

Dura mater

- Thick, dense, bilaminar membrane
- Adheres to the internal surface (table) of the calvaria
- Formed of two layers
 - External **periosteal layer**
 - Periosteum covering the internal surface of the calvaria
 - At the cranial foramina, it is continuous with the periosteum of the external surface of the calvaria
 - **Not continuous with the spinal dura** of the spinal cord (spinal dura only has a meningeal layer)
 - Internal **meningeal layer**
 - Strong fibrous membrane
 - At foramen magnum, it is **continuous with the spinal dura** (covers spinal cord)
- The two layers of the dura mater are **fused**, apart from where **dural sinuses** and infoldings occur
- The dura mater is fused to the bones at the cranial base

Dural infoldings/reflections

- Internal meningeal layer of the dura mater reflects away from the periosteal layer to form dural infoldings
- These infoldings **divide the cranial cavity** into compartments separated by **dural septa**
- Dural infoldings include
 - Cerebral falx (falx cerebri)
 - Cerebellar tentorium (tentorium cerebelli)
 - Cerebellar falx (falx cerebelli)
 - Sellar diaphragm (diaphragm sellae)

1. Falx cerebri

- **Largest** dural infolding
- Lies in **longitudinal cerebral fissure**, separating the brain into right and left cerebral hemispheres
- Attaches from frontal crest of frontal bone and crista galli of the ethmoid bone anteriorly to the internal occipital protuberance posteriorly
- Becomes **continuous with the tentorium cerebelli**

2. Tentorium cerebelli

- Second largest dural infolding
- Separates **occipital lobes from the cerebellum**; divides the cranial cavity into supratentorial and infratentorial compartments
- Attaches anteriorly to the clinoid process of the sphenoid, anterolaterally to the petrous part of the temporal bone, and posterolaterally to the occipital and part of the parietal bone

Dural venous sinuses

- **Endothelium-lined spaces** between the **dural** periosteal and meningeal layers
- Large veins from the surface of the brain empty into these sinuses; most blood from the brain ultimately drains via these to the internal jugular veins (IJVs)
- The main sinuses are **superior sagittal, inferior sagittal, occipital, transverse, sigmoid** and **straight**
- **Confluence of sinuses** is located near the internal occipital protuberance and is where the superior sagittal, straight, occipital and transverse sinuses meet
- **Arachnoid granulations** (collections of arachnoid villi) are prolongations of the arachnoid that extend up through the meningeal dura into the sinuses
 - Allow **transfer of CSF** into the venous system
 - Enlarged arachnoid granulations may erode bone, creating pits in the calvaria (**granular foveolae**)

1. Superior sagittal sinus

- Located **above the falx cerebri**
- Begins at the crista galli and ends near the internal occipital protuberance
- Receives **superior cerebral veins**
- Slit-like openings (extensions) on each side called the **lateral venous lacunae**

2. Inferior sagittal sinus

- Smaller than superior sagittal sinus
- Runs in the **inferior border of the falx cerebri** and ends in the straight sinus

3. Straight sinus

- Formed by **union of inferior sagittal sinus with the great cerebral vein**
- Runs inferiorly along the line of attachment of the falx cerebri, to the tentorium cerebri, where it joins the confluence of sinuses

4. Transverse sinuses

- Passes **laterally** from the confluence of sinuses
- Forms grooves on the occipital and parietal bones
- Course along the **tentorium cerebelli** and become the **sigmoid sinuses** as they approach the posterior aspect of the petrous part of the temporal bone
- Blood received by confluence of sinuses usually drained by transverse sinuses
- Left sinus is usually dominant (larger)

5. Sigmoid sinuses

- Follow **S-shaped course** in posterior cranial fossa
- Forms deep grooves in the temporal and occipital bones
- After traversing the **jugular foramen**, the sinuses become the **IJVs**

6. Occipital sinus

- Lies in attached border of the **falx cerebelli** and ends superiorly in the **confluence of sinuses**
- Communicates inferiorly with the **internal vertebral venous plexus**