

Spine and Spinal cord

Session Objectives:

By the end of this session students are expected to be able to

1. Describe the vertebral column including basic component of typical vertebra
2. Identify various external features of spinal cord including meningeal coverings
3. Describe the arteries supplying spinal cord
4. Identify main topographical features of different spinal cord cross sections
5. Discuss the formation of spinal nerve and its divisions
6. Describe the component of spinal arch reflex
7. List the major descending and ascending tracts within white matter of spinal cord
8. Recall the connections, topography, and functions of the above tracts
9. Differentiate between upper and lower motor neuron disease

PART I:

Lab Objectives:

By the end of this lab students should be able to

1. Identify the listed structures
2. Describe parts forming typical vertebra
3. Recognize the structures attached to vertebral body and lamina
4. List the content of the vertebral canal, Intervertebral foramen and epidural space
5. Describe the meningeal coverings and related spaces
6. Discuss the rule of internal vertebral venous plexus in cancer spread
7. Describe the arteries supplying the spinal cord
8. Recall important anatomical facts related to lumbar puncture

Lab check list

A) Spine

- Vertebral column (33 vertebrae)
 - 7 cervical (C1-7)
 - 12 thoracic (T1-12)
 - 5 lumbar (L1-5)
 - 5 sacral (fused form the sacrum)
 - 4 coccygeal (the lower 3 are commonly fused).
- A typical vertebra can be divided into two regions:
 1. Vertebral body (anteriorly)
 2. Vertebral arch (posterior arch)
 - Pedicles
 - ✓ Superior and inferior notches
 - Laminae
 - Processes
 - I. Transverse
 - II. Superior and Inferior articular
 - III. Spinous
- Vertebral foramen
 - Bounded by:

- Intervertebral discs
- Intervertebral foramen
Bounded by:
- Anterior and posterior longitudinal ligaments
- Ligamenta flava
- Vertebral canal

B) Meningeal coverings and spaces

- Epidural space
✓ Internal vertebral venous plexus
- Dura
- Arachnoid
- Subarachnoid space (CSF)
- Pia

C) Spinal cord

➤ External features

- Begins at.....
- Ends at.....
- Conus medullaris
- Cauda equina
- Filum terminale/ a prolongation of
- Anterior and posterior roots of spinal nerve
- Posterior root ganglion
- Spinal nerves
- Spinal cord segments/ size of the segment depend on.....
- Cervical and lumbar enlargements/ segments share the formation are.....
- Anterior median fissure
- Posterior median sulcus
- Posterolateral sulcus
- Anterior spinal artery (Anterior median fissure)/ formed by.....
- Two Posterior spinal arteries/ branches of.....

➤ Internal structure

(a) Grey matter

- Grey commissure
- Central canal
- Anterior horn/ motor neurons to skeletal muscles
- Posterior horn/ sensory neurons send axons to brain or other segments of spinal cord
- Lateral horn (T1-L2)/ preganglionic sympathetic neurons to sympathetic ganglia

(b) White matter

- Posterior white column (mainly sensory fibers/ascending tracts)
- Anterior white column (mainly motor fibers/descending tracts)
- Lateral white column (mixed fibers)
- White commissure (between right and left anterior columns)