

جَائِزَةُ الْحُسَيْنِ
بْنِ عَبْدِ اللَّهِ الثَّانِي
لِلْعَمَلِ التَّطَوُّعِيِّ

AL HUSSEIN BIN ABDULLAH II
AWARD FOR VOLUNTARY WORK



النادي الطبي
Medical Club



Radiology

Subject: Axial Brain CT

Group no: D11

Done by: Hala yaseen



هَذَا خُلِقَ اللَّهُ فَأَرْوَحِي مَاذَا خُلِقَ الَّذِينَ مِنْ دُونِهِ بَلِ الظَّالِمُونَ فِي ضَلَالٍ مُبِينٍ

Axial Brain CT anatomy

* العروة و صلبها

Axial Brain CT

يتم تصوير العروة
Bone is white

* Soft
tissue
window.

* Supra
ventricular
level



Falx
cerebri

Grey
matter



white
matter

Is there **accentuation** of the gray-white differentiation? Think vasogenic edema related to an underlying mass etc.

White Matter

myelin

1 Accentuation (Preserved or Increased gray-white differentiation)

What it looks like on CT

- Gray matter looks relatively darker than white matter
- The boundary between them is clear or even exaggerated

What it means

Vasogenic edema

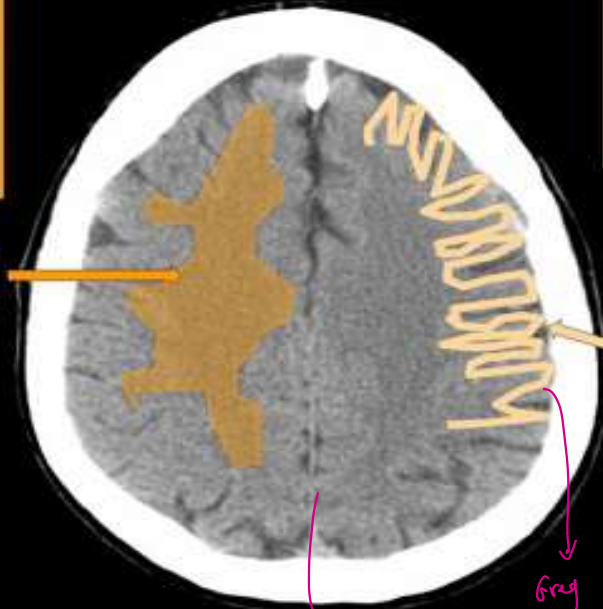
- Fluid accumulates in the extracellular space
- Mainly affects white matter
- Gray matter is relatively spared → contrast is preserved or accentuated

Typical causes

- Underlying mass (tumor, abscess, metastasis)
- Inflammation
- Post-operative changes

Key idea:

White matter becomes hypodense → gray-white difference becomes more obvious



Central

*Gray matter
→ cell bodies*

Is there **blurring** of the gray-white differentiation? Think cytotoxic edema related to a stroke.

2 Blurring / Loss of gray-white differentiation

What it looks like on CT

- Gray and white matter become similar in density
- The cortex-subcortical border is indistinct
- "Smudged" appearance

What it means

Cytotoxic edema

- Cellular swelling (intracellular)
- Involves both gray and white matter
- Especially severe in gray matter

Typical causes

- Acute ischemic stroke
- Hypoxia ✓
- Severe hypoglycemia ✓

Key idea:

Gray matter becomes hypodense → contrast between gray and white is lost

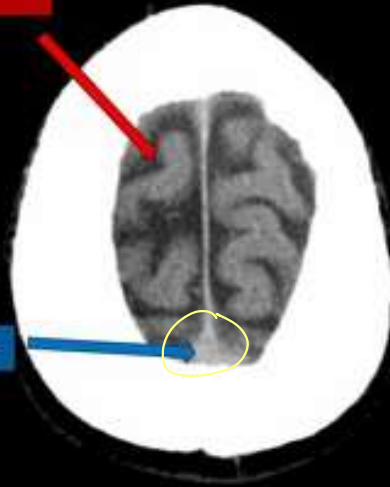
R+

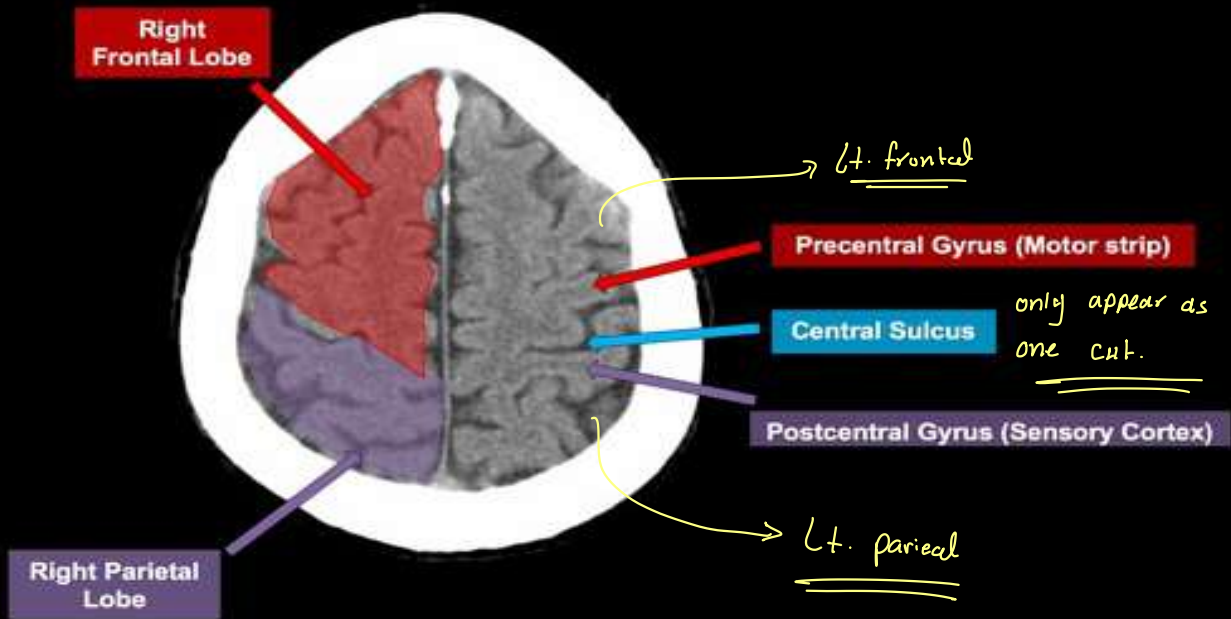
L+

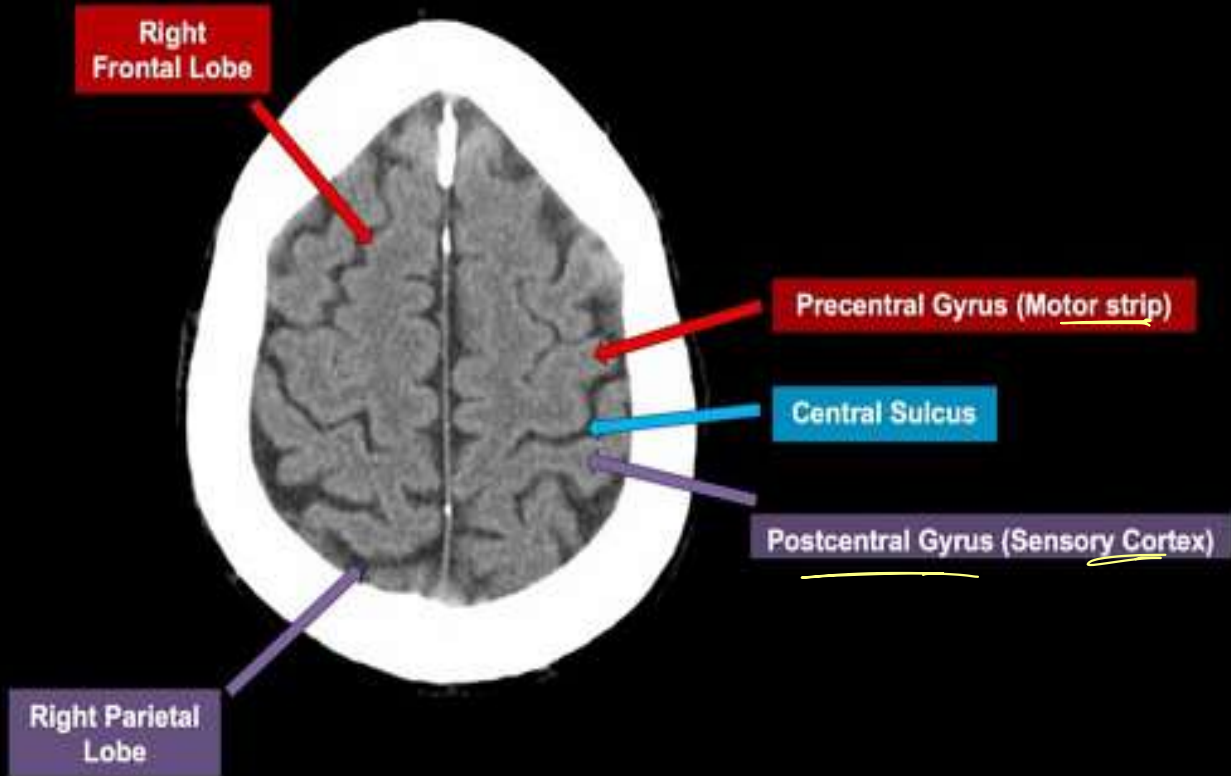
Right Frontal
Lobe

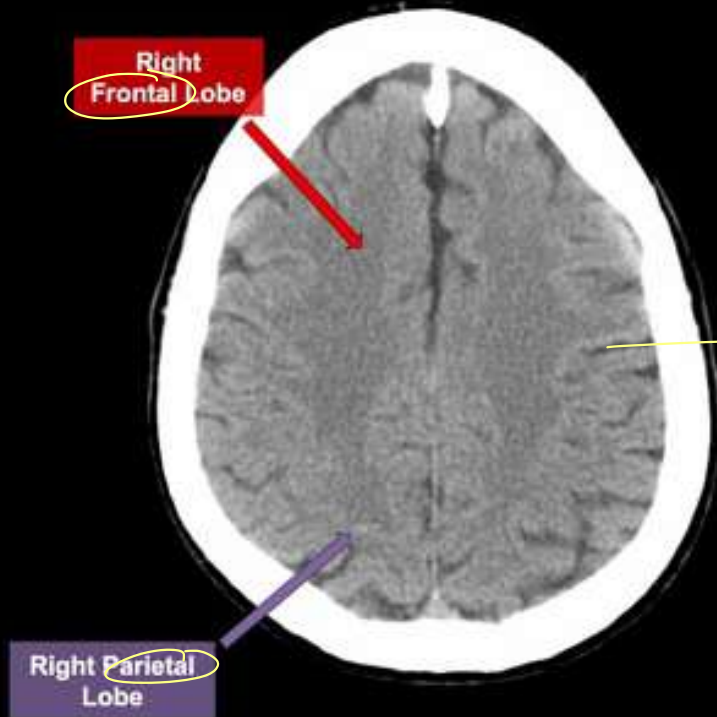
← اول لobe جَبِين
عندي هي اول frontal

Superior Sagittal Sinus





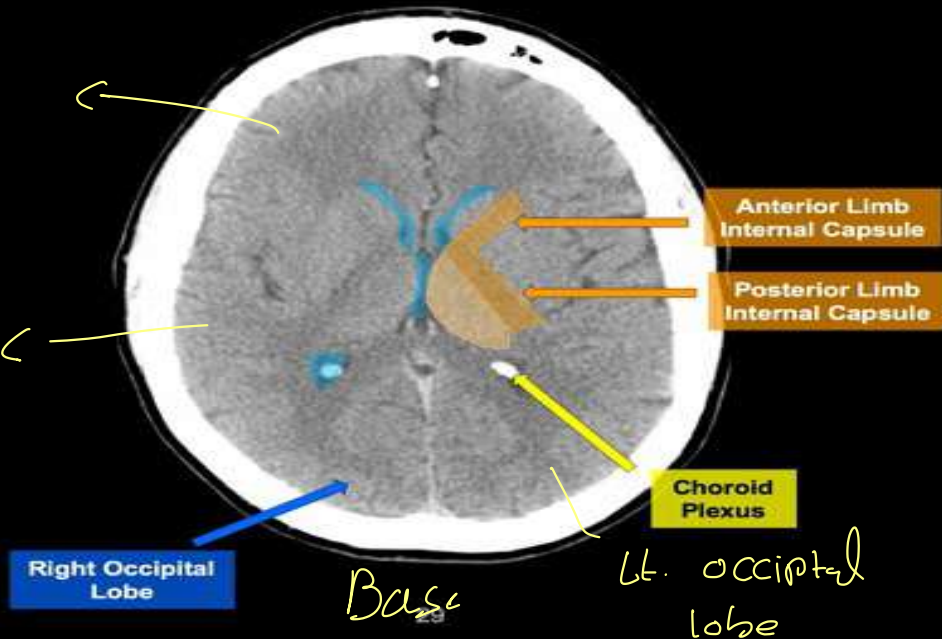




حتی لو ال
Central
Sulcus
مثل موجود.

Rt.
frontal

Rt.
Parietal



Is there uncal
herniation?

Uncus of the
Temporal Lobe

Rt.
temporal

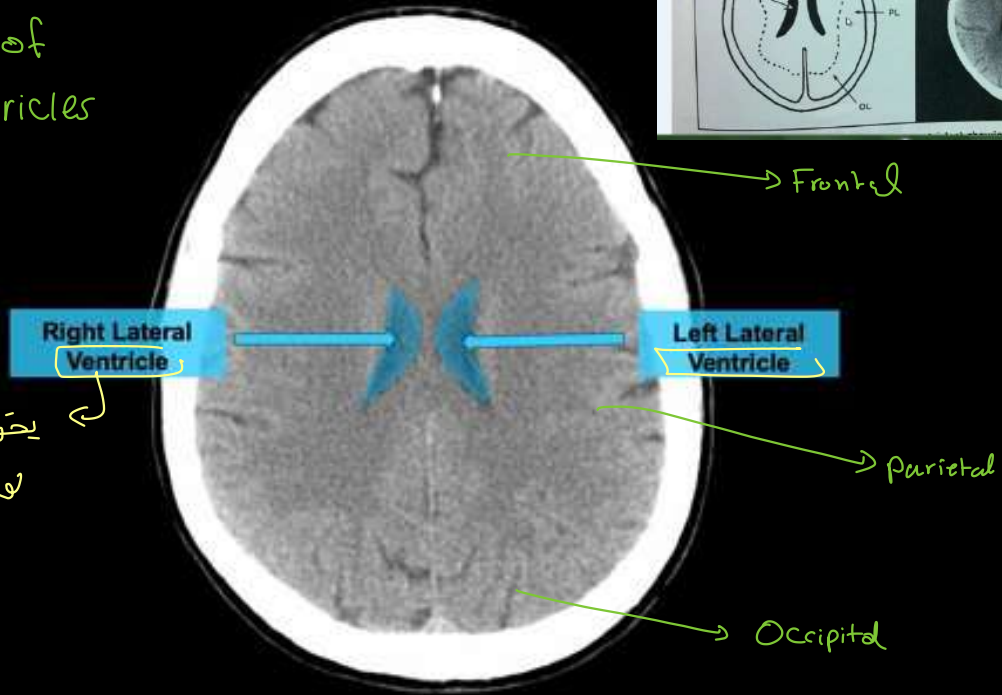
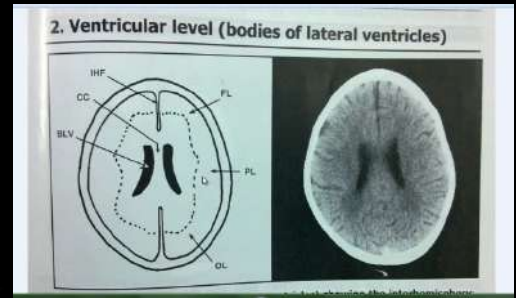
Left Temporal Lobe

eye 11 to 12 in 1 line

Left Occipital
Lobe

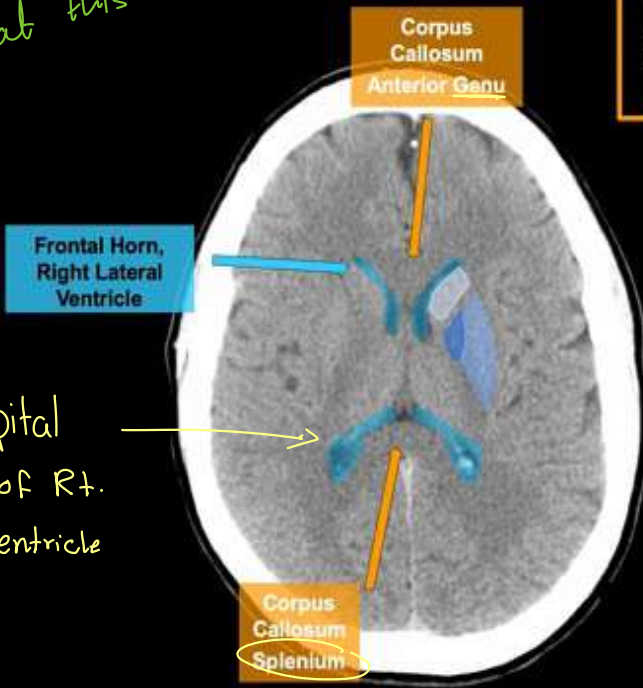
* Ventricular level

* Bodies of Lat. Ventricles



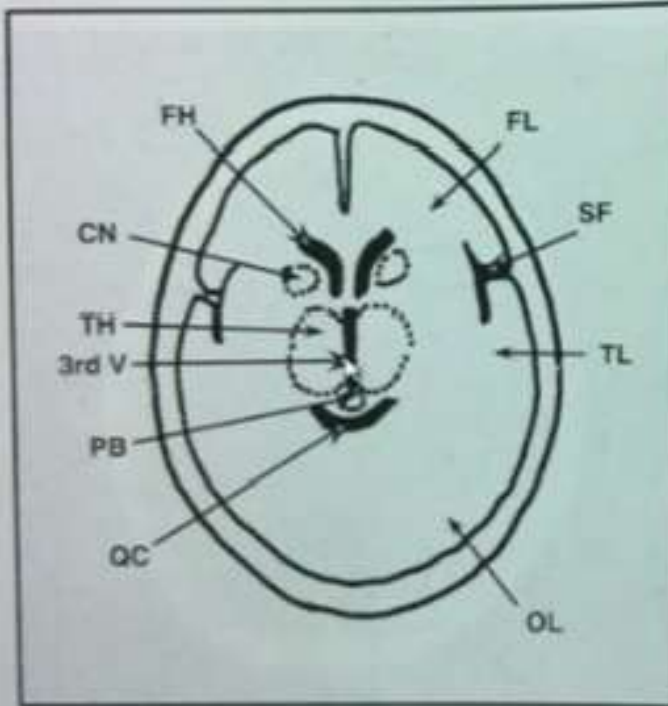
يحتوي على CSF
لونه اسود

* horns
of ventricles
appear at this
level.



Is there an abnormality
that crosses midline via
the corpus callosum?

3. Ventricular level (horns of lateral ventricles, 3rd V.)

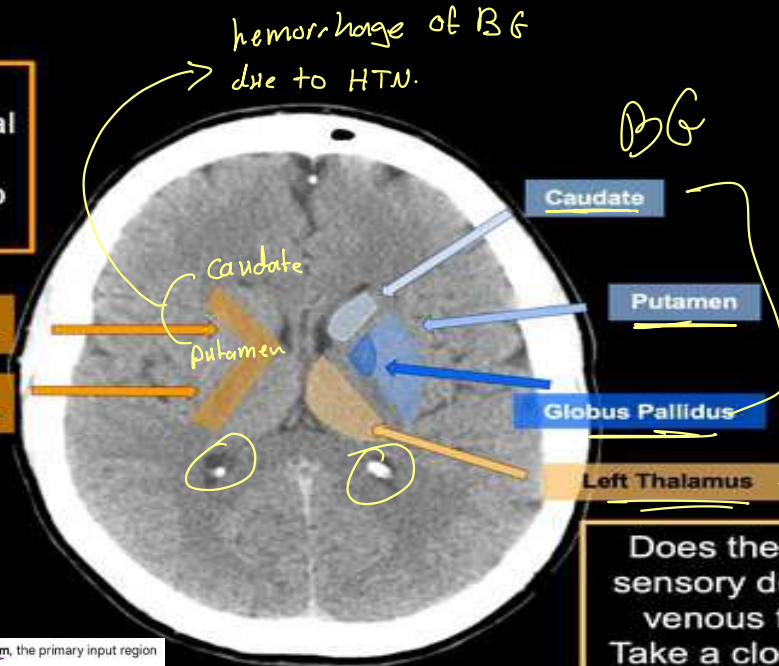


Temporal lobe ان کے لیے. اور SF + eye

Does the patient focal weakness without cortical signs? Take a closer look at the posterior limb of the internal capsule.

Anterior Limb
Internal Capsule

Posterior Limb
Internal Capsule

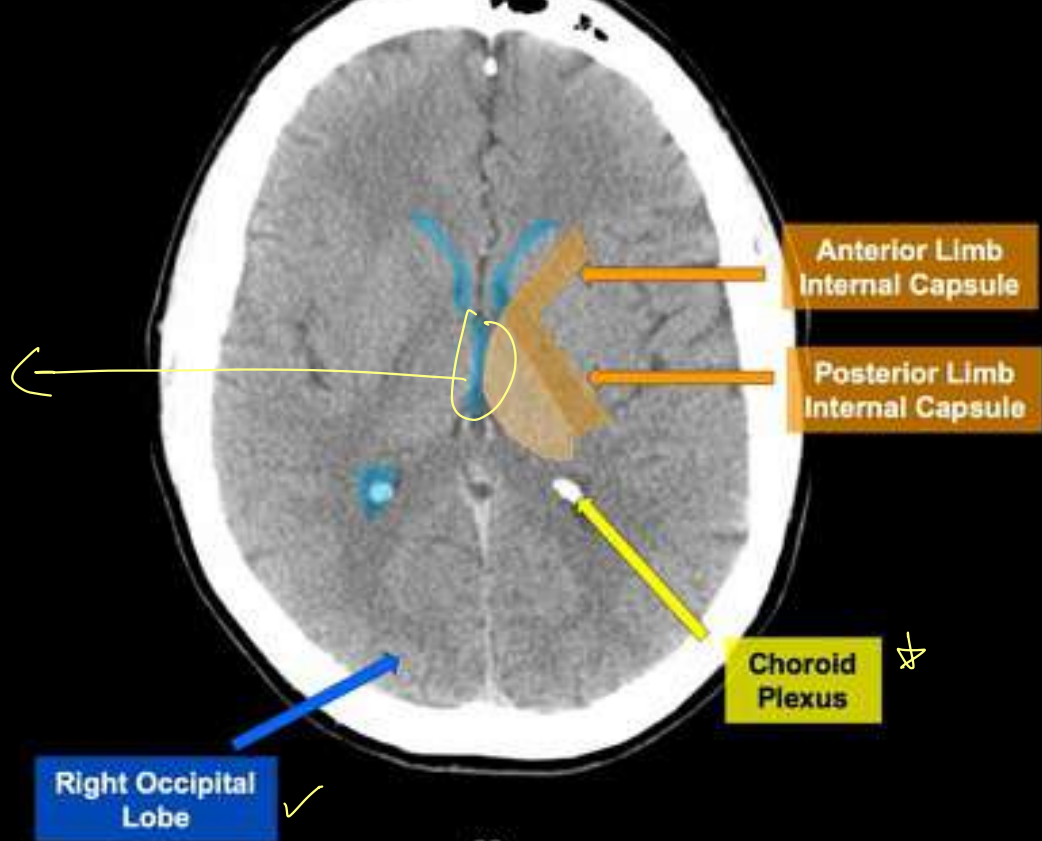


Does the patient have a movement disorder, anoxic injury or a toxic metabolic process- take a look at the basal ganglia..

Does the patient have sensory deficits or deep venous thrombosis? Take a closer look at the thalamus.

- **Caudate Nucleus & Putamen:** Together they form the dorsal striatum, the primary input region for the basal ganglia, receiving signals from the cortex.
- **Putamen & Globus Pallidus:** These two structures together make up the lentiform (lenticular) nucleus, with the putamen lateral to the globus pallidus.

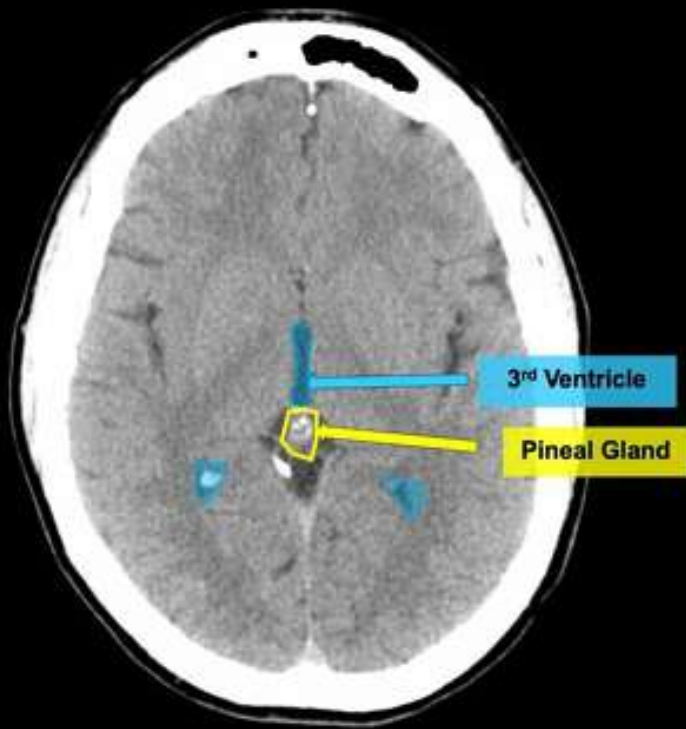
Third
ventricle

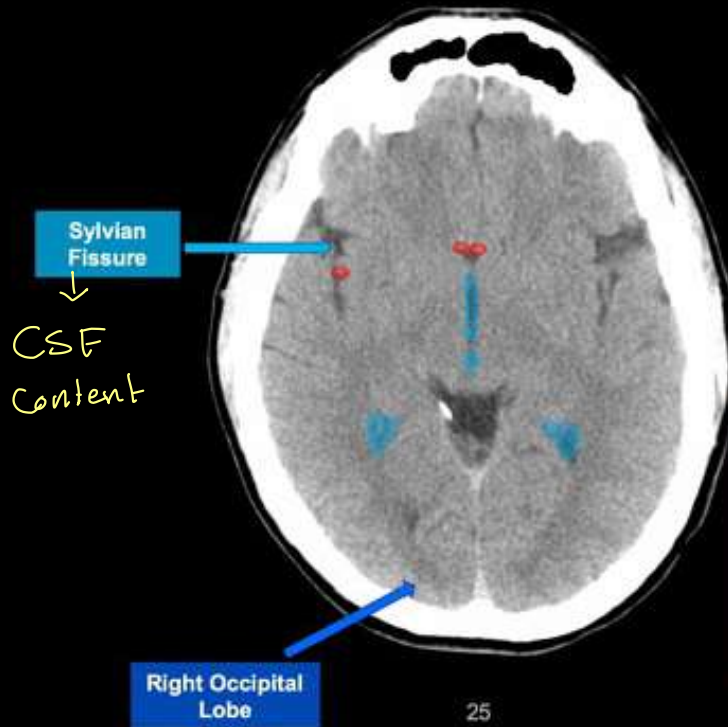


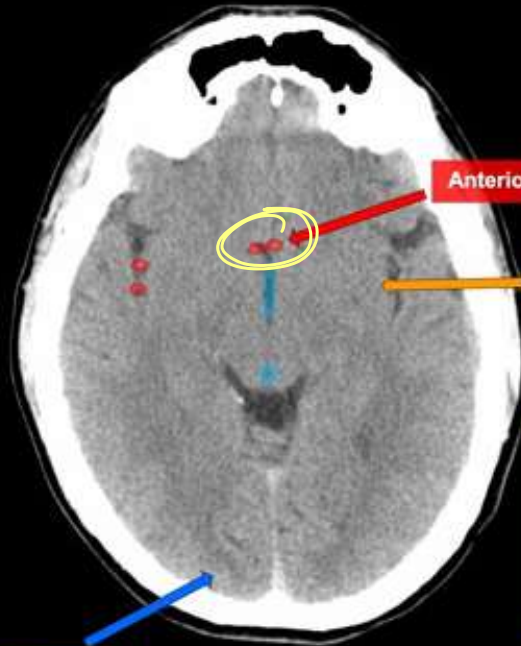
occipital
horn



Left Thalamus







Anterior Cerebral Artery

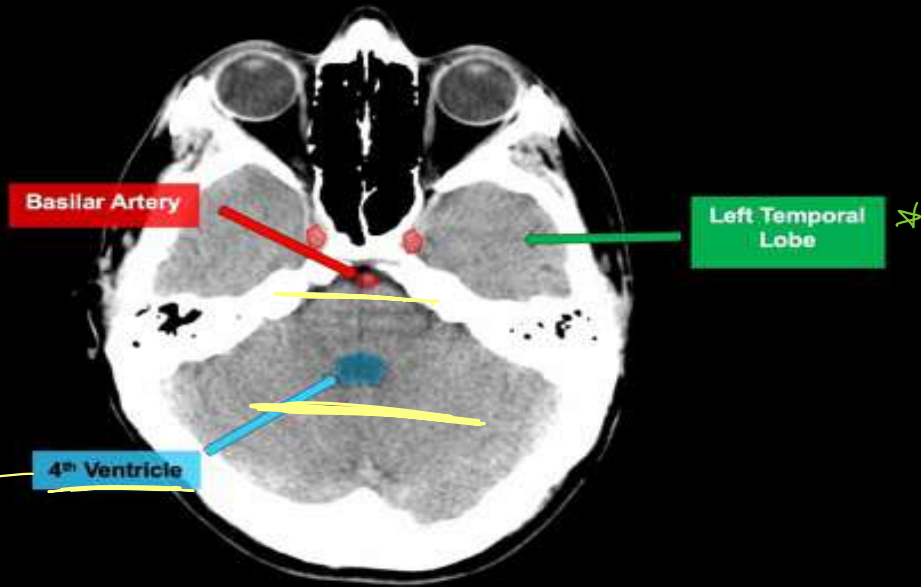
Insula

~~MCA~~
MCA

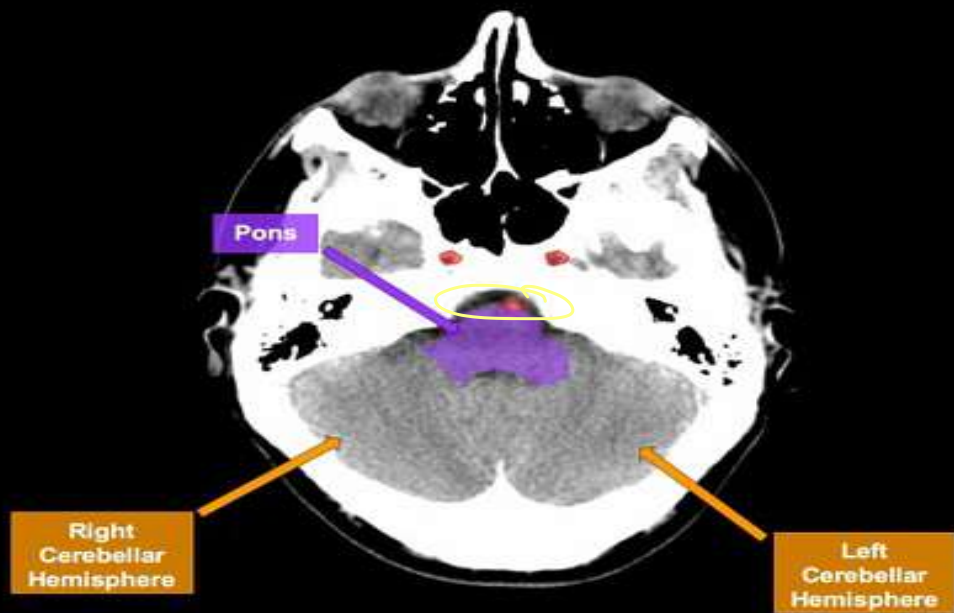
Right Occipital
Lobe

Does the patient have
an MCA infarct? The
insula is commonly
affected in that
situation.

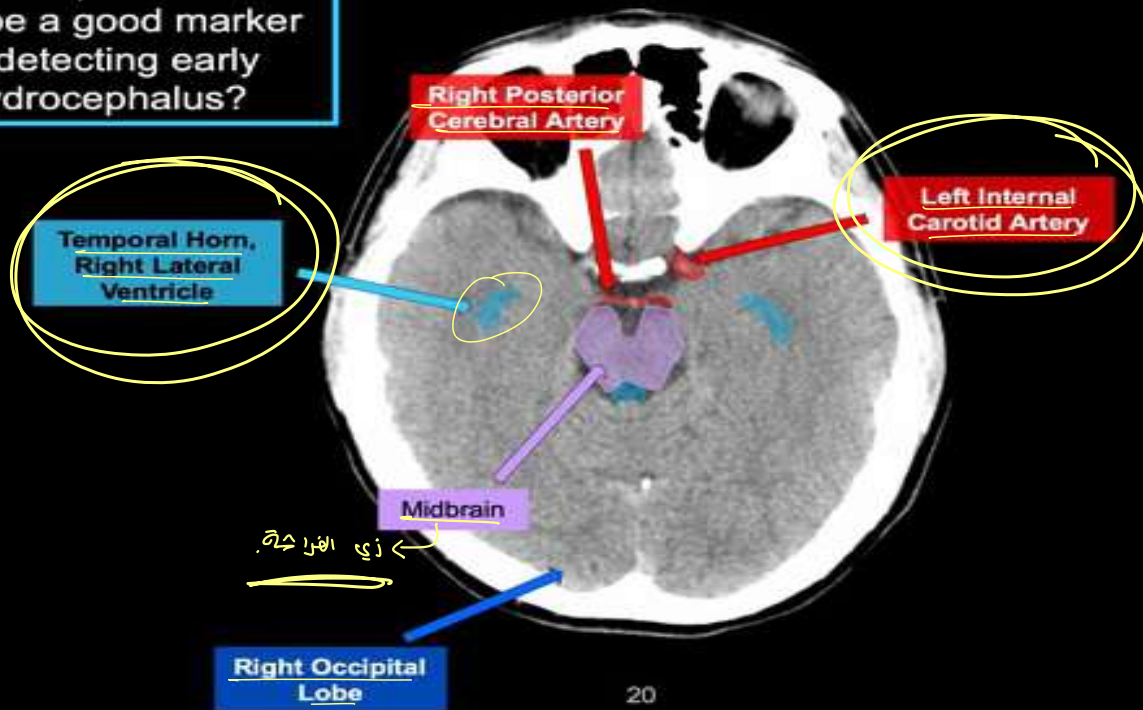
* Infra
ventricle
level

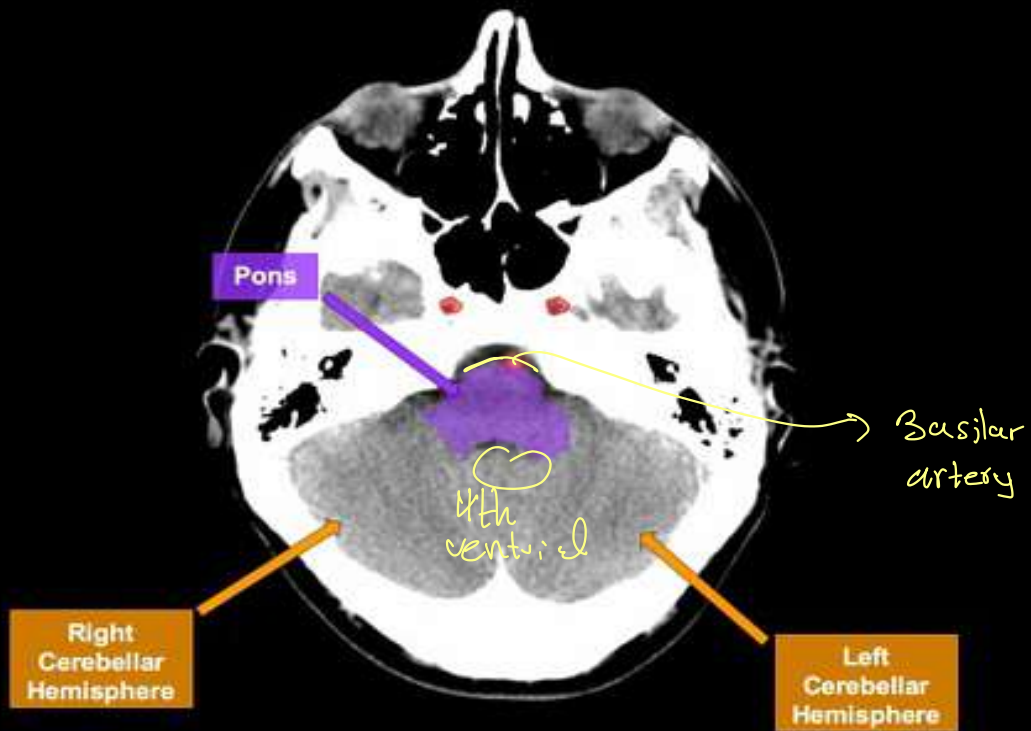


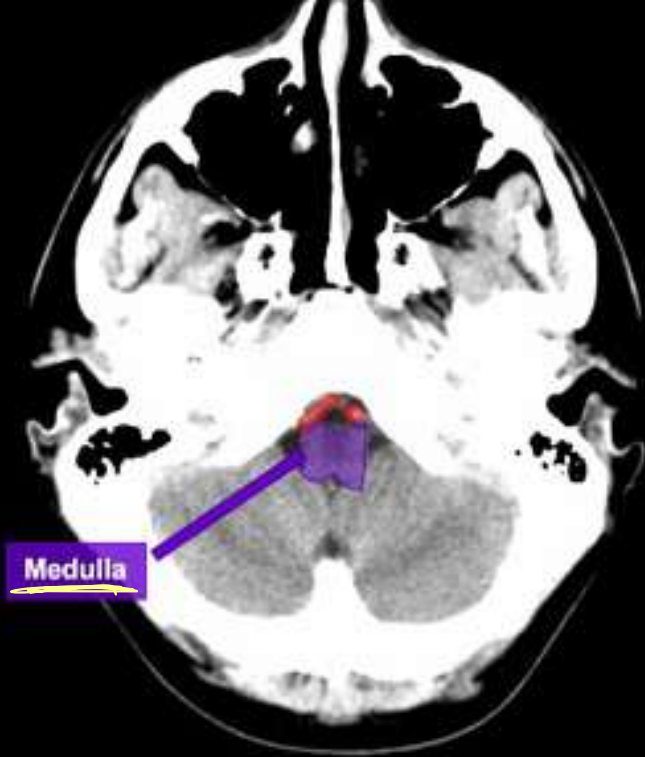
btwn
Cerebellum
and pons



The temporal horns
can be a good marker
of detecting early
hydrocephalus?



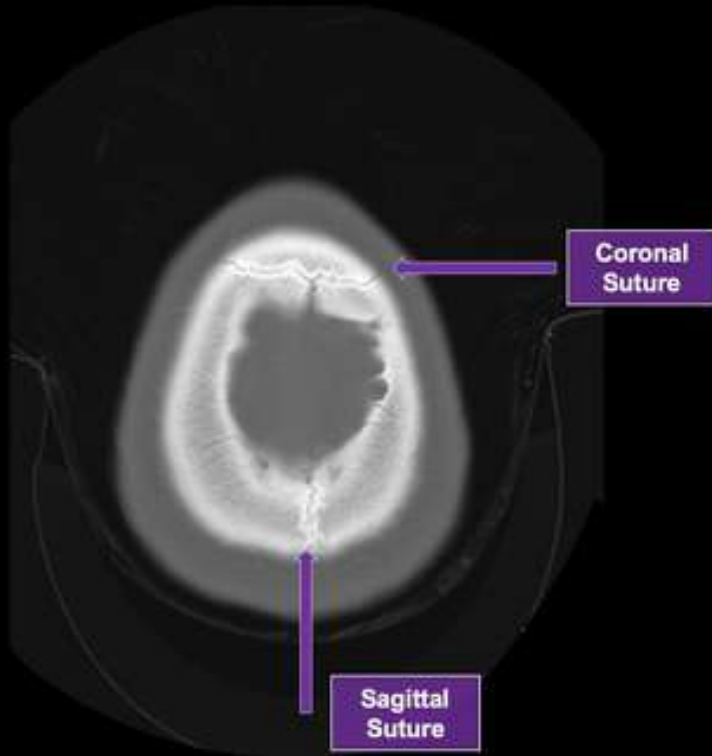


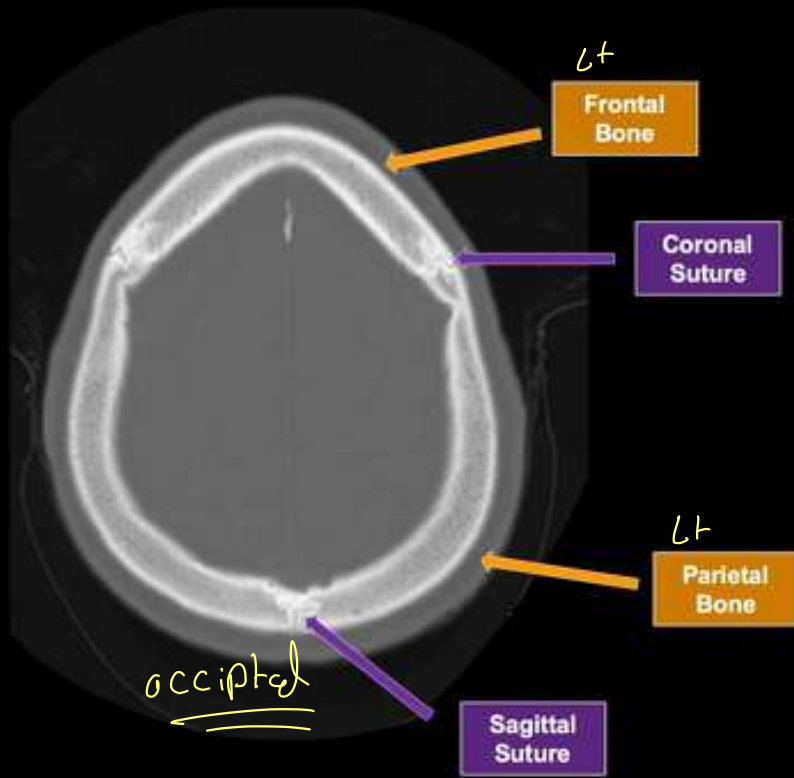


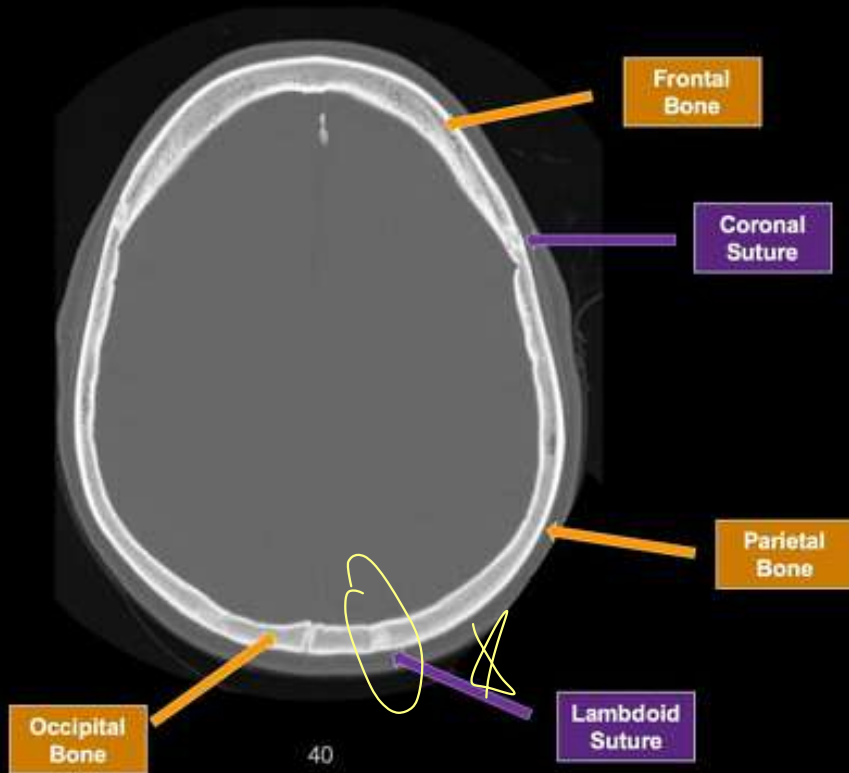
* Bone window &

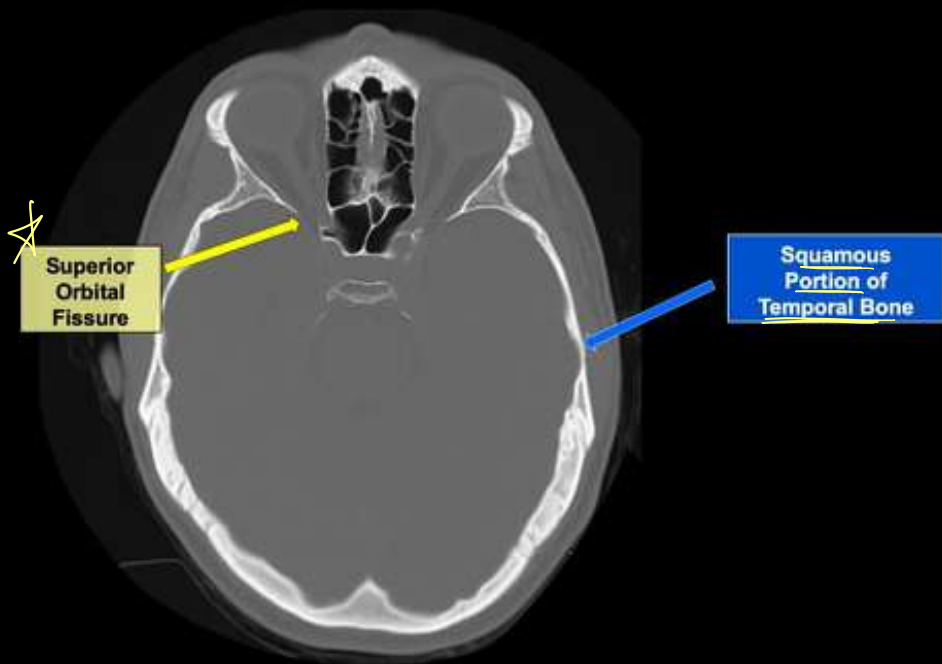
✓ Fracture

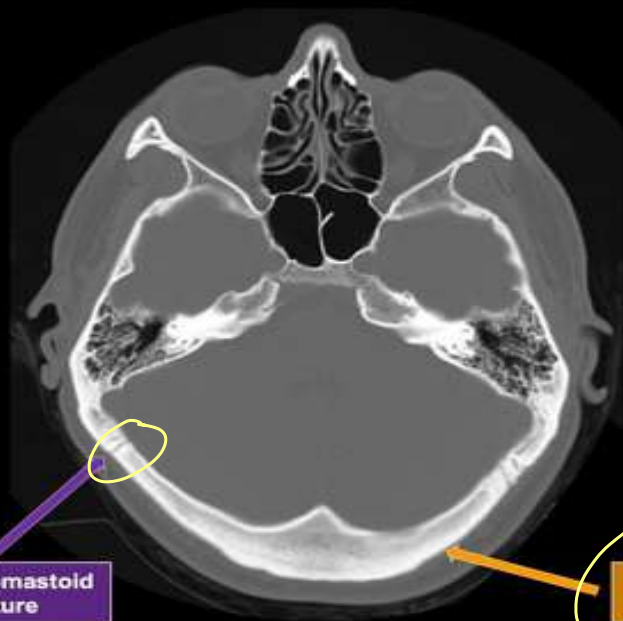
✓ Bone lesion





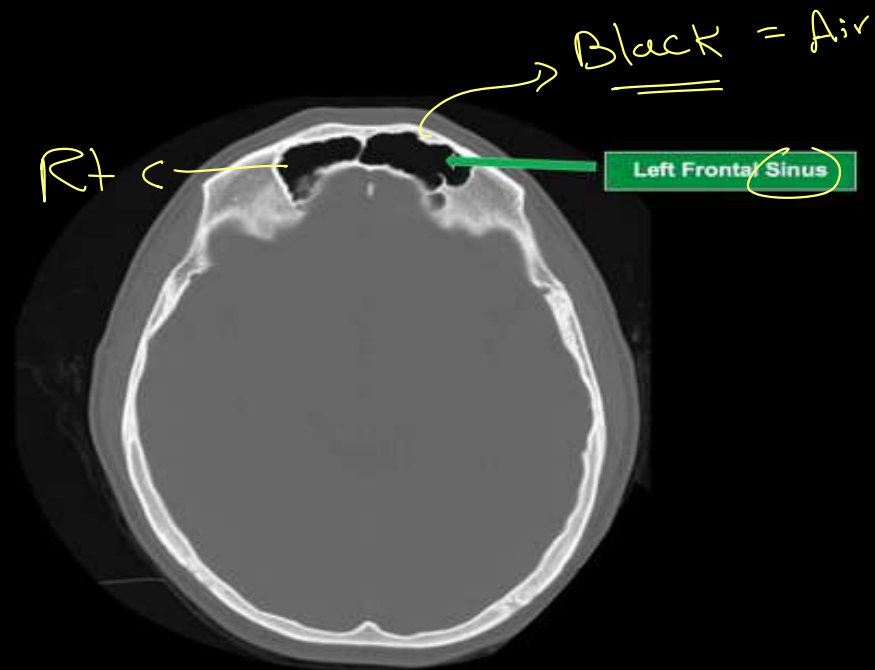


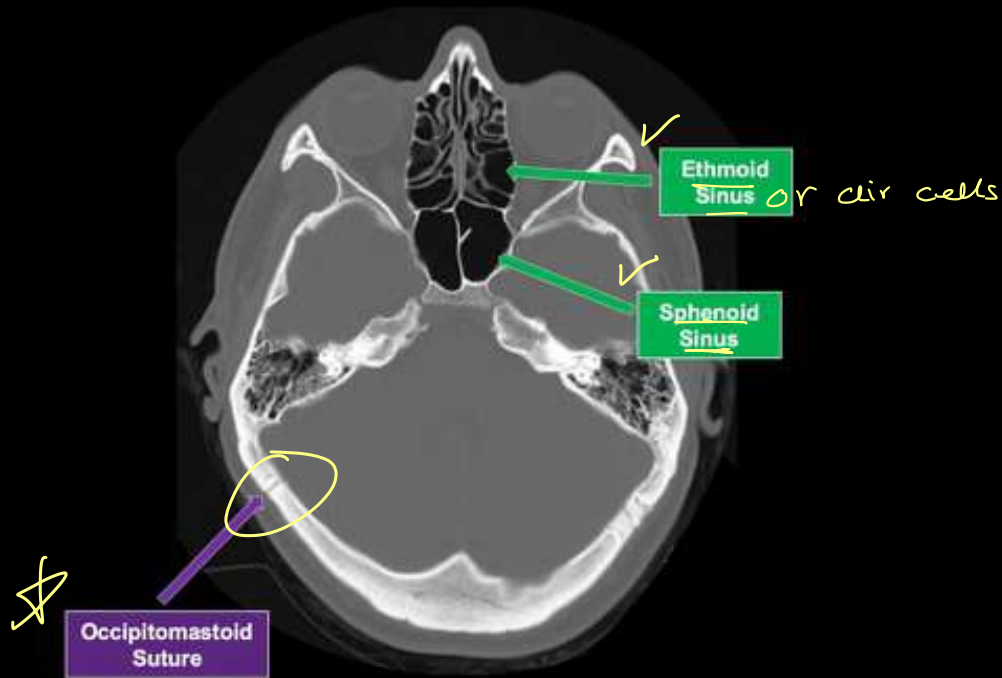


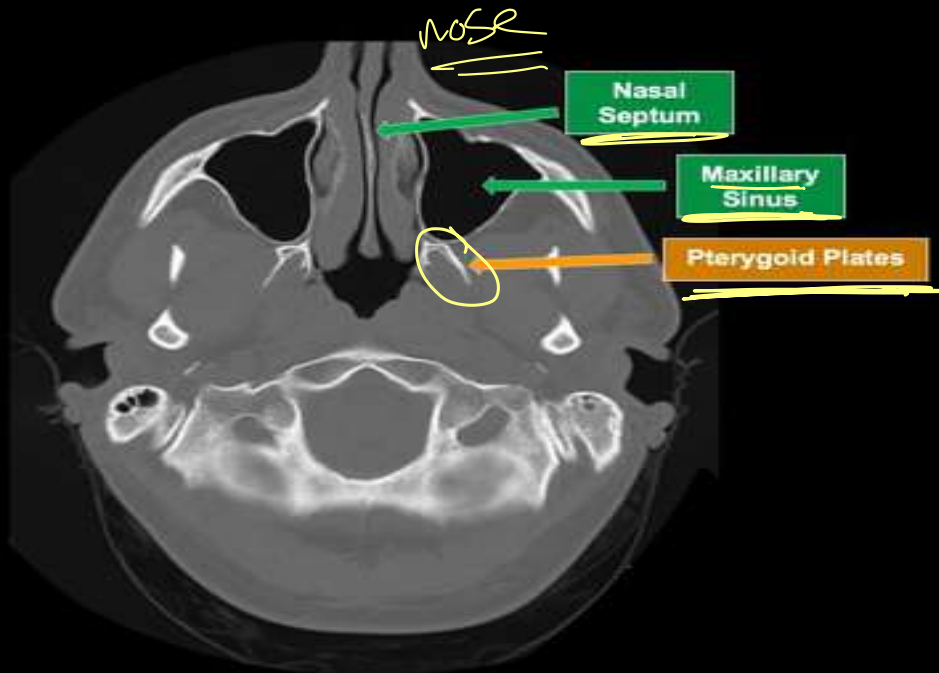


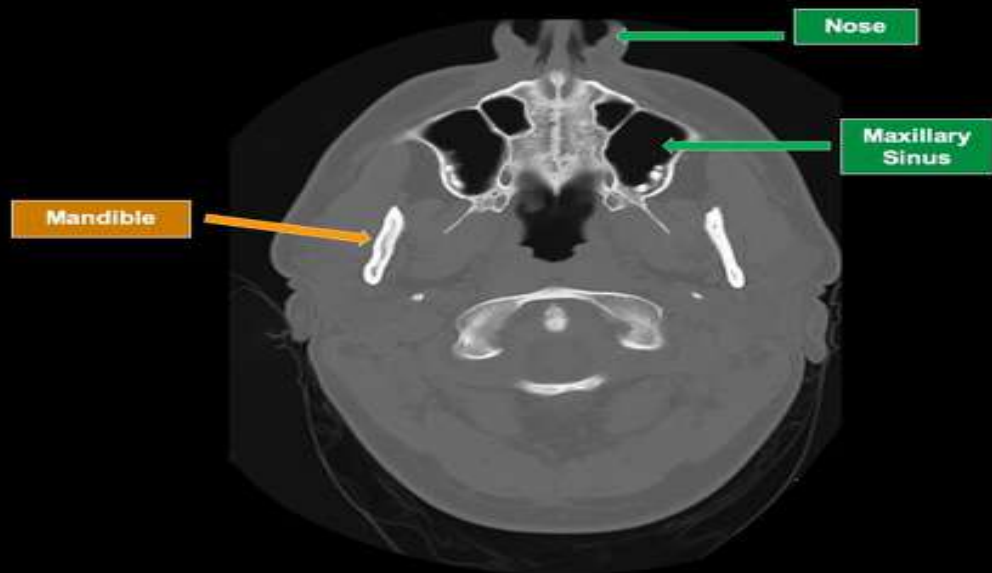
Occipitomastoid
Suture

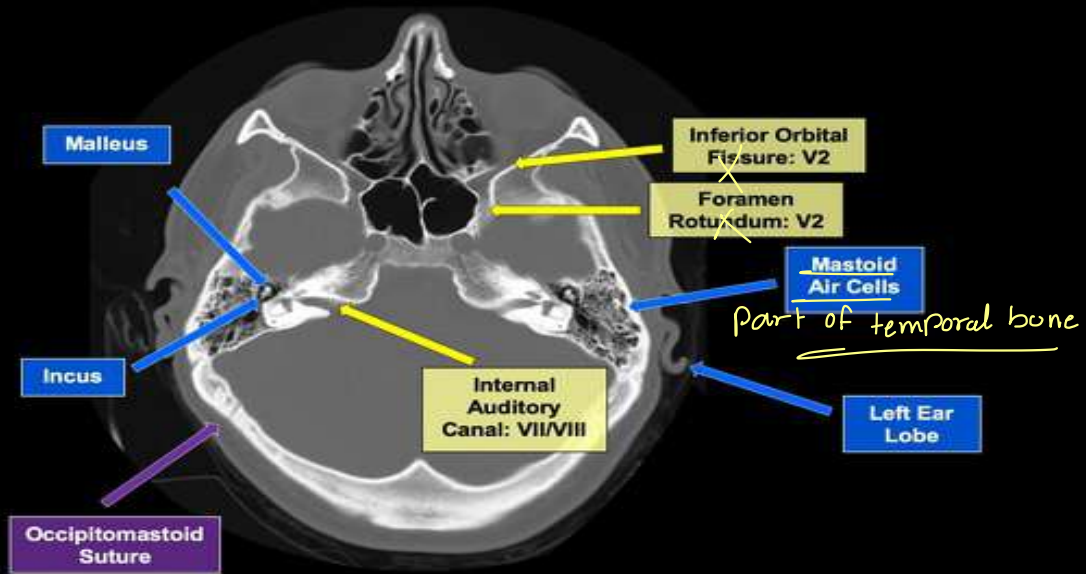
Occipital
Bone

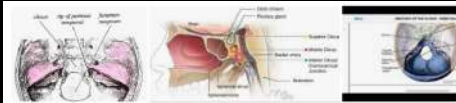








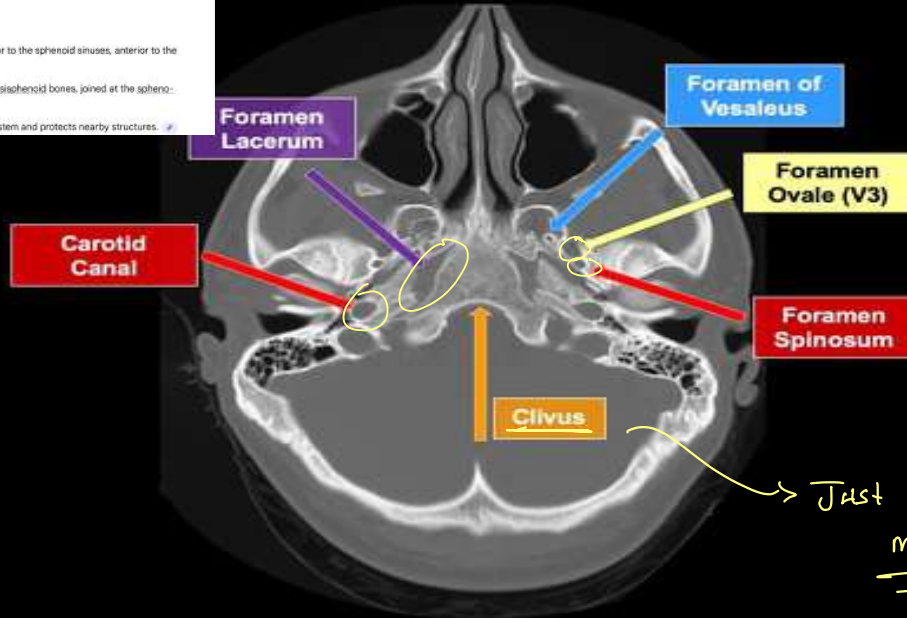




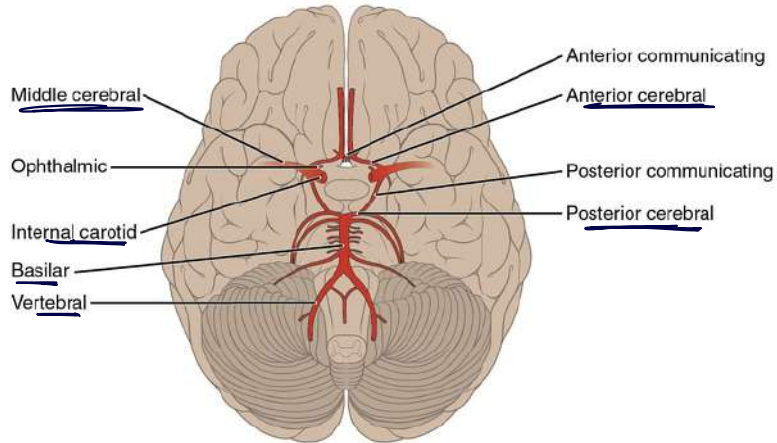
The clivus is a crucial, sloping bony structure at the base of the skull, formed by the fusion of the sphenoid and occipital bones, sitting just above the foramen magnum (where the spine connects to the skull). It's a vital anatomical landmark, serving as a foundation for the brainstem (pons) and near important nerves and vessels like the abducens nerve, basilar artery, and cavernous sinus. Because of its location, the clivus is prone to various diseases, including tumors (like chordomas, metastases) and inflammatory conditions, which can cause symptoms like headaches or double vision (diplopia).

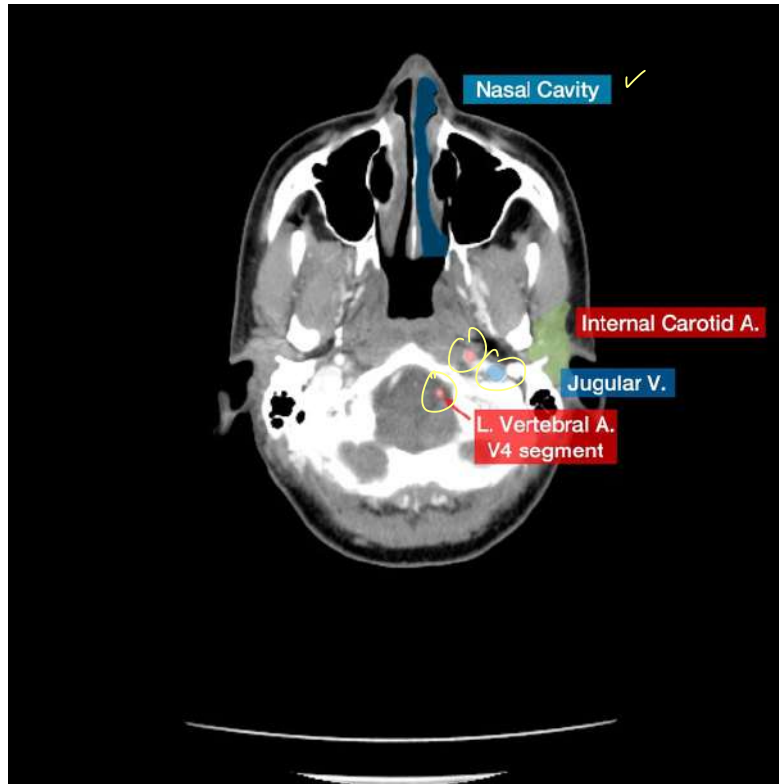
Anatomy & Formation

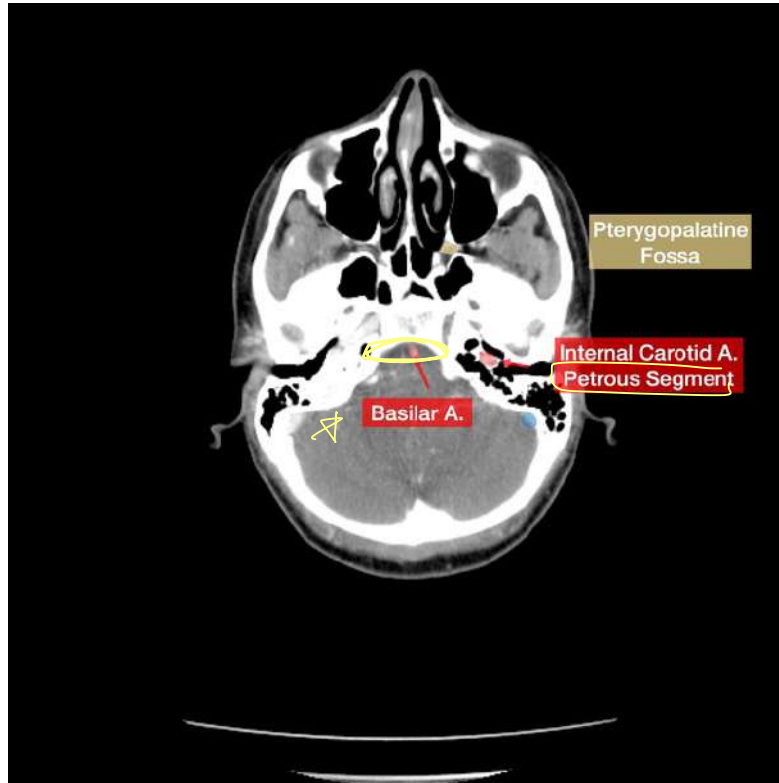
- **Location:** Midline of the central skull base, posterior to the sphenoid sinuses, anterior to the foramen magnum, and under the pons.
- **Composition:** Formed from the basiocciput and basisphenoid bones, joined at the sphenoid occipital synchondrosis.
- **Function:** Provides structural support for the brainstem and protects nearby structures.



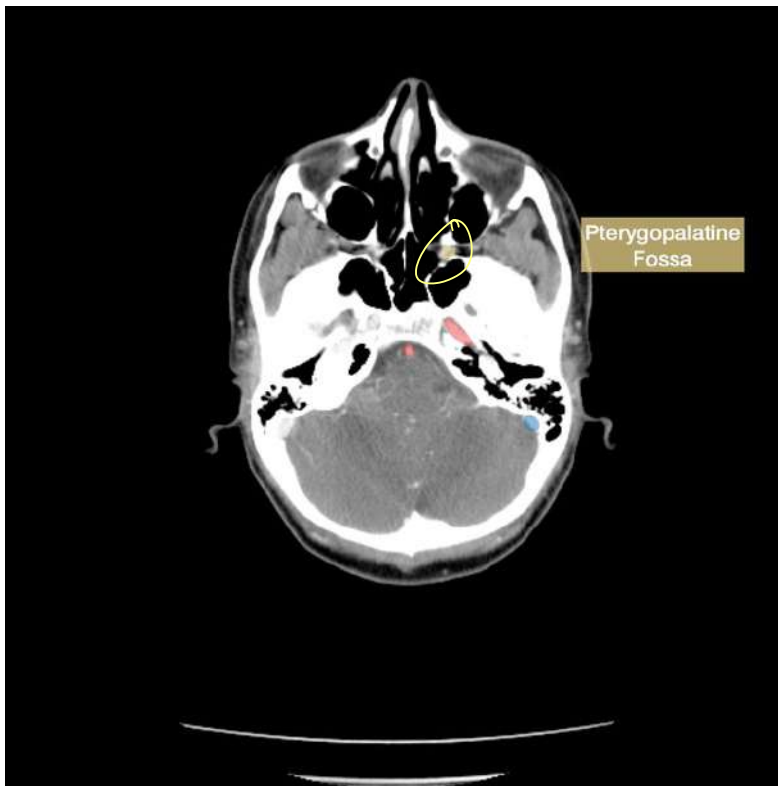
To see blood
vessels → should
give contrast.





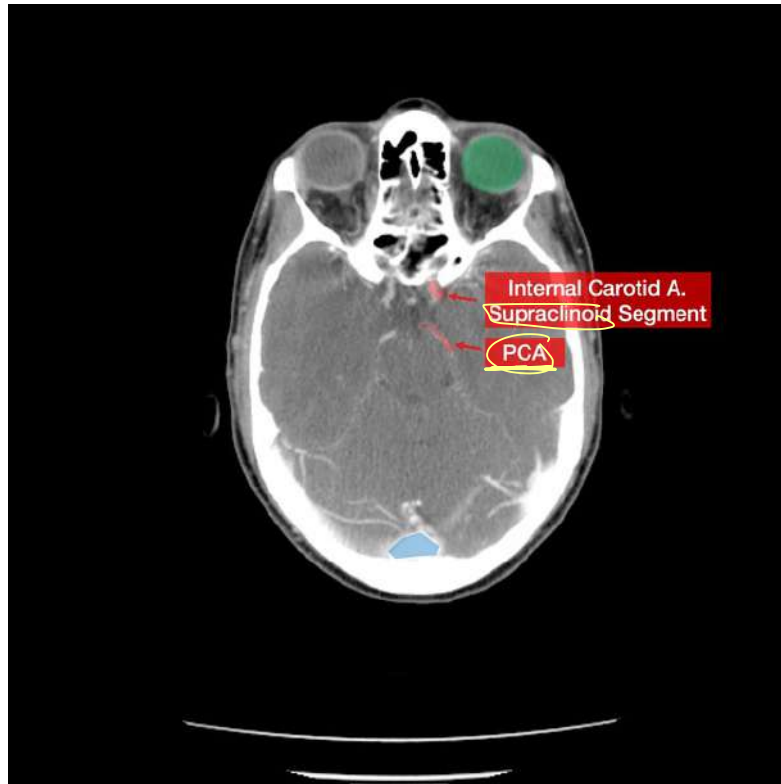


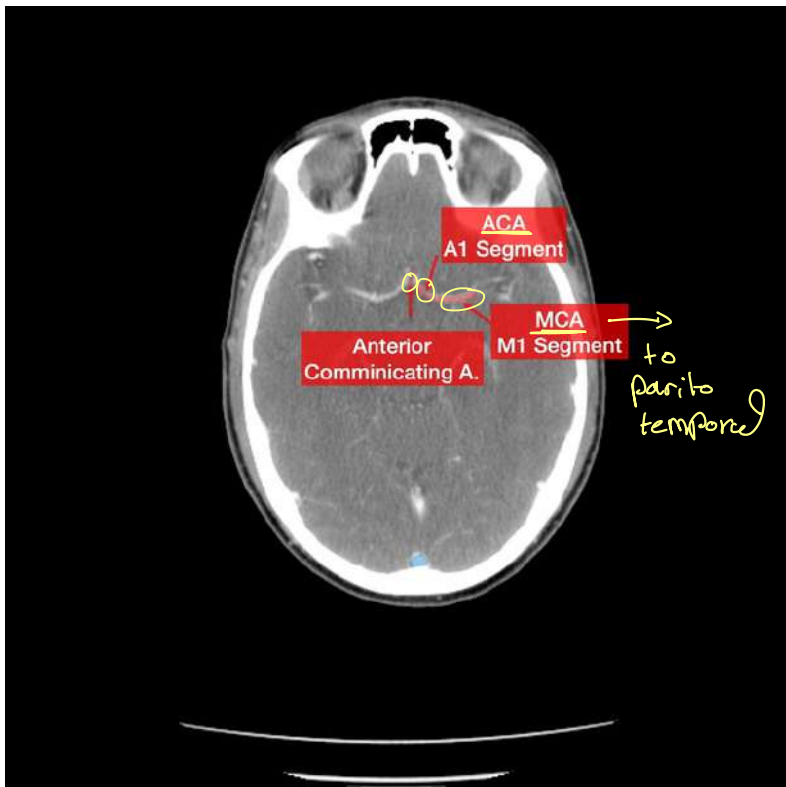


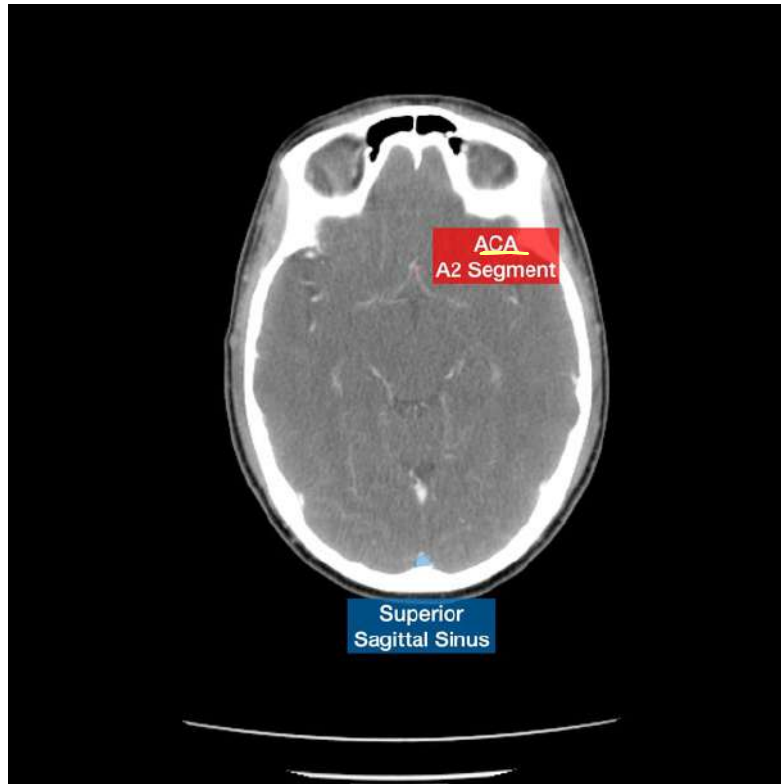


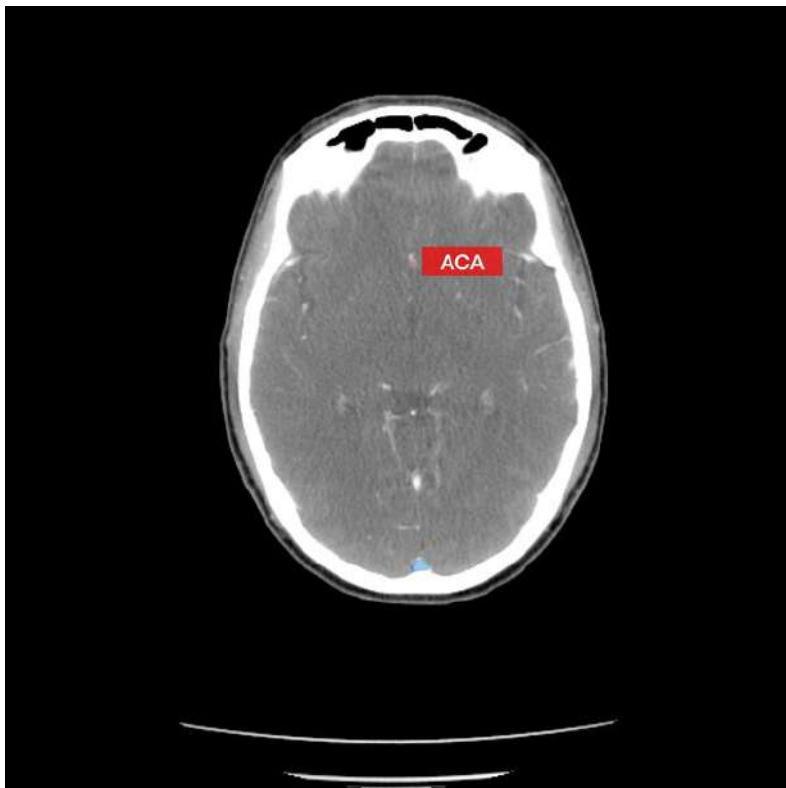


Internal Carotid A.
Cavernous Segment













occipital

