THE CRANIAL CAVITY

Enclosed by bones of the cranium
Top and sides: Frontal, parietal, temporal (squamous) & occipital
Base: Ethmoid, Sphenoid, Temporal (petrous) Occipital

Three Cranial Fossae
1. Anterior
2. Middle
3. Posterior

The cranial cavity
The three cranial fossae
The dural folds
Dural venous sinuses
Cavernous sinus
Internal carotid artery
Emissary veins
Lacrimal apparatus

Next Week
No lecture planned but........
The lab class will be a MOCK LAB TEST and revision

DURAL FOLDS

The inside of the cranial cavity is lined with endosteum and the dura.
The dura is raised into folds that partition the cranial cavity:
1. Falx cerebri: Lies in the sagittal plane and separates the cerebral hemispheres
2. Tentorium cerebelli: forms a roof over the cerebellum in the posterior cranial fossa and separates it from the occipital lobes of the cerebrum.
The tentorial notch is a small opening in the tentorium. Below it is the medulla pons and cerebellum, above it is the cerebrum.

Two other smaller dural folds are present:
1. Falx cerebelli partially separates the cerebellar hemispheres
2. Diaphragma sellae separates the pituitary gland from the hypothalamus. It has a small hole for the pituitary stalk.

DURAL VENOUS SINUSES

Where the dural folds are attached to the inside of the cranial cavity, there are triangular gaps formed between the endosteum and the dura.

Falx cerebri has the superior sagittal sinus in its attached margin, and the inferior sagittal sinus in its free margin.
The tentorium cerebelli has the transverse sinus in the margin that attaches to the occipital bone, and the superior petrosal sinus in the margin that attaches to the petrous temporal bone.
The straight sinus runs in the intersection of the falx and tentorium.
The occipital sinus runs in the attached margin of the falx cerebelli.
The cavernous sinus lies below the diaphragma sellae on either side of the pituitary gland.
Two other sinuses lie in grooves in the bone:

1. **The sigmoid sinus** lies in an “S-shaped” groove at the sides of the posterior cranial fossa (it joins the transverse sinus to the jugular foramen)
2. **The inferior petrosal sinus** lies in a groove on the back of the petrous temporal bone (it joins the cavernous sinus to the jugular foramen)

The internal jugular vein is formed at the junction of the sigmoid and inferior petrosal sinuses

Venous blood from the brain and diploe drains towards the internal jugular vein:

Sup sag sinus to the transverse sinus.
Inf sag sinus to the straight sinus to the transverse sinus
The transverse sinus drains to the sigmoid sinus
Cavernous sinus through the sup petrosal sinus to the sigmoid
or through the inferior petrosal sinus to the jugular vein.

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**THE INTERNAL CAROTID ARTERY AND CAVERNOUS SINUS**

The internal carotid artery travels through the carotid canal which goes upwards and then medially through the petrous temporal bone.

It emerges in the upper part of the foramen lacerum and then enters the cranial cavity inside the cavernous sinus

It runs forwards and in the cavernous sinus, then turns upwards and then back to enter the subarachnoid space near the optic nerves.

In the cavernous sinus the carotid artery is accompanied by the nerves that goes through the superior orbital fissure.

1. Oculomotor (CN III)
2. Trochlea (CN IV)
3. Ophthalmic (CN V1)
4. Abduces (CN VI)

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**THE SUPPLY AND DRAINAGE OF TEARS**

Tears are produced by the lachrymal gland which lies in the upper lateral corner of the orbit. Tears are released into the conjunctival sac in the upper lateral quadrant of the eye.

The lacrimal gland is controlled by parasympathetic nerves (CN VII greater petrosal – pterygopalatine ganglion – zygomatic and lacrimal branches of the trigeminal). Stimuli that trigger tears are chemical or mechanical irritation of the eye (reflex involving the nasociliary branch of the trigeminal), but also emotional factors can trigger the flow of tears

The movements of the eyelids when you blink gradually move tears (and any foreign particles) towards the medial corner of the eye.

Tears drain out of the eye through two tiny holes (lacrimal puncta) above and below the lacrimal caruncle. The lacrimal puncta are connected to lacrimal canaliculi and empty into the lacrimal sac.

The lacrimal sac drains via the nasolacrimal duct into the inferior meatus of the nose.