

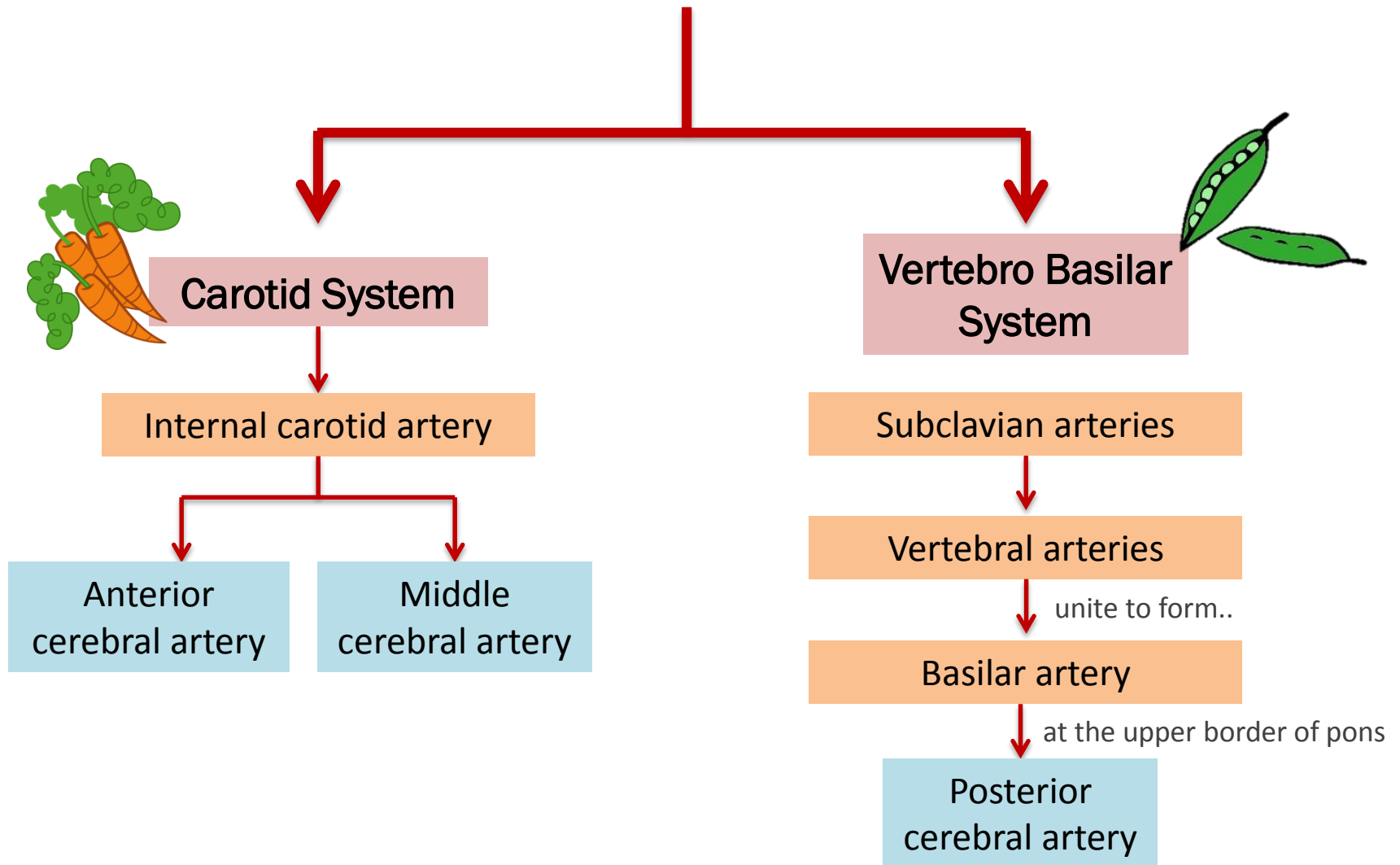


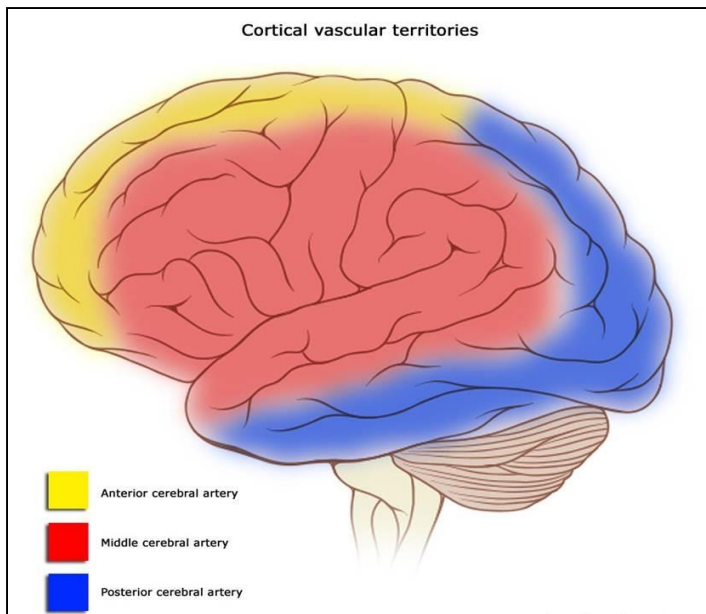
Cerebral Blood Supply

ملاحظة :
هذا الملف للمراجعة وترتيب المعلومات فقط وليس مرجع للمذاكرة لانه ليست كل المعلومات متضمنة

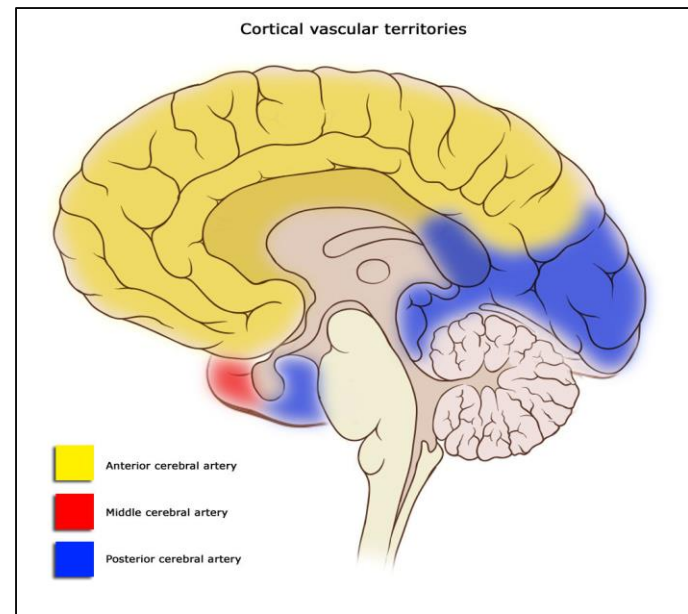
Done by:
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CEREBRAL ARTERIAL SUPPLY





Superolateral surface



medial surface

Anterior cerebral artery	Supplies: orbital and medial surfaces of the frontal and parietal lobes A narrow part on the superolateral surface
Middle cerebral artery	Supplies entire Superolateral surface: <ul style="list-style-type: none"> • Somatosensory Cortex • Motor Cortex • Language areas: <ul style="list-style-type: none"> Broca's Area Wernicke's Area • Auditory areas: <ul style="list-style-type: none"> Primary auditory area Auditory association (Heschl's Gyrus)
Posterior cerebral artery	Supplies: Anterior and inferior parts of temporal lobe, Uncus, Inferior temporal gyrus, Inferior and Medial parts of Occipital lobe (visual areas)



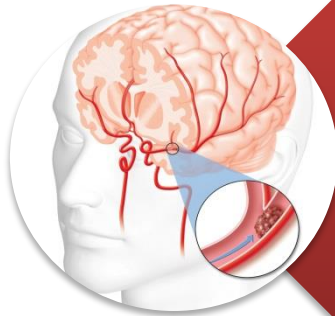
Willis

Circulus Arteriosus (of Willis)

(circle of Willis)

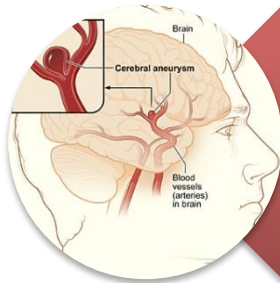
location	On the base of the brain
encircles	<ul style="list-style-type: none"> • Optic Chiasma • Hypothalamus • Pituitary gland • Midbrain
Composed of	2 Anterior cerebral arteries 2 Internal carotid arteries 2 Posterior cerebral arteries 2 Posterior communicating arteries 1 Anterior communicating artery
Branches	Perforating arteries (Anterior& Posterior): Numerous small vessels that penetrate the surface of the brain through the anterior and posterior perforating substances. <ul style="list-style-type: none"> ○ <u>Anterior perforating artery (APA) supplies:</u> <ul style="list-style-type: none"> • Large part of Basal Ganglia • Optic chiasma • Internal capsule & Hypothalamus ○ <u>Posterior perforating artery (PPA) supplies:</u> <ul style="list-style-type: none"> • Ventral portion of Midbrain • parts of Subthalamus and Hypothalamus

Arterial disorders

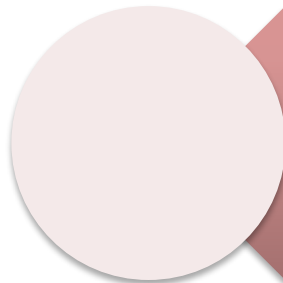


Stroke

- Sudden occlusion of the blood supply
- It can be: hemorrhagic or ischemic



Aneurysm

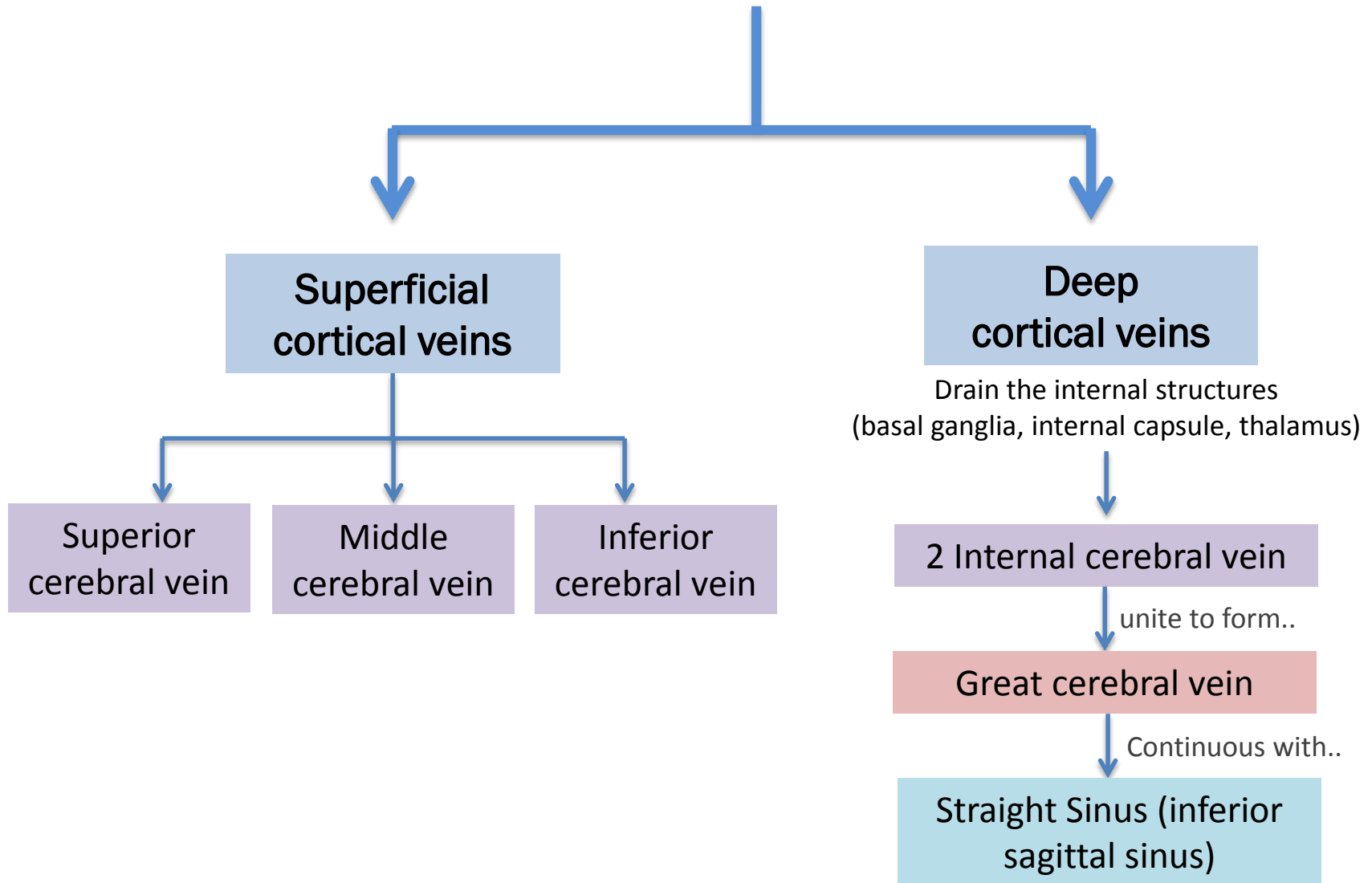


Angioma

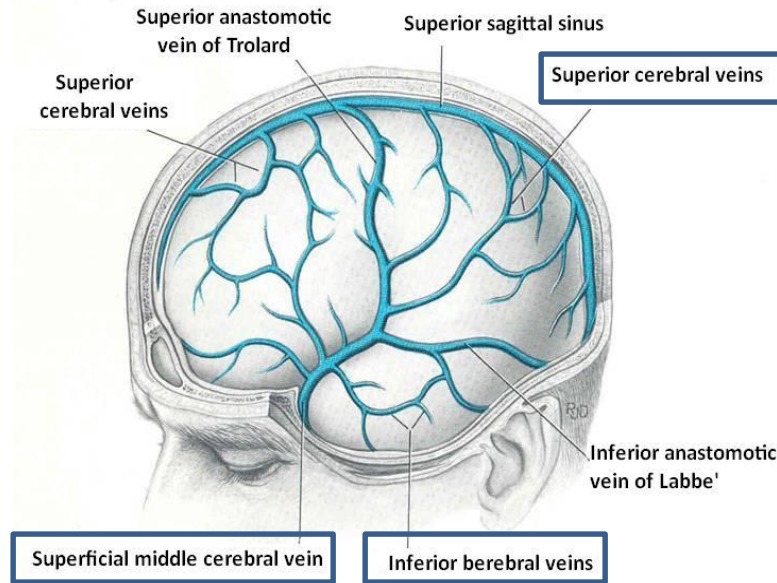
Effects of occlusion of cerebral arteries

<p>Anterior cerebral artery</p>	<ol style="list-style-type: none"> 1. Motor & sensory disturbances in the contralateral distal leg 2. Difficulty in the Prefrontal lobe functions: <ul style="list-style-type: none"> • Cognitive thinking • Judgment • Motor initiation • Self monitoring
<p>Middle cerebral artery</p>	<ol style="list-style-type: none"> 1. Contralateral weakness of: Face, Arm & Hand (more than leg) 2. Contralateral sensory loss of: Face, Arm & Hand (more than leg) 3. Visual field cut (damage to optic radiation) 4. Aphasia (language disturbances) Broca's: production Wernicke's: comprehension
<p>Posterior cerebral artery</p>	<ol style="list-style-type: none"> 1. Visual disturbances <ul style="list-style-type: none"> • Contralateral homonymous hemianopsia • In Bilateral lesions: Cortical Blindness patients unaware they cannot see (Anton's syndrome) 2. Memory impairment If the temporal lobe is affected

CEREBRAL VENOUS DRAINAGE

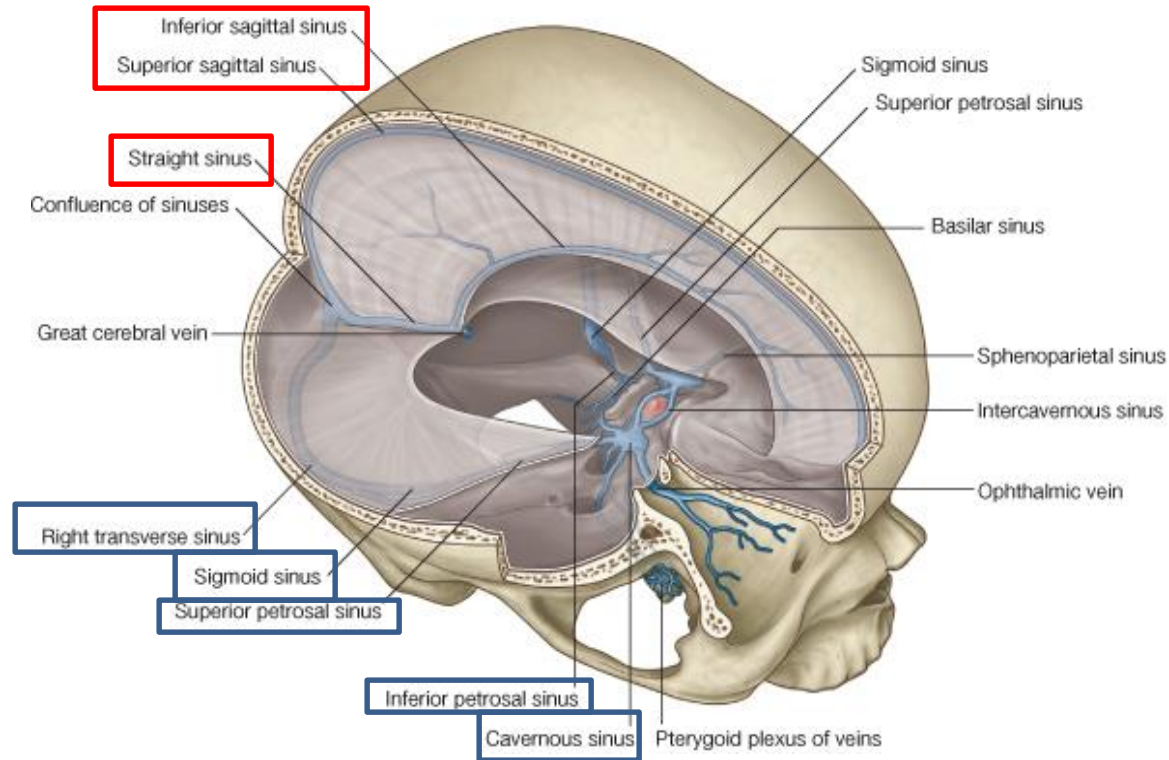


Superficial cortical veins



<p>Superior cerebral vein (6-12)</p>	<ul style="list-style-type: none"> • Drain lateral surface of brain above the lateral sulcus • <u>Terminate</u> mainly into the Superior Sagittal sinus, and partly into Superficial middle cerebral vein.
<p>Inferior cerebral vein</p>	<ul style="list-style-type: none"> • Run below the lateral sulcus • Drain the lateral surface of the temporal lobe • <u>Terminate</u> partly into superficial middle cerebral vein & partly into Transverse sinus.
<p>Middle cerebral vein</p>	<ul style="list-style-type: none"> • Runs along the lateral sulcus • <u>Terminates</u> into the Cavernous sinus • It is connected posteriorly through Superior & Inferior anastomotic veins to Superior Sagittal & Transverse sinuses.

Dural Venous Sinuses



Paired

- Transverse.
- Sigmoid.
- Cavernous.
- Petrosal.

Blood flows from
transverse & sigmoid
sinuses into **Inferior**
jugular vein (IJV)

Single

- Superior sagittal.
- Inferior sagittal.
- Straight.
- Occipital.

Venous Disorders

Infarction

NB: Obstruction of venous drainage of the brain leads to **Cerebral edema** and raised **intracranial pressure (ICP)**

Sinus thrombosis

Superior Sagittal Sinus (SSS) thrombosis

can complicate ear infection

Cavernous Sinus thrombosis

(as a complication of infection in the **dangerous area**)