The University of Jordan
Faculty Of Medicine

Cranial Cavity Part 1

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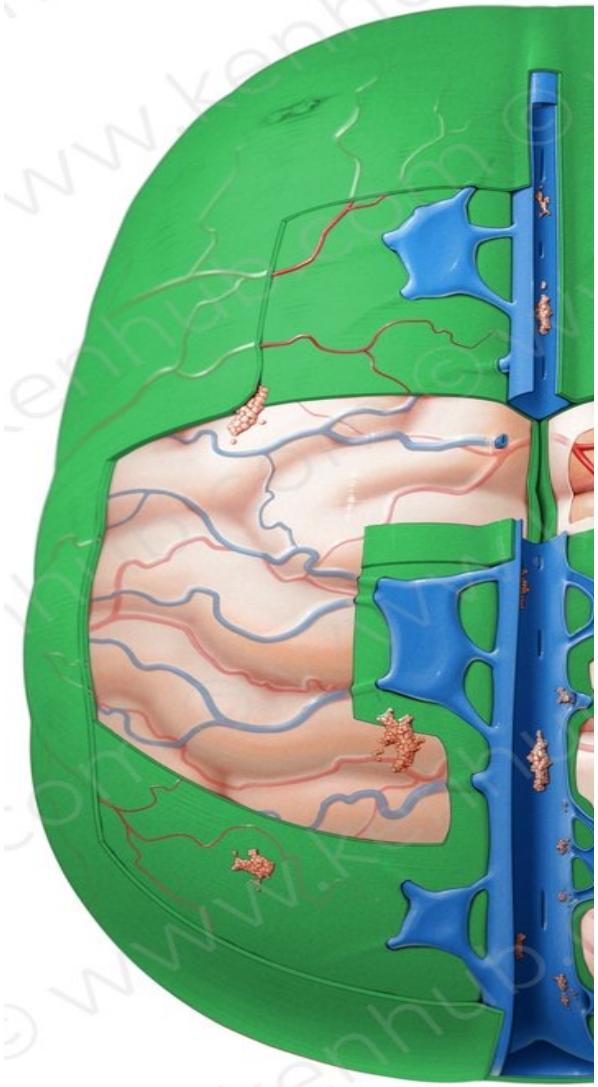
The cranial cavity is the space inside the skull that accommodates the brain and its associated structures.

The whole of the brain and spinal cord are enveloped by three membranes called the meninges which are named from outside to inside :

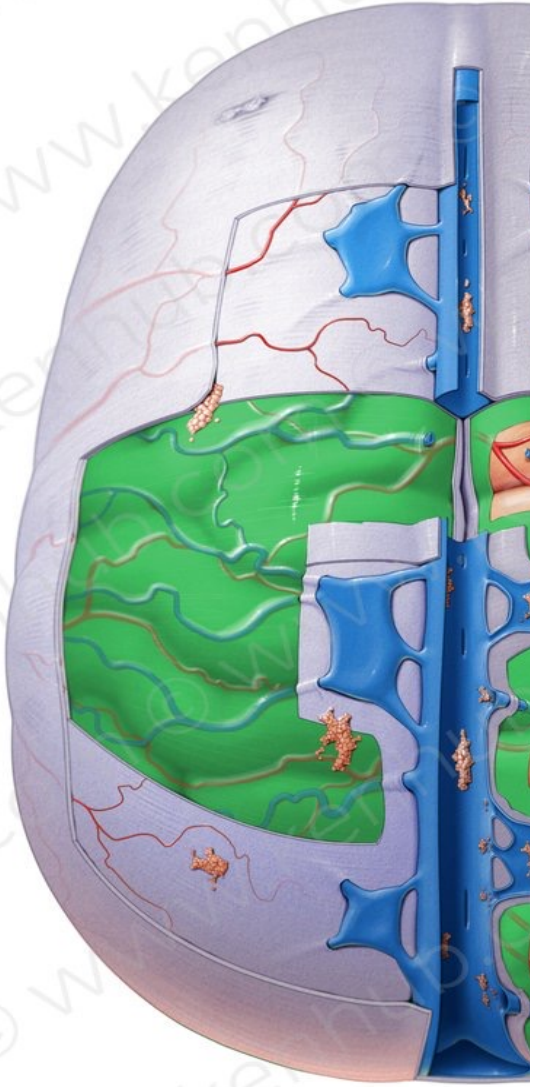
1. Dura mater
2. Arachnoid
3. Pia mater

They are separated by two spaces

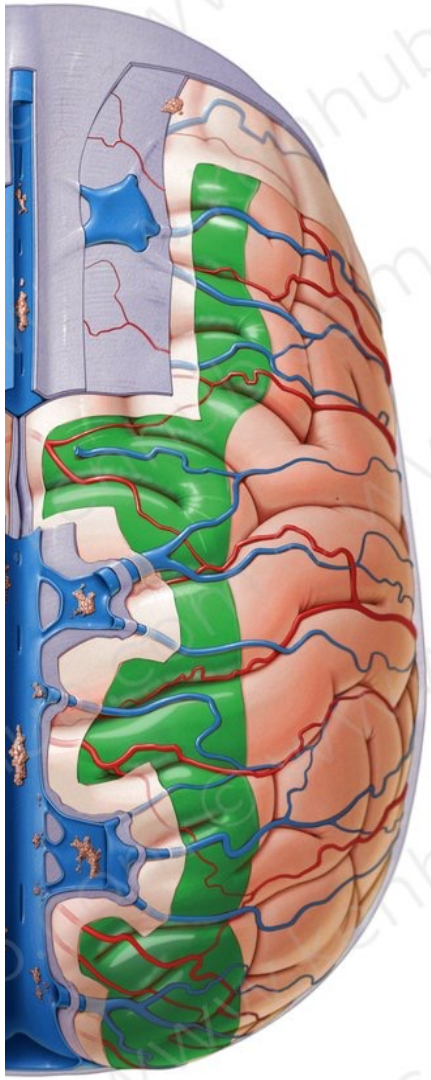
A. The subdural space (between Dura and Arachnoid)
B. The Subarachnoid space (between Arachnoid and Pia)



Dura mater



Arachnoid



Pia mater

Dura Mater :

It is the outermost and the thickest meningeal layer.

It has 2 layers :

1- The outer (periosteal) layer:

It is the periosteum which lines the inside of the skull

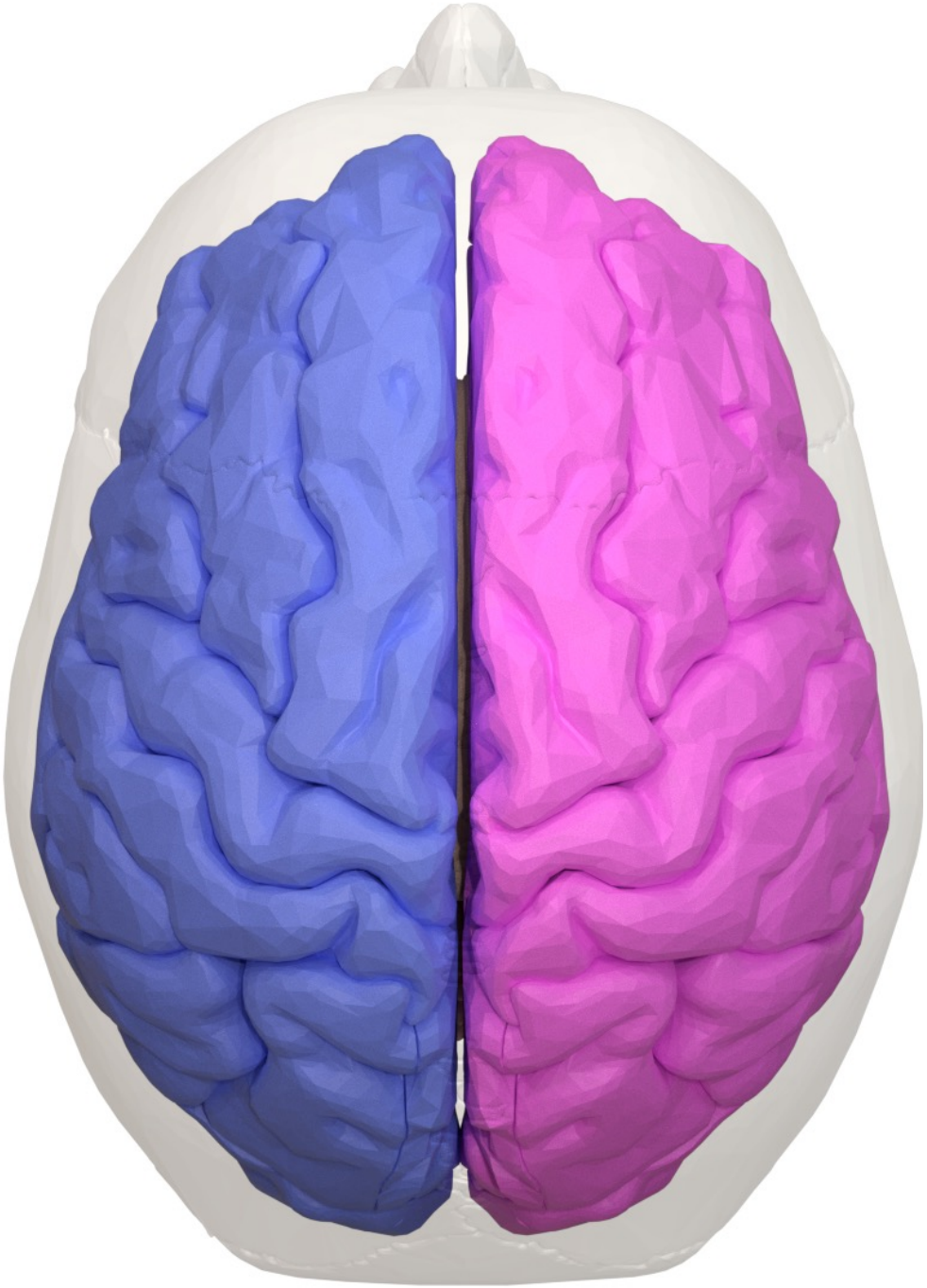
2- The inner meningeal layer:

It is the dura mater proper and forms four dural folds.

The 2 layers of the dura are closely adherent except in 2 cases:

A. Where the meningeal layer tends to form a dural fold

B. Where the meningeal layer leaves the outer layer to enclose a venous sinus in between the 2 layers (the dural venous sinuses).

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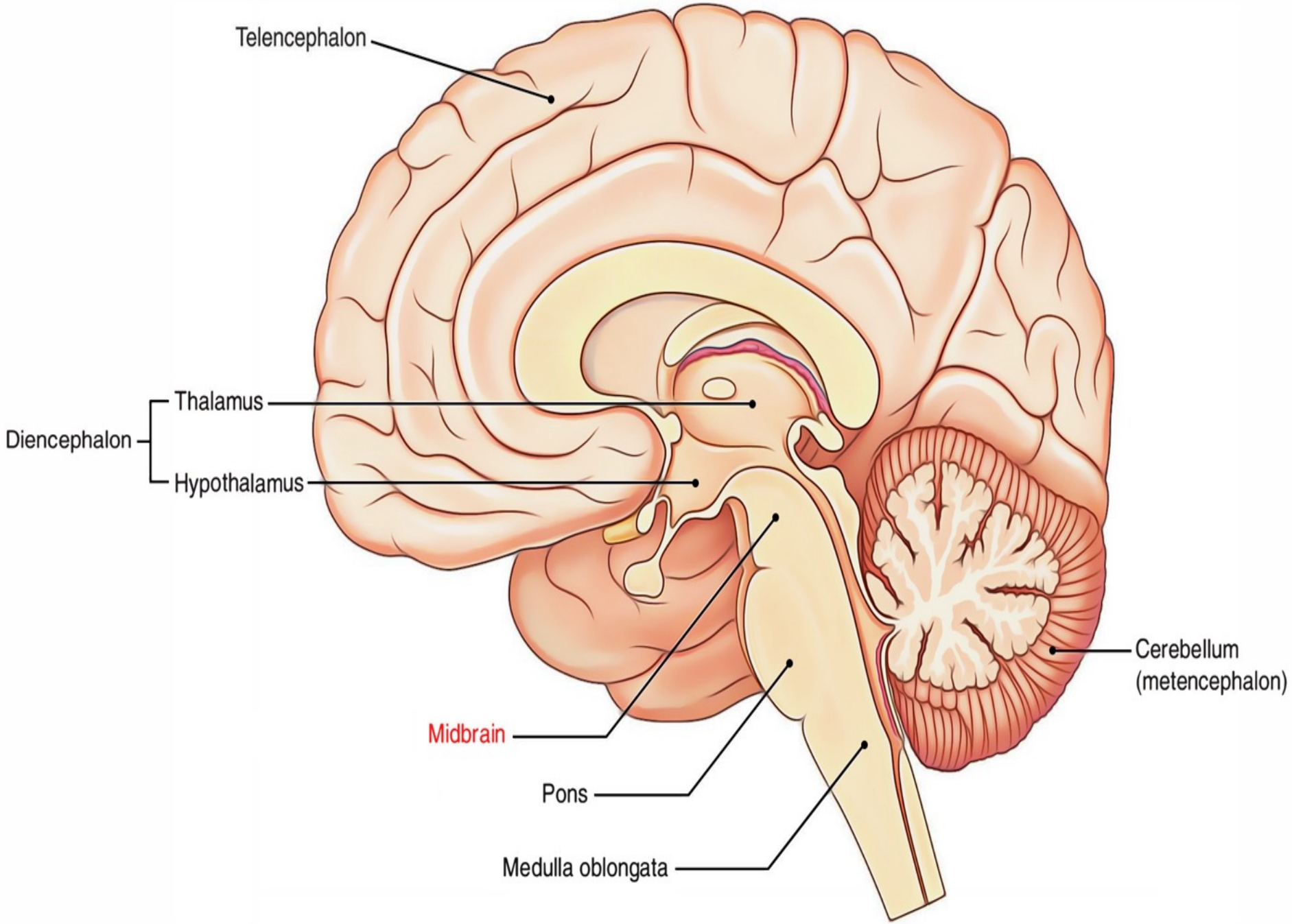
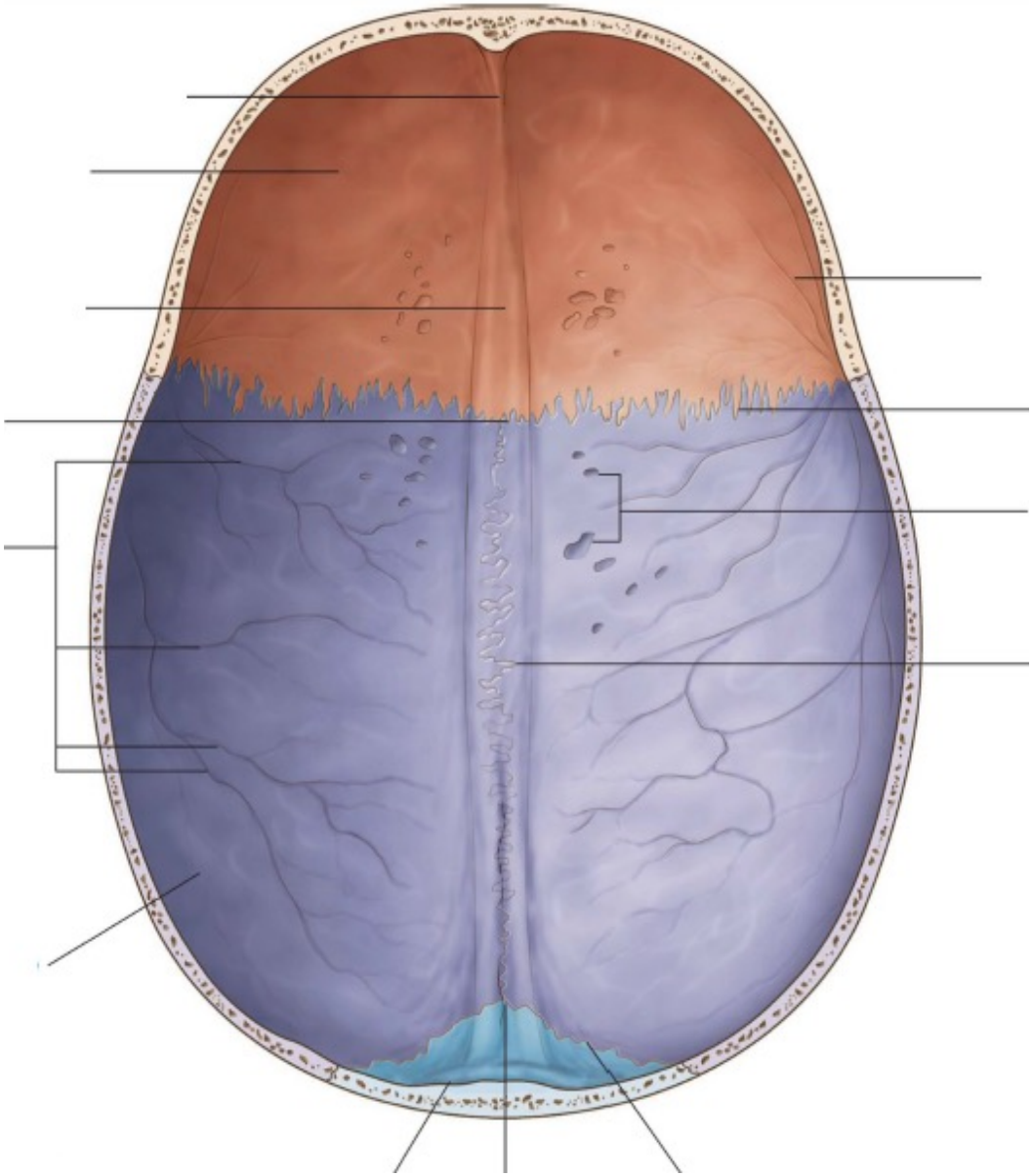
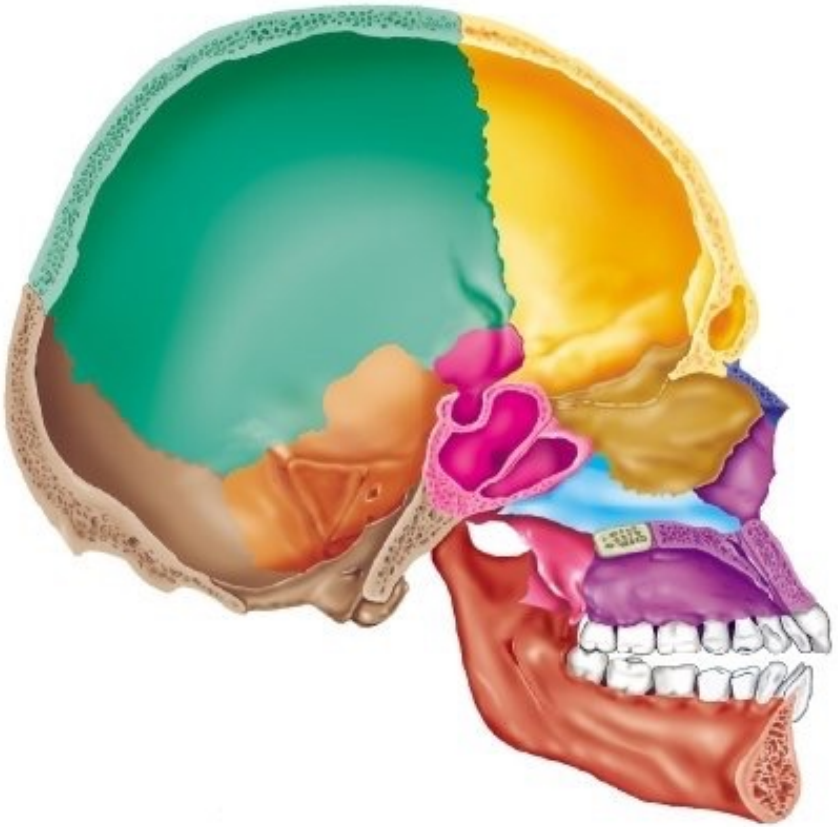

Telencephalon
Diencephalon
Thalamus
Hypothalamus
Midbrain
Pons
Medulla oblongata
Cerebellum
(metencephalon)





Dural Folds

The meningeal layer of the dura is folded inwards to form four septa

(1) Falx Cerebri: Falx Cerebri

It is a crescenteric fold of meningeal dura which descends vertically between the two cerebral hemispheres.

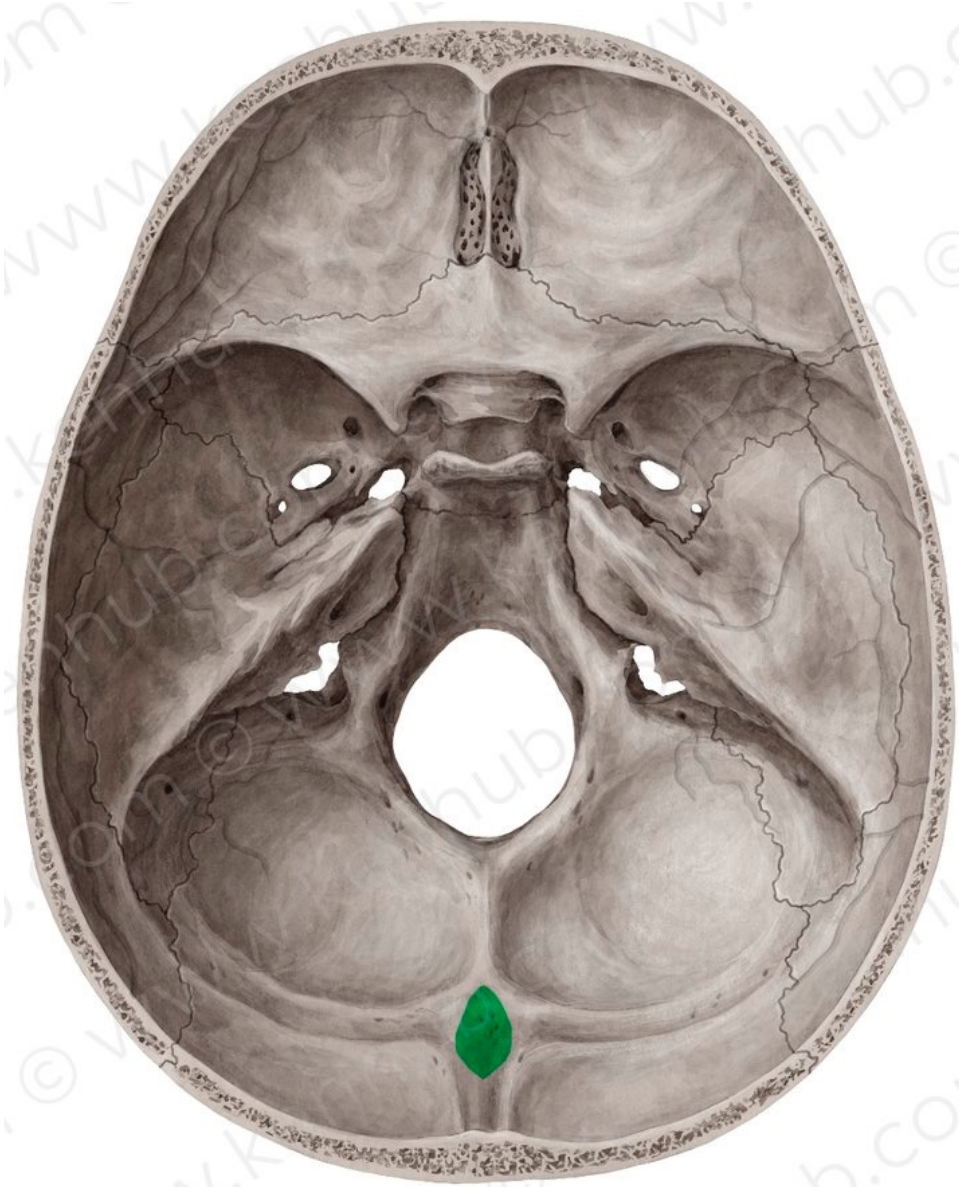
It has 2 ends, 2 borders, 2 surfaces.

Anterior end : is attached to the crista galli.

Posterior end : is blended with the tentorium cerebelli and here there is the **straight sinus.**

Upper border : is convex and is attached to the internal surface of the cranial vault and contains the **superior sagittal sinus.**

Lower border : is concave and free and contains the **inferior sagittal sinus.**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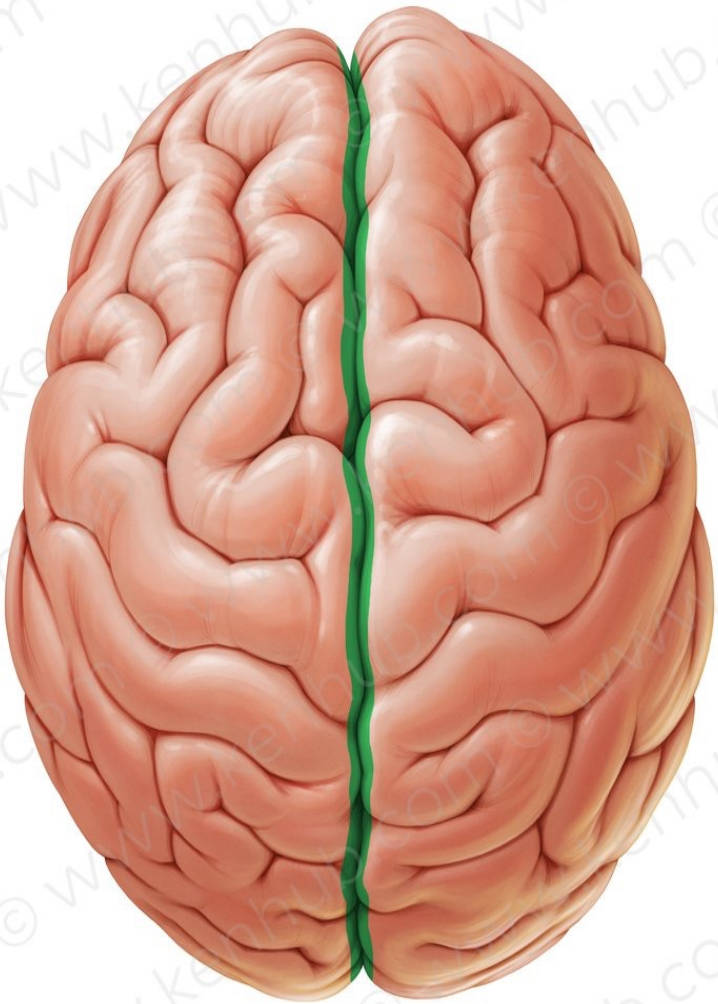
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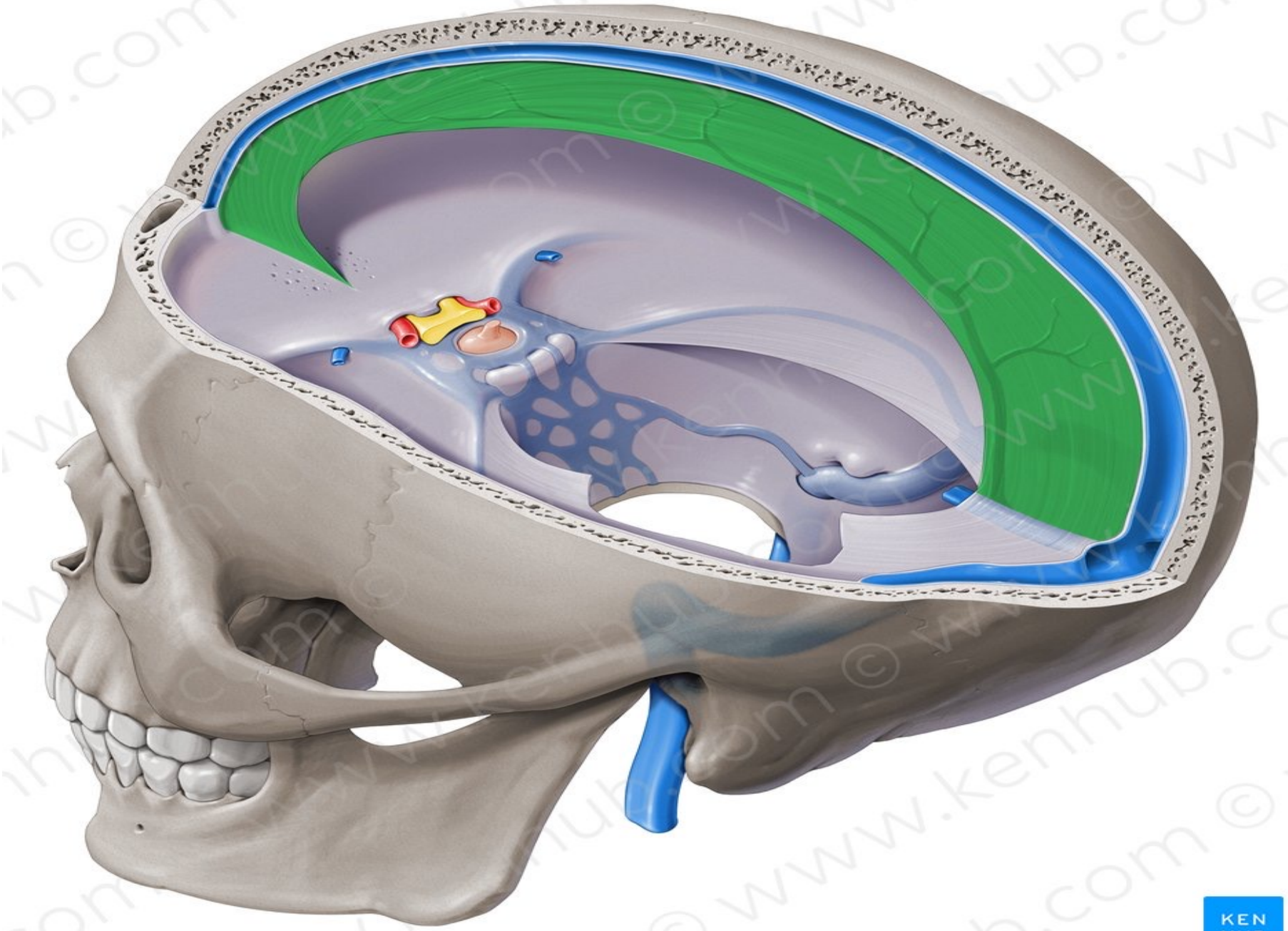
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(2) Tentorium Cerebelli:

It is a tent shaped fold of dura which forms a roof over the posterior cranial fossa, dividing the cranial cavity into supratentorial and infratentorial compartments.

It has 2 margins, 2 surfaces

- **Inner (free) margin**

✓ Is *concave* ,It is attached anteriorly to the anterior clinoid process.

✓ It bounds the tentorial notch occupied by the midbrain.

- **Outer (attached) margin** is convex and is attached on either side to the lips of the transverse sulcus, to the superior border of the petrous temporal bone, to the posterior clinoid process.

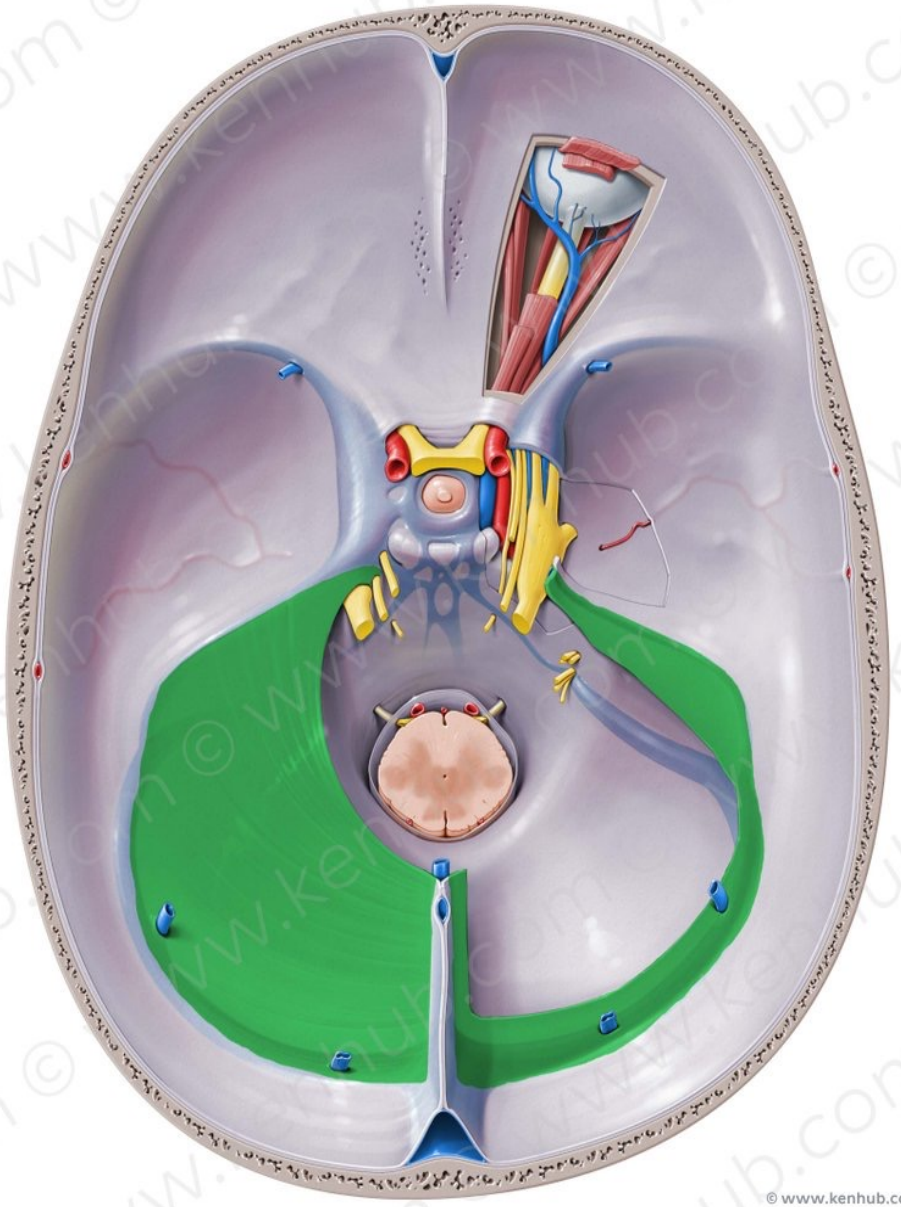
It encloses the **transverse and the superior petrosal venous sinuses.**

- **Superior surface:** it gives attachment for falx cerebri and is related to occipital lobes of the *cerebral* hemispheres.

- **Inferior surface**: it gives attachment for falx cerebelli and is related to *cerebellar* hemispheres.

➢ At the apex of the petrous bone, the attached margin is crossed by the free margin of the tentorium.

➢ This triangular area so formed is pierced by **oculomotor and trochlear nerves** in their way to the cavernous sinus.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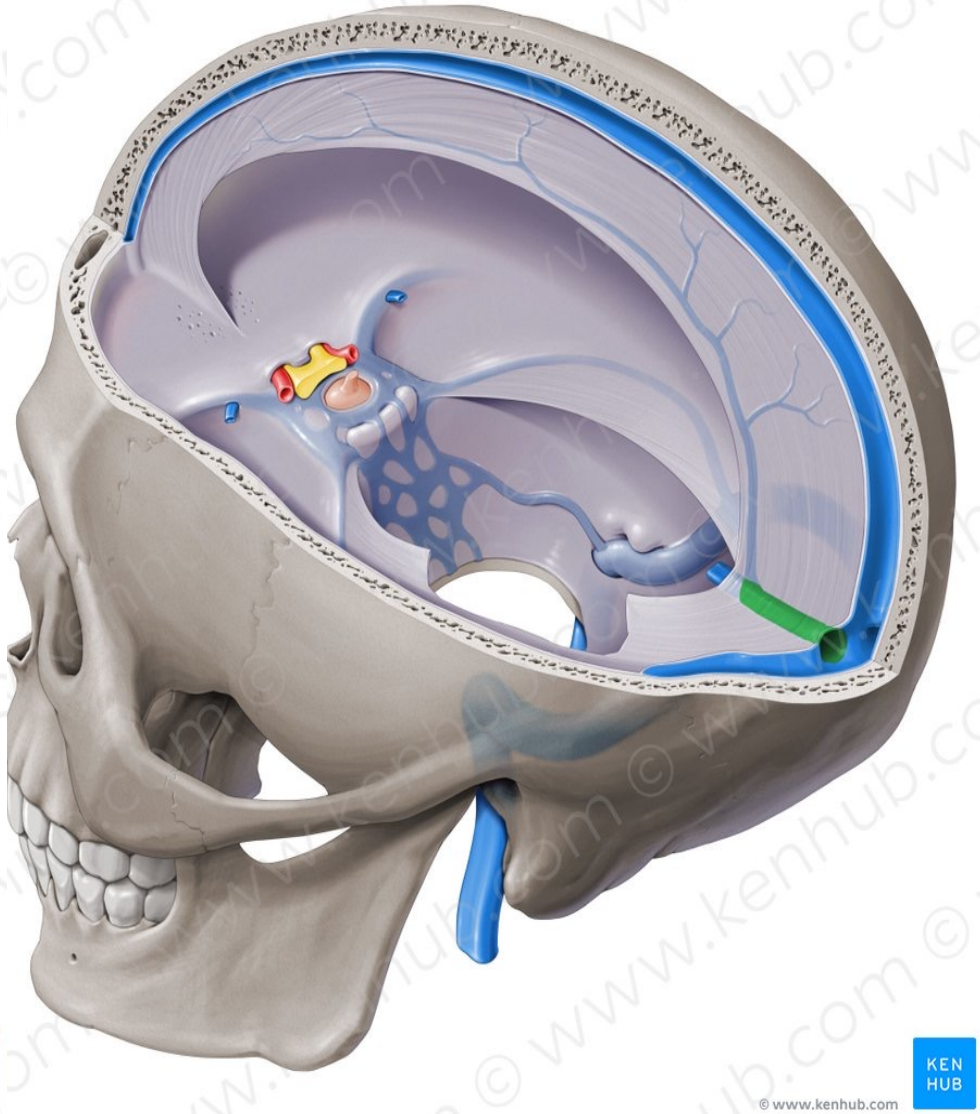
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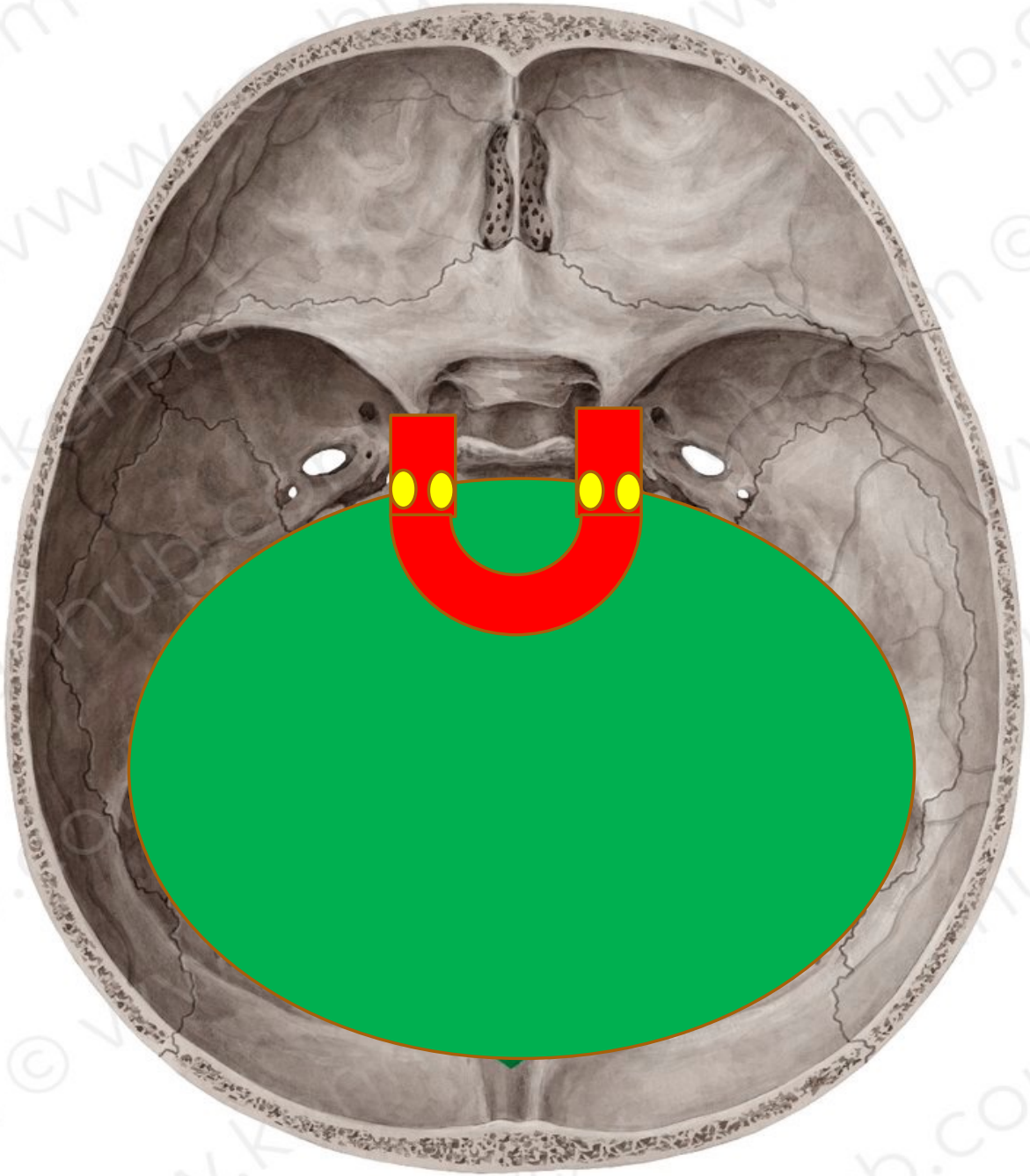
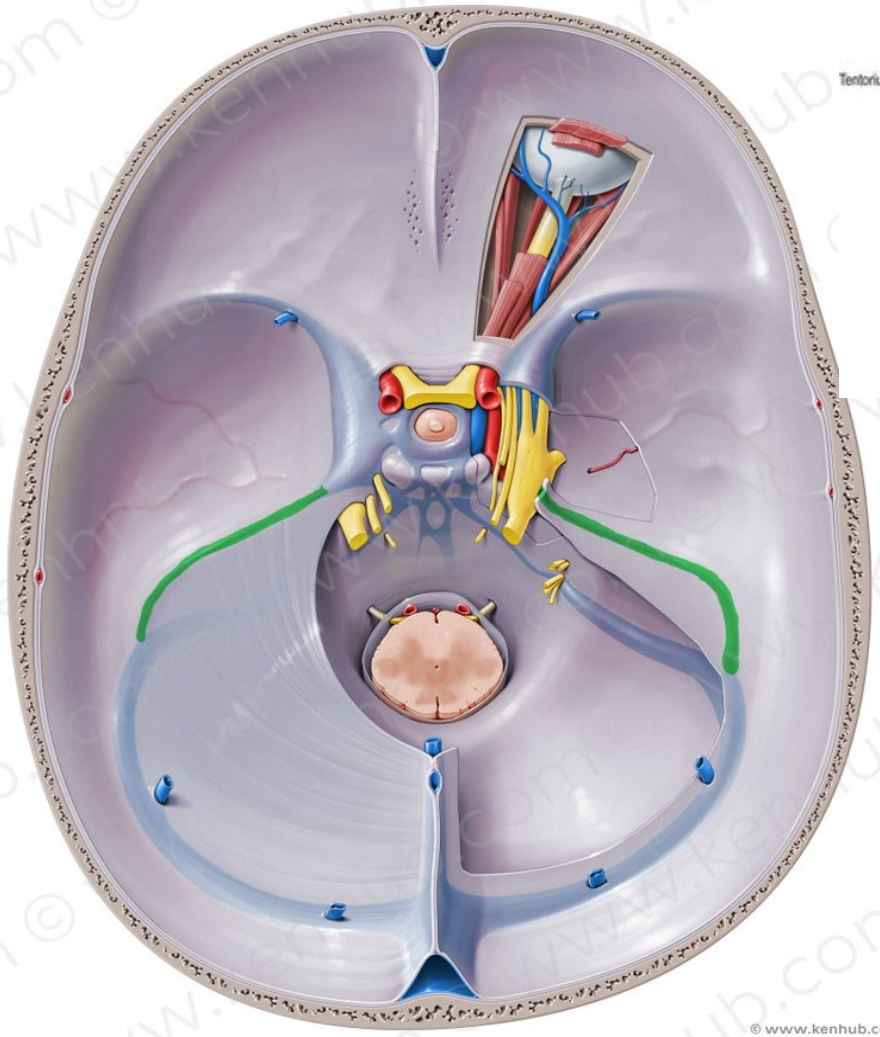
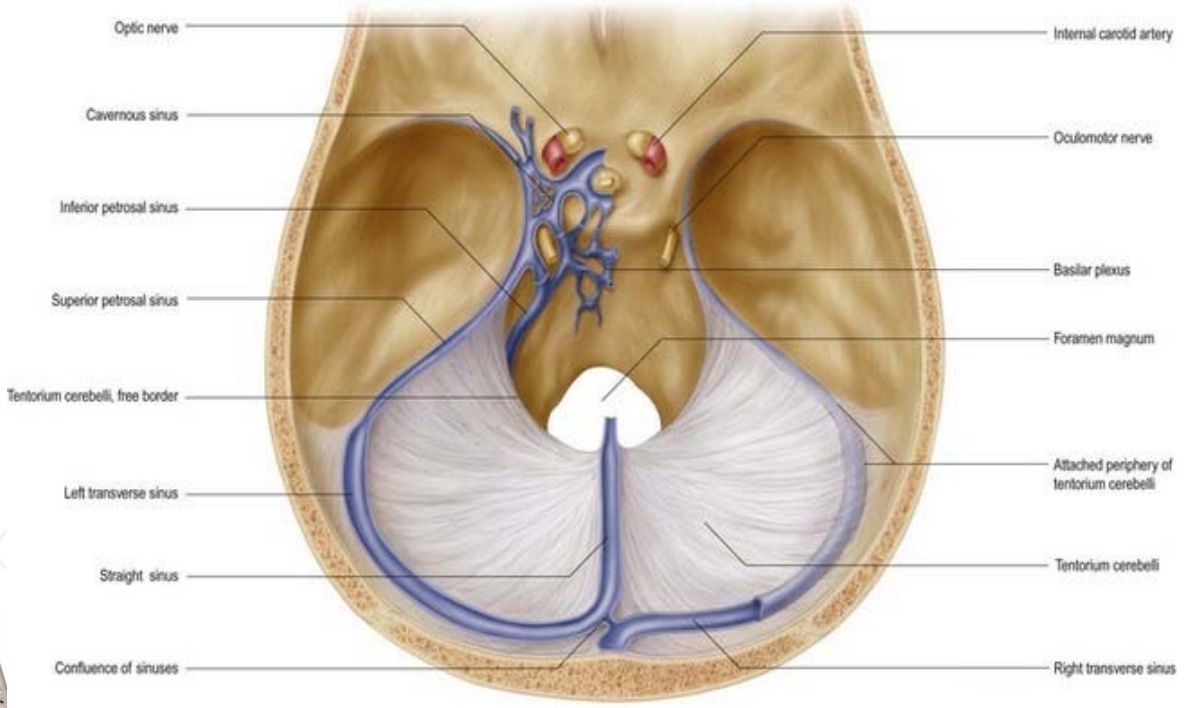






3- Falx Cerebelli :

It is the small crescentic dural fold which projects into the posterior cerebellar notch.

It has base, apex and 2 margins.

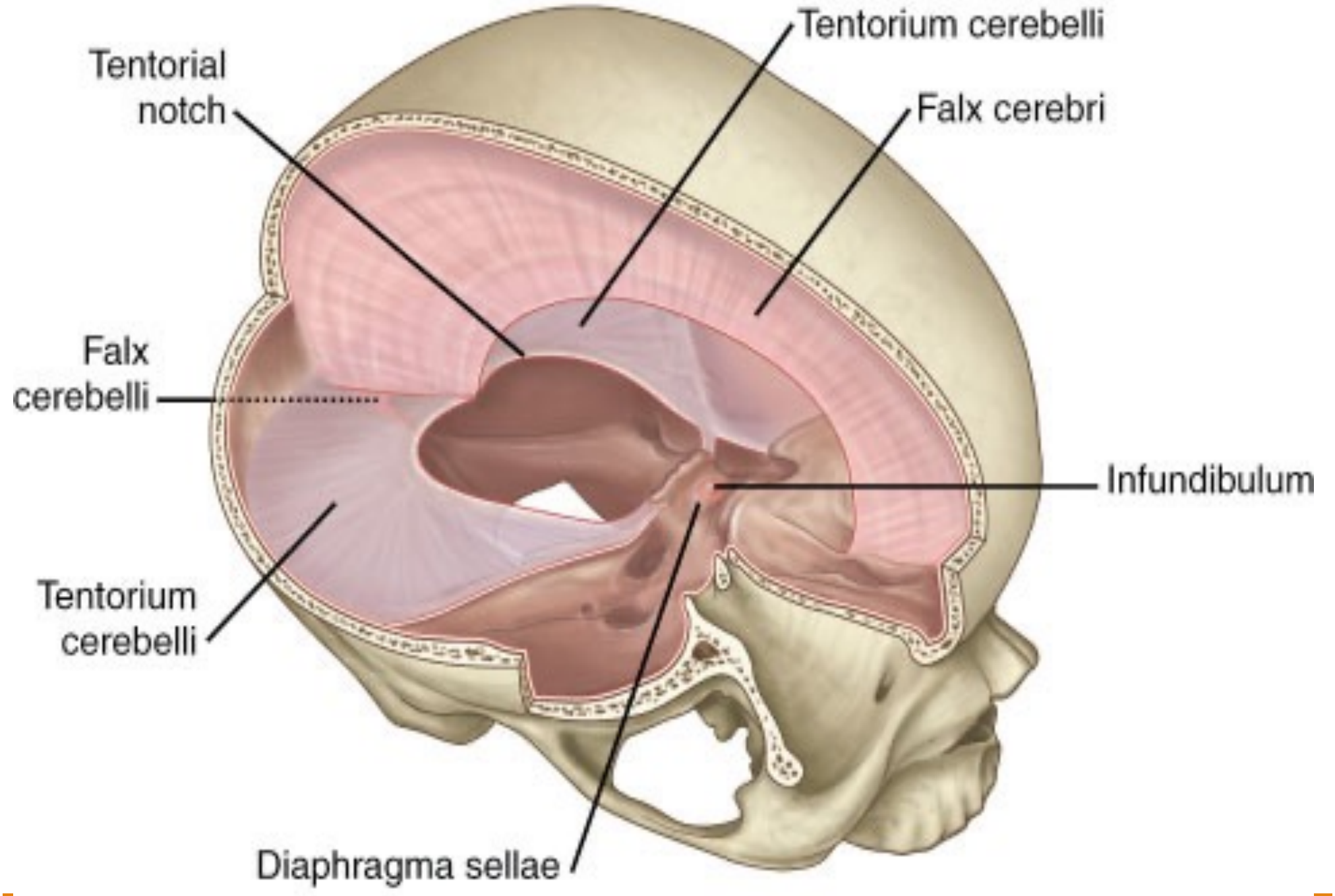
- **Base :** is attached to the inferior surface of the tentorium cerebelli.
- **Apex :** divides into 2 parts which merge inferiorly with the sides of foramen magnum.
- **Posterior margin :** is attached to the internal occipital crest.

It encloses the **occipital venous sinus.**

- **Anterior margin :** is concave and free.

4- Diaphragmatic Sella

- It is a small, circular horizontal dura fold-which forms a roof for the Sella turcica, so it covers the pituitary gland.
- Attached to the tuberculm sellae anteriorly and to the dorsum sellae posteriorly
- It has a central opening which transmits-the infundibulum


Tentorium cerebelli
Tentorial notch
Falx cerebri
Falx cerebelli
Infundibulum
Tentorium cerebelli
Diaphragma sellae

Read Only

Nerve supply of the dura:

- is supplied by trigeminal nerve and C2, C3 spinal nerves

- Stimulation of the sensory endings of the trigeminal nerve above the level of the tentorium cerebelli produces referred pain to an area of skin on the same side of the head.

- Stimulation of the dural endings below (posterior cranial fossa) the level of the tentorium produces referred pain to the back of the neck and back of the scalp along the distribution of the greater occipital nerve


Thank
you