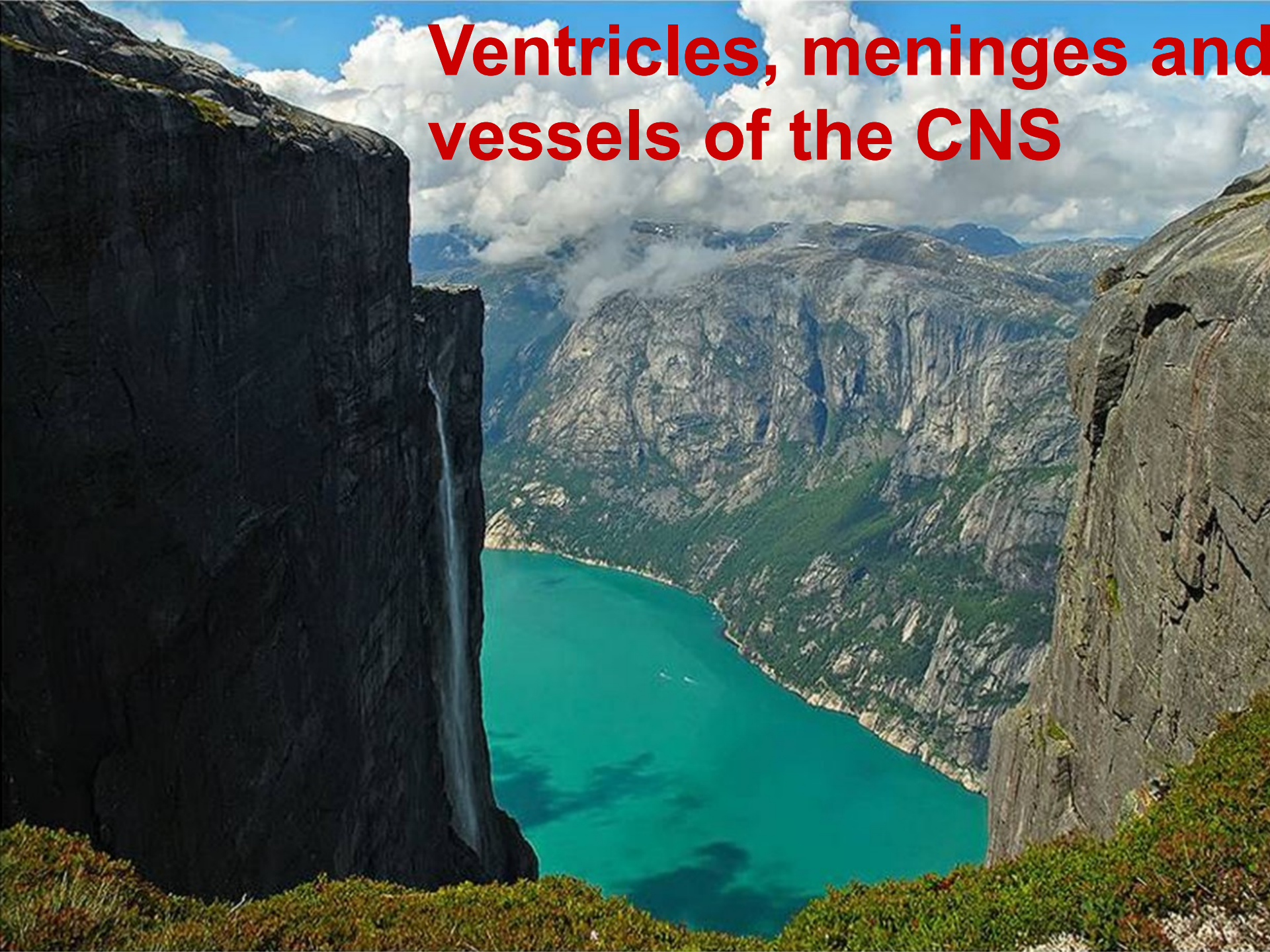
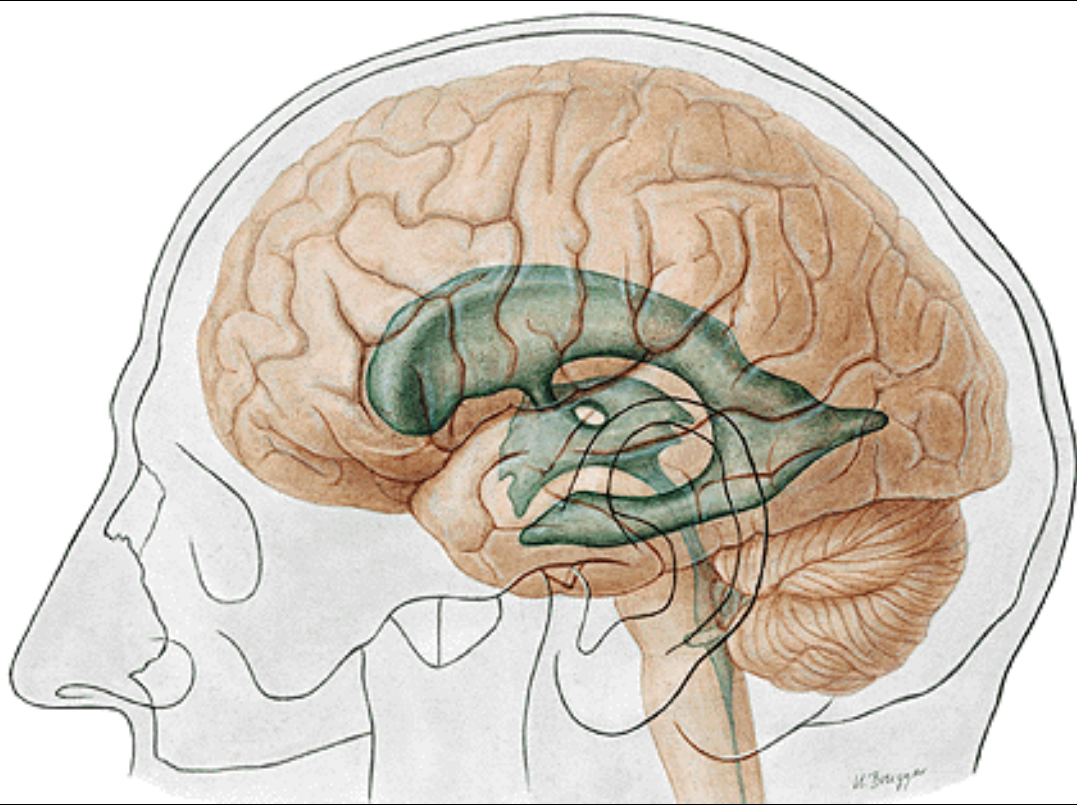


Ventricles, meninges and vessels of the CNS

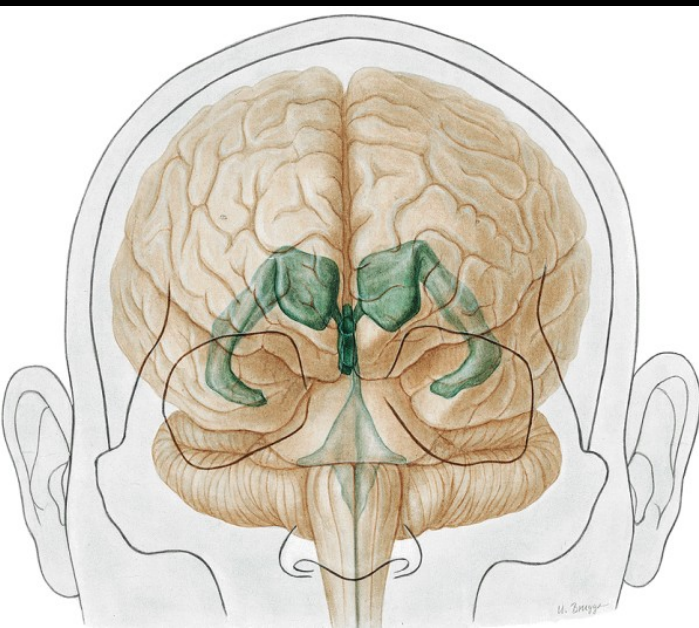




**Lateral ventricle
(ventriculus lateralis)**

**Third ventricle
(ventriculus tertius)**

**Fourth ventricle
(ventriculus quartus)**

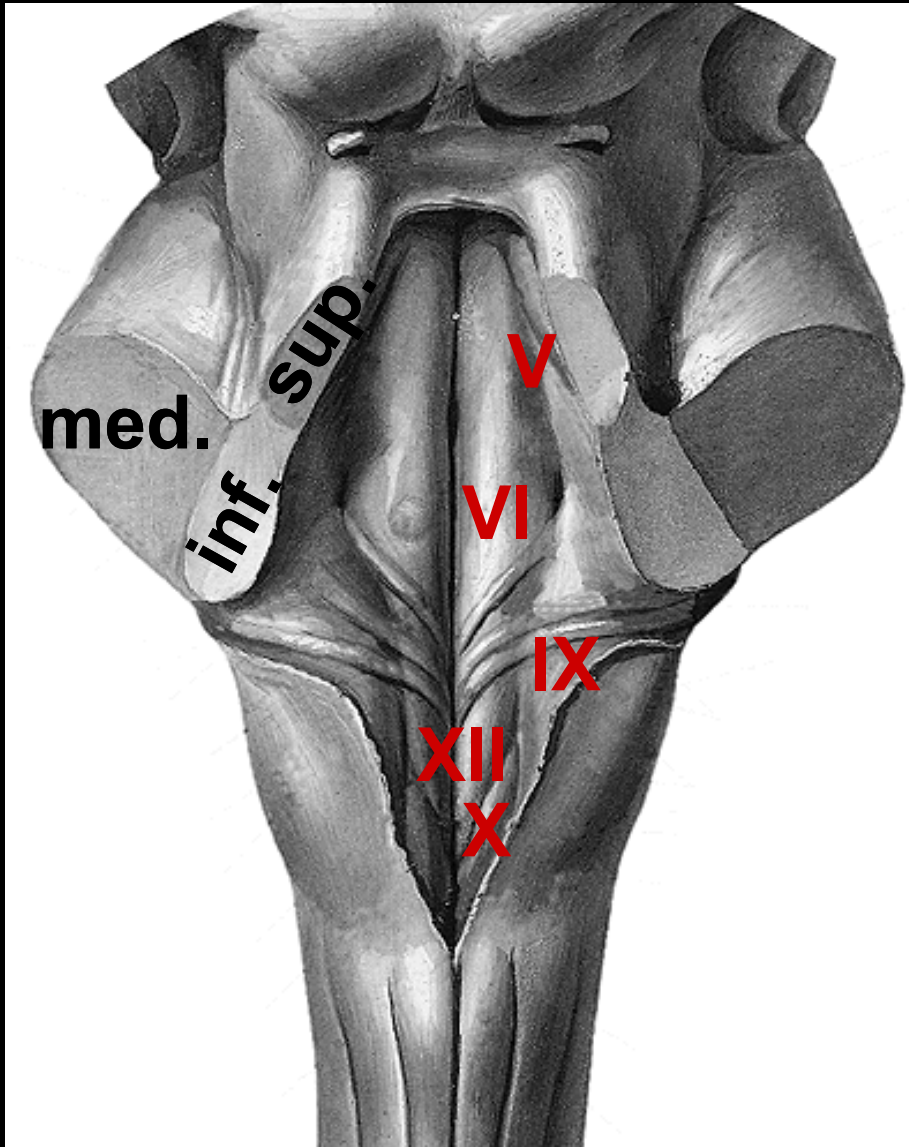


**Central canal
(canalis centralis)**



Fourth ventricle

Floor = Fossa rhomboidea



Sulcus medianus

Sulci limitantes

fovea sup.

fovea inf.

Trigonum n. XII

Trigonum n. X

Eminentia medialis

- colliculus facialis (VI)

Striae medullares

Area vestibularis

Tuberculum acusticum

Fourth ventricle



Roof

Velum medullare sup.

■ Fastigium

■ Velum medullare inf.

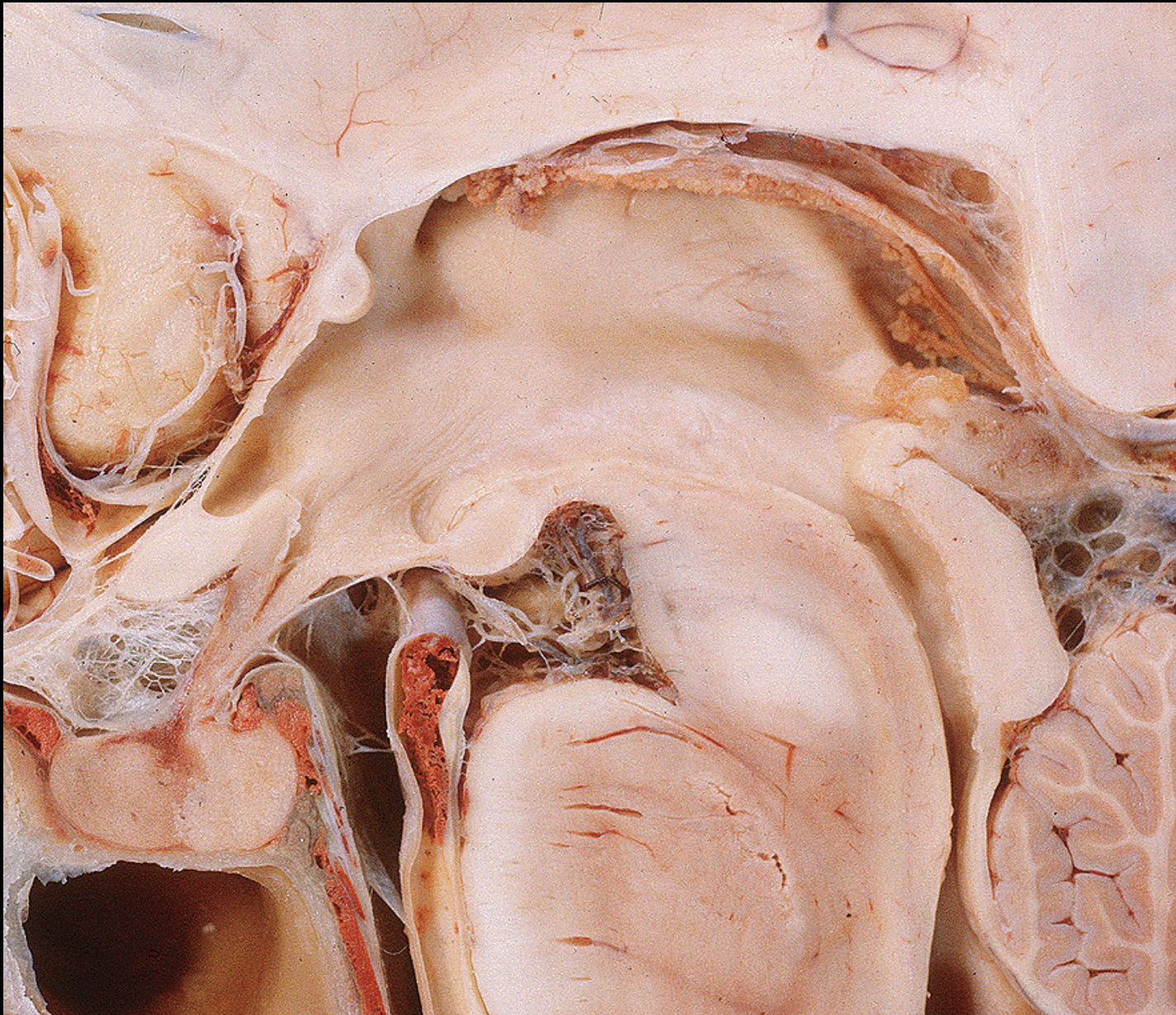
= tela choroidea

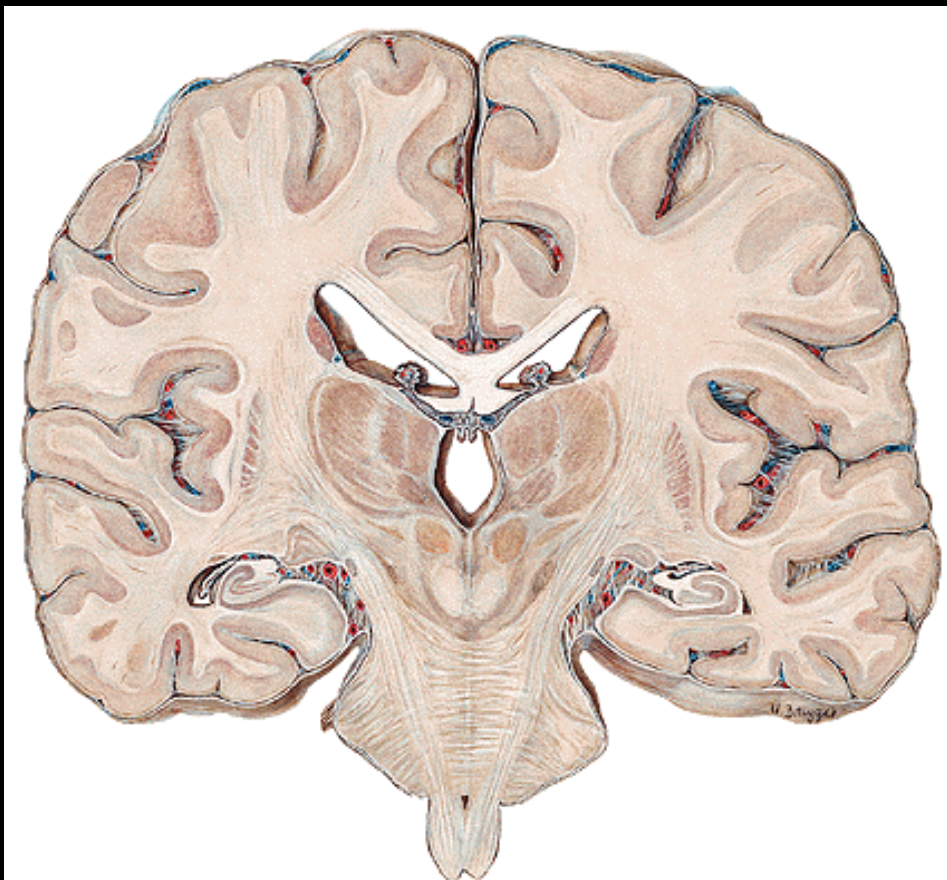
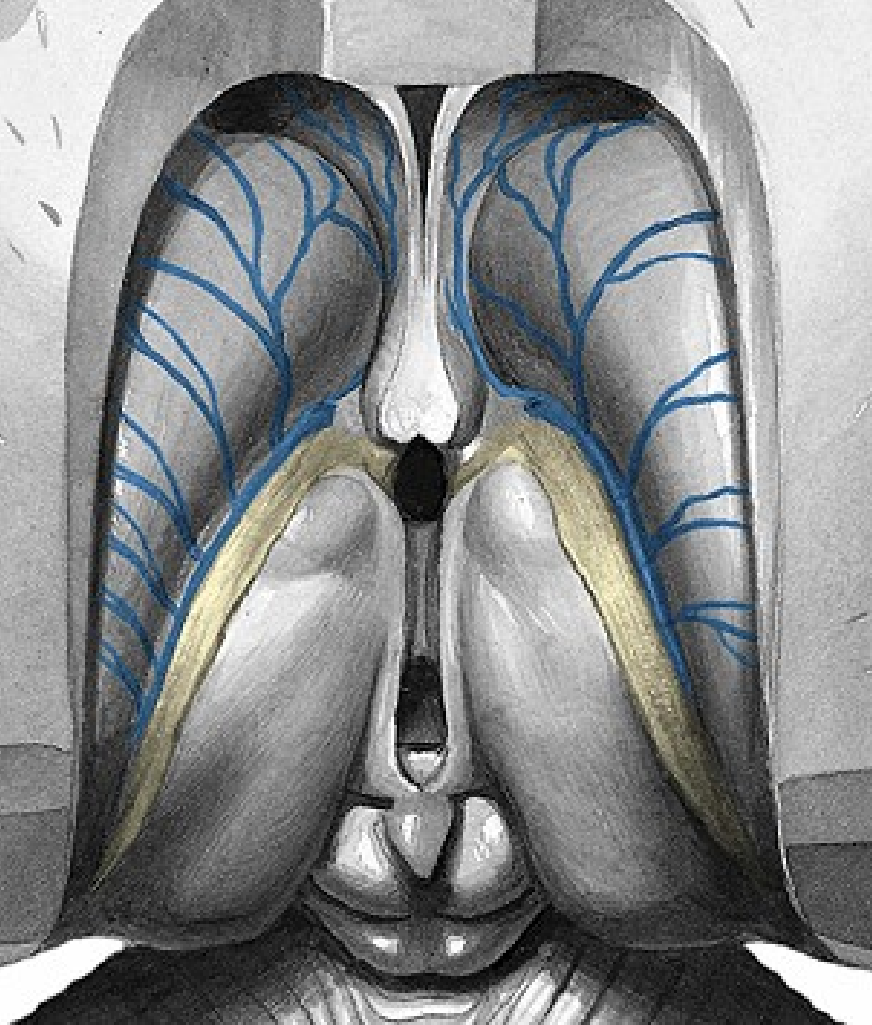
(pia mater+plx. choroid.)

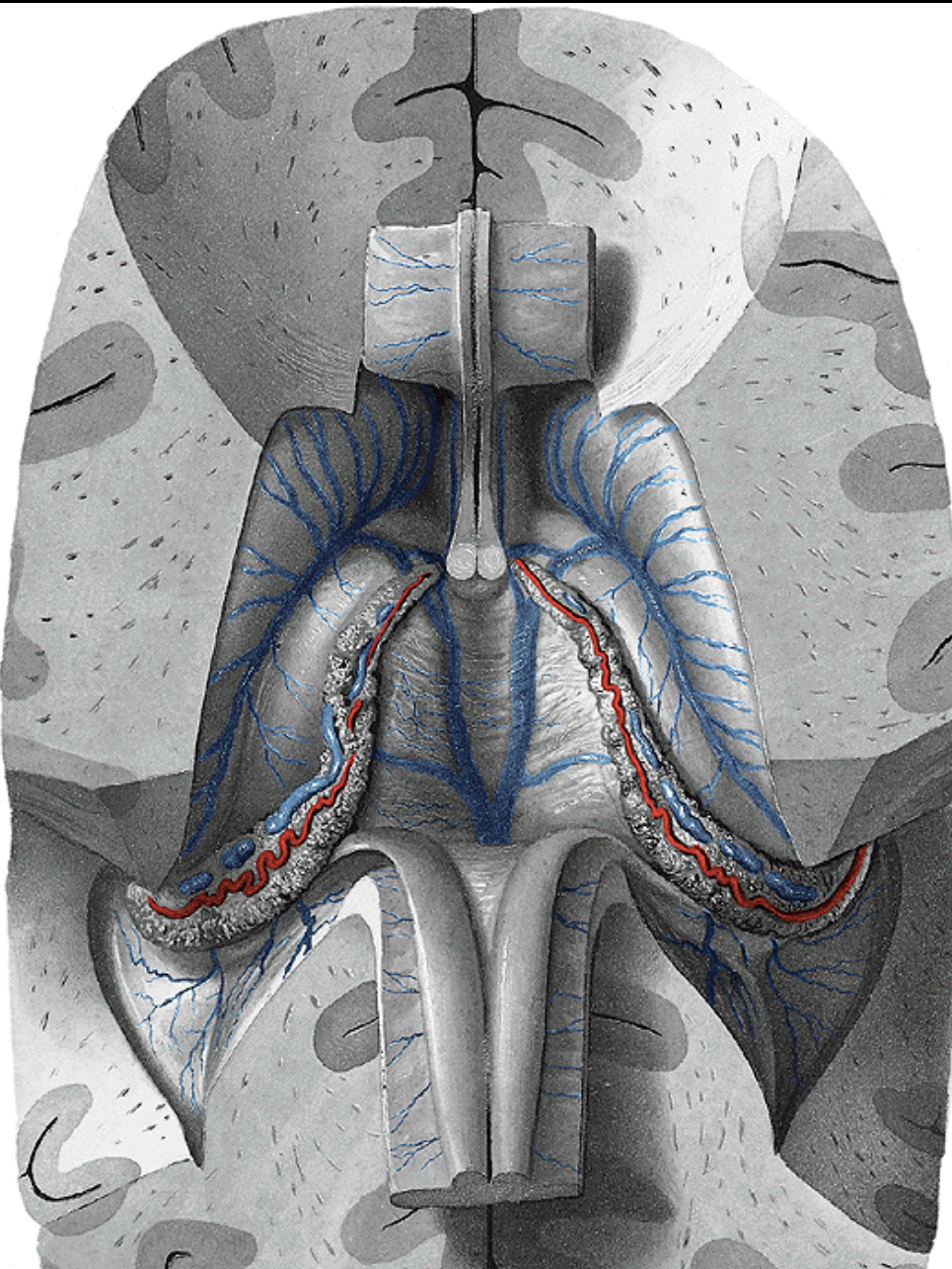
Apertura mediana

Aperturae laterales

Aqueductus cerebri – Third ventricle





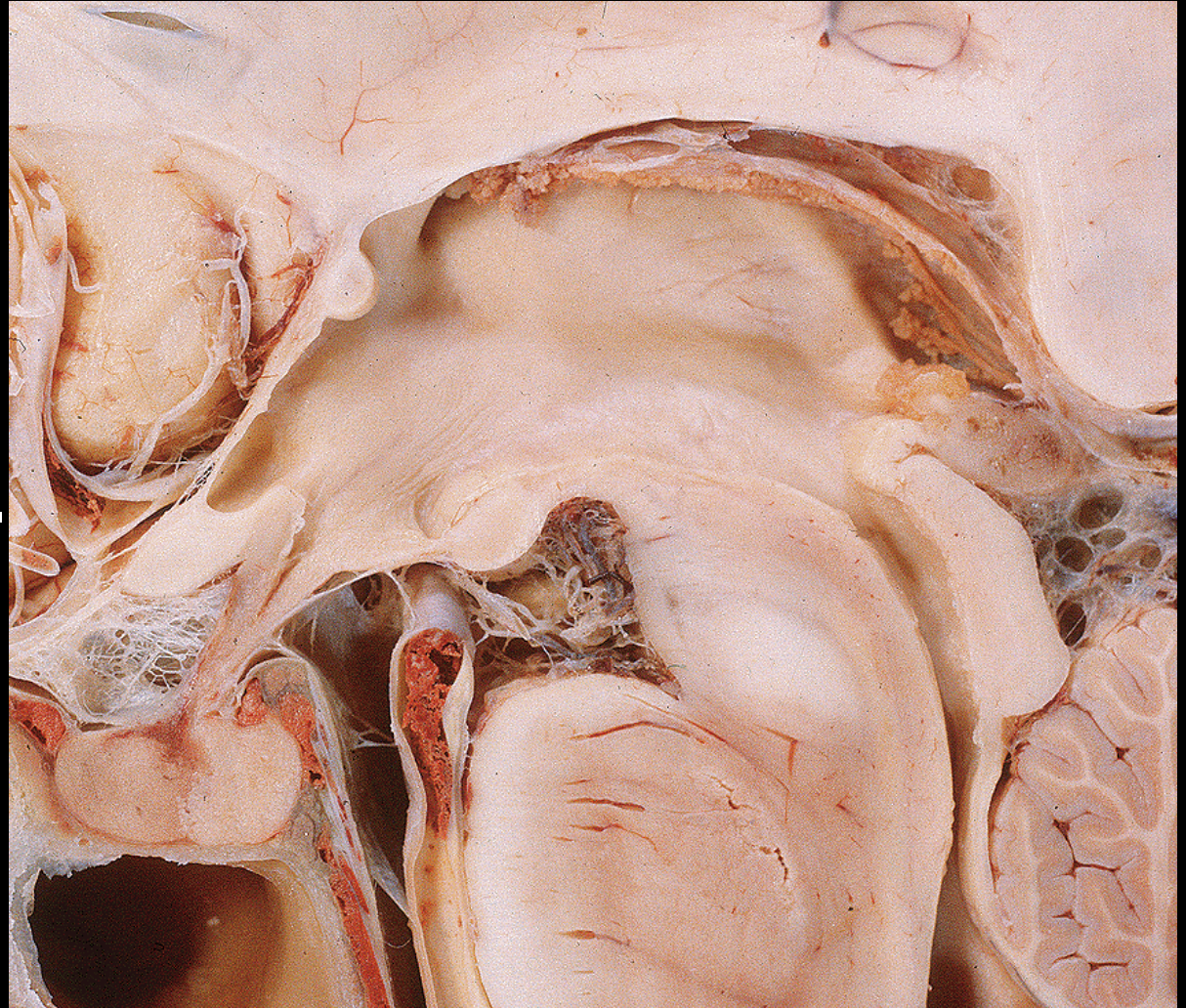


Tela choroidea v. tertii

**Tela choroidea v.
lateralis**

Third ventricle:

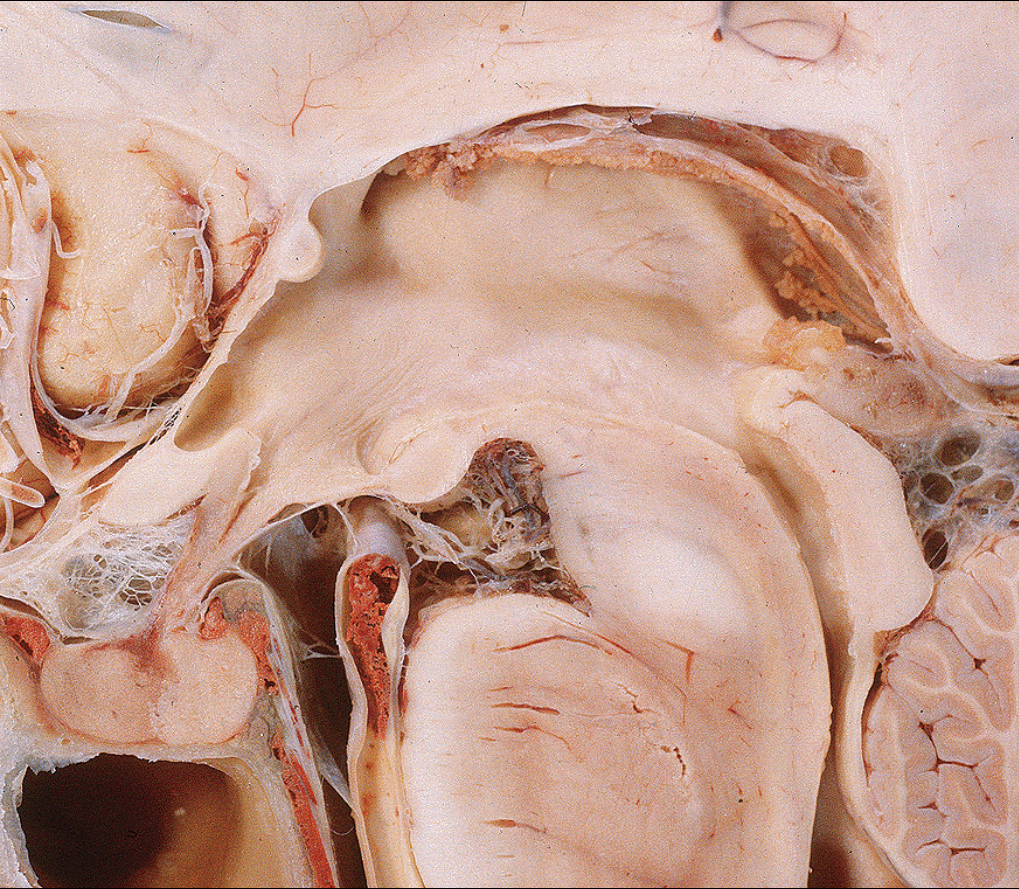
Superior wall: Tela choroidea v. tertii



Rostral wall:
Columnae forn.
Commissura ant.
Lamina termin.

Inferior wall: Chiasma opticum
Infundibulum

Third ventricle:



Posterior wall:

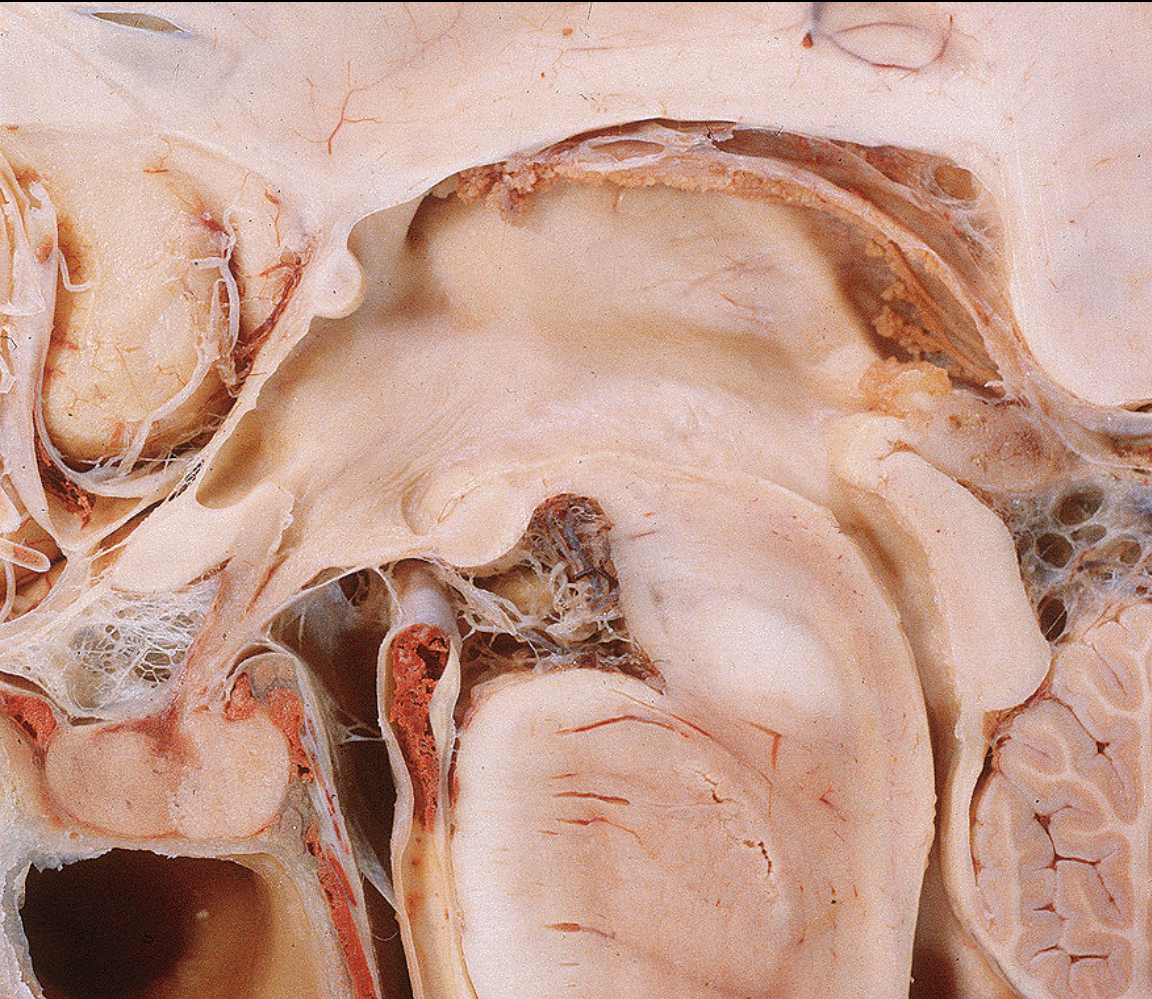
Recessus
suprapinaealis

Commissura
habenularis

Recessus pinealis

Commissura post.

Third ventricle:



Lateral wall:

Thalamus

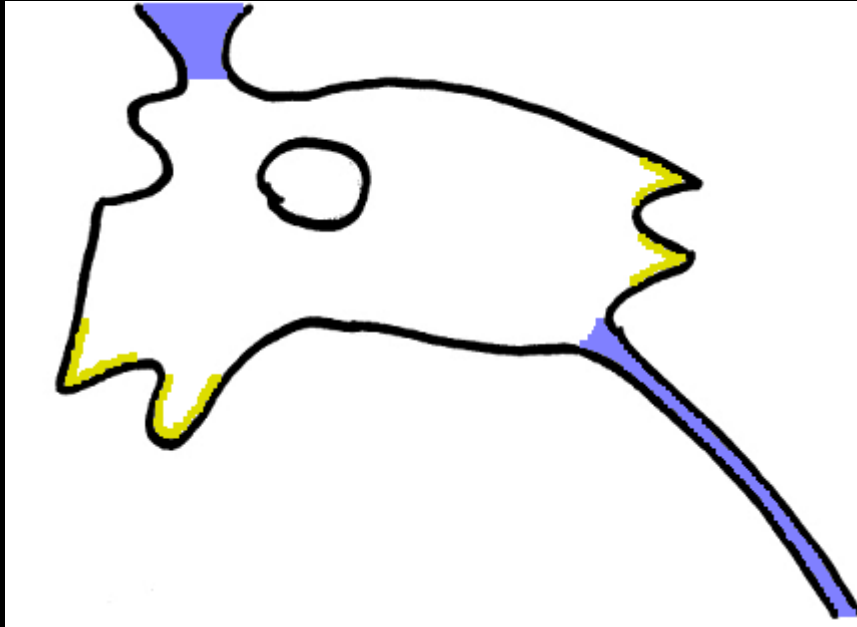
Sulcus hypothal.

Hypothalamus

Adhesio

interthalamica

Third ventricle:
**Foramen
interventriculare**

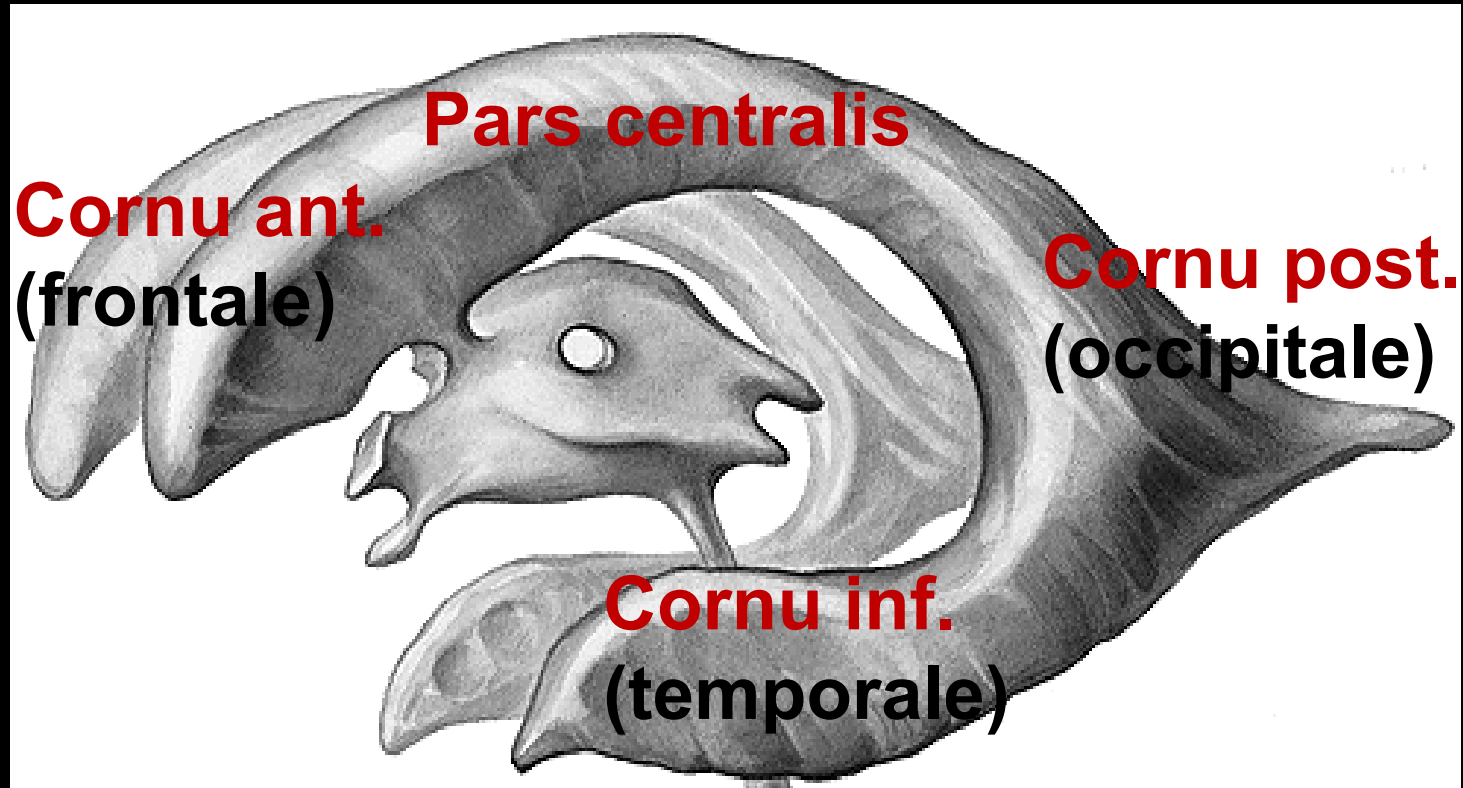


**Recessus suprapinealis
pinealis**

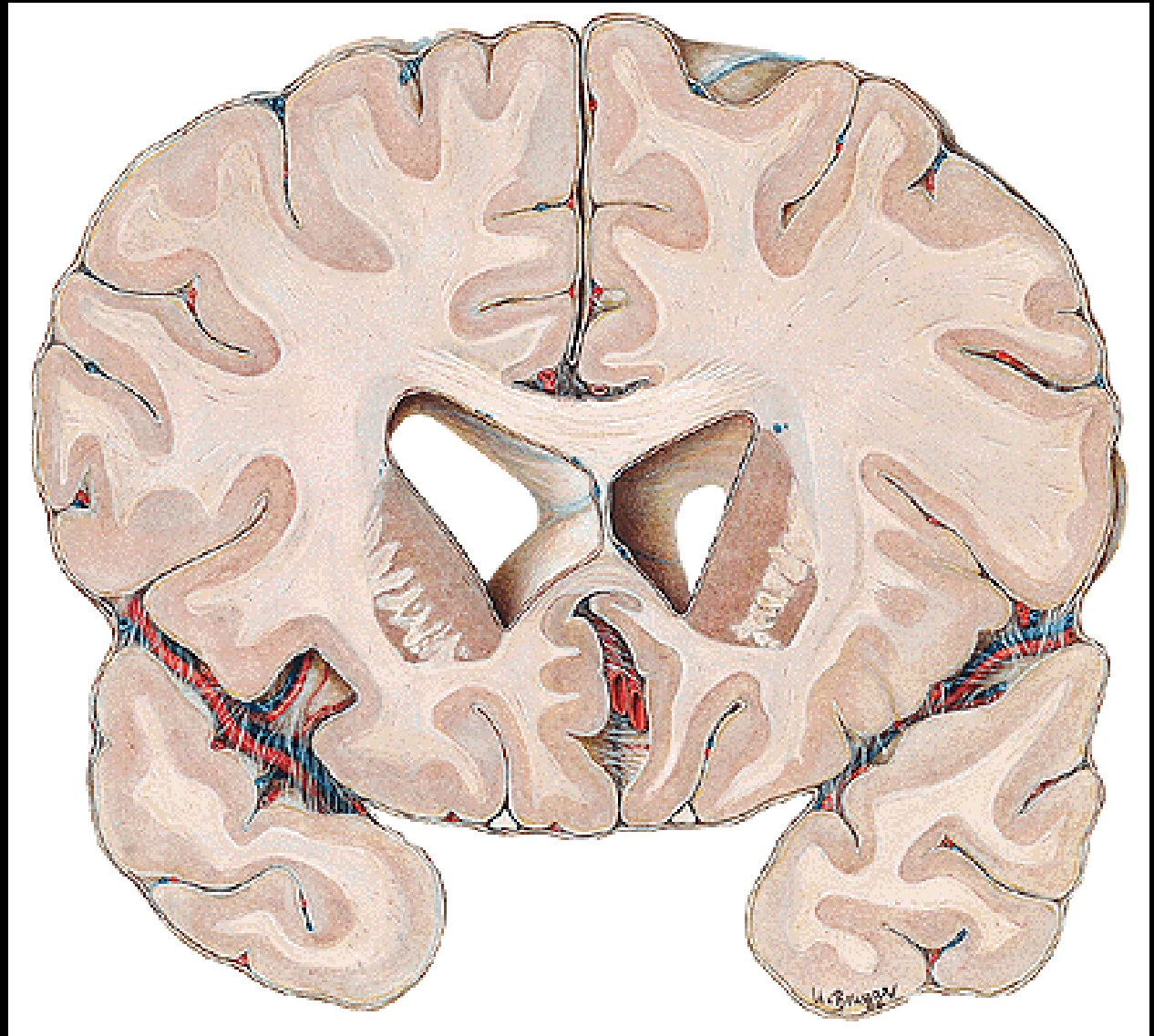
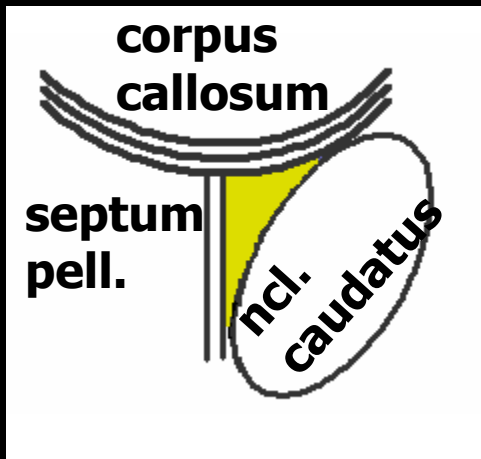
**Recessus opticus
infundibuli**

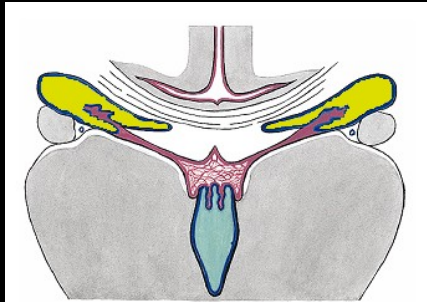
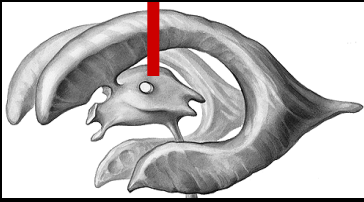
**Aqueductus
mesencephali**

Ventriculus lateralis



Cornu anterius





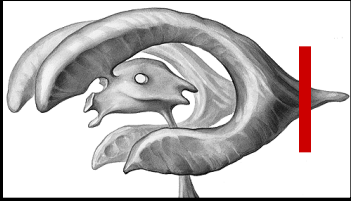
Pars centralis



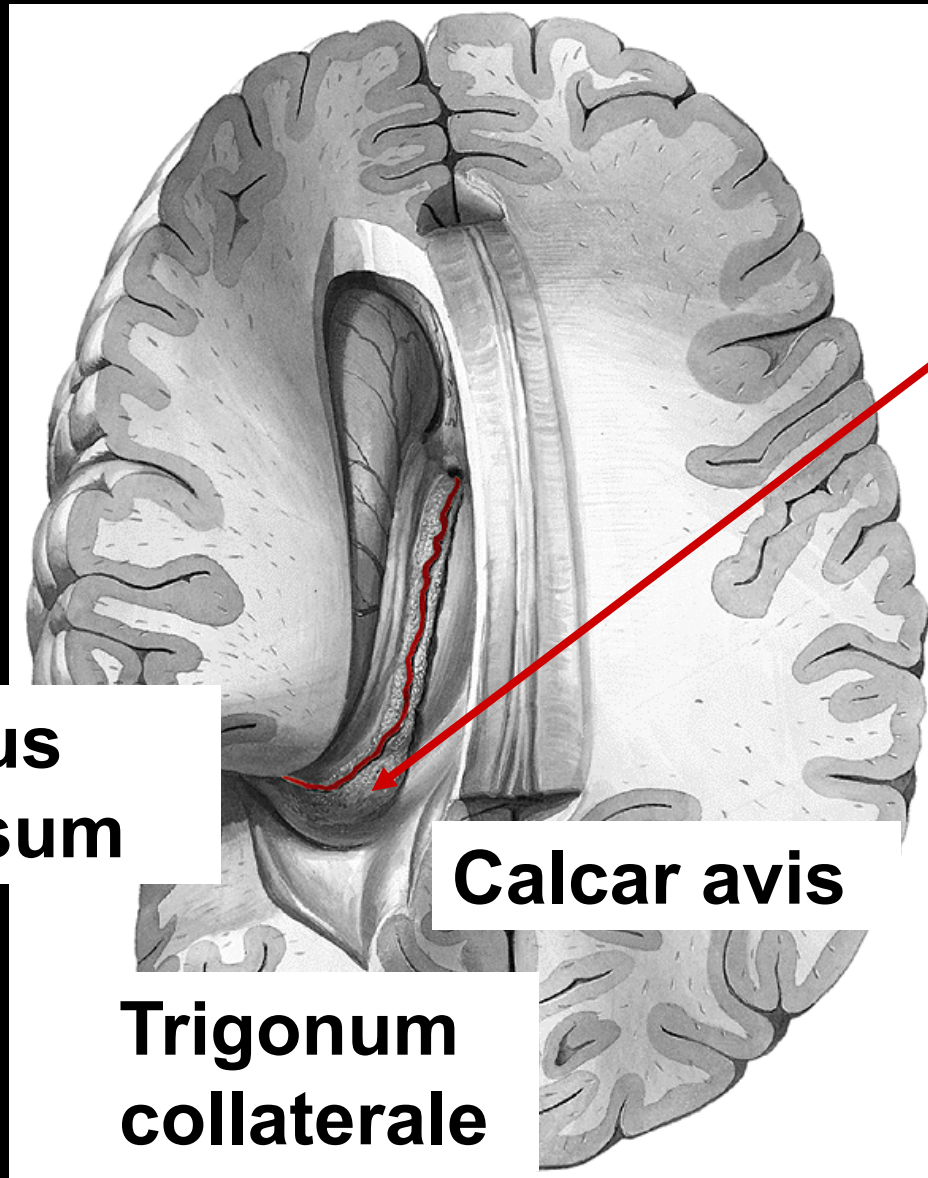
Roof:
Corpus callosum

Floor:
Fornix
Plexus choroideus
Thalamus
Stria terminalis
Corpus ncl. caudati

Fissura transversa cerebri



Cornu posterius

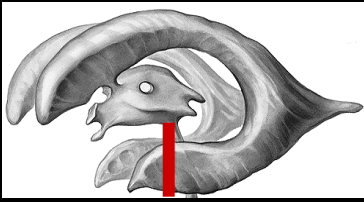


Glomus choroideum

Corpus callosum

Calcar avis

Trigonum collaterale



Cornu inferius

Roof:

Stria terminalis

Cauda ncl. caudati

Corpus callosum

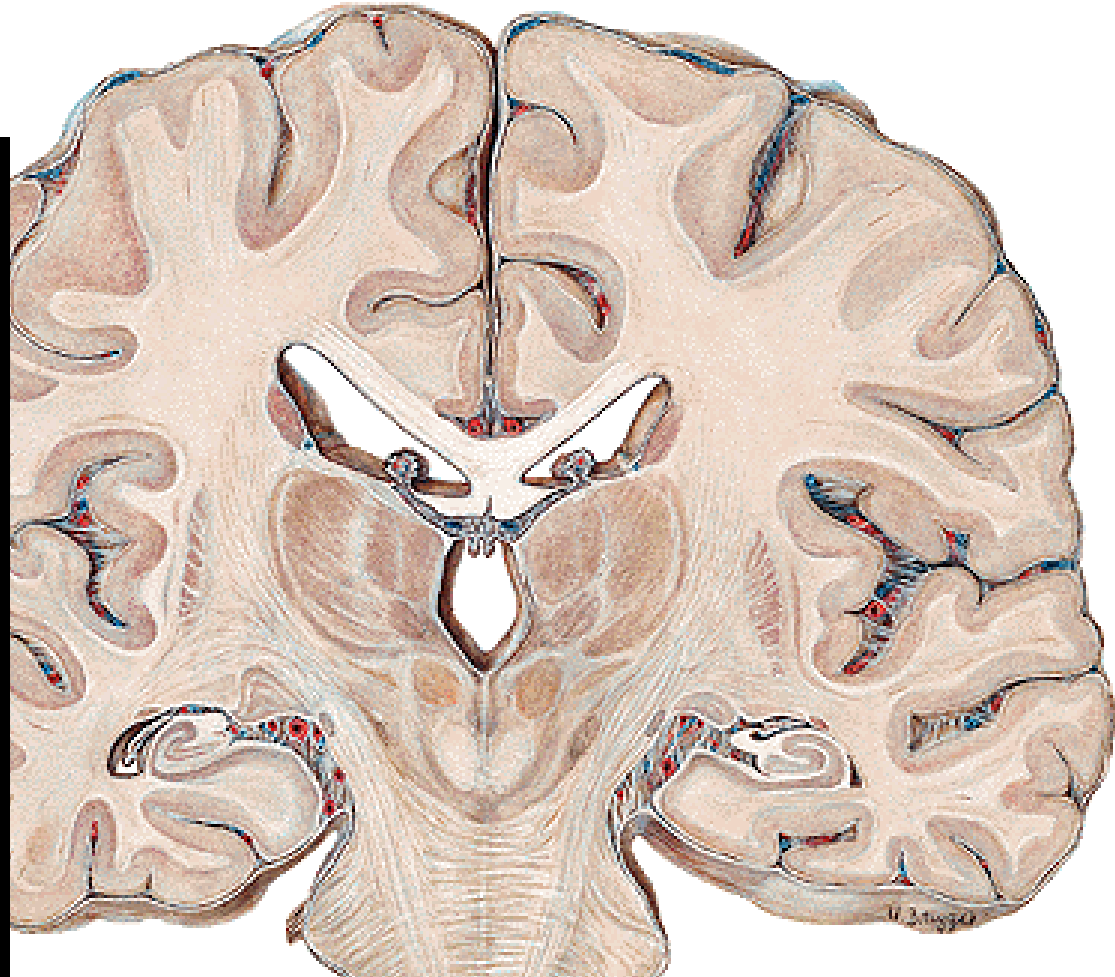
Floor:

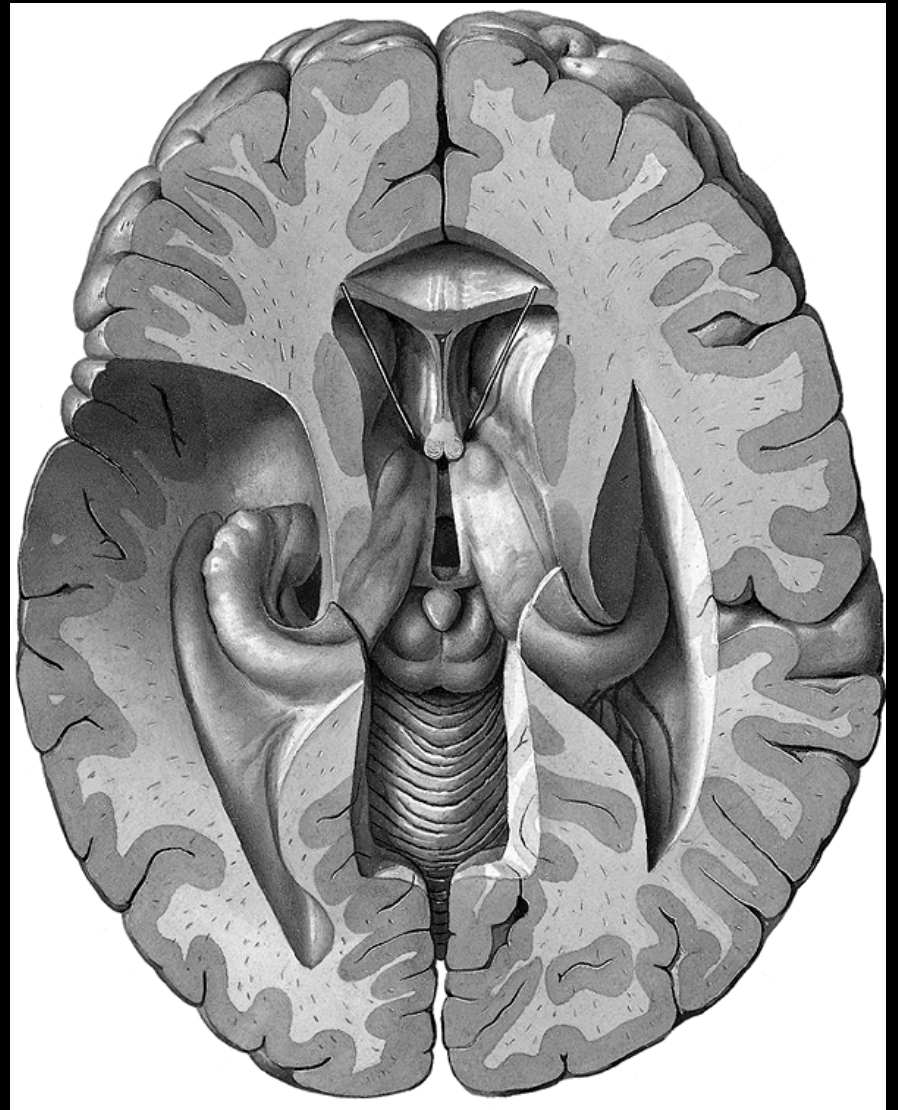
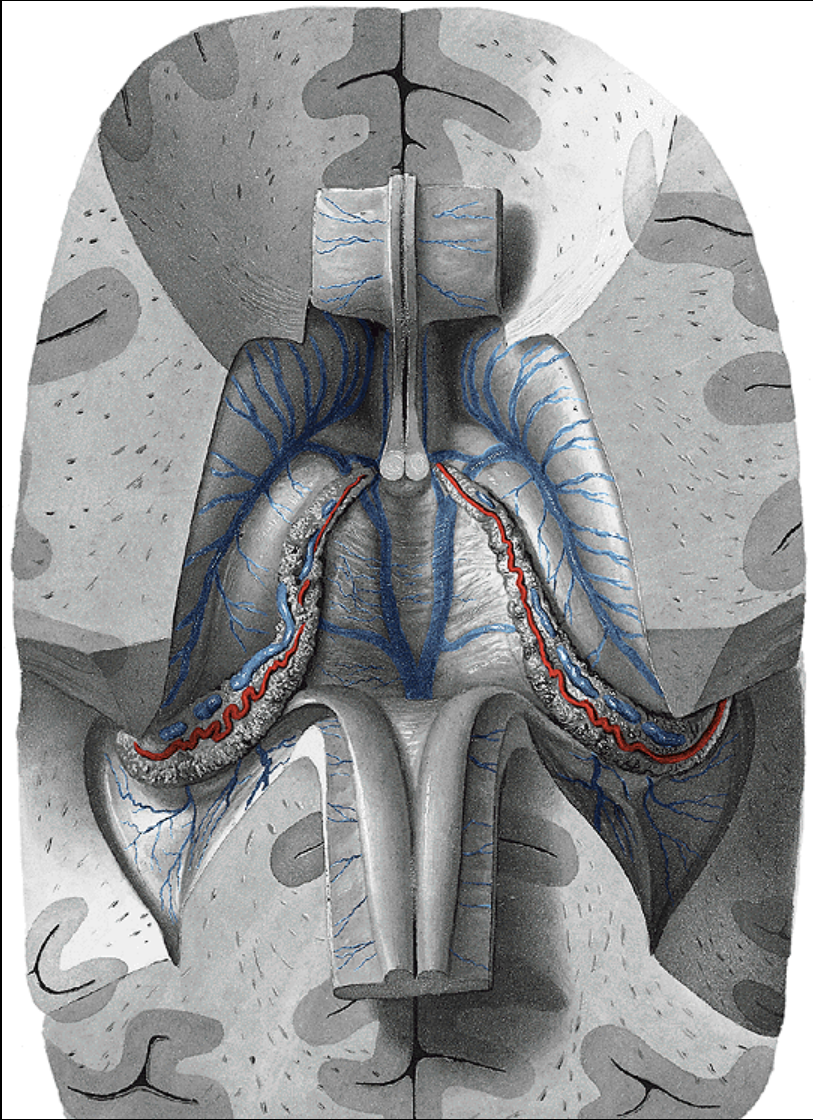
Hippocampus

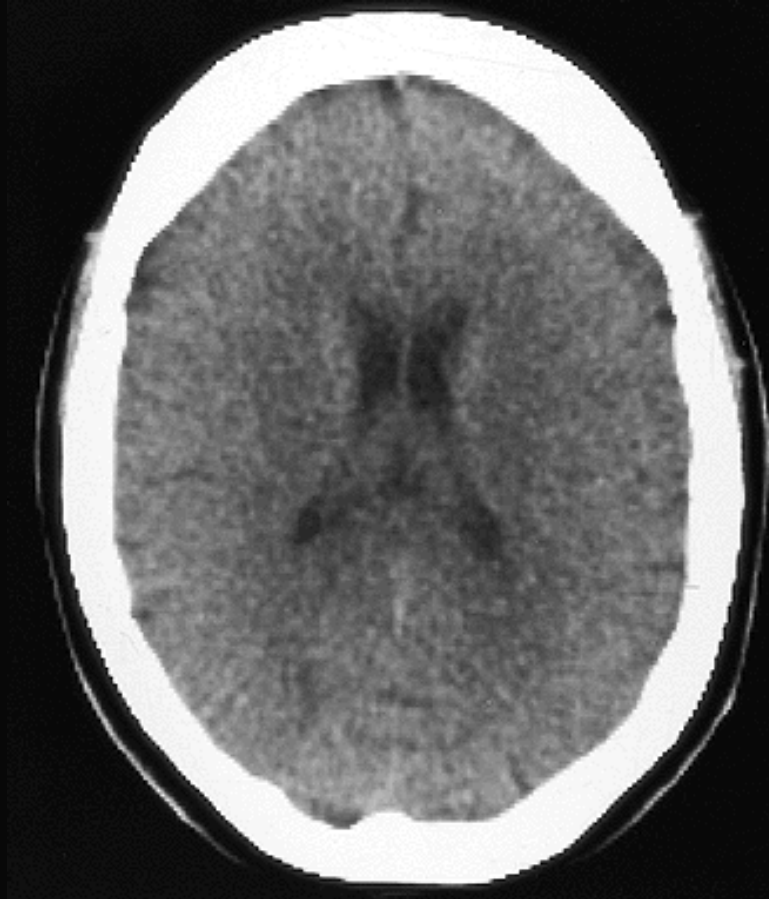
(fimbria hippocampi)

Plexus choroideus

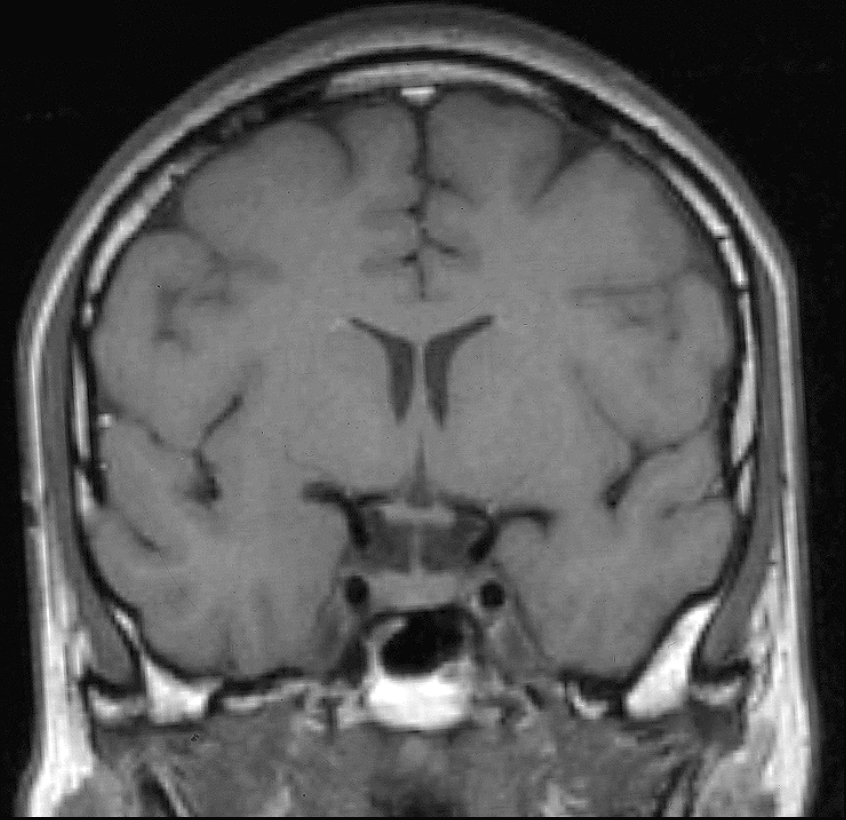
Eminentia collateralis







CT



MRI

Meninges

Calvaria

Potential epidural space

Ektomeninx - dura mater: endosteal, meningeal layers (pachymeninx)

Potential subdural space

Endomeninx (leptomeninges)

arachnoid mater

Cavitas subarachnoidea (CSF)

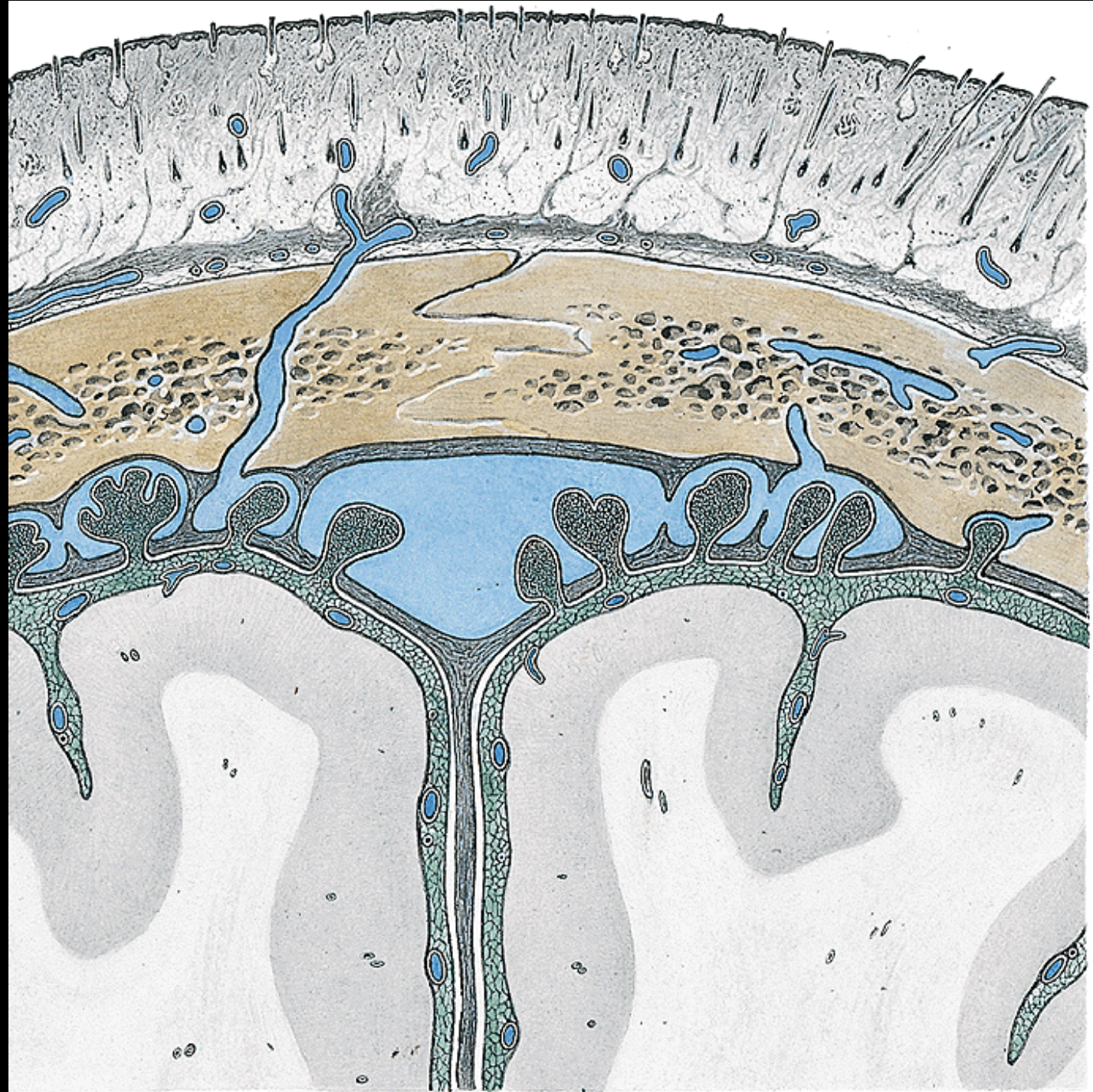
pia mater

Cranial meninges

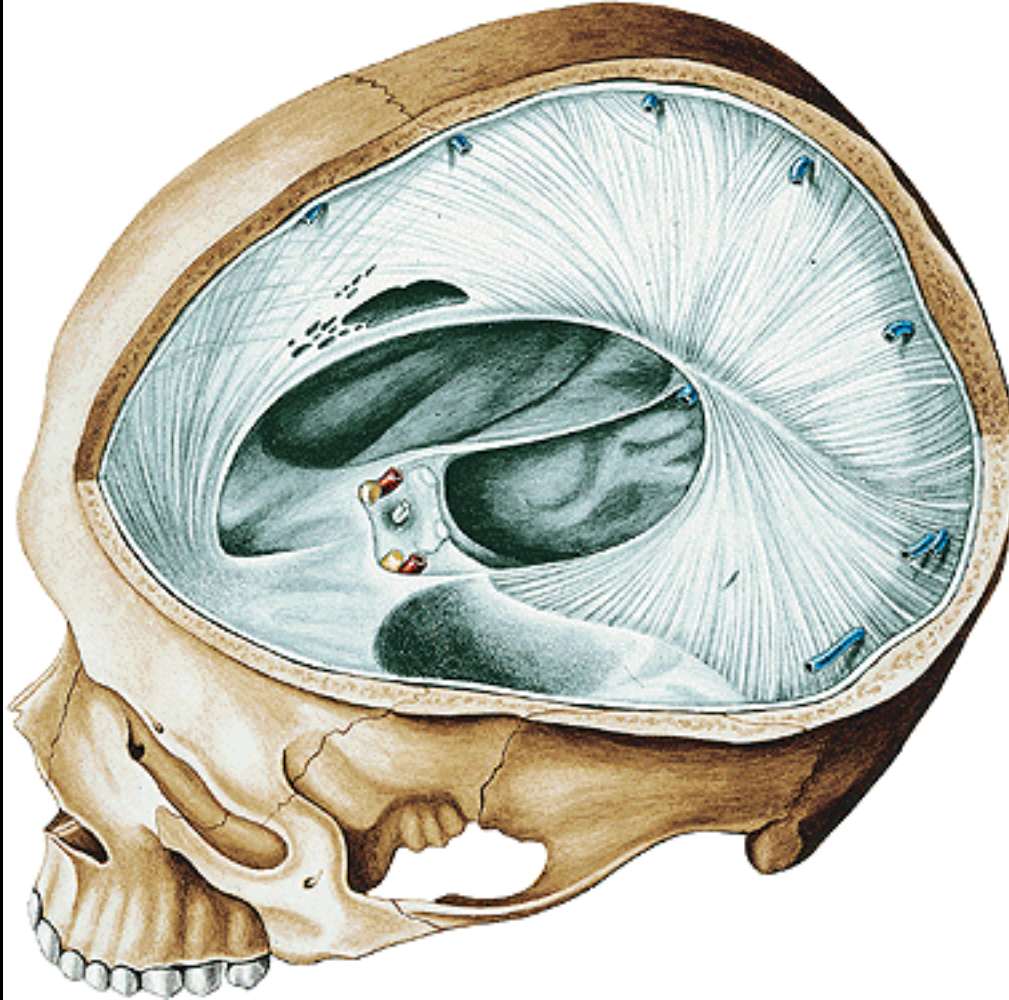
Dura mater

tough layer of fibrous tissue fused with the endosteum of the skull

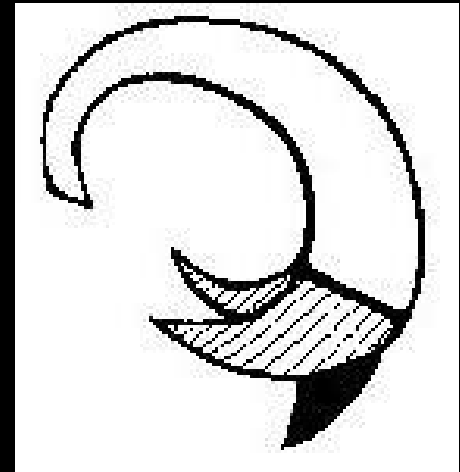
- contains venous sinuses**
- dural folds extend into the cranial cavity and help stabilize the brain**



Dural folds



Falx cerebri
Falx cerebelli
Tentorium cerebelli
Diaphragma sellae
Cavum trigeminale
Vagina n. optici



Blood and nerve supply of the dura mater



Aa. meningeae

From:

a. ethm. ant. – ant. fossa

a. maxillaris – middle fossa

a. phar. asc. – posterior
fossa

Veins are tributaries of the
dural sinuses

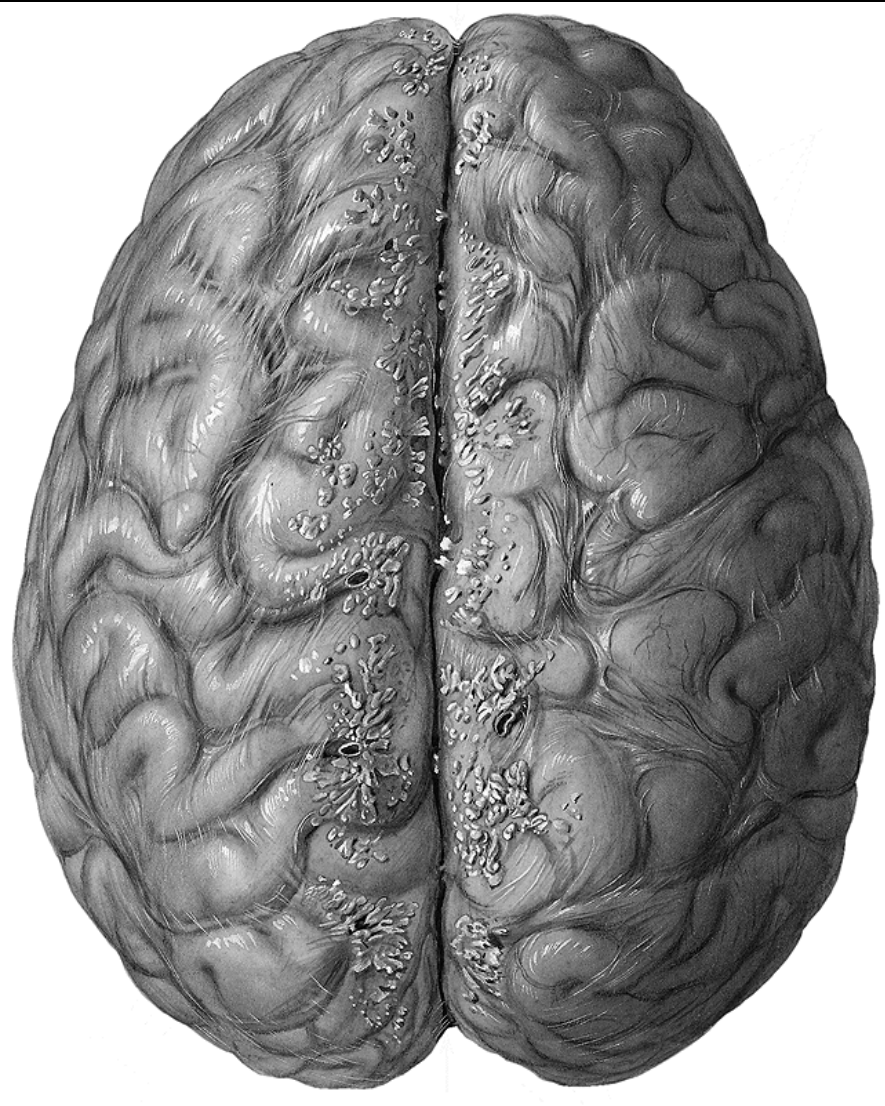
CN V:

supratentorial compartment

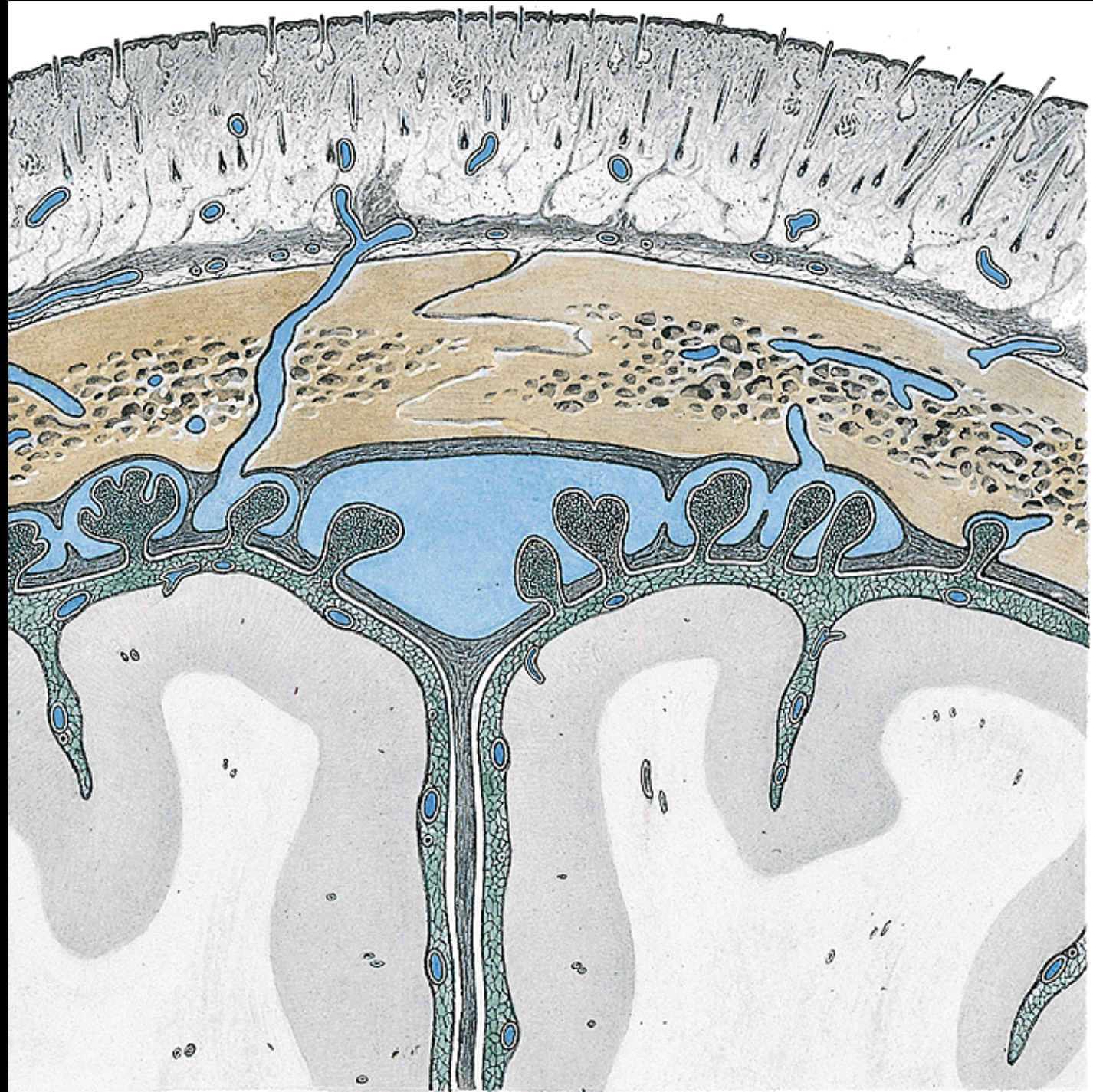
Spinal nerves (C1 - C3) **CN X:**

infratentorial compartment

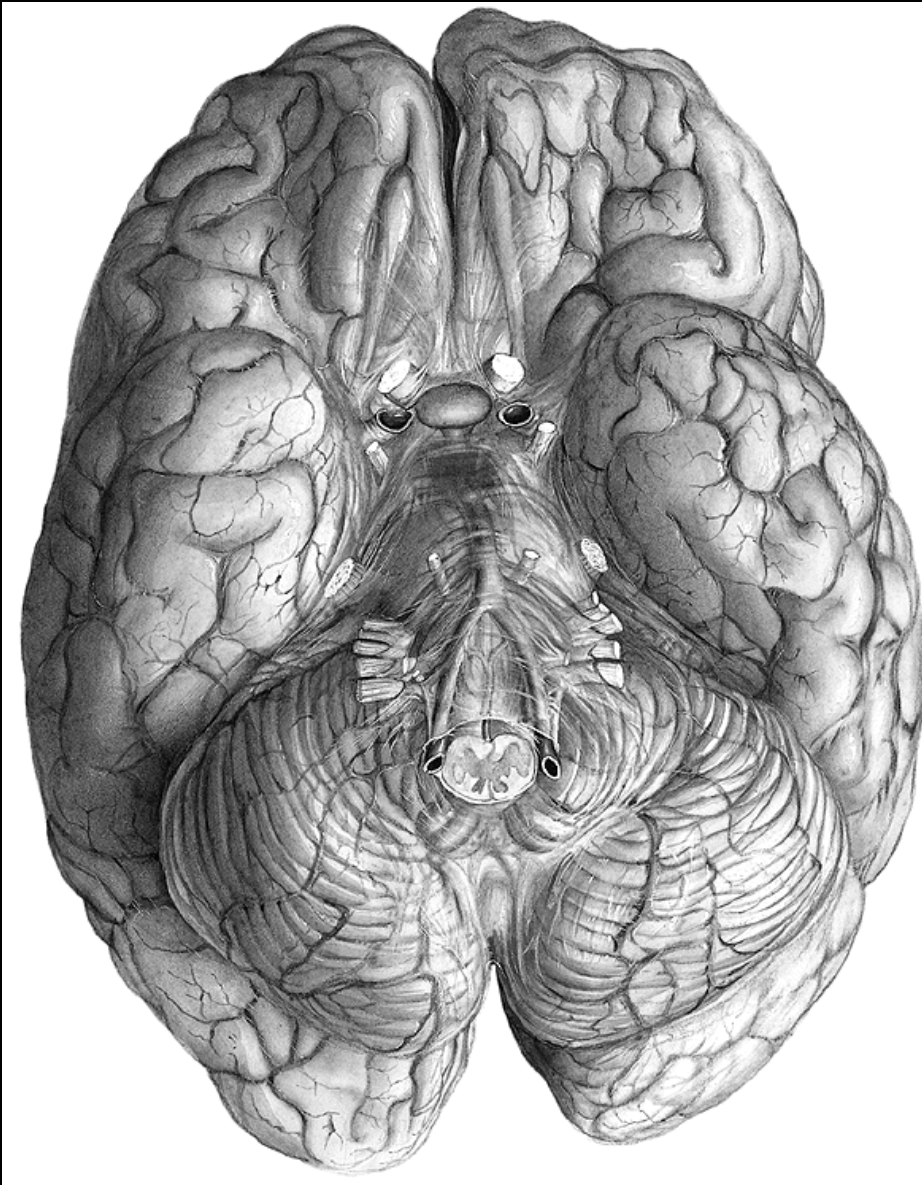
Arachnoid mater



- Thin avascular delicate layer
- It passes over sulci of the brain
- Pinhead pouches project through the dural wall of the major venous sinuses - **Granulationes arachnoideales** - transfer of CSF to the venous system



Pia mater

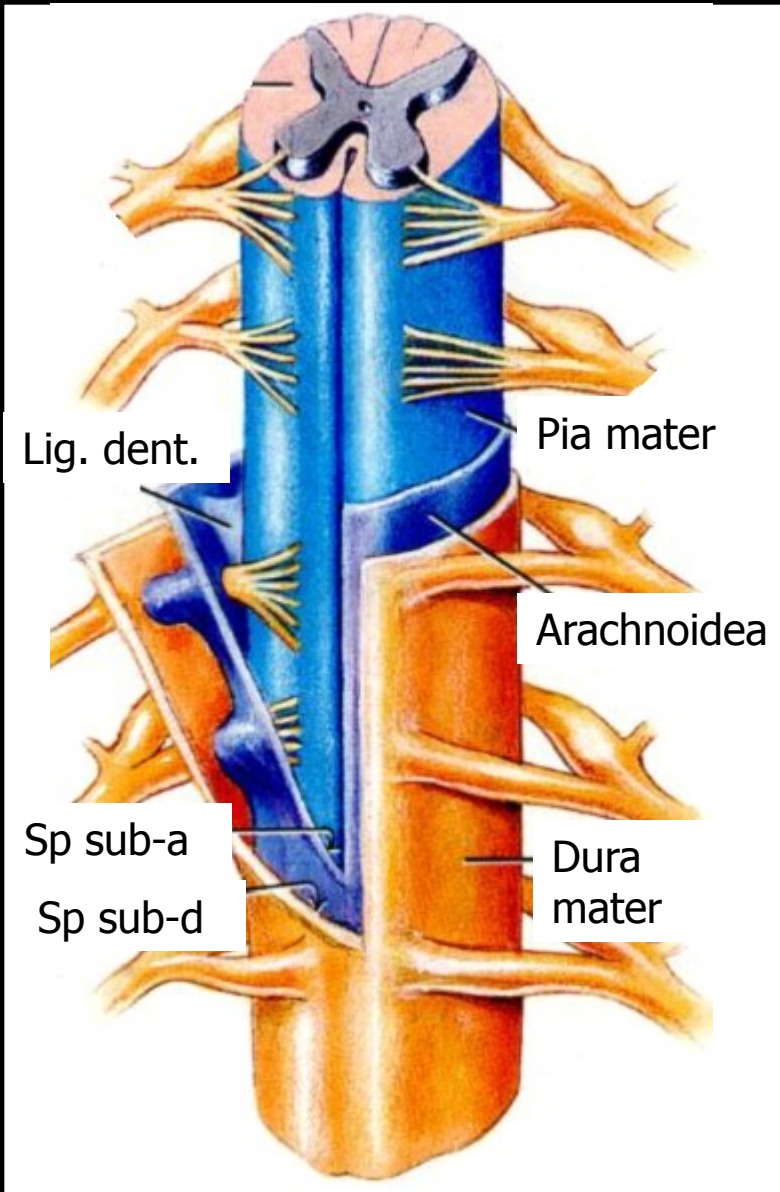


**Vascular, enters sulci
of the brain**

**Cisternae
subarachnoideales:**

- chiasmatis
- fossae lat. cerebri
- interpeduncularis
- cerebellomedullaris

Meninges of the spinal cord



Epidural space
(Spatium epidurale)

Dura mater spinalis

Subdural space
(Spatium subdurale)

Arachnoidea spinalis

Subarachnoid space
(Cavitas subarachnoidea)

Pia mater spinalis:
lig. denticulatum

b

Lig. flavum
(cut surface/Schnittfläche)

Arcus vertebrae

V. spinalis posterior

A. spinalis posterior

Plexus venosus vertebralis
internus posterior

Radix posterior [sensoria]
nervi spinalis

(Septum interradiculare)

Radix anterior [motoria]
nervi spinalis

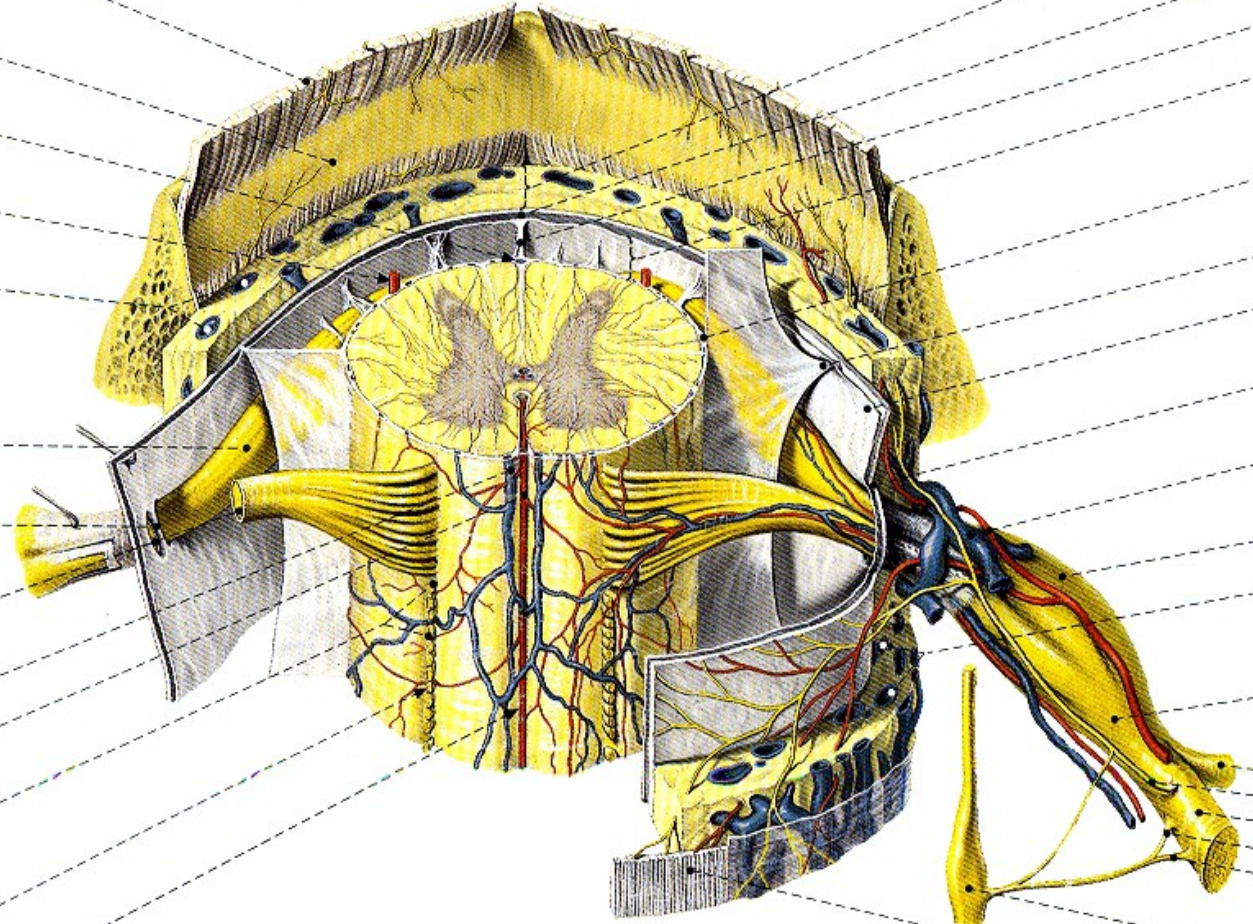
Vv. spinales anteriores

A. spinalis anterior

Radix anterior [motoria]
nervi spinalis
Fila radicularia

Sulcus anterolateralis

Fissura mediana anterior



Spatium epidurale
[peridurale]

Spatium subdurale

(Septum leptomeningicum)

Spatium subarachnoideum

Pia mater spinalis
(cut margin/Schnitttrand)

Lig. denticulatum

Arachnoidea mater spinalis
(cut margin/Schnitttrand)

Dura mater spinalis
(cut margin/Schnitttrand)

V., A. intercostalis posterior
Rr. spinales

Ganglion spinale

Plexus venosus vertebralis
internus anterior

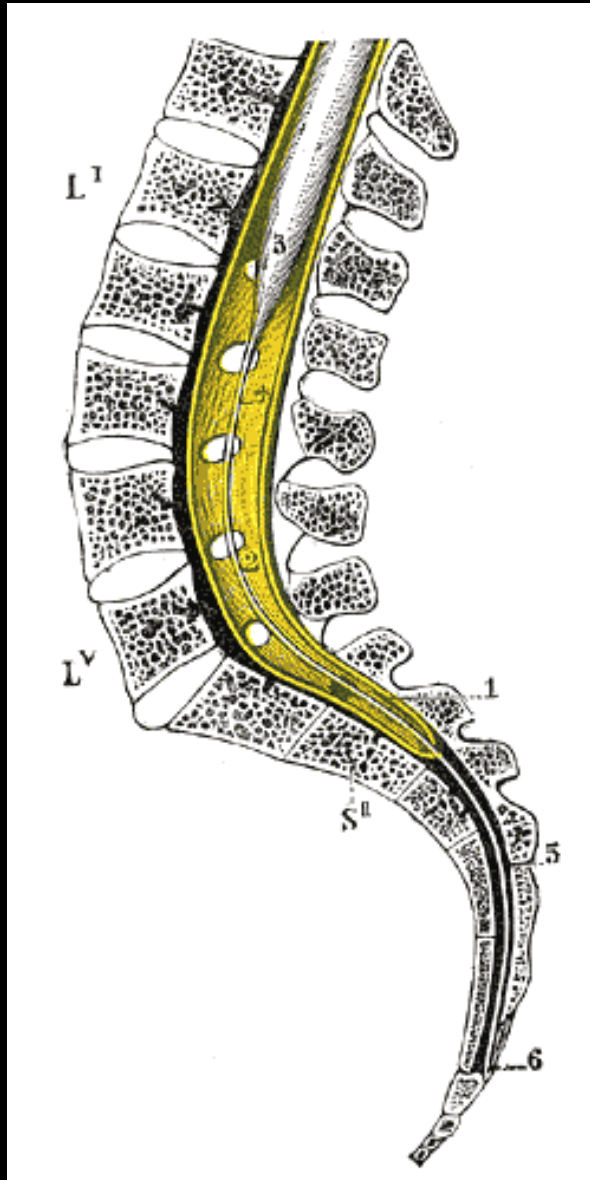
Truncus nervi spinalis

N. spinalis

- R. posterior
- R. meningeus
- R. anterior
- R. communicans griseus
- R. communicans albus

Ganglion trunci sympathetici

Lig. longitudinale posterius



Cisterna lumbalis

Medullary cone: L1-2

Dural sac: S2-3

Lumbar puncture (spinal tap)

Liquor cerebrospinalis (CSF)

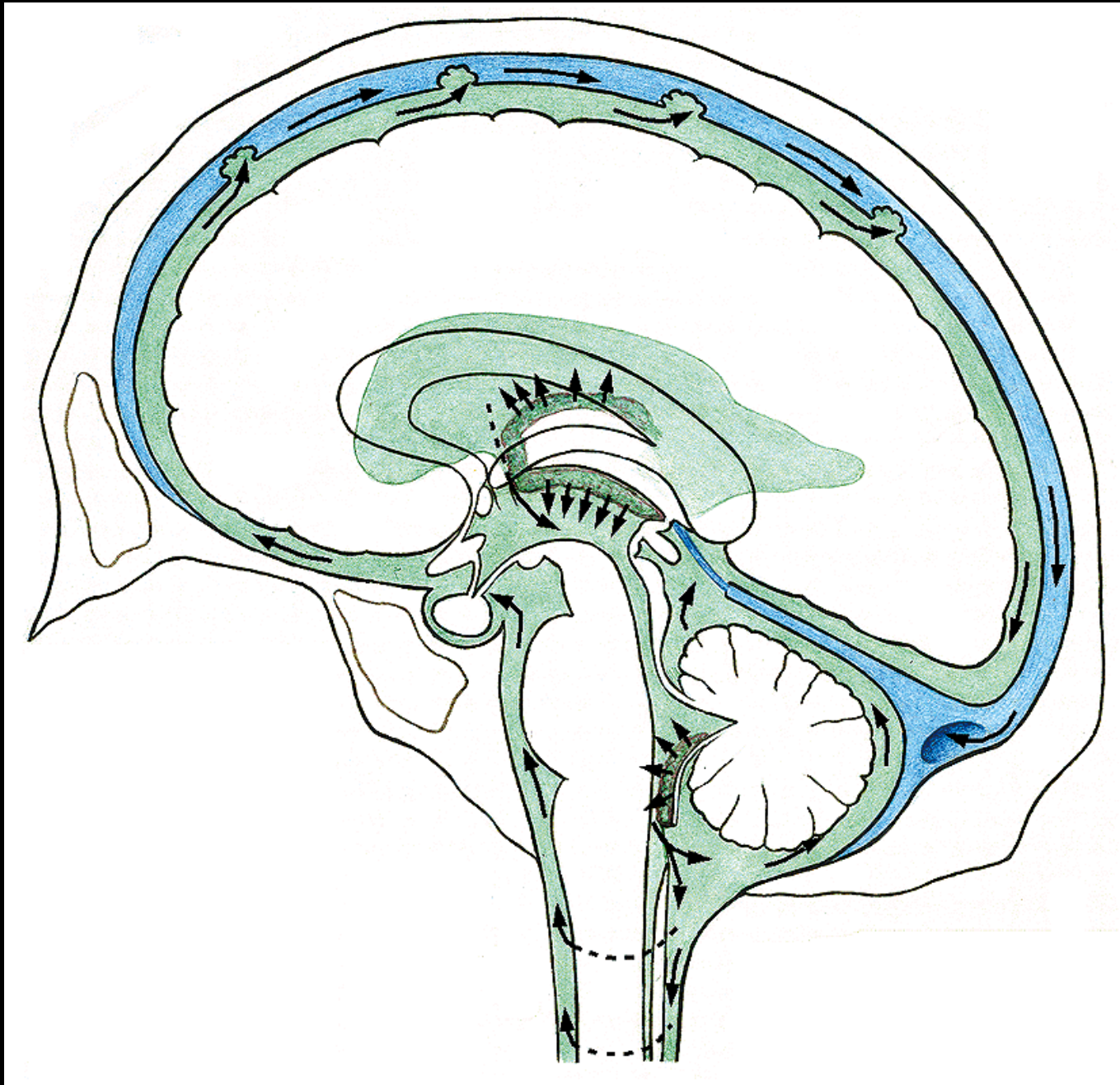
Clear, colorless fluid, 150 mL, secreted at the rate of 400-500 mL daily

Produced by the choroid plexuses of ventricles

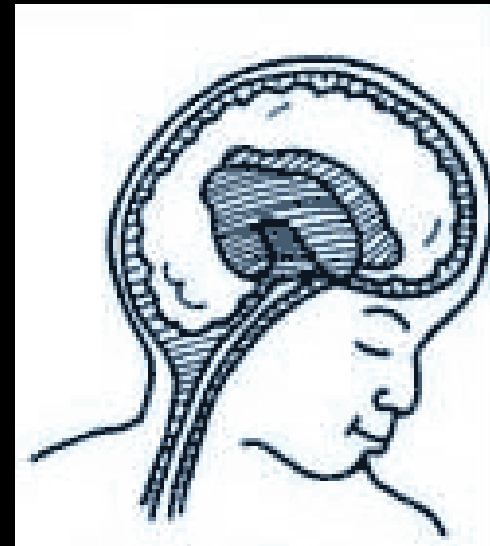
Supports the brain and spinal cord, maintains a uniform pressure around them.

Circulation:

Lateral ventricles – for. interventriculare – 3rd ventricle – aquaeductus cerebri – 4th ventricle – median and lat. apertures – subarachnoid space – sinus durae matris

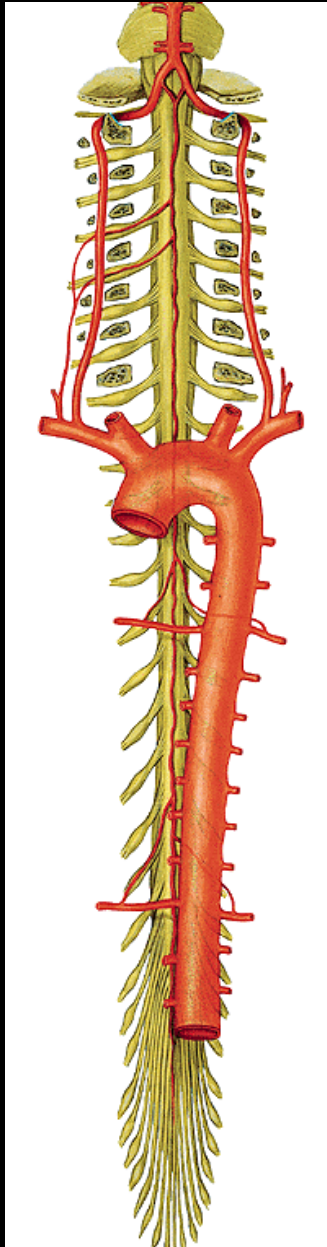


Hydrocephalus



Arteries of the CNS

Spinal cord



Rr. spinales

a. cervicalis asc.

a. vertebralis

a. cervicalis prof.

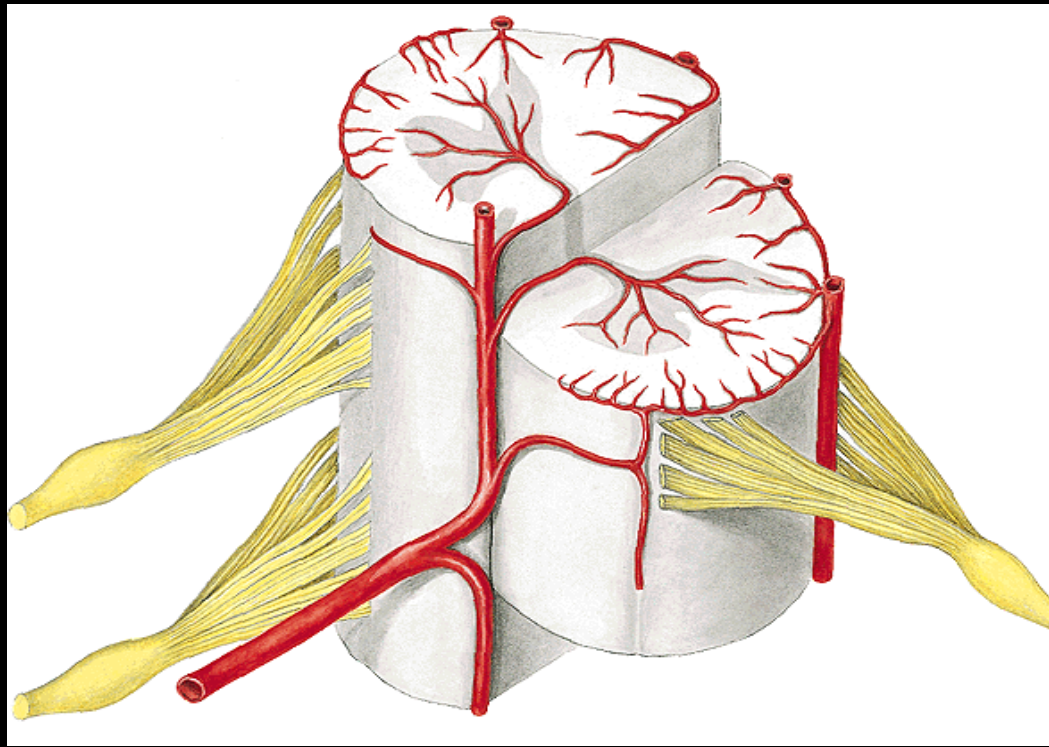
aa. intercostales post.

aa. lumbales

a. iliolumbalis

a. sacralis lat.

a. sacralis mediana



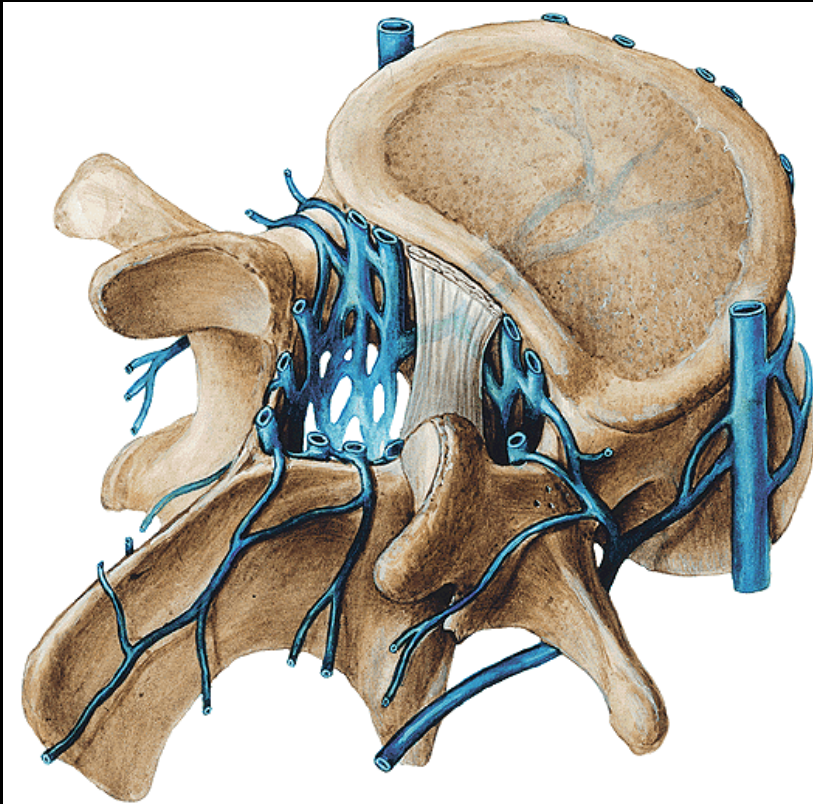
Rr. spinales:

aa. radicales ant. et post.:

a. spinalis ant. (fissura med. ant.)

aa. spinales post. (sulcus lat. post.)

Vv. spinales



- Plex. venosi vertebr. int.**
- > **vv. intervertebrales**
 - > **plx. venosi vertebr. ext.**
 - > **plx. suboccipitalis**
 - > **vv. vertebrales**

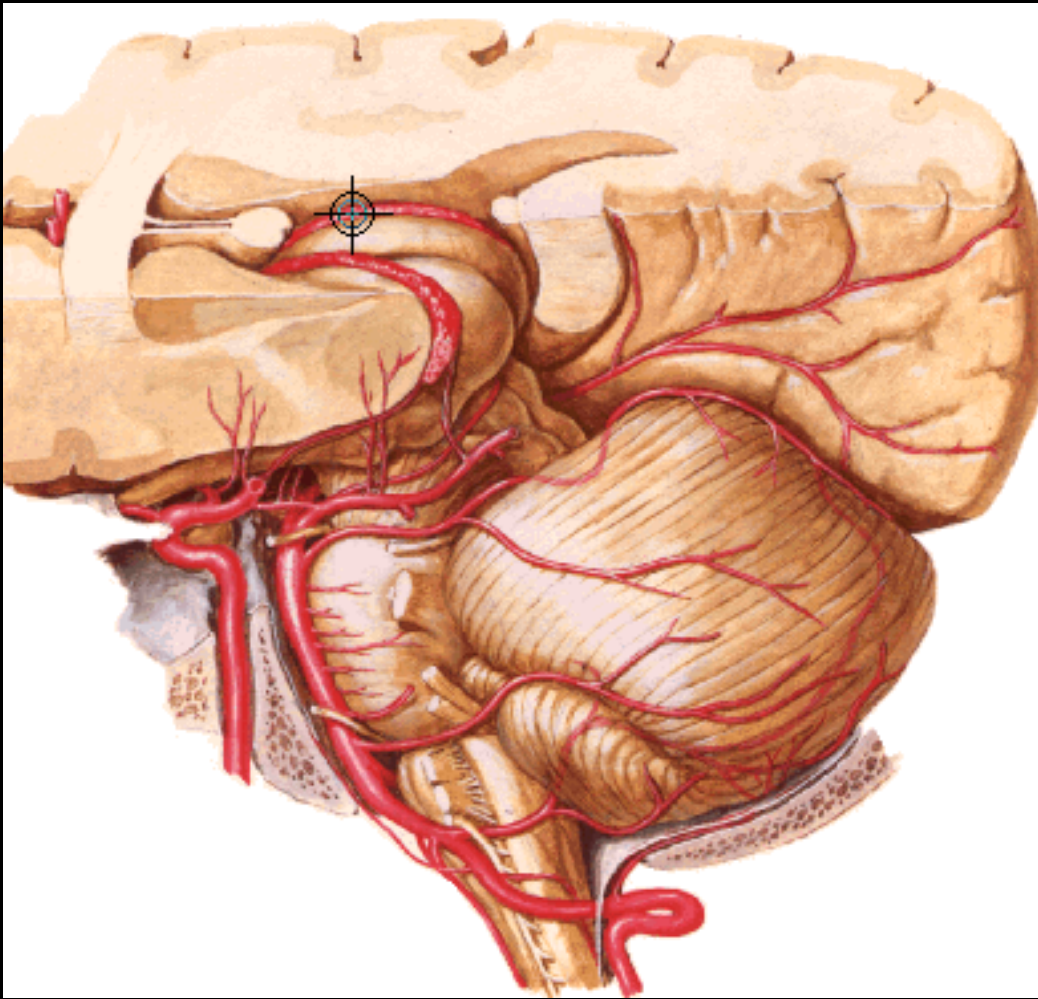
vv. cervicales prof.

vv. intercostales

vv. lumbales

vv. sacrales lat.

Brainstem, cerebellum

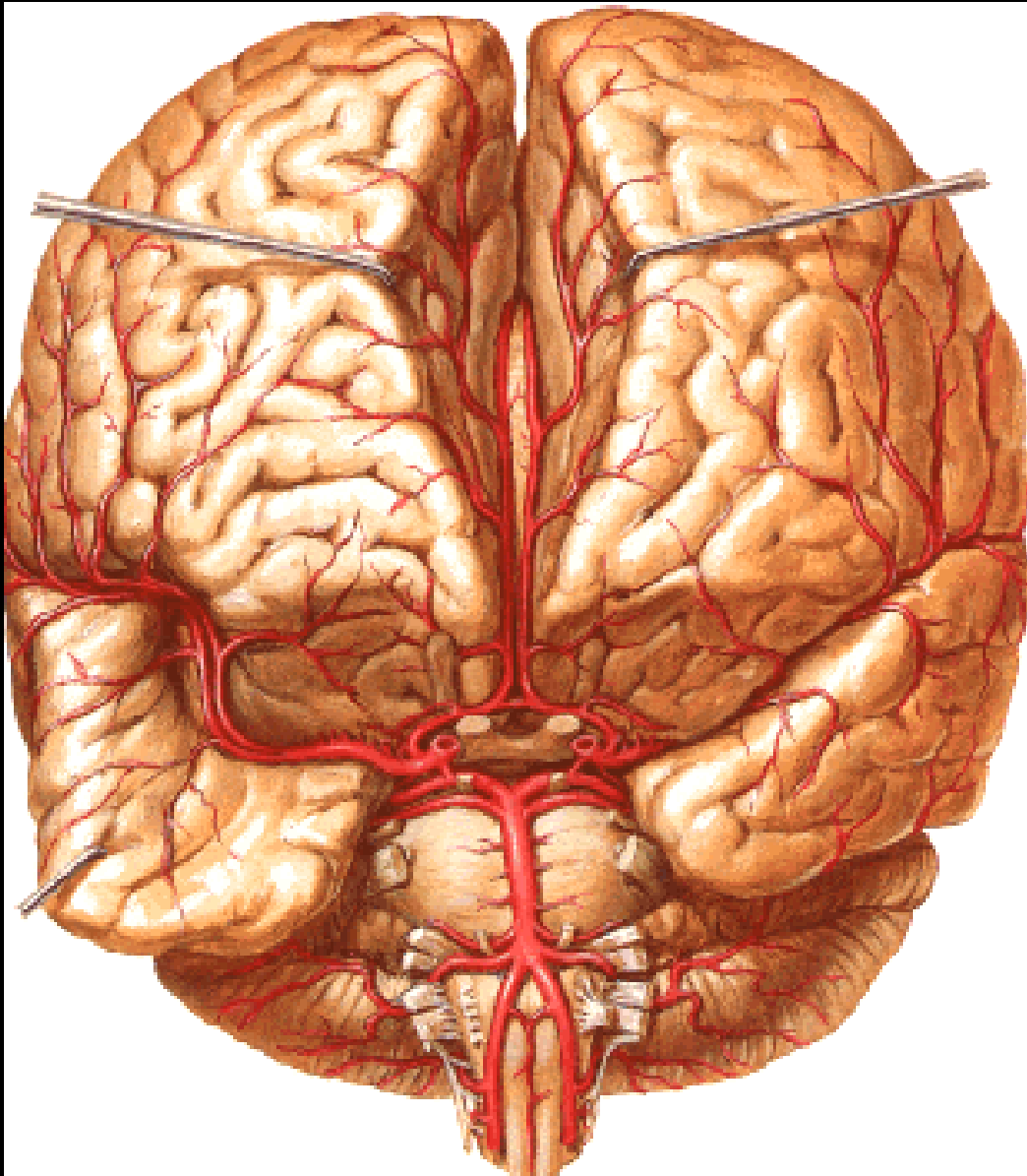


Aa. cerebri post.
Aa. cerebelli sup.
Aa. pontis
Aa. cerebelli inf. ant.
A. basilaris

Aa. cerebelli inf. post.
Aa. spin. ant. et post.

Aa. vertebrales

Brain

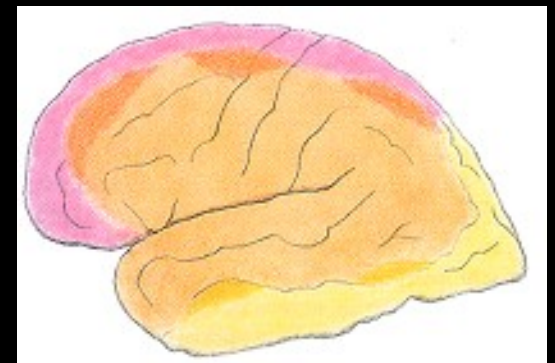


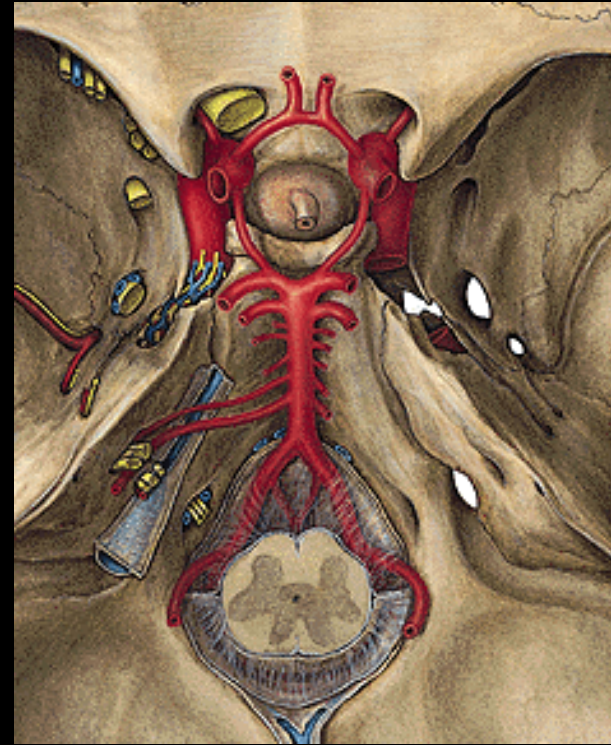
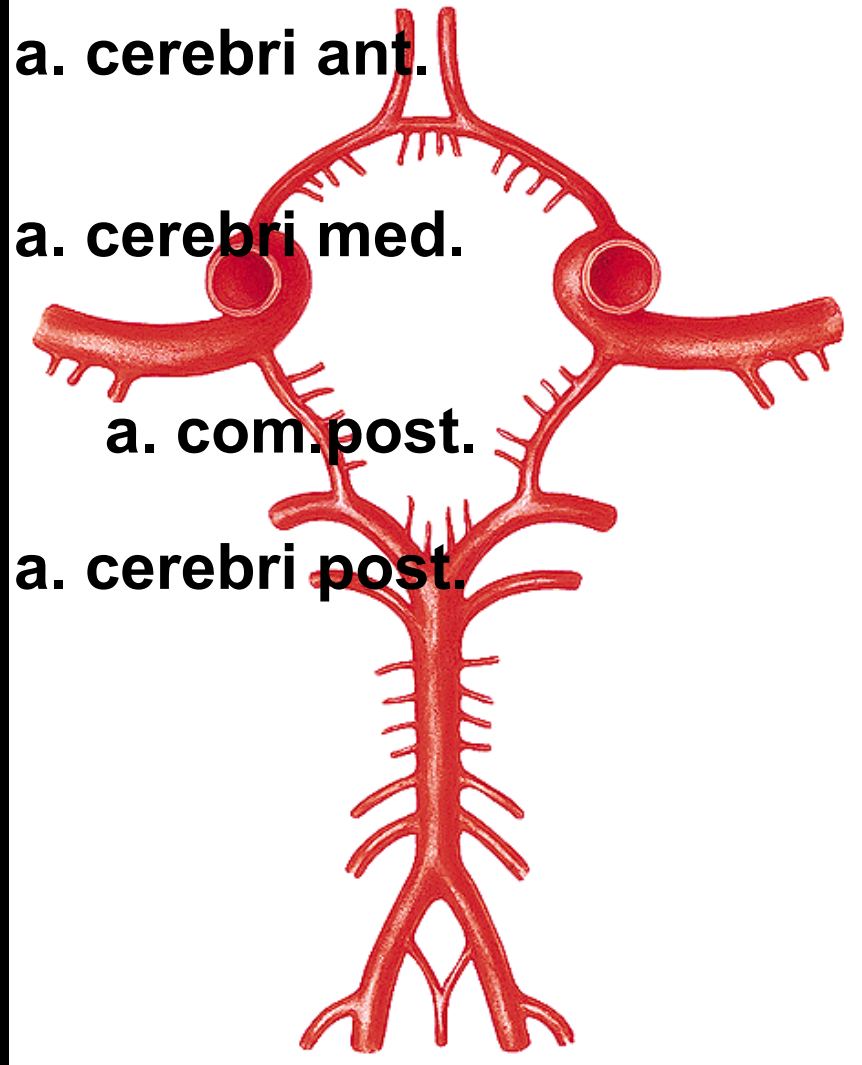
Aa. cerebri:

anterior (A. car. int.)

media (A. car. int.)

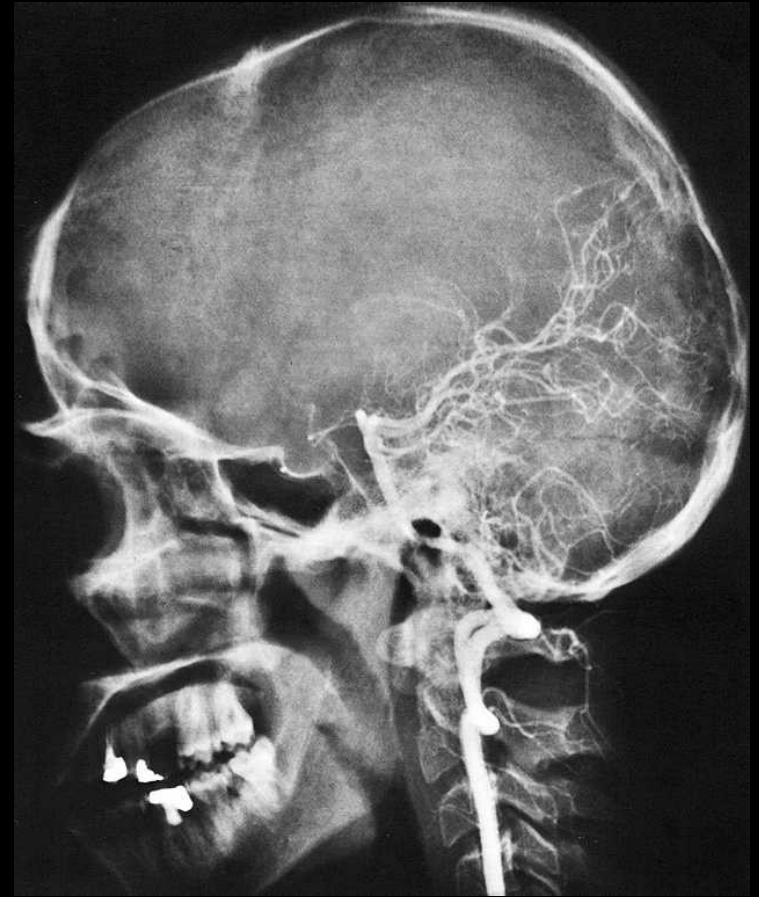
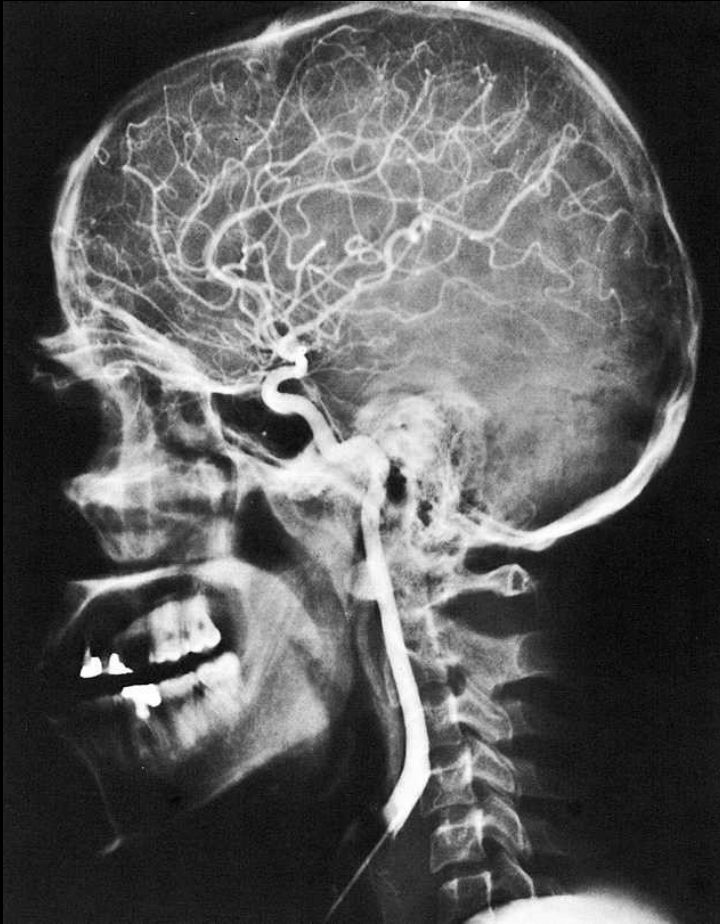
posterior (A. basil.)



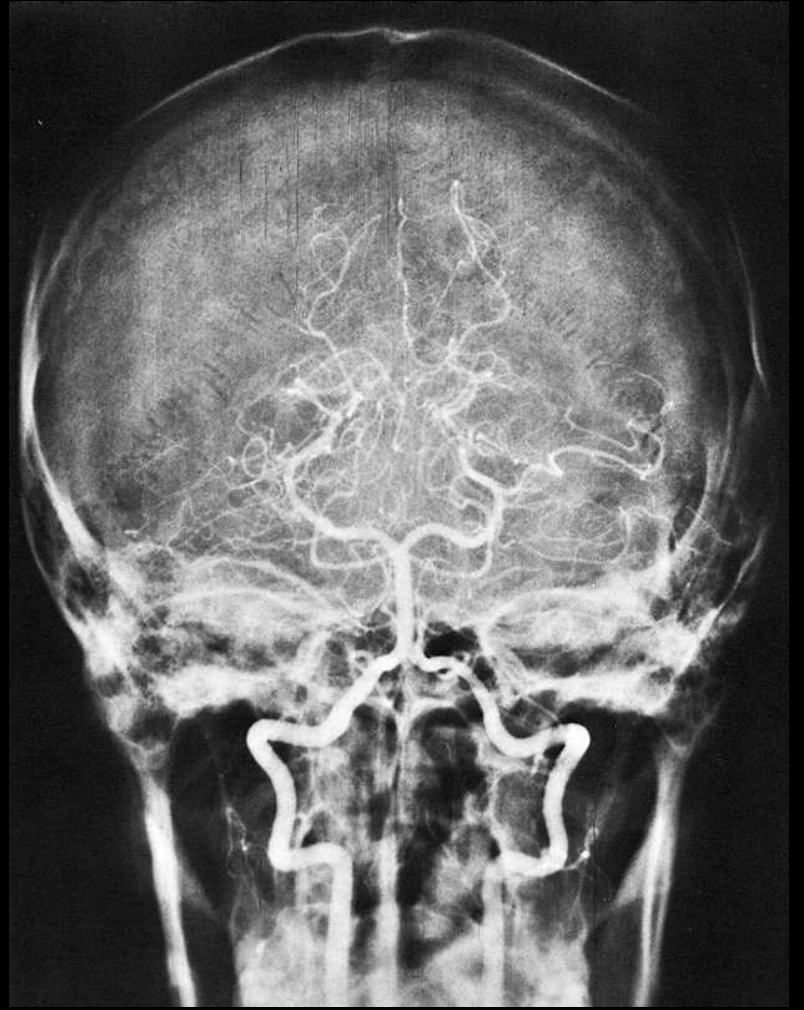
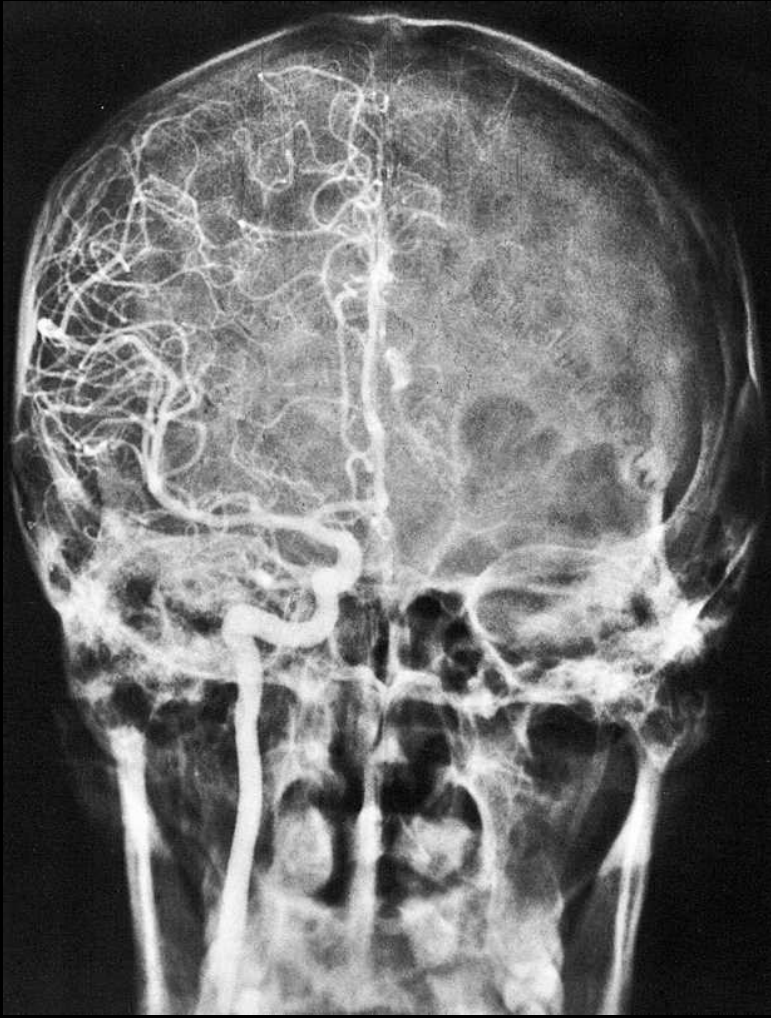


Circulus arteriosus

- Aa. corticales
- Aa. centrales
- Aa. choroideae

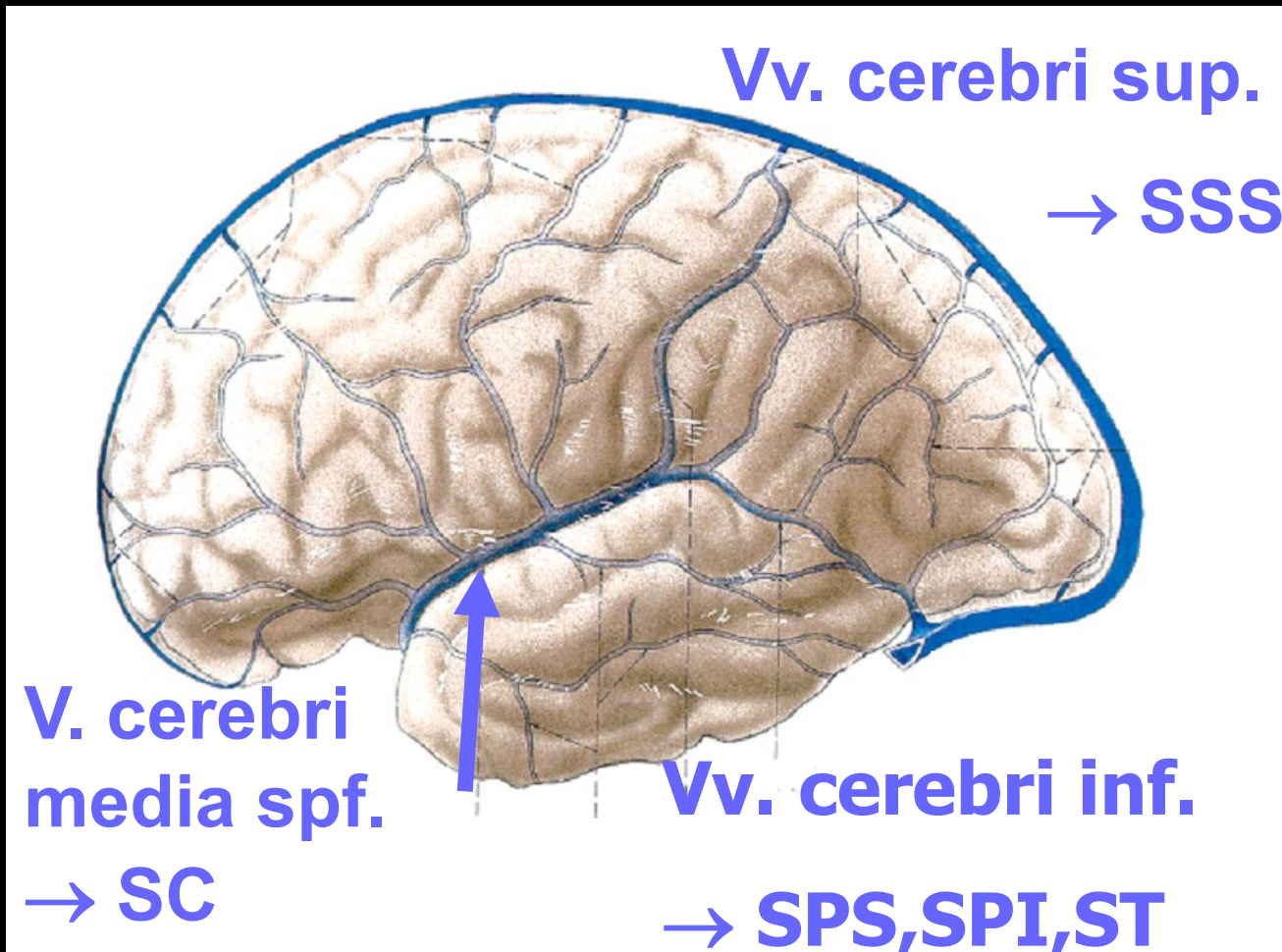


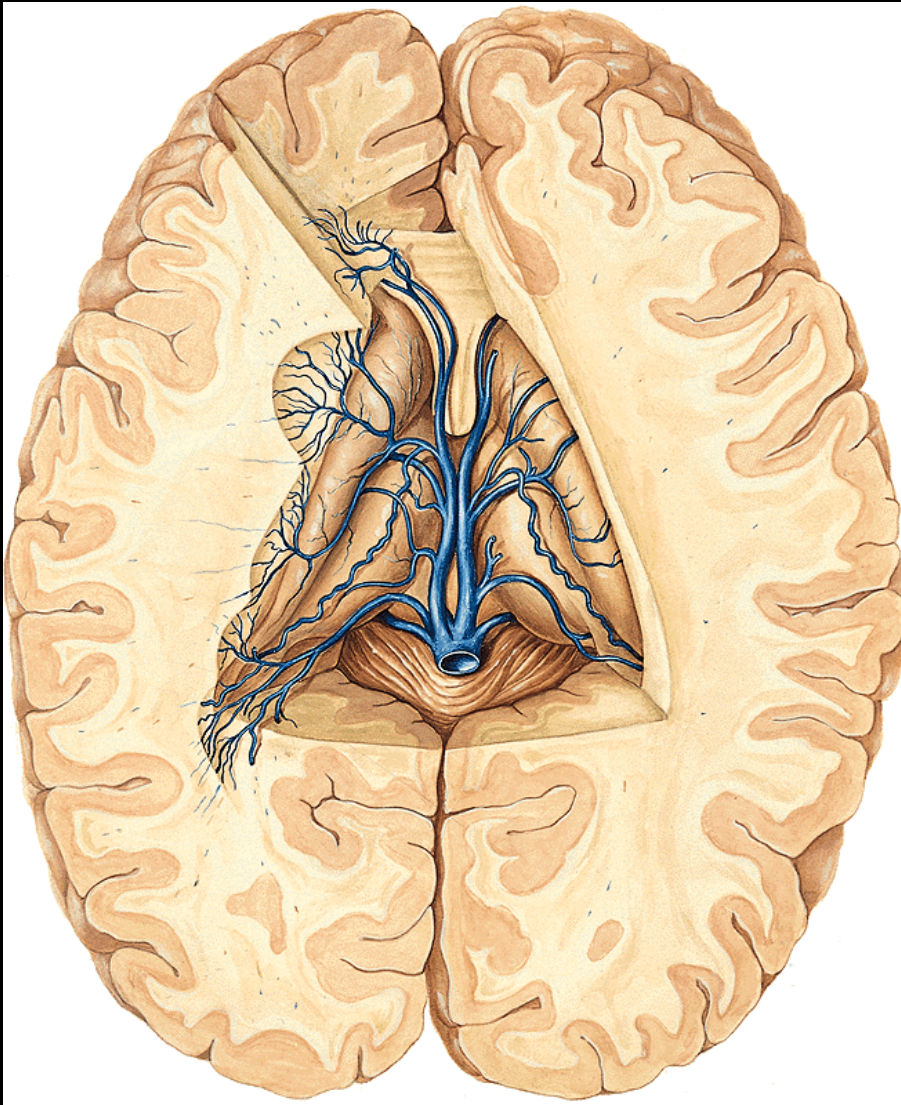
anterior
media
posterior



Veins of the brain

■ superficial





deep veins

1. vv. septi pellucidi
2. vv. thalamostr. sup.
3. vv. choroideae sup.



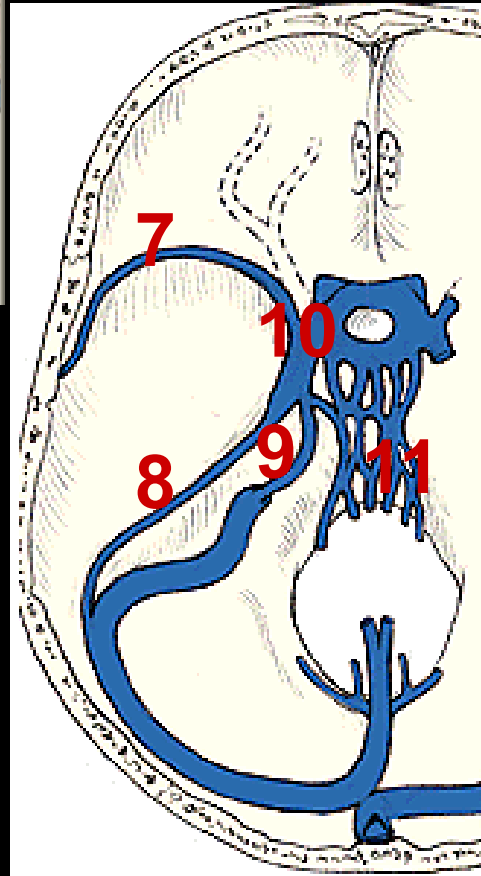
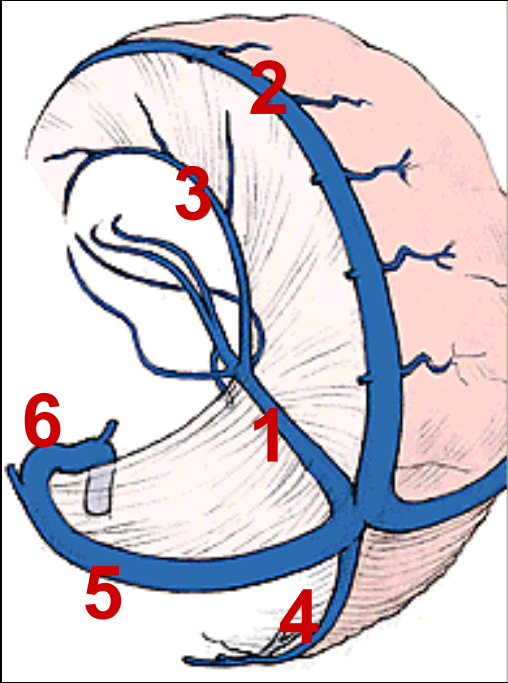
= Vv. cerebri int.
+ Vv. cer. med. prof.
+ Vv. basales

V. magna cerebri

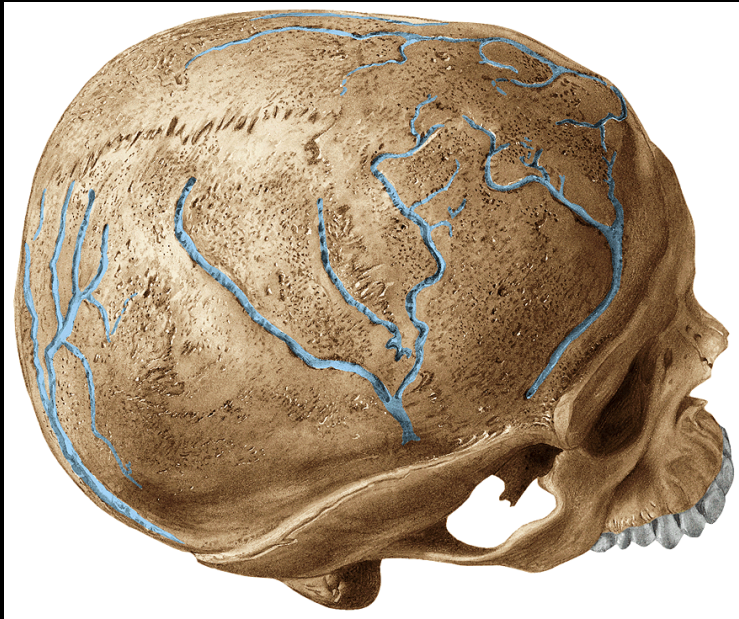


Sinus rectus

Sinus durae matris



- 1 rectus
- 2 sagittalis sup.
- 3 sagittalis inf.
- 4 occipitalis
- 5 transversus
- 6 sigmoideus
- 7 sphenoparietalis
- 8 petrosus sup.
- 9 petrosus inf.
- 10 cavernosus
- 11 plx. basilaris



Tributaries of sinuses

Vv. cerebri

Vv. cerebelli

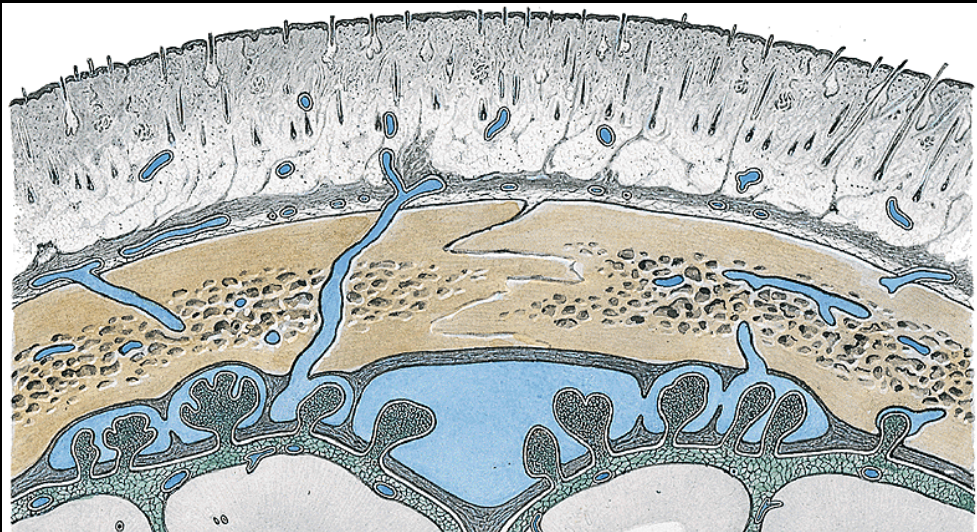
Vv. ophthalmicae

Vv. labyrinthi

Vv. meningeae

Vv. diploicae

Vv. emissariae



- Illustrations were copied from:
- **Atlas der Anatomie des Menschen/
Sobotta. Putz,R., und Pabst,R. 20.
Auflage. München: Urban &
Schwarzenberg, 1993**
- **Netter: Interactive Atlas of Human
Anatomy. Windows Version 2.0**