

Paraparesis

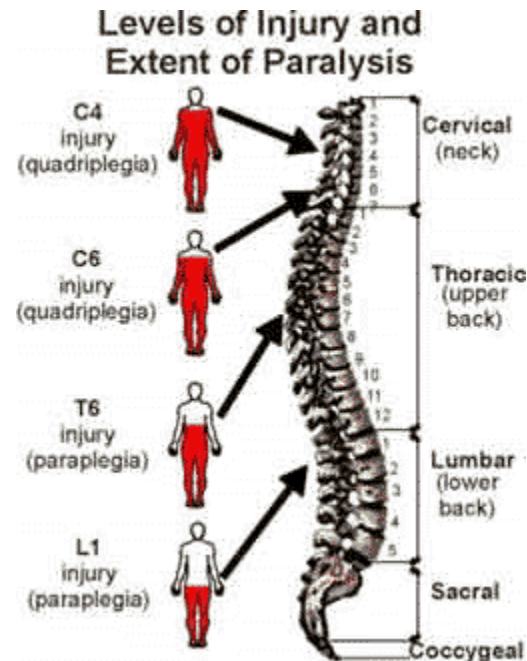
Differential Diagnosis

Ran brauner, Tel Aviv university

Definition

Loss of motor power to both legs

- **Paraparesis** (paraplegia) refers to partial (-paresis) or complete (-plegia) loss of voluntary motor function in the pelvic limbs



Non-traumatic

- Syndromes that were not obviously caused by harmful external event (injury)
- Less common
- Unspecific neurological symptoms may dominate that may hinder correct diagnosis
 - Partial paresis
 - Motor / sensory
 - Control over bladder and rectum

First differentiation

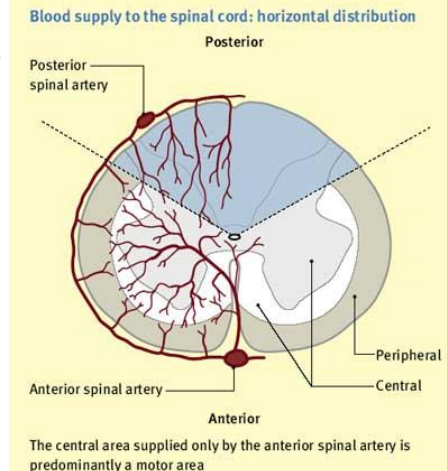
1. Acute onset Vs Subacute

2. Spastic Vs Flaccidic

Ischemic spinal cord lesions

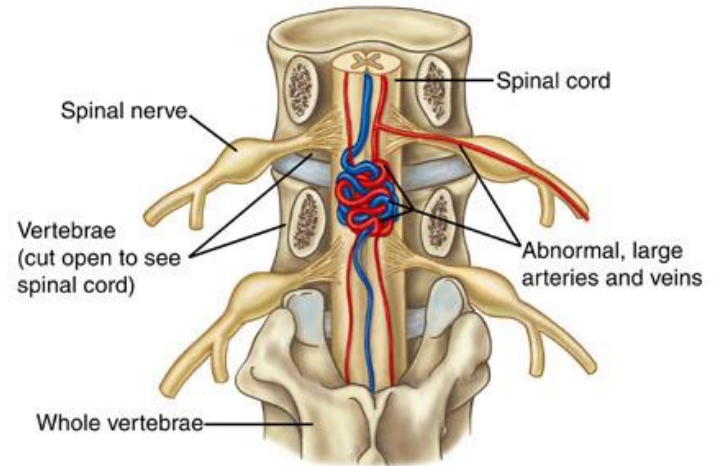
- Anterior spinal artery syndrome
- Acute onset
- Flaccid paraparesis progress to spastic
- Loss of pain and temperature sensation
- Primary: atherosclerosis, Lupus, sjorgen
- Secondary: compression (tumor, disc prolapse), aortic dissection
- Decompression sickness

Syndrome Antérieur



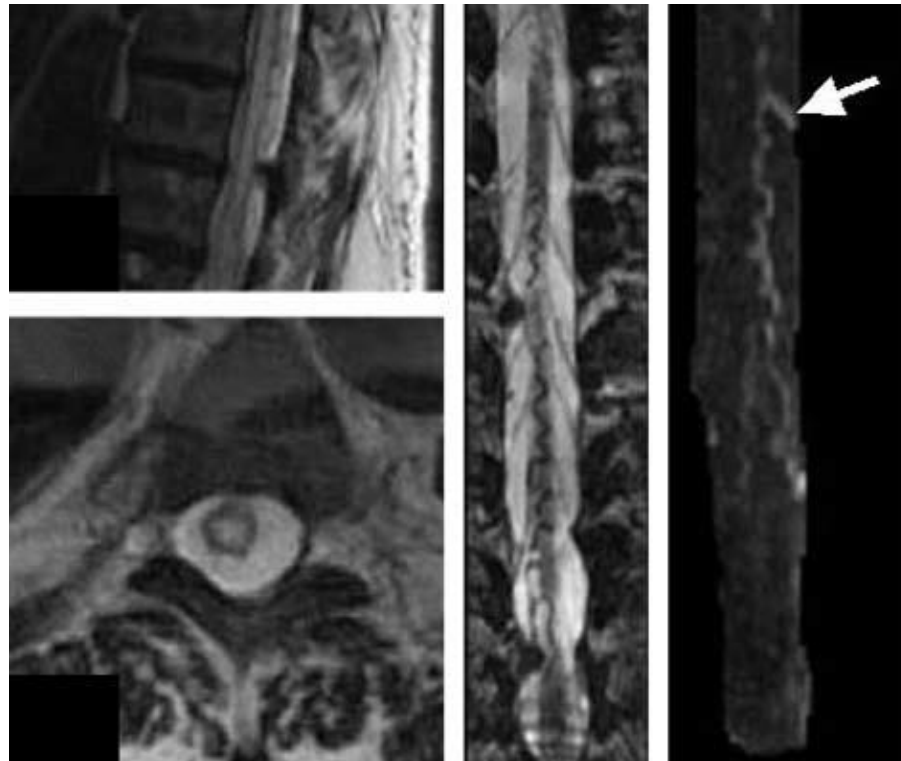
Spinal hemorrhage and vascular malformation

- Spinal hemorrhage->
 - spinal hematoma
 - Subarachnoid hemorrhage
 - Parenchymal hemorrhage
- Acute onset + Flaccid
- Trauma + hemophilia or spontaneously
- Could be arteriovenous malformation
- Clinically undistinguished from ischemic=> MRI



Spinal hemorrhage and vascular malformation

- Spinal fistula or intramedullary AVM
- Slowly progressive paraplegic symptoms
- Rare



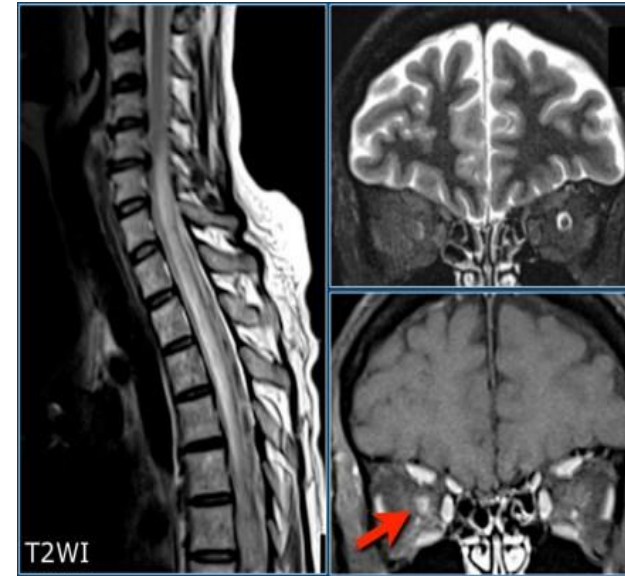
Acute Inflammatory spinal cord disorders

- **Acute transverse myelitis**
 - Acute segmental spinal cord injury
 - Could be infectious process
 - Immunologically mediated (NMO)
 - post viral or post vaccination (ADEM)
 - Spinal cord compression should be ruled out
 - The initial symptoms are paresthesia, back pain, and weakness of the legs
 - risk of MS of 2% - 5%



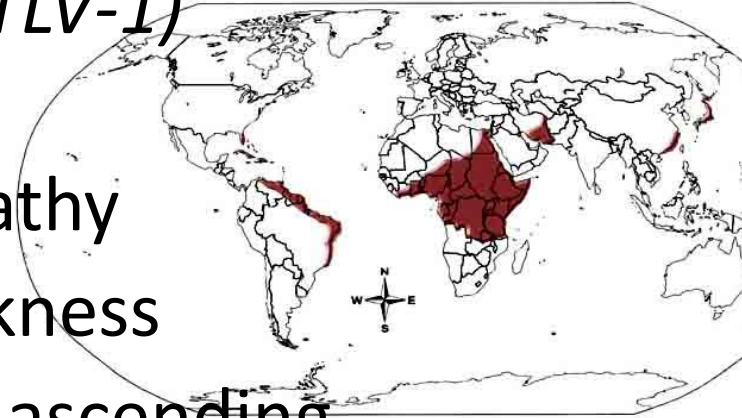
Acute Inflammatory spinal cord disorders

- **Neuromyelitis optica** - Devic's disease
- simultaneous inflammation and demyelination of the optic nerve (optic neuritis) and the spinal cord (myelitis)
 - Optic neuritis: visual impairment
 - Acute myelitis: severe spastic weakness of the legs
- resembles multiple sclerosis
- antibodies against AQP4
- Associated with collagen vascular diseases, autoantibody syndromes, infections with varicella-zoster virus, Epstein-Barr virus, and HIV



Acute infectious spinal cord disorders

- Tropical Spastic Paraparesis - (*HTLV-1*)
 - progressive spastic paraparesis
- Herpesviruses - radiculomyelopathy
- Poliomyelitis – asymmetric weakness
- West Nile virus – asymmetric or ascending
- Syphilis – meningovascularitis - infraction
- AIDS – vacuolar myelopathy (progressive symptoms)
- Tuberculosis – *pott disease* (vertebral) with secondary compression of cord

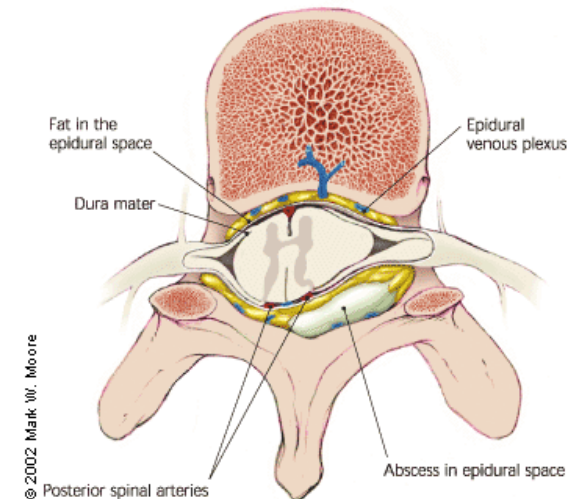


Chronic inflammatory disorder of the CNS

- Multiple sclerosis
 - Lower extremity weakness can be initial symptom
 - Acute or gradually progressive spastic paraparesis
- Motor neuron diseases:
 - Amyotrophic lateral sclerosis (ALS):
 - rapidly progressive weakness with limb onset
- Systemic diseases such as - Behçet's disease
 - Usually flaccid paralysis or incomplete paraplegic symptoms

Space occupying inflammatory disorders – infectious

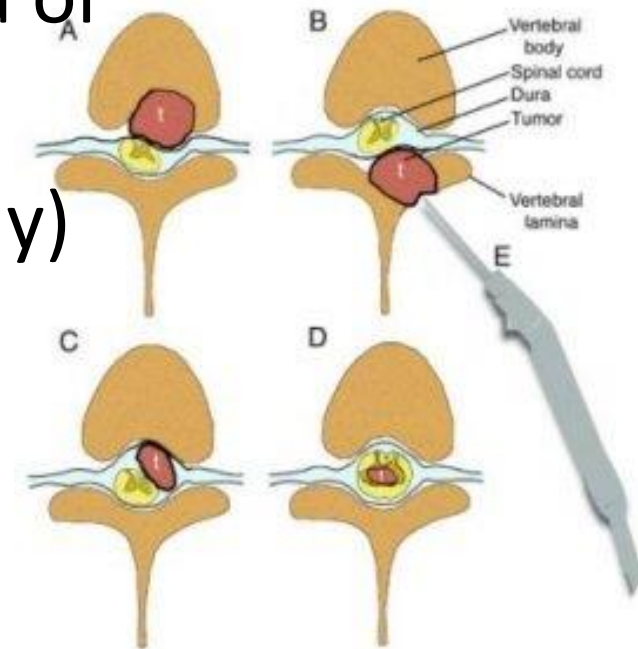
- Epidural abscess or Spondylodiscitis
- ***neurological emergency!***
- Skin infection, LP, back trauma, vertebral osteomyelitis or hematogenous spread (I.V drug abuse, DM)
- Progressing Symptoms:
 - > Fever, backache, headache and malaise
 - > rapidly progressive paraparesis
 - > sensory disturbances
 - > loss control of bladder



- Spondylodiscitis may be clinically silent until paraplegic symptoms develop

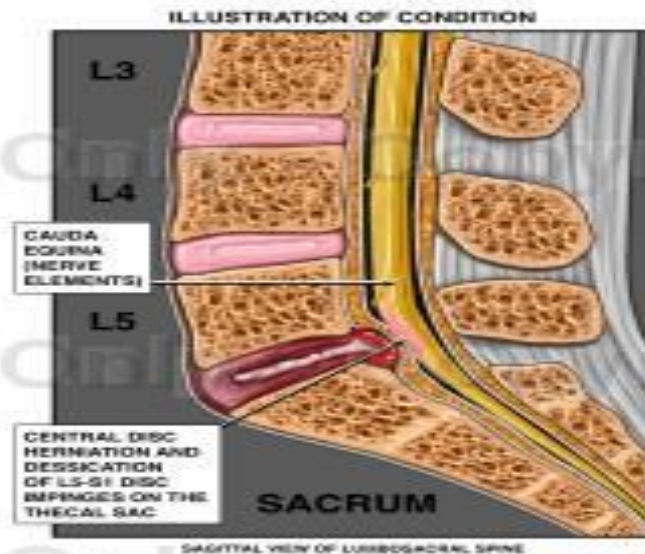
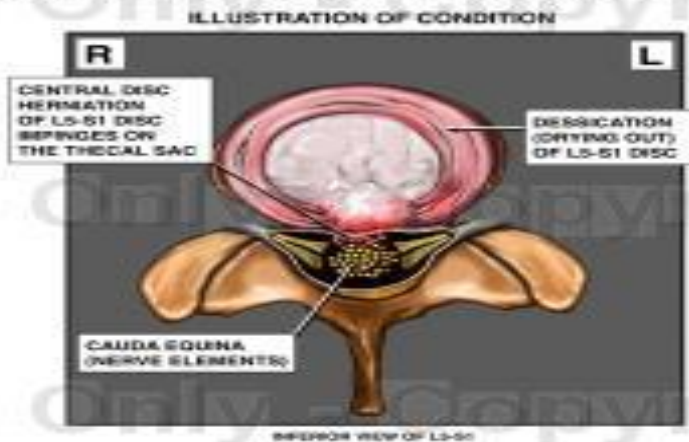
Non-inflammatory spinal space occupying lesions

- Slowly progressing or fast growing tumors (metastases or secondary vertebral fracture)
- Secondary spinal cord ischemia or compression of spinal vessels
- Sub acute or Acute (respectively)



- Also in median disc prolapse->
 - Local back pain followed by acute paraparesis (flaccid), impaired sensation and loss control of bladder/rectum

L5-S1 Lumbar Disc Herniation with MRI Interpretation

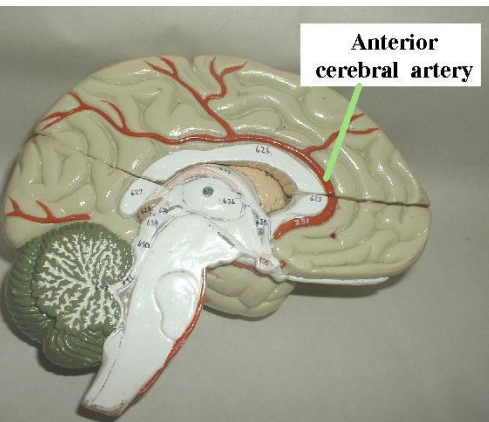


Hereditary spastic paraplegia (HSP)

- group of clinically and genetically diverse disorders
- lower extremity weakness and spasticity
 - defects in the mechanisms that transport proteins and other substances through the cell

Non spinal disorders

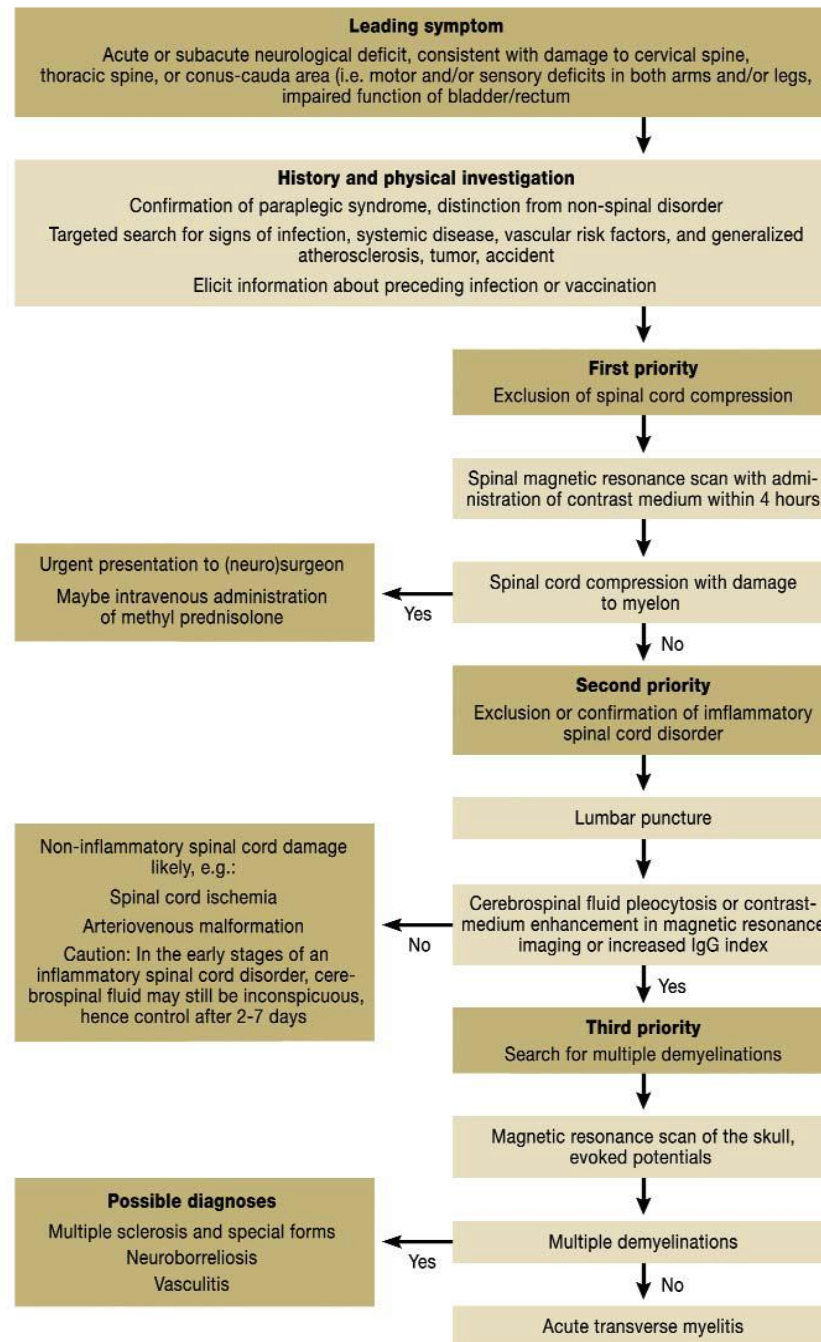
- Disorders not primarily affect the cord but symptoms create false impression
- Guillain-Barré syndrome:
 - Acute, ascending flaccid pareses
 - Impaired sensitivity and Areflexia
- Acquired hypo/hyperkalemic paralysis
 - Acute or subacute flaccid paraparesis and areflexia. No sensory impairment



Non spinal disorders



- Bilateral ischemia of the anterior cerebral arteries can mimic acute paraplegic symptoms
- Psychogenic paraparesis
 - Acute onset
 - Reflexes and muscle tone remain normal



reference

- Schwenkreis, P., et al. Non-traumatic acute transverse spinal cord syndromes. Praxis (Bern 1994). 2005 Jul 27;94(30-31):1151-9.
- UPTODATE – “Disorders of the spinal cord”
- WIKIPEDIA