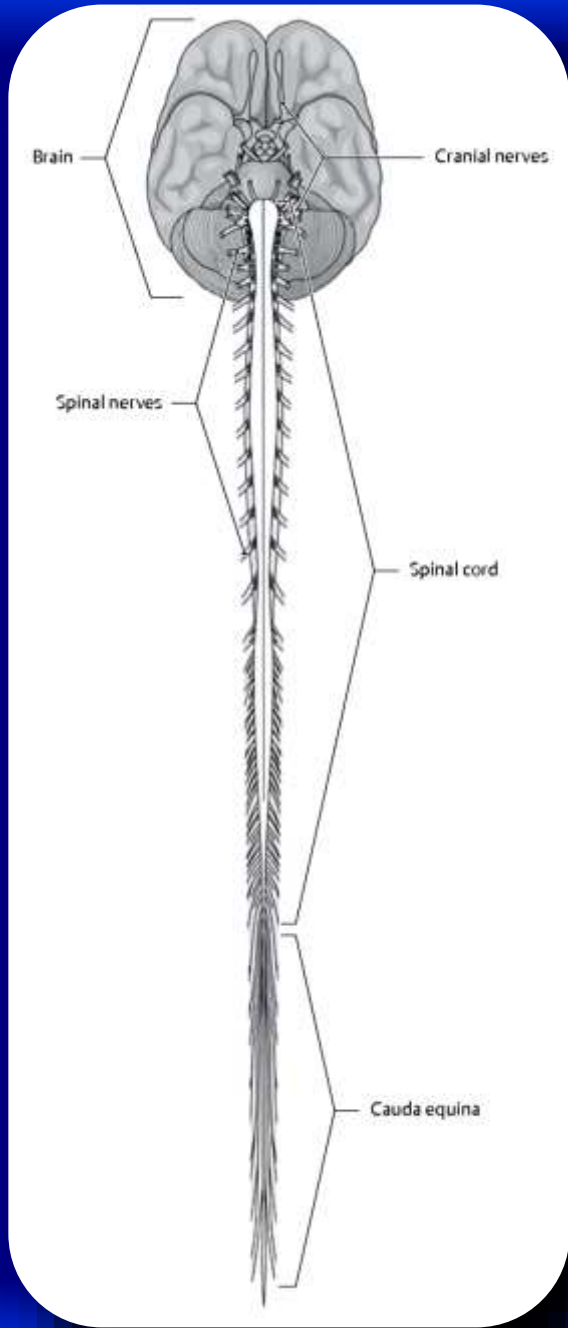
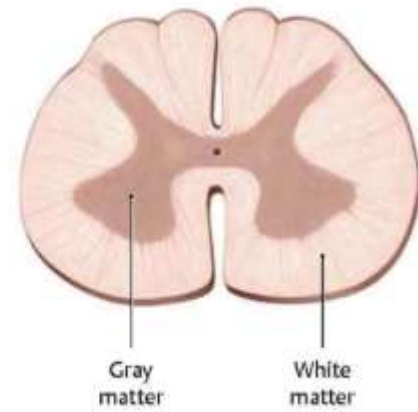
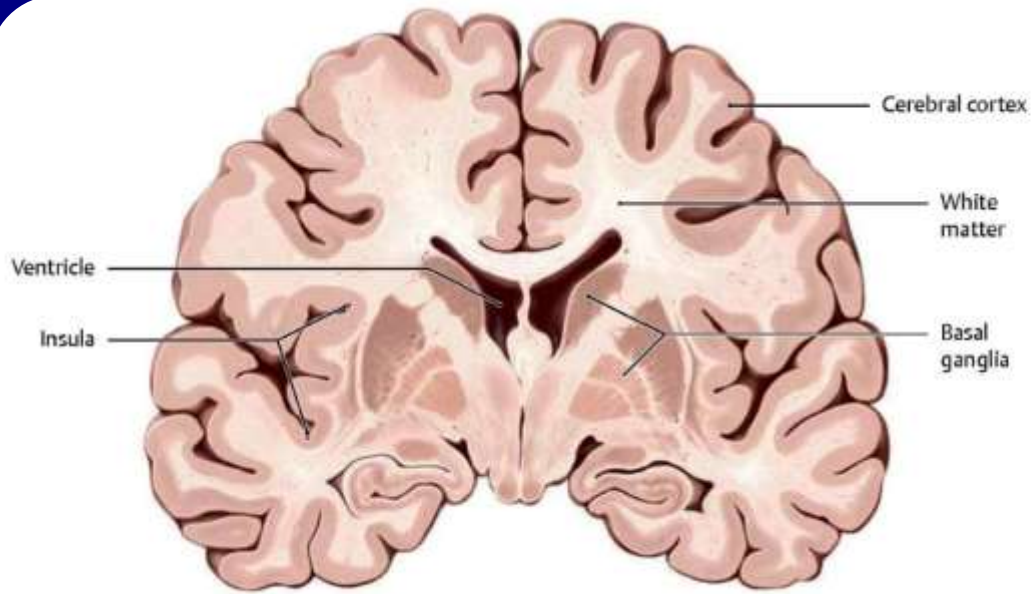




Central nervous system – general overview



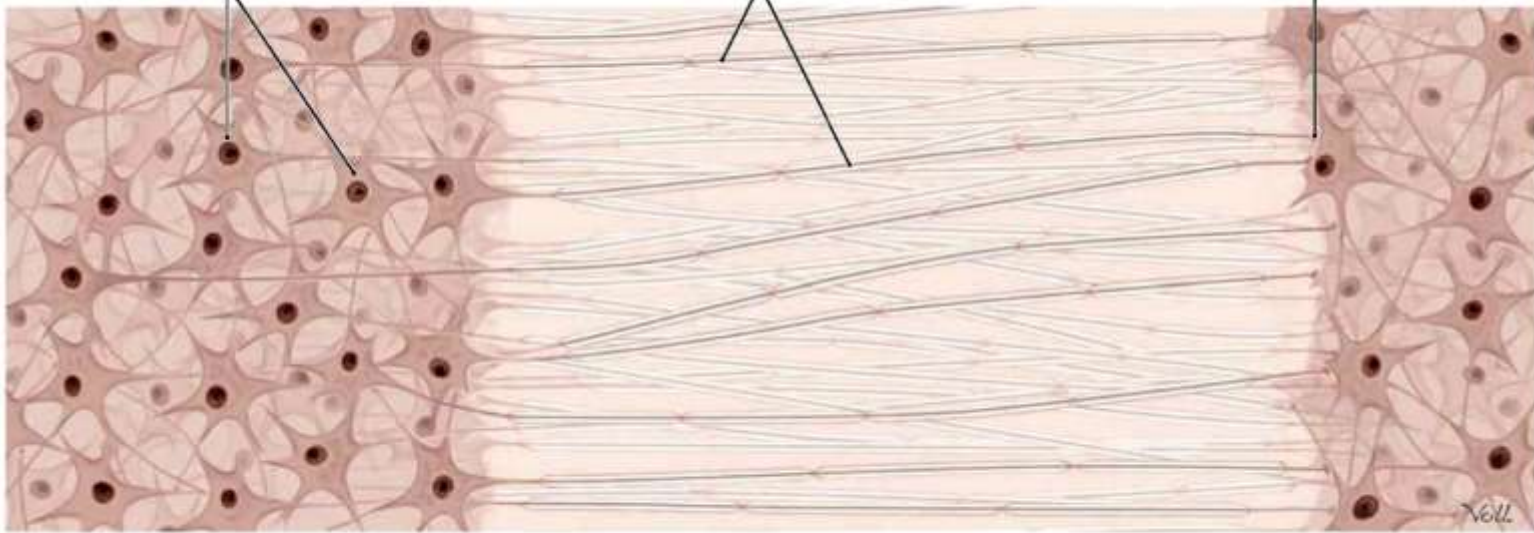




Perikarya

Axons

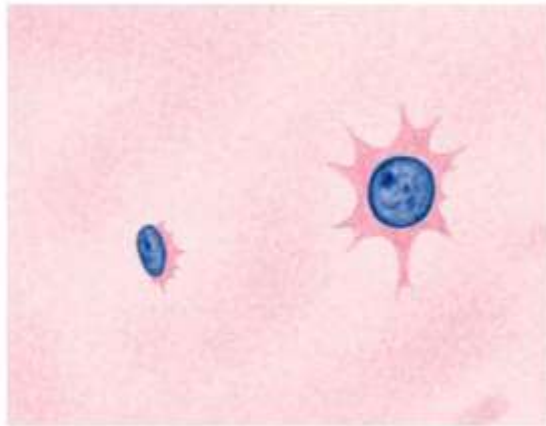
Synapse



Gray matter

White matter

Noll



Fibrillary
astrocyte

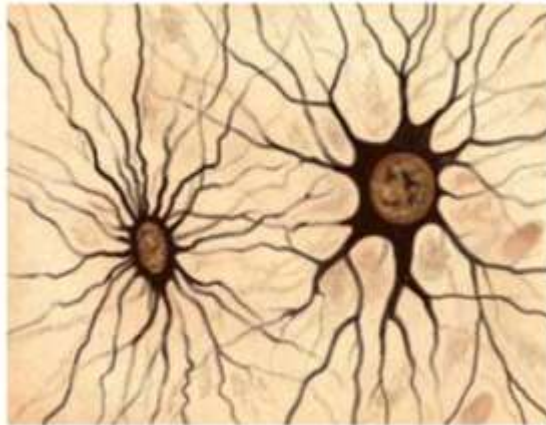
Protoplasmic
astrocyte

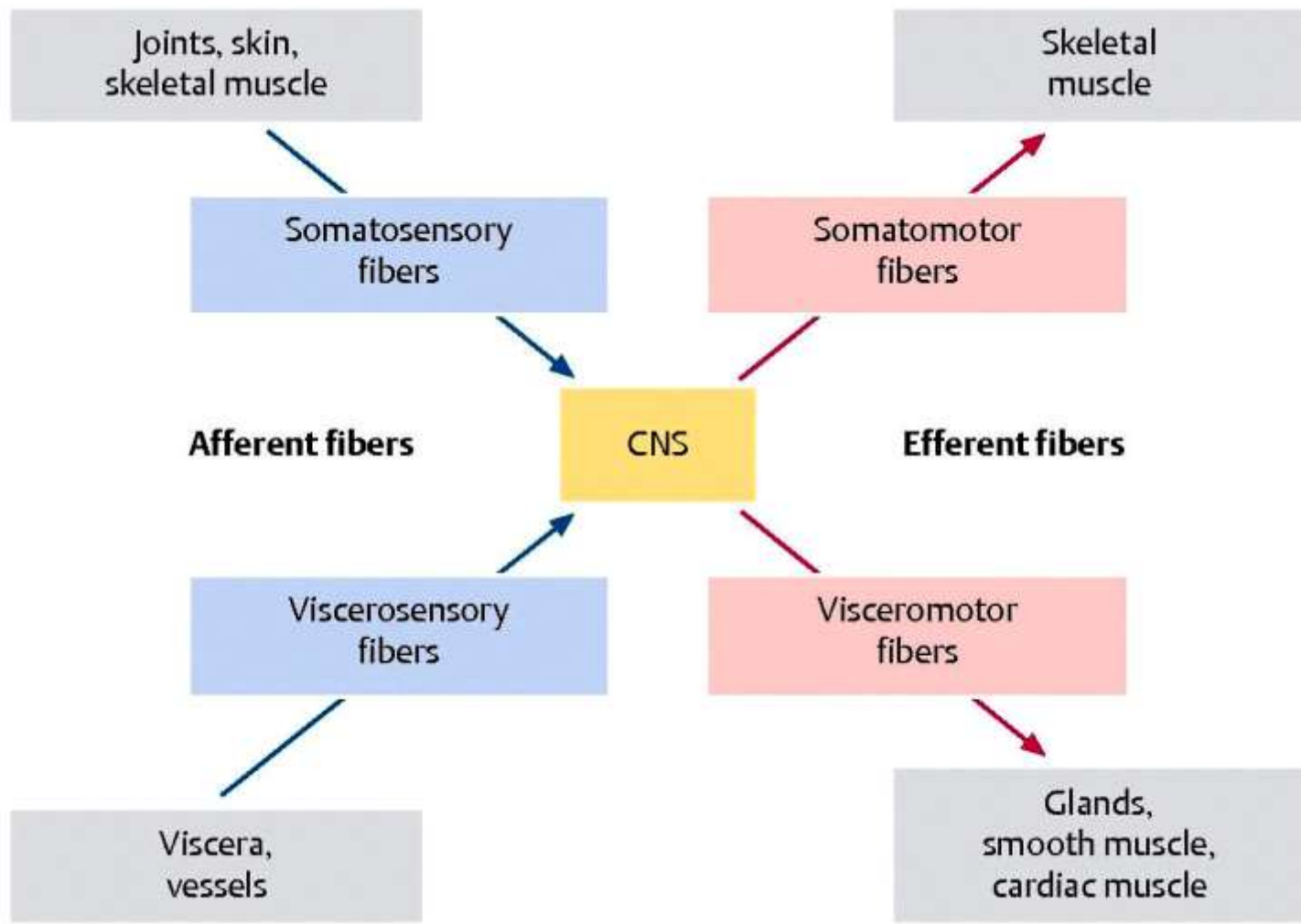


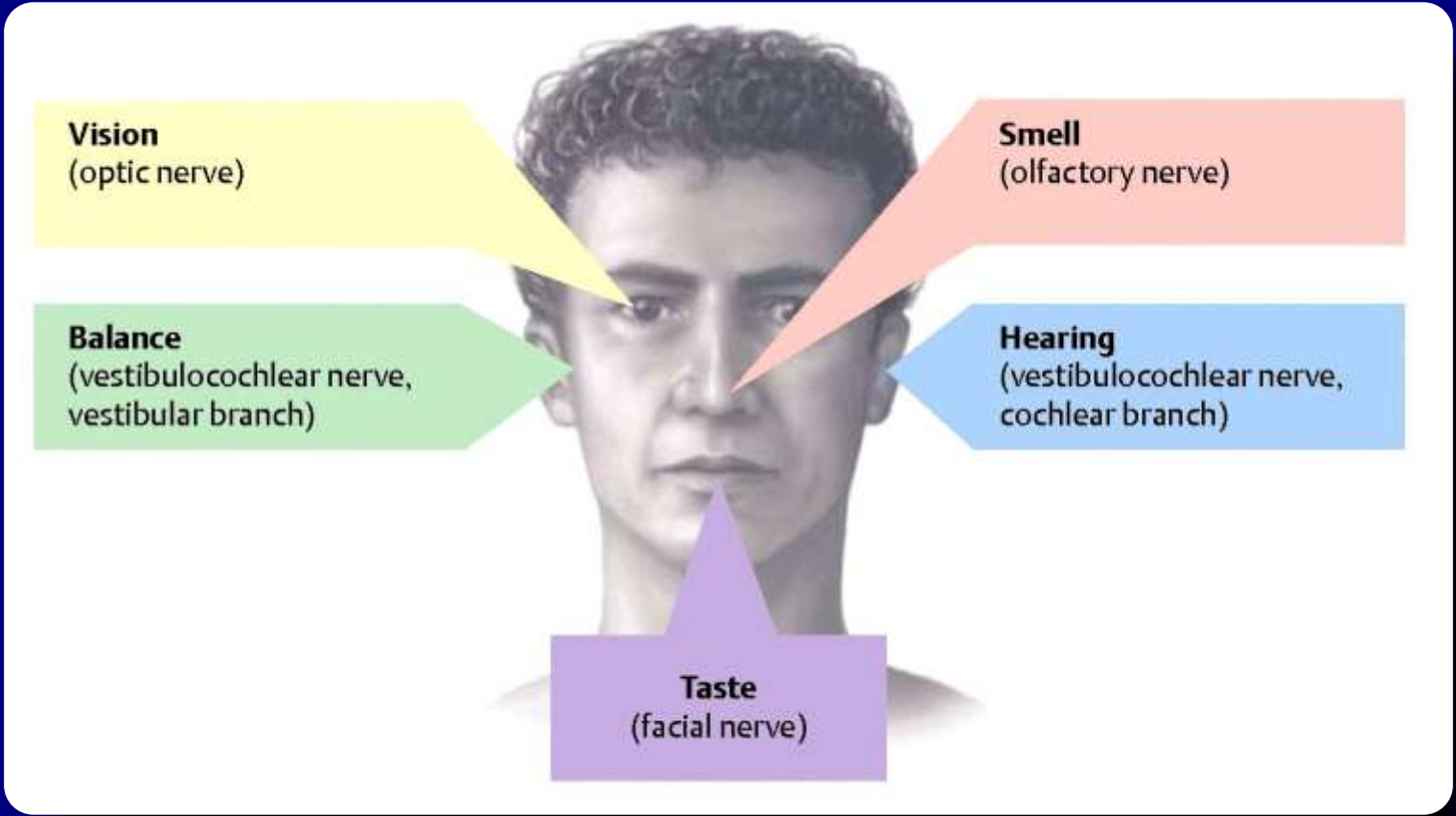
Oligo-
dendrocytes



Microglia







Vision
(optic nerve)

Balance
(vestibulocochlear nerve,
vestibular branch)

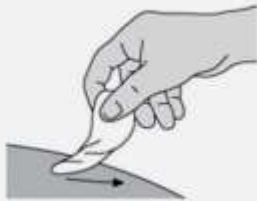
Smell
(olfactory nerve)

Hearing
(vestibulocochlear nerve,
cochlear branch)

Taste
(facial nerve)



Vibration



Touch, pressure



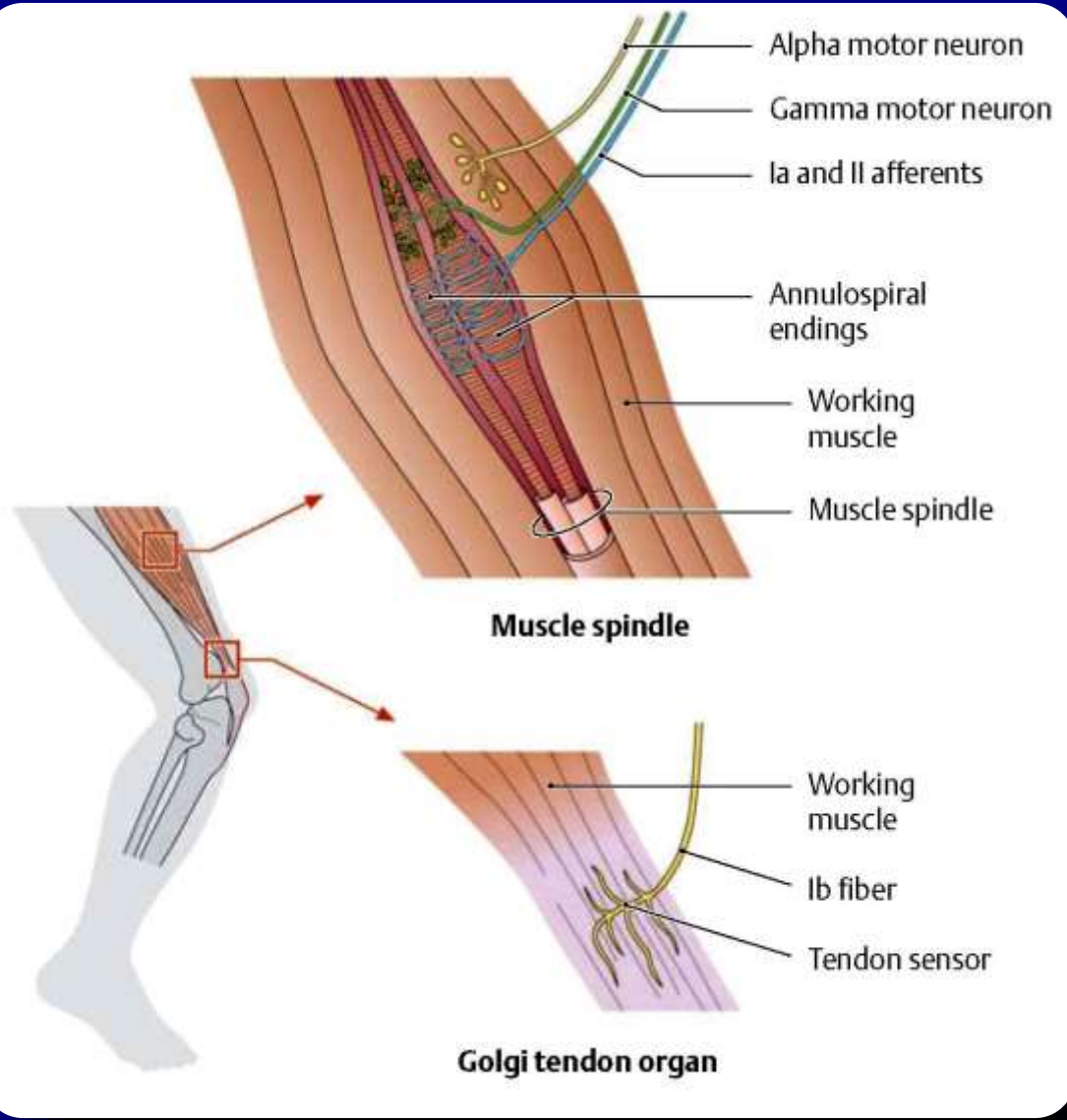
Pain

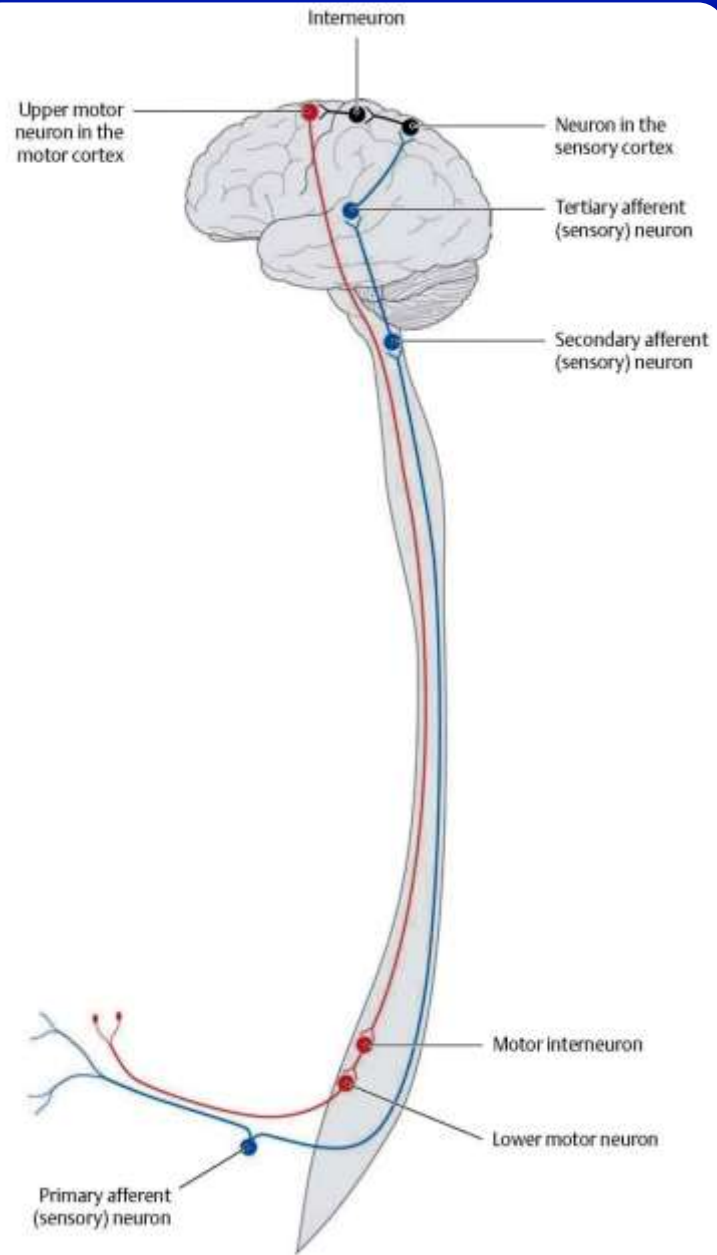


Temperature



Deep sensation (proprioception)





Brain vesicles and their derivatives

Neural tube

Prosencephalon

Telencephalon

- Cerebral cortex
- White mater
- Basal ganglia

Diencephalon

- Epithalamus (pineal gland)
- Dorsal thalamus
- Subthalamus
- Hypothalamus (pituitary)

Mesencephalon

Mesencephalon

- Tectum
- Tegmentum
- Cerebral peduncles

Rhombencephalon

Pons

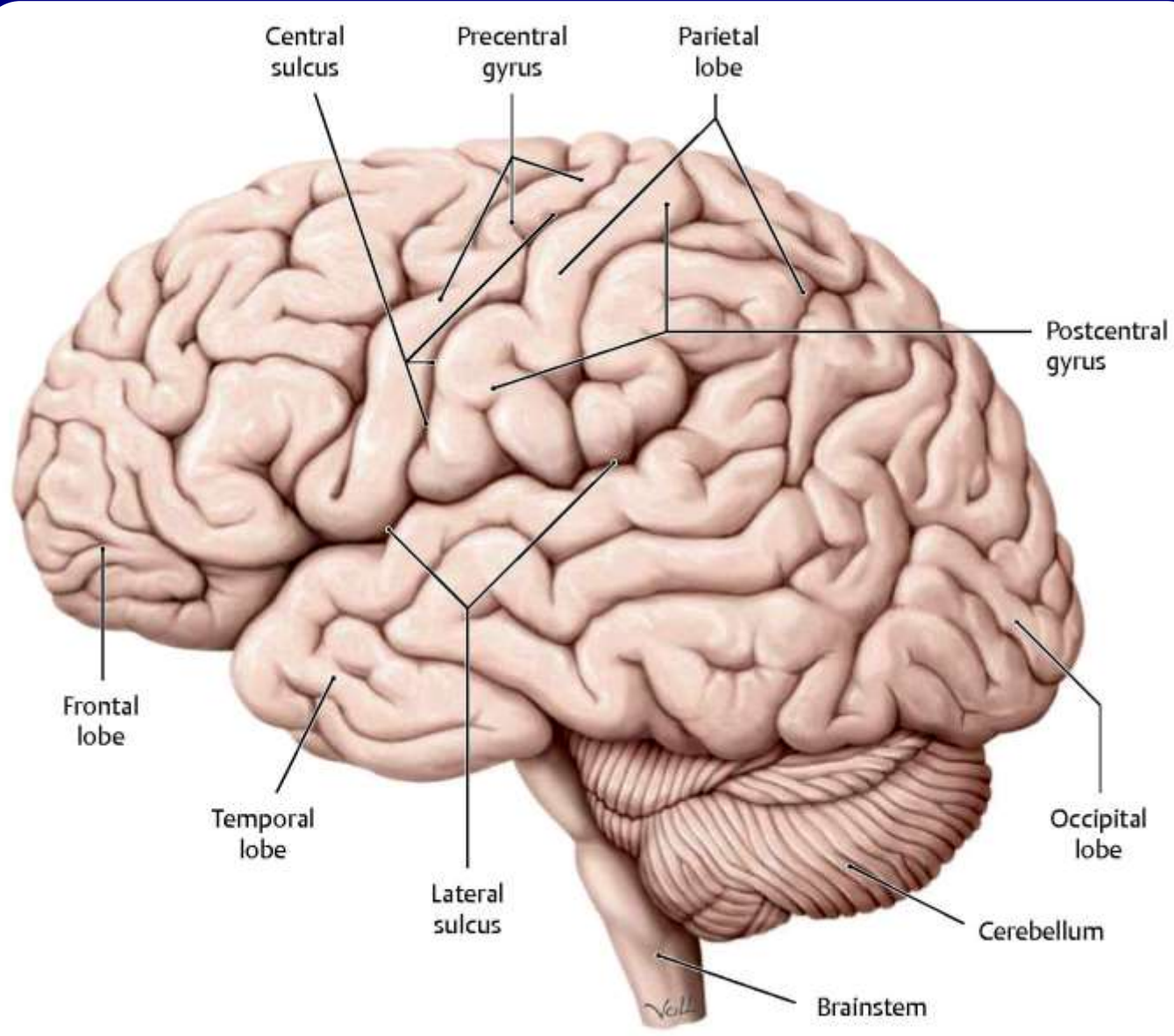
- Nuclei
- Fiber tracts

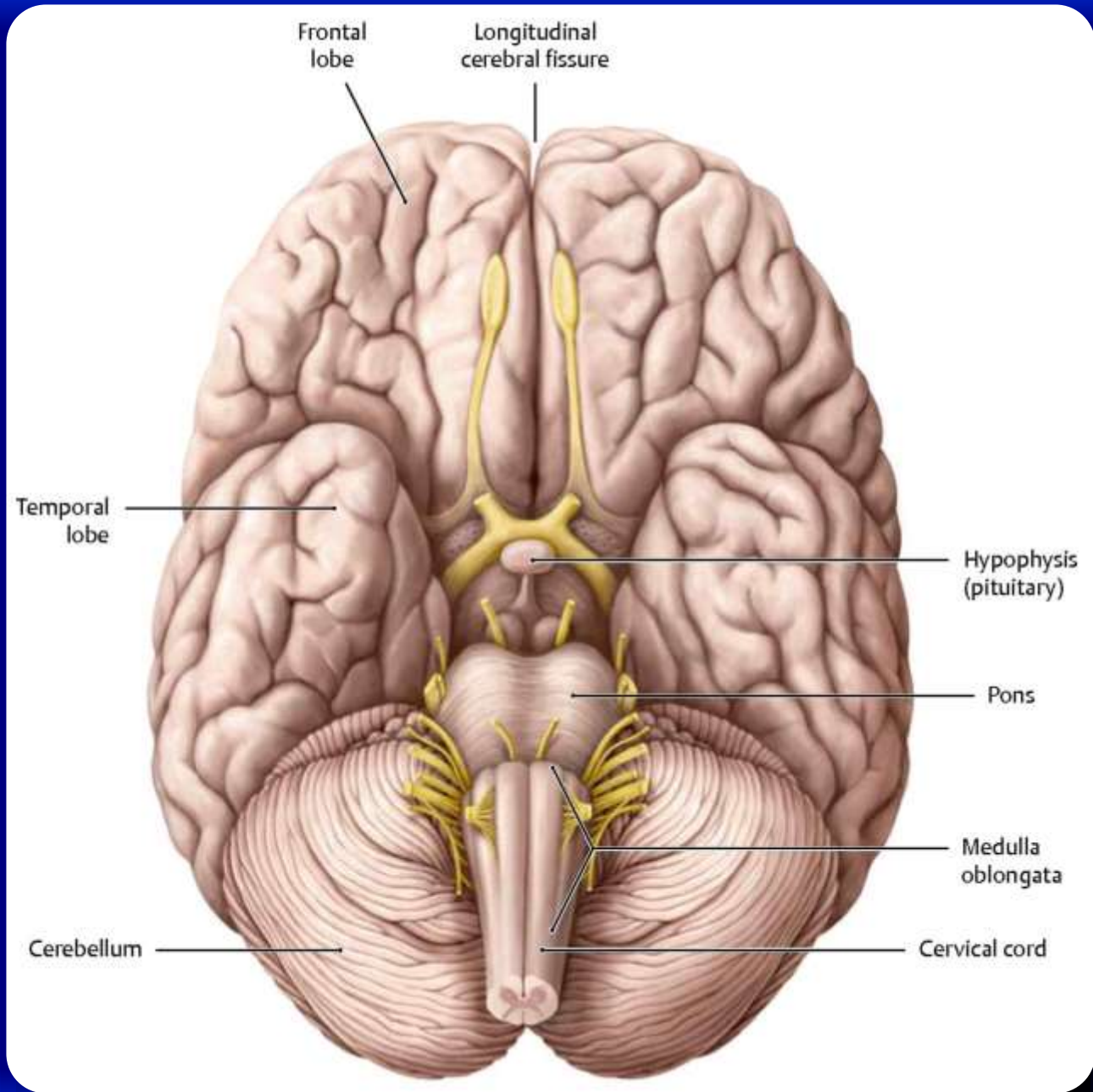
Cerebellum

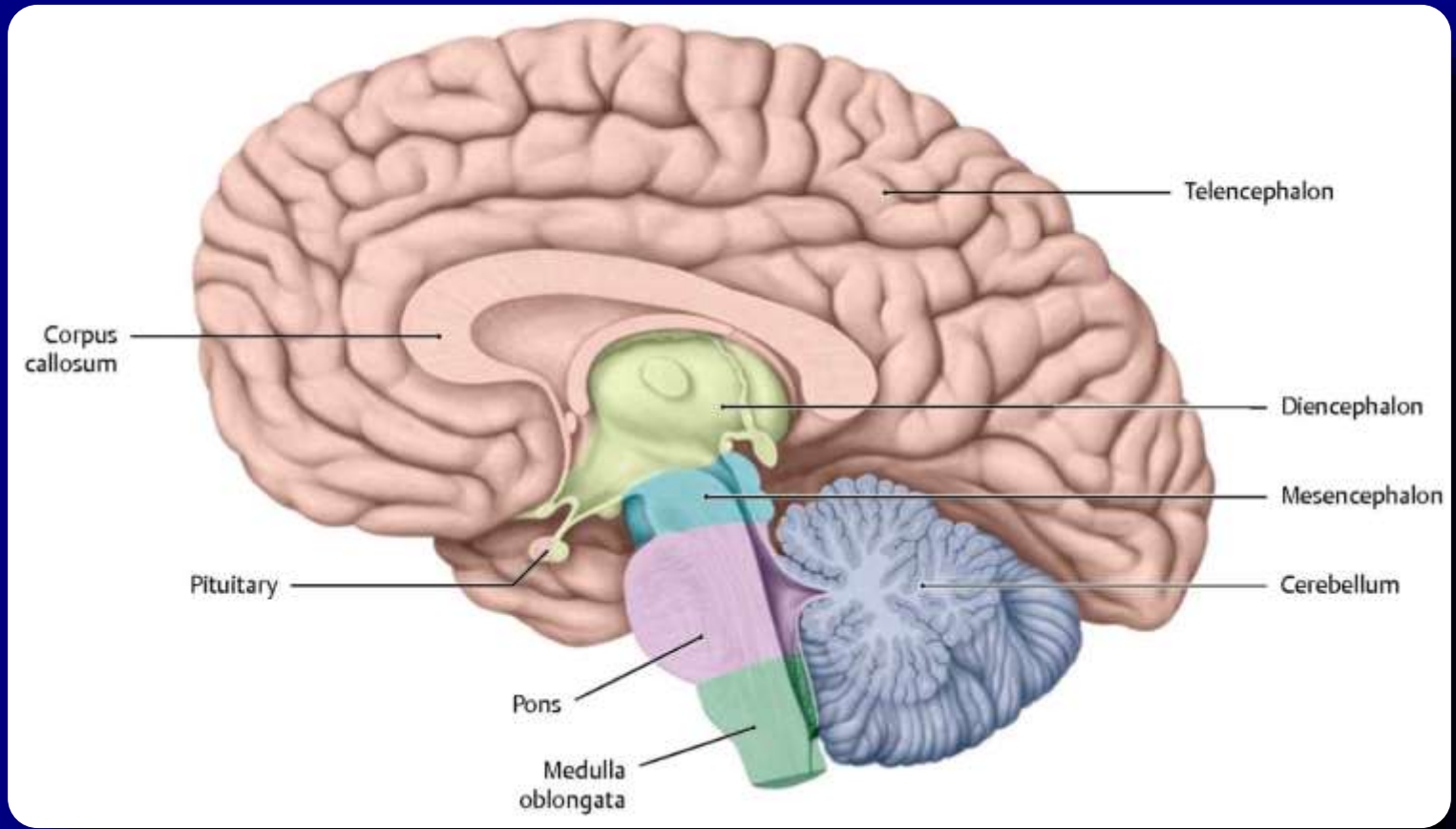
- Cerebellar cortex
- Cerebellar nuclei
- Cerebellar peduncles

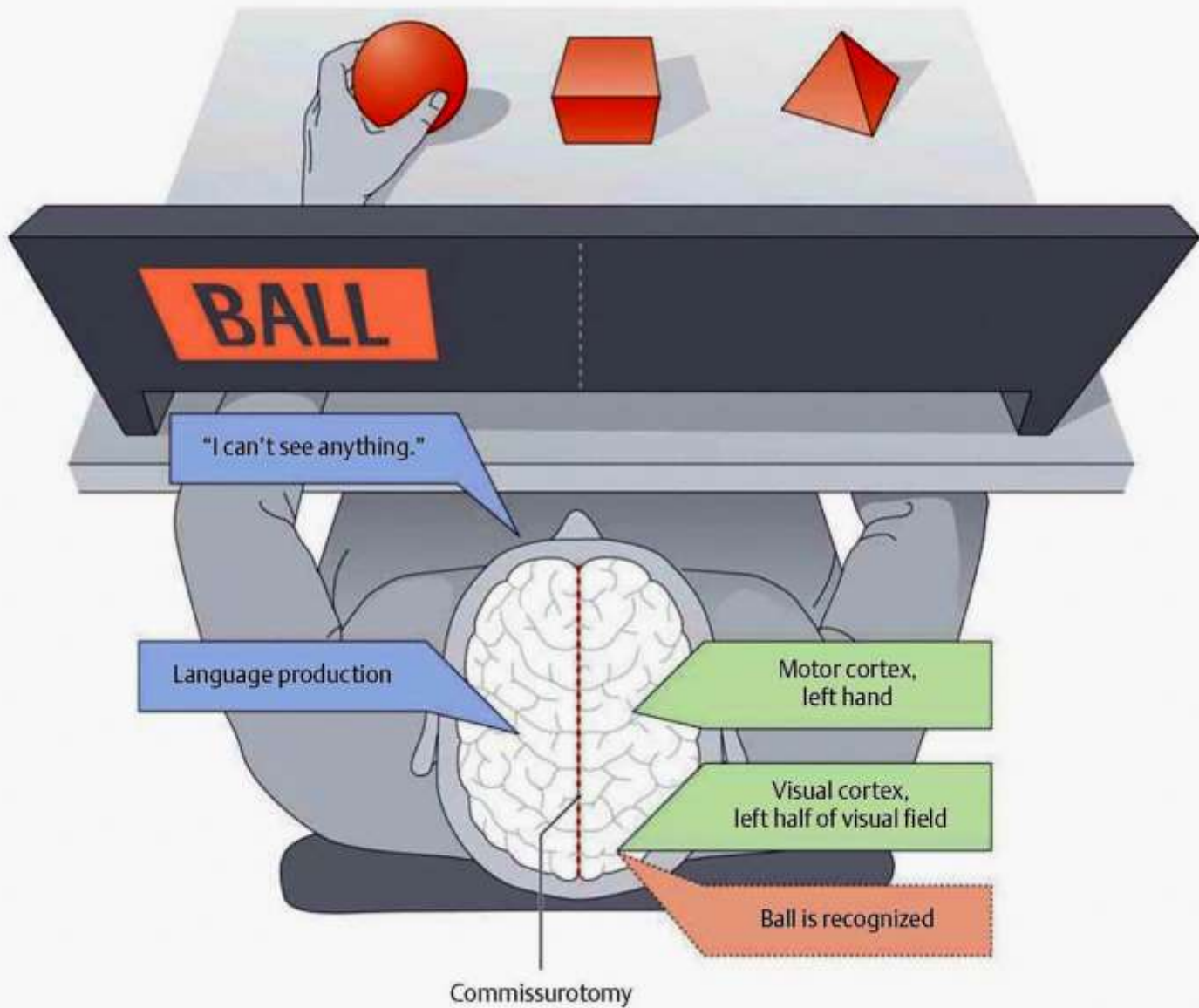
Medulla oblongata

- Nuclei
- Fiber tracts



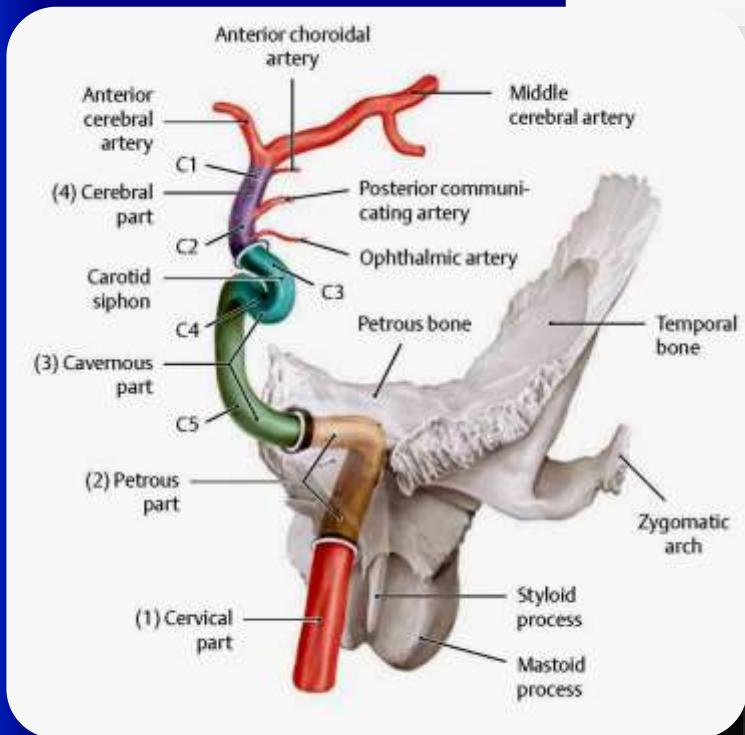




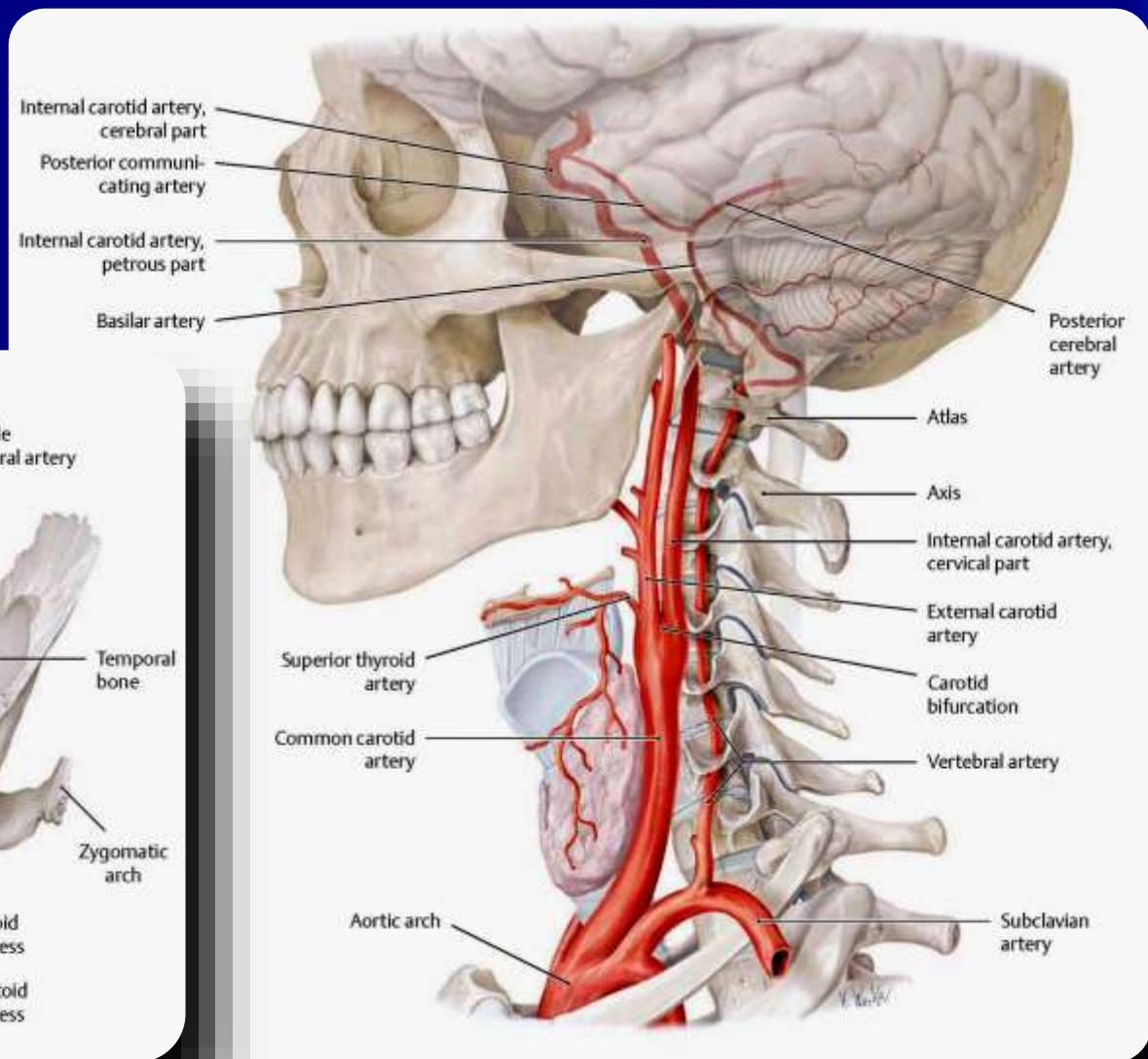




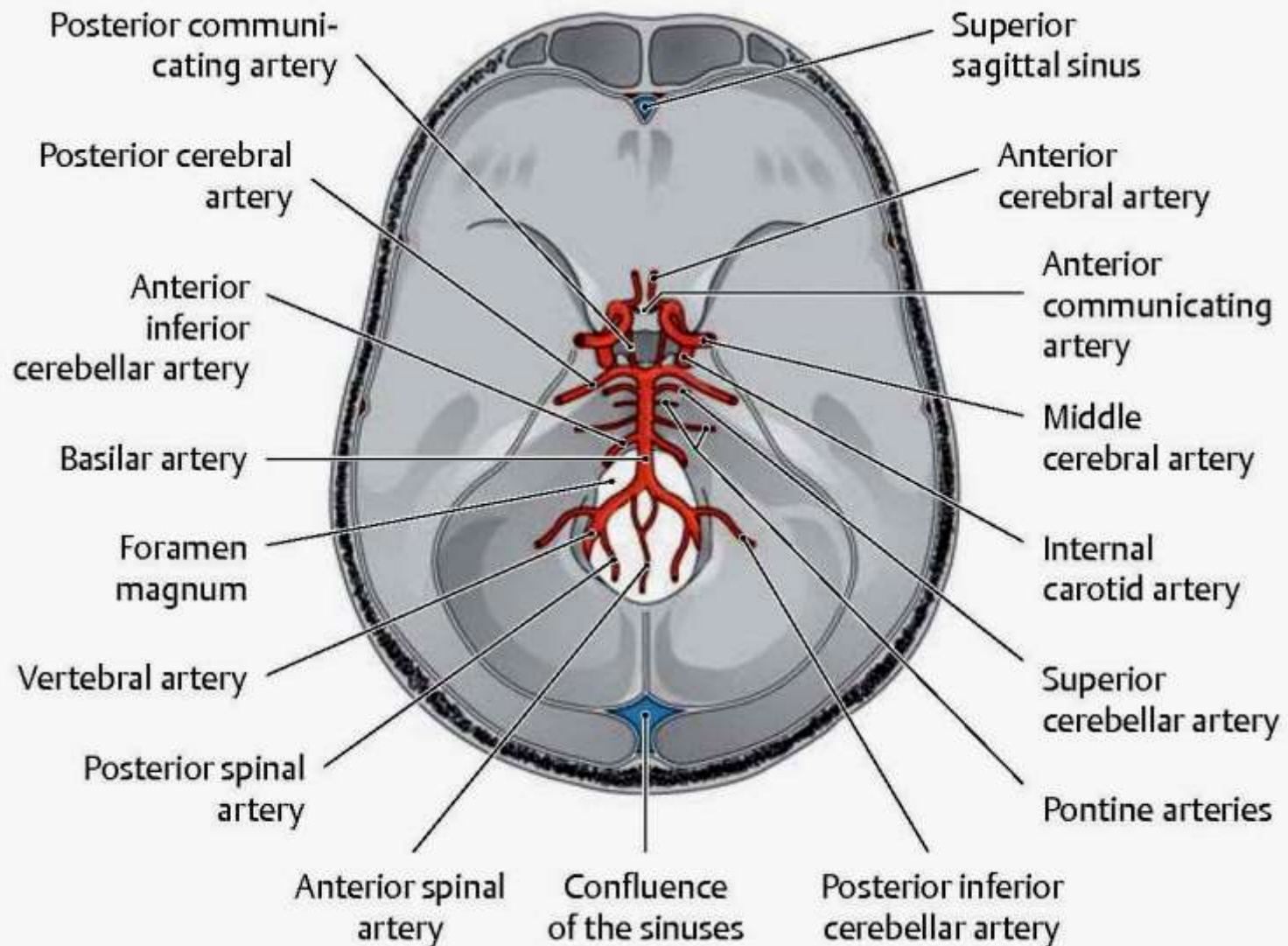
BLOOD SUPPLY OF THE CENTRAL NERVOUS SYSTEM



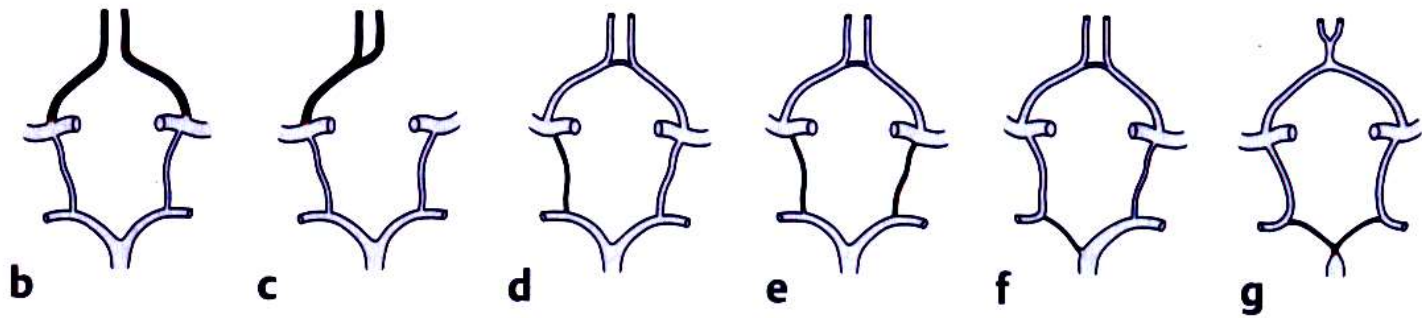
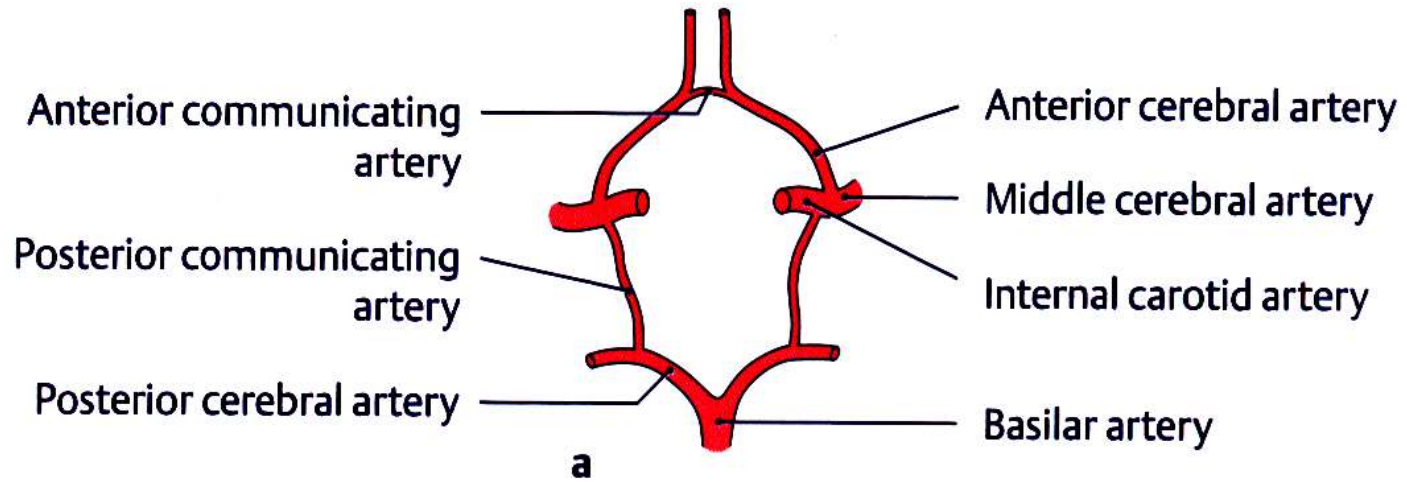
The four anatomical divisions of the internal carotid artery



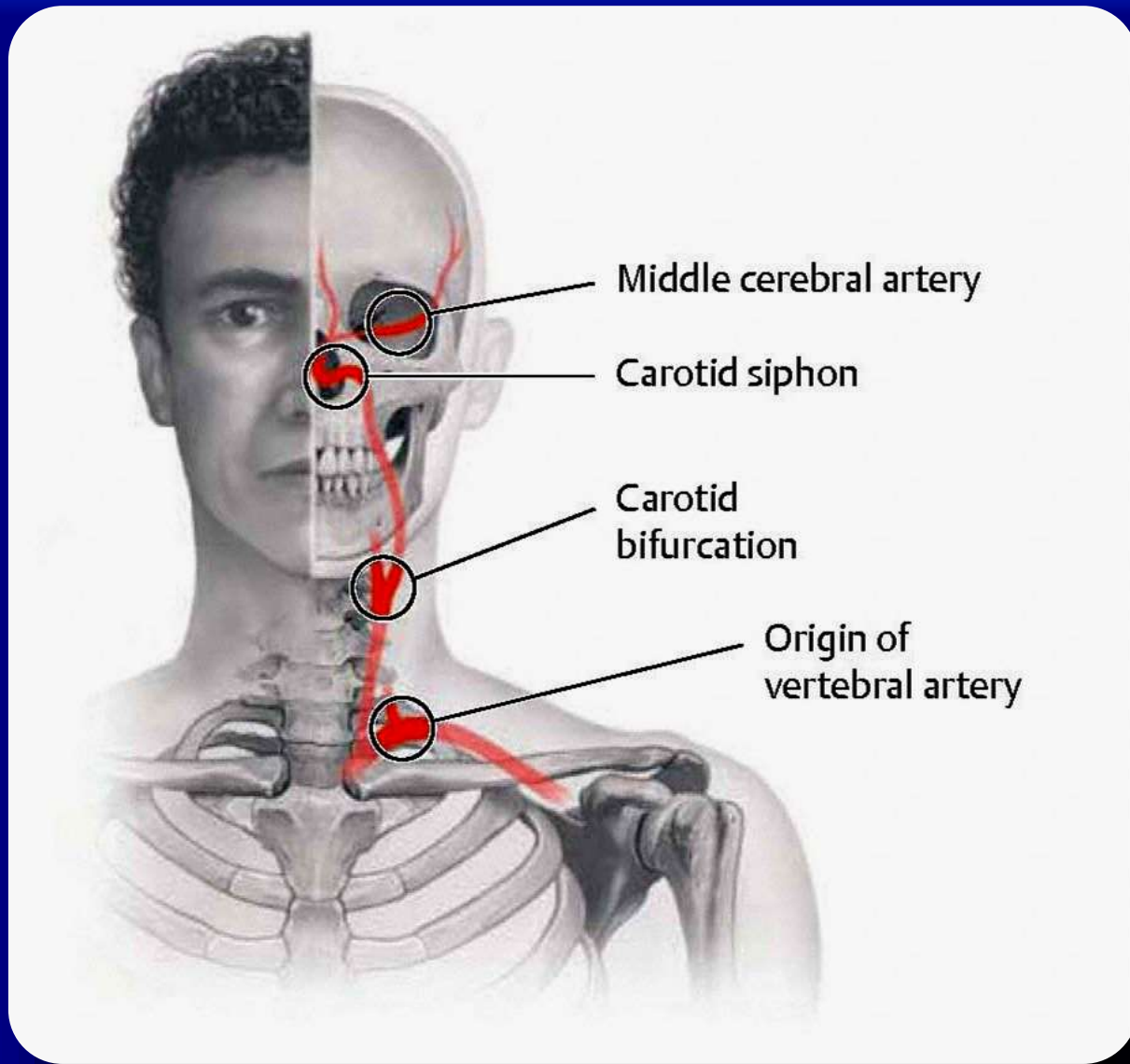
Overview of the arterial supply to the brain



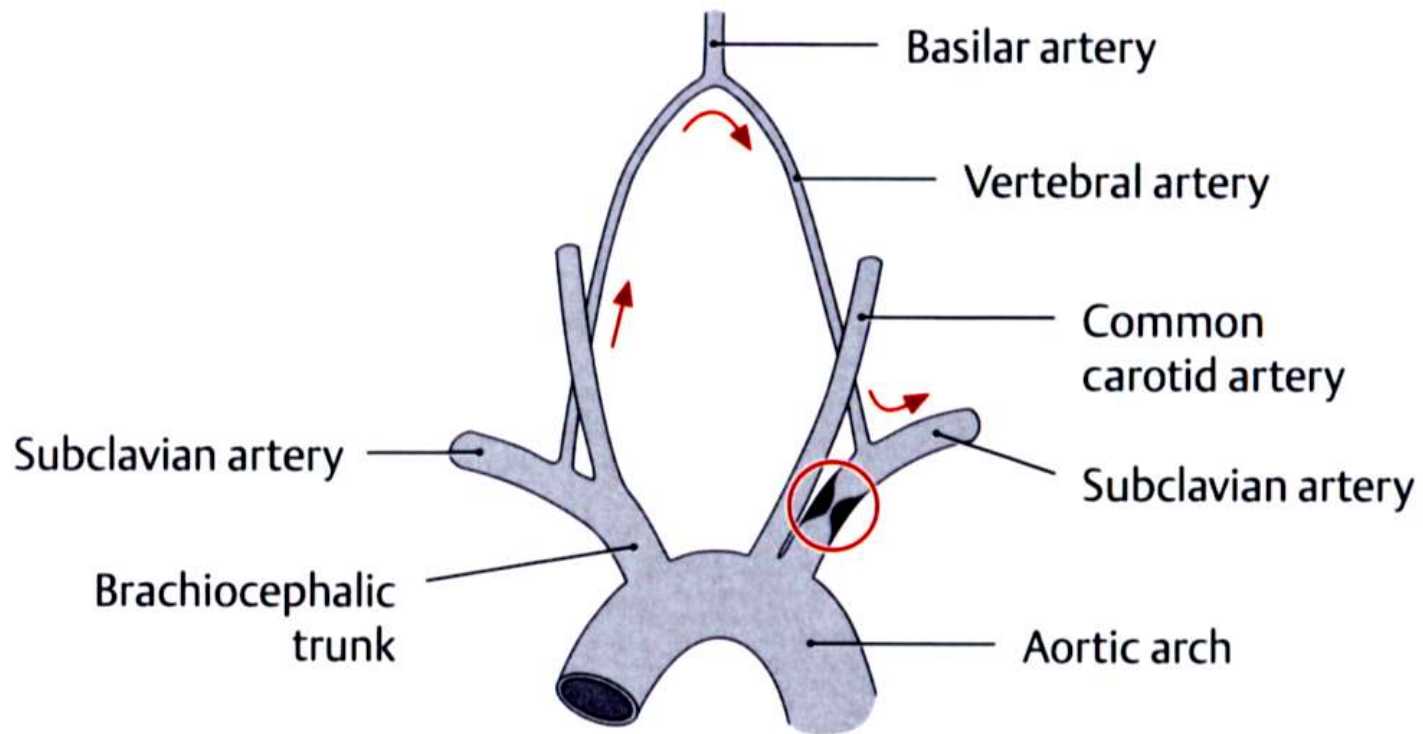
Projection of the circle of Willis onto the base of the skull



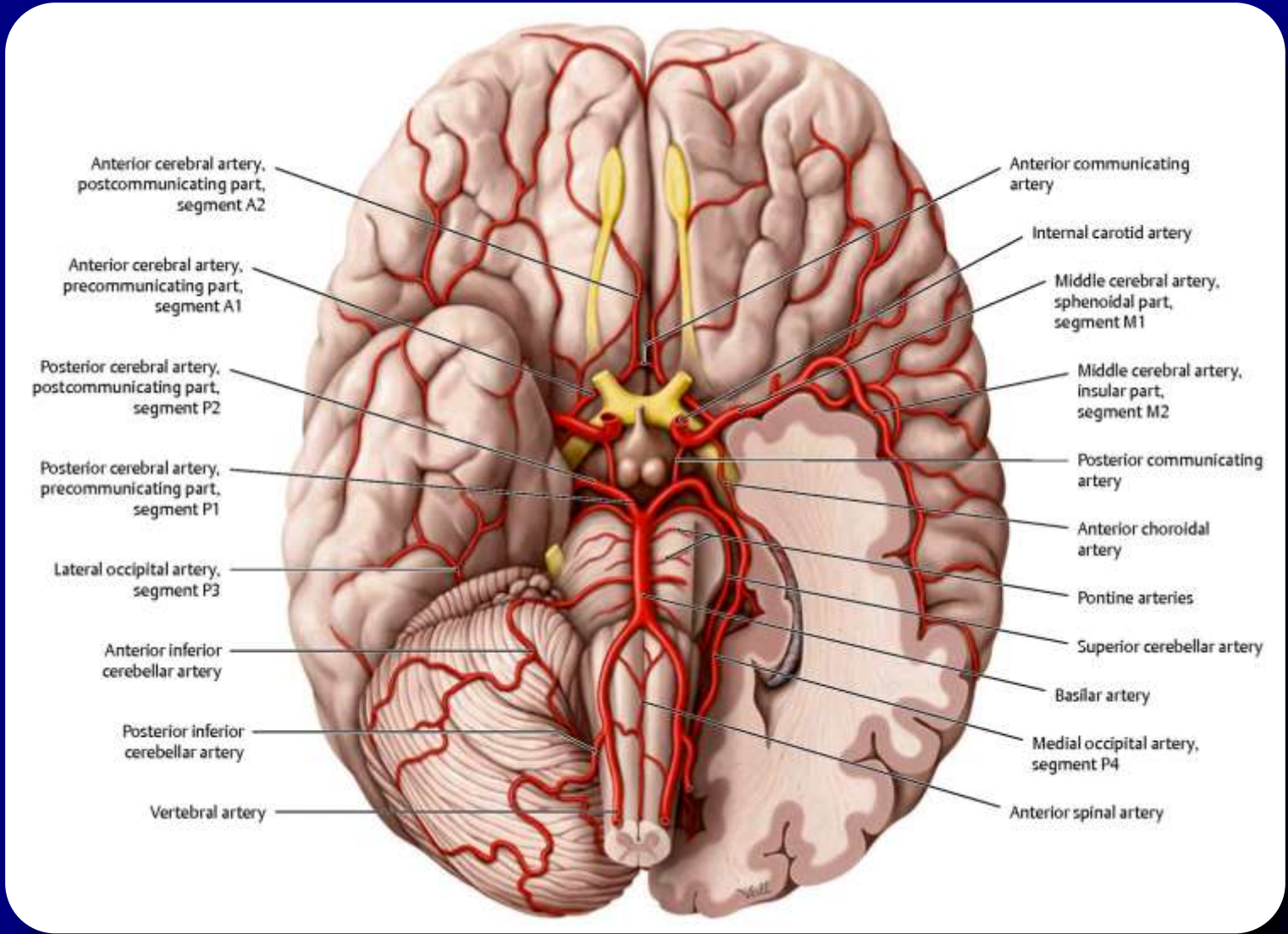
Variants of the circle of Willis



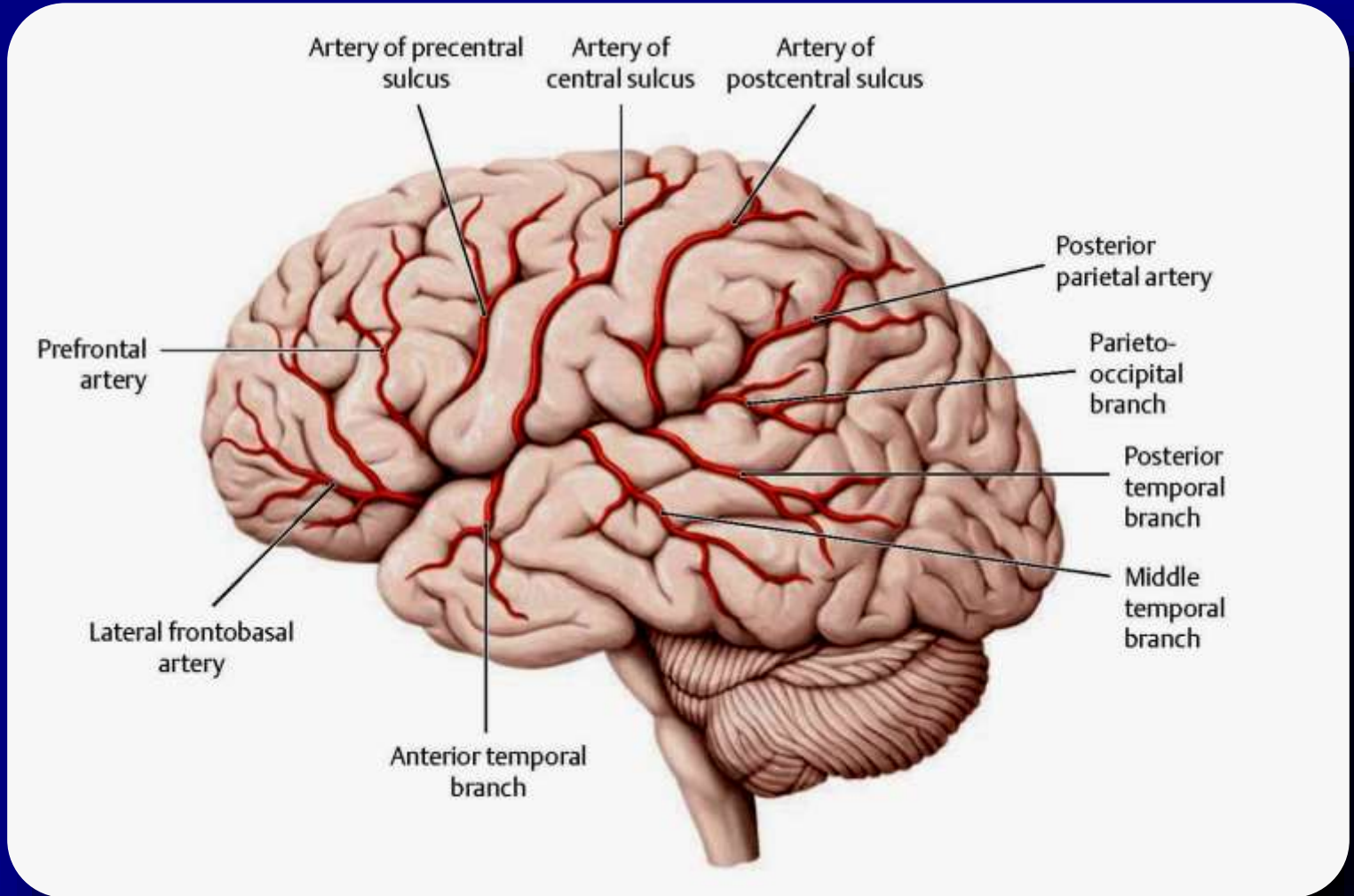
Stenoses and occlusions of arteries supplying the brain



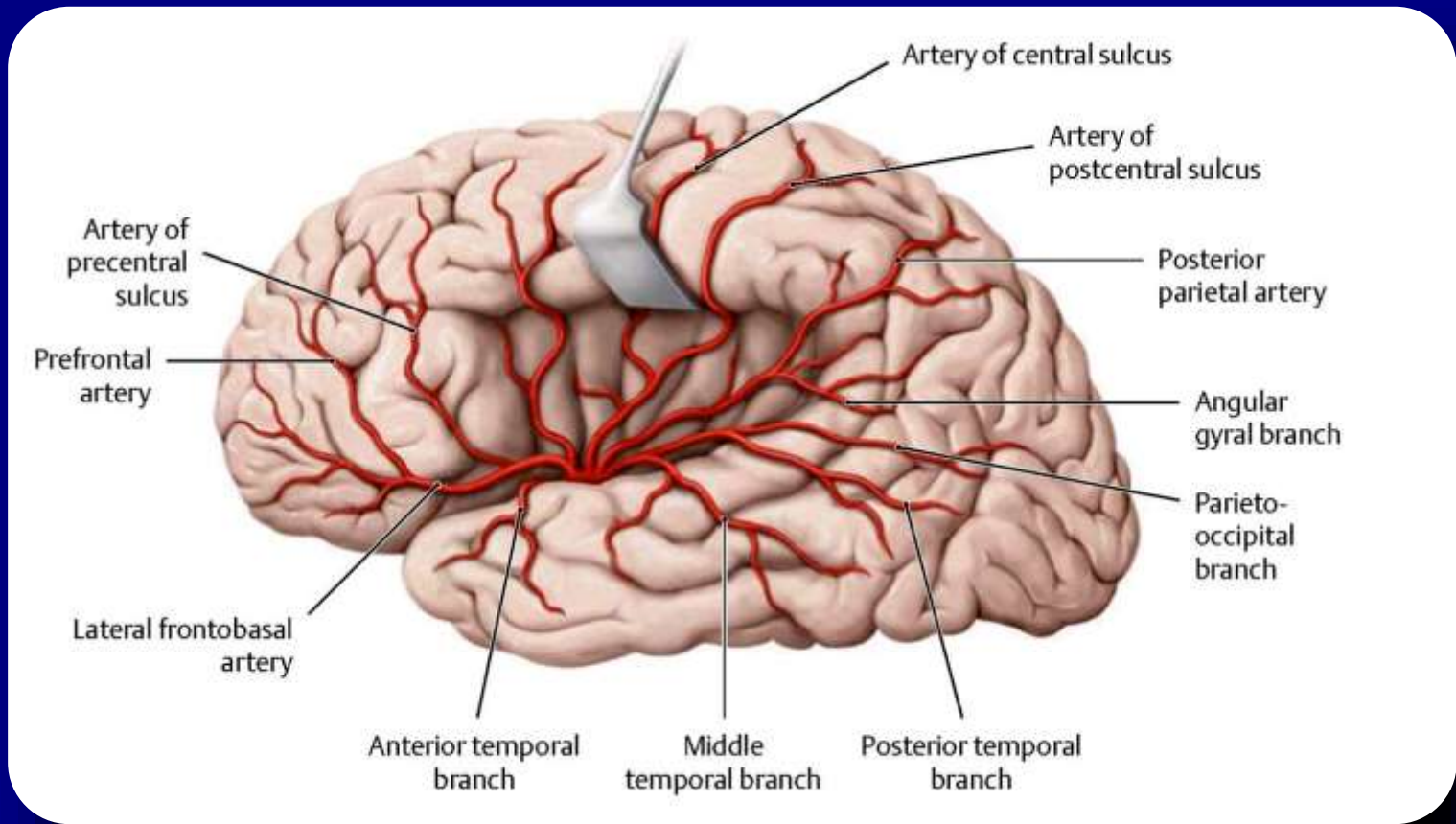
Anatomical basis of subclavian steal syndrome



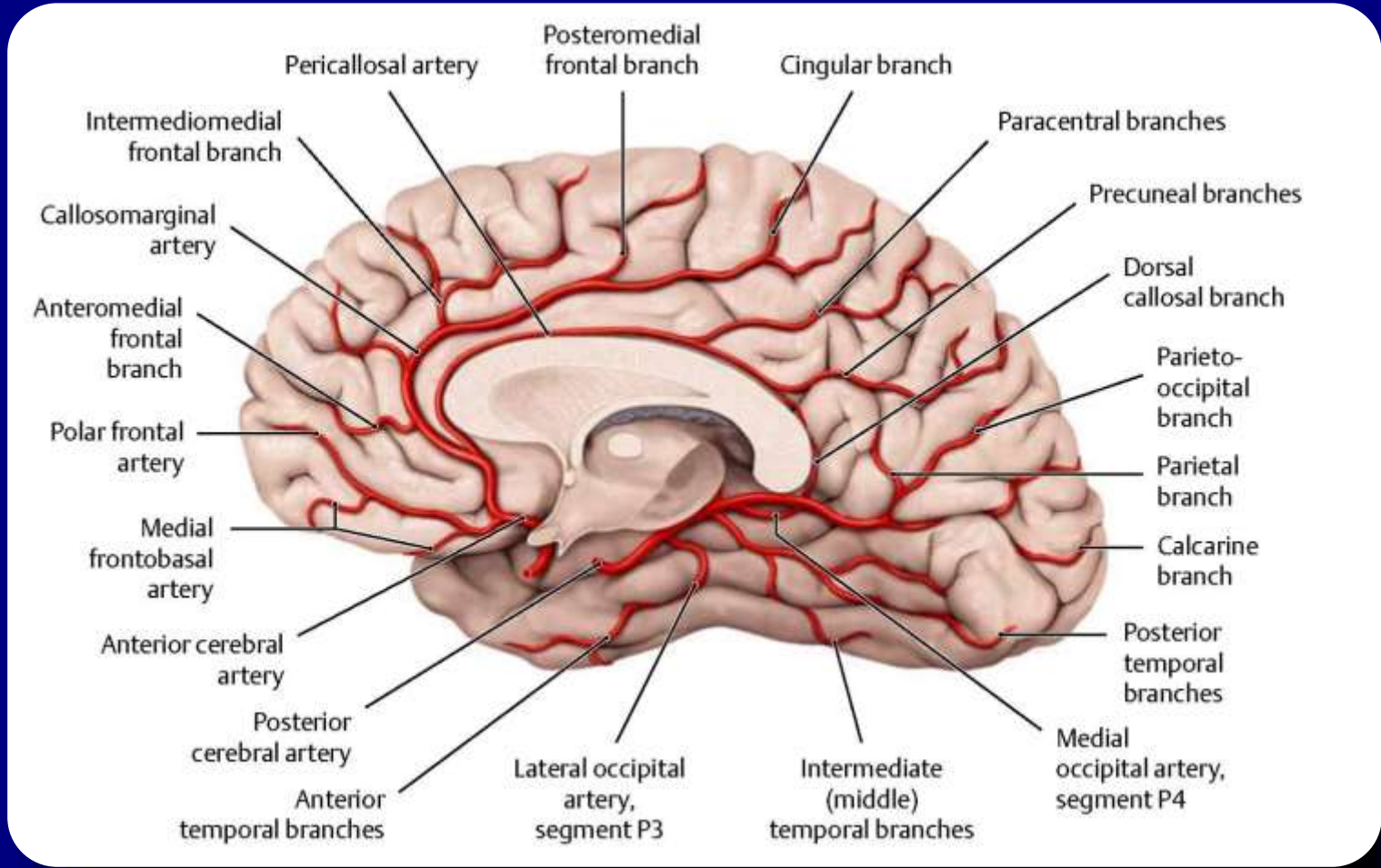
Arteries at the base of the brain



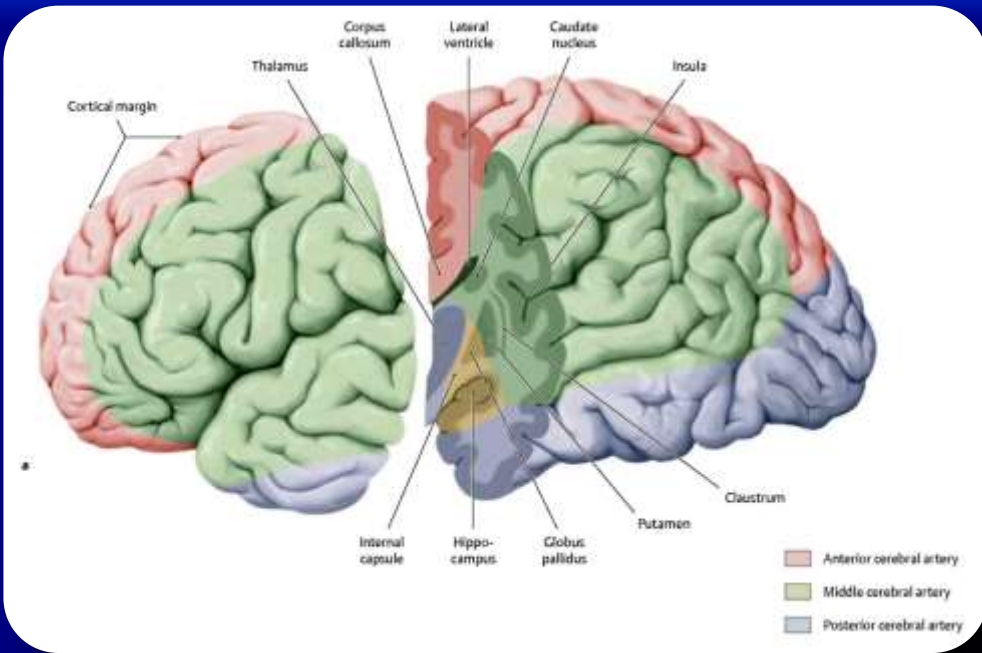
Terminal branches of the middle cerebral artery on the lateral cerebral hemisphere



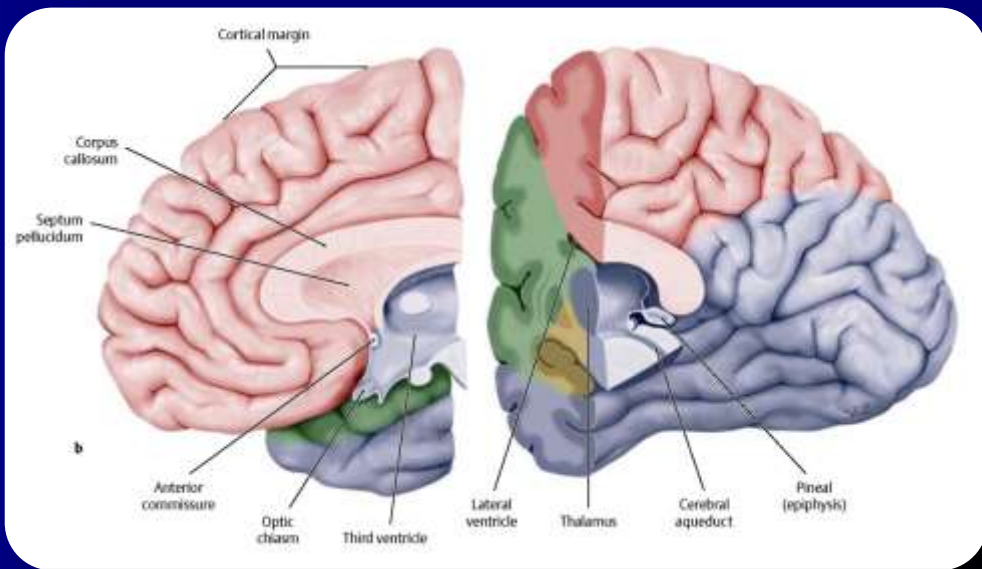
Course of the middle cerebral artery in the interior of the lateral sulcus

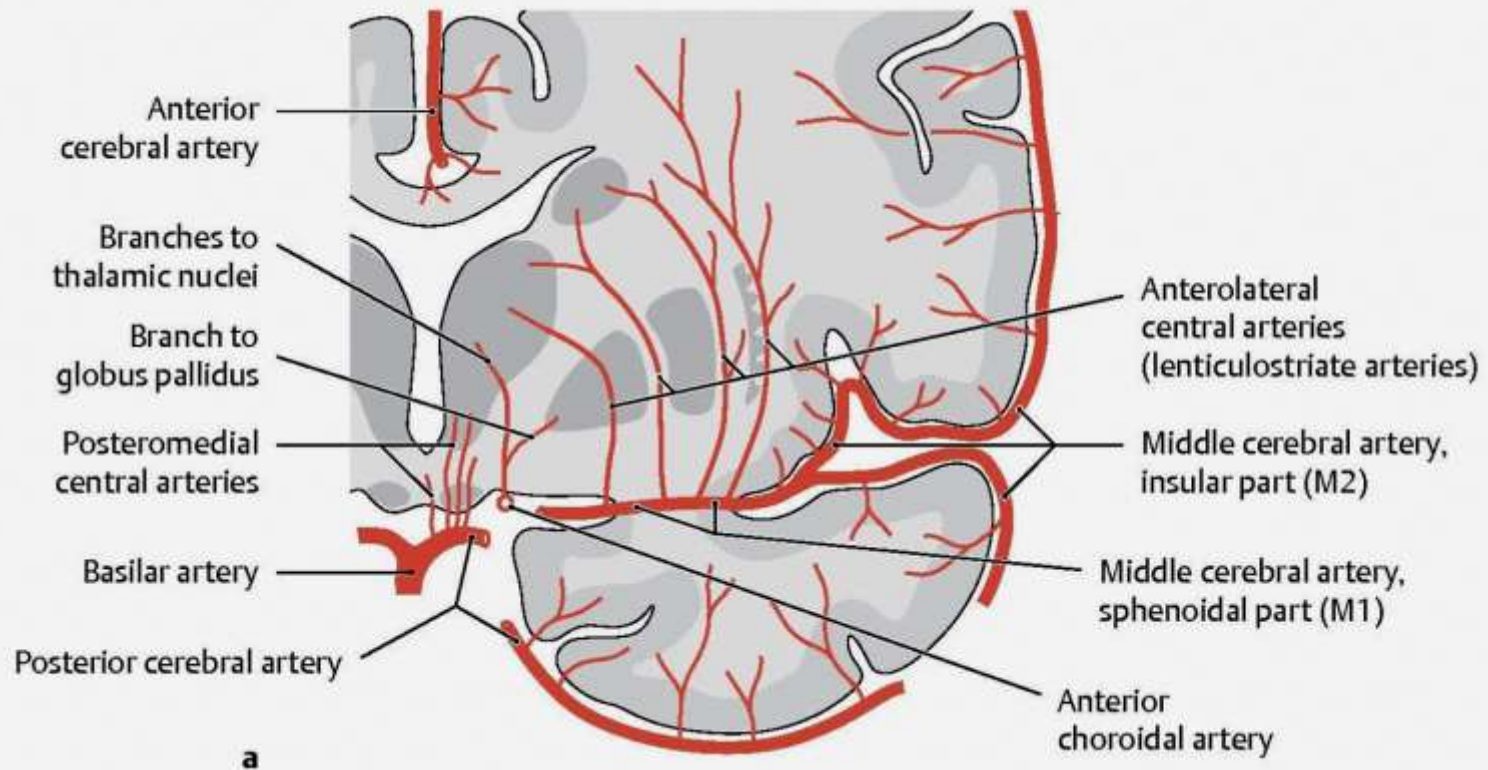


Branches of the anterior and posterior cerebral arteries on the medial surface of the cerebrum

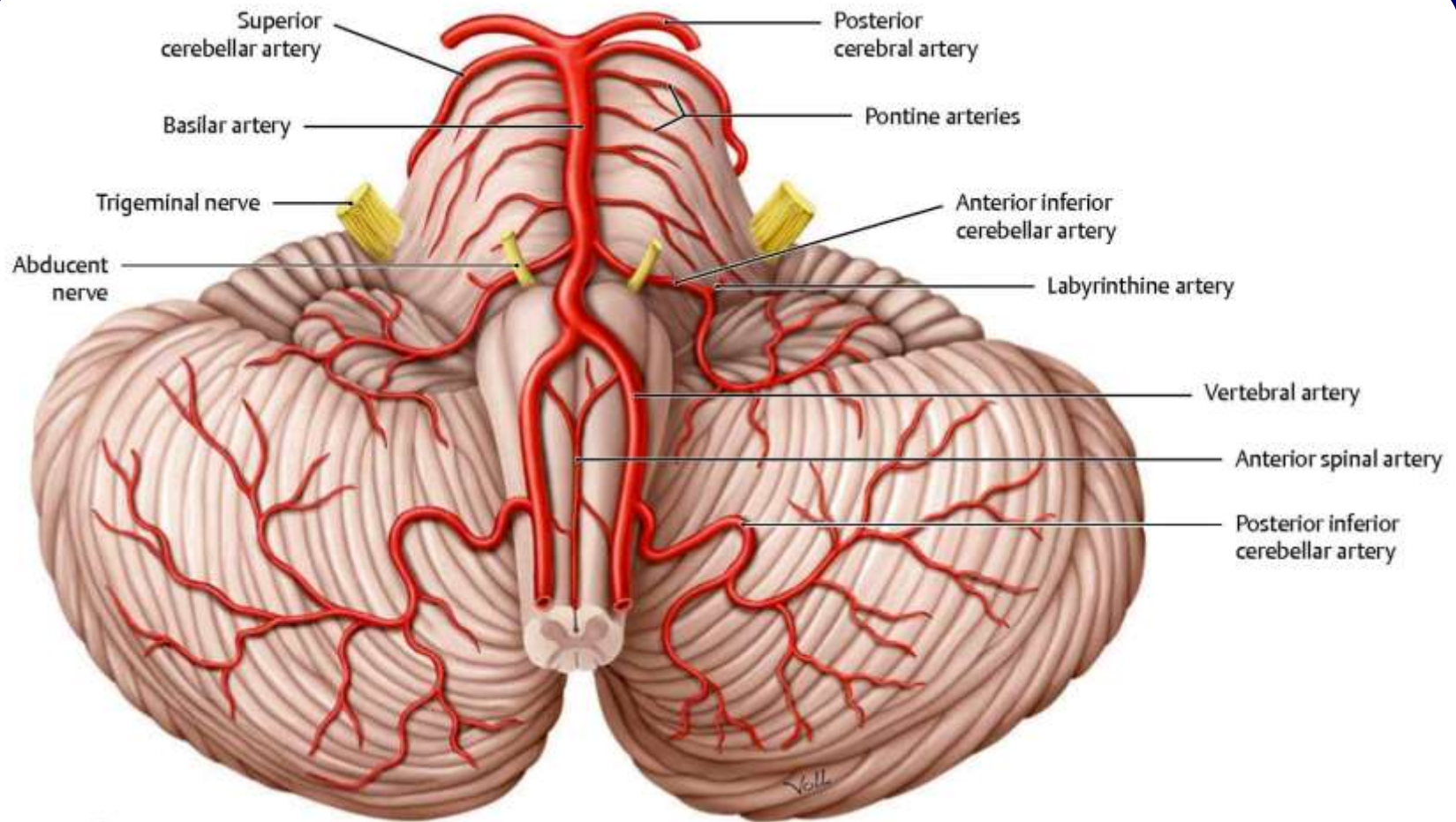


Distribution areas
of the main cerebral arteries

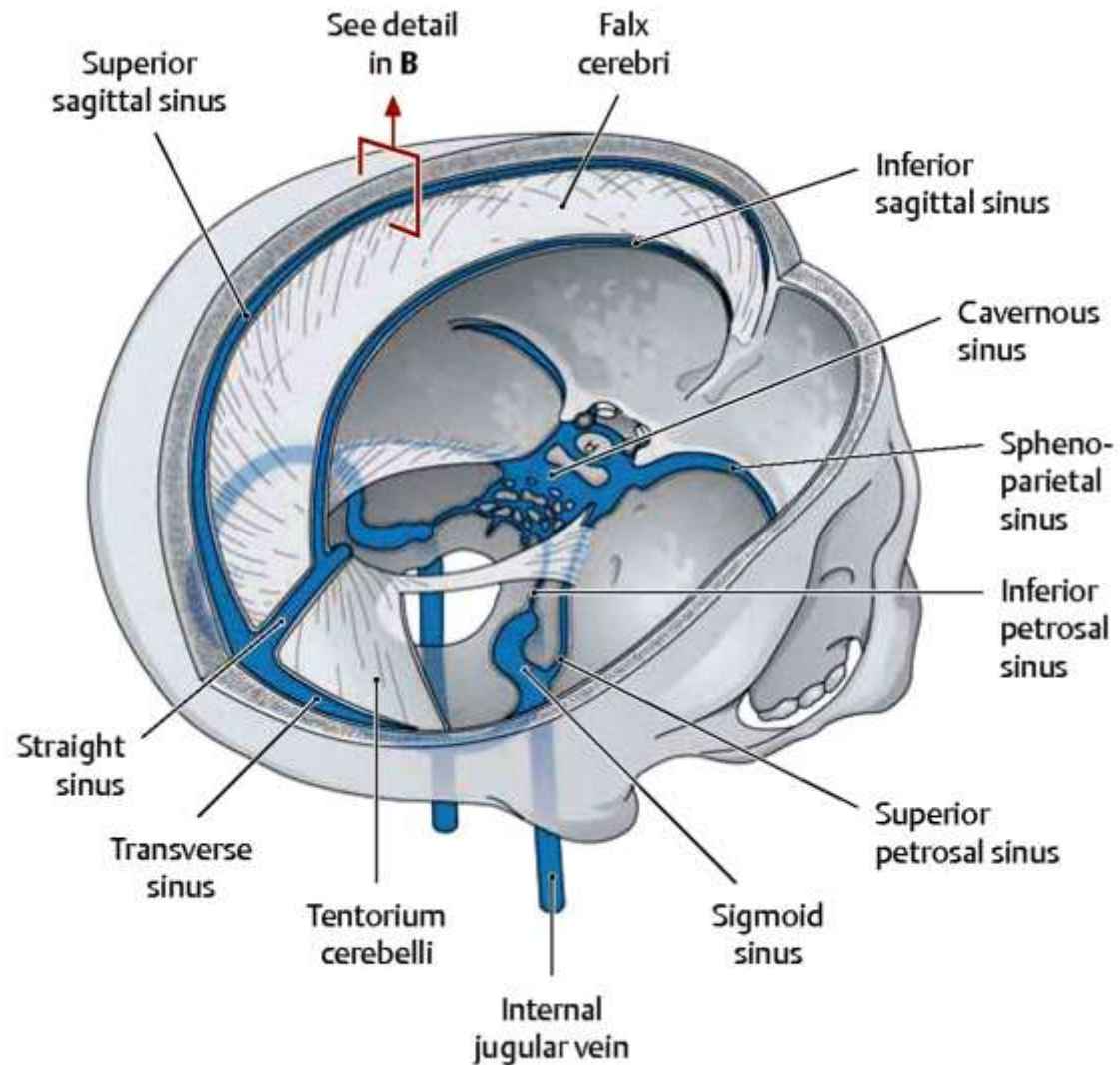




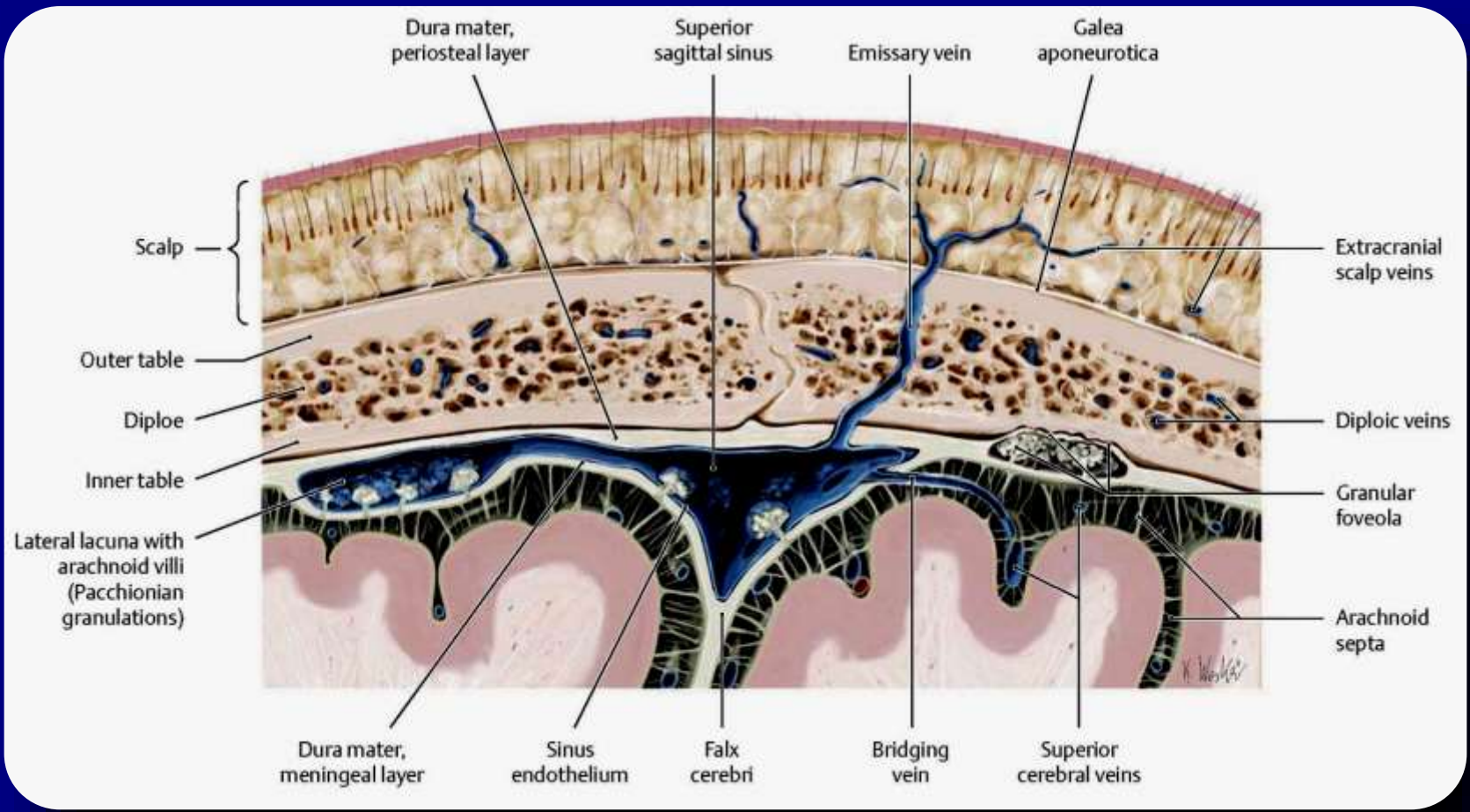
Distribution of the three main cerebral arteries in transverse and coronal sections



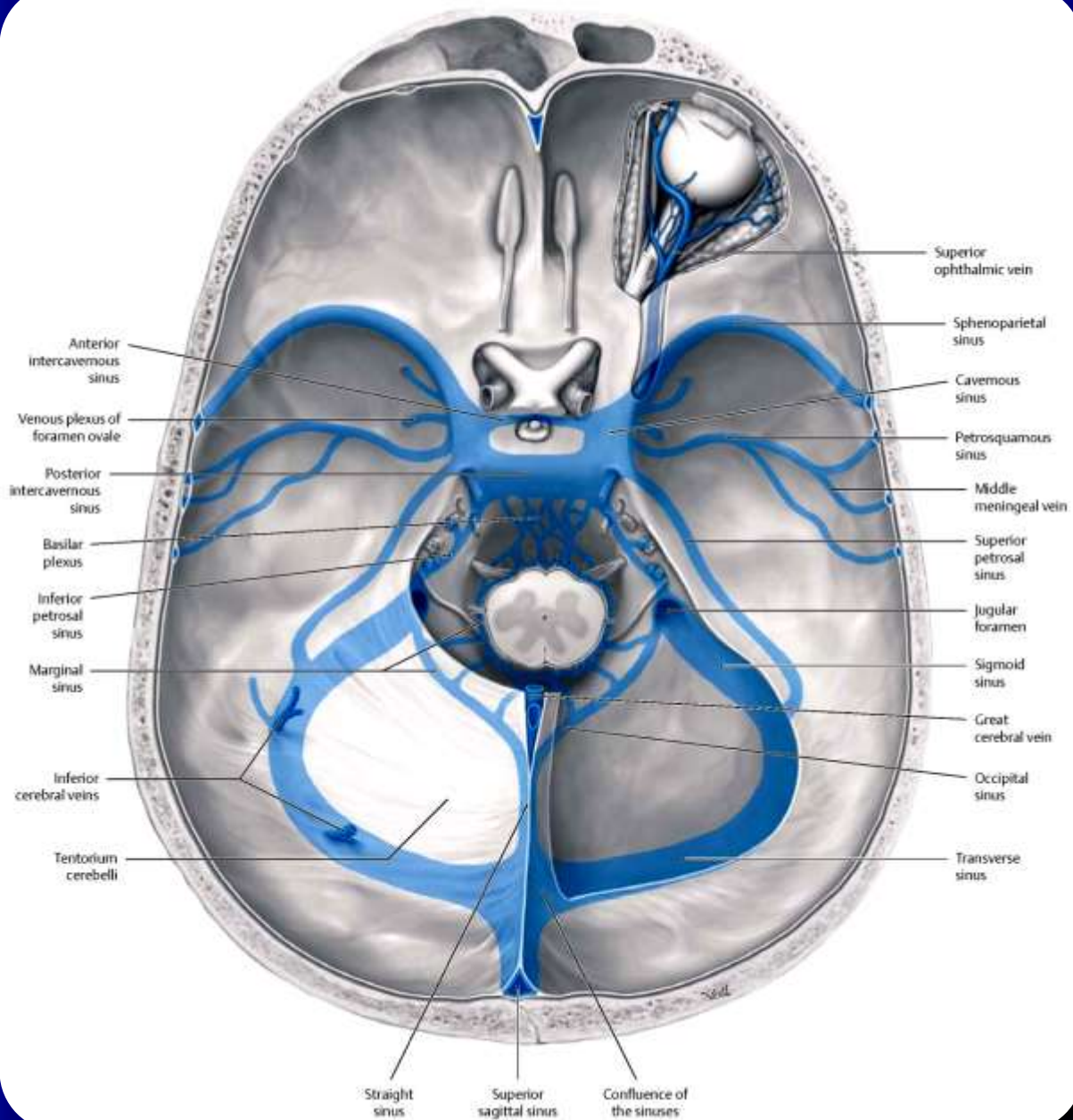
Arteries of the brainstem and cerebellum



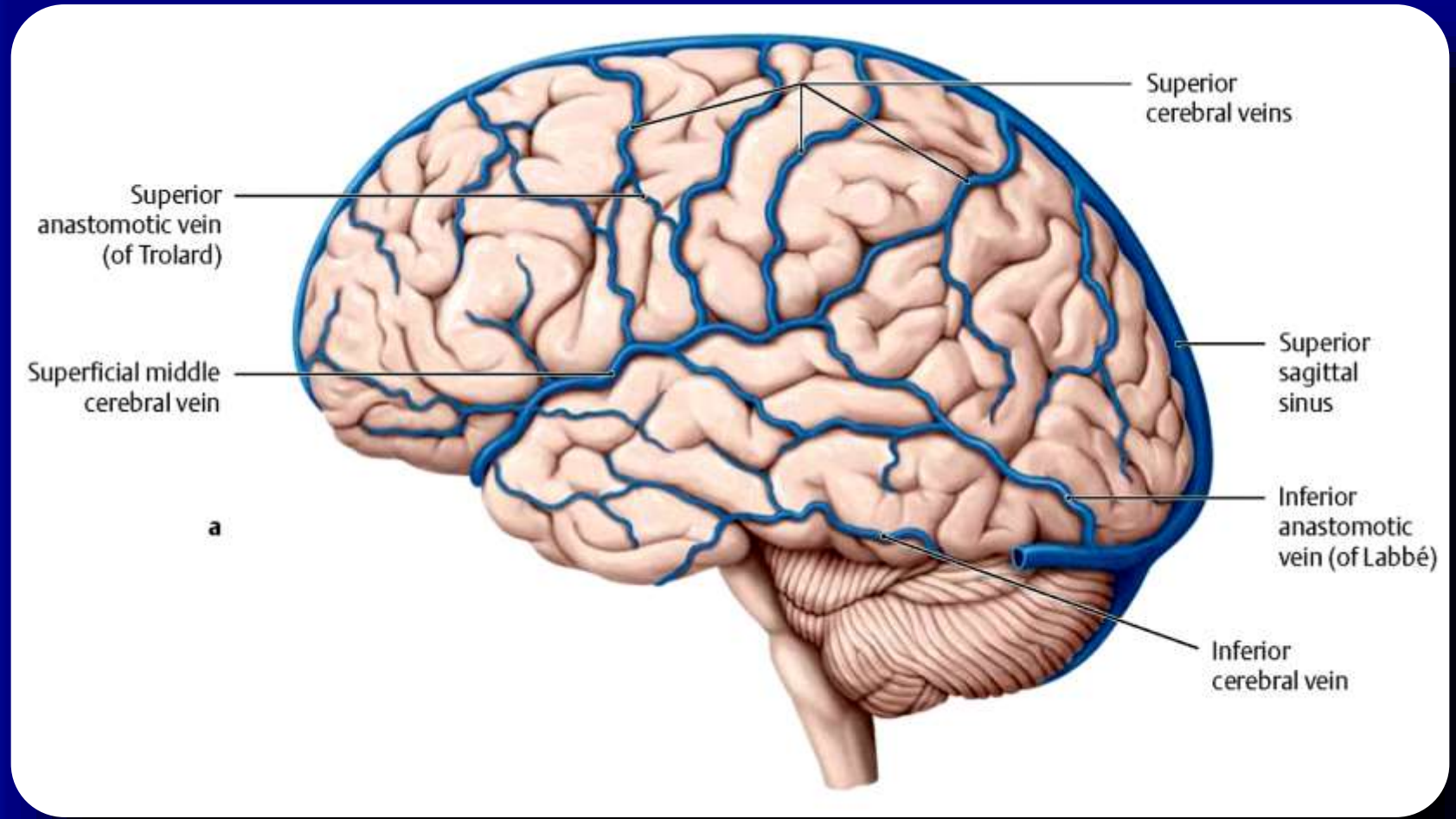
Relationship of the principal dural sinuses to the skull



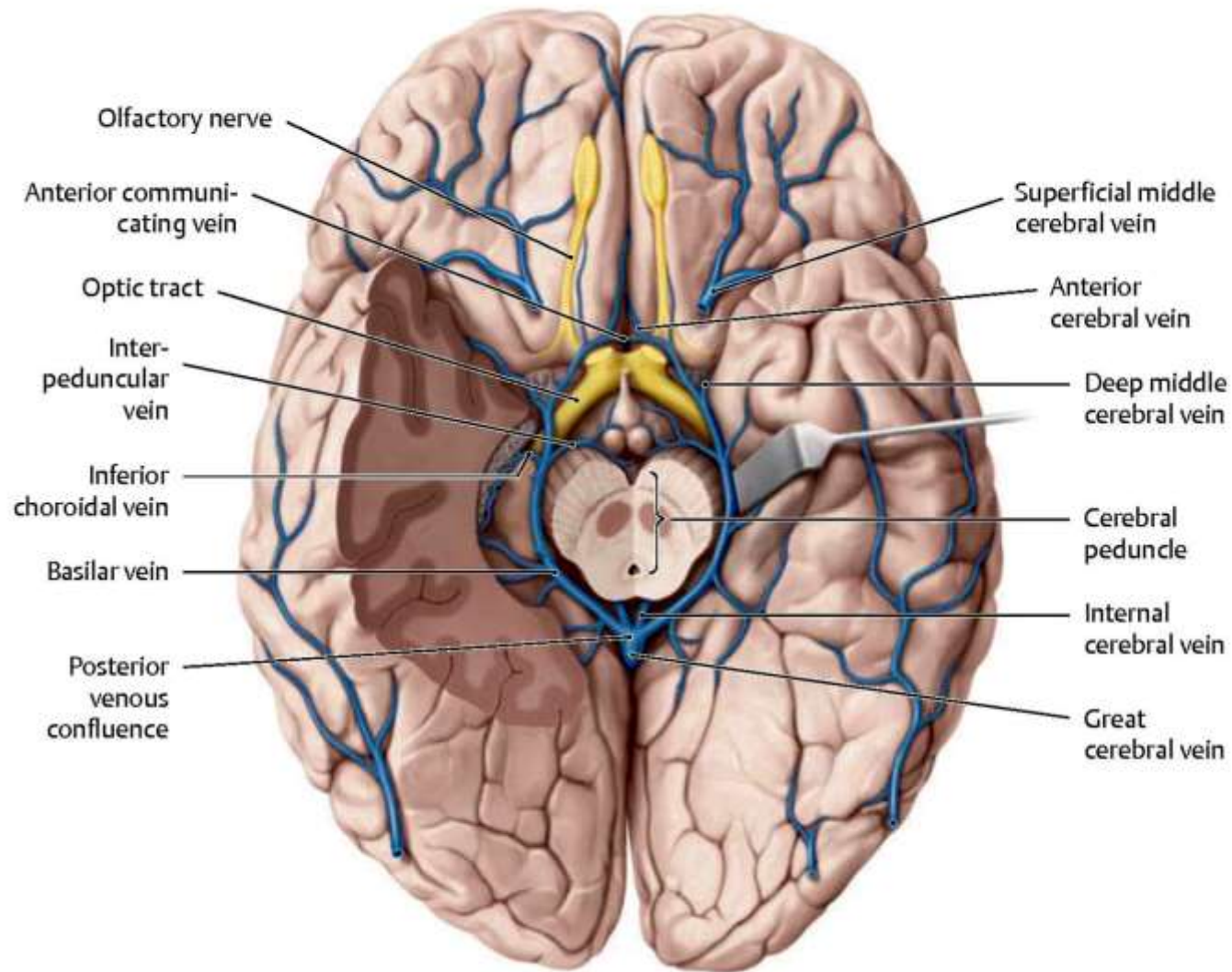
Structure of a dural sinus, shown here for the superior sagittal sinus



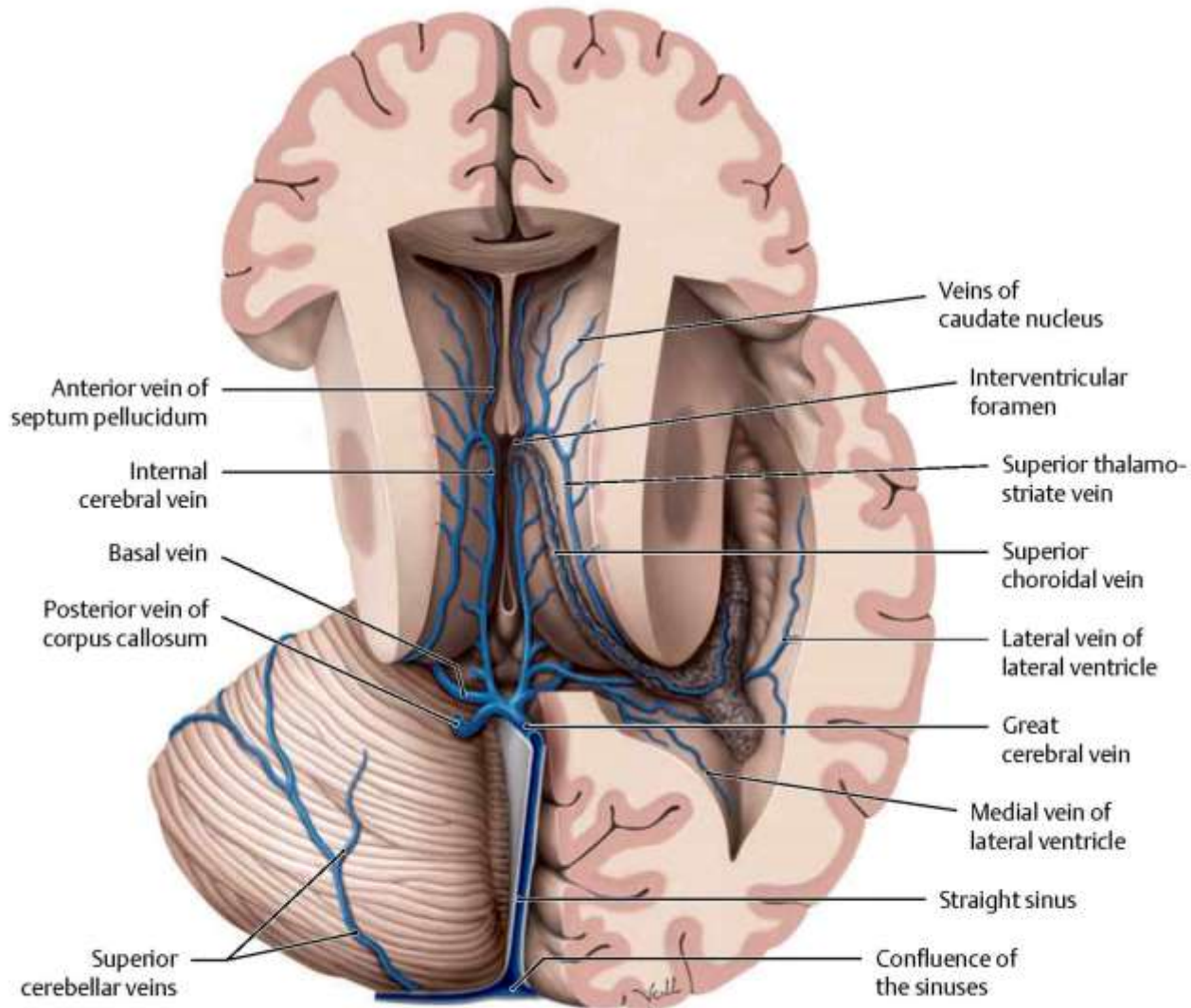
Dural sinuses
at the skull base



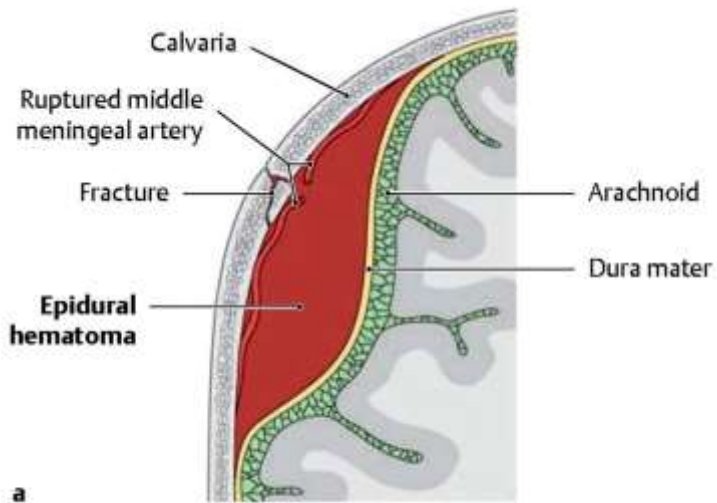
Superficial veins of the brain (superficial cerebral veins)



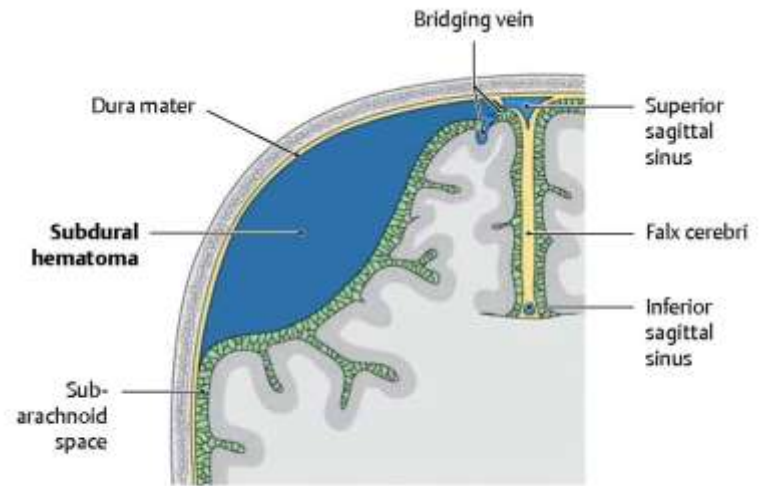
Basal cerebral venous system



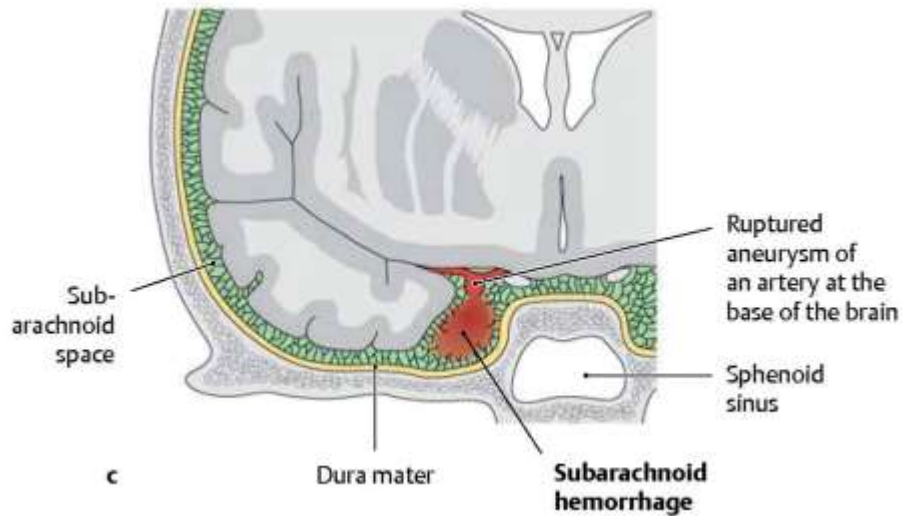
Deep cerebral veins



a

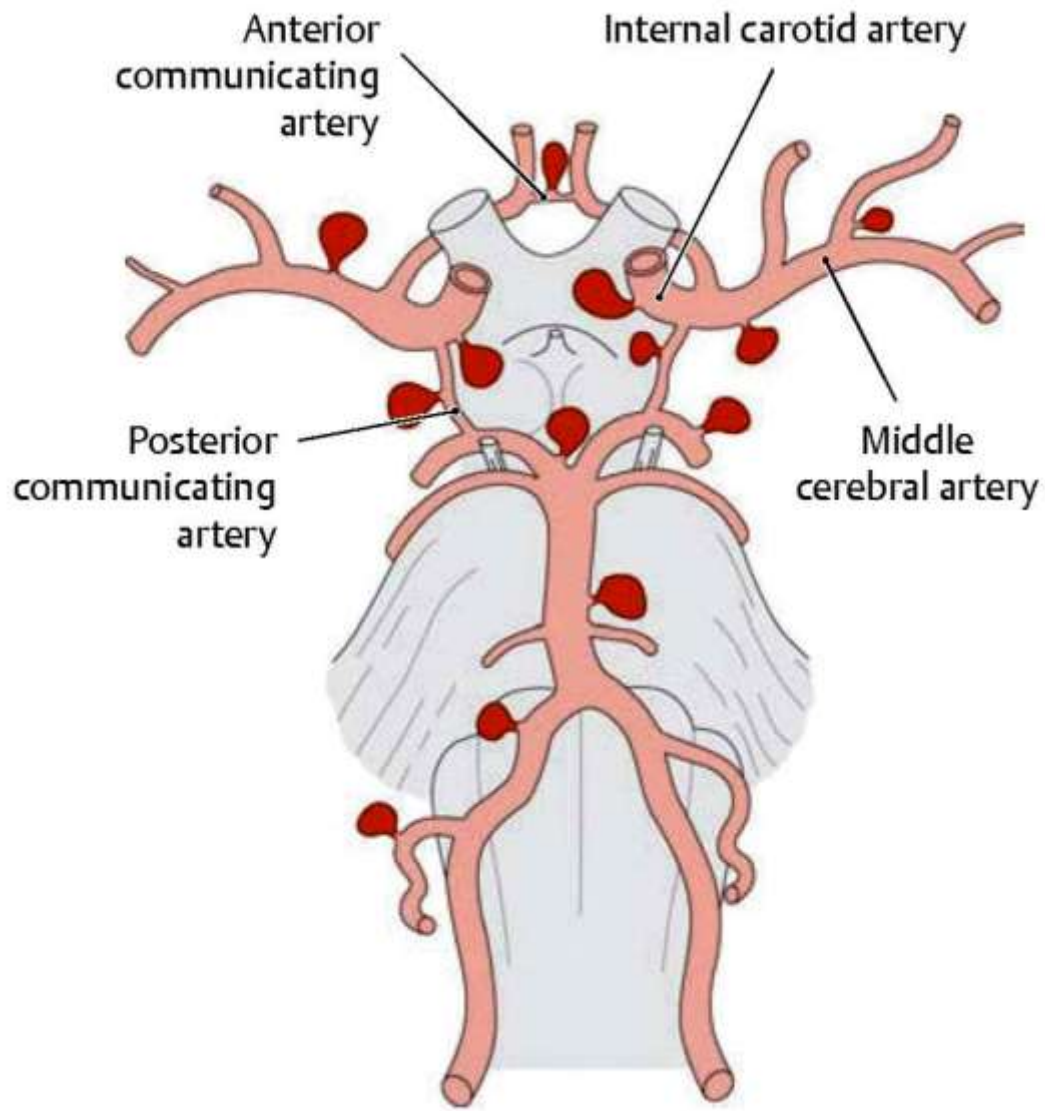


b

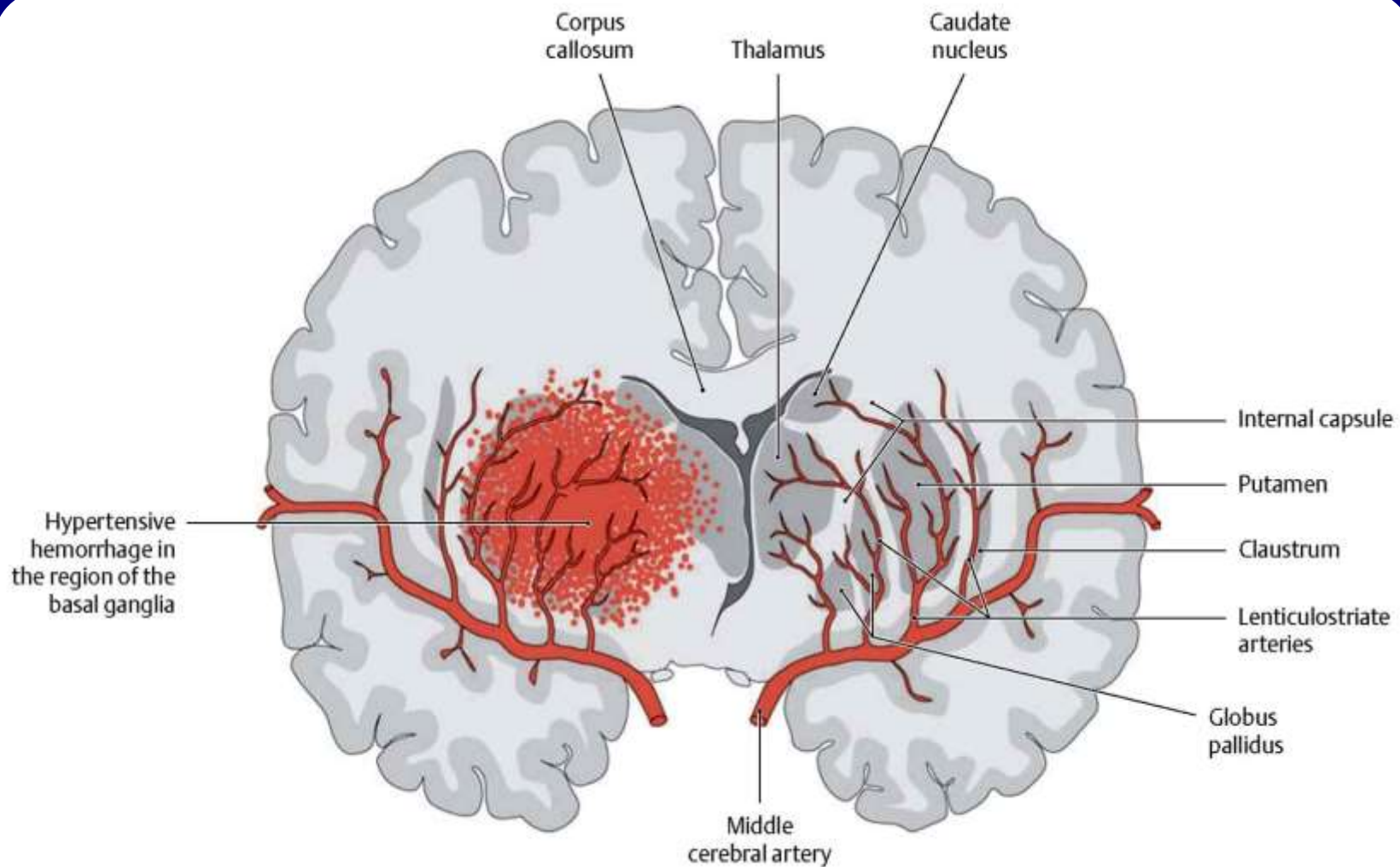


c


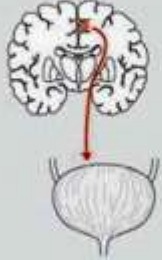

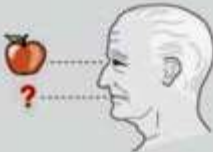


Extracerebral hemorrhages



Sites of berry aneurysms
at the base of the brain



Basal cerebral venous system

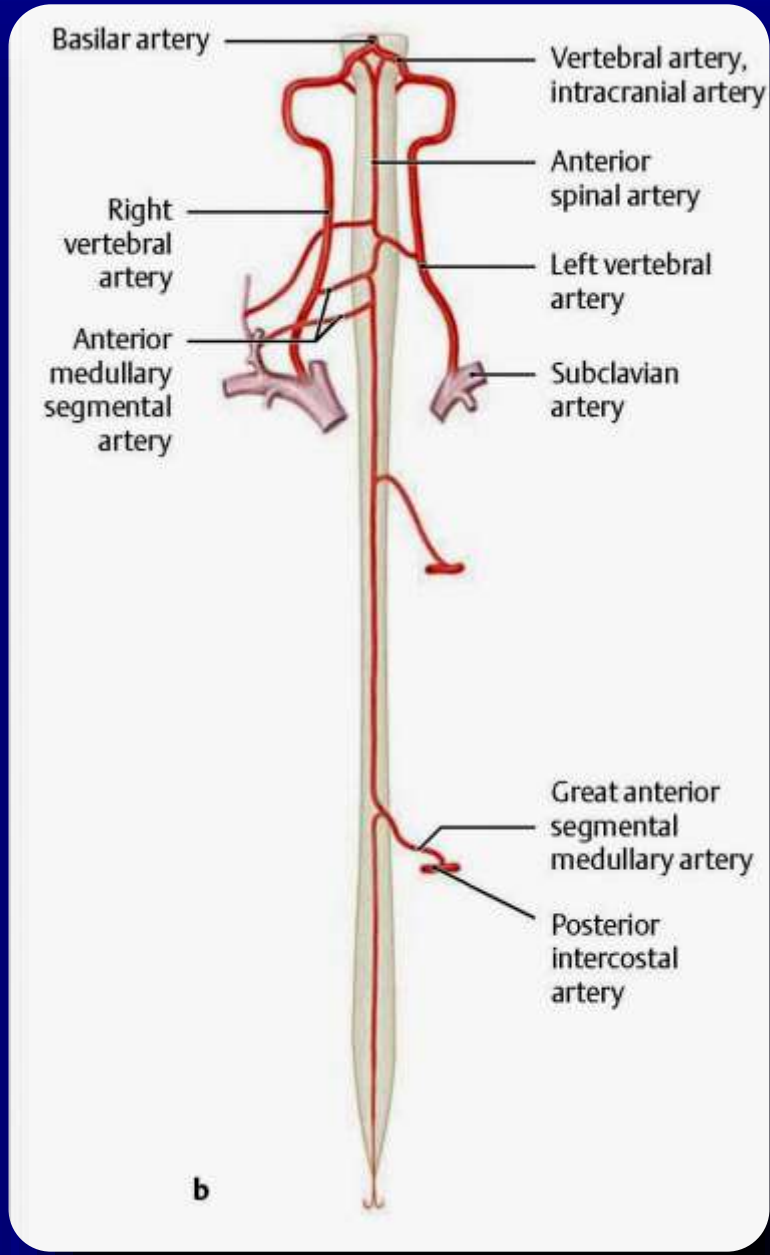
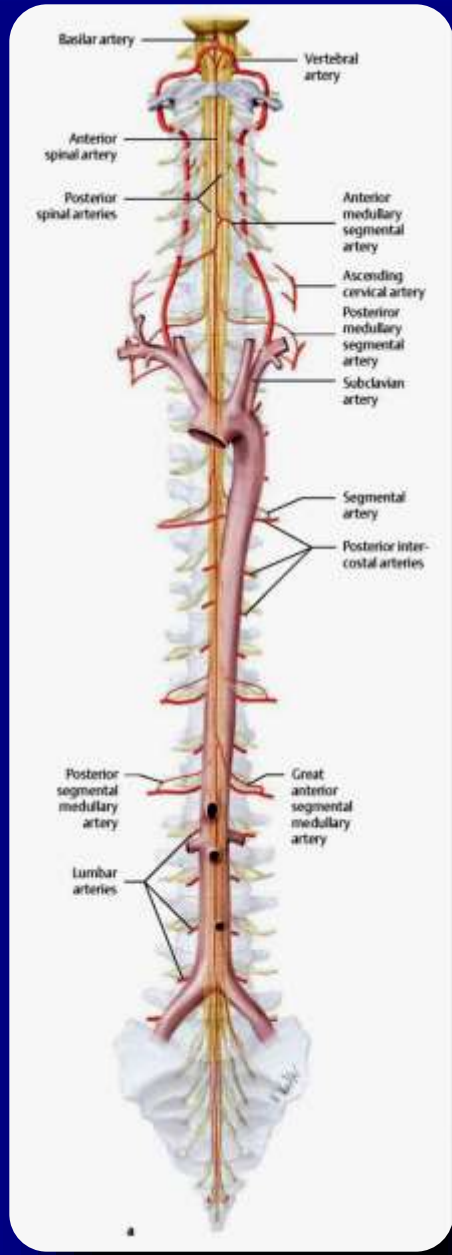
Vascular territory	Neurological symptoms	
Anterior cerebral artery	Hemiparesis (with or without hemisensory deficit) 	Bladder dysfunction 
Middle cerebral artery	Hemiparesis (with or without hemisensory deficit) mainly affecting the arm and face (Wernicke-Mann type) 	Aphasia 
Posterior cerebral artery	Hemisensory losses 	Hemianopia 

Cardinal symptoms of occlusion of the three main cerebral arteries

Segmental arteries perfusing the spinal cord arise from the following sources:

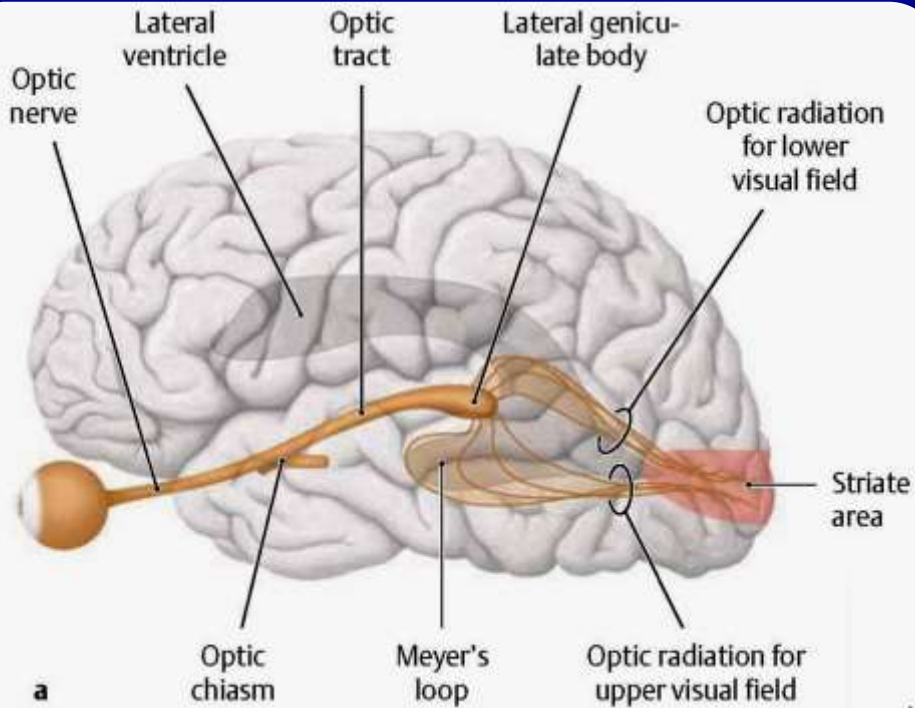
- in the cervical portion from vertebral, inferior thyroid, deep cervical, and ascending cervical arteries
- in the thoracic portion from superior (supreme) intercostal, and posterior intercostal arteries
- in the lumbar portion from the iliolumbar, and lumbar arteries
- in the sacral portion from the lateral sacral arteries

Each medullary artery gives rise to anterior and posterior medullary segmental arteries; these vessels may terminate within the roots or may proceed towards the surface of the spinal cord.

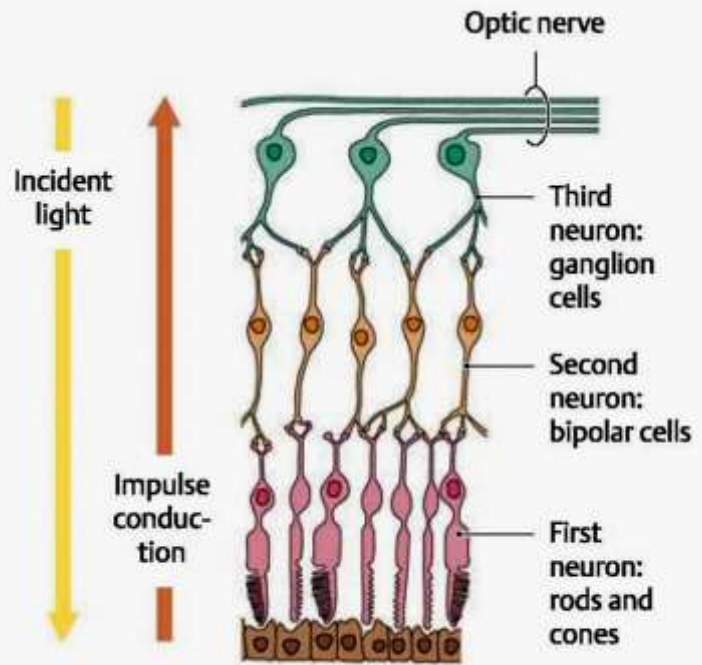


Arterial blood supply to the spinal cord

Visual pathway (overview)

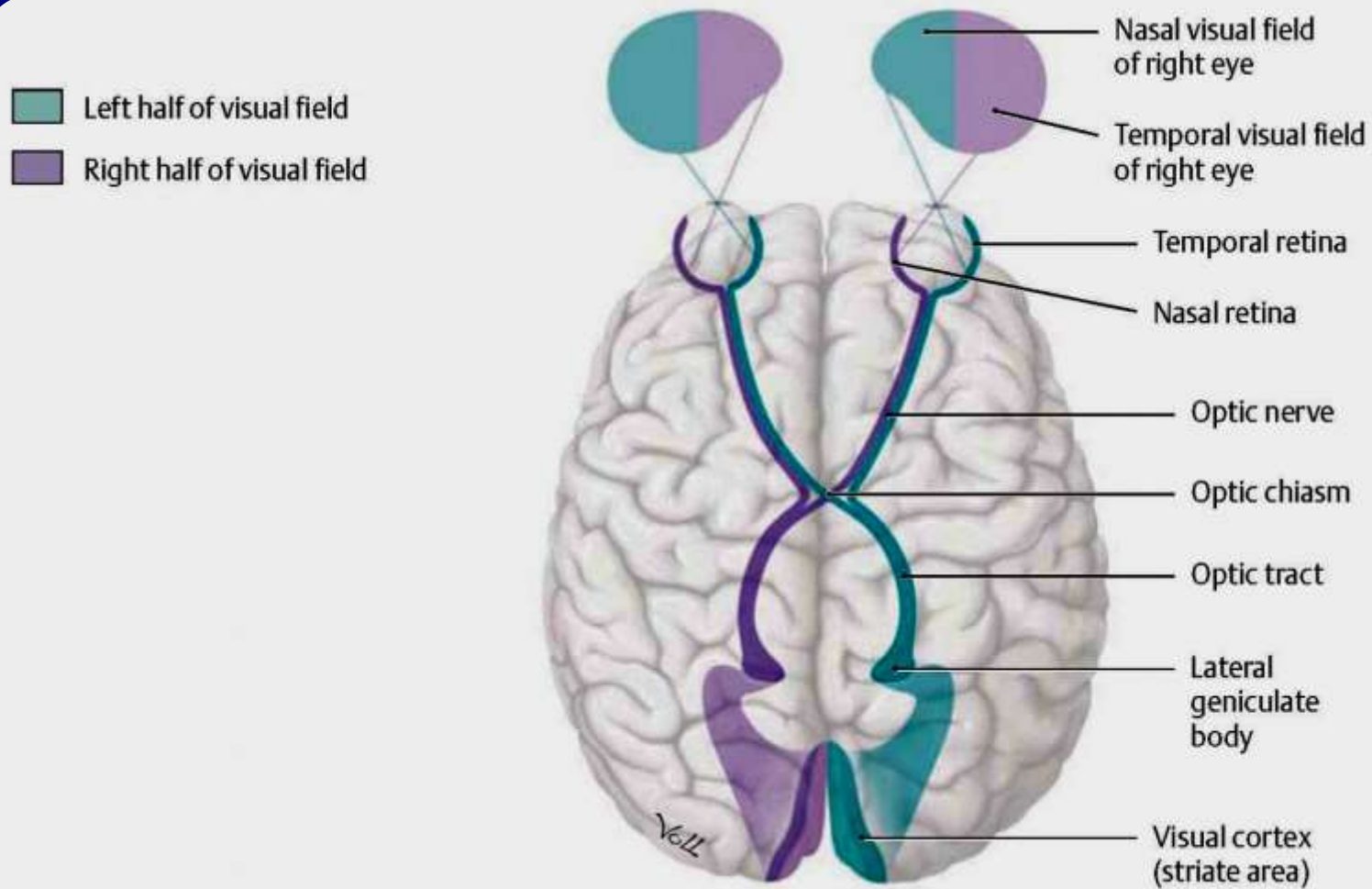


a

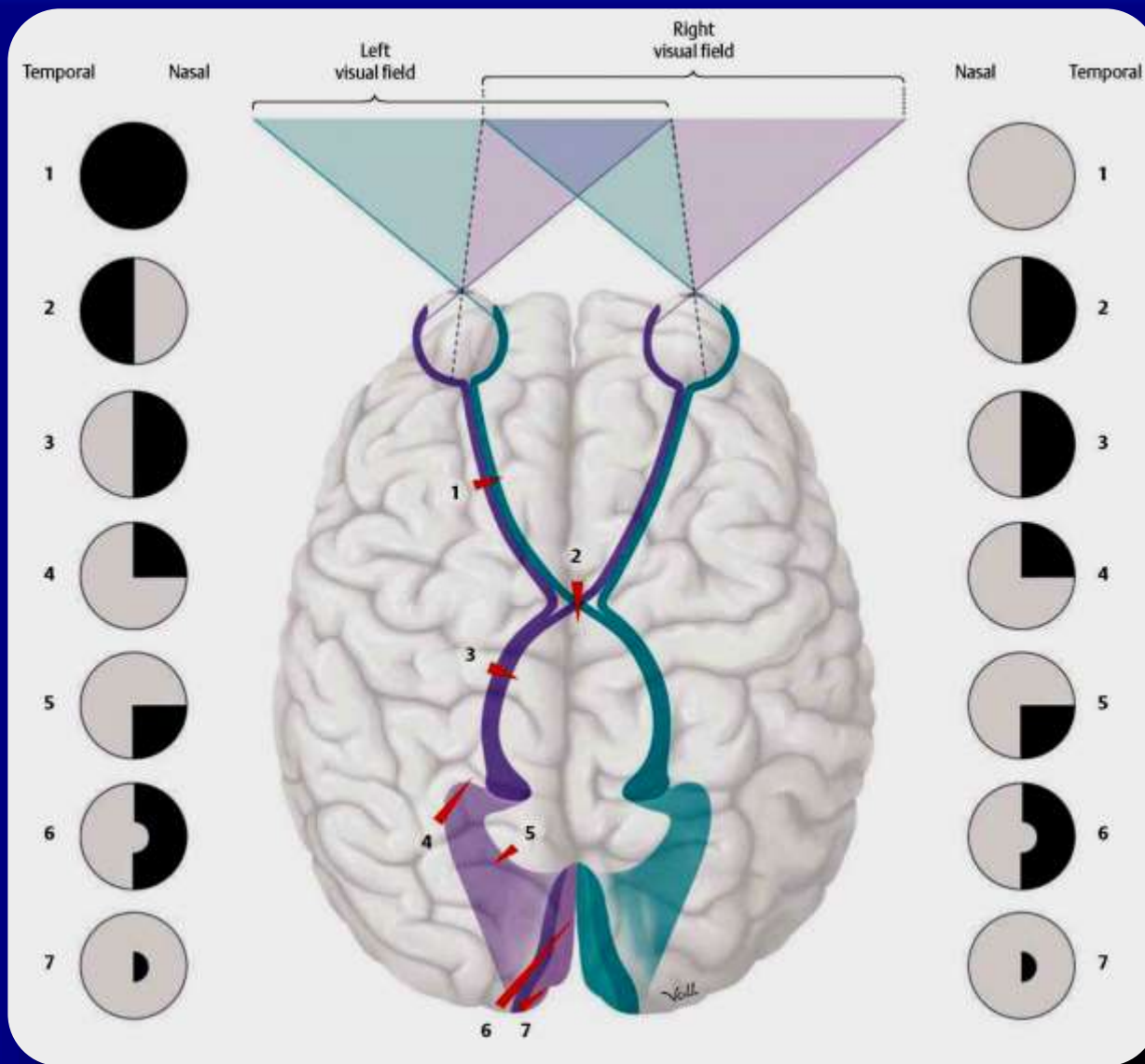


b

Overview of the visual pathway

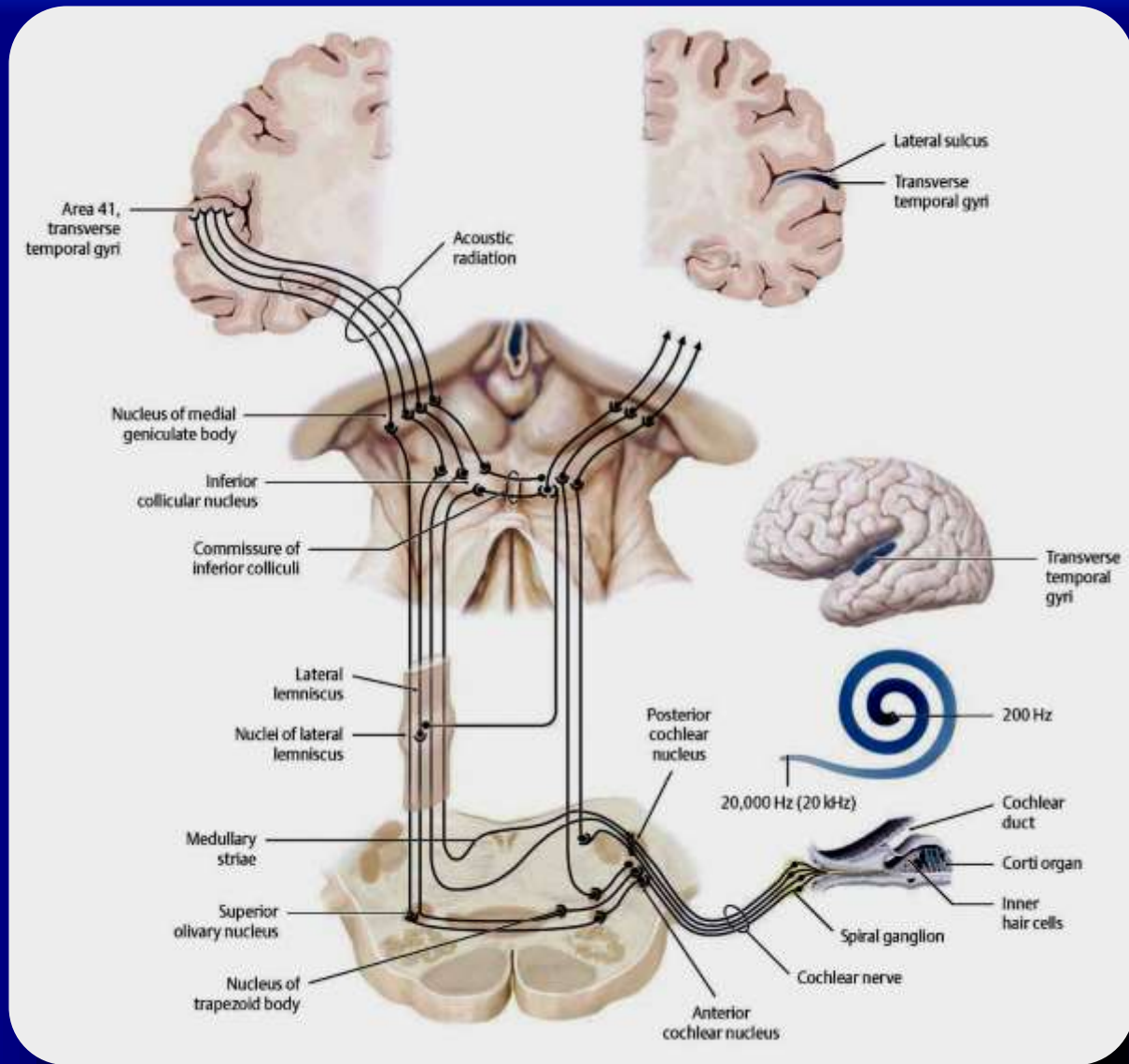


Representation of each visual field in the contralateral visual cortex



Visual field defects (scotomata) and their location along the visual pathway

Auditory pathway (overview)



Afferent auditory pathway of the left ear

Thank you very much



Tatra National Park

Phot. J. Urbaniak