

CNS

Anatomy



Sheet



Slide

Number

-4

Done by:

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Corrected by:

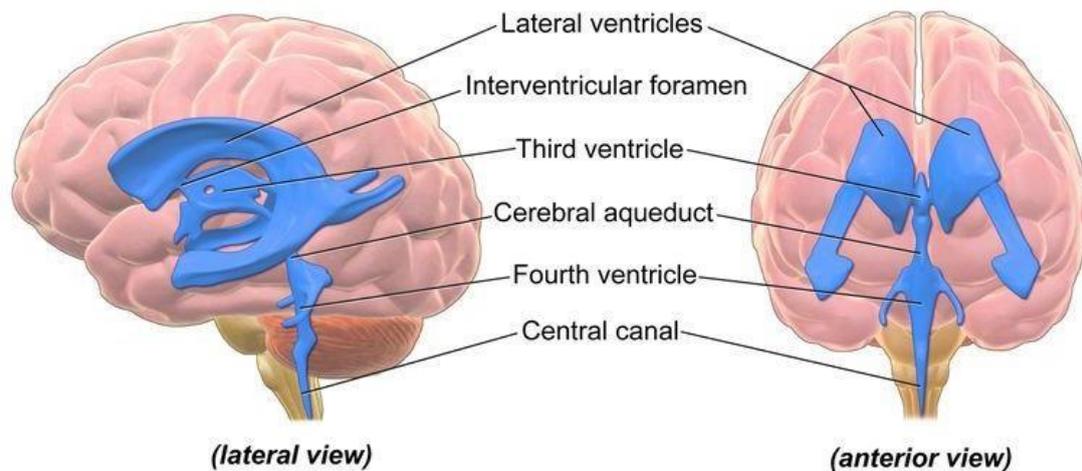
-Amera al zoubi

Doctor:

-Maha baltagy

Note: If someone has a lesion in **the visual association area** he would be able to see but he won't be able to understand (know) what he is seeing and this syndrome is called ****visual agnosia****.

Now we'll start with the ventricular system.



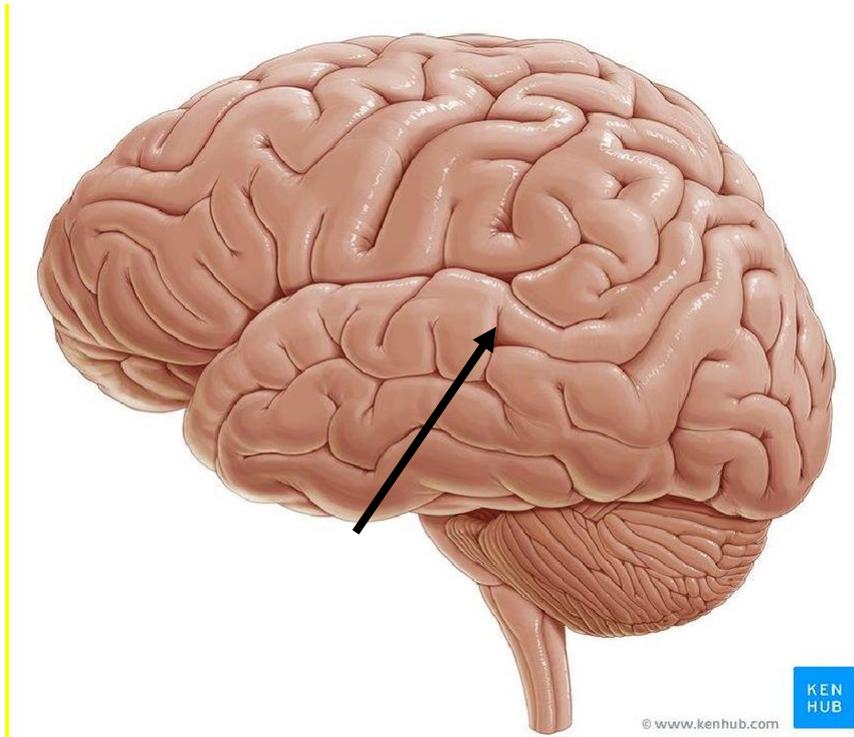
First of all the brain contains empty spaces: **two lateral ventricles**, each one is inside a cerebral hemisphere, **the third ventricle** between the two cerebral hemispheres, and **the fourth ventricle** between the cerebellum and the brain stem.

Today we are going to be taking the **lateral ventricle**:

The thing which has the *most* anatomical association with it is the basal ganglia (basal nuclei) mainly the **caudate** and **lentiform** nuclei.

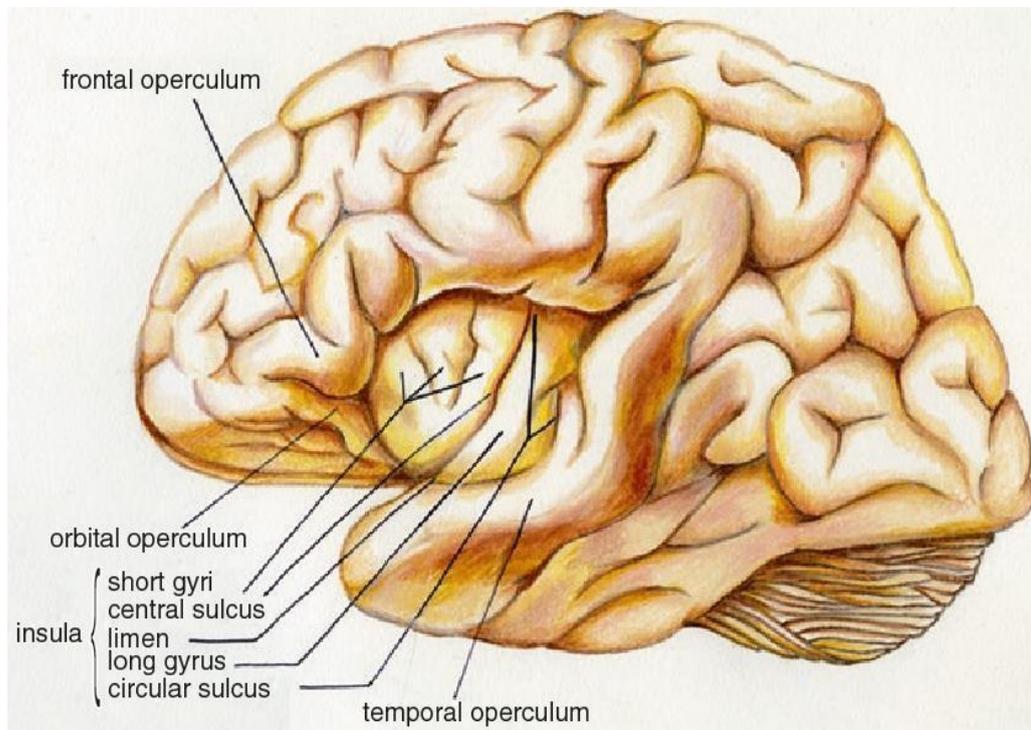
*basal nuclei are: Caudate nucleus, Lentiform nucleus, Amygdala, Substantia nigra, Subthalamic nucleus, and Claustrum.

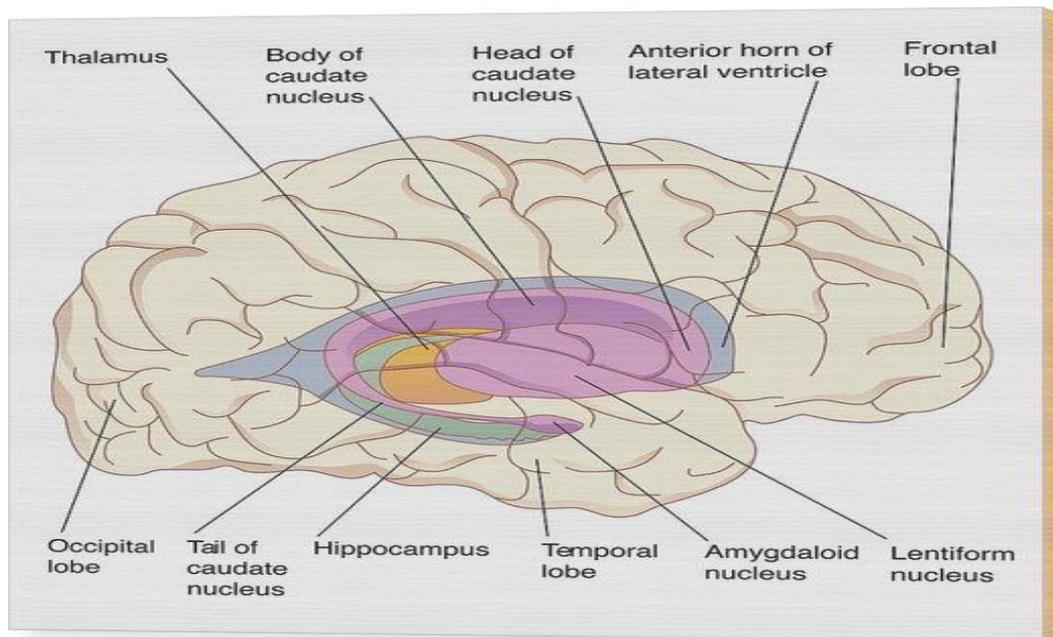
Now if we imagine having a lateral view of the cerebrum and we start moving from the lateral side medially the first thing we are going to see the lateral fissure (posterior ramus of lateral fissure).



Now if we remove the posterior ramus of the lateral fissure we reach the insula

And if we remove the insula we reach the lentiform nucleus





Lentiform nucleus is lens shaped and composed of two parts: outer -> putamen , inner -> globus pallidus (external and internal parts).

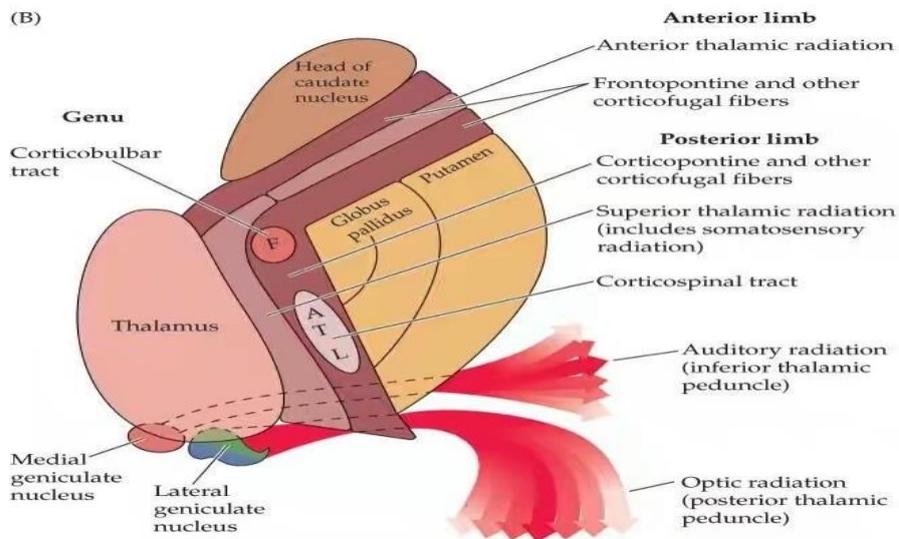
Caudate nucleus is comma shaped, the head of the caudate nucleus is attached to the anterior side of the lentiform nucleus and at the tail of the caudate nucleus we have the amygdala which is the smell center.

*amygdala is found in the uncus, in the anterior end of parahippocampal gyrus.

And if we go even more **medially** we reach the *thalamus* which is the most medial structure in the cranium and between the right and left thalami we have the a space called the 3rd ventricle.

Between the lentiform and caudate nuclei we have **the internal capsule** which is V shaped. Its parts are: anterior limb, posterior limb, genu, retrolentiform, sublentiform. (u gotta know ascending & descending tracts, blood supply, and

lesions of the capsule. We will all of it inshallah.)



And now jumping to the lateral ventricle-parts of it are in the frontal lobe and other parts are in the temporal and parietal lobes and occipital lobe - .

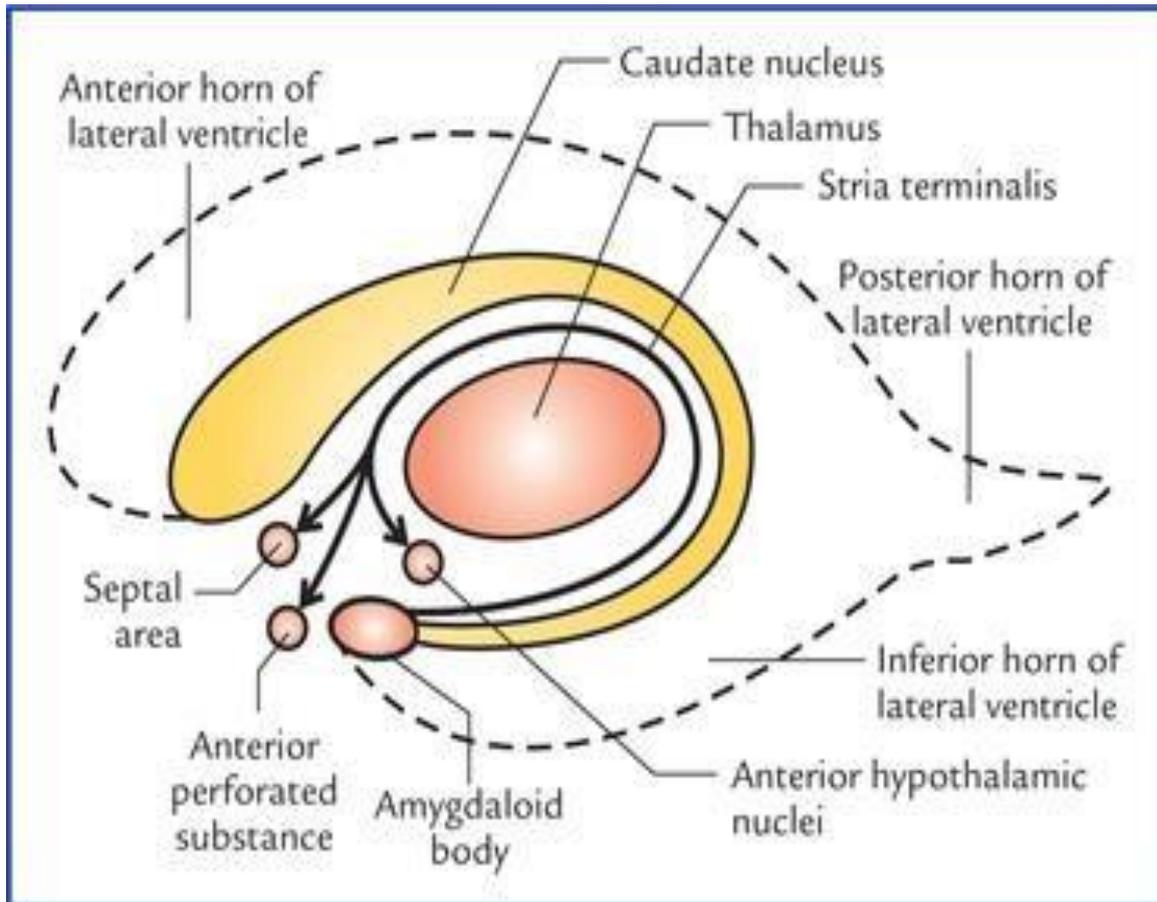
First we are going to see what structures are related to the lateral ventricle

1-Now if we describe the relation between the **head of the caudate nucleus** and the **anterior horn of the lateral ventricle** we say that the head of the caudate is in the floor and lateral wall of the anterior horn of the lateral ventricle

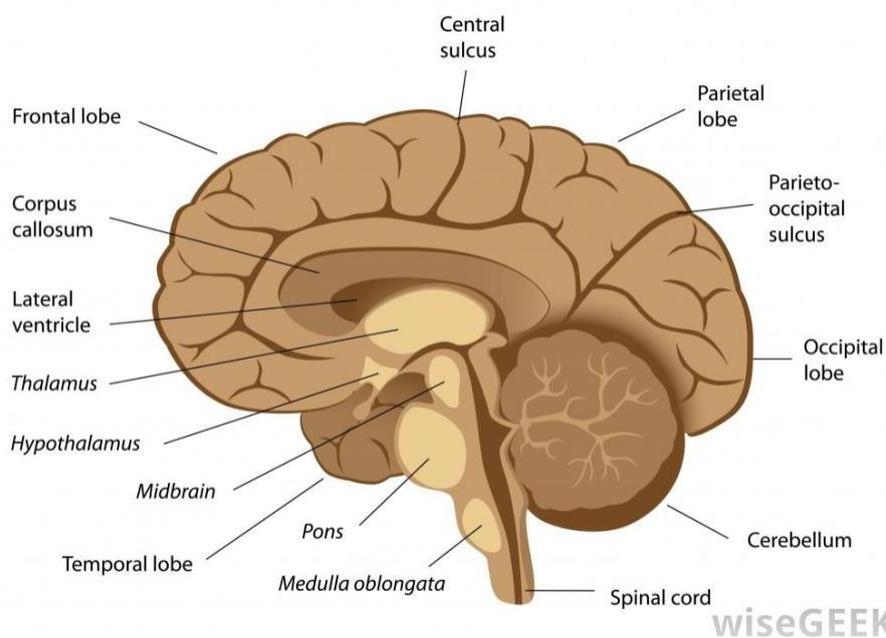
2-If we want to describe the relation between the **body of caudate** and **the body lateral ventricle** we say that the body of caudate is in the floor of the body of the lateral ventricle

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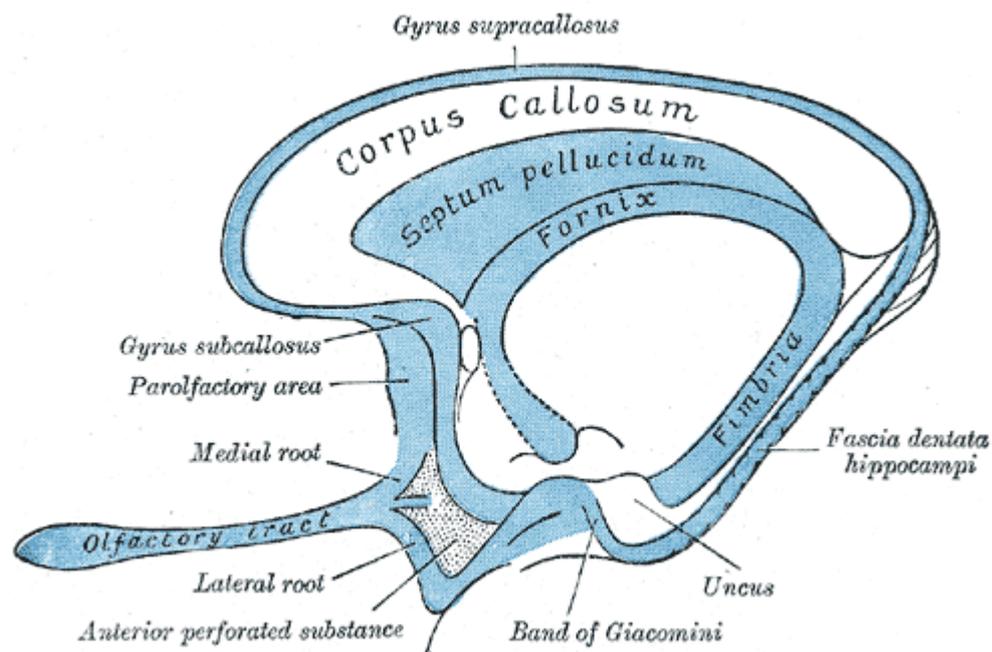
3-And if we want to describe the relation between the **tail of caudate** and the **lateral ventricle** we say that the tail is in the roof of the inferior horn



4-**The corpus callosum** is above the lateral ventricle



5- the **septum pallucidum** and **fornix** are medial to the lateral ventricle



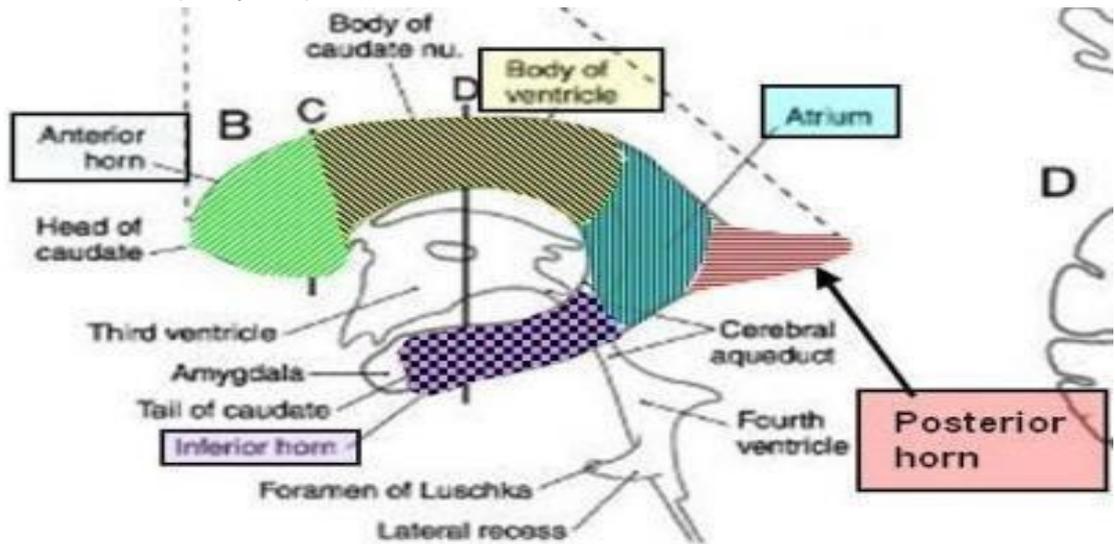
Now to summaries and recap:

- 1- The head of the caudate is the **floor of the anterior horn** of the ventricle
- 2- The body of caudate is in the **floor of the body** of the ventricle
- 3- The tail of the caudate is in the **roof of the inferior horn** of the ventricle
- 4- The corpus callosum is above the ventricle
- 5- The septum pallucidum and fornix are medial to the ventricle

Now to describe the anatomical parts of the lateral ventricle we say it has:

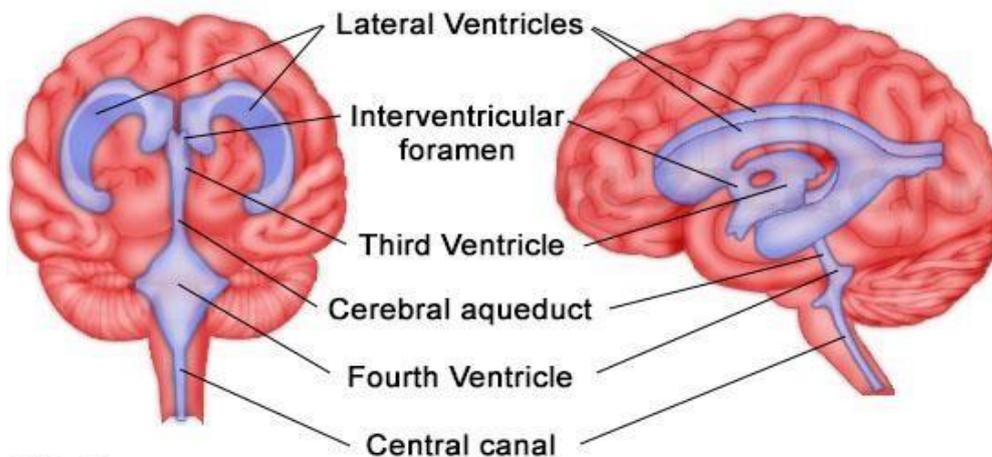
- 1- Anterior horn (frontal lobe)
- 2- Body (parietal lobe)
- 3- Posterior horn (occipital)

4- Inferior horn (temporal)



**The inter-ventricular foramen connects the lateral ventricle with the 3rd ventricle and it's found posterior to the anterior column of fornix and anterior to the thalamus

Ventricles of the Brain

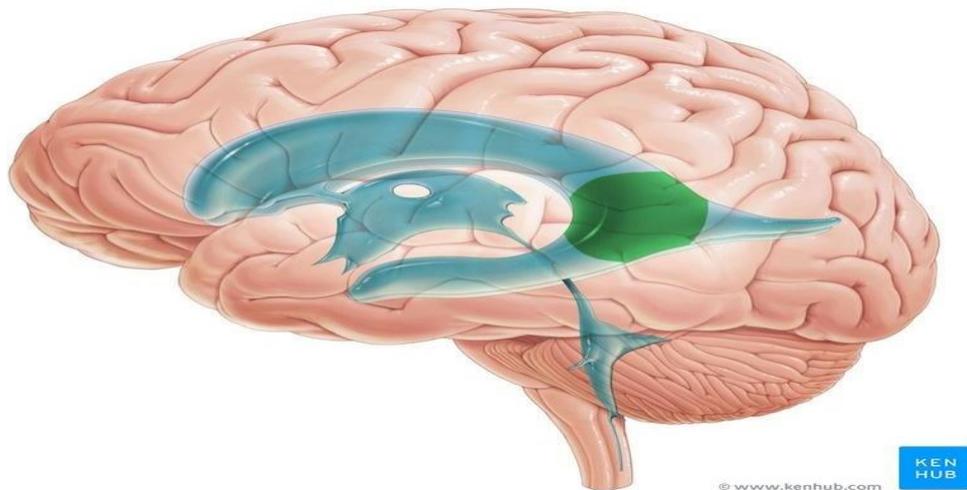


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If we draw a line from the inter-ventricular foramen to the corpus callosum this line divides the ventricle into anterior horn and body

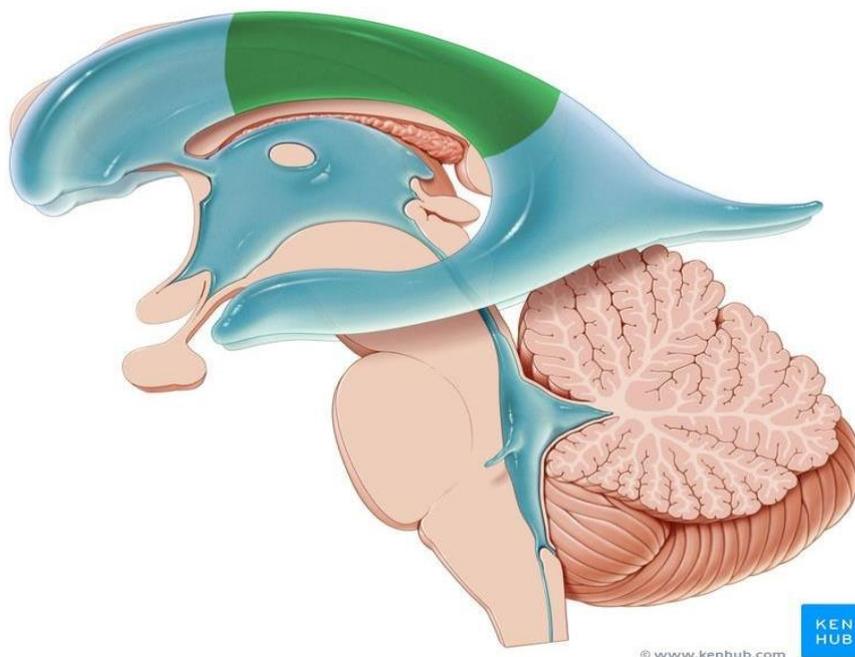
*between the body of the ventricle, the posterior horn and the inferior horn we have the triangular area which is called the trigone of the lateral ventricle which

contains the **choroid plexus**- which secretes CSF-



Now we describe the relations for the parts of the lateral ventricle

1-the body of the ventricle



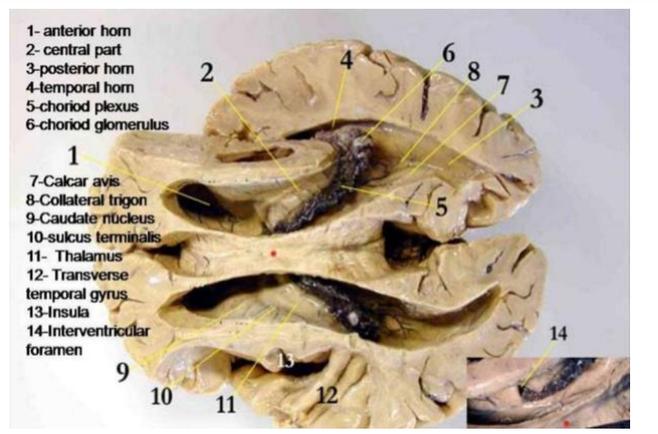
*the roof of the body of the ventricle is formed by the body of corpus callosum

* Its floor is formed by the **body** of caudate nucleus+ the thalamus.

(the body of lat. Vent. Is related to the body above and the body below.)

*the medial wall is formed by the fornix and the septum pallidum.

Between the thalamus and the fornix we have the choroid fissure it's named like this because the choroid plexus enters the lateral ventricle via it. Choroid plexus is made up of the ant. & post choroidal arteries.



Number 5 is choroid plexus

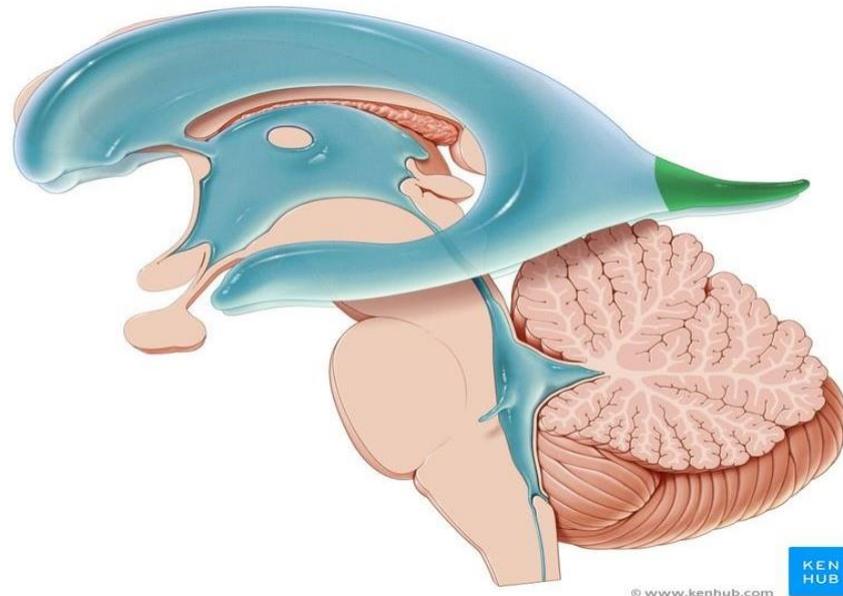
Number 6 is a tuft of capillaries called glomus. It calcifies with advanced age, and appears on CT

Between the thalamus and the fornix there's a fissure called choroid fissure where choroid plexus enters into the lateral cavity.

2-the anterior horn

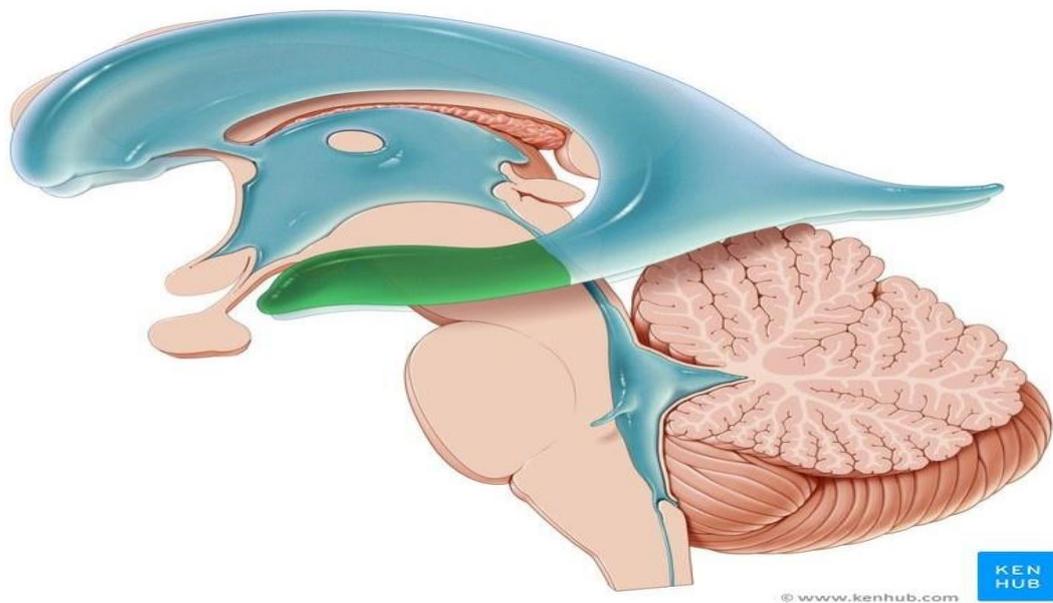
- *the floor of the anterior horn is formed by the **head** of caudate nucleus
- *the lateral wall of the ANT. Horn is formed by the **head** of caudate nucleus
- *the roof of the ANT.horn is formed by the genu of corpus callosum
- *the medial wall is formed by the rostrum of corpus callosum, septum pallucidum, and ant. column of fornix.

3-the posterior horn



- *the medial wall of the posterior horn is formed by the bulb of the splenium (part of the corpus callosum)
- *the calcarine sulcus has an impression of the medial wall called the calcar avis.
- *roof of posterior horn is made by the teptum of corpus callosum.

4-the inferior horn

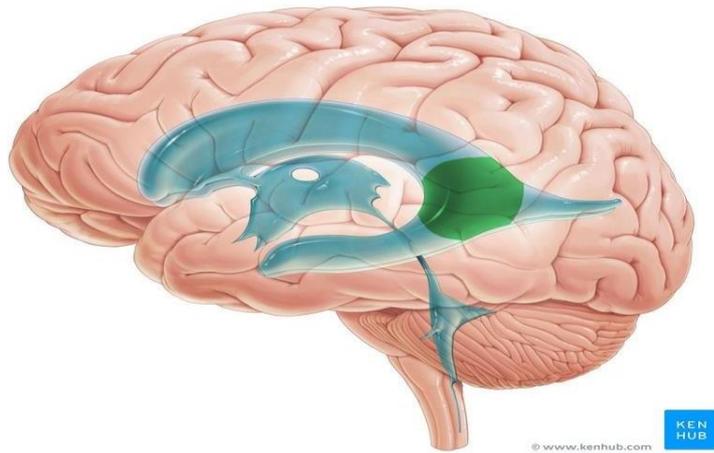


*the roof and lateral wall of the inferior horn is made by the teptum of corpus callosum +the tail of caudate nucleus and amygdala



*the floor is formed **by hippocampus** (infront) + the collateral imminece (from the collateral sulcus)(behind)

5-the choroid plexus



The choroid plexus is found in the body and the inferior horn of lat. Vent.

- Choroid plexus is made of tela choroidea (formed by a double layer of the pia matter, and covered by ependymal cells) and contains the choroid vessels (ant. & post. Choroid arteries.

Don't forget to refer to the slides.
