

Degenerative Notes

- **Causes of Cauda Equina** = Lumbar disc herniation is the most common cause (large posteromedial), spinal stenosis and spondylolisthesis
- **Causes of Conus medullaris** = disc herniation, spinal fracture, and tumors
- Injuries to L2 frequently damage the conus medullaris. Injuries below L2 usually involve the cauda equina

- **Spurling's maneuver** = Used for diagnosis of cervical spine radiculopathy
- **Lhermitte's (Barber Chair)** = electrical shock reaching the limb due to neck flexion or extension

- **C5/C6 herniation:**
 - Motor: mild weakness of elbow flexion
 - Sensory: numbness in the thumb or index finger
 - Reflex: depressed supinator reflex > biceps
- **C6/C7 herniation:**
 - Motor: weakness of elbow extension
 - Sensory: numbness in the middle or index finger
 - Reflex: absence triceps jerk
- **C7/T1 herniation:**
 - Motor: weakness may involve long flexor muscles, triceps, finger extension or small hand muscles
 - Sensory: decreased sensation in ring and middle finger and medial side of the hand and forearm
 - Reflex: triceps jerk may be depressed

- **L3/L4 herniation** = dermatome numbness 'anteromedial' (saphenous), weakness in quadriceps muscles, knee jerk is affected
- **L4/L5 herniation** = dermatome numbness 'anterolateral + dorsum of the foot' (common Peroneal), muscle weakness (Extensor Hallucis longus > Tibialis Anterior muscles), dorsiflexion (foot drop), medial hamstring
- **L5/S1 herniation** = dermatome numbness 'lateral' (sural), muscle weakness 'Gastrocnemius', Plantar flexion, ankle jerk

- **Bone spurs** (osteophytes) often form where bones meet each other caused by joint damage (seen in stenosis, osteoarthritis)

- **Spondylolysis** = defect or stress fracture in pars interarticularis causing degenerative changes in the spine such as bone spurs and degenerating intervertebral discs between the vertebrae. Commonly referred to as osteoarthritis.

- **Spondylolisthesis** = is forward or backward displacement of the body of one vertebra in relation to an adjacent vertebra.

- **Isthmic spondylolisthesis:** occurs as a result of spondylolysis (grade 2), a condition that leads to small stress fractures in the vertebra, in some cases the fractures weaken the bone so much that it slips out of place

- **Components of lumbar canal stenosis:**
 - Osteophyte formation
 - Facet hypertrophy
 - Diffuse bulging disc
 - Hypertrophy of ligamentum flavum

- Disc Tx is to give a conservative treatment (NSAIDs, painkillers, rest and physiotherapy).
- **Surgery indications:**
 - Cauda equina Sx
 - Progressive neurological deficit
 - Persistent sciatica
 - Pain despite conservative management or a period of 6-12 weeks

- 1- **Cervical disc surgery:**
 - **ACDF:** discectomy followed by bone graft or cage replacement (C3-C7)
 - **When the levels are multiple/cervical stenosis:** decompressive laminotomy (post)
 - **Lower/upper segments with no cord involvement** (sequestered): Keyhole laminotomy

- 2- **Thoracic disc surgery:**
 - Lateral route; costotransversectomy or posterolateral transpedicular approach

- 3- **Lumbar disc surgery:**
 - When conservative Tx and nerve root block fail:
 - **Microsurgical discectomy** (interlaminar approach or fenestration of lamina) or **endoscopic discectomy**
 - If the root is not mobile: **foraminotomy**

- **Stenosis Management:**
 - NSAIDs, neck collars, physiotherapy or Nerve root block (injections of local anesthetics and steroids). If there are neuro deficits or severe pain:
 - **Cervical spondylosis (causes stenosis):**
 - Bars and osteophytes = anterior discectomy
 - Enfolding of ligamentum flavum, hypertrophied facets or stenosed foramina = decompressive laminotomy or keyhole foraminotomy
 - **Lumbar canal stenosis (characterized by neurogenic claudication):**
 - Decompressive laminotomy

- **Spondylolisthesis Management:**
 - NSAIDs and physiotherapy. If it fails or there are cauda equina Sx = decompressive laminotomy