

CRANIAL CAVITY-I

Presented by:-
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LESSON PLAN

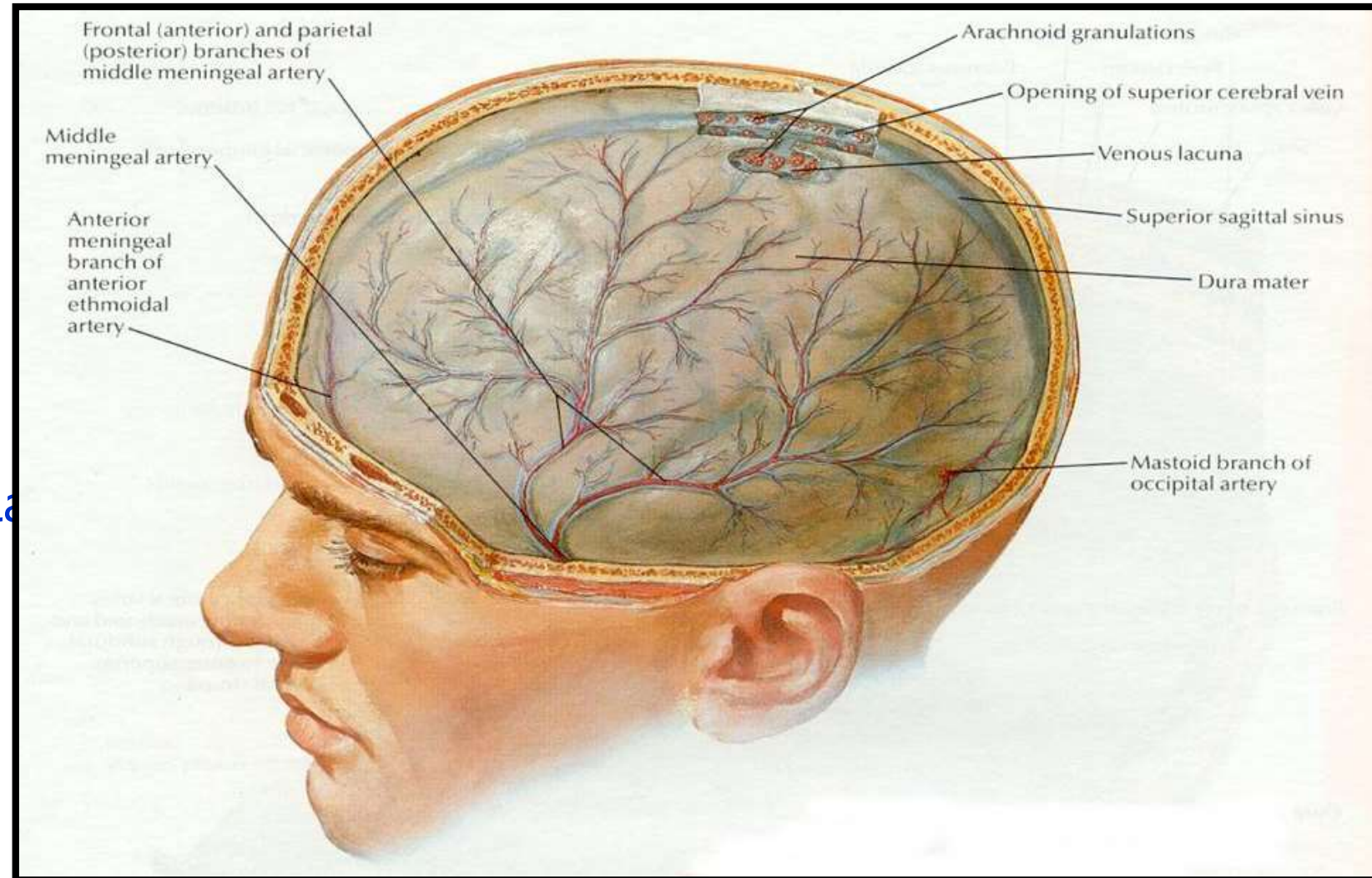
- ❖ Introduction.
- ❖ Cranial Meninges.
- ❖ Cranial Meningeal Spaces.
- ❖ Cerebral Duramater.
- ❖ Folds of Duramater:
 - Falx Cerebri.
 - Tentorium Cerebelli.
 - Falx Cerebelli.
 - Diaphragma Sellae.

INTRODUCTION

❖ It is the main cavity of the skull.

❖ It contains:

- Brain.
- Intracranial portions of Cranial Nerves.
- Blood vessels.



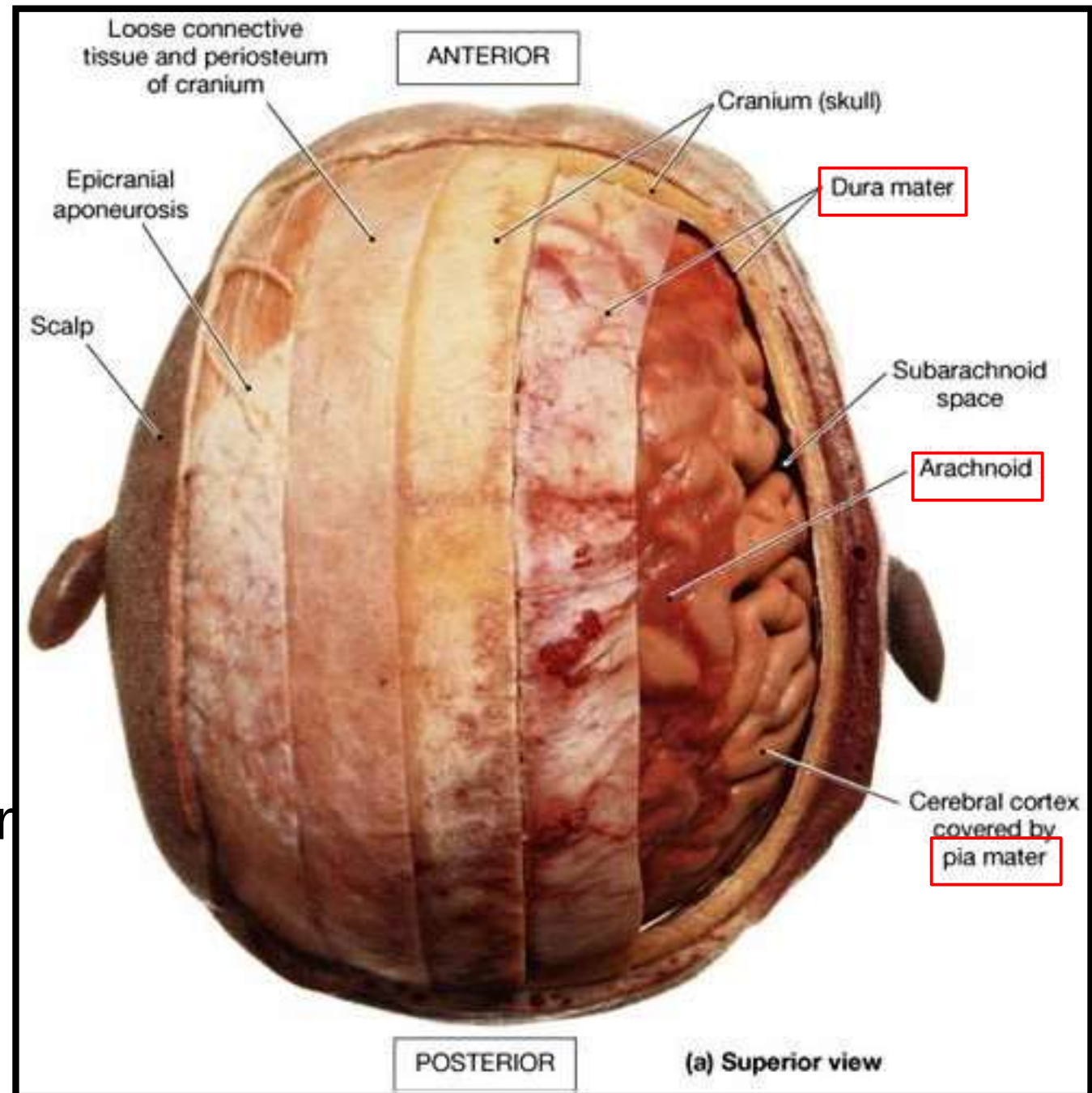
CRANIAL MENINGES

❖ Brain is surrounded by three protective membranes, the meninges (from outside inward) :

- Dura Mater.
- Arachnoid mater.
- Pia Mater.

❖ Pia mater and arachnoid together are sometimes referred to as the **leptomeninges**.

❖ Dura mater is referred to as



CRANIAL MENINGES contd...

Dura Mater-

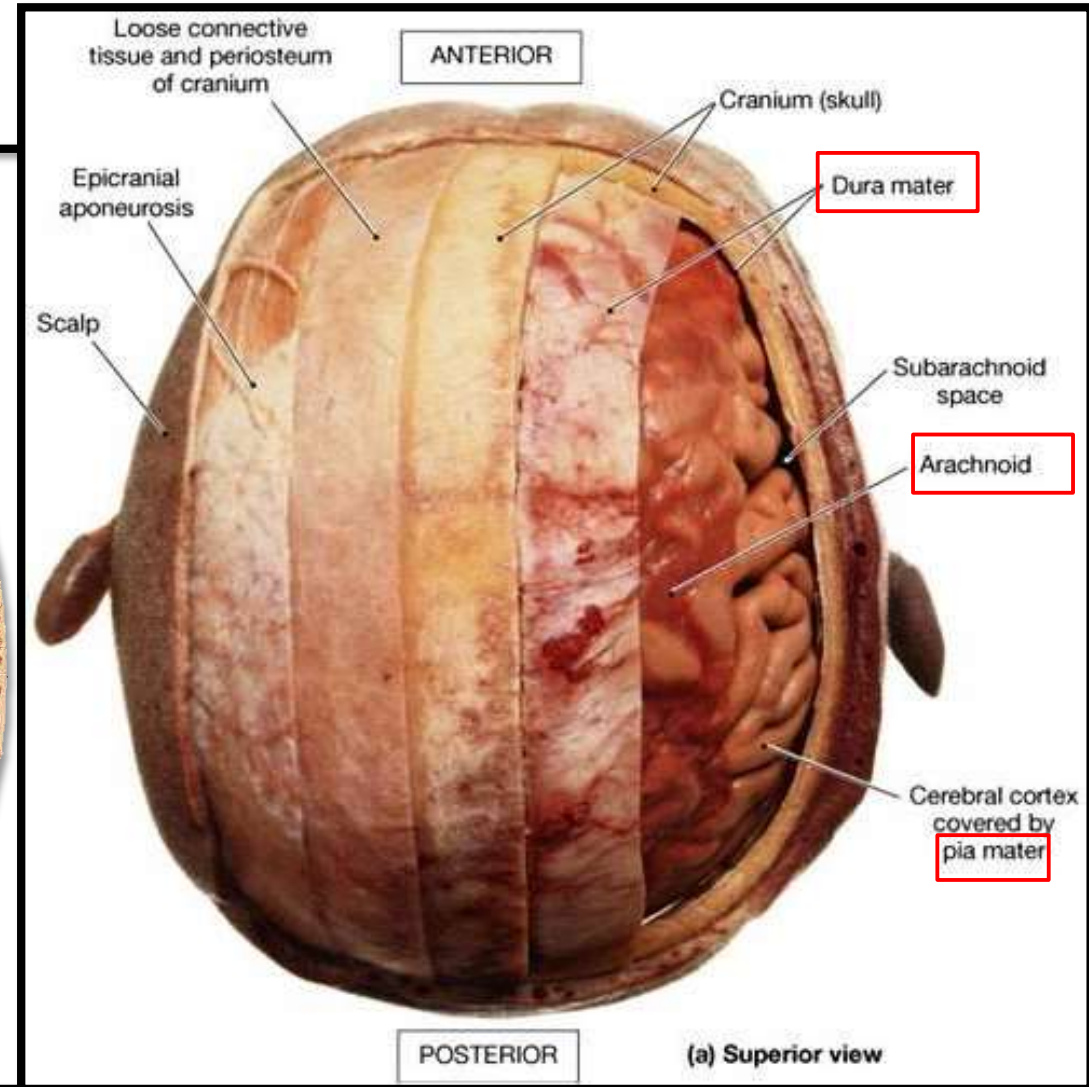
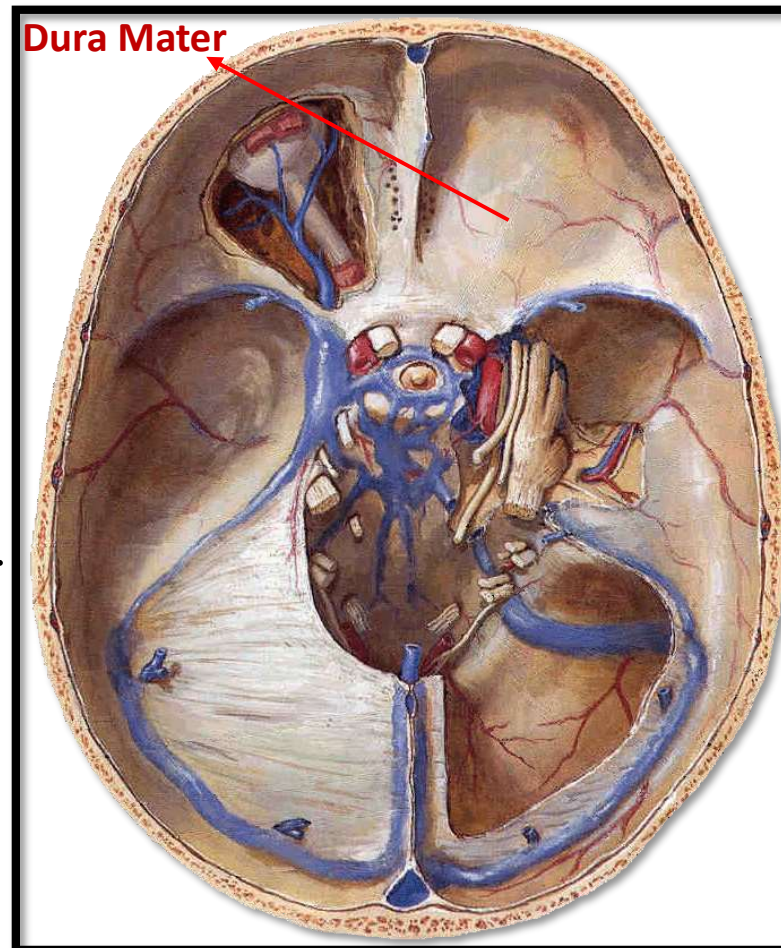
- Lines the interior of cranial cavity.

Pia Mater-

- Covers the surface of brain.

Arachnoid Mater-

- Lies between the duramater and piamater.



CRANIAL MENINGEAL SPACES

EPIDURAL SPACE:

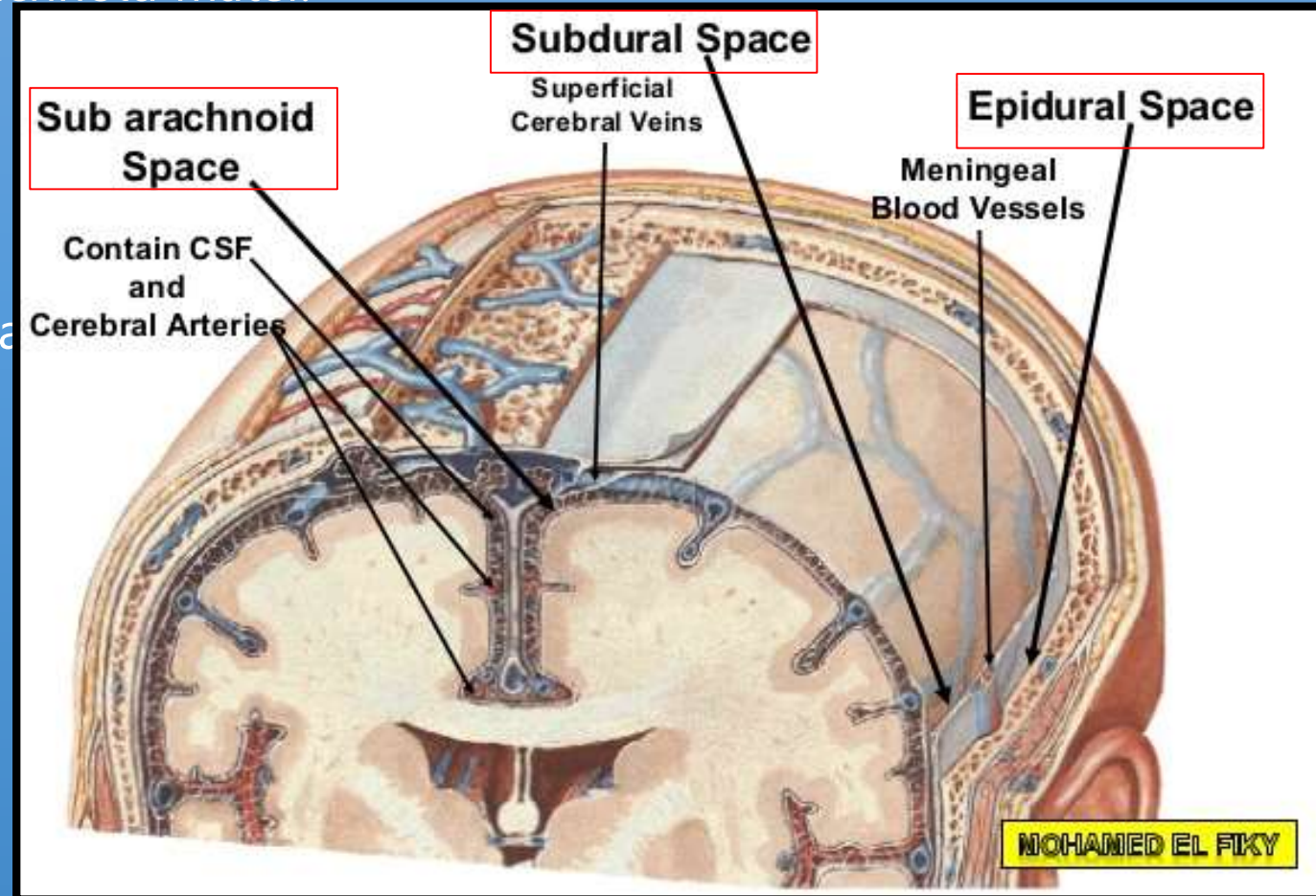
- ❖ Potential space superior to dura mater.

SUBDURAL SPACE:

- ❖ Potential space between dura mater and arachnoid mater.

SUBARACHNOID SPACE:

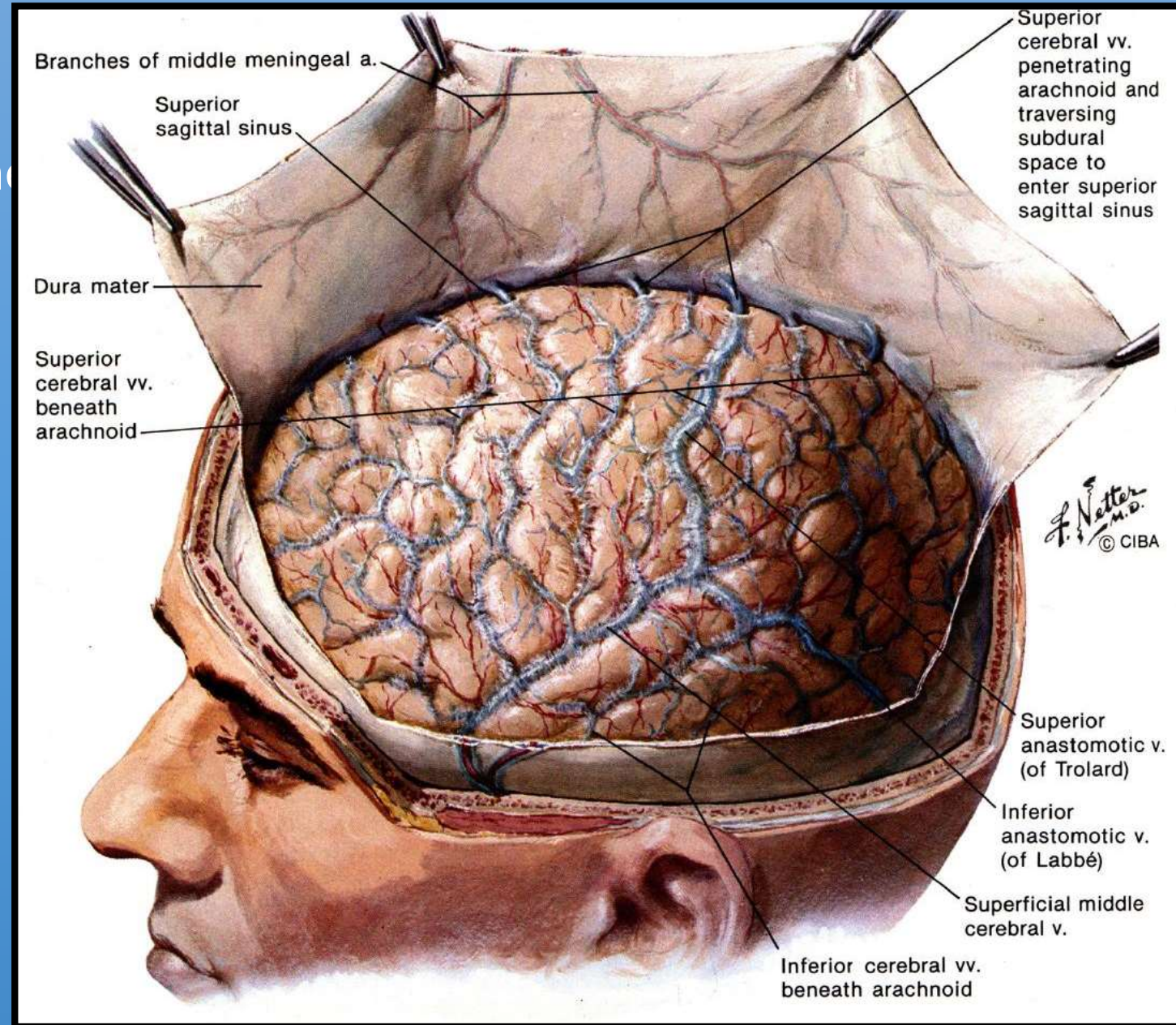
- ❖ Wider space.
- ❖ Filled with CSF.
- ❖ Contains the **blood vessels** supplying the brain.



CEREBRAL DURAMATER [CRANIAL DURA]

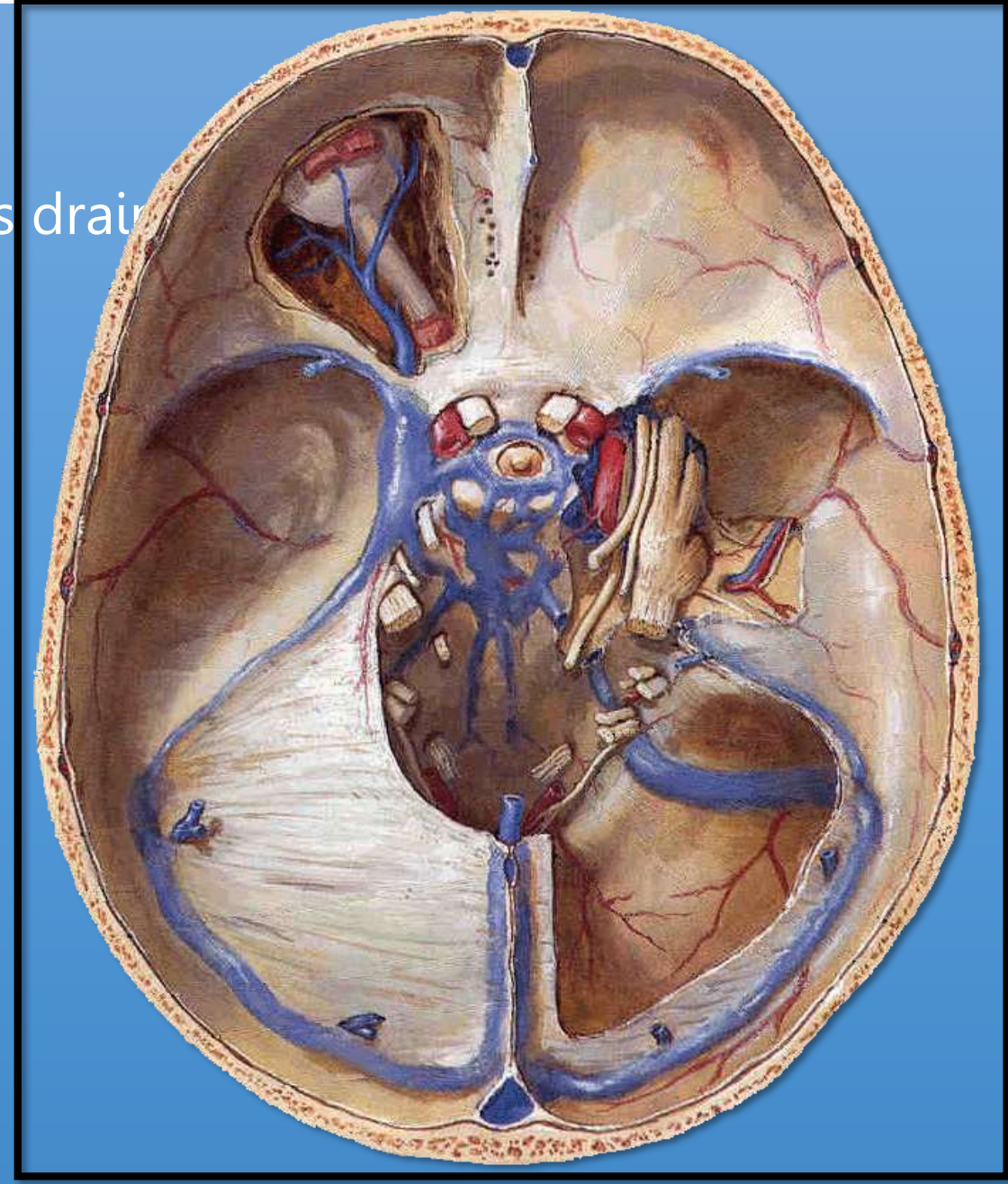
❖ "Tough Mother".

❖ A thick and dense inelastic outer meningeal layer.



CEREBRAL DURAMATER contd...

- ❖ Adheres to inner surface of skull.
- ❖ Supports the brain.
- ❖ Forms sinus system of the cranial cavity (venous drainage).
- ❖ Pain sensitive.

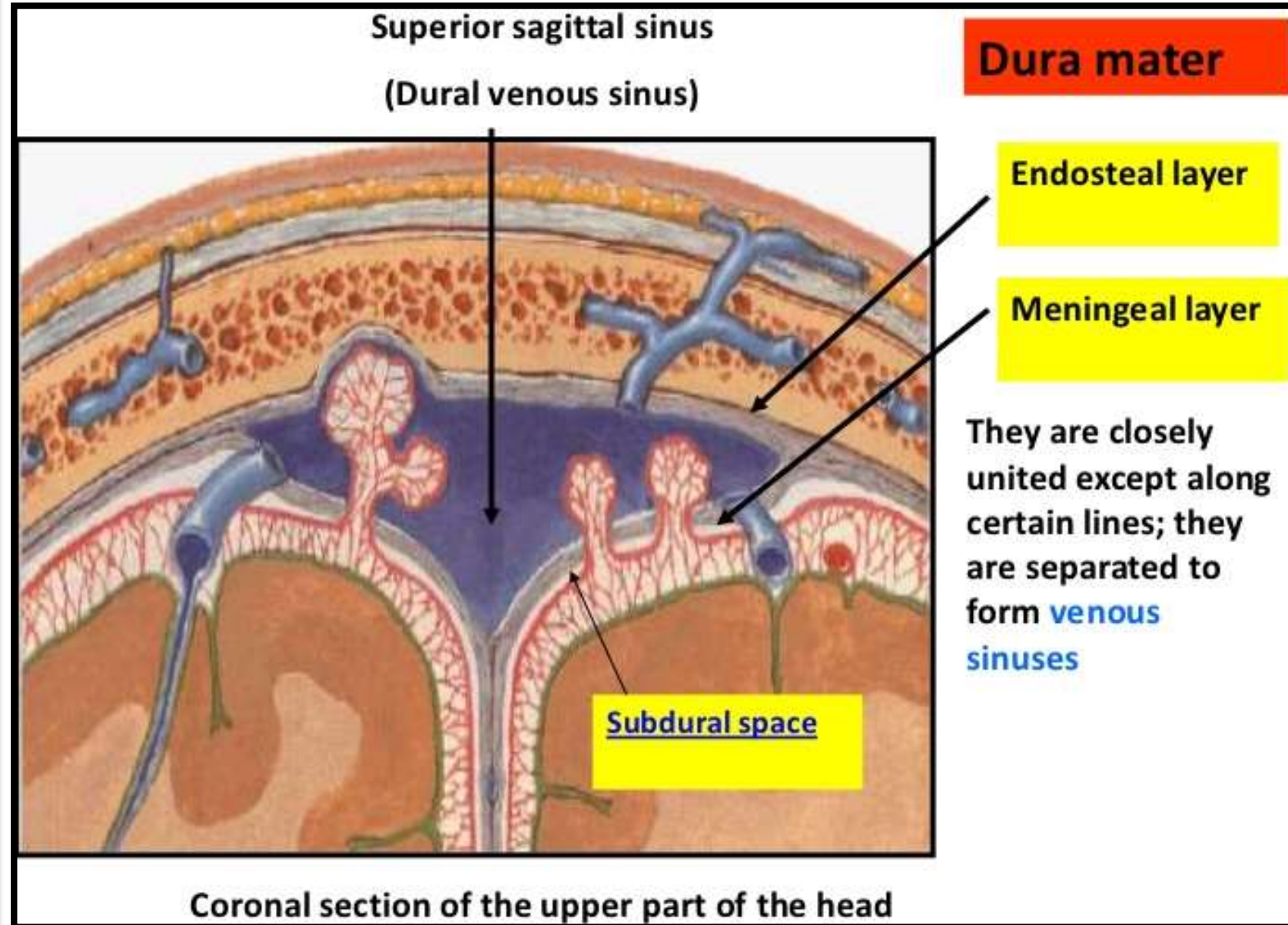


CEREBRAL DURAMATER contd...

❖ Composed of 2 layers:-

- Outer or endosteal layer.
- Inner or meningeal layer.

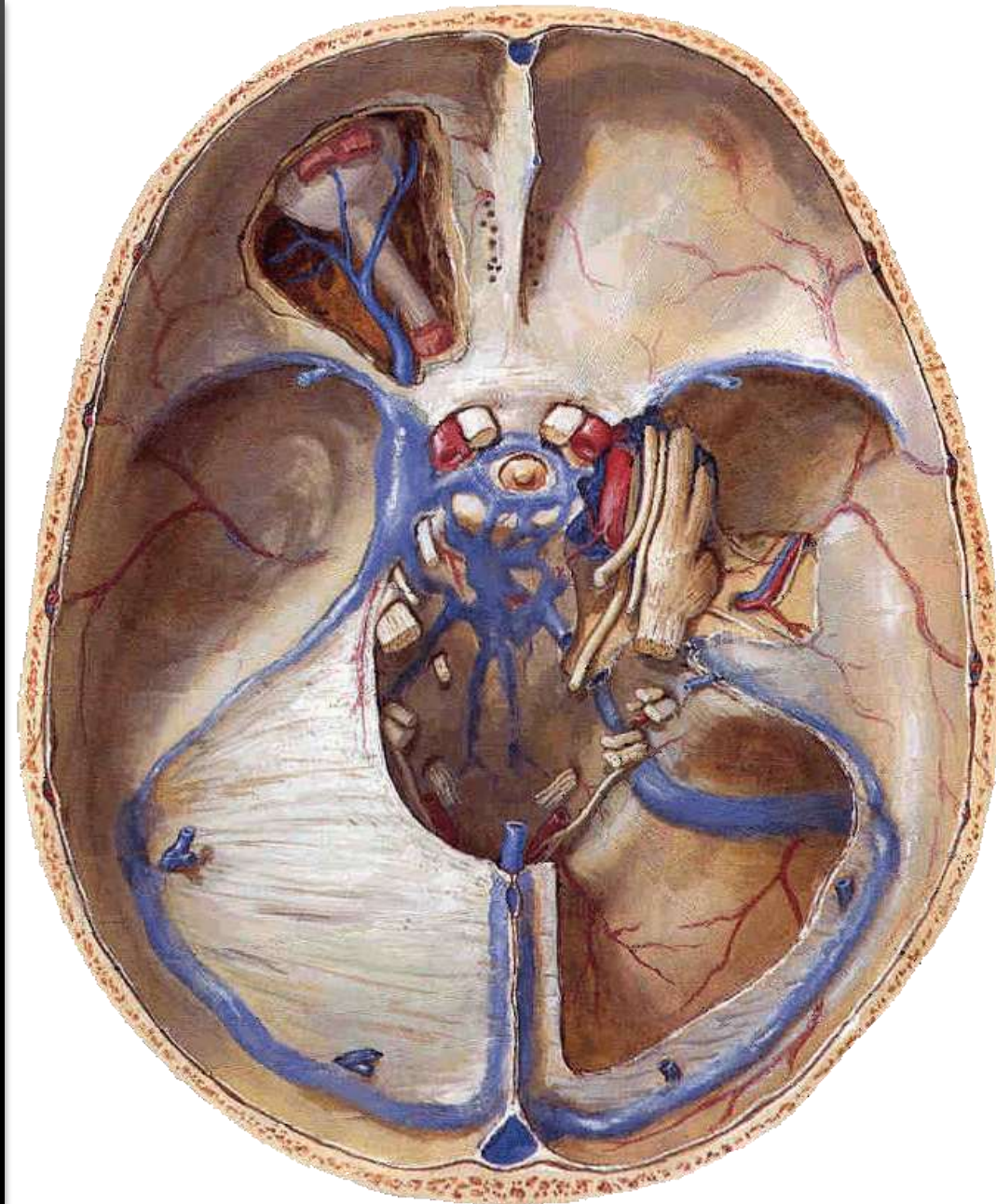
❖ Two layers fused, except to enclose the dural venous sinuses.



CEREBRAL DURAMATER contd...

OUTER or ENDOSTEAL LAYER (ENDOCRANIUM):

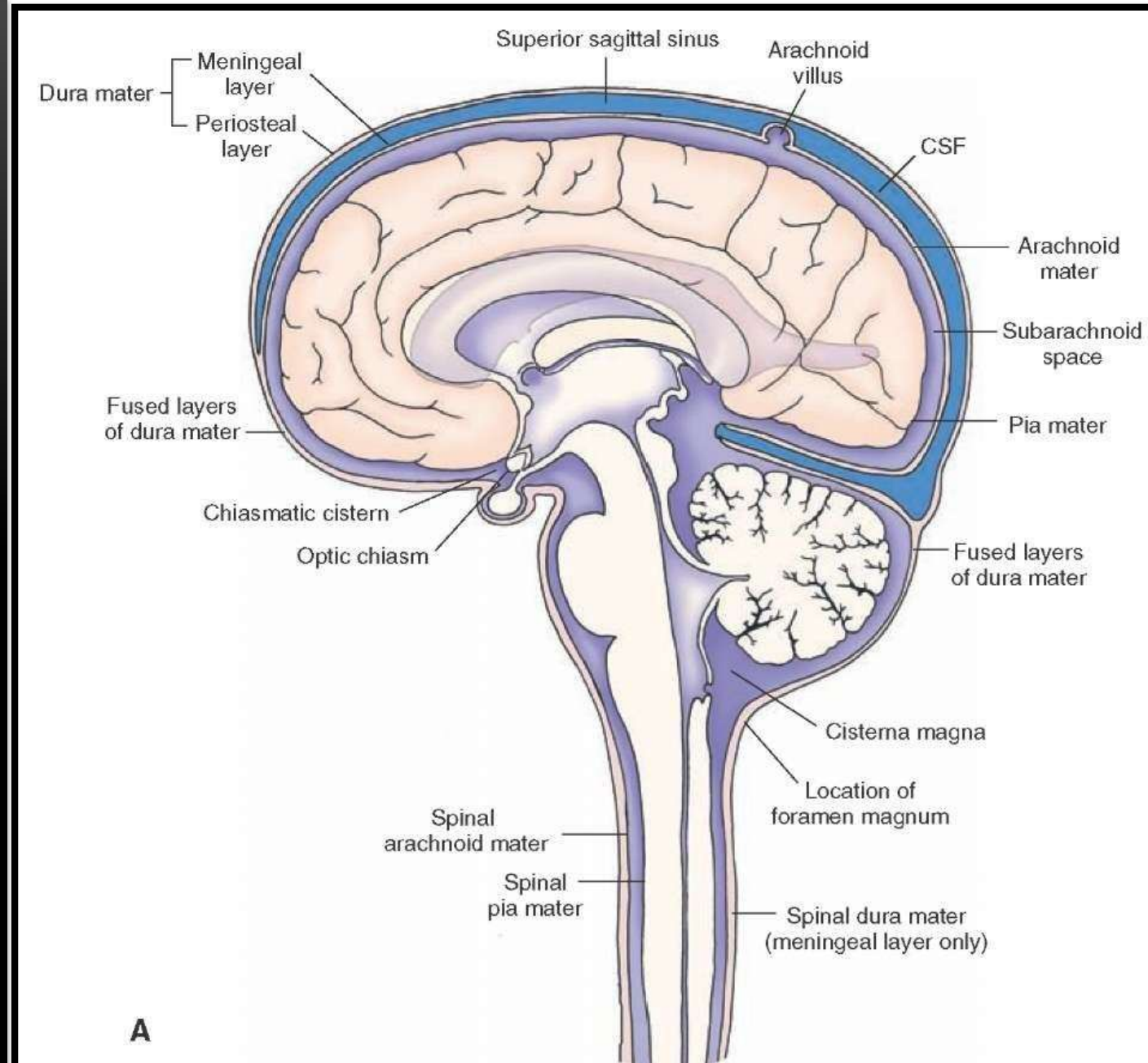
- Attaches to the bones of skull.
- It is the periosteum covering the inner surface of the skull bones.
- Attaches with the pericranium through the sutures and foramina.
- Around the margins of all the foramina in the skull, it becomes continuous with the periosteum on the outside of the skull bones (pericranium).
- At the sutures it is continuous with the sutural ligaments.
- In loose contact with calvaria.
- Most strongly adherent to the base of skull and at the sutures.
- Provides sheaths for cranial nerves



CEREBRAL DURAMATER contd...

INNER or MENINGEAL LAYER:

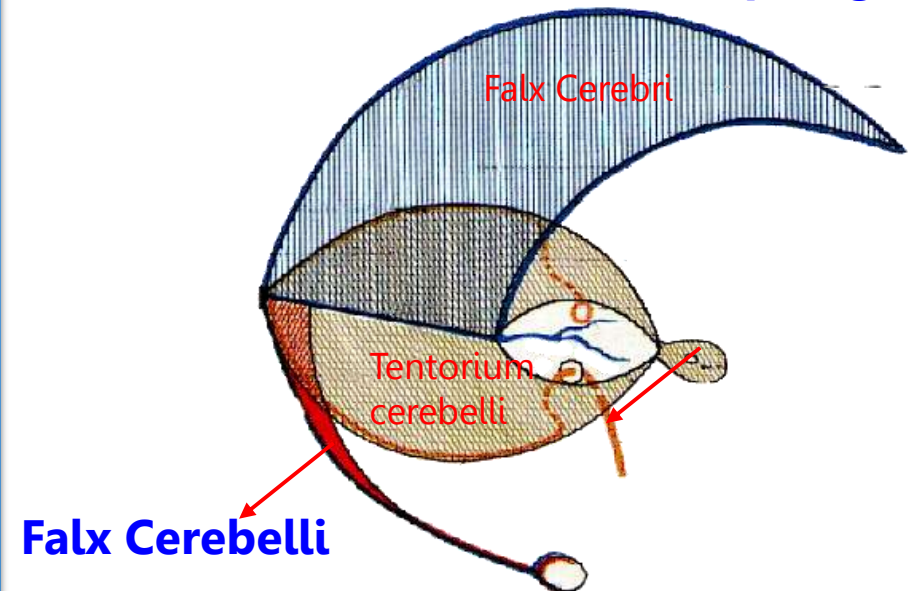
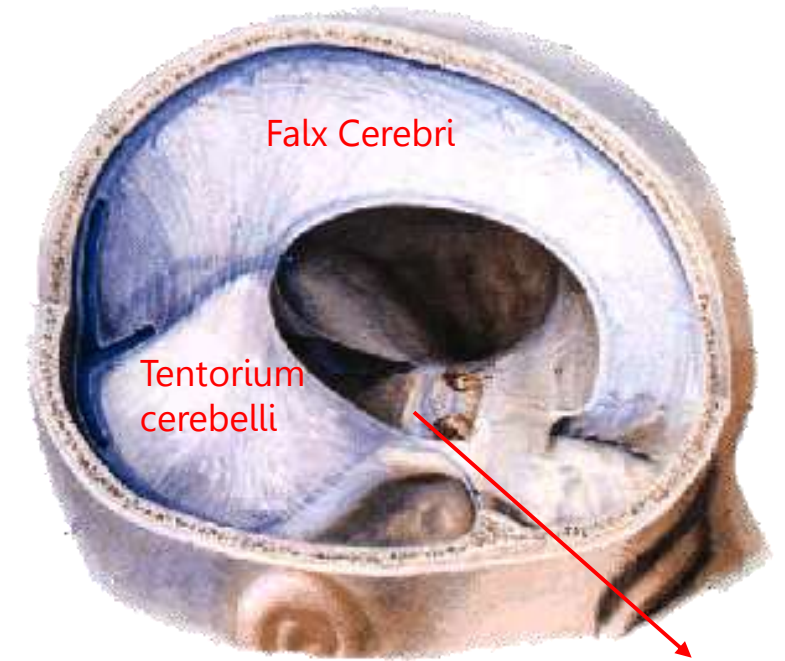
- Dura mater proper.
- A dense, strong fibrous membrane covering the brain.
- Continuous with the dura mater of the spinal cord (spinal dura) through the foramen magnum.
- Closer to brain.
- Provides tubular sheaths for the cranial nerves as the latter pass through the foramina in the skull.
- Outside the the skull, the sheaths fuse with the epineurium of the nerves.
- At places the meningeal layer is folded on itself to form **dural folds**



FOLDS OF DURAMATER or DURAL REFLECTIONS or DURAL SEPTA

❖ At certain places, the meningeal layer of dura folds on itself and forms divisions or partitions between parts of the brain.

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



FALX CEREBRI

- ❖ Large sickle-shaped fold.

- ❖ It has 2 ends:

- Anterior end.
- Posterior end.

- ❖ It has 2 margins:

- Upper margin.
- Lower margin.

Anterior end-

- It is narrow and is attached to the crista galli of Ethmoid bone.

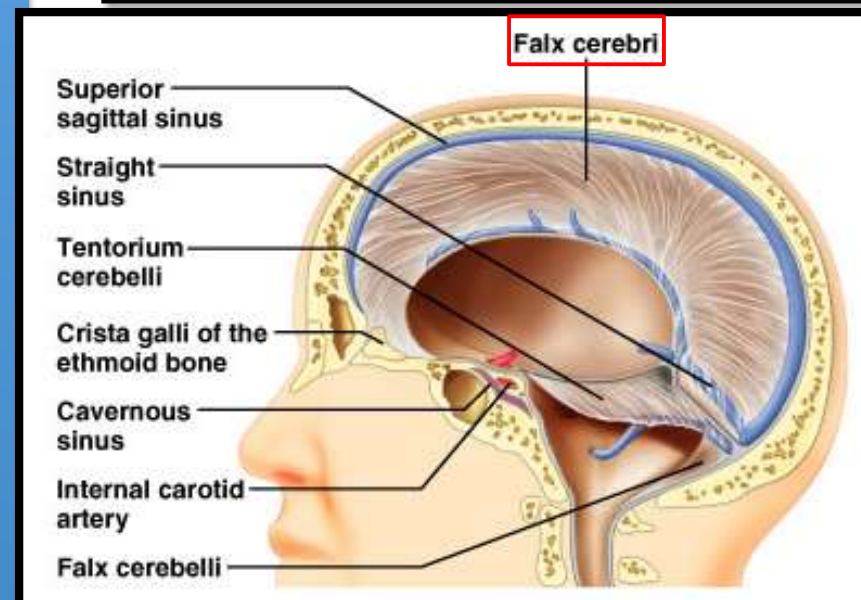
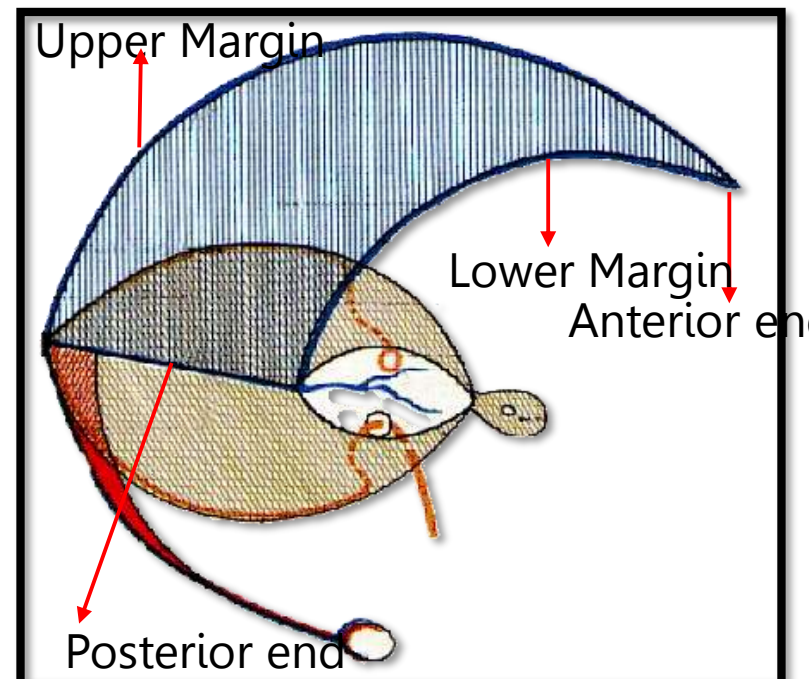
Posterior end-

- It is broad and attached on the upper surface of tentorium cerebelli in the median plane.

Upper margin-

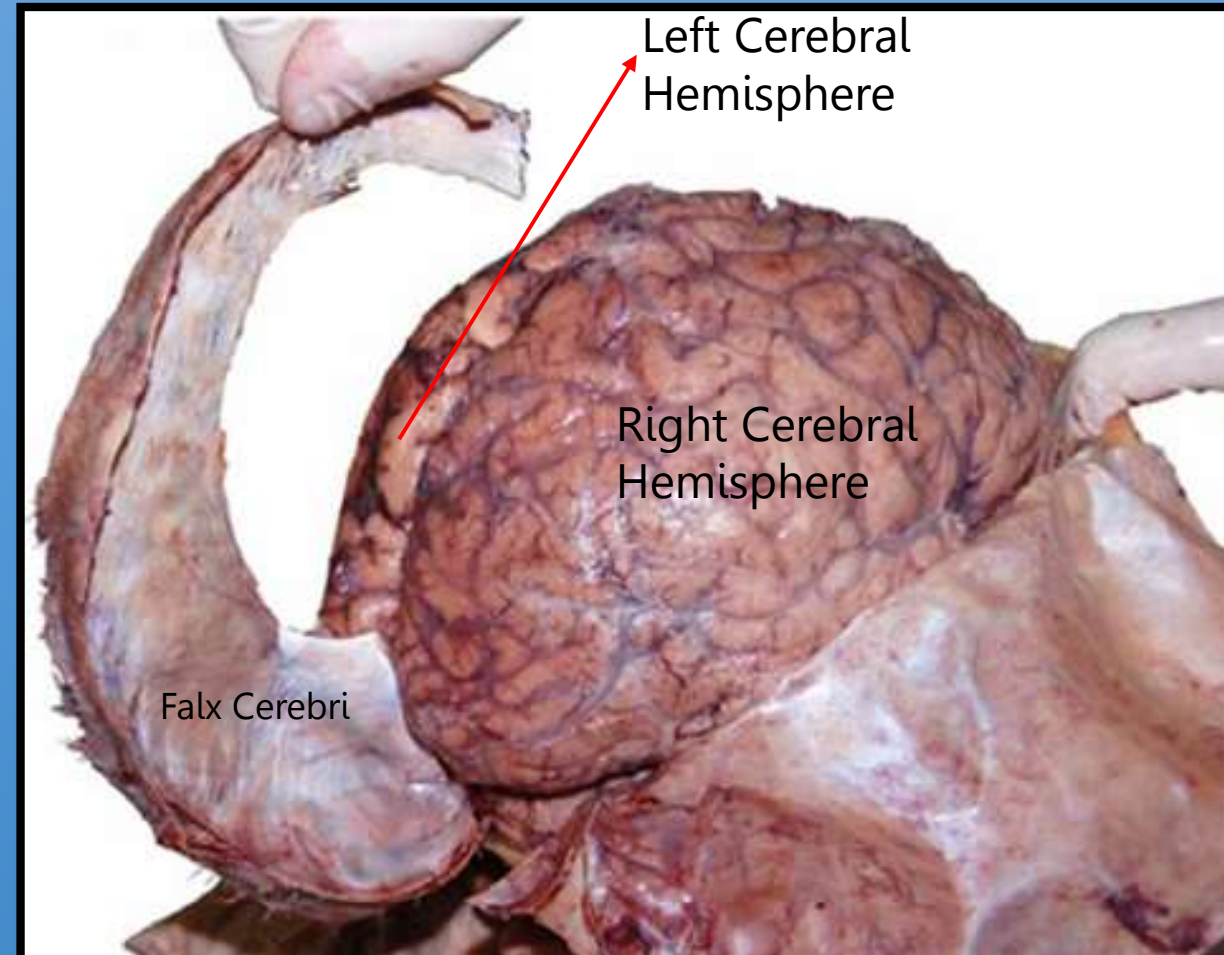
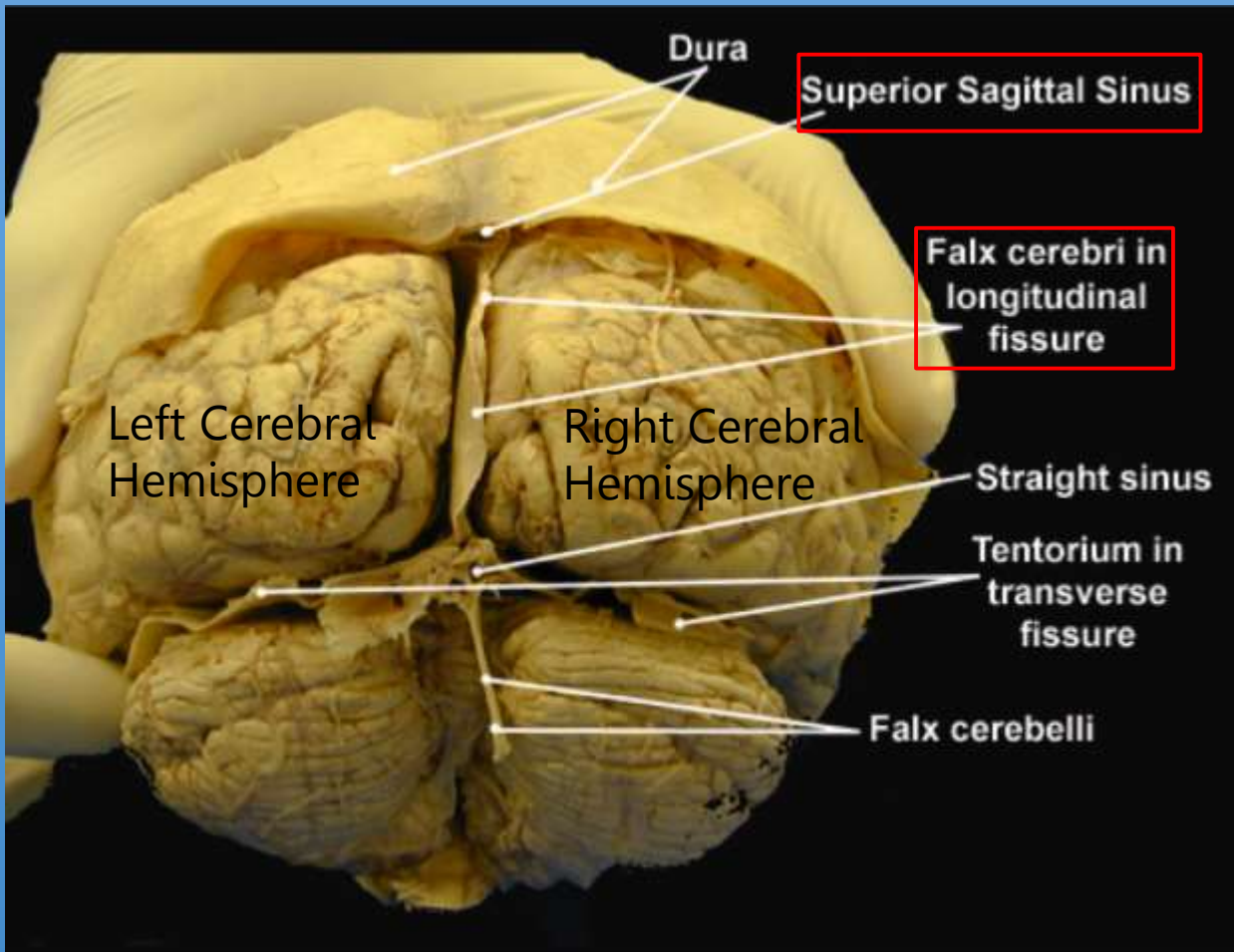
- It is convex and is attached to the margins of sagittal sulcus of skull vault.

Lower margin-



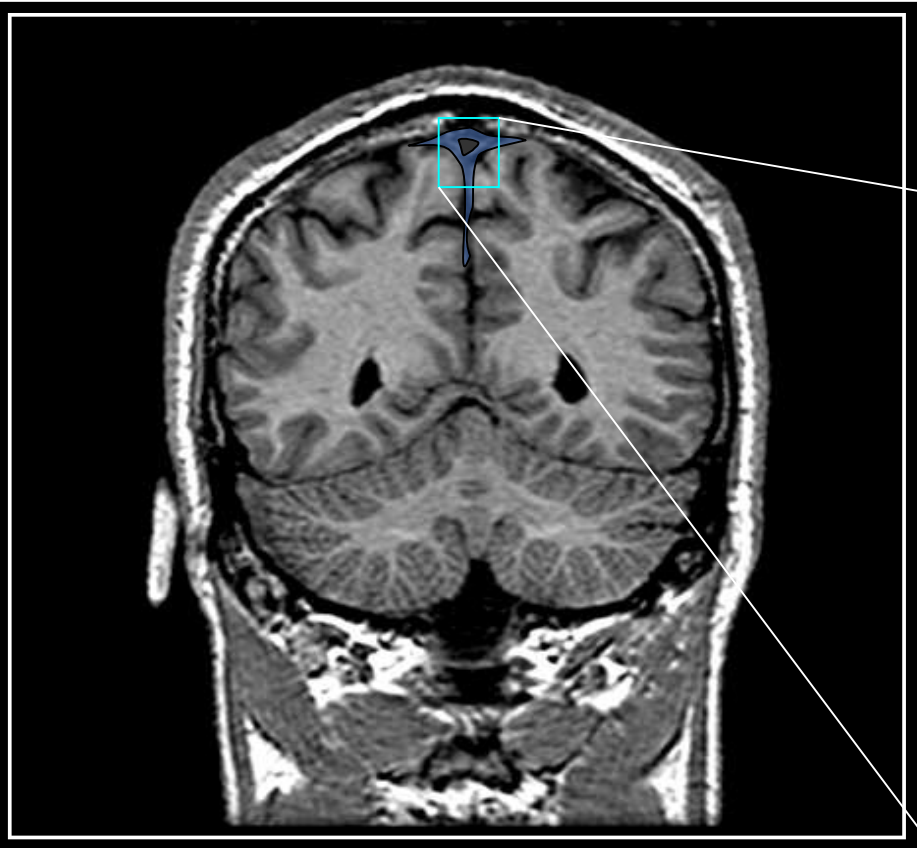
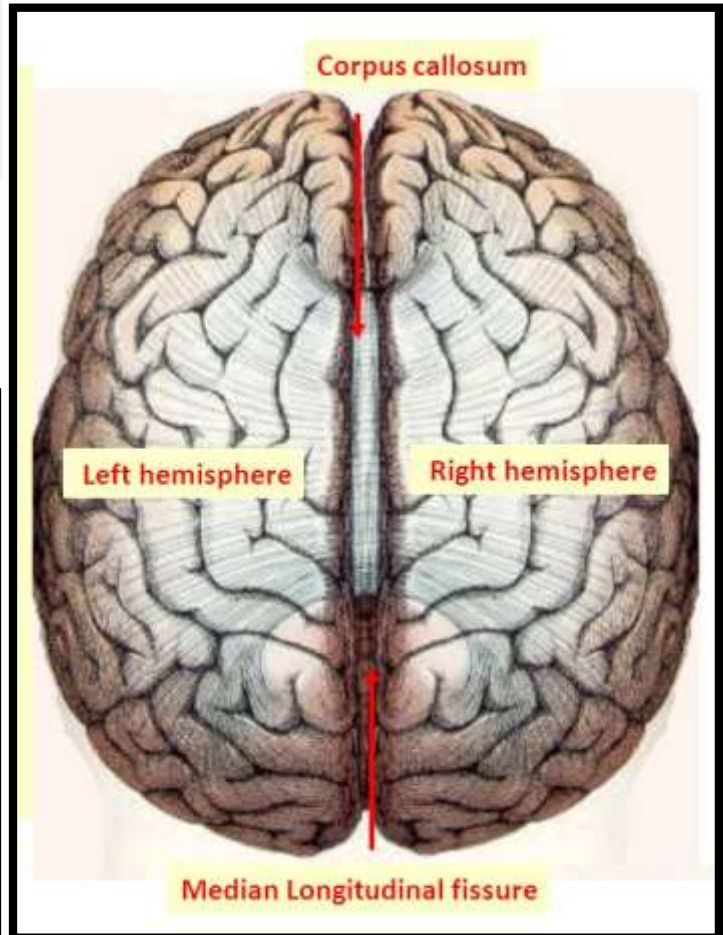
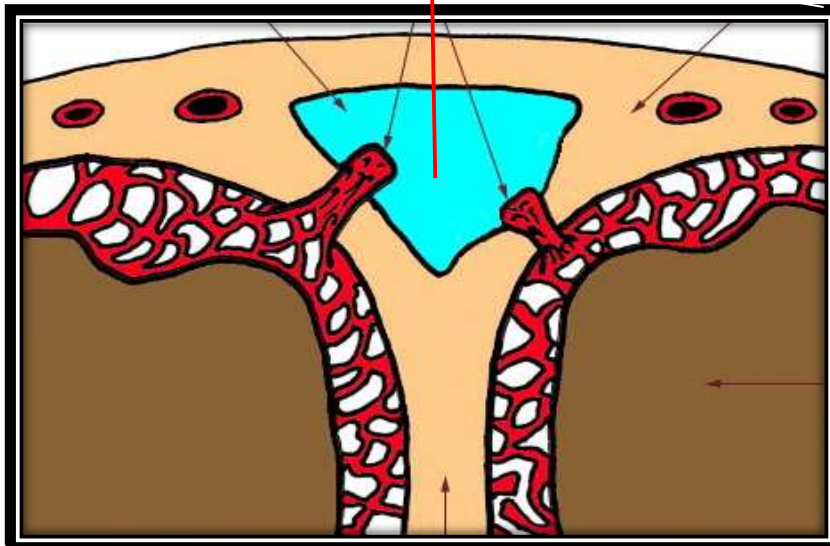
FALX CEREBRI contd...

- ❖ Extends down the median longitudinal fissure, between the two cerebral hemispheres.
- ❖ Enclosed a triangular-shaped superior sagittal sinus superiorly.





Superior Sagittal Sinus



VENOUS SINUSES ENCLOSED IN THE FALX CEREBRI

1. Superior Sagittal Sinus.
2. Inferior Sagittal Sinus.
3. Straight Sinus.

Superior Sagittal Sinus-

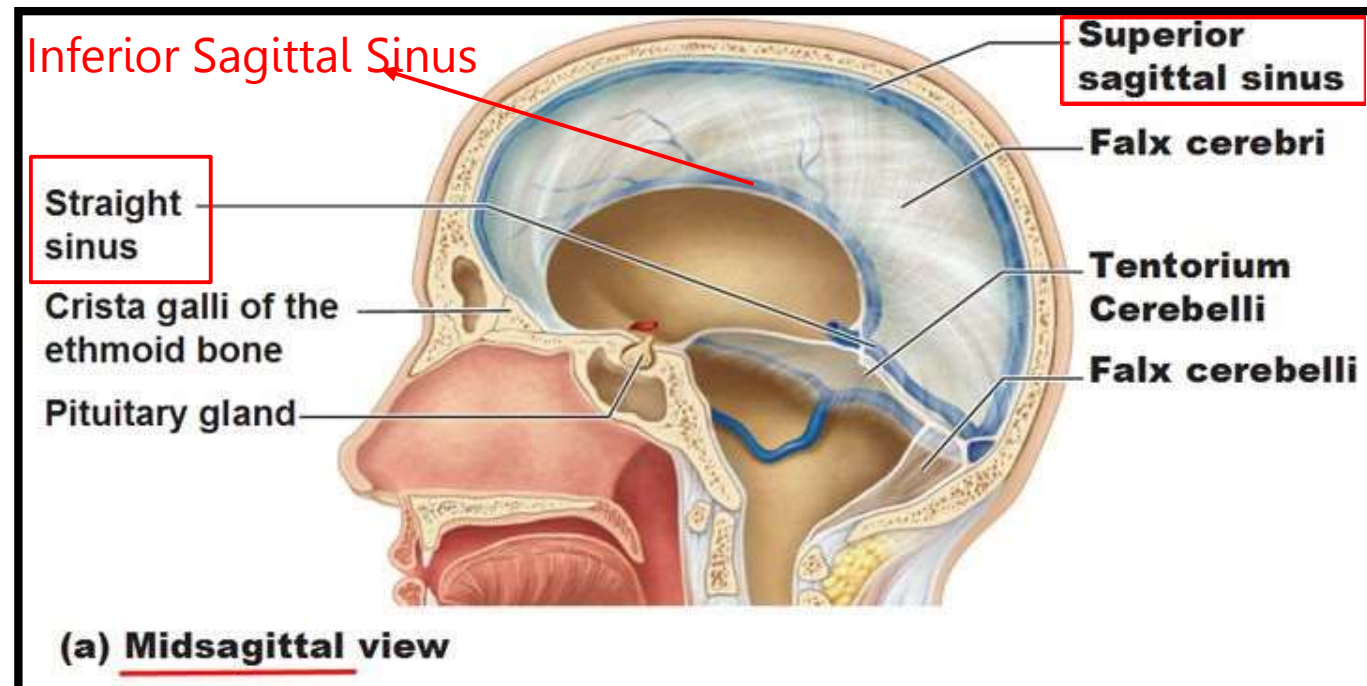
It is enclosed within the convex upper border.

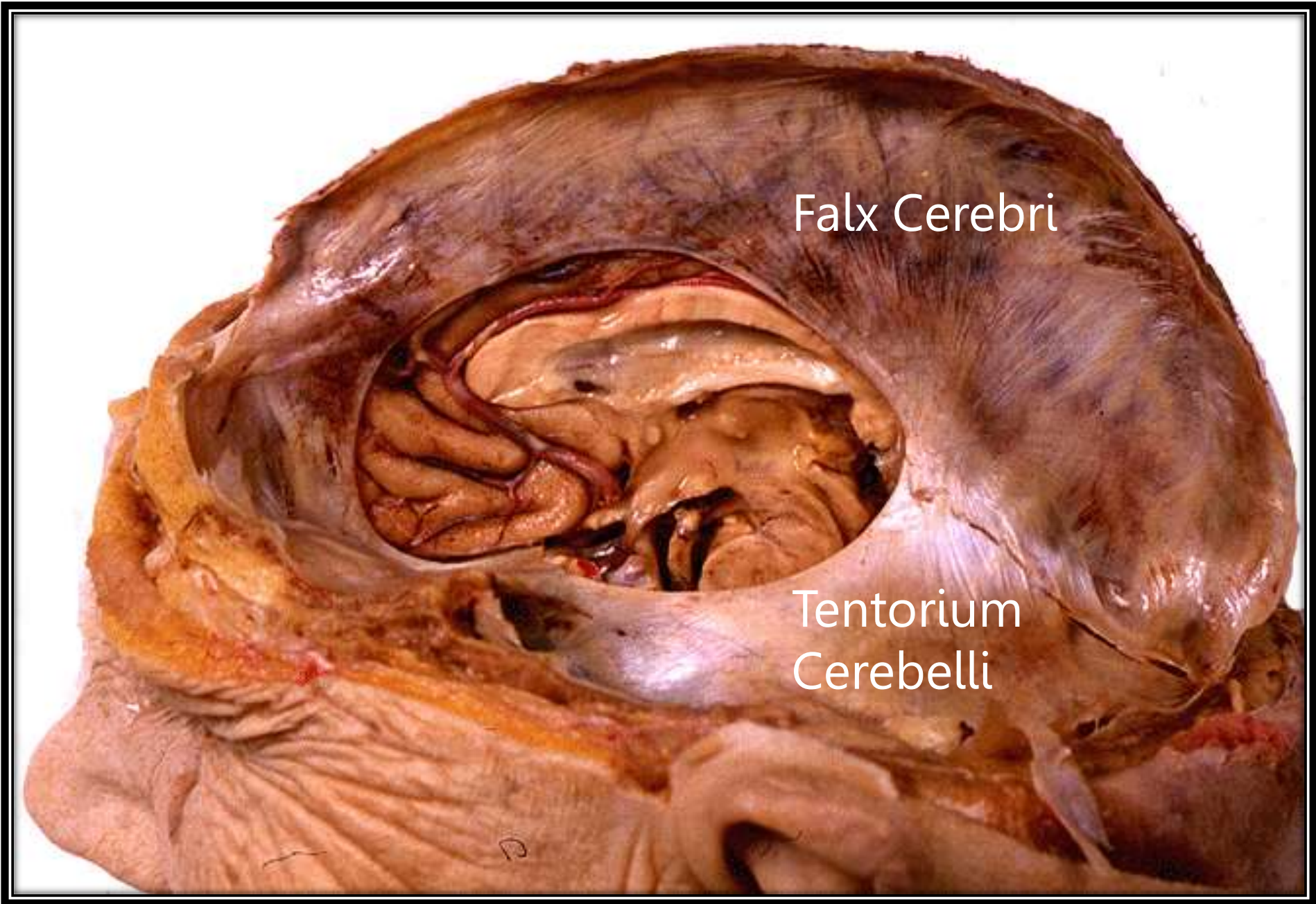
Inferior Sagittal Sinus-

It is enclosed within the concave lower border.

Straight Sinus-

It lies along the line of attachment



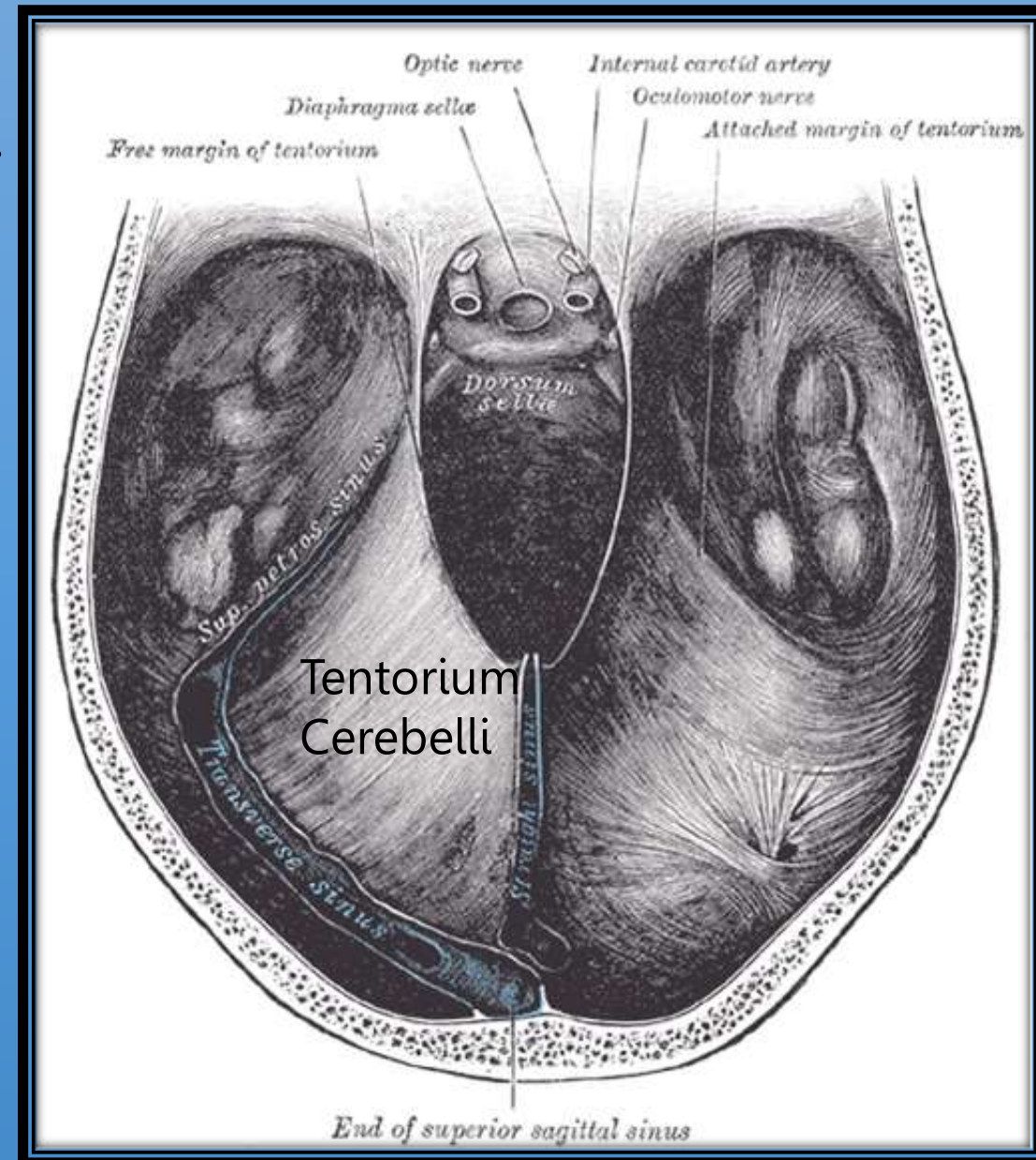


Falx Cerebri

Tentorium
Cerebelli

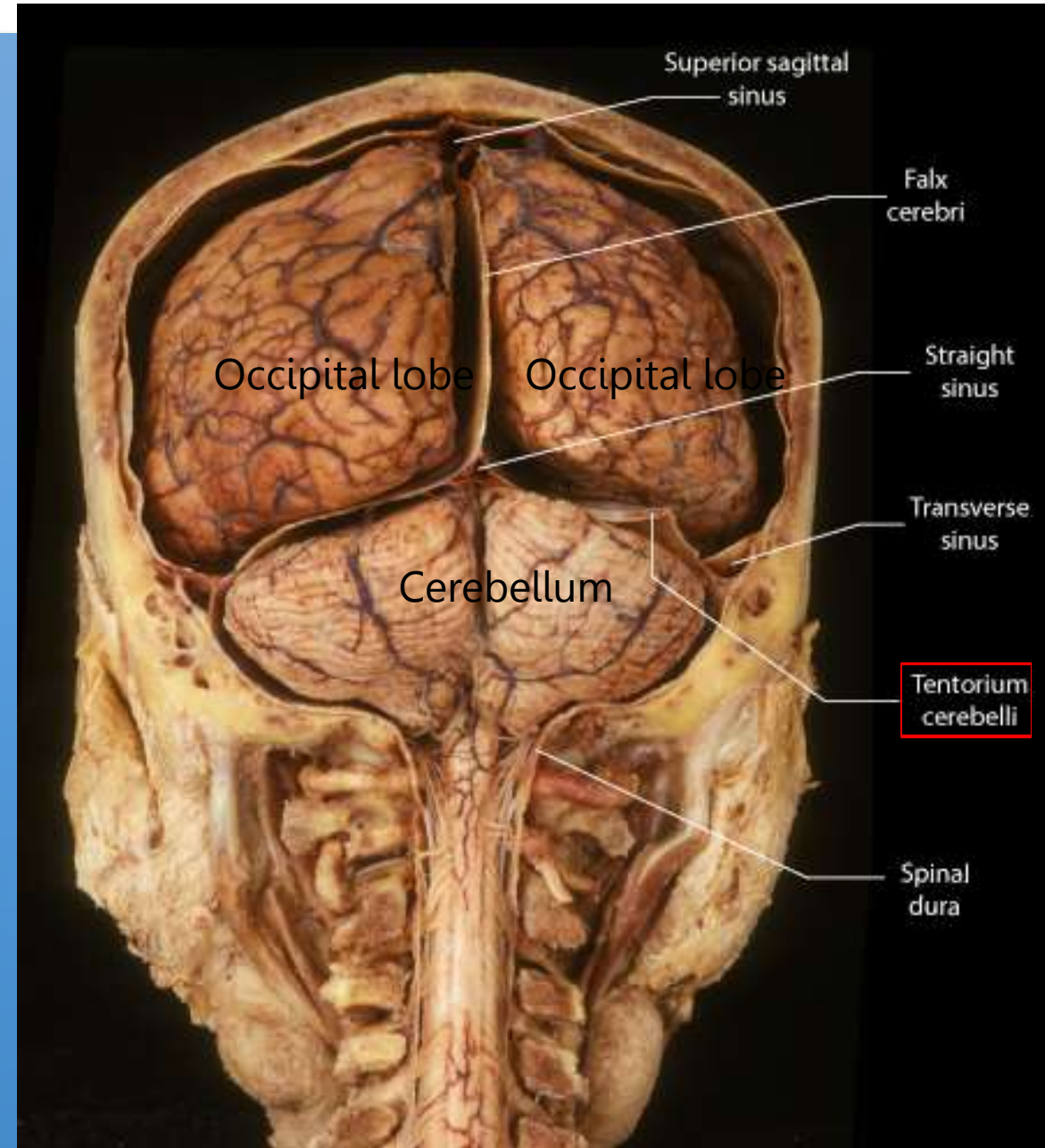
TENTORIUM CEREBELLI

- ❖ Tent-shaped fold.
- ❖ Forms the roof of posterior cranial fossa.



TENTORIUM CEREBELLI contd...

- ❖ Extends inward between the cerebellum below and occipital lobes of cerebral hemispheres above.
- ❖ Divides the cranial cavity into supratentorial and infratentorial compartments.

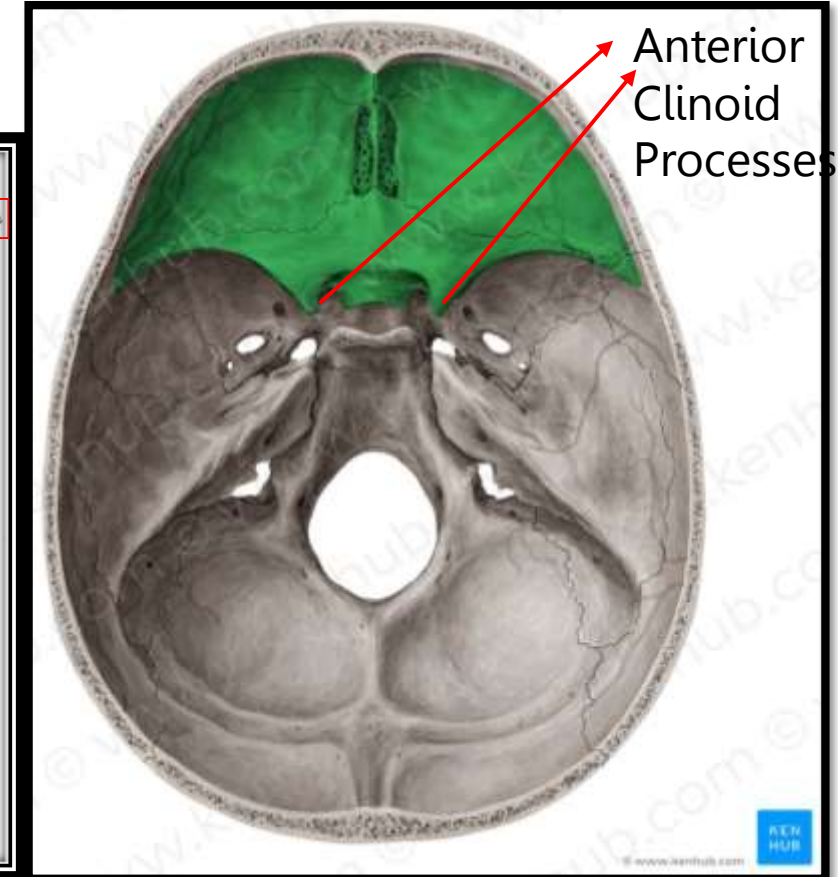
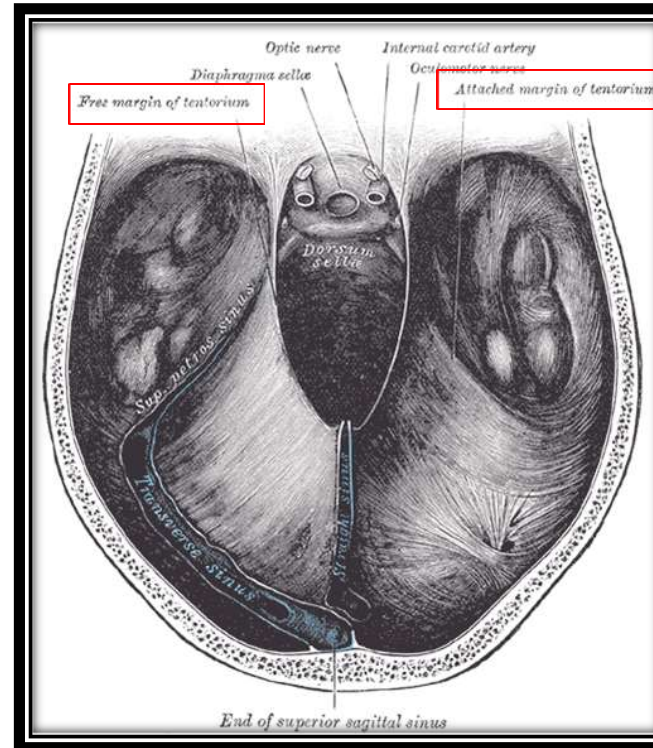


TENTORIUM CEREBELLI contd...

- ❖ It has 2 margins:
 - free margin.
 - attached margin.

Free Margin-

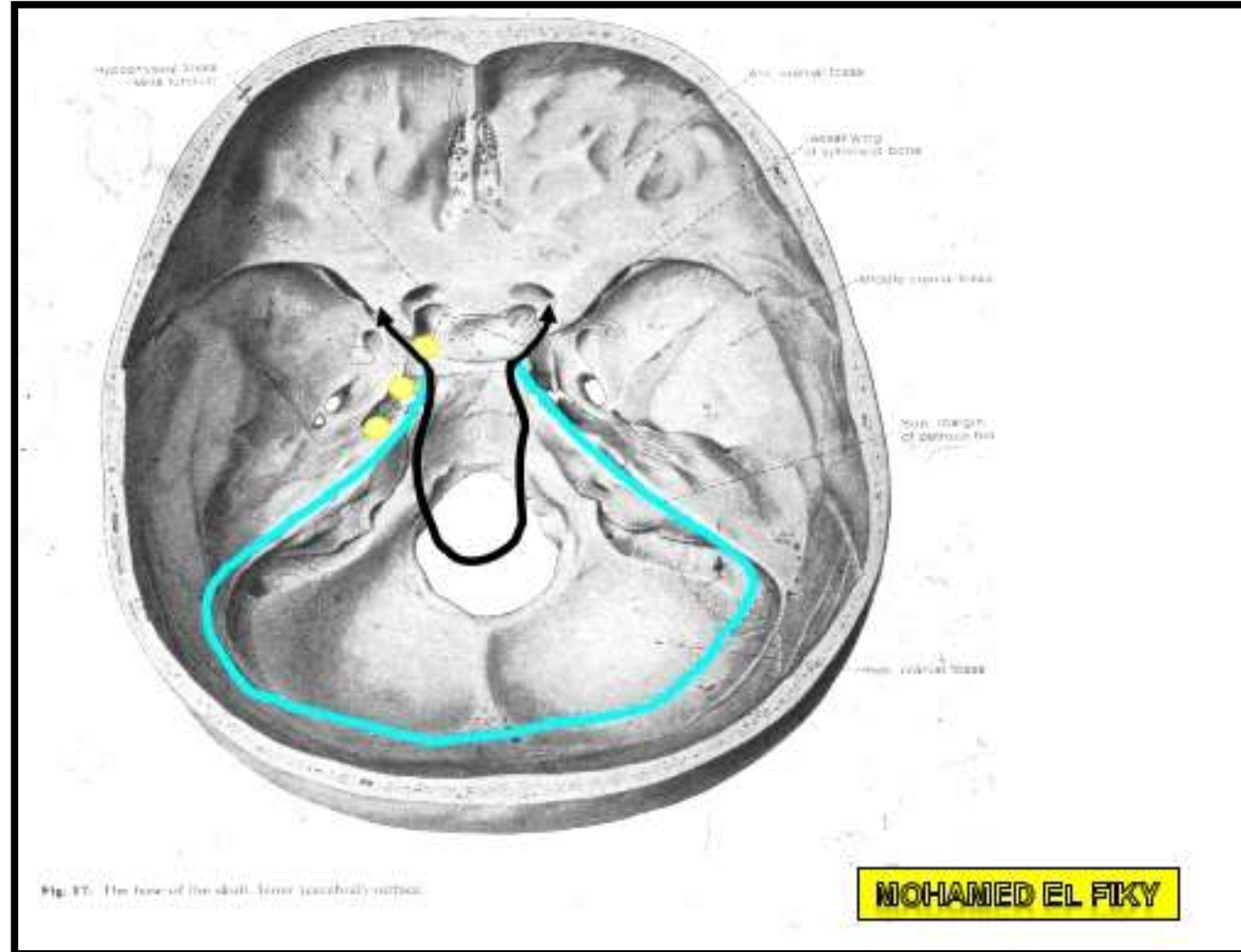
- It is 'U' shaped.
- It encloses the tentorial notch.
- Midbrain is present in the **tentorial notch (tentorial incisure)**.
- Anterior ends of this margin are attached to the anterior clinoid processes.



TENTORIUM CEREBELLI contd...

Attached Margin-

- It is convex.
- It is attached on each side (from before backwards) to the:
 - Posterior Clinoid process.
 - Superior border of petrous part of temporal bone.
 - Posteroinferior angle of parietal bone.
 - Lips of transverse sulcus of occipital bone.



TENTORIUM CEREBELLI contd...

❖ It has 2 surfaces:

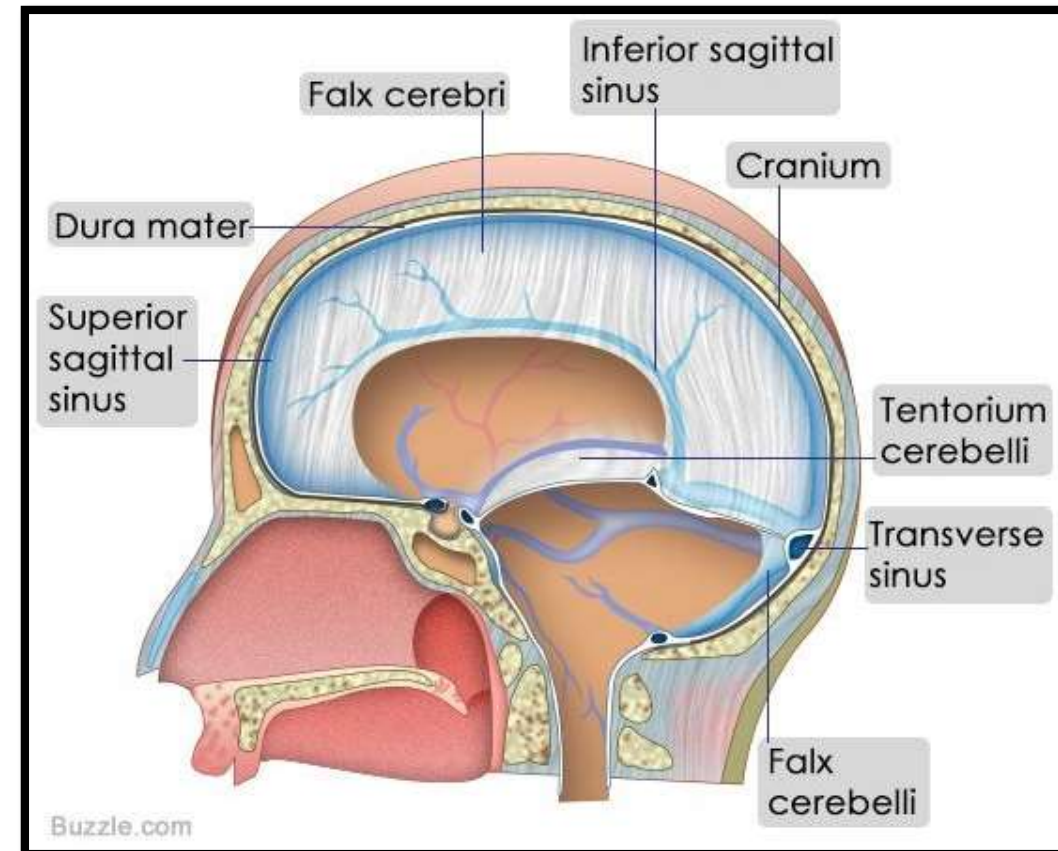
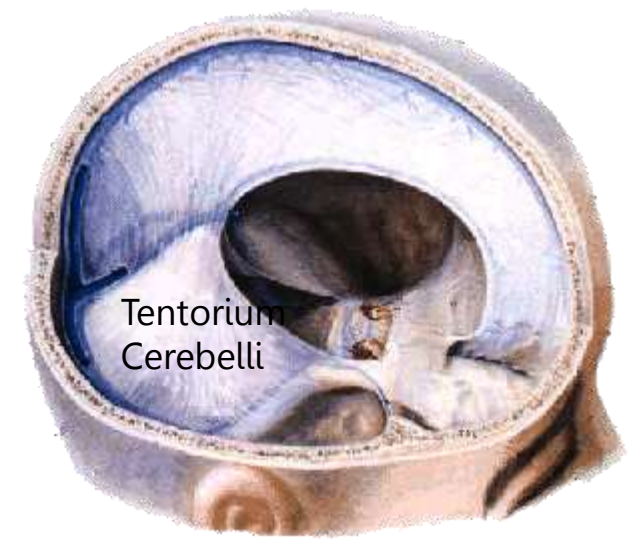
- Upper.
- Lower.

Upper Surface-

- It is convex.
- It is sloping from median plane.
- In the median plane it provides attachment to Falx Cerebri.

Lower Surface-

- It is concave.
- It provides attachment to Falx Cerebelli in the posterior part.



VENOUS SINUSES ENCLOSED IN THE TENTORIUM CEREBELLI

- ❖ Transverse sinus
- ❖ Superior Petrosal Sinus.
- ❖ Straight Sinus.

Transverse sinus

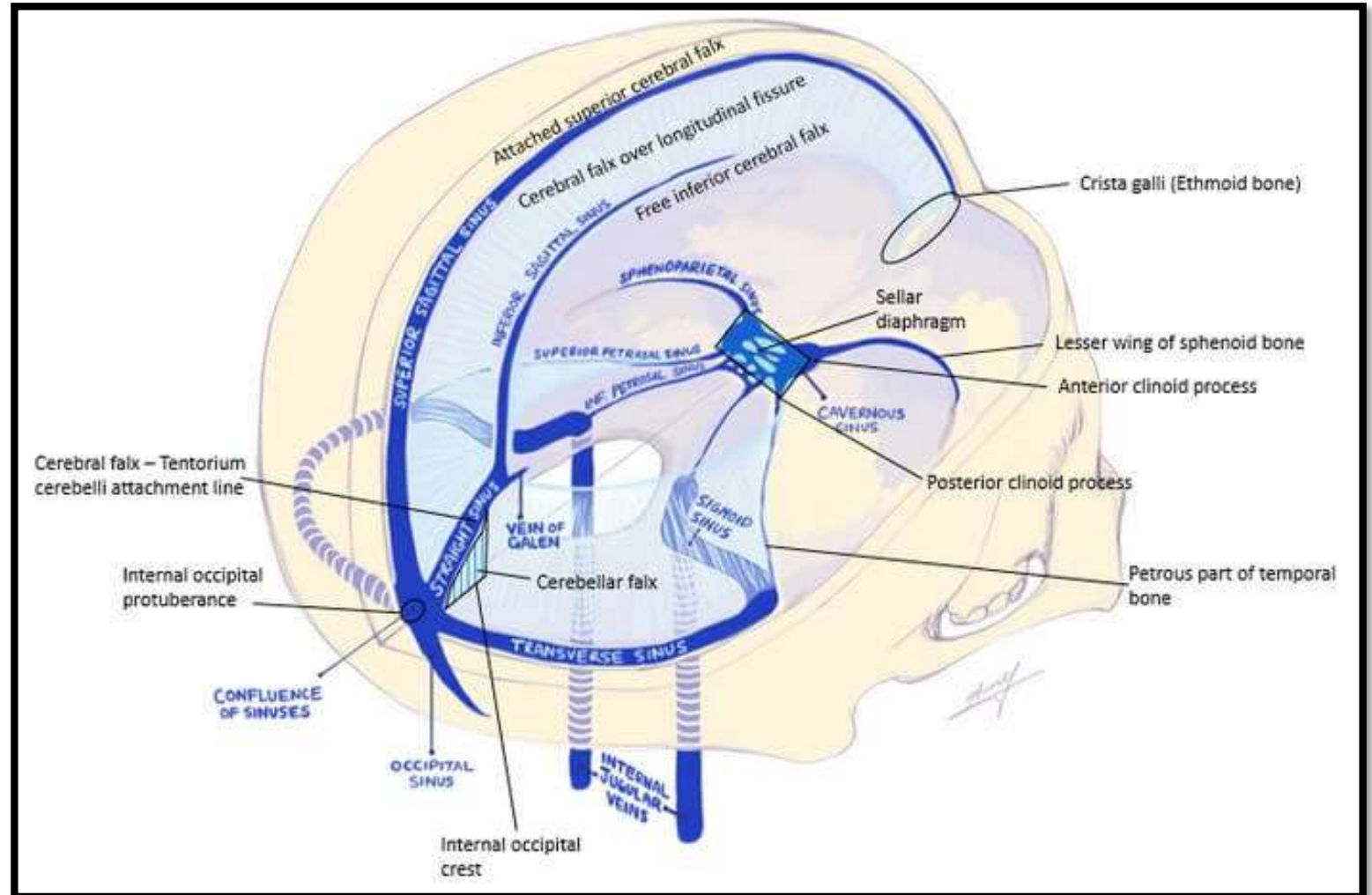
- ❖ It is enclosed within the posterior part of attached margin.

Superior Petrosal Sinus-

- ❖ It is enclosed within the anterolateral part of attached margin.

Straight Sinus-

- ❖ It lies along the line of attachment between Falx



FALX CEREBELLI

- ❖ Small **sickle-shaped** fold in the sagittal plane.
- ❖ Projects forwards into the posterior cerebellar notch.
- ❖ It has 2 margins:

- Anterior.
- Posterior.

Anterior Margin-

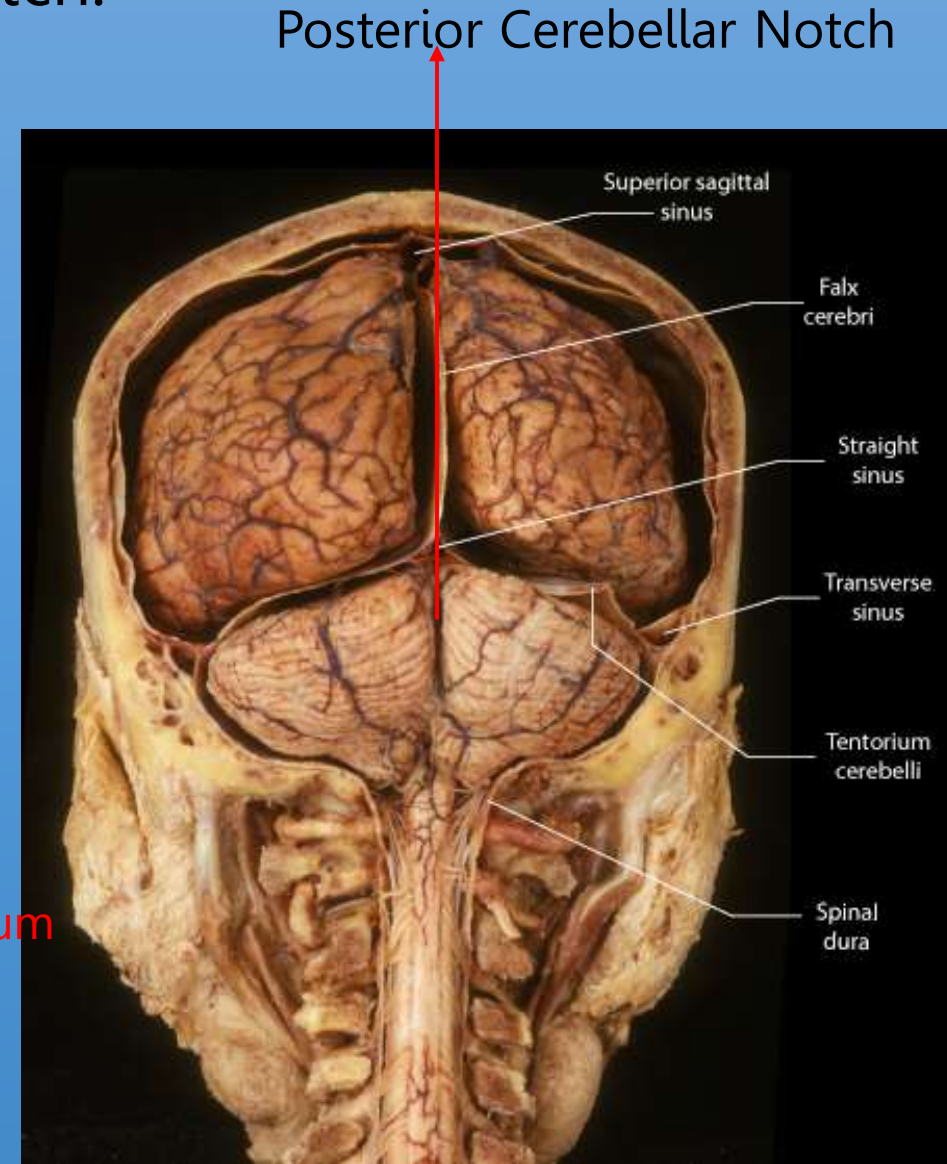
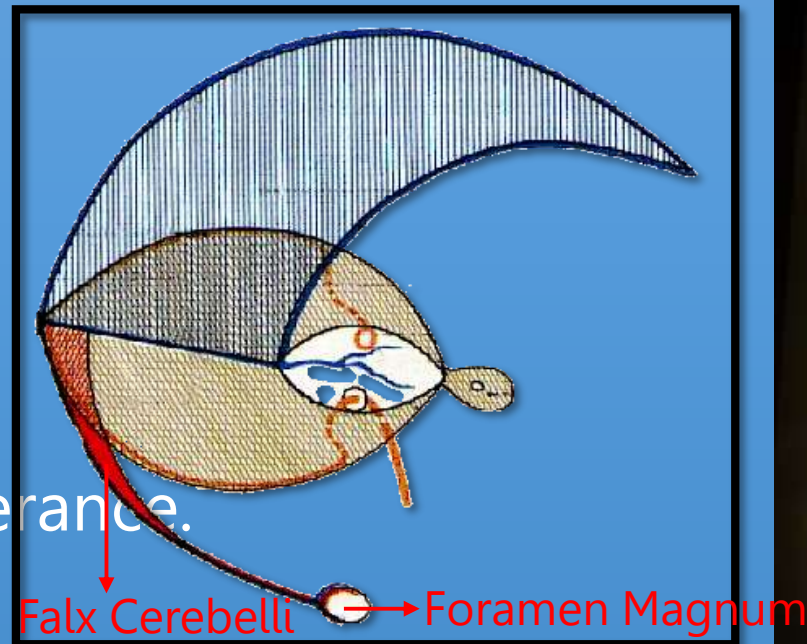
- ❖ It is free and concave.

Posterior Margin-

- ❖ It is convex.

- ❖ It is attached to:

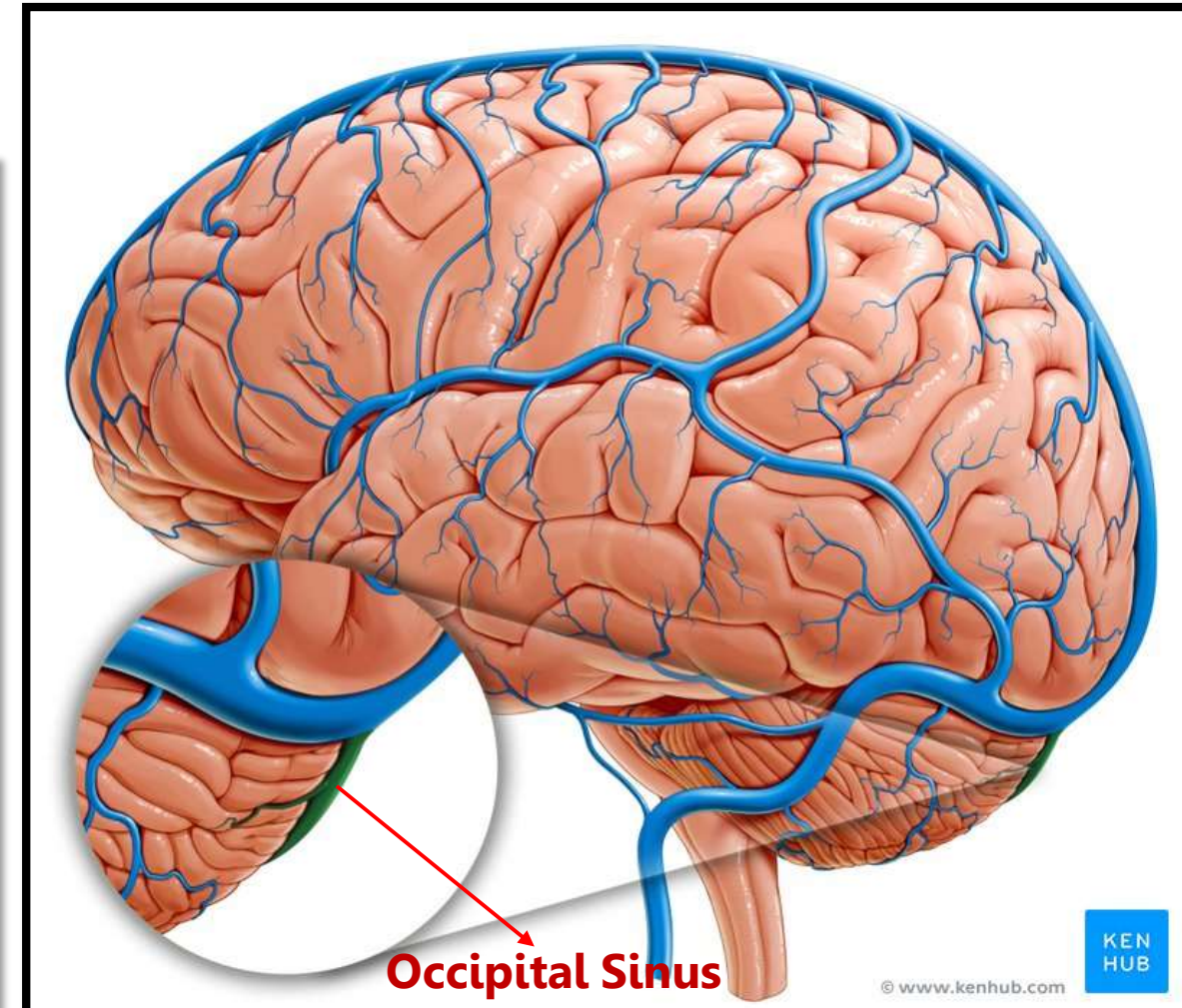
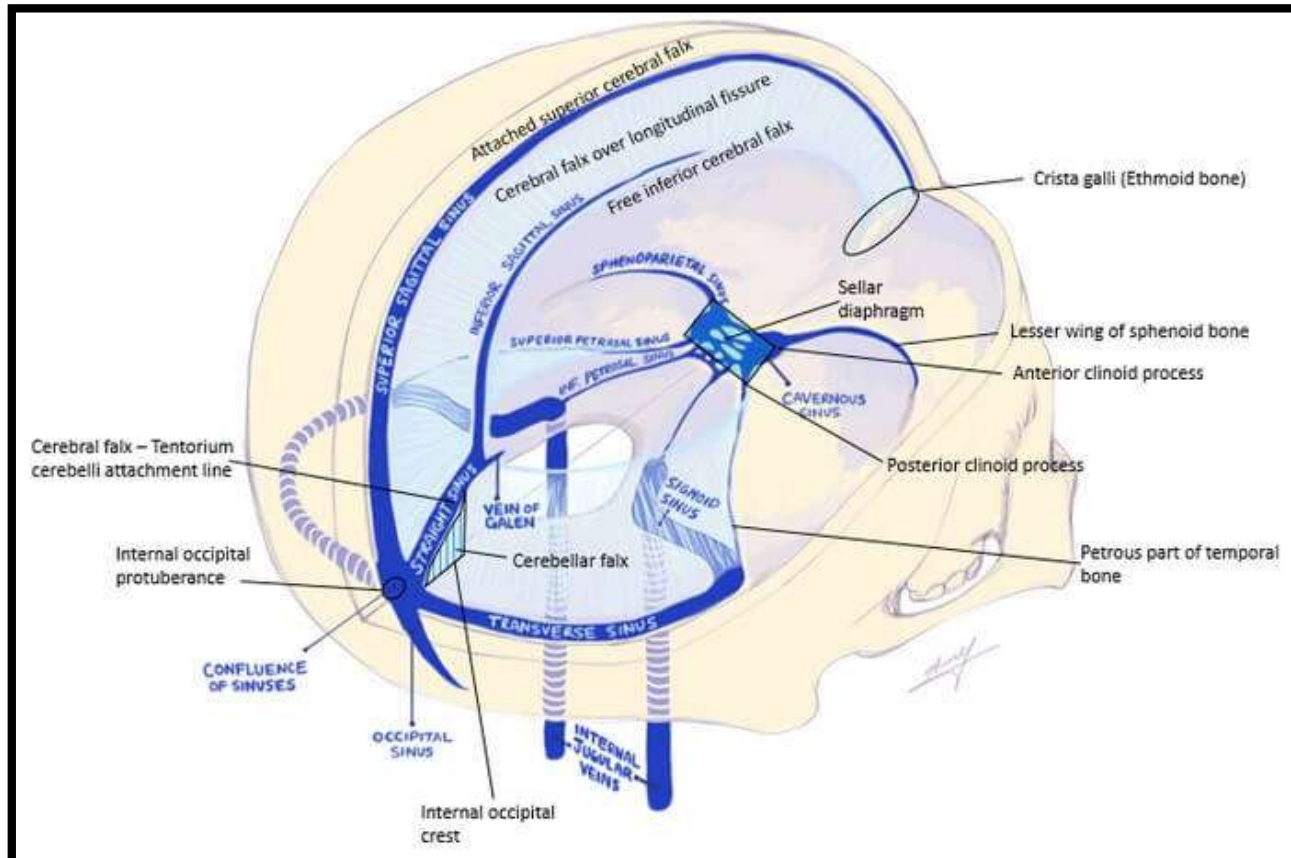
- Internal occipital protuberance.
- Internal occipital crest.
- Posterior margin of Foramen Magnum.



VENOUS SINUSES ENCLOSED IN THE FALX CEREBELLI

Occipital Sinus-

- It lies along the posterior margin.



DIAPHRAGMA SELLAE

- ❖ Small, circular and horizontal fold.
- ❖ It forms the roof of hypophyseal fossa.

Attachments-

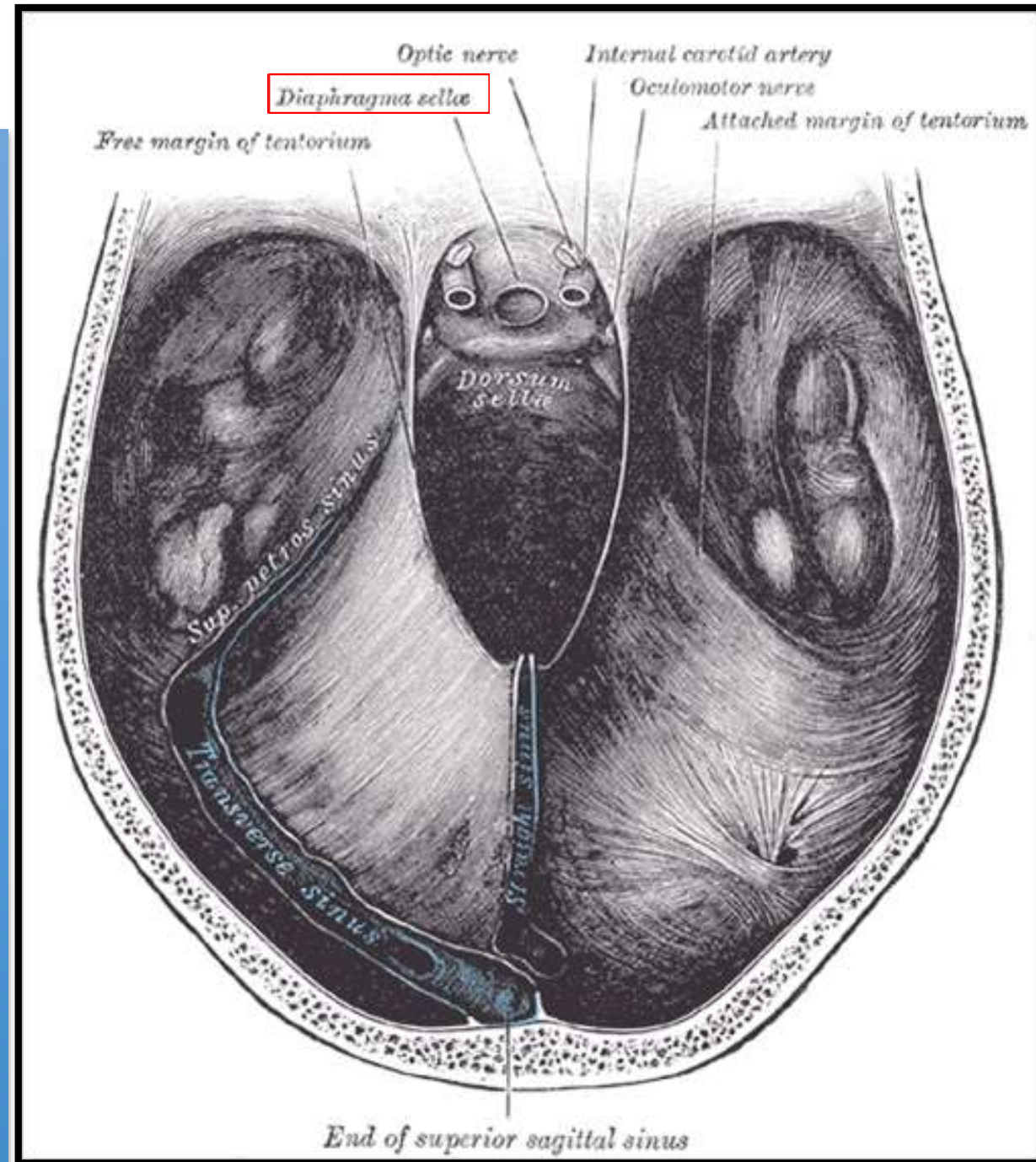
Anteriorly-

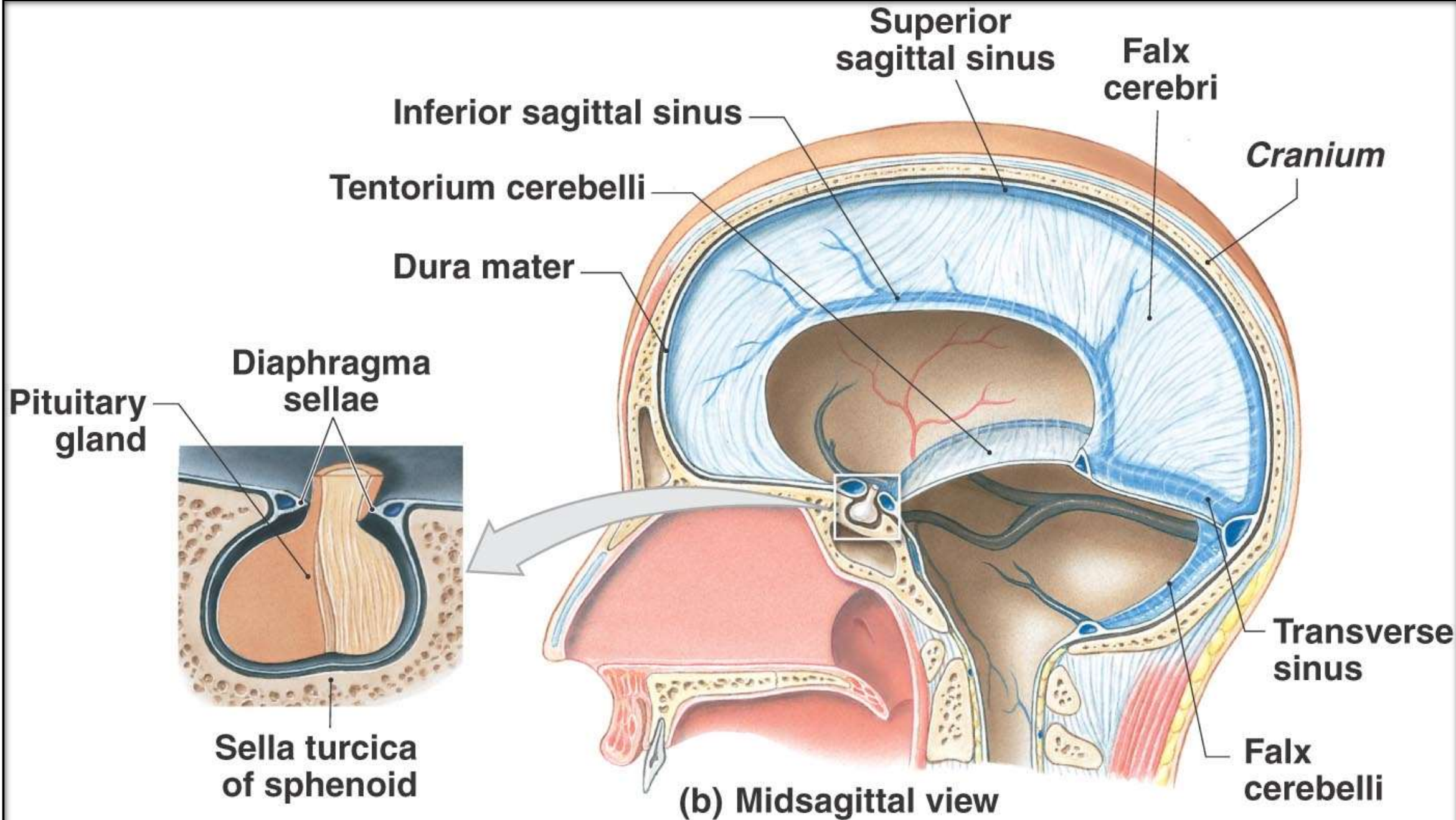
- To the Tuberculum sellae.

Posteriorly-

- To the Dorsum sellae.

- ❖ It has a central aperture for the passage of stalk of Pituitary gland.







**THANK
YOU**

