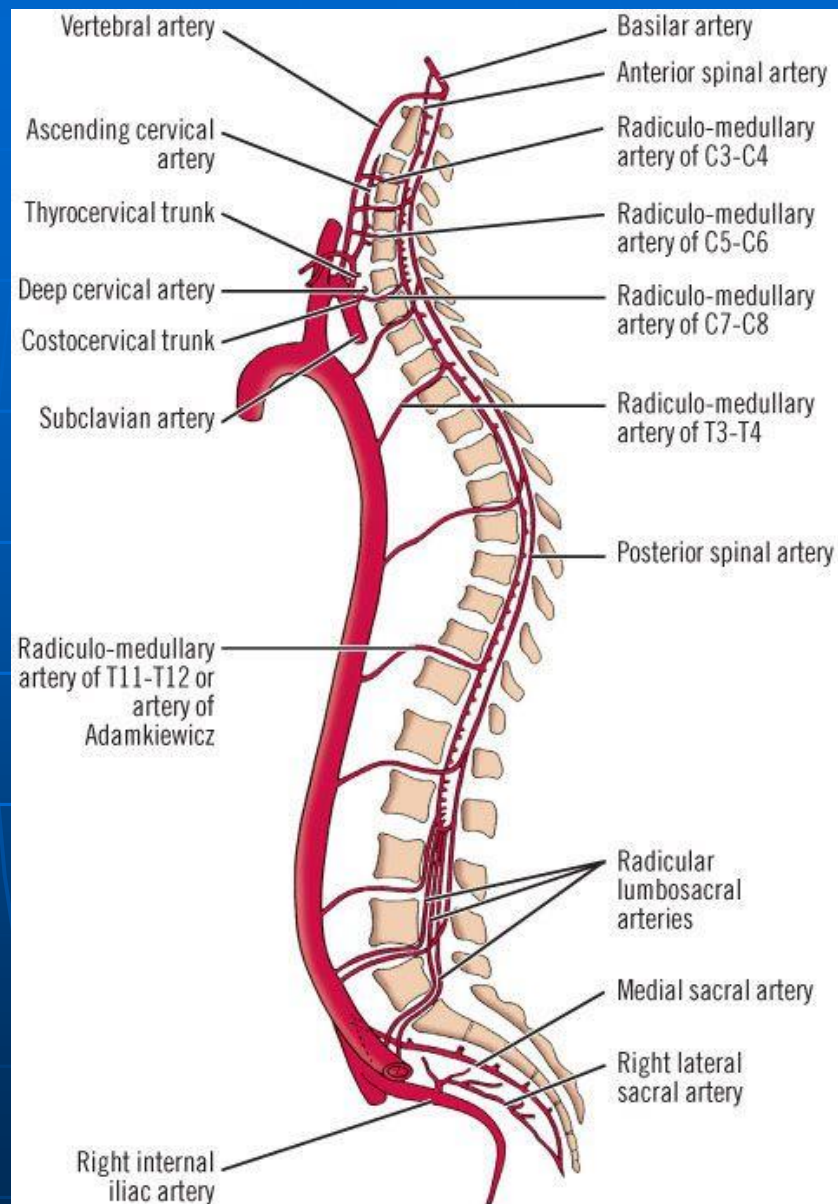


Spinal Cord

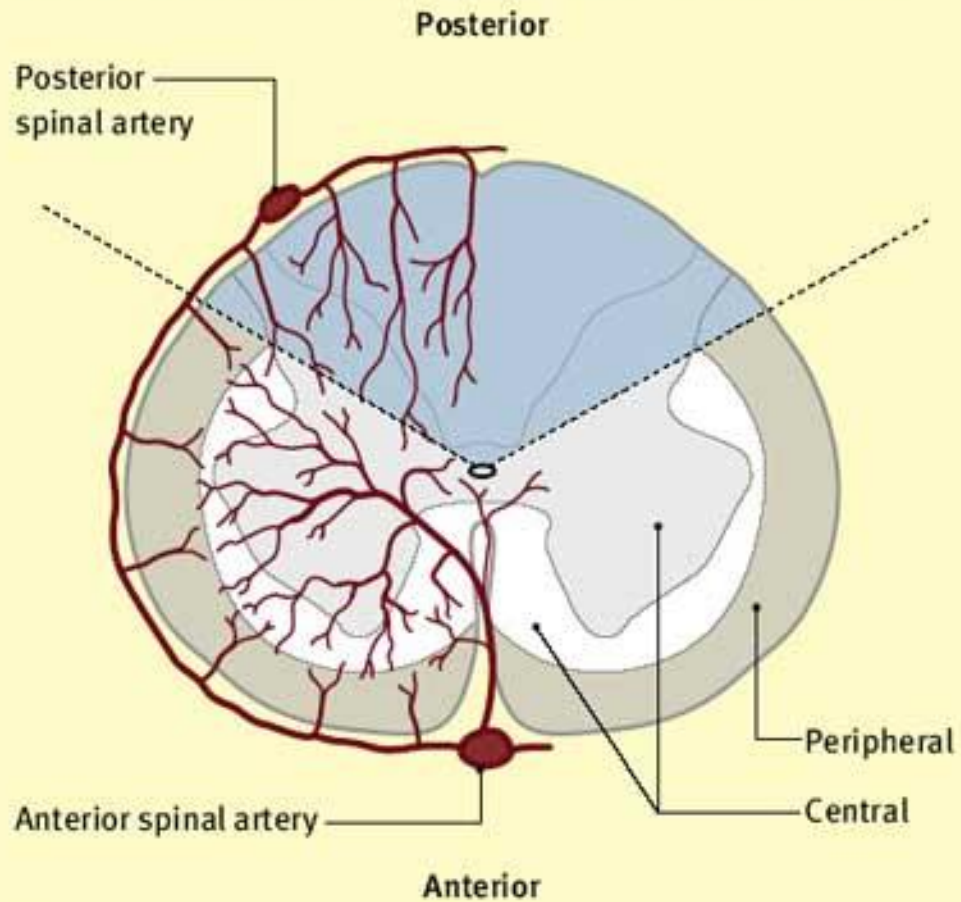
- **Single anterior spinal artery:**
 - supplies the anterior two-thirds of the spinal cord
- **Paired posterior spinal arteries:**
 - Supply the posterior one-third of the spinal cord
- **Perimedullary plexus:** connecting them.
- **Arterial vasocorona:**
 - Anastomoses between the spinal arteries, supplies the peripheral lateral aspect of the spinal cord (lateral columns)
- **Artery of Adamkiewicz:**
 - The main blood supply to the lower spinal cord, approximately T8 through the conus medullaris.

Anatomy

- **Anterior spinal artery** branches supply GM, adjacent WM mantle
 - Arises at junction of intradural segment of vertebral arteries and lies in midline of cord on ventral surface
 - Courses inferiorly to filum terminale
- **Posterior branches** supply 1/3 cord periphery
 - Arise from PICA or vertebral arteries
 - Paired longitudinal channels on dorsal cord
 - Numerous anastomoses
- **Thoracolumbar region** derives supply from major radiculomedullary artery (great radicular artery or artery of Adamkiewicz)
 - Usually arises on left, from T9-T12 in 75%
 - Has characteristic "hairpin" turn on MRA, DSA

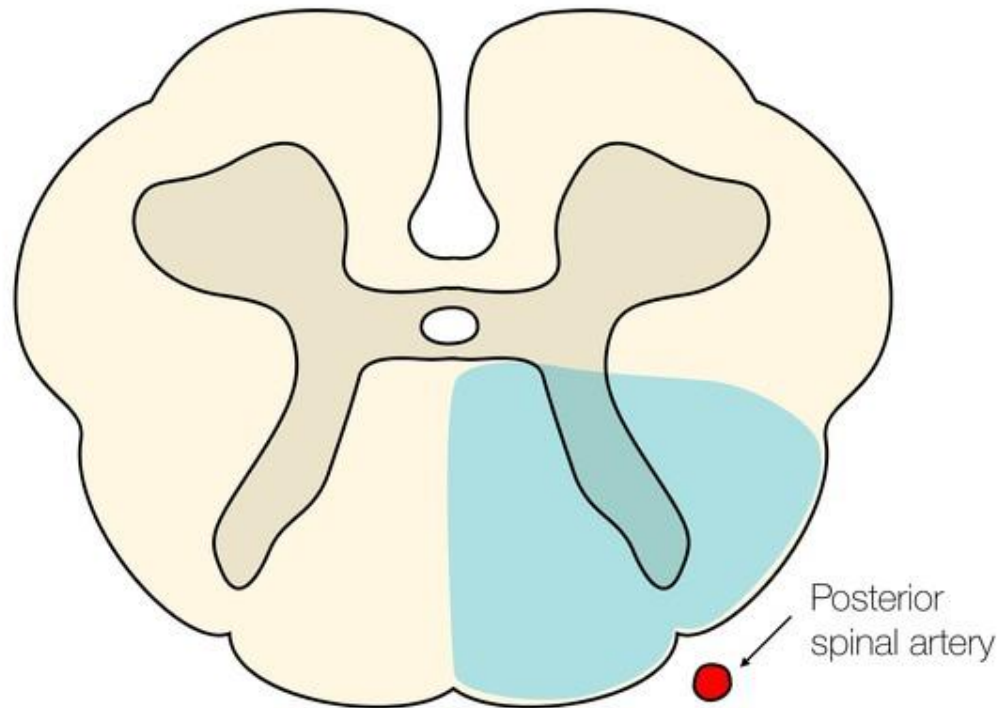


Blood supply to the spinal cord: horizontal distribution

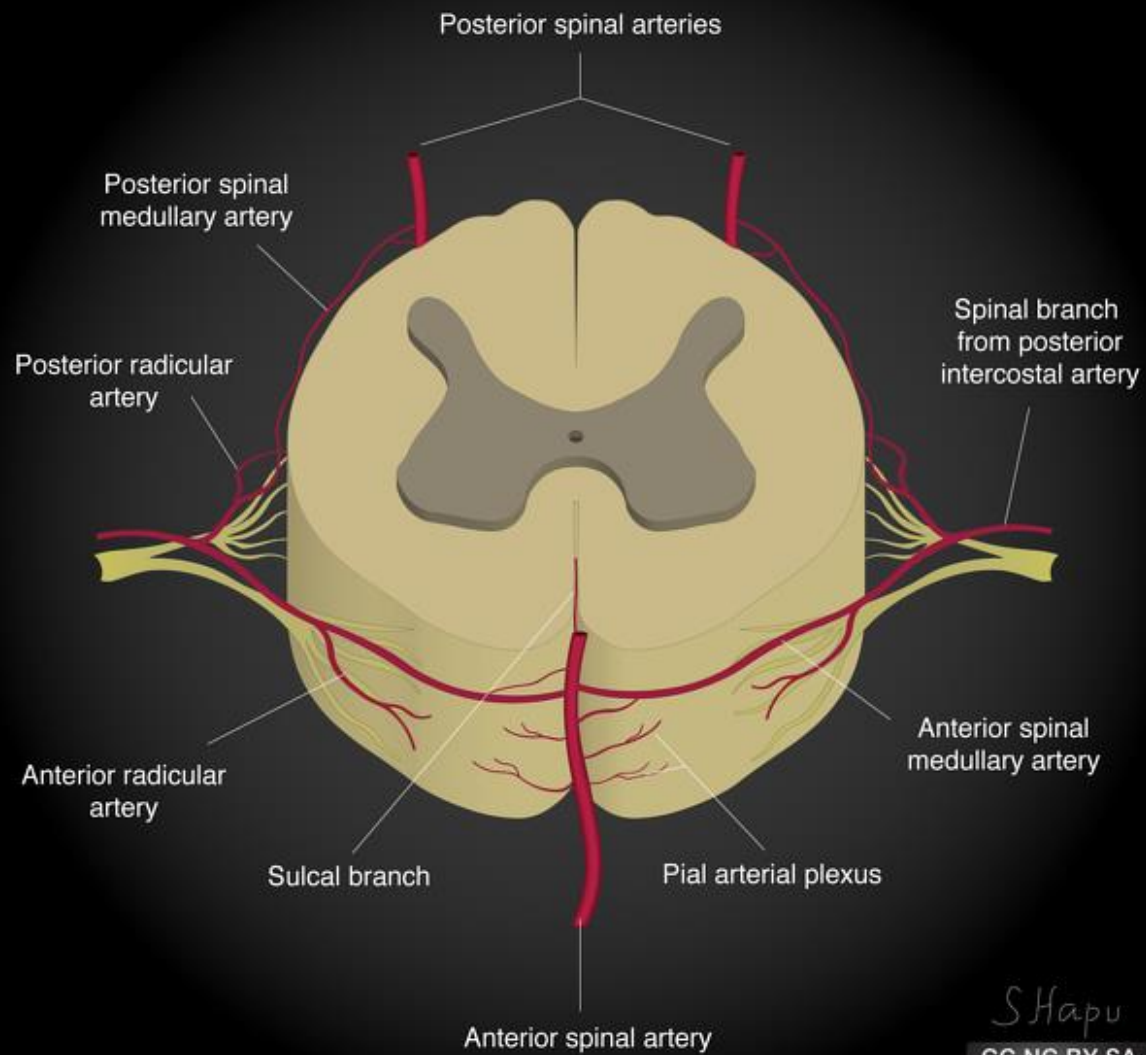


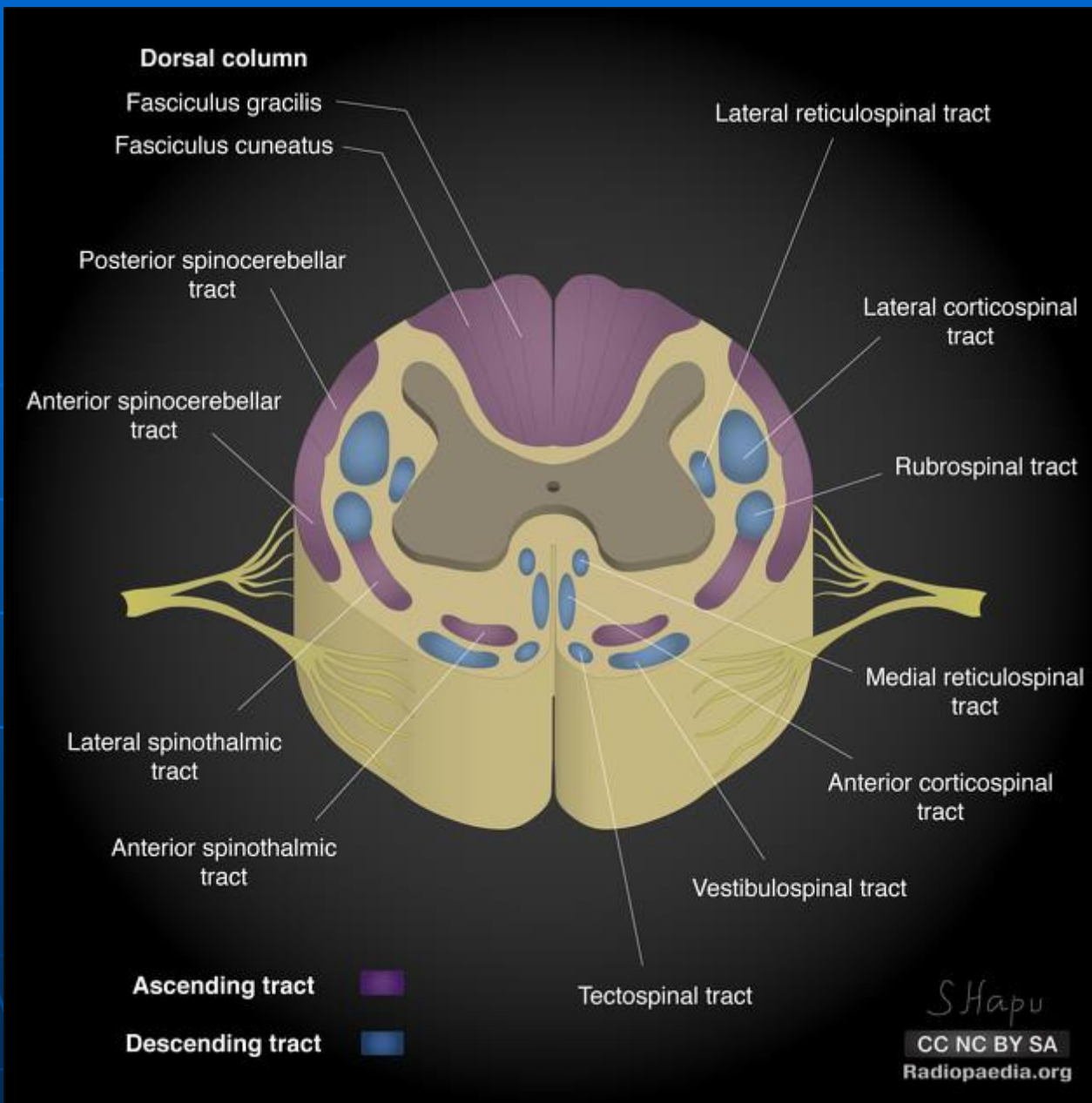
The central area supplied only by the anterior spinal artery is predominantly a motor area

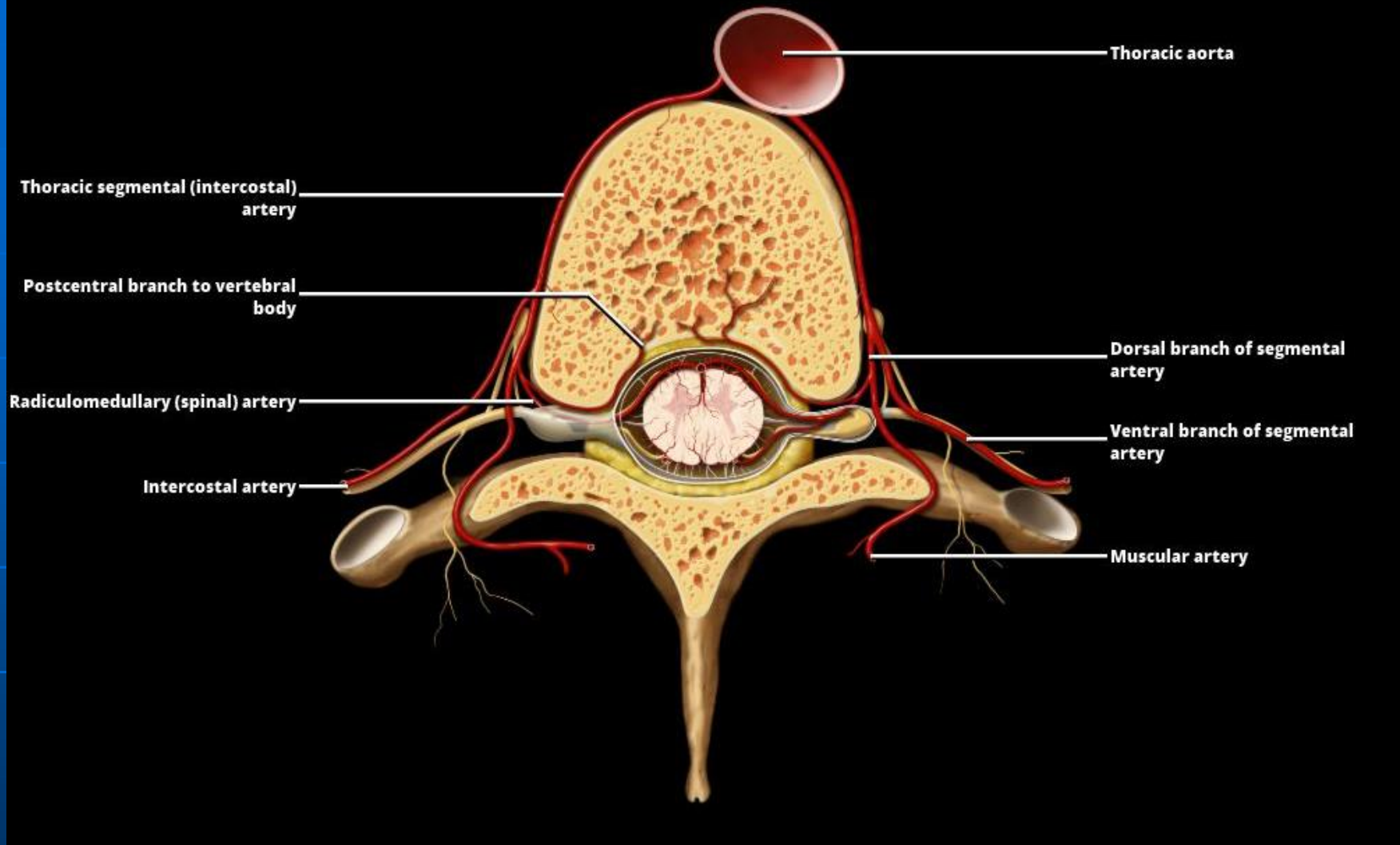
↑
Anterior
↓



Posterior spinal artery infarction







- A series of paired segmental arteries (cervical region arise from the vertebral & thyrocervical arteries, thoracic region are intercostal arteries & lumbar region are lumbar arteries) divide into anterior & posterior branches.
- The posterior branch gives rise to a muscular branch, a branch to the vertebral body, and the radiculomedullary artery.
- The radiculomedullary artery enters the vertebral canal via neural foramen.

Anterior spinal artery

- Arises at junction of intradural segment of VAs
- Lies in midline on ventral cord surface (in anterior median fissure)
- Courses inferiorly from foramen magnum to filum terminale
- Supplies anterior 2/3 of cord
 - Anterior horns, spinothalamic/corticospinal tracts
 - Penetrating (central) branches have few collaterals
- Augmented by segmental feeders

Posterior spinal arteries

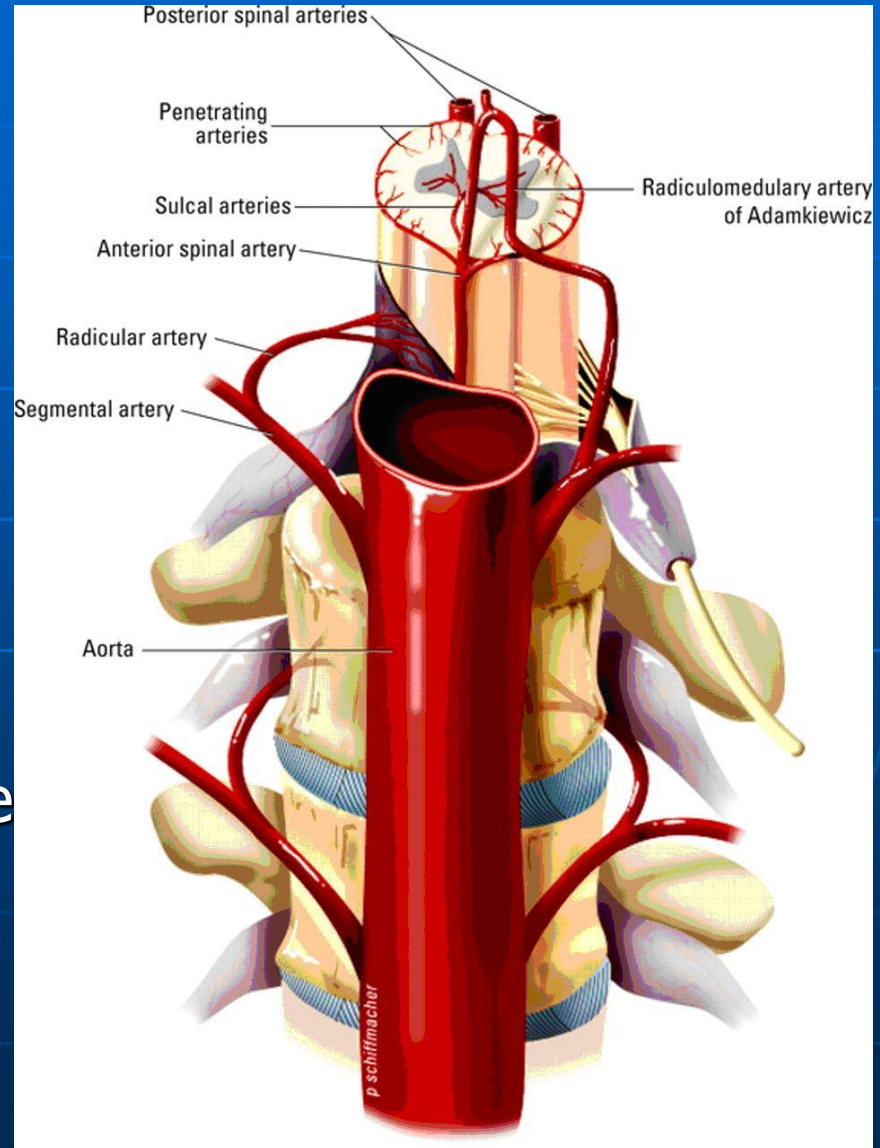
- Arise from either the posterior inferior cerebellar or vertebral arteries (V3 or V4 segments)
- Runs the entire posterolateral aspect of the spinal cord.
- Its origin may be intra-dural or extra-dura

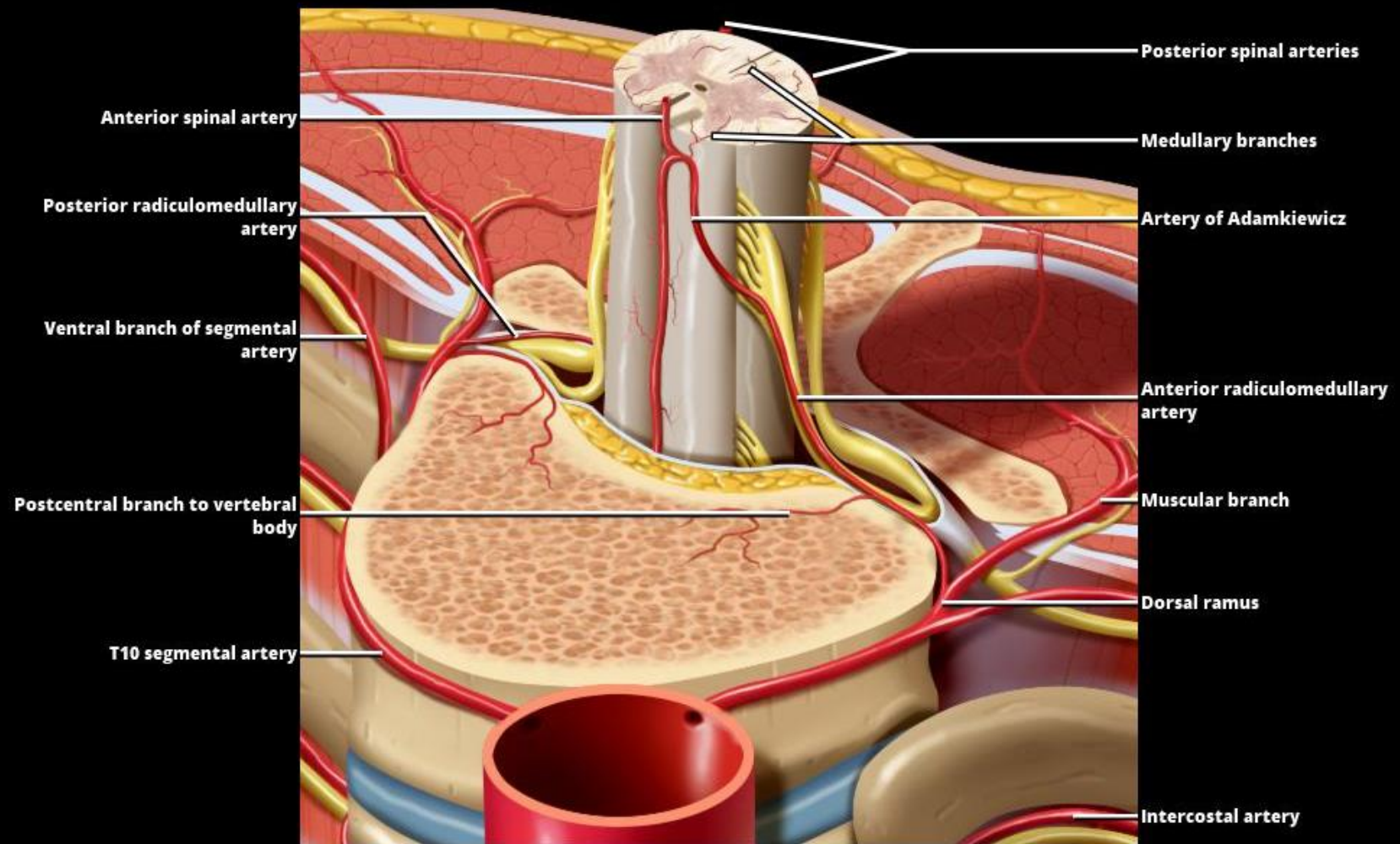
Artery of Adamkiewicz

- The great anterior radiculomedullary artery
- Arteria radicularis anterior magna
- Is the name given to the dominant thoracolumbar segmental artery that supplies the spinal cord.
- Variable origin
- most commonly arises. on the left (~80%)
- at the level of the 9th-12th intercostal artery (~70%)

Artery of Adamkiewicz

- Arises from aorta
- From intercostal or lumbar a.
- Between T8 and L4
- Left side (80%)
- Supplies lower 2/3 of spinal cord
- Typical "hairpin" course





Oblique axial graphic rendering of T10 depicts segmental intercostal arteries arising from the lower thoracic aorta. The artery of Adamkiewicz is the dominant segmental feeding vessel to the thoracic cord, supplying the anterior aspect of the cord via the anterior spinal artery. Note its characteristic "hairpin" turn on the cord surface as it first courses superiorly, then turns inferiorly.