أهلا وسهلا

الأستاذ الدكتور يوسف حسين

أستاذ التشريح وعلم الأجنة - كلية الطب – جامعة الزقازيق – مصر

رئيس قسم التشريح و الأنسجة و الأجنة - كلية الطب - جامعة مؤتة - الأردن

دكتوراة من جامعة كولونيا المانيا

جروب الفيس د. يوسف حسين (استاذ التشريح)

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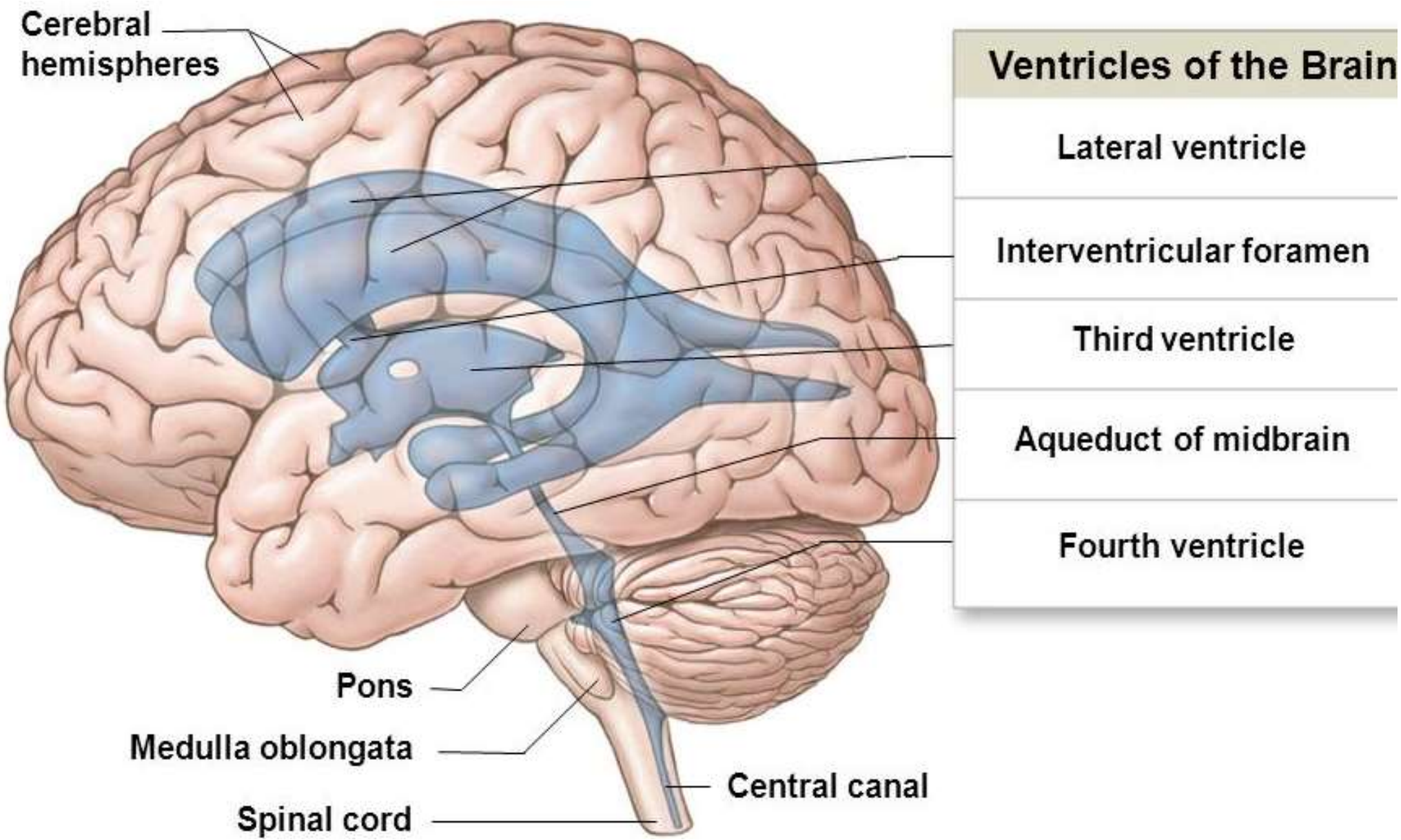
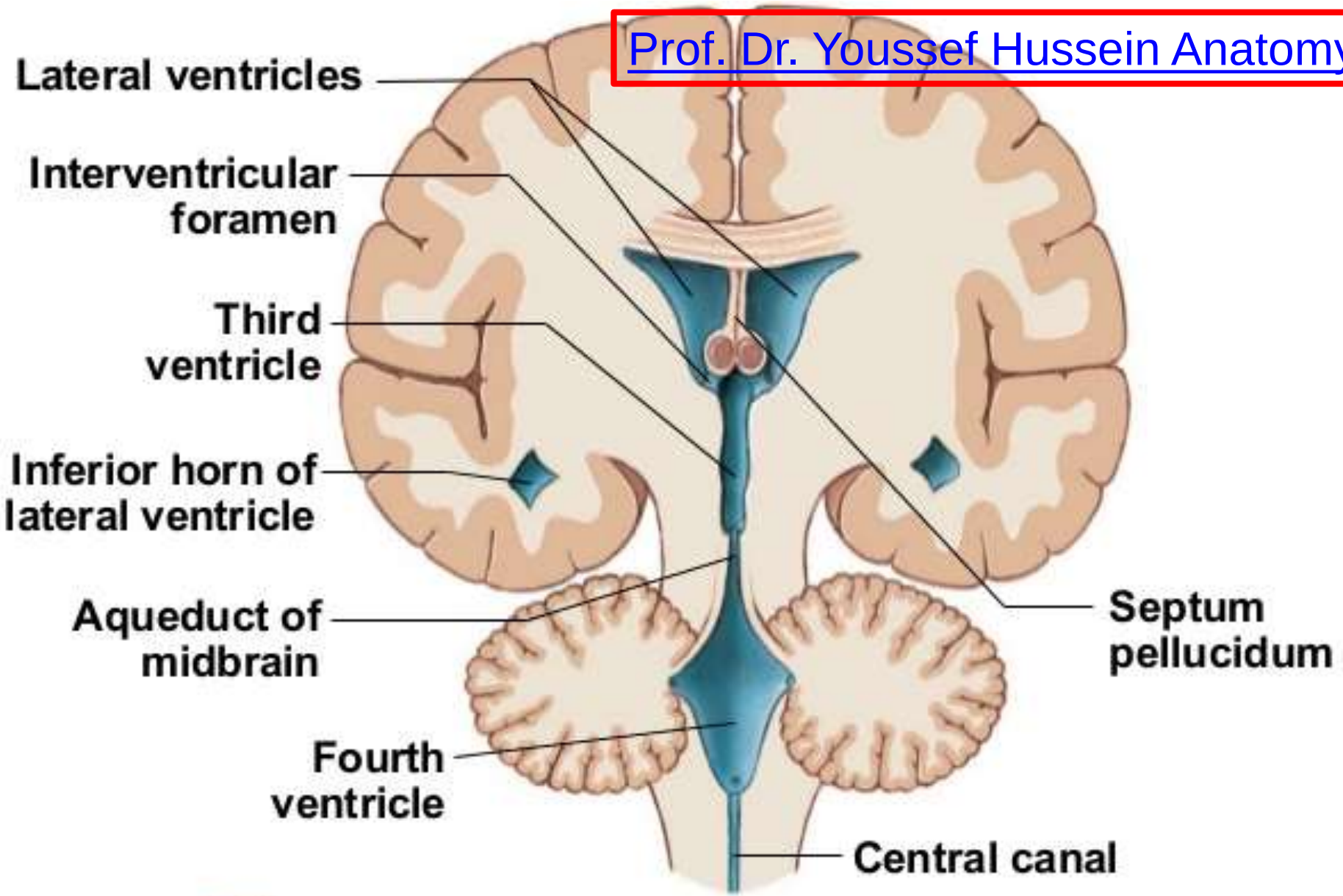
Ventricular system (lateral view)





d Diagrammatic coronal section showing the interconnections between the ventricles

- **The third ventricle**

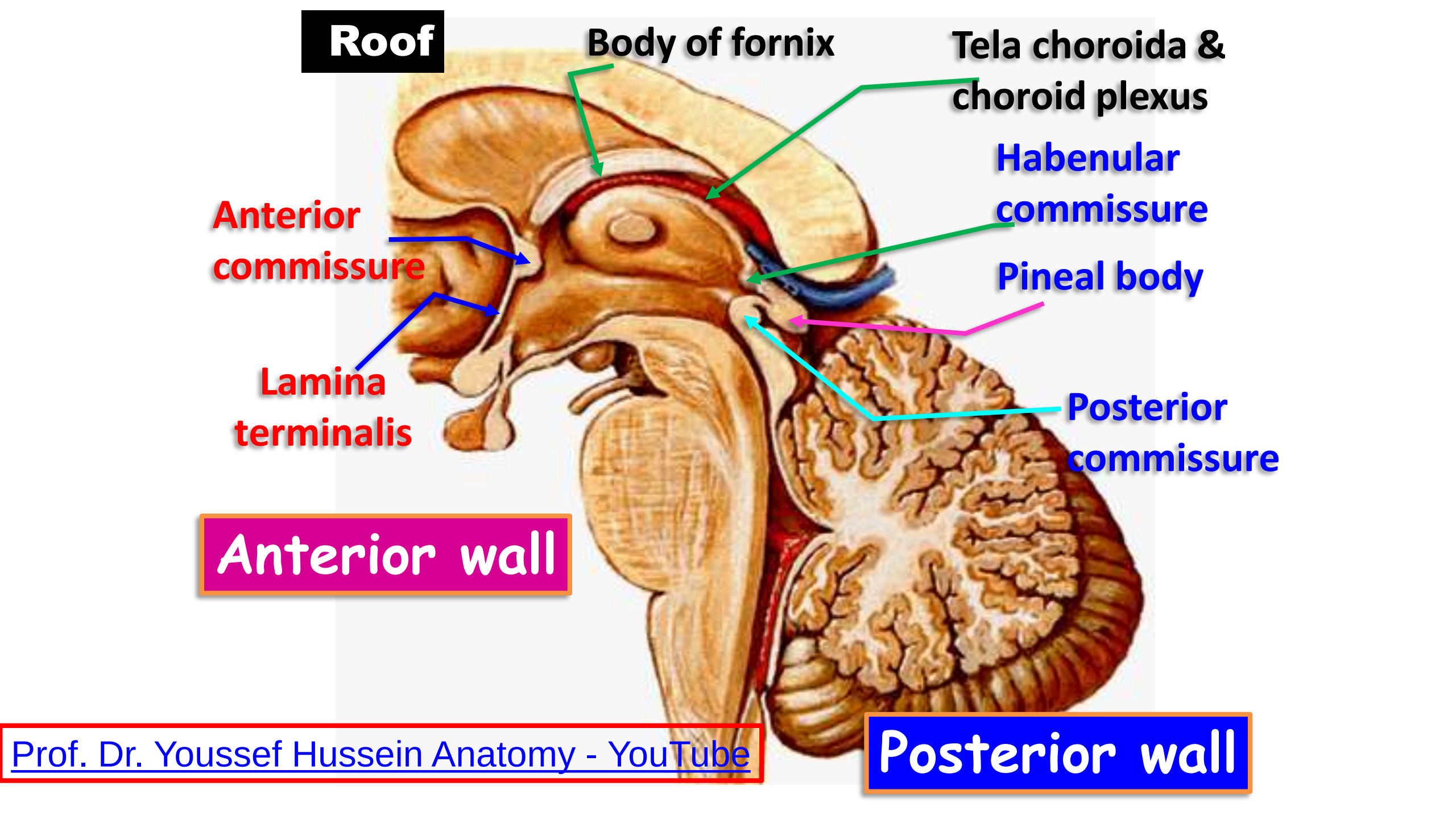
- This is the cavity of the diencephalon.

- **Shape and site**; it is a slit like cavity in the median plane between the two thalami.

- **Connections**:

1- It communicates with **lateral ventricles** by an **interventricular foramen**.

2- It communicates with the **4th ventricle** through **cerebral aqueduct of midbrain**


Roof
Body of fornix
Tela choroida & choroid plexus
Habenular commissure
Pineal body
Anterior commissure
Lamina terminalis
Posterior commissure
Anterior wall
Posterior wall
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- **Boundaries of the 3rd ventricle**;

A- Anterior wall:

1- Lamina terminalis.

2- Anterior commissure.

C- Posterior wall: is formed by;

1- Posterior commissure.

2- Pineal gland.

3- Habenular commissure.

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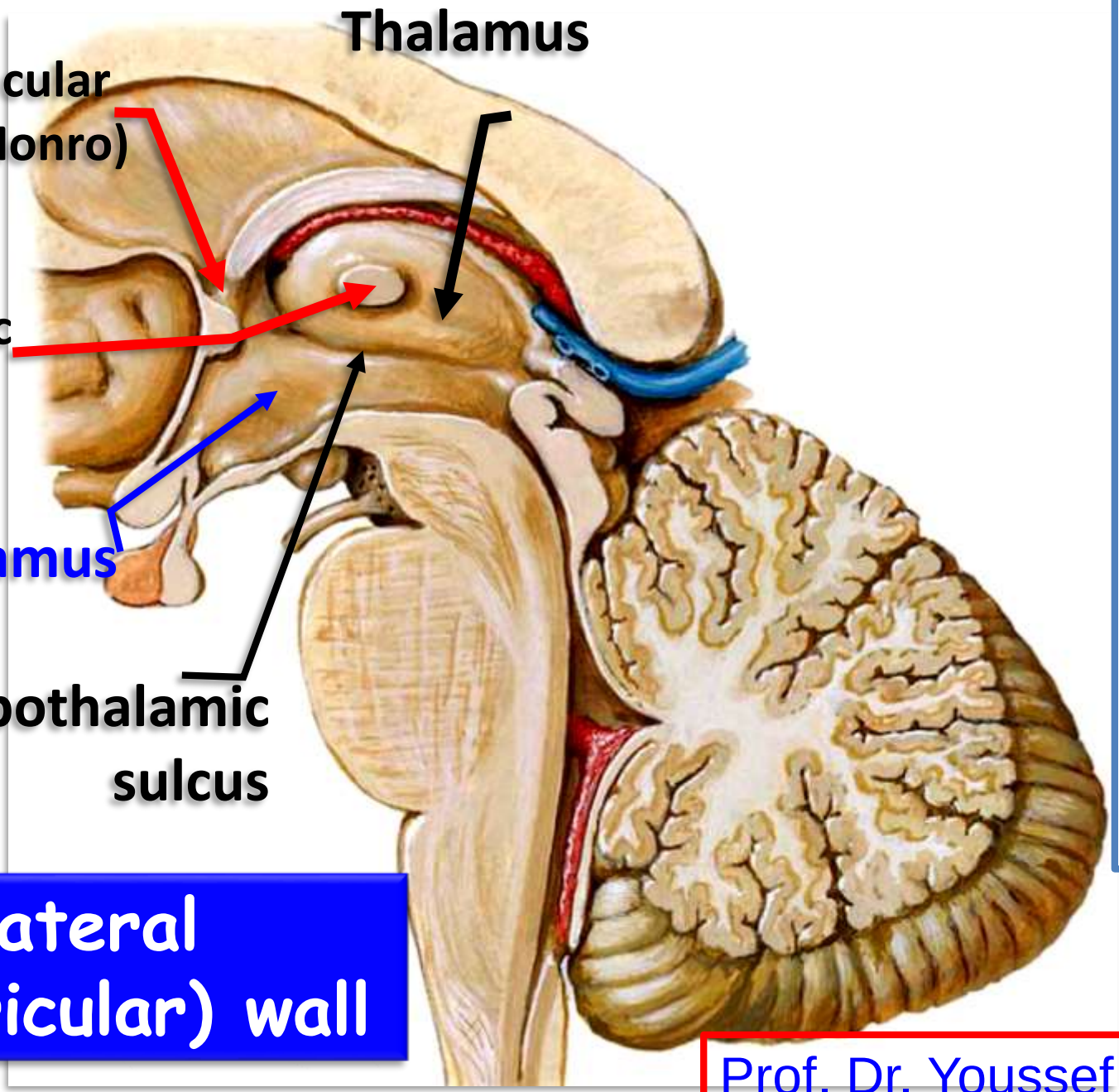
D- Roof: is formed by

a- Body of the fornix.

b- Tela choroida (double layer of pia matter that invaginated by choroid plexus into the cavity of the ventricle) and choroid plexuses is formed by choroidal branches of the **posterior cerebral artery.**



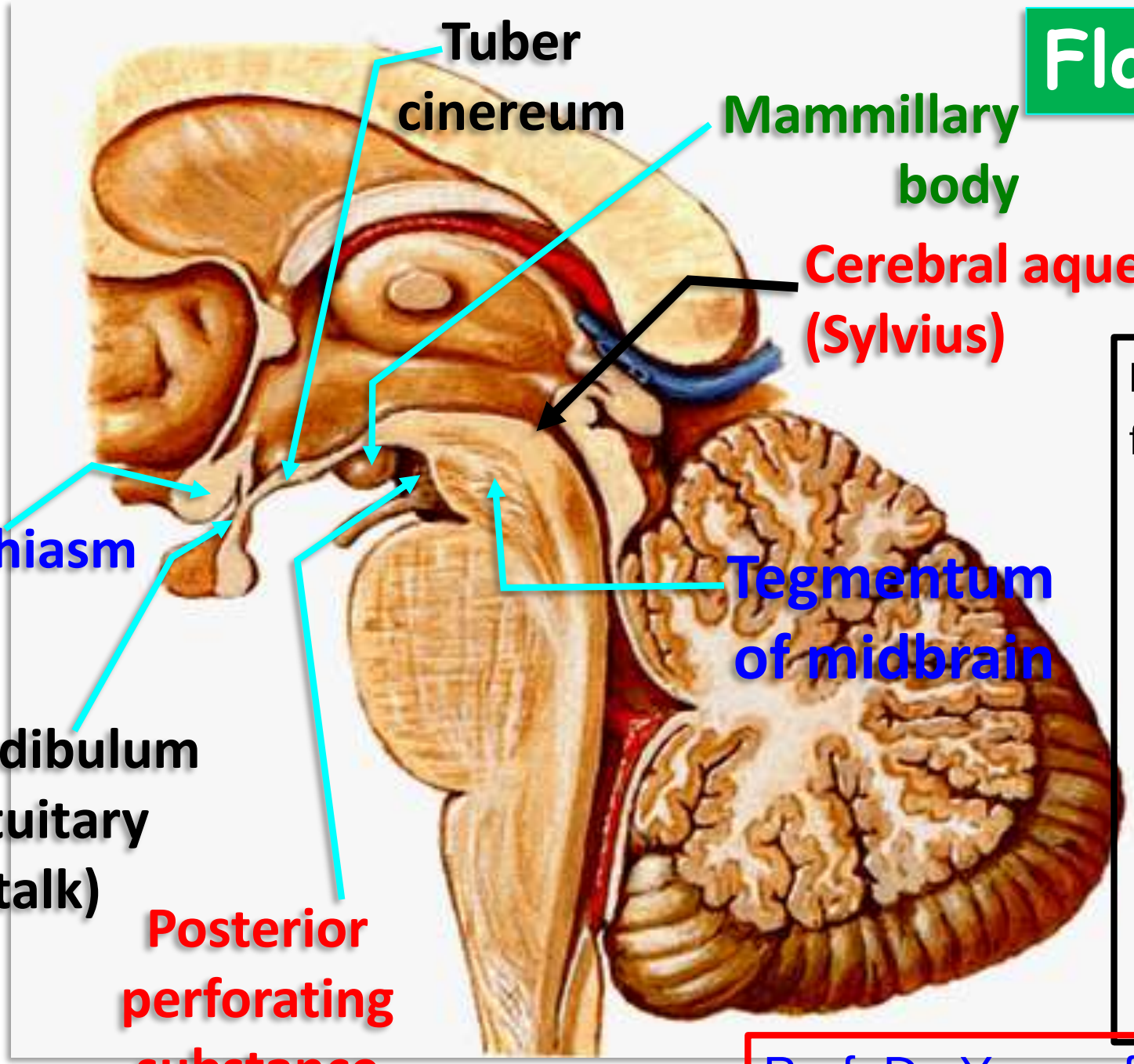
Lateral (Ventricular) wall

Lateral wall; if formed by;

- Upper part; Thalamus.
- Middle part; hypothalamic sulcus.
- Lower part; hypothalamus.
- Interventricular foramen (foramen of Monro) in the anterior part.

N.B; The two lateral walls are interconnected by the interthalamic adhesion across the cavity of the 3rd ventricle

Floor



Floor: following structures arranged from before backward;

1- Optic chiasma.
2- Infundibulum.
3- Tuber cinereum.
4- Mammaillary bodies.
5- Posterior perforated substance.
6- Tegmentum of the midbrain.
7- Cerebral aqueduct of the midbrain.

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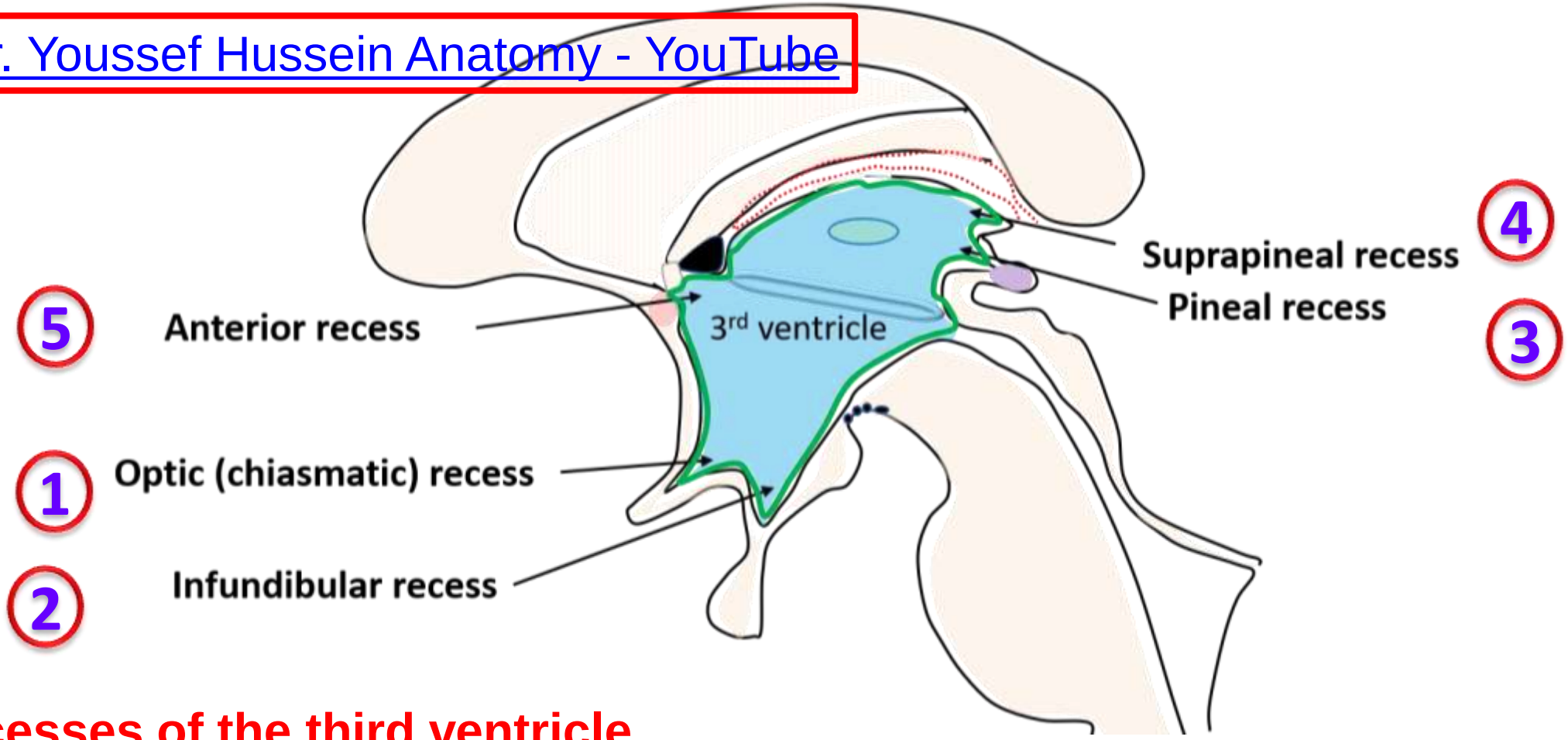

- **Recesses of the third ventricle**

1- Supraoptic recess; above the optic chiasma.

2- Infundibular recess; into the upper part of the infundibulum.

3- Pineal recess; into the pineal stalk.

4- Suprapineal recess; above the pineal stalk.

C.S.F.
(Cerebrospinal Fluid)
Circulation

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• Functions of cerebrospinal fluid

1- Protects the brain and spinal cord from the external shocks and trauma.

2- Supports the brain and spinal cord.

3- Regulation of the intracranial pressure.

4- Used for diagnosis of some diseases

• Characters of the C.S.F.

1- Appearance; clear watery fluid. If it becomes turbid this indicates meningitis.

2- It is f**ormed by choroid plexuses in the brain ventricles**

3- Amount, is about 120-150 ml

4- **Secretion** about 20 ml per hour

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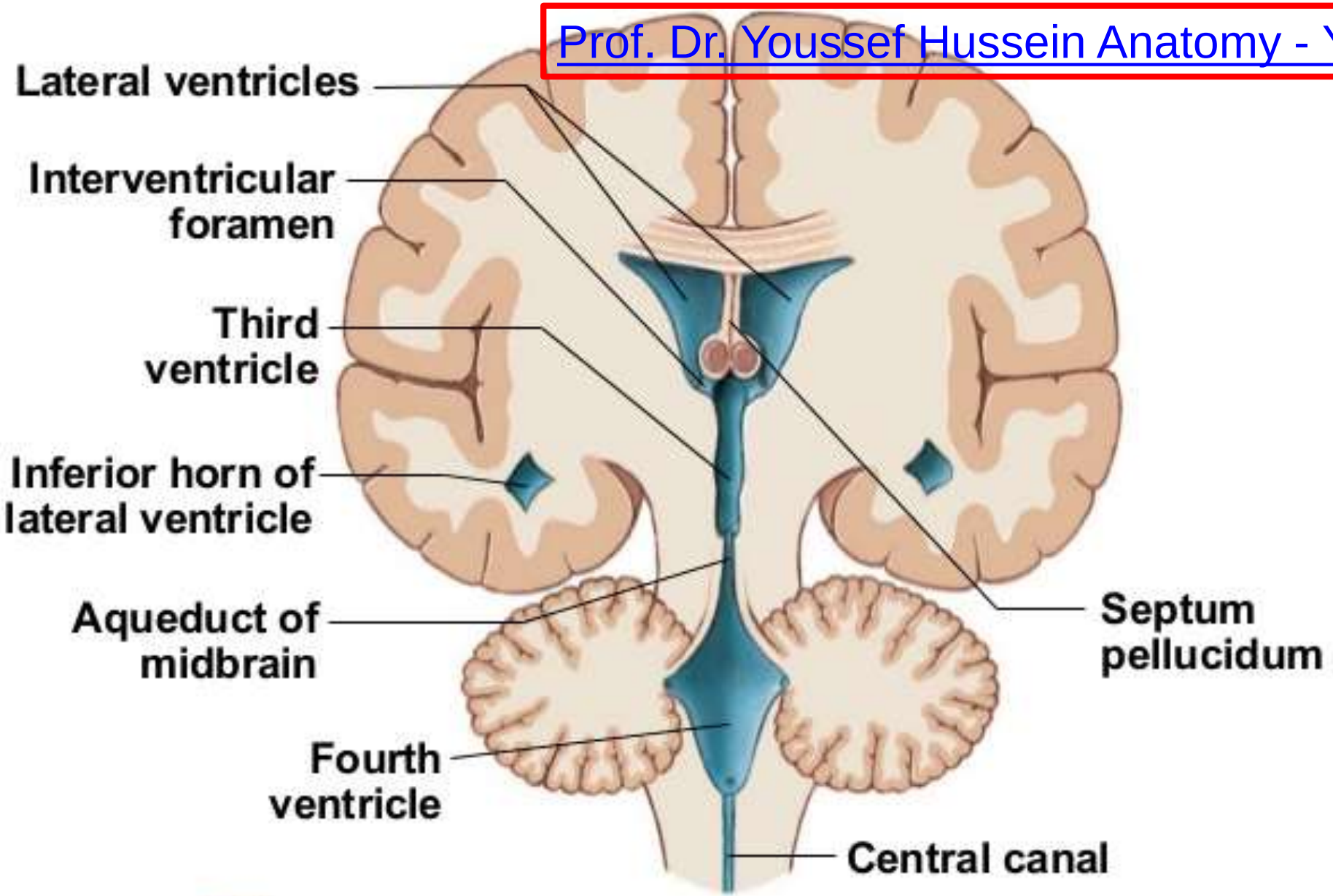
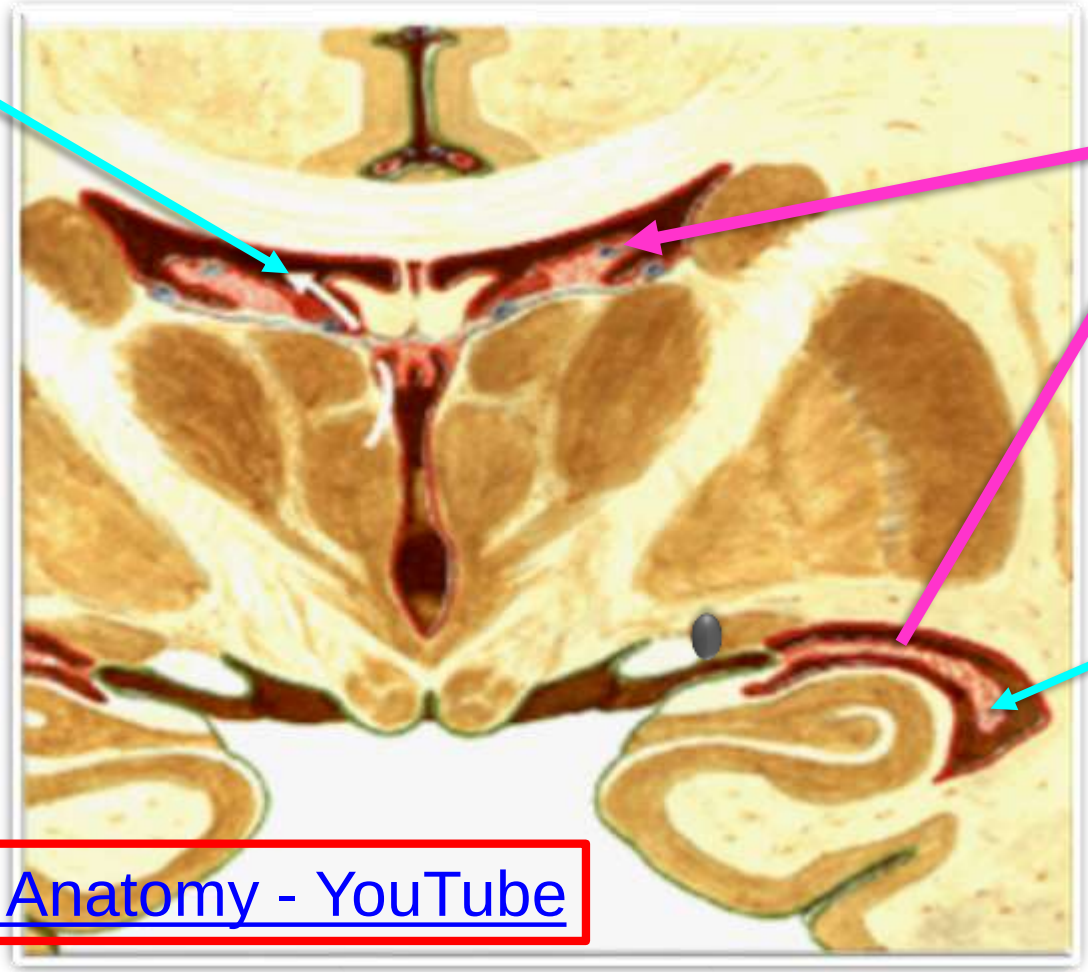


d Diagrammatic coronal section showing the interconnections between the ventricles

Choroid plexus of the lateral ventricle



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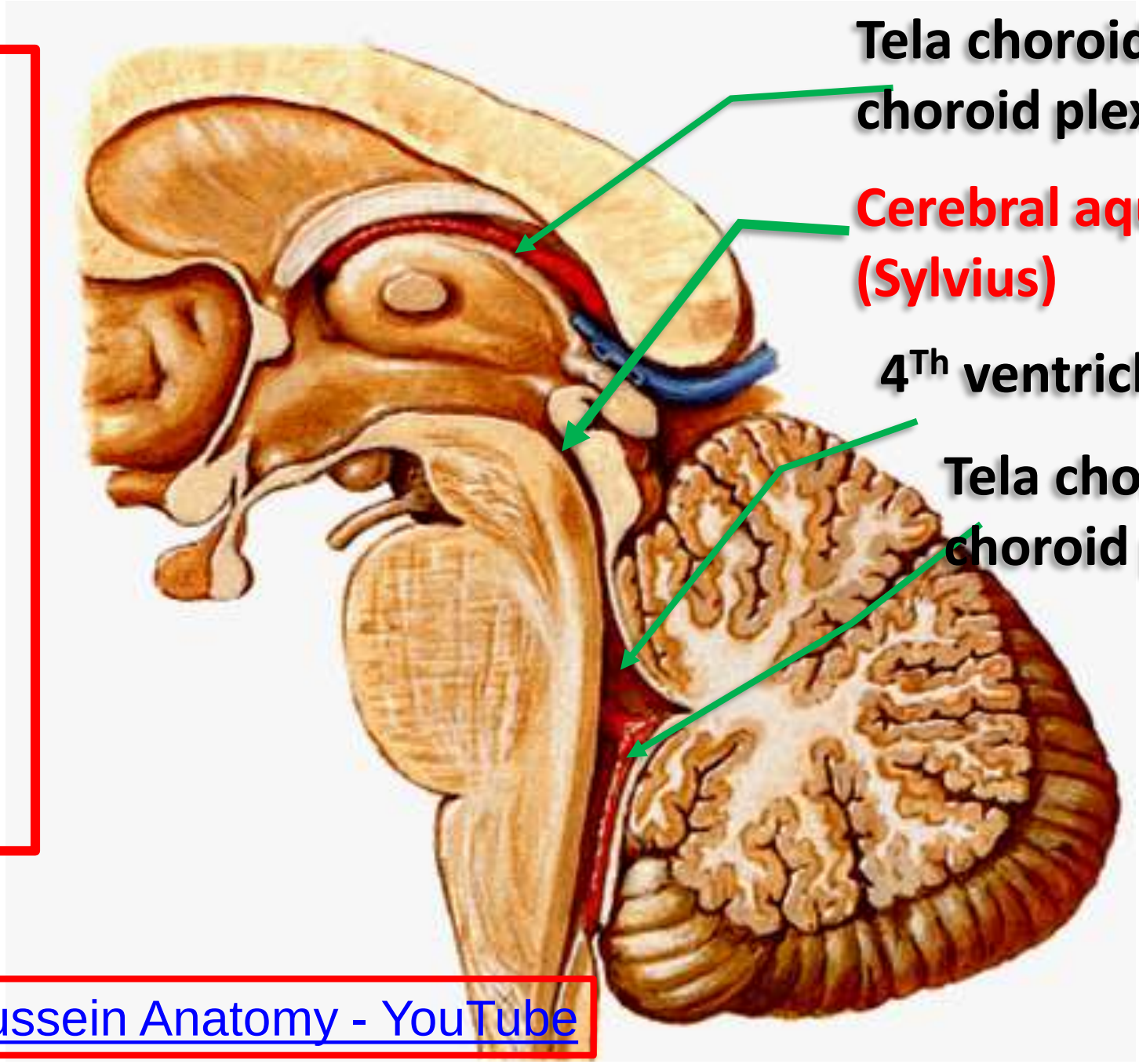
- **Tela choroidae**; double-layer of pia matter contains choroid plexuses
- **Choroid plexus** in **central part** is formed by **posterior choroidal branches of posterior cerebral artery.**
- **Choroid plexus** in **inferior horn** is formed by **anterior choroidal branches of internal carotid artery**.

- **Choroid plexuses** of 3rd ventricle is formed by **posterior cerebral artery.**
- **Choroid plexuses** of 4th ventricle is formed by **posterior inferior cerebellar arteries**



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- **Connection (Openings) of the fourth ventricle,**

1- Superior angle is continuous with the cerebral aqueduct.

2- Inferior angle is continuous with the central canal of the closed medulla.

3- 3 openings in the lower part of the **roof** which transmit cerebrospinal fluid to the subrachnoid space.

a- One **M**edian opening (foramen of **M**agendie) in the lower part of the roof.

b- Two **L**ateral openings (foramina of **L**uschka) one in each lateral recess.

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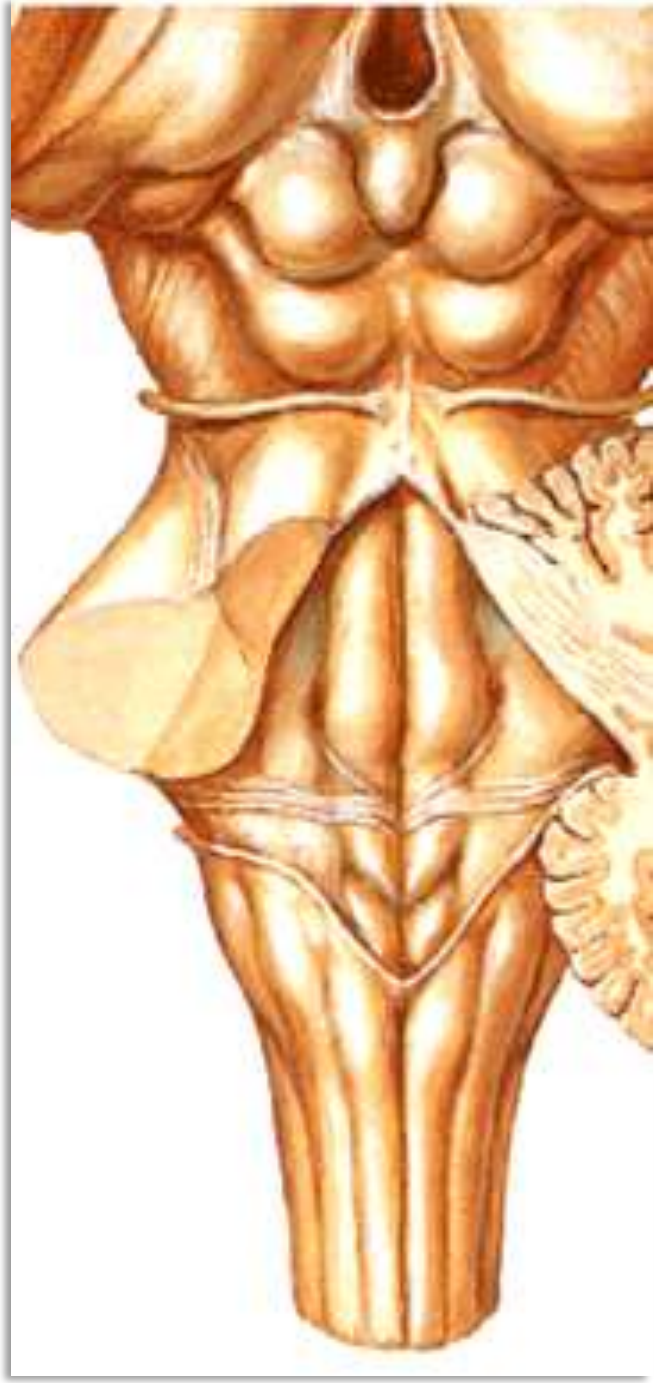

• C.S.F. Circulation

- C.S.F. is filtrated by the choroid plexus of the lateral ventricles on each side → interventricular foramina of Monro → 3rd ventricle (more C.S.F. is added by the choroid plexuses) → cerebral aqueduct of Sylvius → 4th ventricle (more C.S.F. is added by the choroid plexuses) → 3 apertures in the roof of the 4th ventricle (2 lateral foramina of Luschka and median foramen of Magendi) → suharachnoid space.

- Some of the C.S.F. passes down through the central canal of the closed medulla oblongata.

- Absorption; C.S.F. was filtrated by arachnoid villi and granulations into the **superior sagittal sinus.**

***N.B*:-** Pulsation of the large arteries present in the subarachoid space, helping the circulation of the C.S.F.

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Thank you

Questions

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