



# BLOOD SUPPLY OF SPINAL CORD

By

*DR. MAHVISH JAVED*, MBBS, MPhil (Anatomy)

Assistant Professor

KGMC Peshawar



# Arterial Supply to the Spinal Cord

## KEY FACTS ABOUT VERTEBRAL ARTERIES

Anterior spinal artery

Supplies:

Anterior gray column of spinal cord

Lateral gray column of spinal cord

Central grey matter

Anterior funiculus

Lateral funiculus

Anterior portion of posterior gray matter

Posterior spinal arteries

Supply:

Posterior portion of posterior gray matter

Posterior funiculus

Radicular arteries

Supply:

Entire length of spinal cord

Spinal nerve roots

Anterior and posterior spinal arteries

### **Two posterior spinal arteries:**

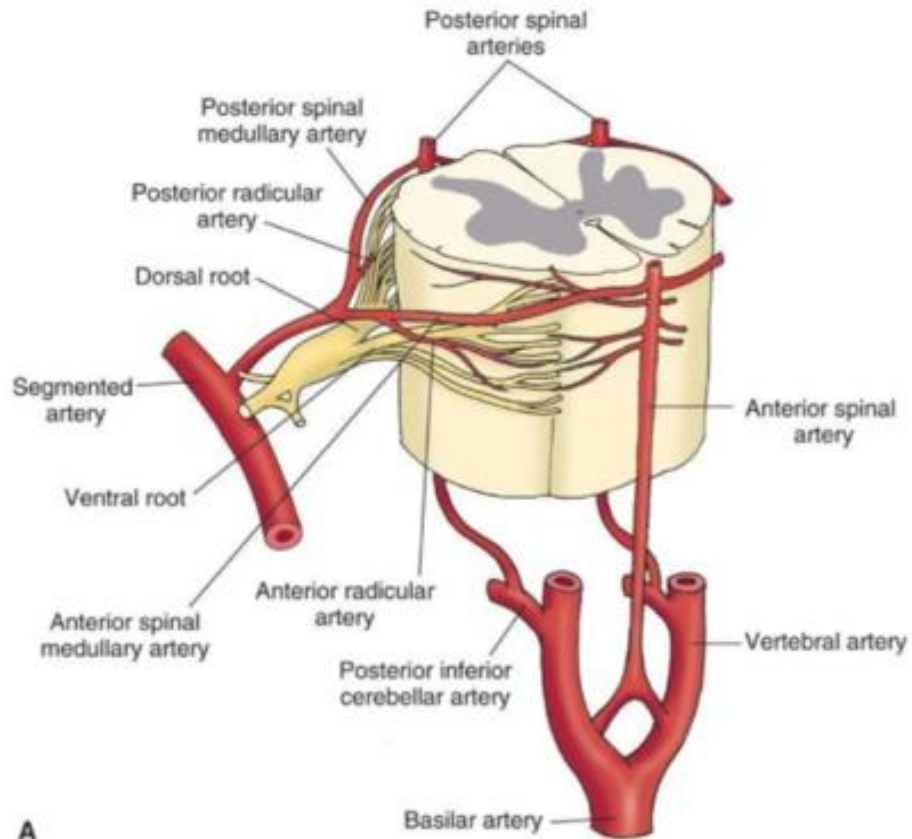
- **ORIGIN** : Branched from either 1. Vertebral 2. Posterior inferior cerebellar arteries.
- **COURSE**: Runs down in the posterolateral sulcus divides into two collateral arteries medial and lateral along the posterior nerve roots.
- These communicate around the cord forming pial plexus arterial vaso corona/arteriae coronae.
- **SUPPLIES** :Posterior one third of the cord

### **Anterior spinal artery:**

- **ORIGIN:** Branches of right and left vertebral arteries in the upper cervical canal.
- **COURSE:** runs caudally in the anterior median fissure.
- **TERMINATION:** filum terminale
- **SUPPLIES:** Anterior two third of the cord

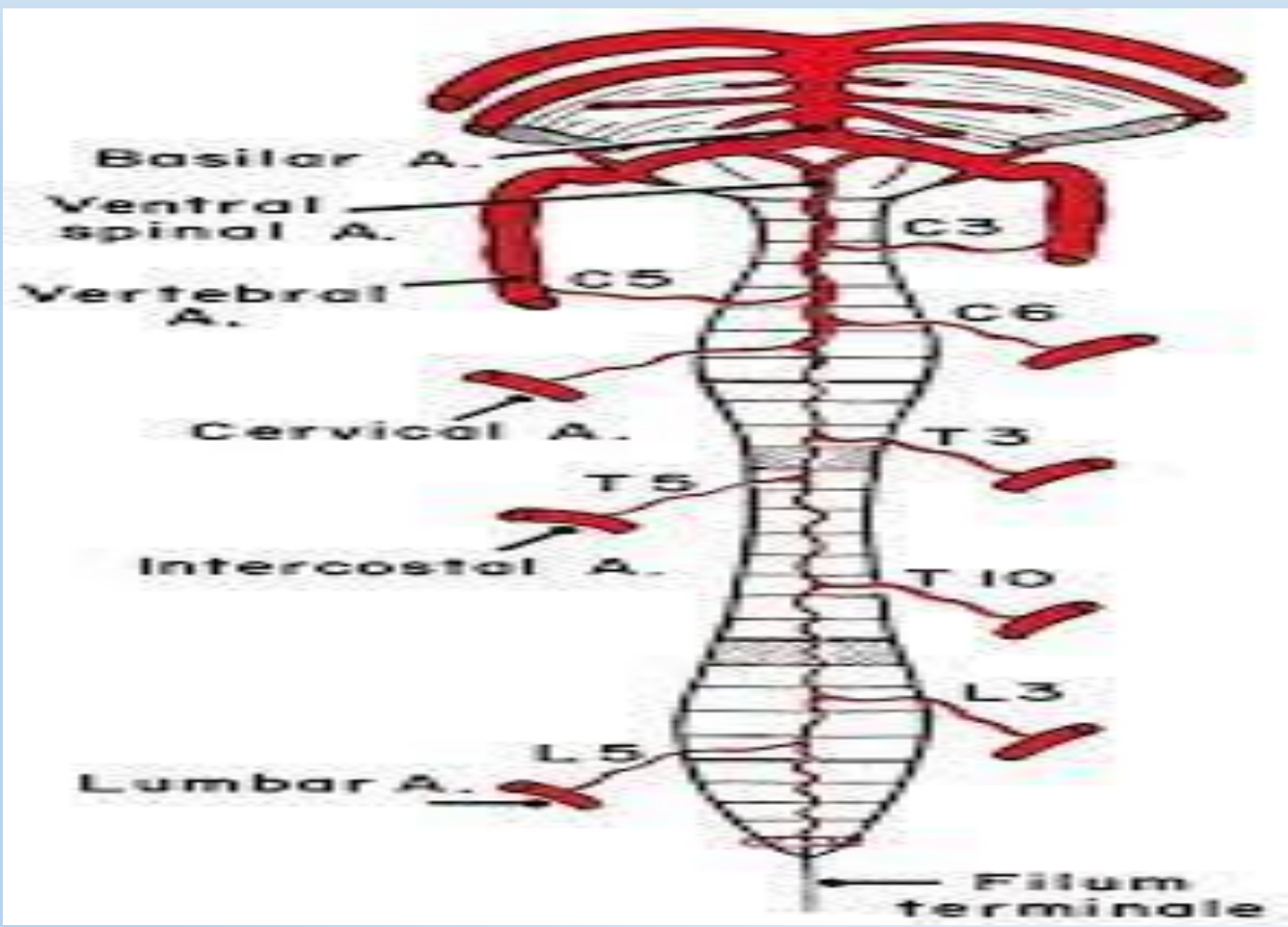
### **Segmental arteries:**

- Branches of Deep cervical, Ascending cervical, Intercostal and Lumbar
- Segmental arterial feeders reach the cord as anterior and posterior radicular arteries.
- **ANTERIOR RADICULAR ARTERIES:** Larger and less in number.
- **POSTERIOR RADICULAR ARTERIES:** Smaller and more in number.
- Great anterior medullary artery of Adamkiewicz-arises from aorta at T12 or L1 vertebral level unilateral left side

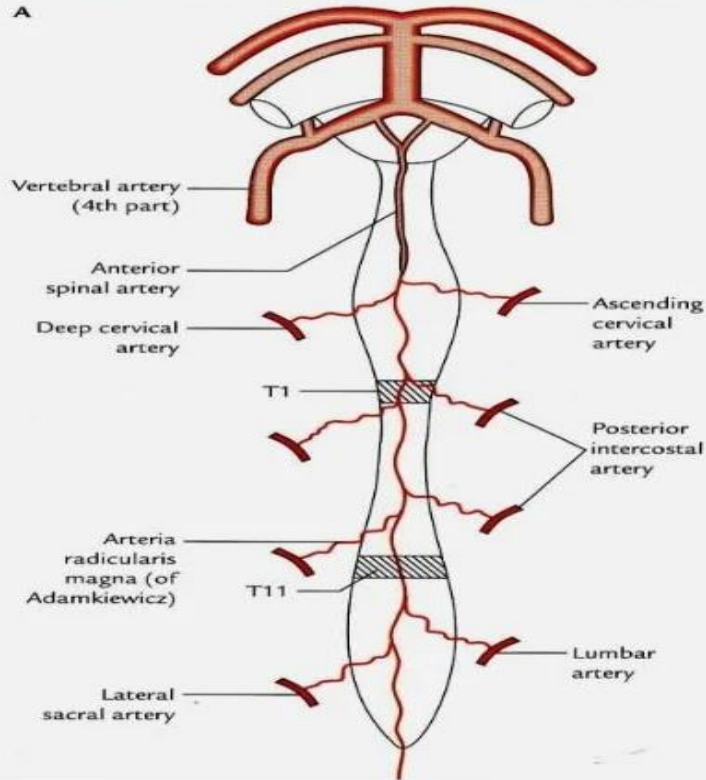


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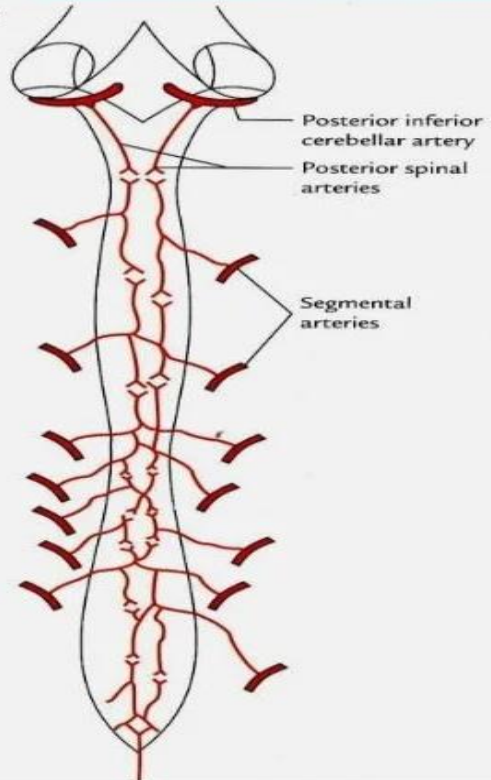


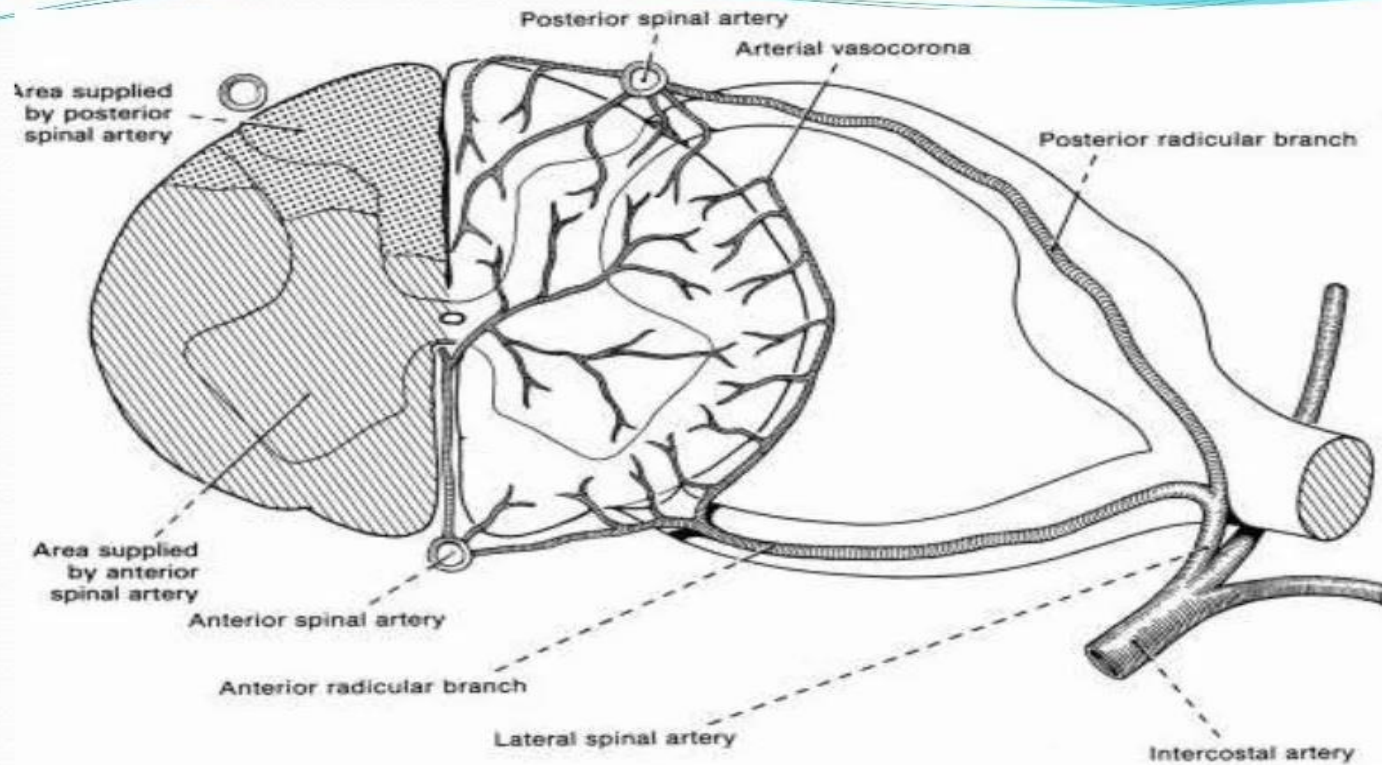


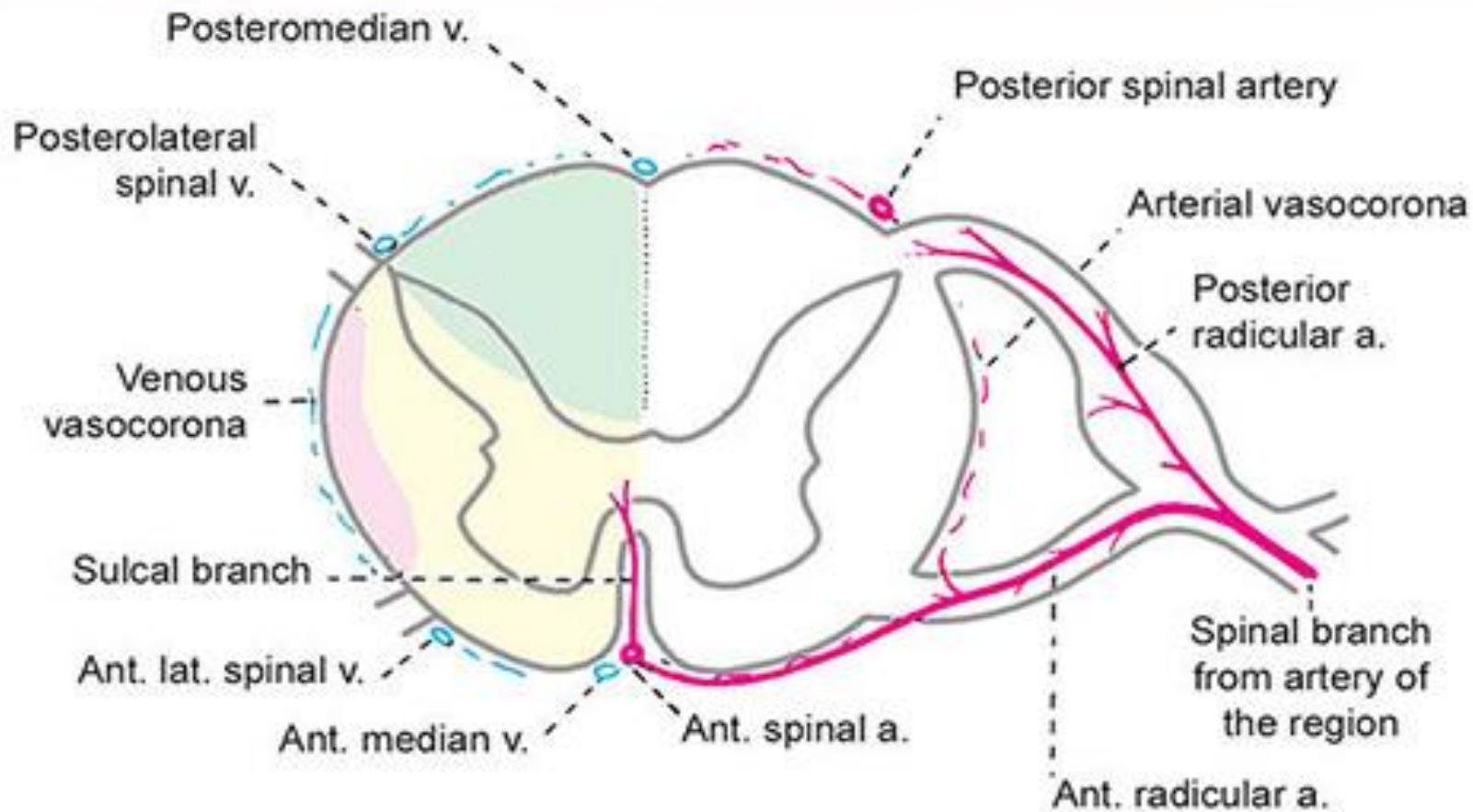
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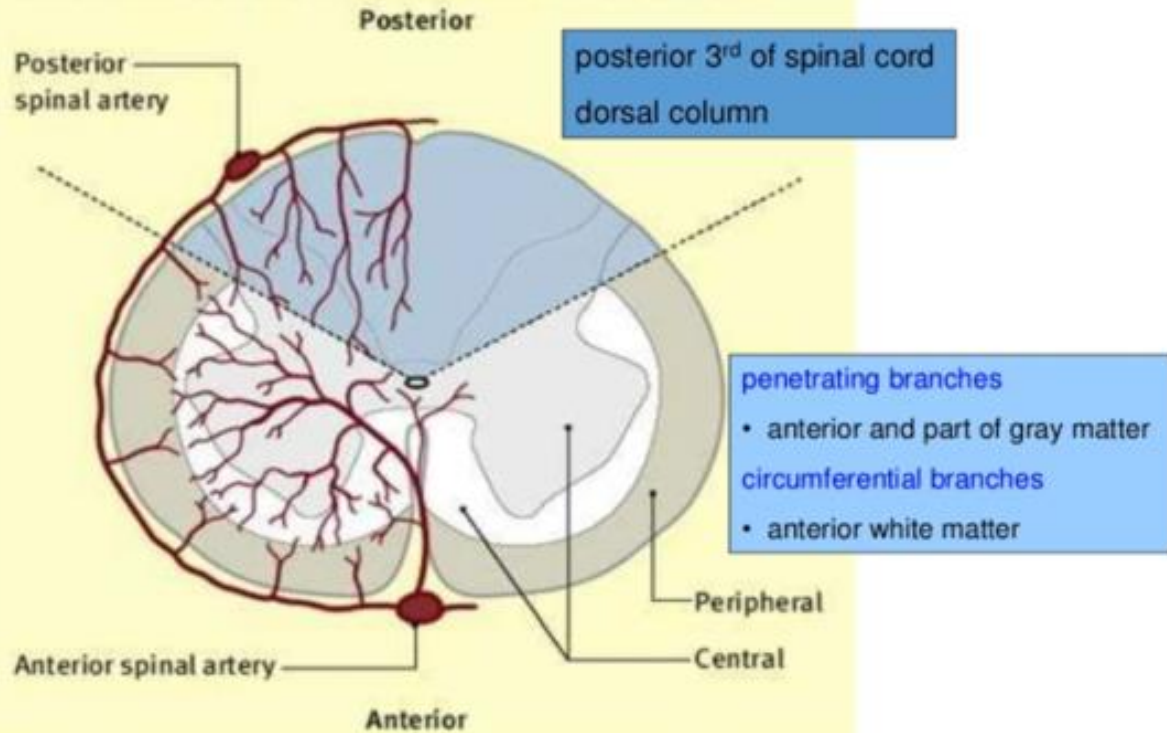
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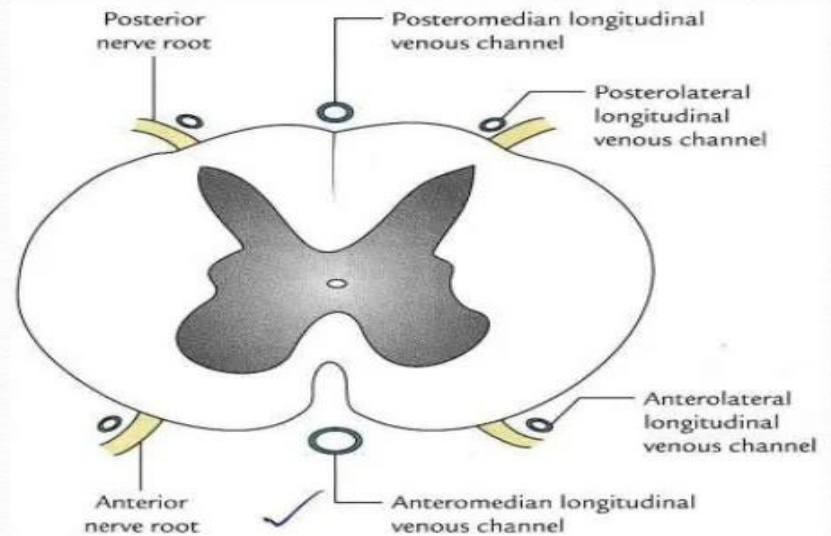



### Blood supply to the spinal cord: horizontal distribution



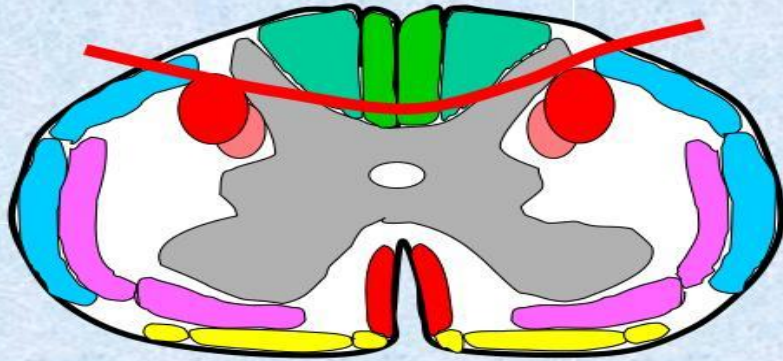
# VENOUS DRAINAGE

- Two median longitudinal
- Two anterolateral
- Two posterolateral



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- Drain below through internal vertebral venous plexus into the vertebral posterior intercostal, lumbar, and lateral sacral veins.
  - And drain above into the basilar venous plexus.

# Anterior spinal artery occlusion



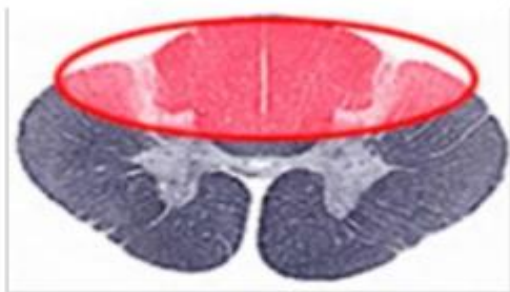
- Bilateral loss of motor function due to damage to corticospinal tracts and anterior gray horns
- Bilateral thermoanesthesia and analgesia due to damage to spinothalamic tracts
- Loss of bladder and bowel control due to damage to descending autonomic tracts
- Vibration, fine touch & position sense normal



# Posterior spinal artery syndrome

- Loss of proprioception and vibratory sense
- Preserved pain and temperature sensation
- Loss of myotatic and cutaneous reflexes below involved segment
- Absence of motor deficits

- **Posterior cord syndrome** is a condition caused by lesion of the posterior portion of the spinal cord. It can be caused by an interruption to the posterior spinal artery.
- Unlike anterior cord syndrome, it is a very rare condition.
- Clinical presentation:
- Loss of proprioception + vibration sensation + loss of two point discrimination + loss of light touch



dorsal 1/3<sup>rd</sup>

resulting from occlusion of the posterior spinal artery

THANK YOU, BRAIN!



PRODUCTIONS

