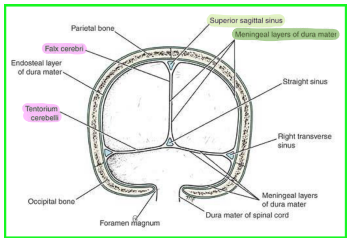
•which divide the cranial cavity into freely communicating spaces that lodge the subdivisions of the brain.
to restrict the displacement of the brain associated with acceleration and deceleration, when the head is moved. ∴ function

●The meningeal layer sends inward four septa,



- Tentorium Cerebelli
- Falx Cerebri
- Diaphragma Sellae
- Falx Cerebelli

→ Four Septa

→ Dura Mater

→ Two Layers

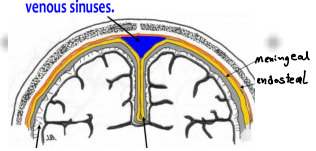
→ Meningeal Layer
dura mater proper

- is continuous through the foramen magnum with the dura mater of the spinal cord.
- ❖It provides tubular sheaths for the cranial nerves as the latter pass through the foramina in the skull.
- ❖Outside the skull, the sheaths fuse with the epineurium of the nerves

- Covers Brain
- dense, strong fibrous membrane

→ Endosteal Layer

→ Periosteum of Skull Bones, covering the nner surface



❖ At the foramen magnum, it does not become continuous with the dura mater of the spinal cord.

❖Around the margins of all the foramina in the skull, it becomes continuous with the periosteum on the outside of the skull bones.

❖At the sutures, it is continuous with the sutural ligaments

Meninges: Protective Membranes

→ Arachnoid Mater

- Delicate Membrane
- Subarachnoid Space
  - ✓Structures passing to and from the brain to the skull or its foramina must pass through the subarachnoid space.
  - →extends around the optic nerve as far as the eyeball.
  - Cerebrospinal Fluid

→ Pia Mater

- Covers Gyri and Sulci
- Vascular Membrane
- Forms Tela Choroidea

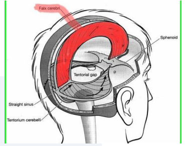
→ Cerebrospinal Fluid

- Enters the Bloodstream
- Circulates Brain and Spinal Cord
- Produced by Choroid Plexuses

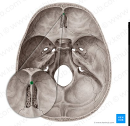
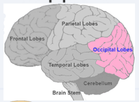
Feature	Feature	Arachnoid Mater	Pia Mater
	✓The arachnoid fuses with the epineurium of the nerves at their point of exit from the skull	Between dura mater and pia mater	Closest to the brain tissue
Structure	impermeable membrane	Delicate, avascular membrane covering the brain	, vascular membrane
Spaces	It is separated from → dura By → / pia By →	Subdural space (potential space), the subdural filled by a film of fluid / Subarachnoid space (filled with CSF)	
Cellular Layer		The outer and inner surfaces Covered by mesothelial cells → flattened	Covered by flattened mesothelial cells. It closely invests the brain covering the gyri and descending into the deepest sulci
Cerebrospinal Fluid (CSF) Relationship		The arachnoid is connected to the pia mater across the fluid-filled Subarachnoid space contains CSV by delicate strands of fibrous tissue.	
Nerve and Vessel Relationship	veins & Arteries	all Cranial nerves and blood vessels pass through the subarachnoid space	It extends out over the cranial nerves and Fuses with epineurium of cranial nerves; The cerebral arteries entering the substance of the brain carry a sheath of pia with them
Spinal Extension		Extends to the level of S2	
Specialized Structures	the arachnoid projects into the venous sinuses. Aggregations of arachnoid villi are referred to as arachnoid granulations, most numerous along the superior sagittal sinus.	Arachnoid villi for CSF reabsorption (sites where the cerebrospinal fluid diffuses into the bloodstream.)	of the roof of the third and fourth ventricles of the brain: Tela choroidea and choroid plexuses → CSF production; it fuses with the ependyma in the lateral, third, and fourth ventricles of the brain

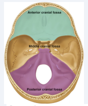
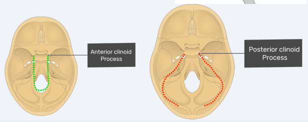
Oculomotor nerve (CN III):
Trochlear nerve (CN IV)

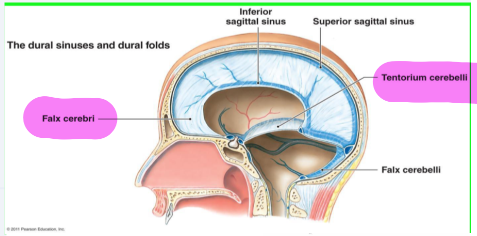
four septa :-

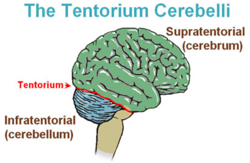


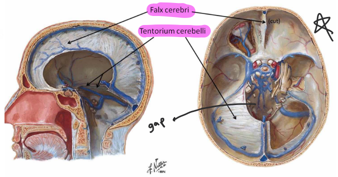
Structure	Description	Attachments	Sinuses
1- Falx Cerebri	Sickle-shaped fold of dura mater that lies in the midline between the two cerebral hemispheres. attached to the upper surfaces of the tentorium	Its narrow anterior end is attached to Anteriorly: Internal frontal crest and crista galli. Posteriorly: Blends with tentorium cerebelli in the midline. Its broad posterior part	• Superior sagittal sinus: runs in its upper fixed margin (~~runs along its attachment to the petrous bone~~) • Inferior sagittal sinus: runs in its lower concave free margin • Straight sinus: runs along its attachment to the tentorium cerebelli; runs along its attachment to the falx cerebri
2- Tentorium Cerebelli	Crescent-shaped fold of dura mater roofing over the posterior cranial fossa. attached to the lower surfaces of the tentorium. In the anterior edge there is a gap the tentorial notch :- for the passage of the midbrain which produces an	Covers upper surface of cerebellum and Supports occipital lobes of the cerebral hemispheres	
Fixed Border	or outer attached. At the point where the two borders cross, the third and fourth cranial nerves pass forward to enter the lateral wall of the cavernous sinus	is attached to Posterior clinoid processes, Superior borders of petrous bones, Margins of transverse sinus, grooves on occipital bone	
Free Border	inner free border	runs forward at its two ends crosses attached border. Affixed to anterior clinoid process on each side	
3- Falx Cerebelli	Small, sickle-shaped fold of dura mater between cerebellar hemispheres	attached to Internal occipital crest, projects forward	Its posterior fixed margin contains Occipital sinus
4- Diaphragma Sellae	Small, circular fold roofing sella turcica	A small opening in its center allows passage of the stalk of the hypophysis cerebri	

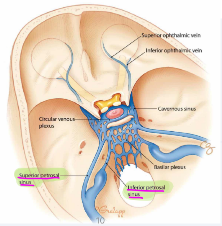




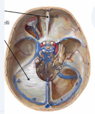
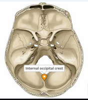
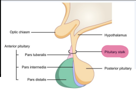











Sinus	Location	Function	Tributaries	Additional Details
Superior Sagittal Sinus	Upper fixed border of falx cerebri	Drains cerebral veins and CSF	Superior cerebral veins ربما من هنا Some smart CATs Enter Rt tunnel	Begins at foramen cecum, grooves the vault of the skull, dilates to form the confluence of sinuses
Inferior Sagittal Sinus	Free lower margin of falx cerebri	few cerebral veins from the medial surface of the cerebral hemispheres	ربما I GOT Stressed	It runs backward and joins the great cerebral vein at the free margin of the tentorium cerebelli to form the straight sinus
Straight Sinus	Junction of falx cerebri and tentorium cerebelli	formed by the union of the inferior sagittal sinus and great cerebral vein	ends by	Turns left or right to form the transverse sinus
Transverse Sinuses paired structures	begin at the internal occipital protuberance direct	Drain superior sagittal sinus, straight sinus, superior petrosal sinuses, inferior cerebral and cerebellar veins, and diploic veins	ربما Ducks Swim in Calm Seas	Turns downward as the sigmoid sinuses
Sigmoid Sinuses	Continuation of transverse sinuses	Drain transverse sinuses	✓ Each sinus turns downward and medially	Grooves the mastoid part of the temporal bone, turns forward and inferiorly through the jugular foramen
Superior Petrosal Sinuses	Superior border of petrous part of temporal bone, on each side the skull	Drain cavernous sinus into transverse sinus		
Inferior Petrosal Sinuses	Inferior border of petrous part of temporal bone	Drain cavernous sinus into internal jugular vein		
Cavernous Sinuses	Middle cranial fossa, on each side of sphenoid bone body	Drain blood from orbit, face, and brain	In front where it Behind	Numerous trabeculae, cross their interior, giving them a spongy appearance, extends from superior orbital fissure to apex of petrous part of temporal bone
Occipital Sinus small sinus	Attached margin of falx cerebelli	Drains into confluence of sinuses	Vertebral veins	Commences near foramen magnum

anteriorly where it occasionally receives a vein from the nasal cavity.

posteriorly

At the internal occipital protuberance

Here, the superior sagittal sinus usually becomes continuous with the right transverse sinus; it is connected to the opposite transverse sinus and receives the occipital sinus.

The right sinus is usually continuous with the superior sagittal sinus, the left is continuous with the straight sinus.

- Each sinus occupies the attached margin of the tentorium cerebelli, grooving the occipital bone and the posteroinferior angle of the parietal bone.

the posterior part of to become continuous with the superior bulb of the internal jugular vein.

hence the name