CRANIAL CAVITY-I
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 as
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.
“Tough Mother”.

A thick and dense inelastic outer membrane.
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.
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 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**
- It is concave and free.
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.

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.
 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.
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 Cerebri and Tentorium.
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