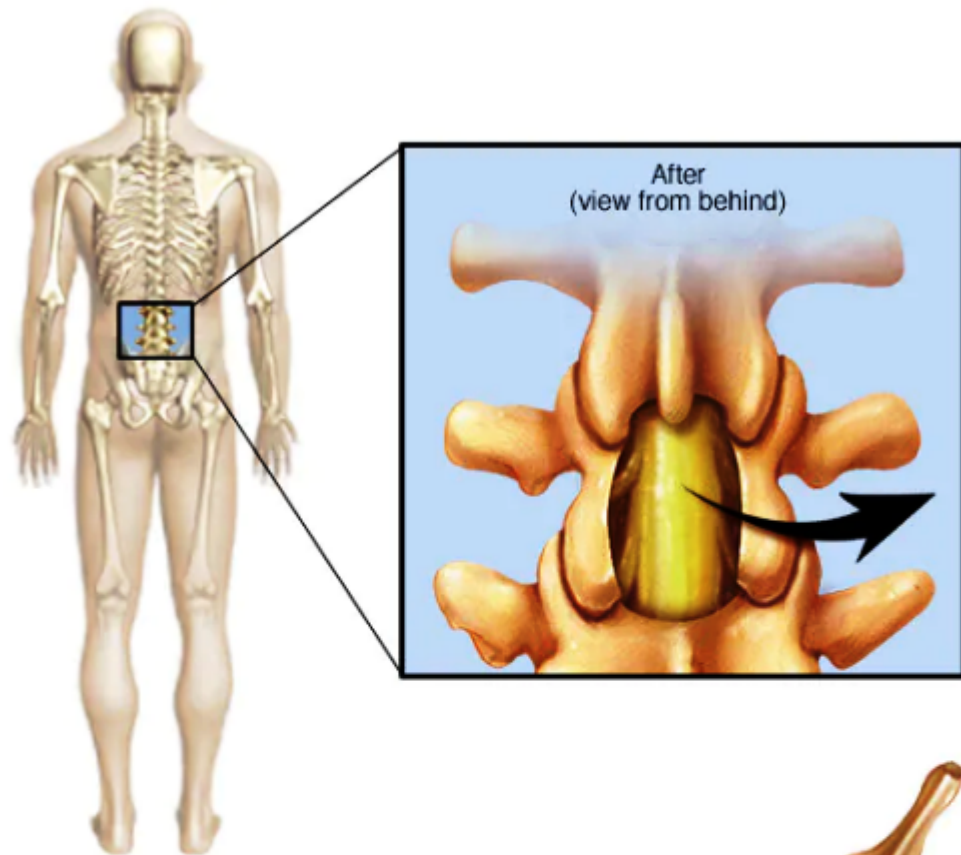
-The typical presentation is
progressive **neurogenic
claudication**-pain in the
lower limbs upon walking

-It is a disease of elderly
population



Treatment

Is usually surgical
laminectomy



Spondylolesthesis

The forward or anterior displacement of a vertebra over the vertebra inferior to it.

-Will cause:

low back pain_+ lumbar radiculopathies

-Surgical treatment

Laminectomy and fixation



Hope to see you in our theatre in
ان شاء الله 2024-2025

