
Sylvian Fissure

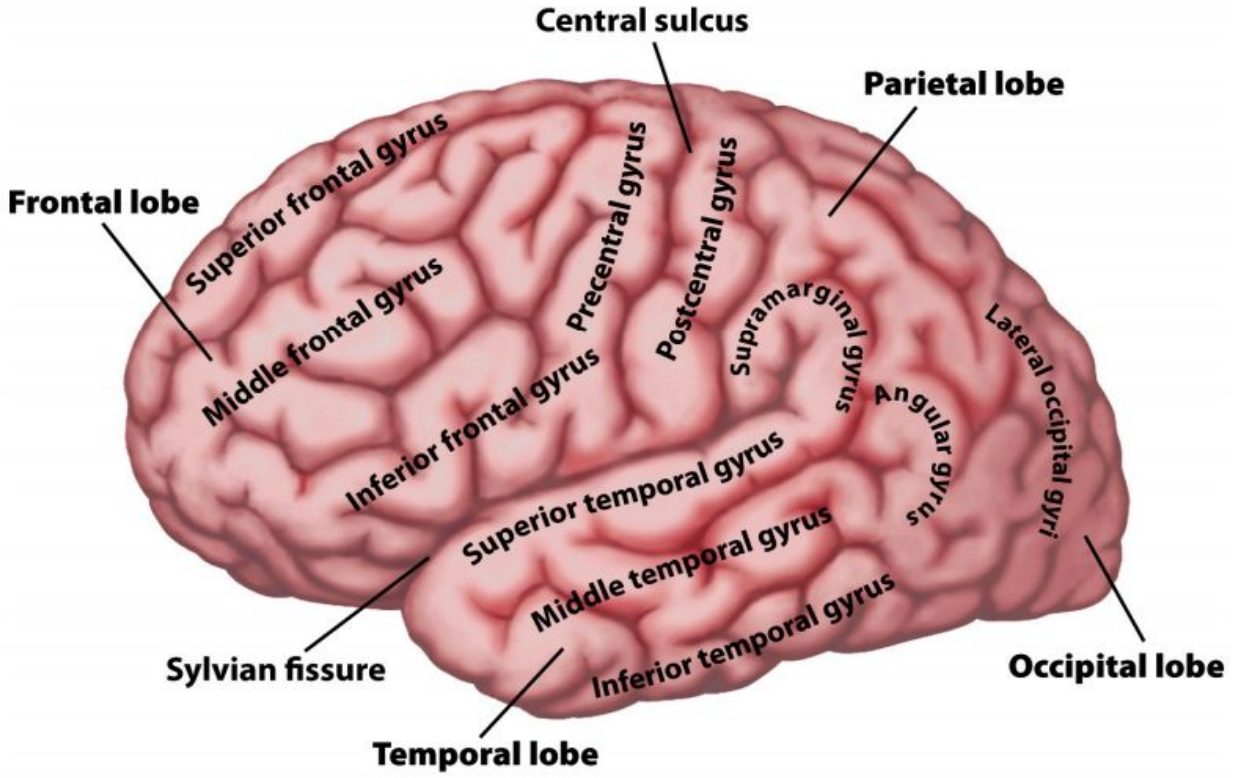
Sylviun fissure, to whom we owe, in this part, everything that the brain has the most, or the most wonderful of"

Definition

- The **sylvian fissure** ,is the most distinct & consistent landmark on the lateral surface, that carries the MCA & its branches &provides a surgical gateway connecting the cerebral surface to the anterior part of the basal surface & cranial base.

Parts

- Superficial
- Deep



Superficial part

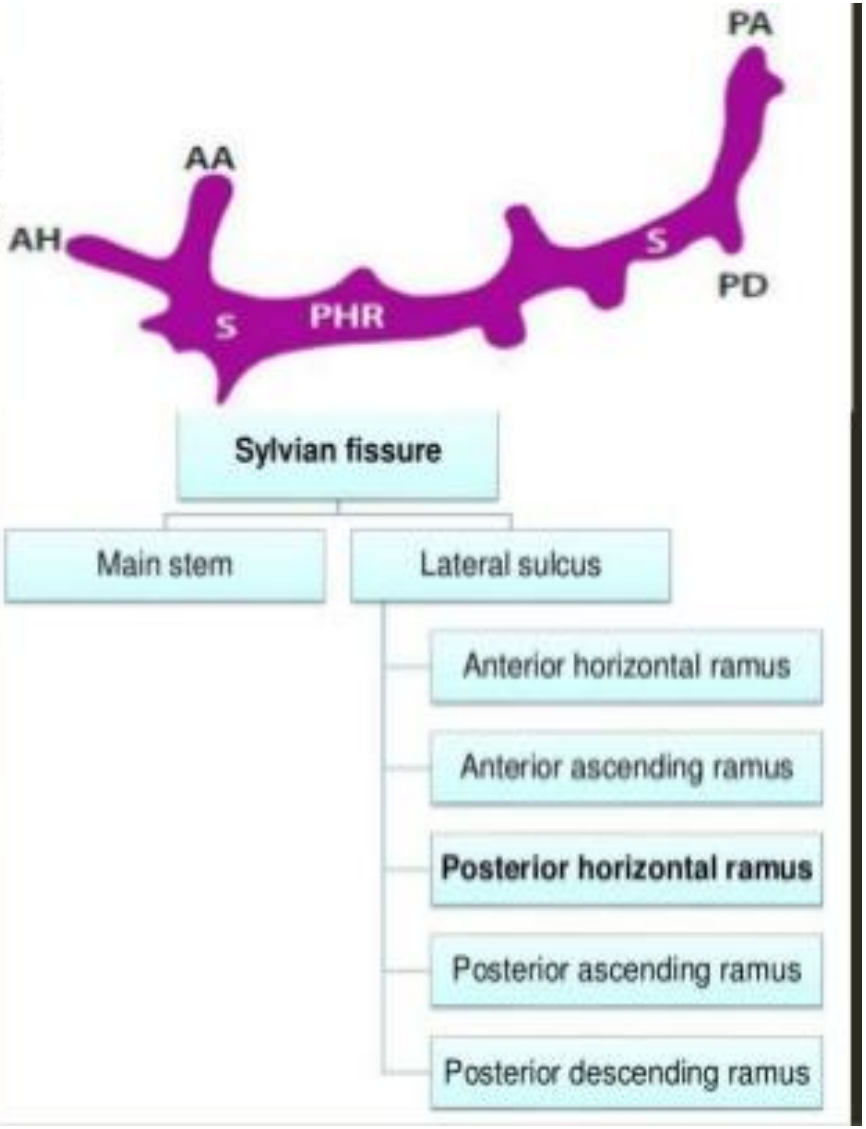
SYLVIAN FISSURE

The superficial part has a stem and three rami; anterior horizontal, anterior ascending, and the posterior rami

The posterior ramus (the longest), represents the posterior continuation of the fissure.

Its posterior end turns more sharply upward to terminate in the inferior parietal lobule, where the supramarginal gyrus wraps around.

The deep part is divided into sphenoidal and operculoinsular compartments.

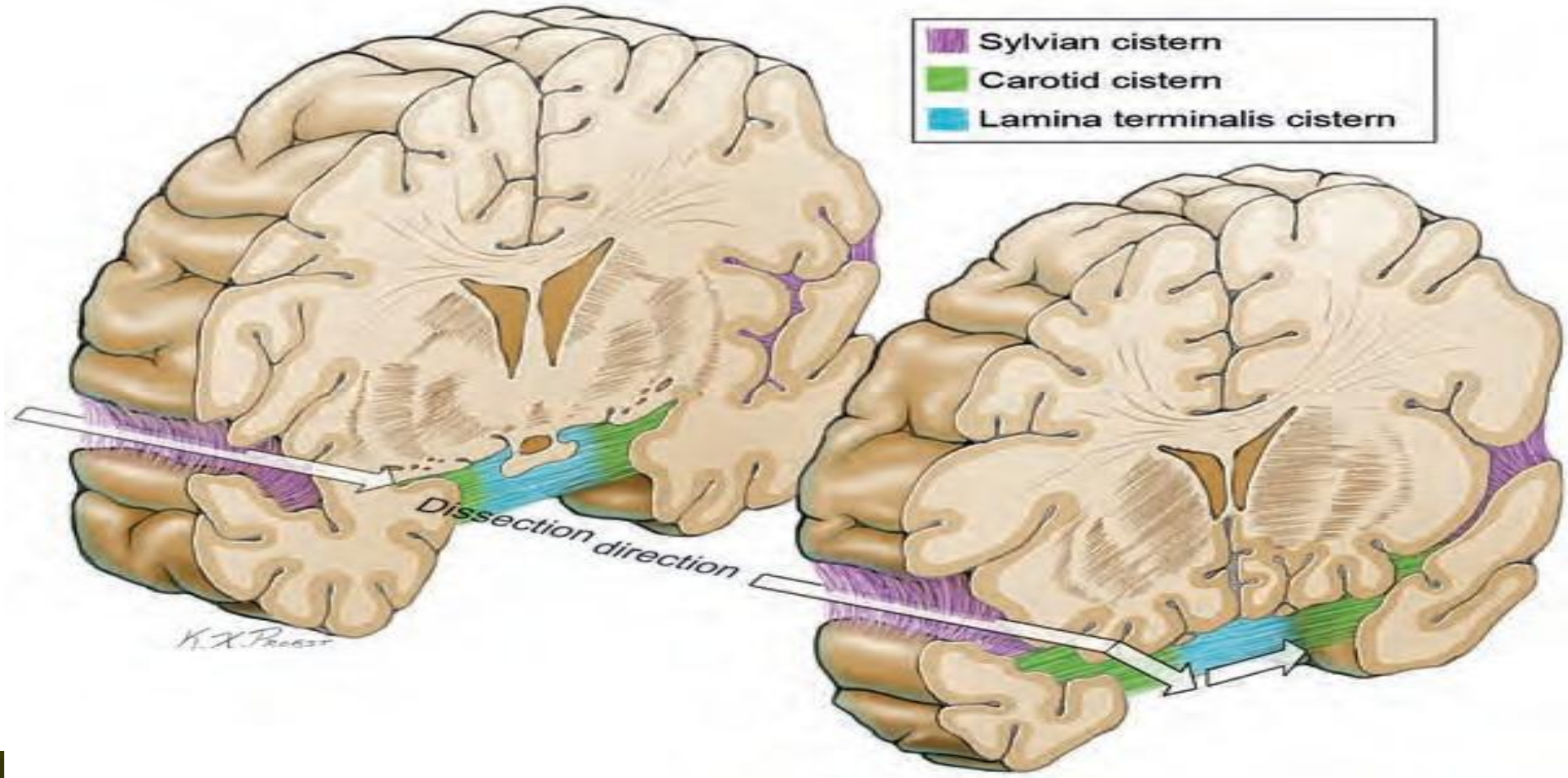


Deep Part (Sylvian Cistern)

- Sphenoidal
- Operculoinsular compartment

Sphenoidal Compartment

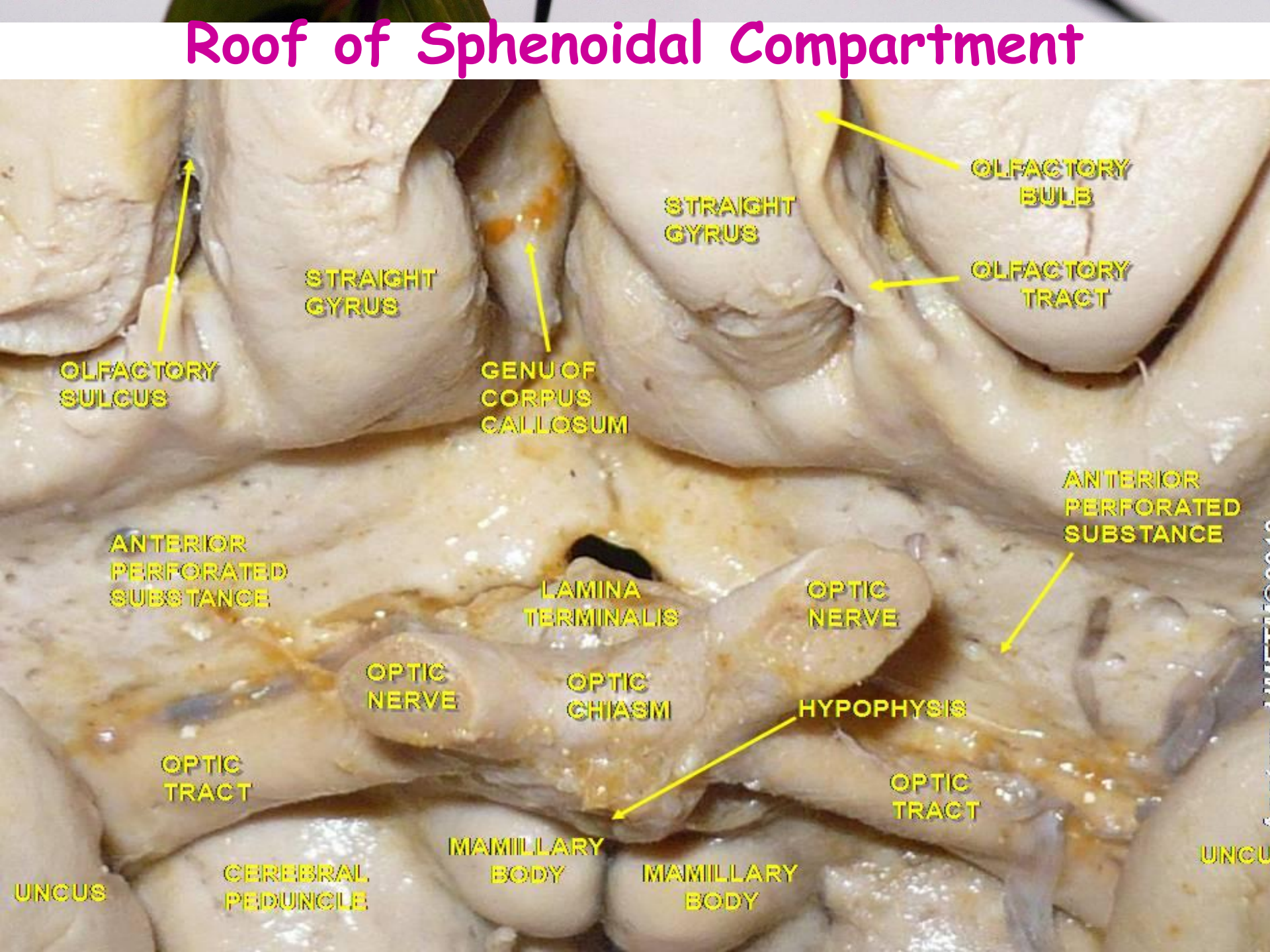
- It extends laterally from the cistern around the internal carotid artery, between the frontal & temporal lobes

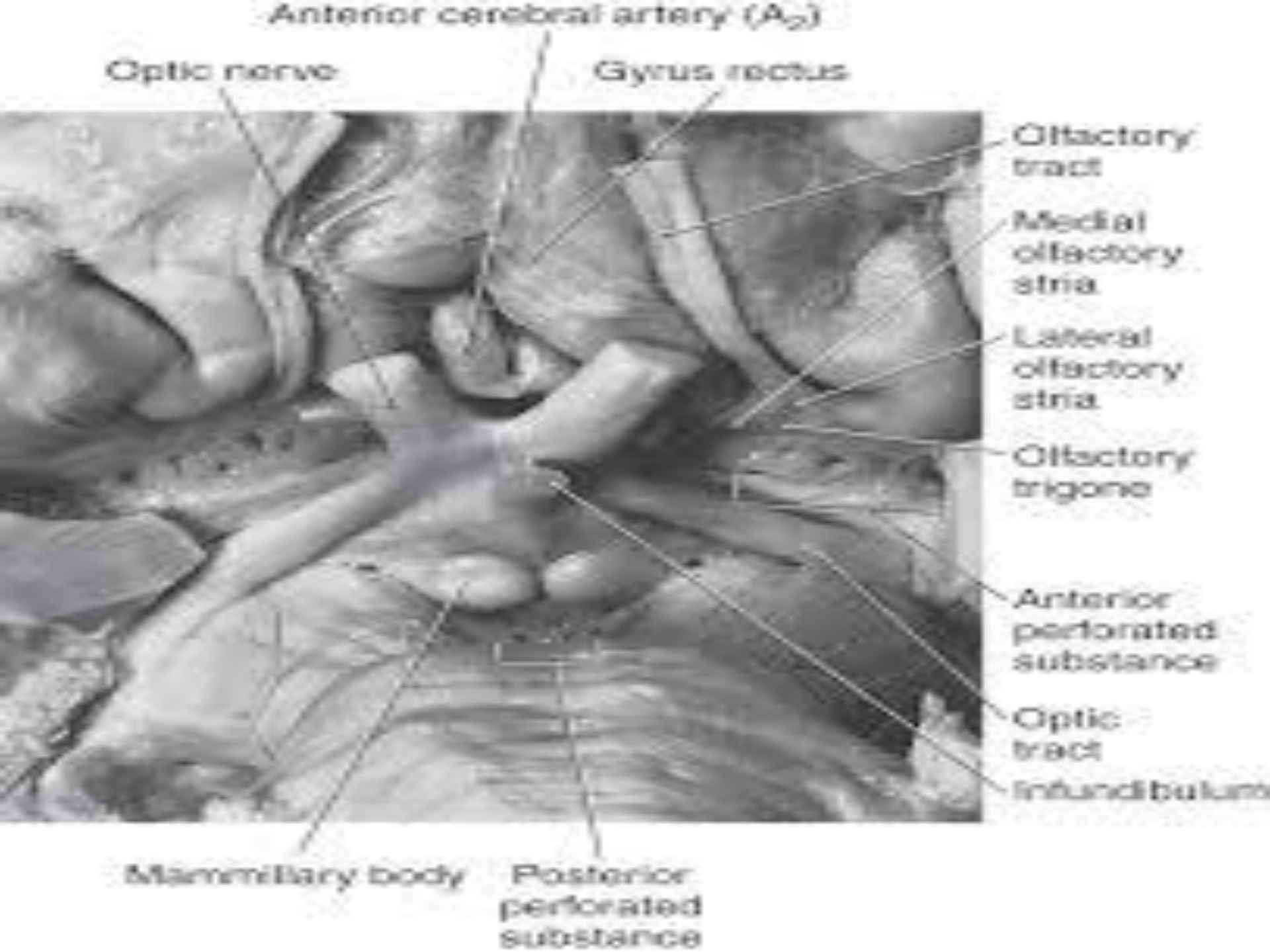


Sphenoidal Compartment

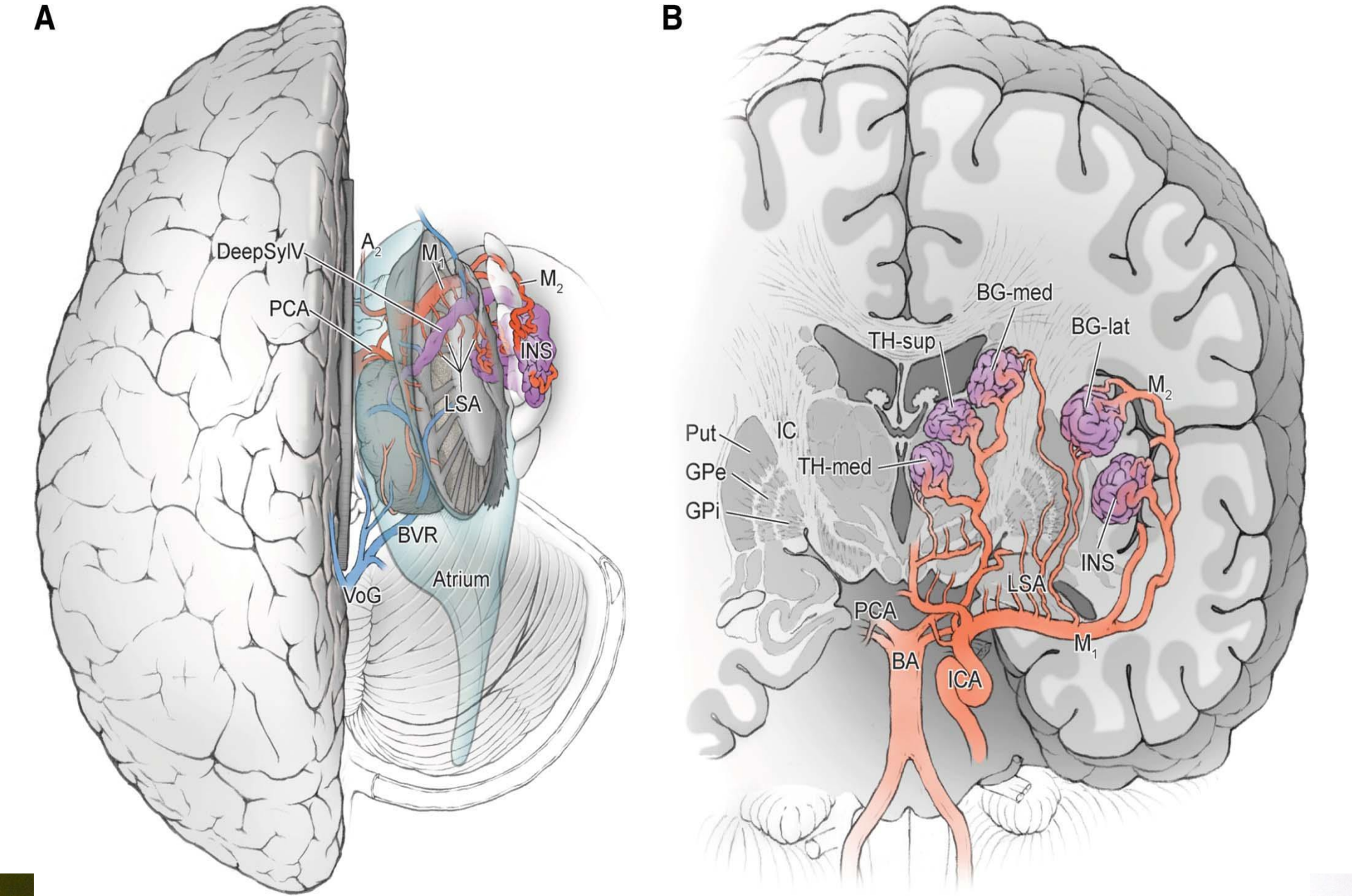
- **Roof** is formed by:
  - Post. orbital surface of the frontal lobe
  - Anterior perforated substance.
- **Above Roof**:
  - Caudate
  - Lentiform nuclei
  - Anterior limb of the internal capsule

Roof of Sphenoidal Compartment




Anterior cerebral artery (A_2)
Optic nerve
Gyrus rectus
Olfactory tract
Medial olfactory stria
Lateral olfactory stria
Olfactory trigone
Anterior perforated substance
Optic tract
Infundibulum
Mammillary body
Posterior perforated substance

Basal Ganglia

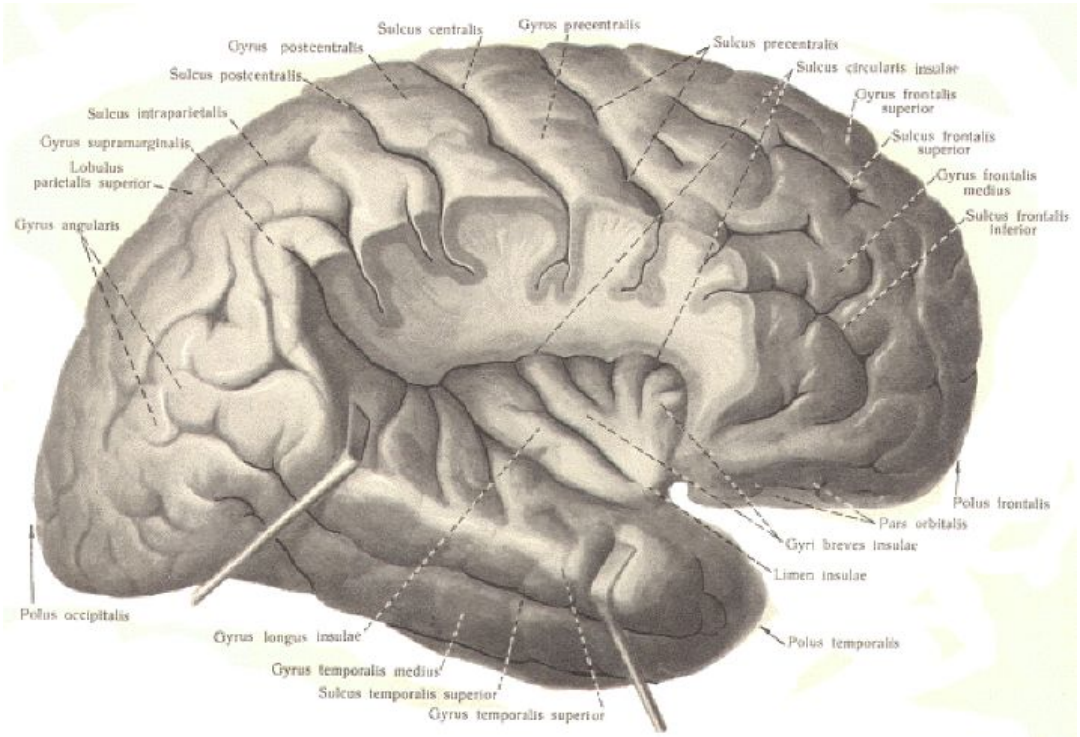


Floor:

- anterior part of the planum polare, an area free of gyri on the upper temporal pole, where a shallow cupped trench accommodates MCA.
- Anterior uncal segment, amygdala, is located at the medial part of the floor.
- The limen insulae, the prominence overlying the cingulum, a prominent fiber bundle connecting the frontal & temporal lobes, is located at the lateral edge of the sphenoidal compartment.

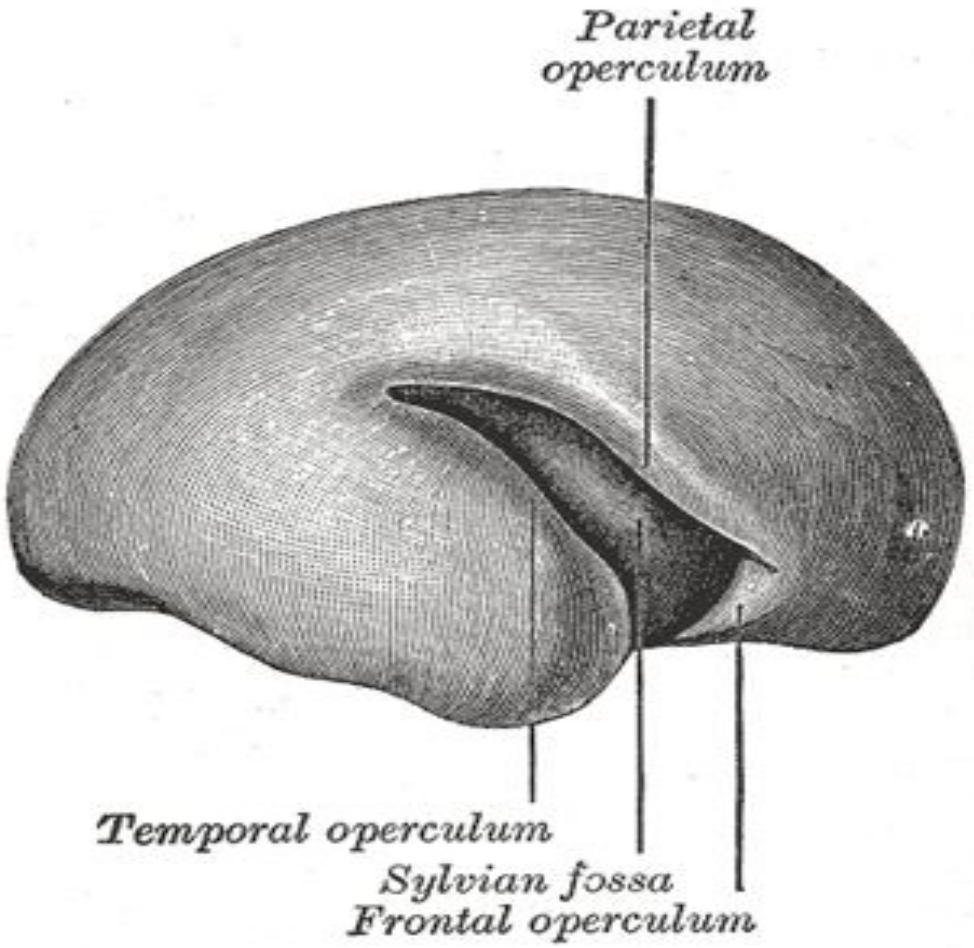
The operculoinsular compartment

- Opercular
- Insular

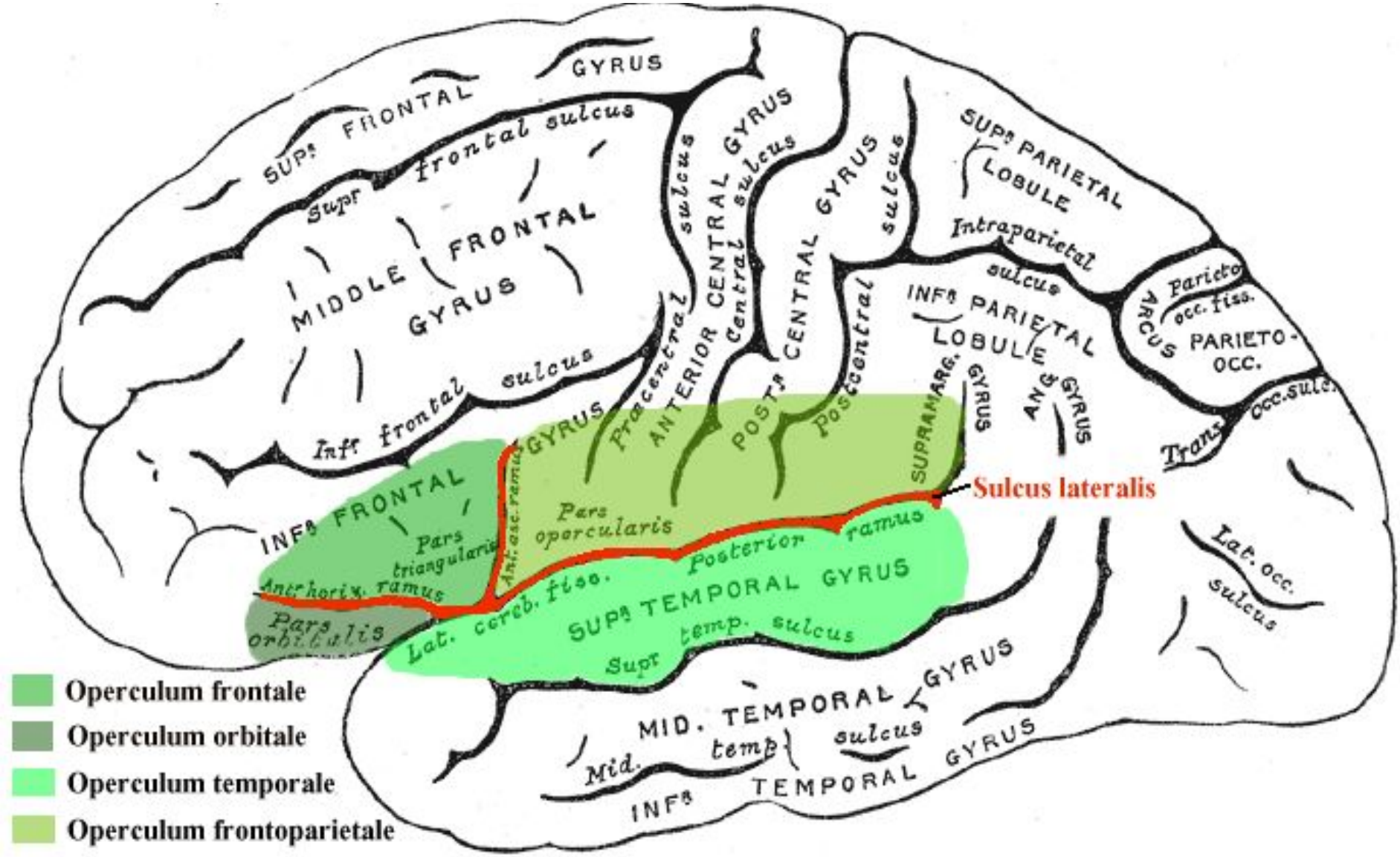


Opercular Cleft

- This is situated where the sylvian surfaces of the F lobe, & the P lobes above, face sylvian surface of the T lobe below.
- The surfaces of the 3 lobes across the opercular cleft are sooriented that they come to face the lateral surface of the insula.

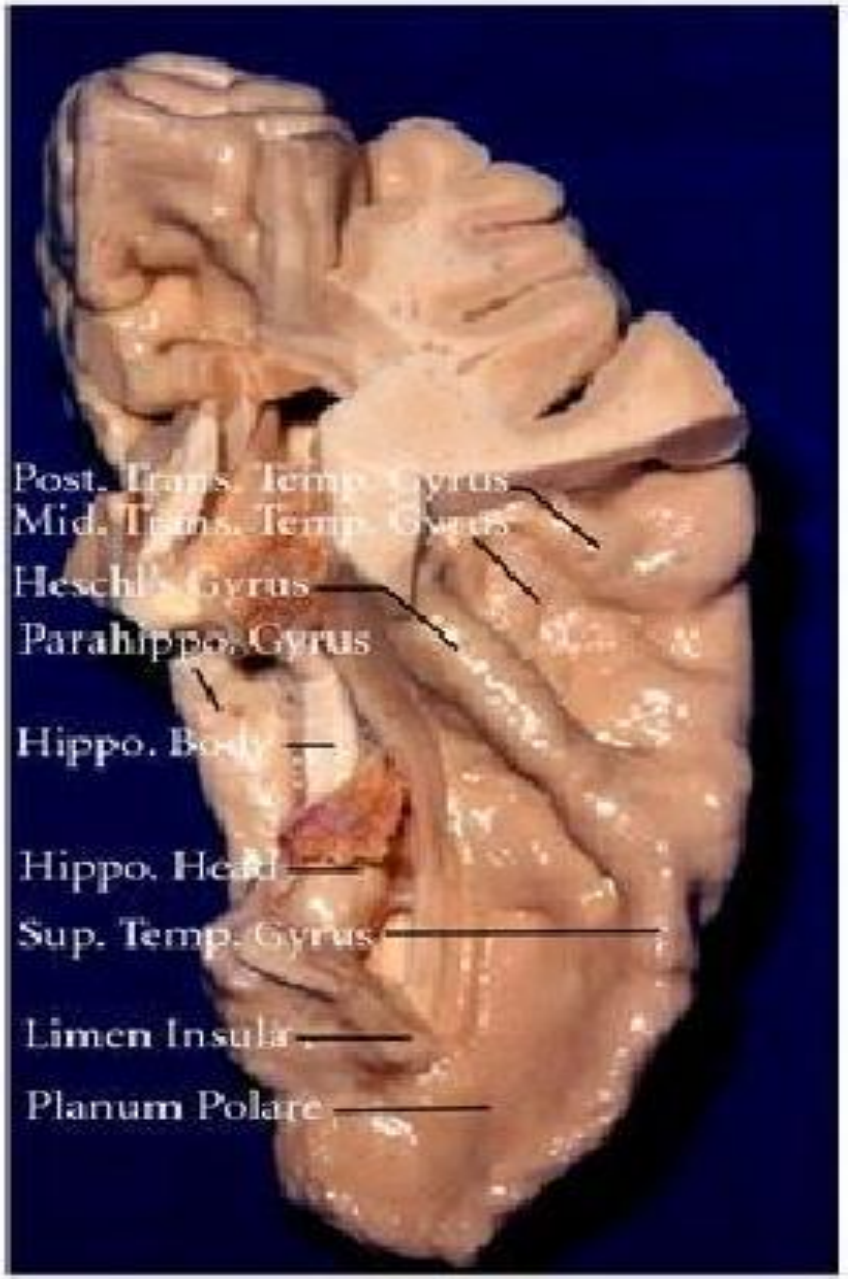


Operculum


SUPª FRONTAL GYRUS
Supr frontal sulcus
MIDDLE FRONTAL GYRUS
Inft frontal sulcus
INFª FRONTAL
Pars triangularis
Pars orbitalis
Ant. horiz. ramus
Ant. asc. ramus
Precentral sulcus
ANTERIOR CENTRAL GYRUS
Central sulcus
POSTª CENTRAL GYRUS
Postcentral sulcus
SUPª PARIETAL LOBULE
Intraparietal sulcus
INFª PARIETAL LOBULE
SUPRAMARG. GYRUS
ANG. GYRUS
Parieto occ. fiss.
ARCUS
PARIETO-OCC.
Trans. occ. sulc.
Sulcus lateralis
Pars opercularis
Lat. cereb. fiss.
Posterior ramus
SUPª TEMPORAL GYRUS
Supr temp. sulcus
Lat. occ. sulcus
MID. TEMPORAL GYRUS
Mid. temp. sulcus
INFª TEMPORAL GYRUS
Operculum frontale
Operculum orbitale
Operculum temporale
Operculum frontoparietale

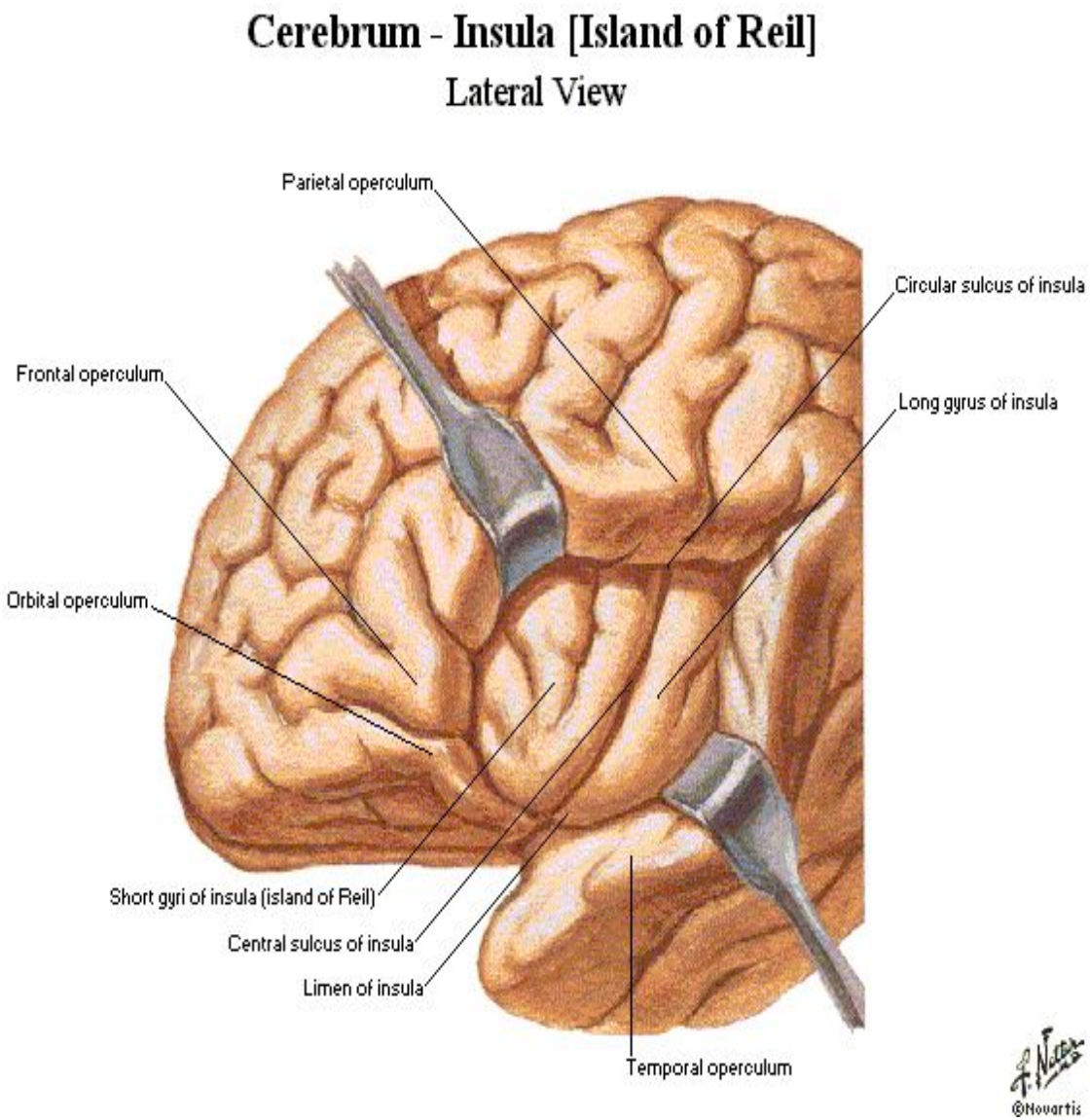
Lower Lip Of Opercular cleft

- **from post to ant**: by the planum temporale, composed of the transverse temporal gyri the most anterior and longest of which is Heschl's gyrus, & the part of the planum polare lateral to the insula.
- Heschl's gyrus & adjoining superior temporal gyrus act as the primary auditory receiving area.

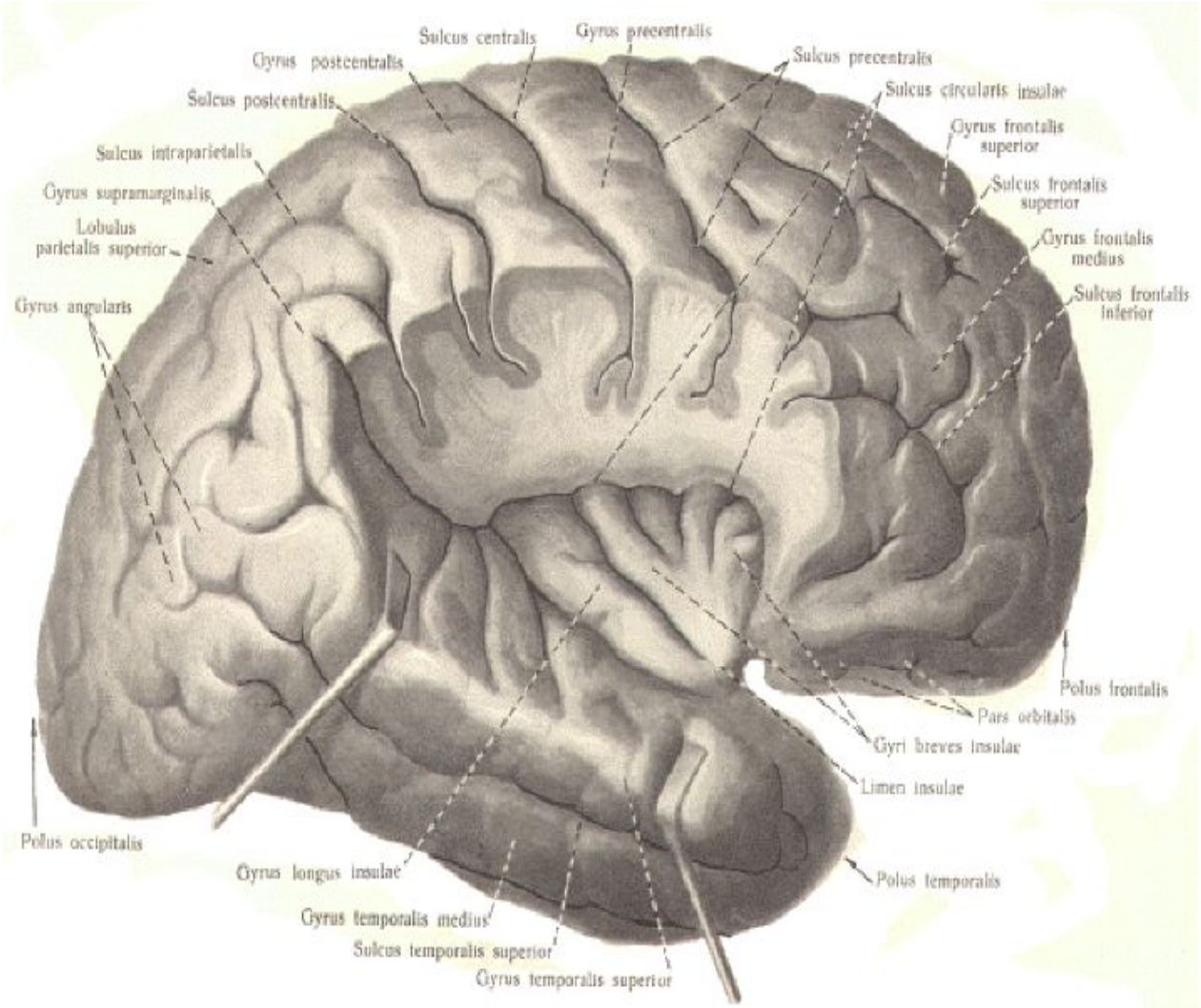


Insula

The insular lobe (linked to emotion & self-perceptione is not visible from the outside of the brain, as it lies on the surface of the lateral sulcus between the frontal lobe & temporal lobe.



Insular Clefts

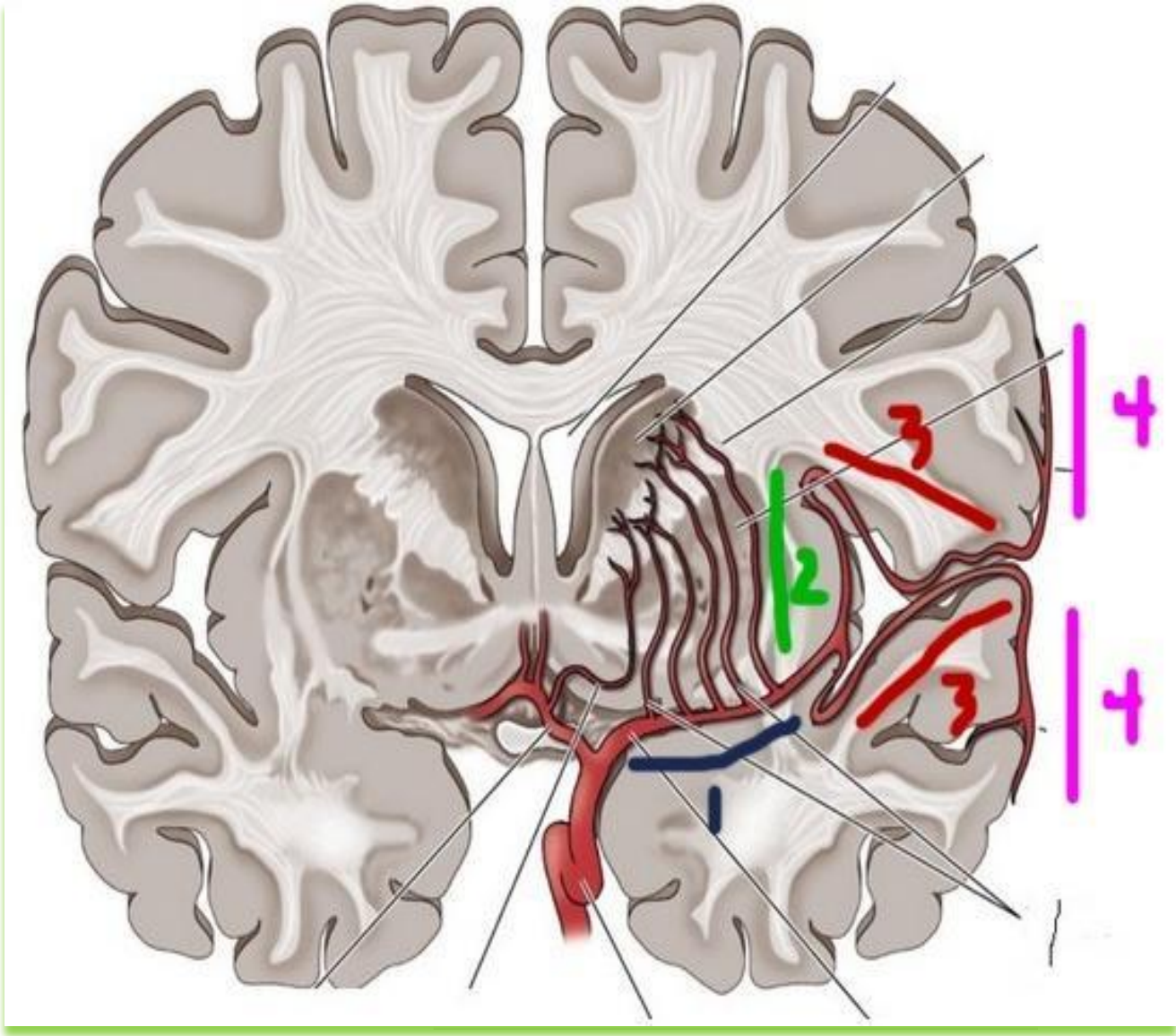


M1: Sphenoidal

M2: Insular

M3: Opercular

M4: Cortical

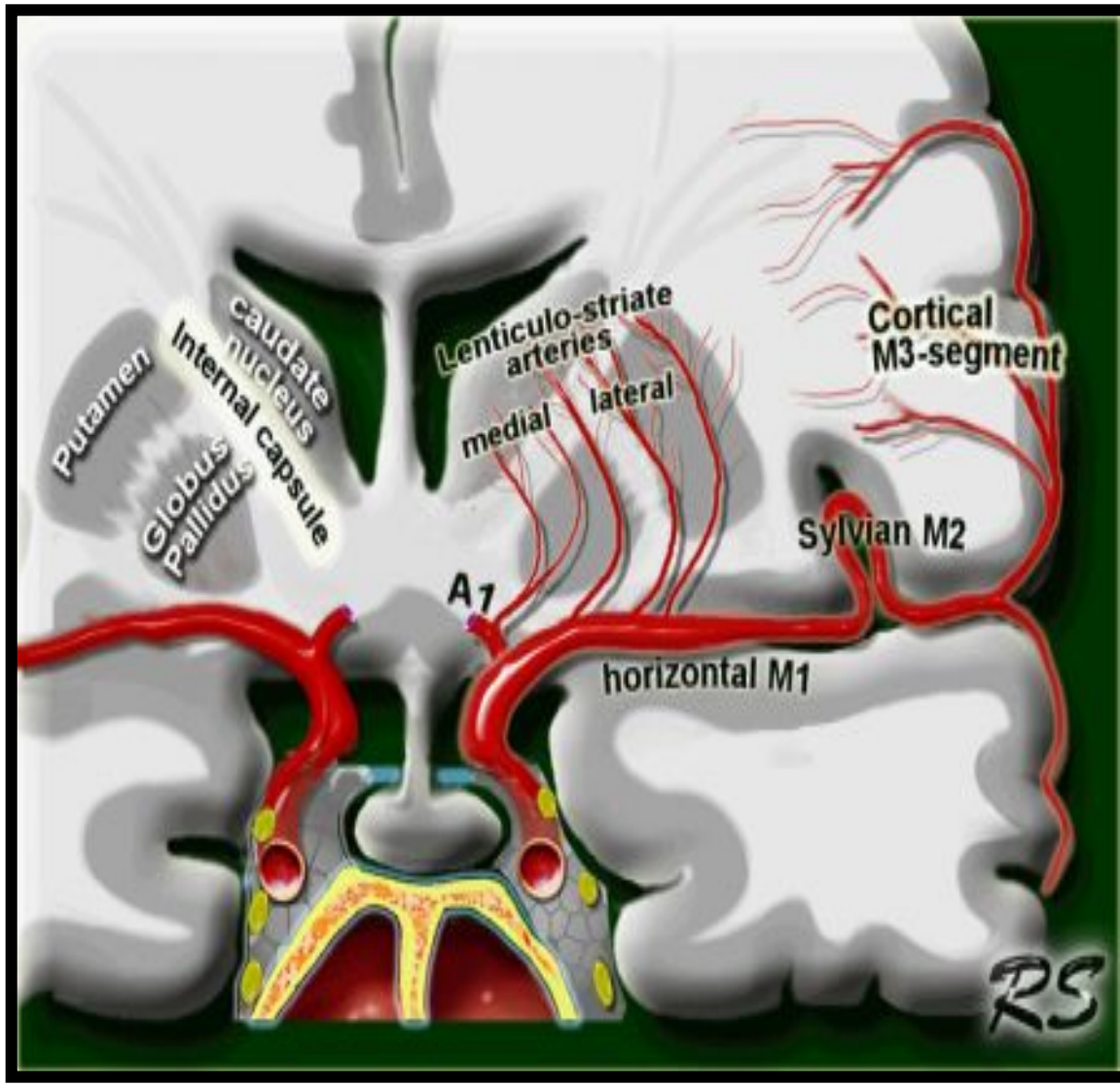


Drainage Area

M1: head +body of caudate, globus pallidus, putamen & posterior limb of internal capsule.

M2: temporal lobe & insular cortex (Wernicke area), parietal lobe, & inferolateral frontal lobe

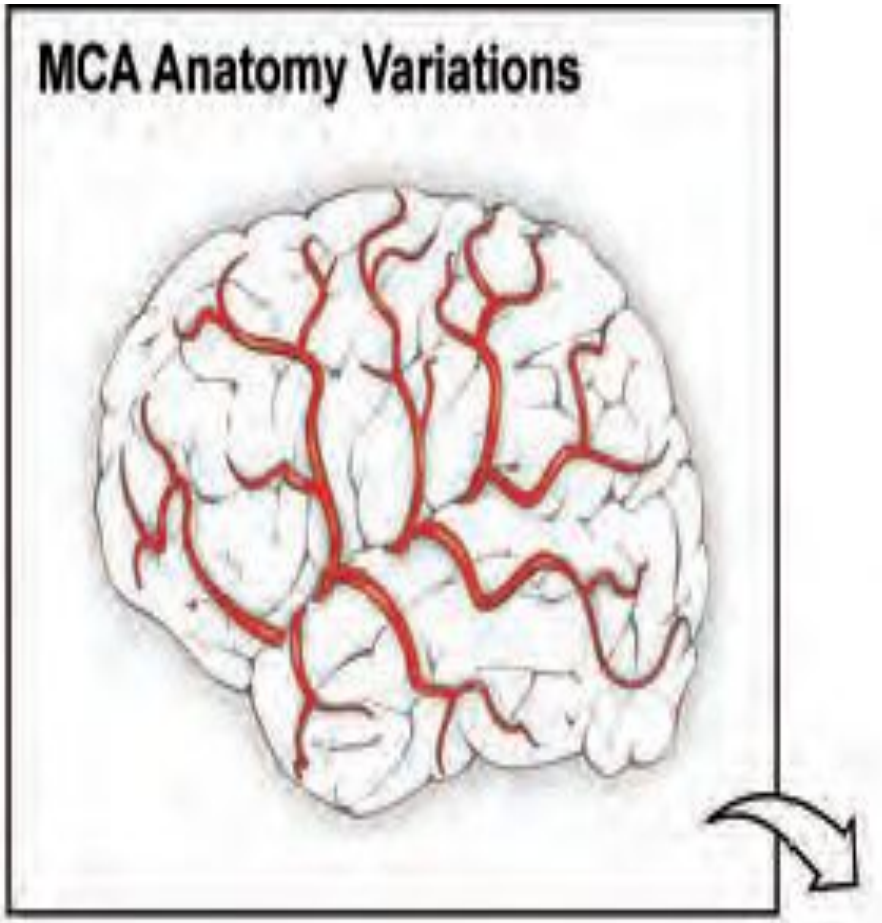
M3: lat cerebral cortex

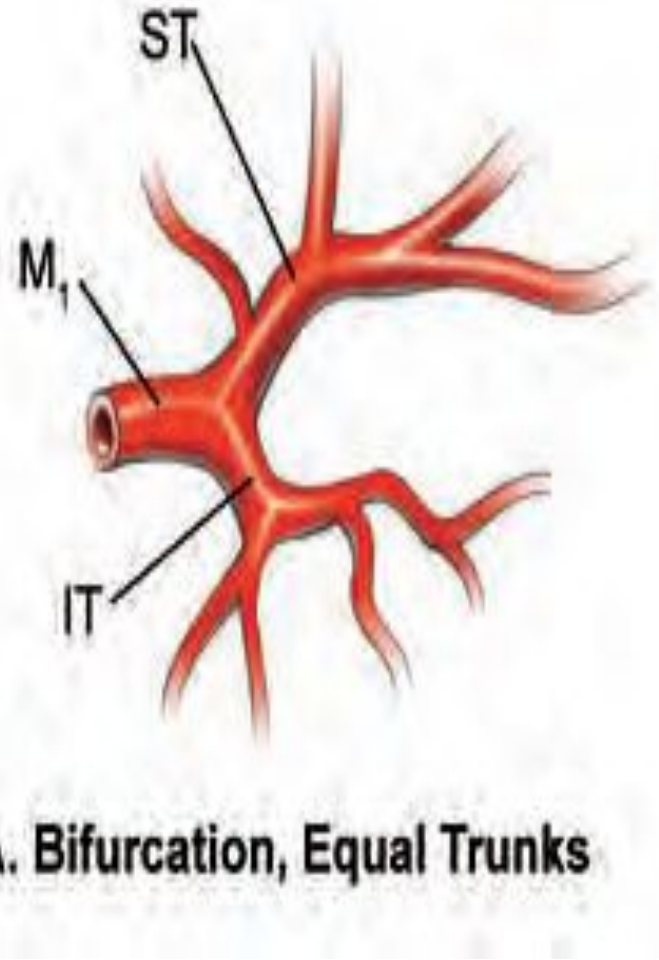


Radiographic Classification

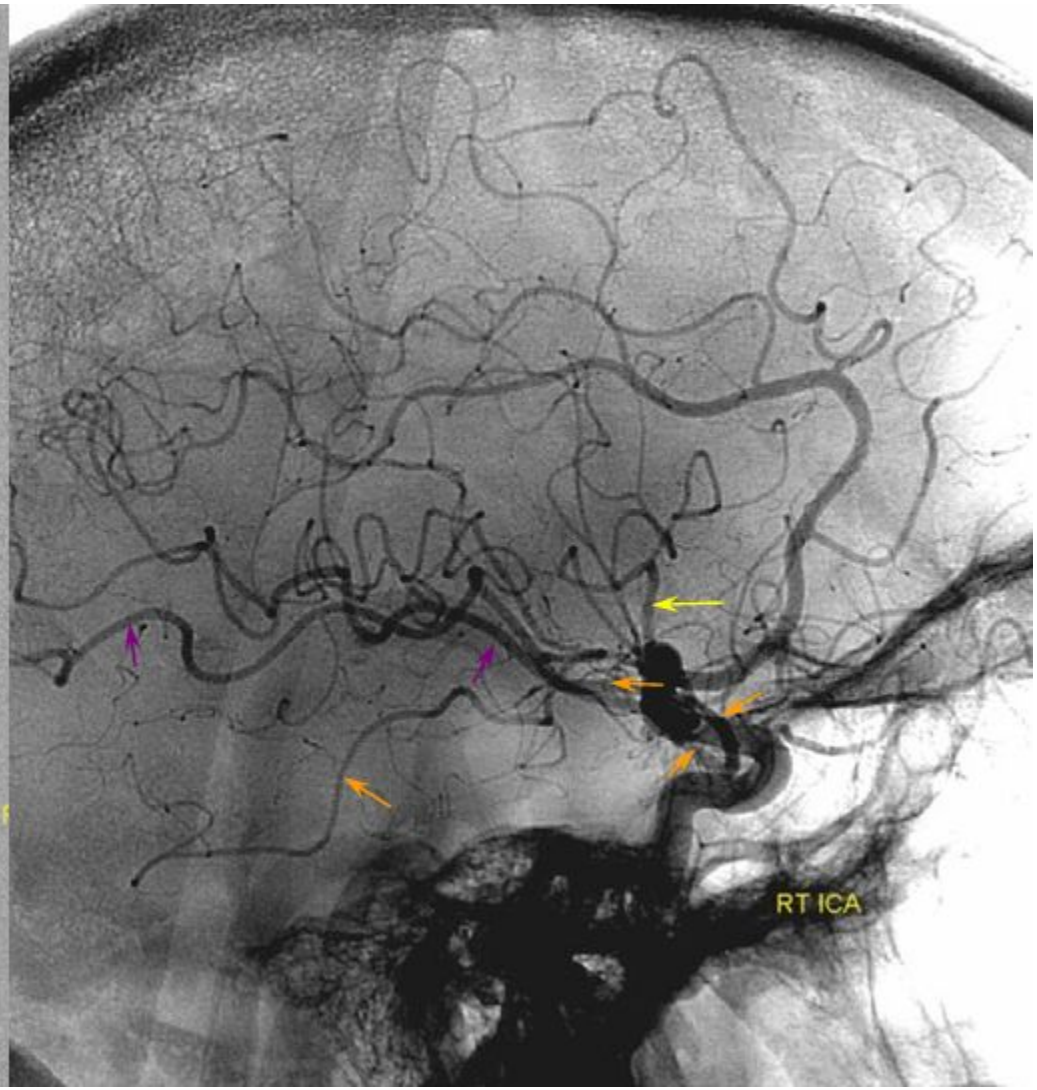
- M1: before bifurcation
- M2: after bifurcation

Variations

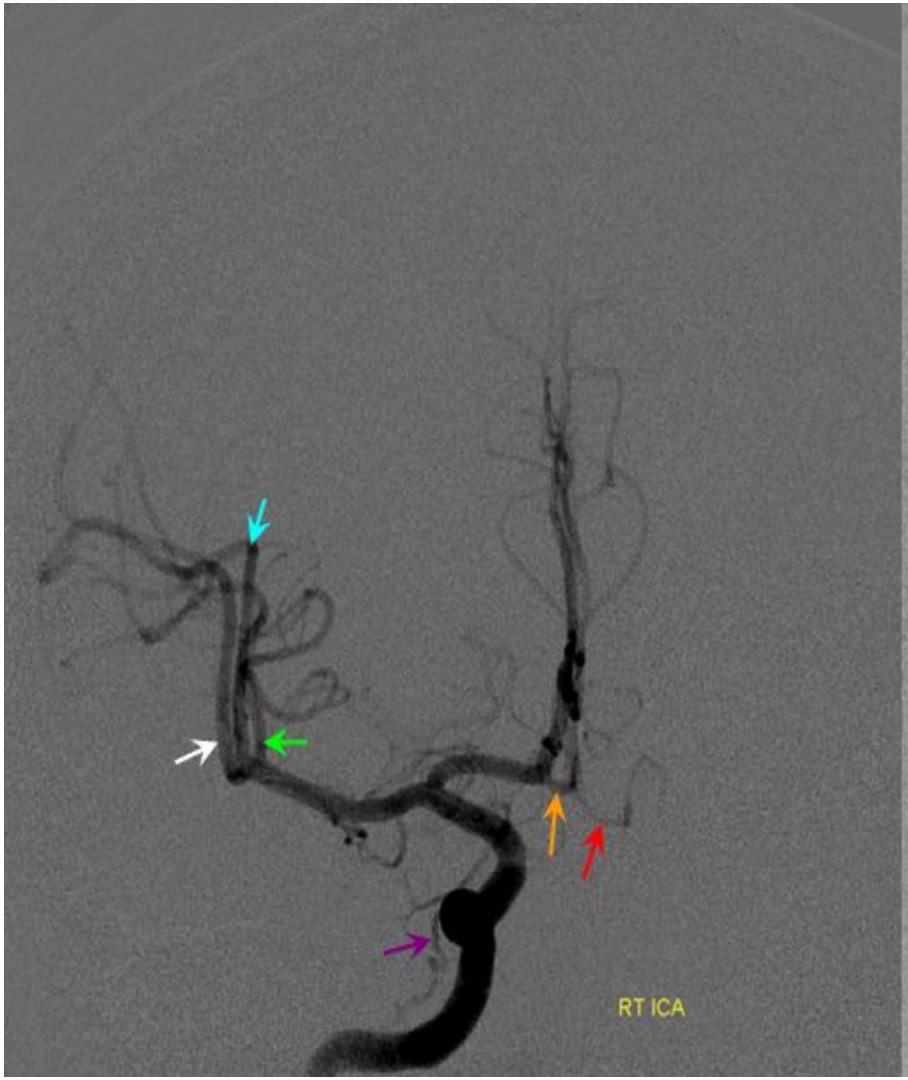


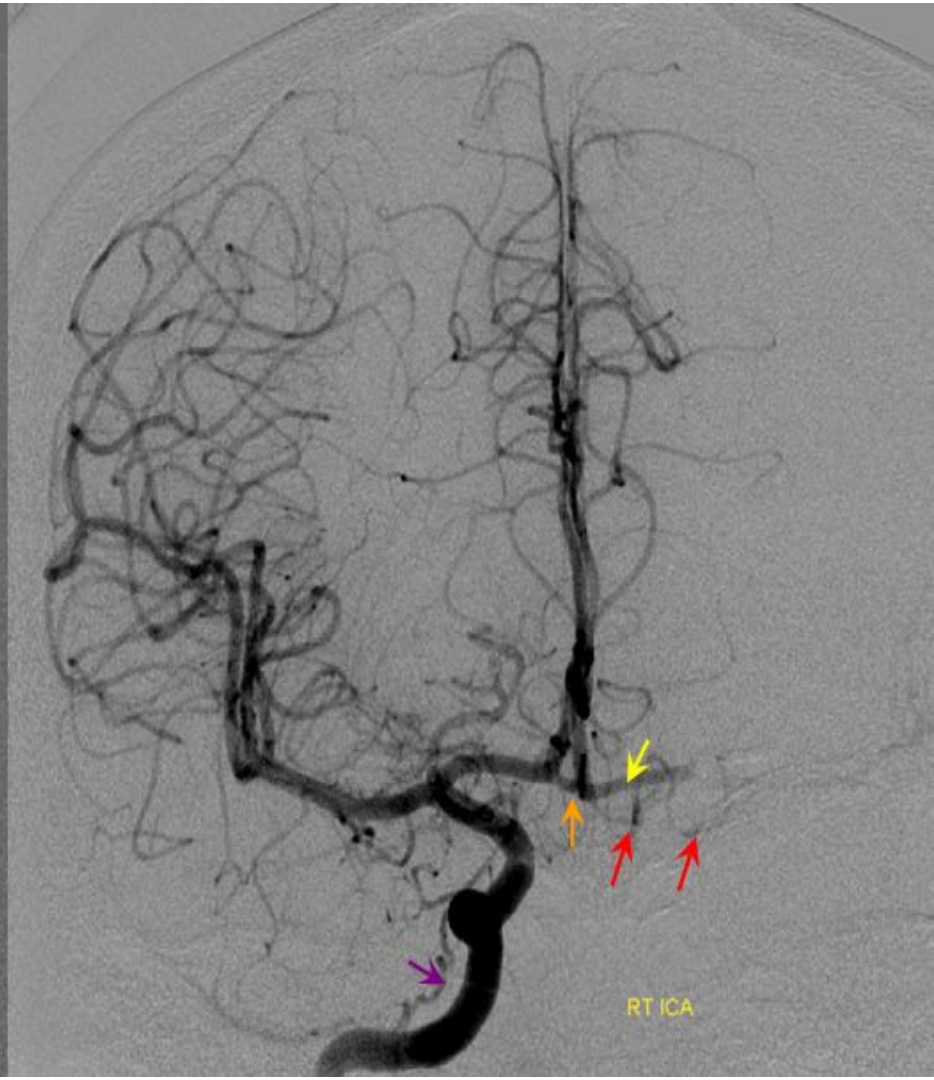


Dominant superior Division (Early Bifurcation

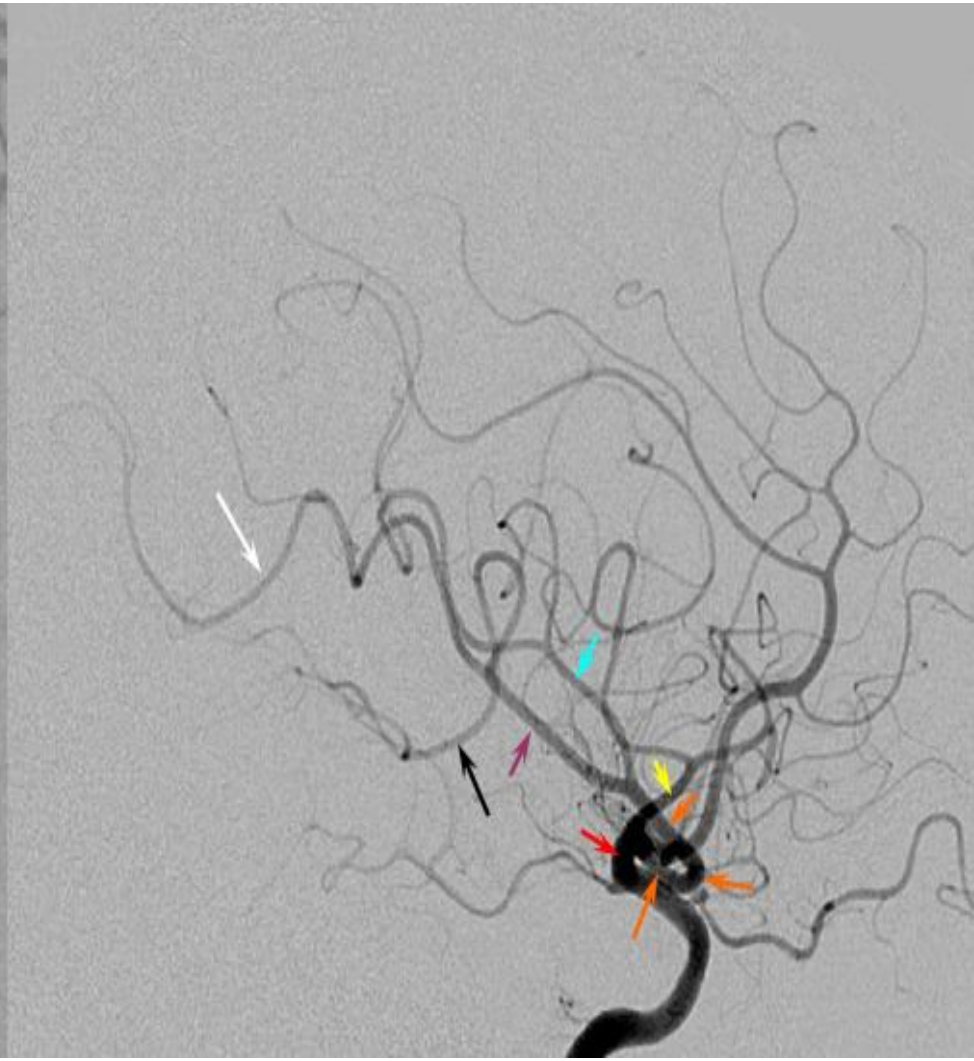


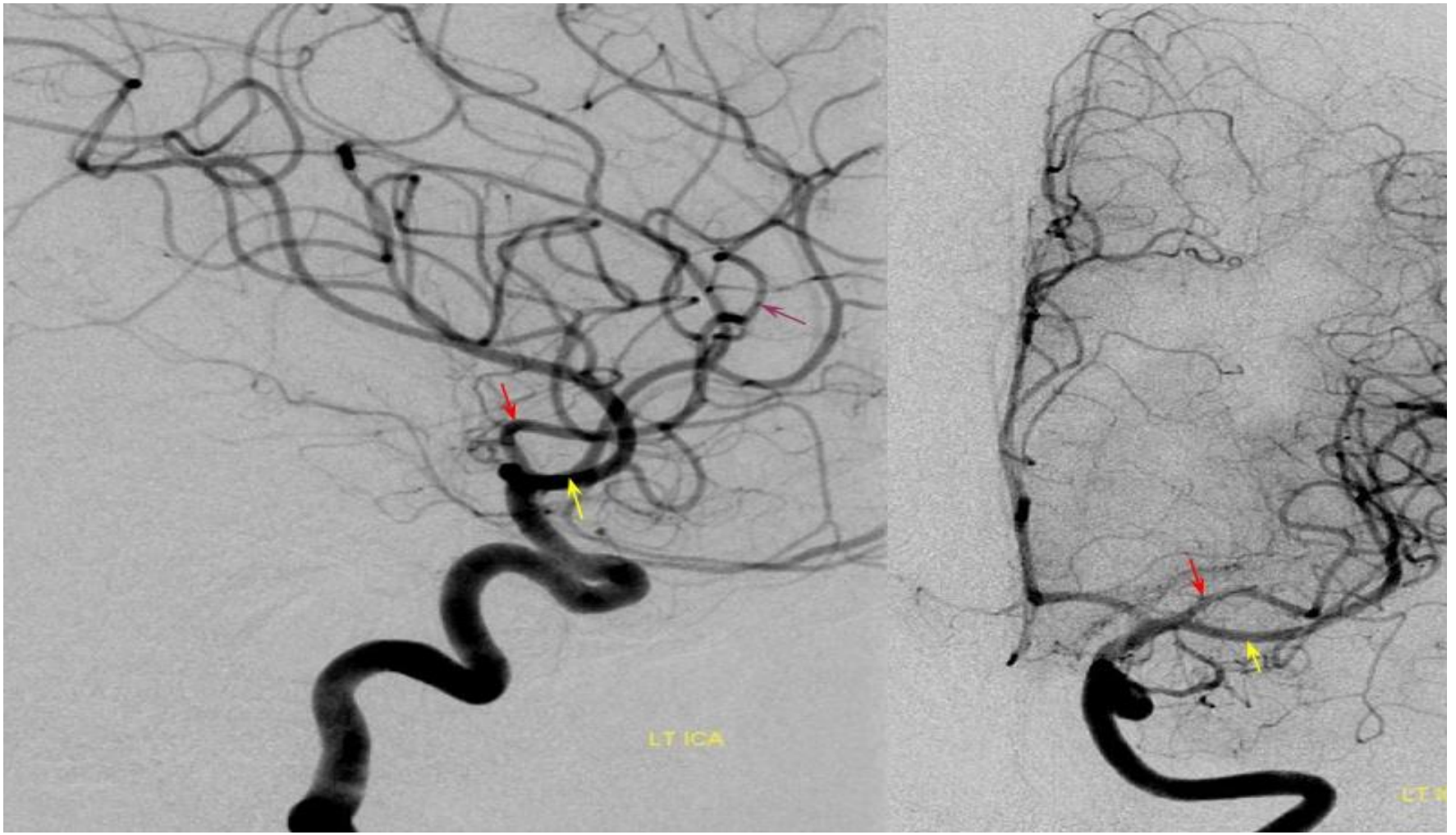
MCA Trifurcation



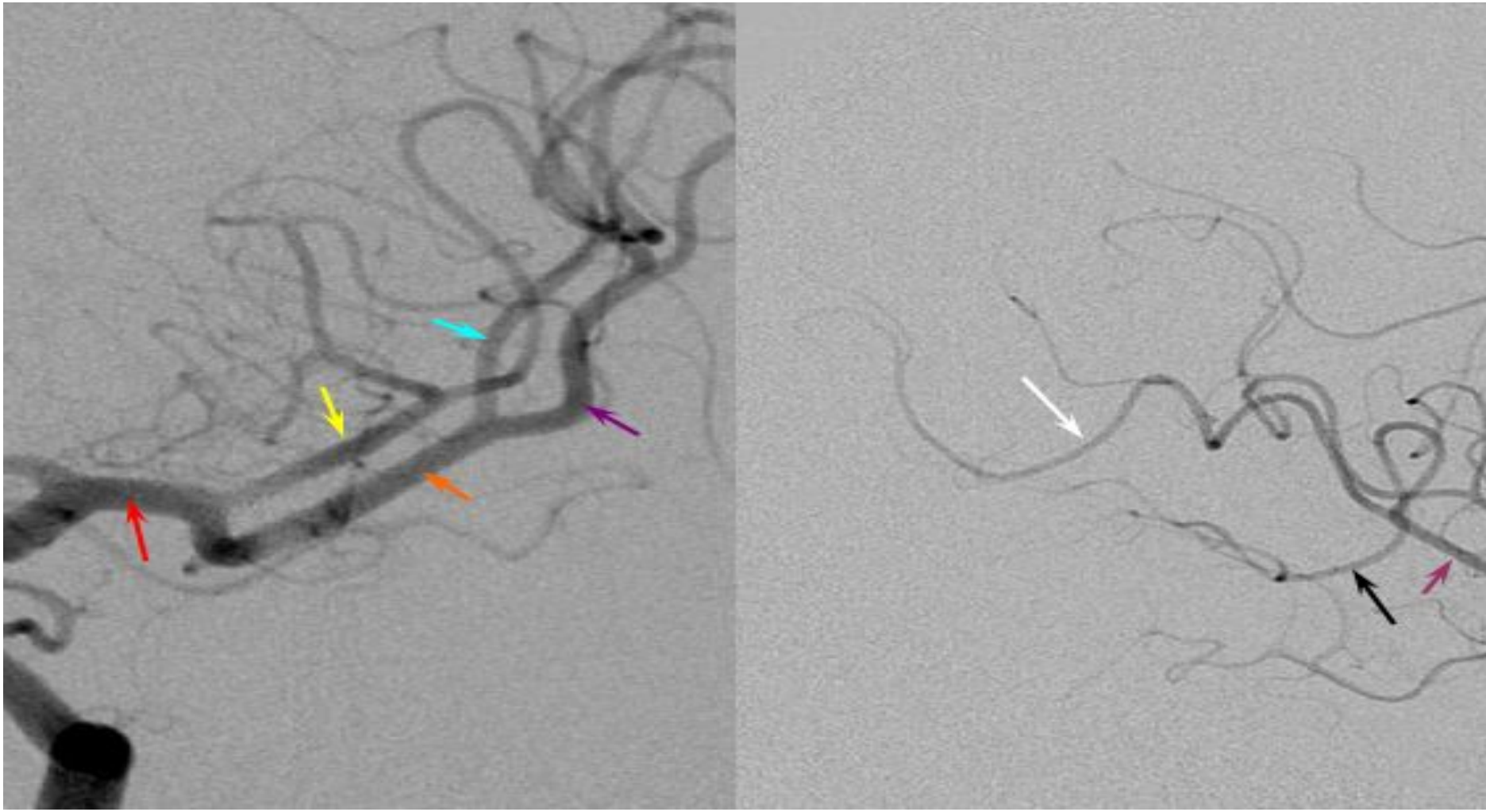


Dominant inferior division





The superior division (red) can be traced to the frontal lobe (purple).
The inferior division (yellow) is dominant.

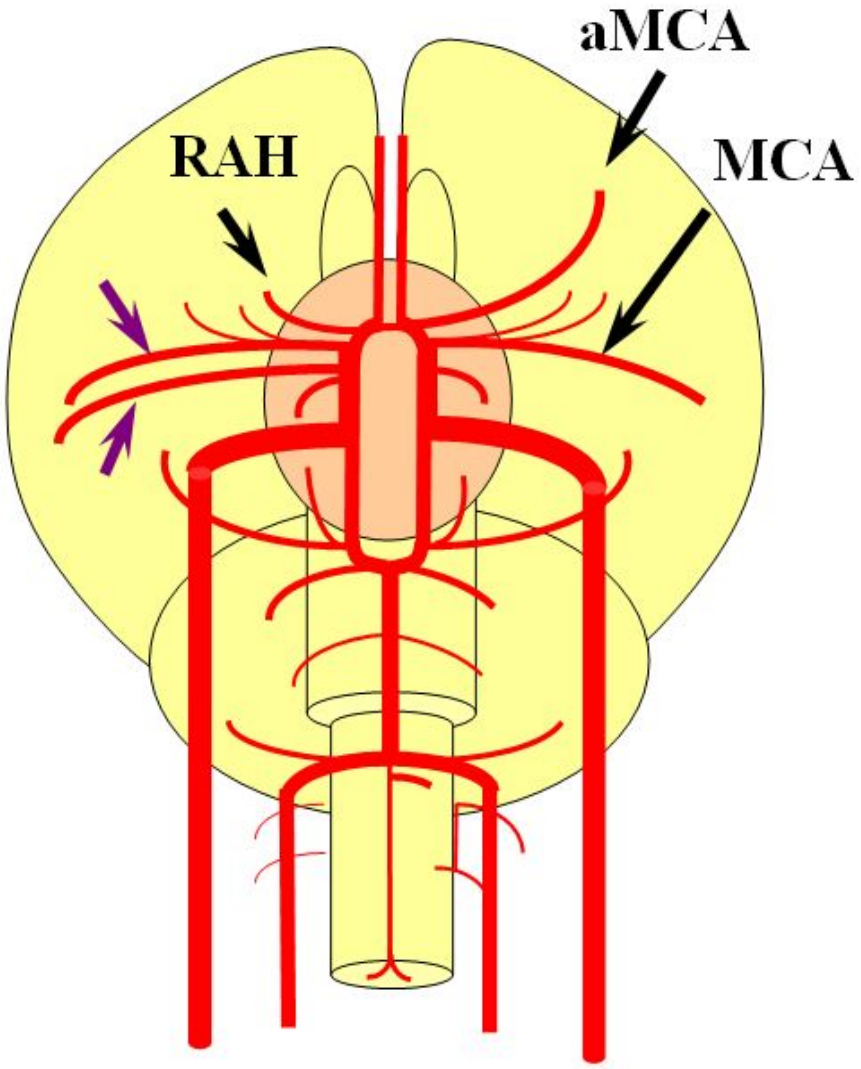


Short M1 segment (red) with smaller superior division (yellow) supplying the frontal convexity, & larger inferior division (orange) ointo the the temporal lobe (purple, subdividing into black anterior & white posterior temporal & white parieto-occipital) & parietal lobe (blue) feeders.

Acessory & Duplicated MCA

aMCA configuration:both branches (purple) appear to originate proximal to the A1 complex (which is here defined as segment past the more "distal" MCA branch. These are known as Manelfe type 1 or 2 – depending on which branch is larger. The important feature however is to note from which vessel the perforators originate, and whether they are medial or lateral.

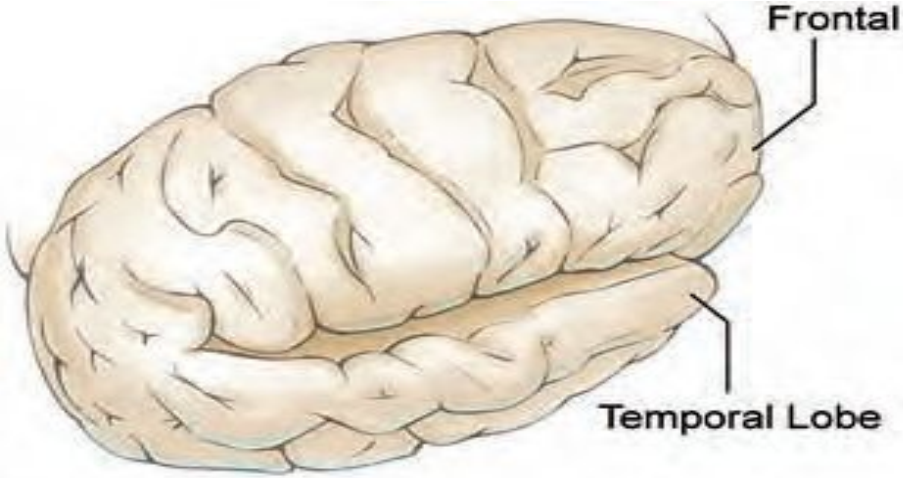
The schematic on the RIGHT shows the Heubner-type aMCA, known as "Manelfe Type 3.



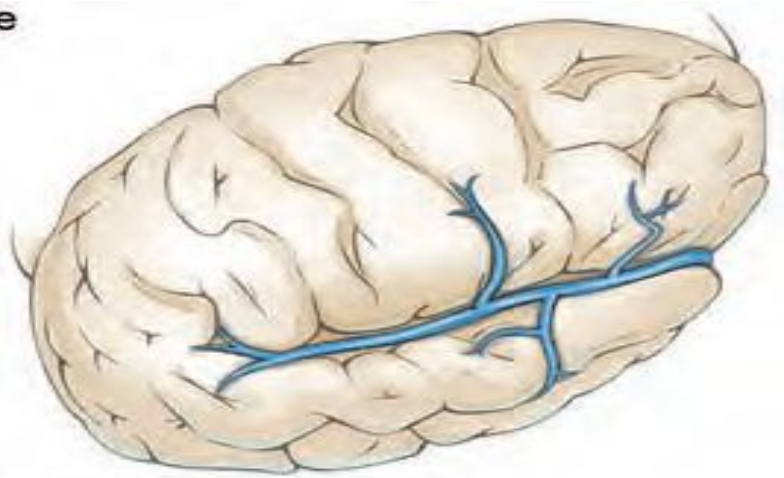
Splitting

SYLVIAN FISSURE

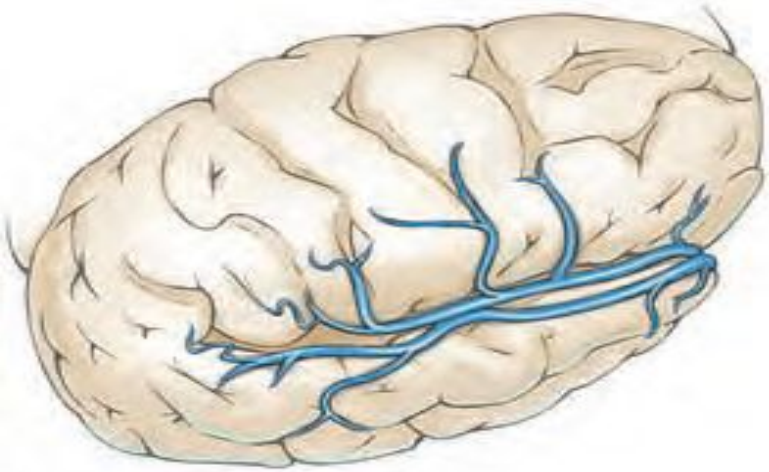
Sylvian Vein Variations



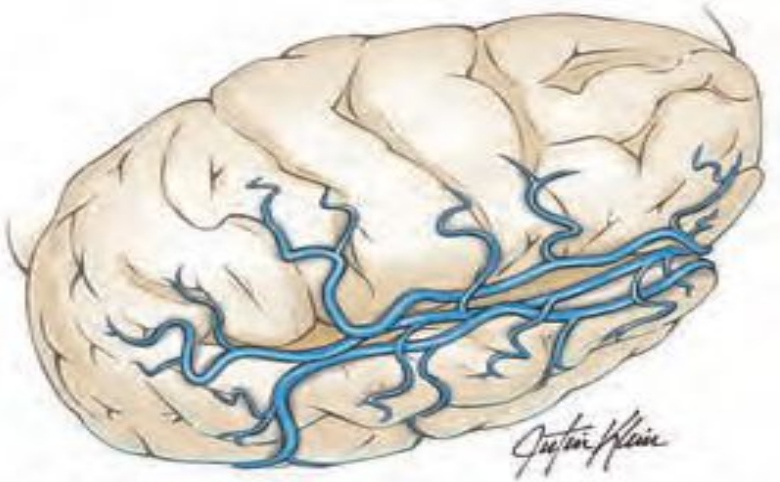
A. No Vein



B. Single Vein



C. Parallel Veins

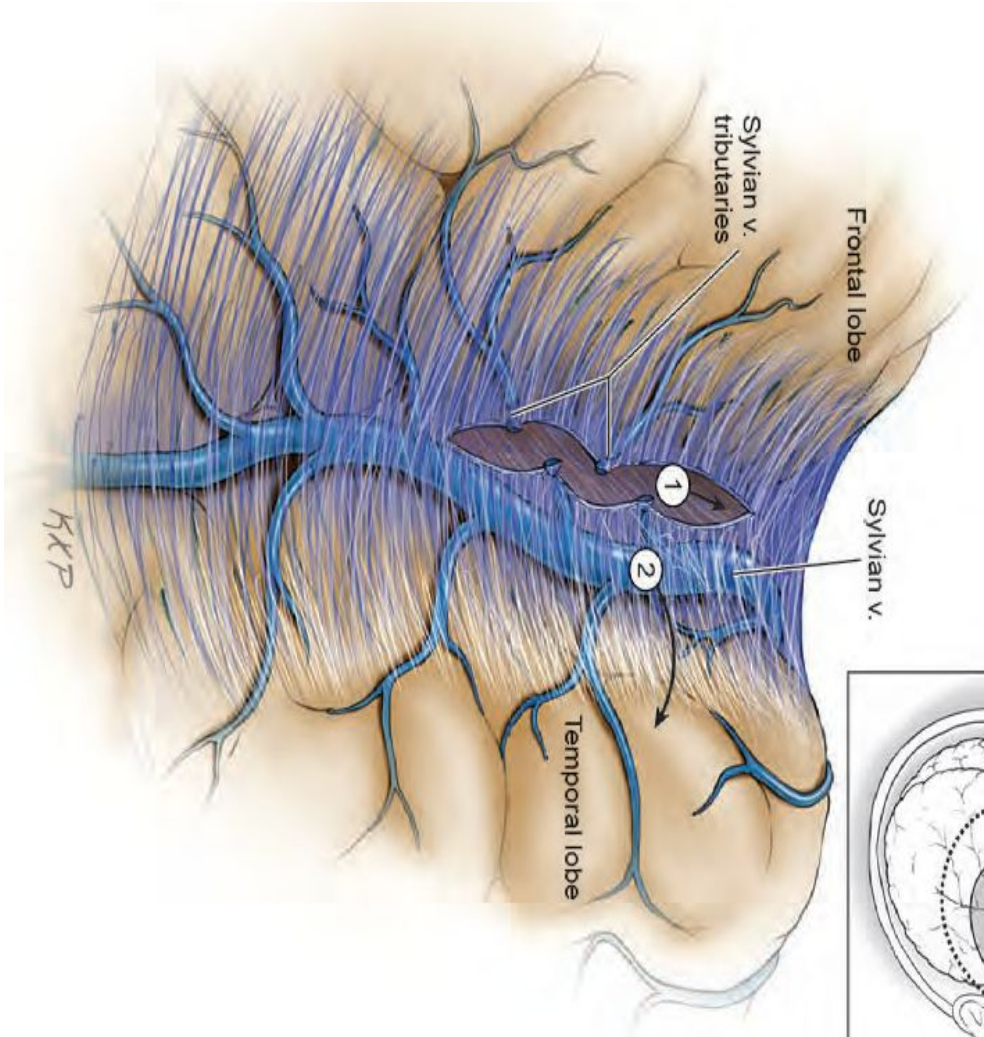


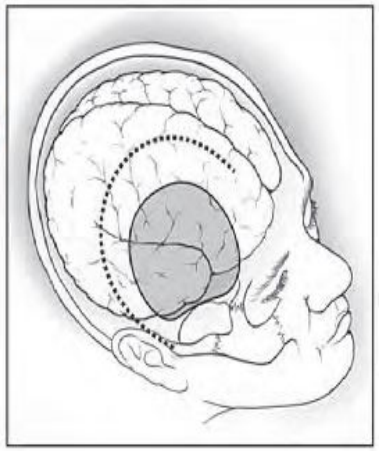
D. Complex of Veins

Dissection steps in splitting the sylvian fissure (veins and superficial dissection, right side).

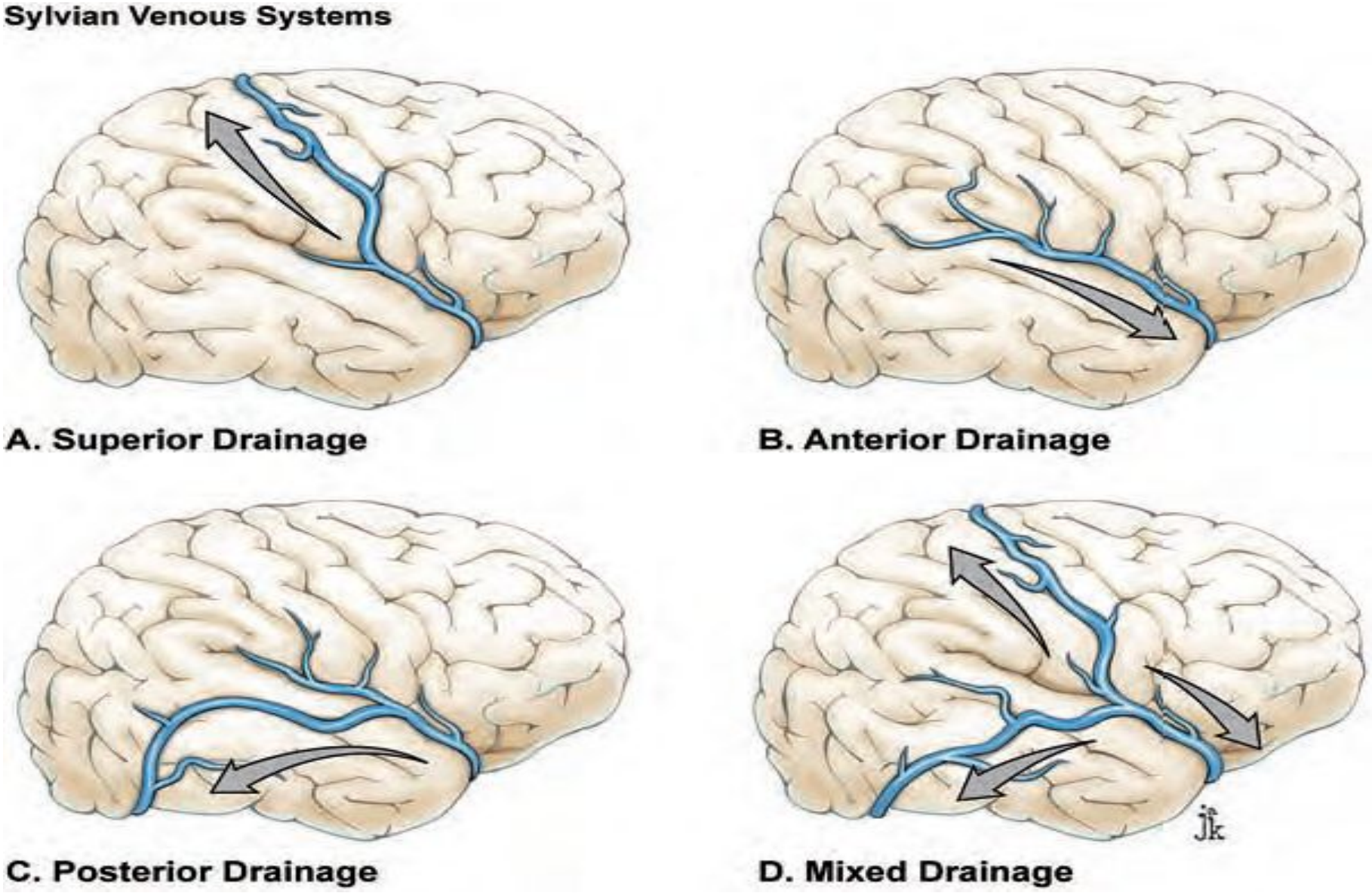
Step 1, cortical arachnoid incision;

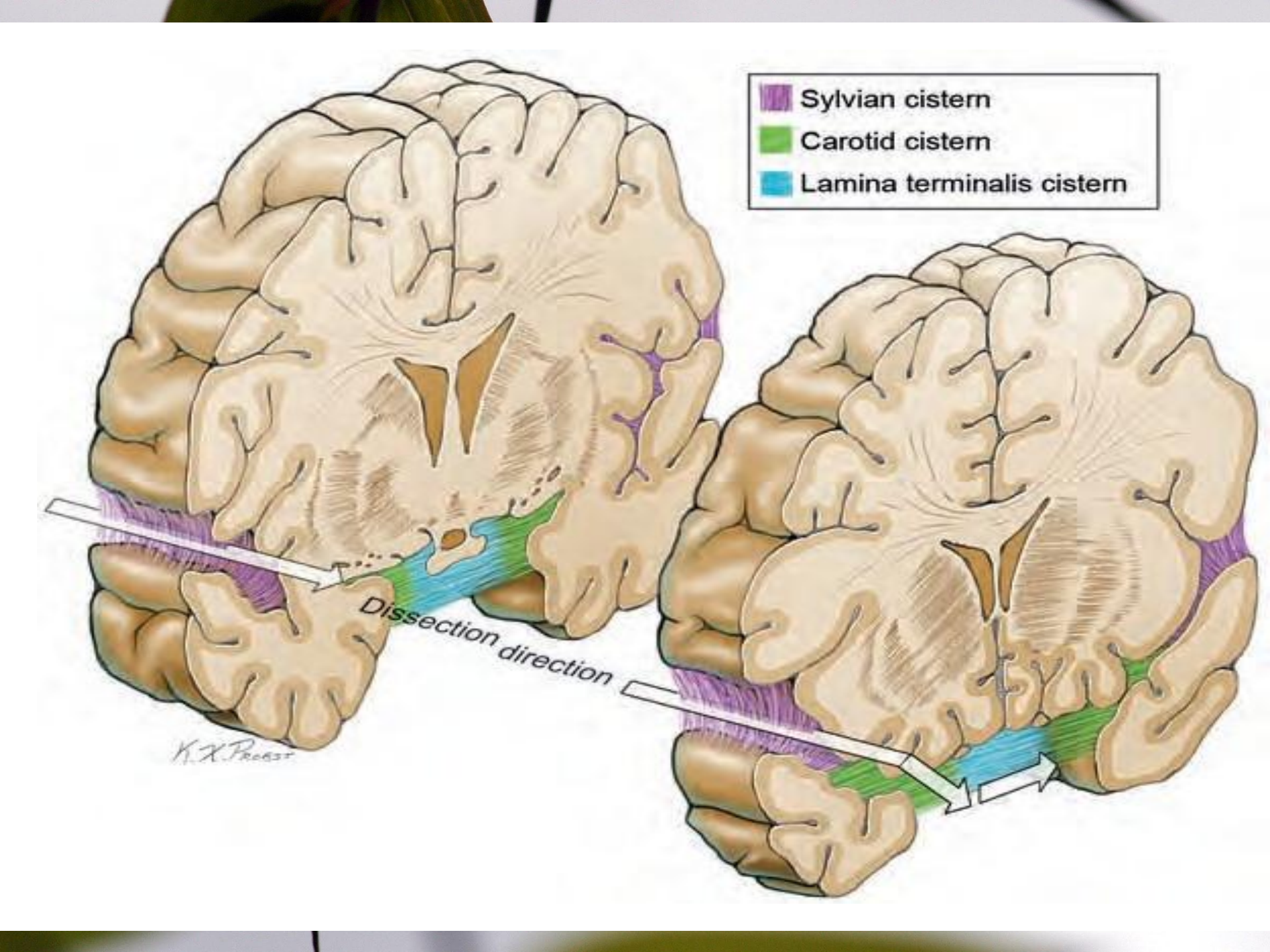
Step 2, temporal mobilization of the sylvian veins.





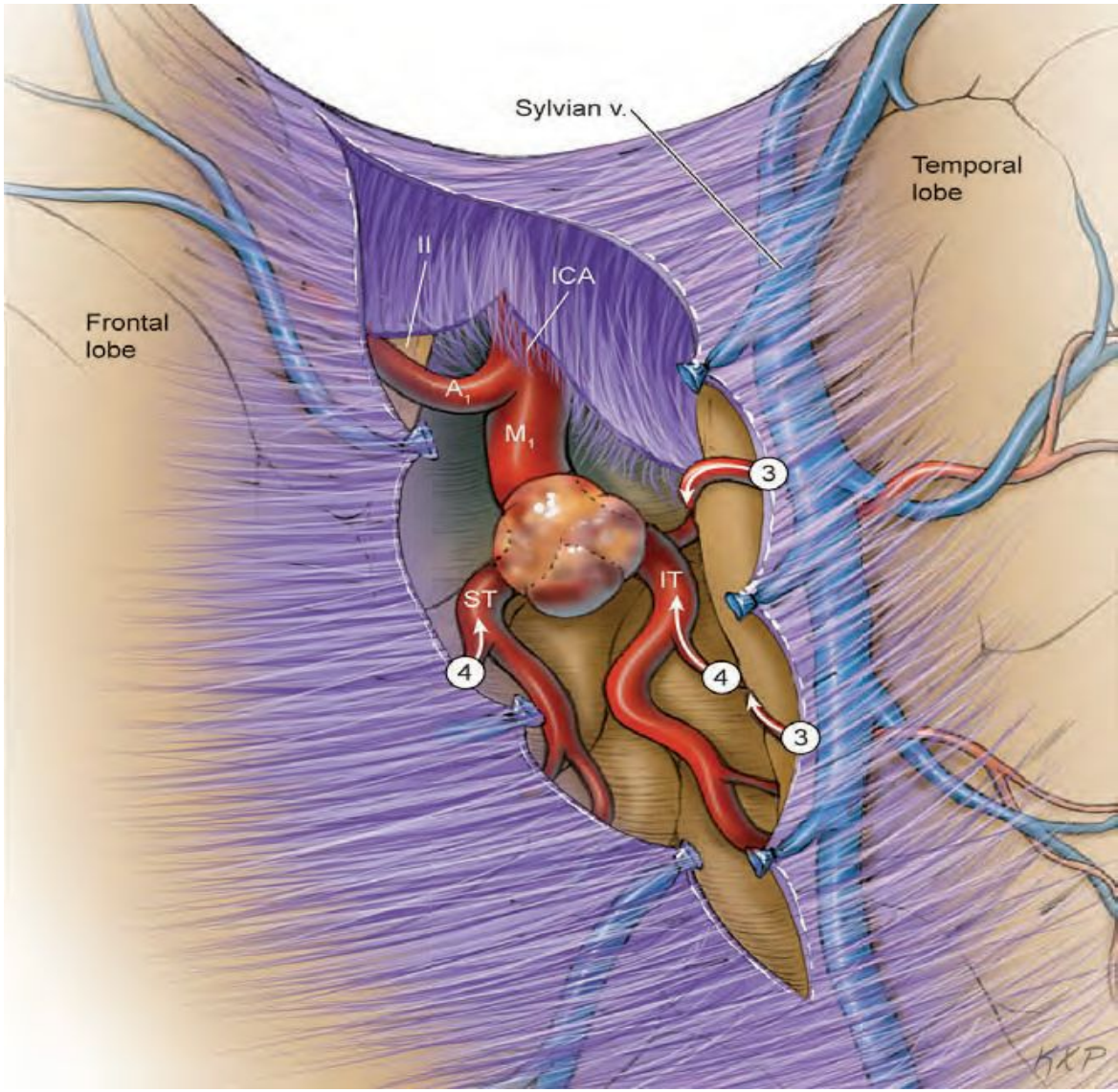
Venous systems draining the sylvian fissure



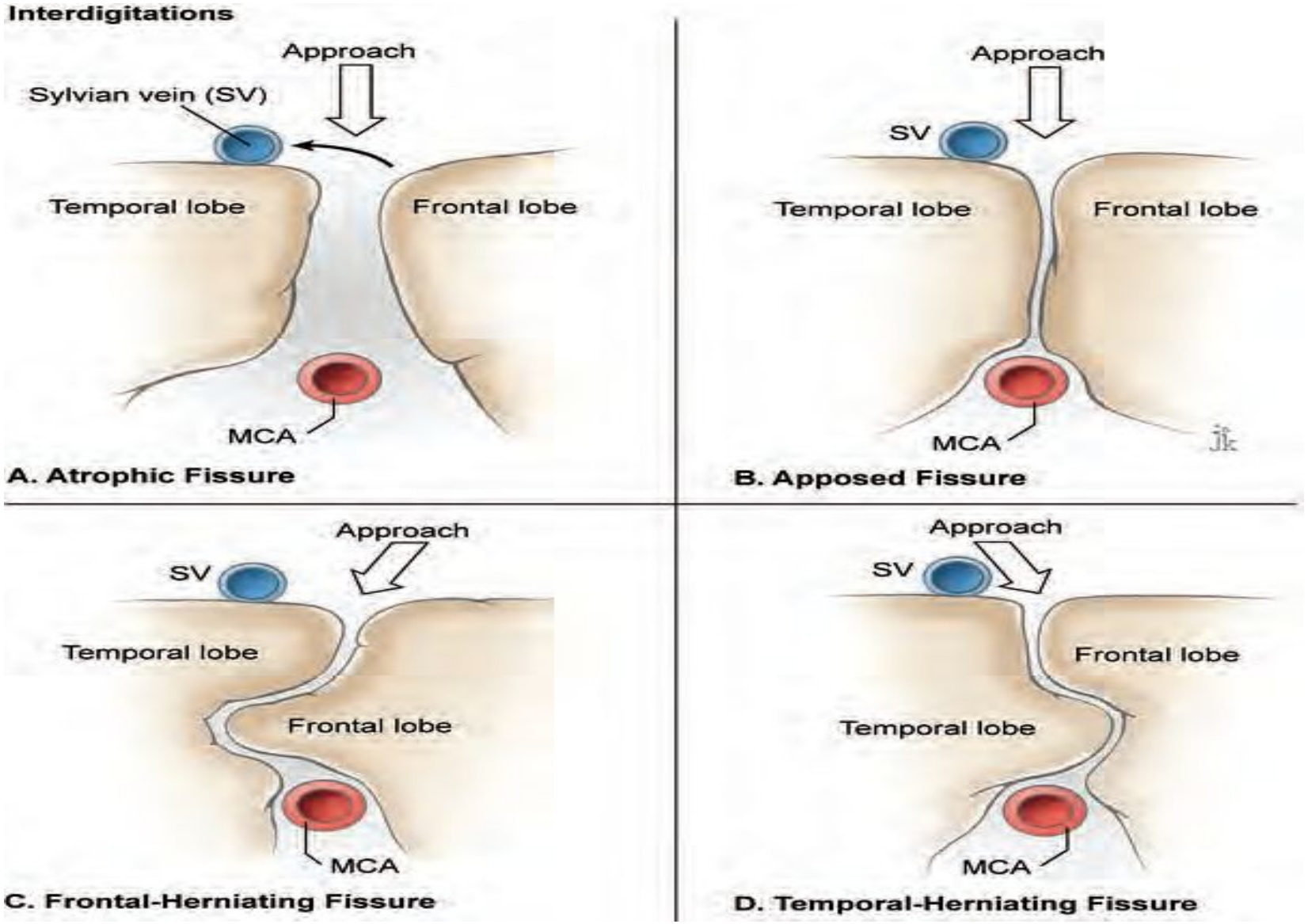

Sylvian cistern
Carotid cistern
Lamina terminalis cistern
Dissection direction
K. X. Frost

Steps in splitting the sylvian fissure (arteries & deep dissection).

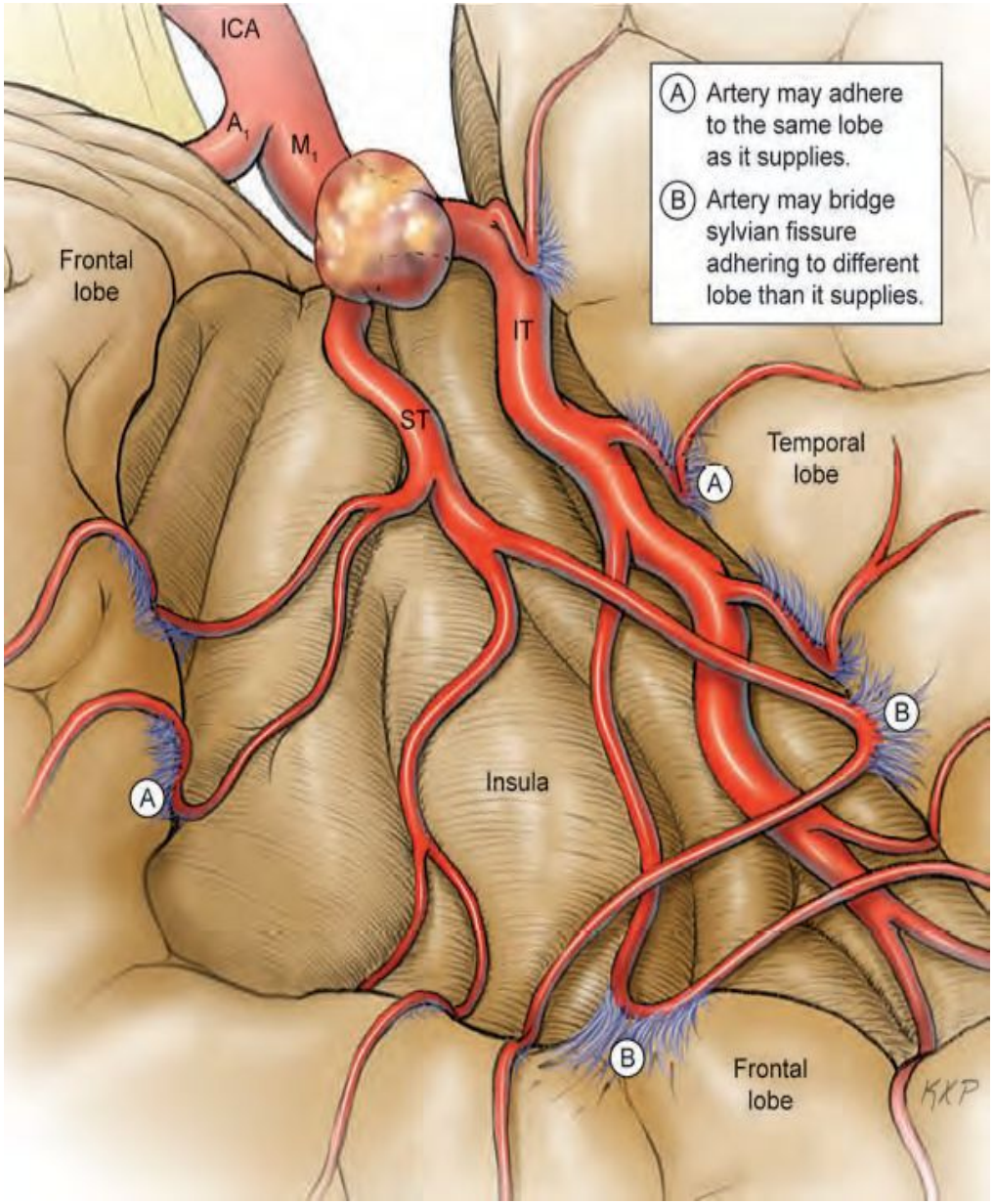
- **Step 3**: following
- the cortical MCA branches to the opercular br;
- **Step 4**: following the opercular MCA branches to the insular MCA branch



Types of sylvian fissures

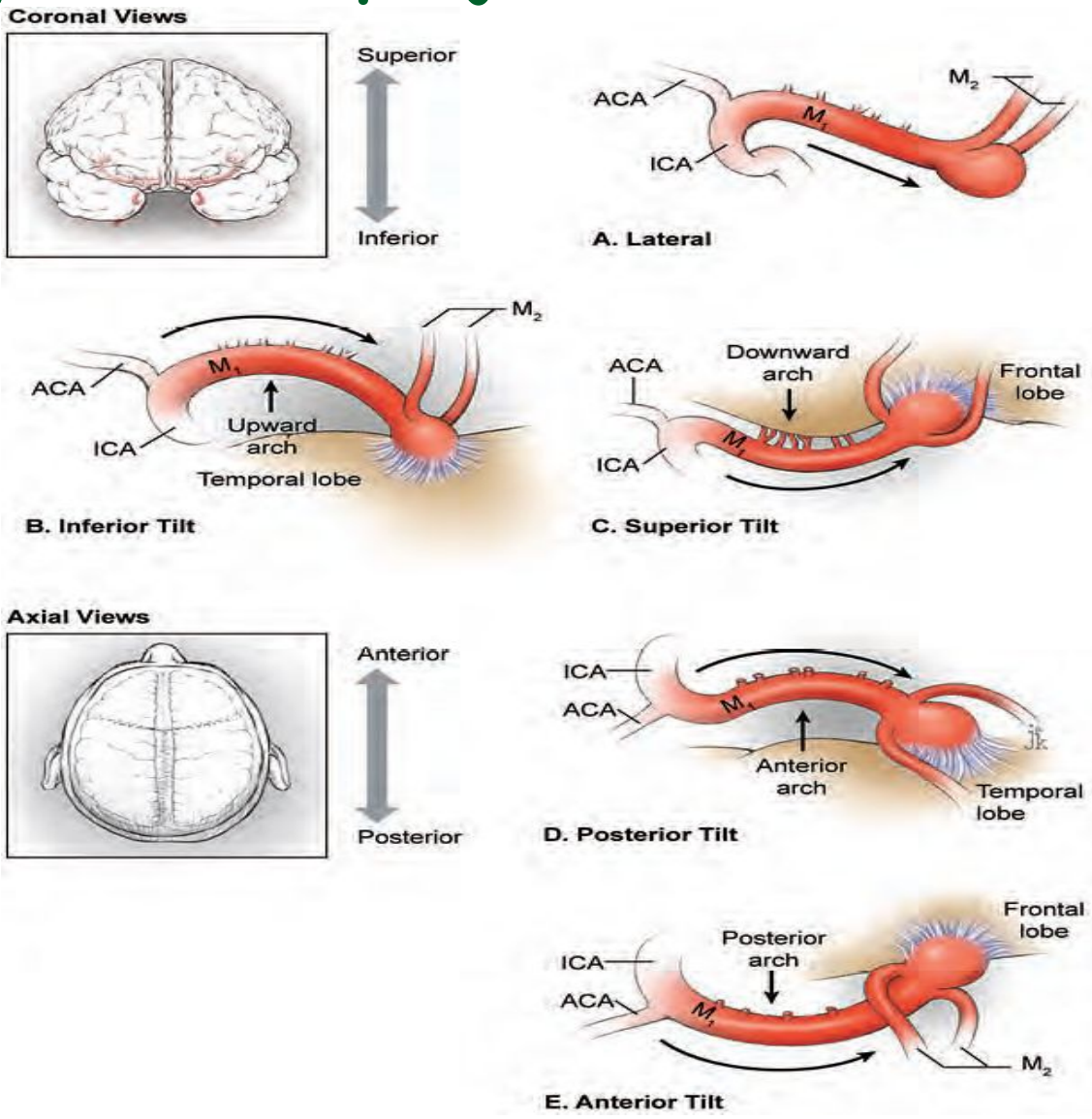


- Arteries branch temporally or frontally, but never to both lobes.
- Consequently, arteries
- in the sylvian fissure move to one side or the other.
- Some arteries lie on the same lobe they supply (A), & other lie on the opposite lobe (B).
- A temporal artery that adheres the frontal lobe bridges the fissure, is mobilized temporally.
- Branch arteries are traced from their origin to their final destination to interpret & unscramble
- them correctly.



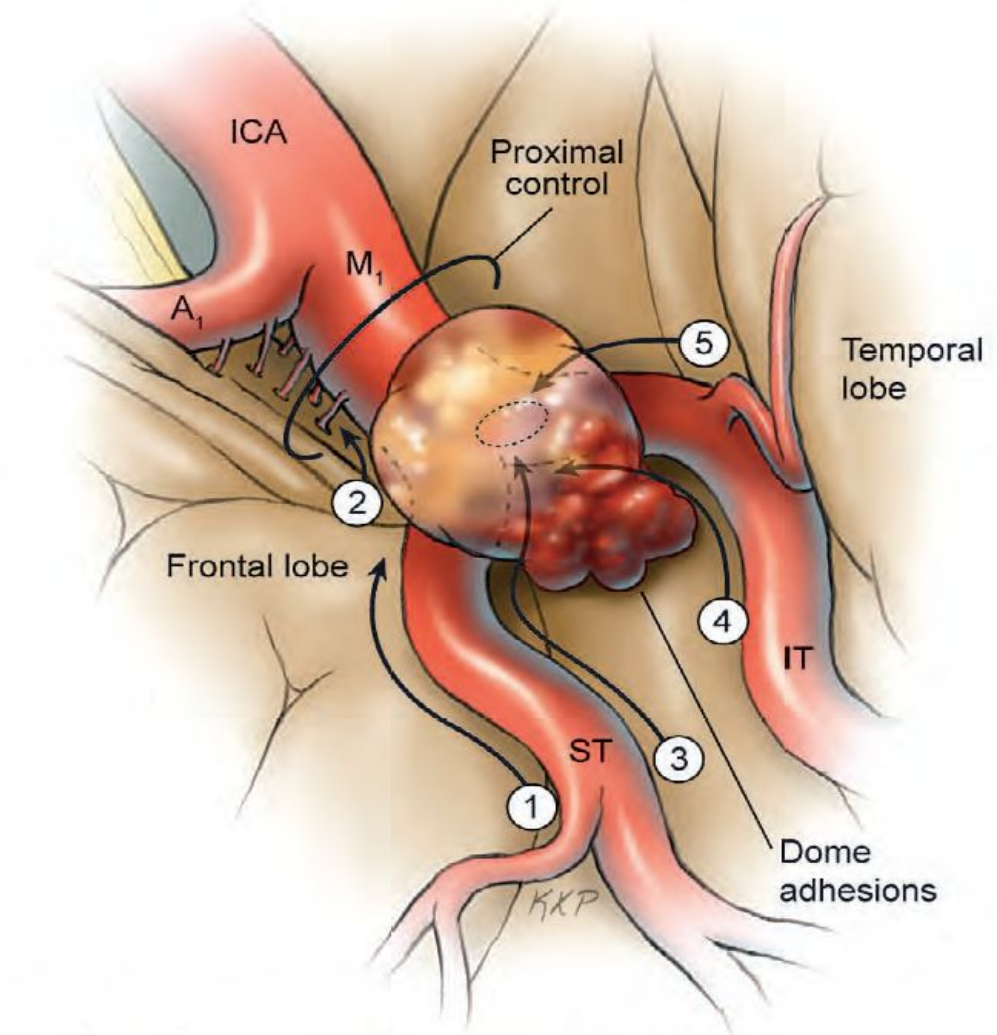
MCA aneurysm dome projections

Coronal views: lateral (A), inferior (B), and superior (C) projection.
Axial views: posterior (D) & anterior (E) projection.
ACA, anterior cerebral artery.



MCA aneurysm dissection strategy, distal-to-proximal dissection

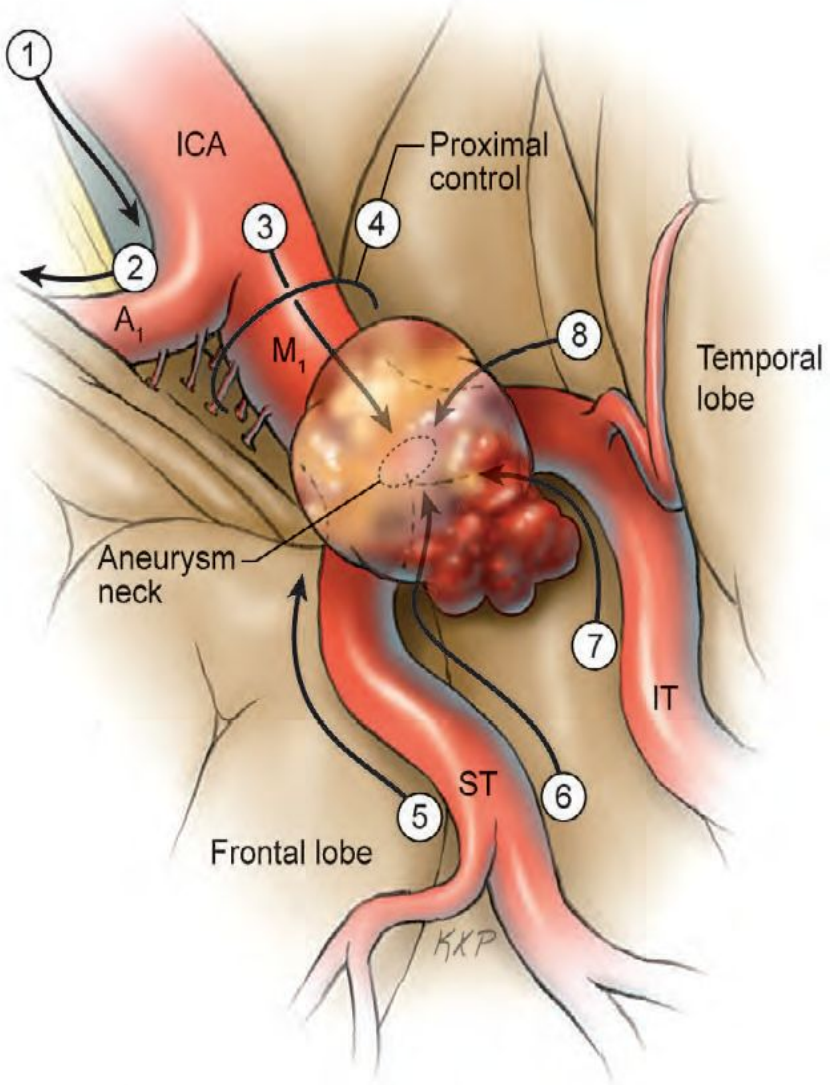
Step 1: following the superior trunk (outer surface); **Step 2:** preparing the M1 segment for proximal control; **Step 3:** following the superior trunk (inner surface); **Step 4:** following the inferior trunk (inner surface); **Step 5:** dissecting the distal neck (blind spot).



Distal-to-Proximal MCA Aneurysm Dissection

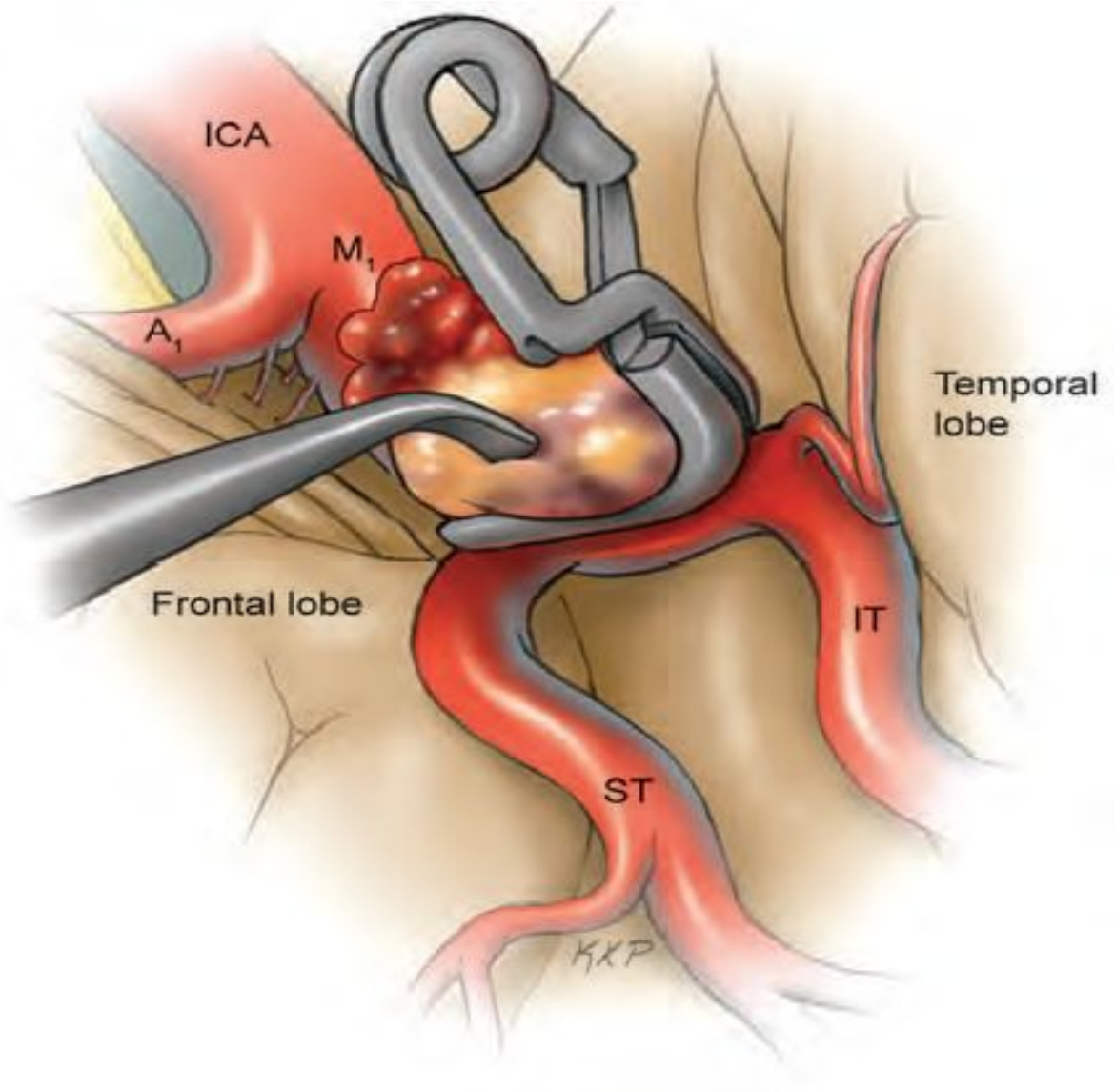
MCA aneurysm dissection strategy, proximal-to-distal dissection

Step 1, dissecting the supraclinoid ICA;
Step 2, dissecting the A1 ACA;
step 3, identifying the AChA laterally & dissecting the proximal M1 segment;
Step 4, gaining proximal control;
Step 5, shifting to the distal sylvian fissure & following the superior trunk (outer surface);
step 6, following the superior trunk (inner surface);
Step 7, following the inferior trunk (inner surface);
Step 8, dissecting the distal neck (blind spot).

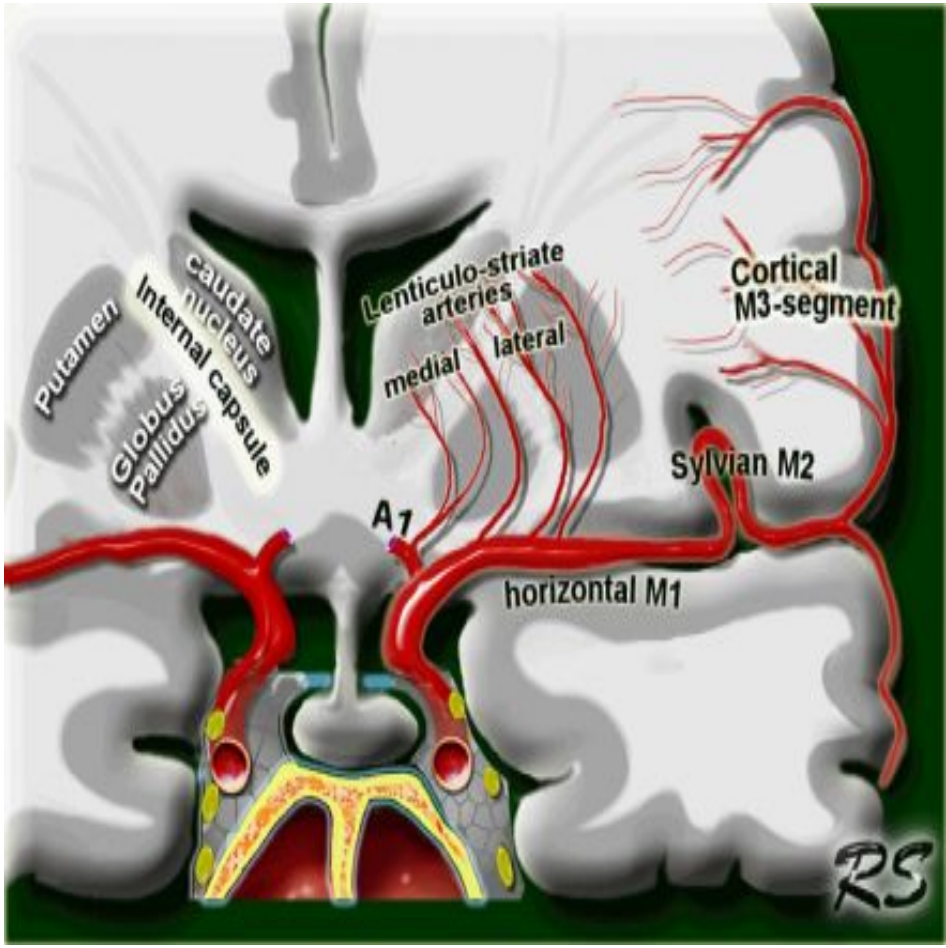


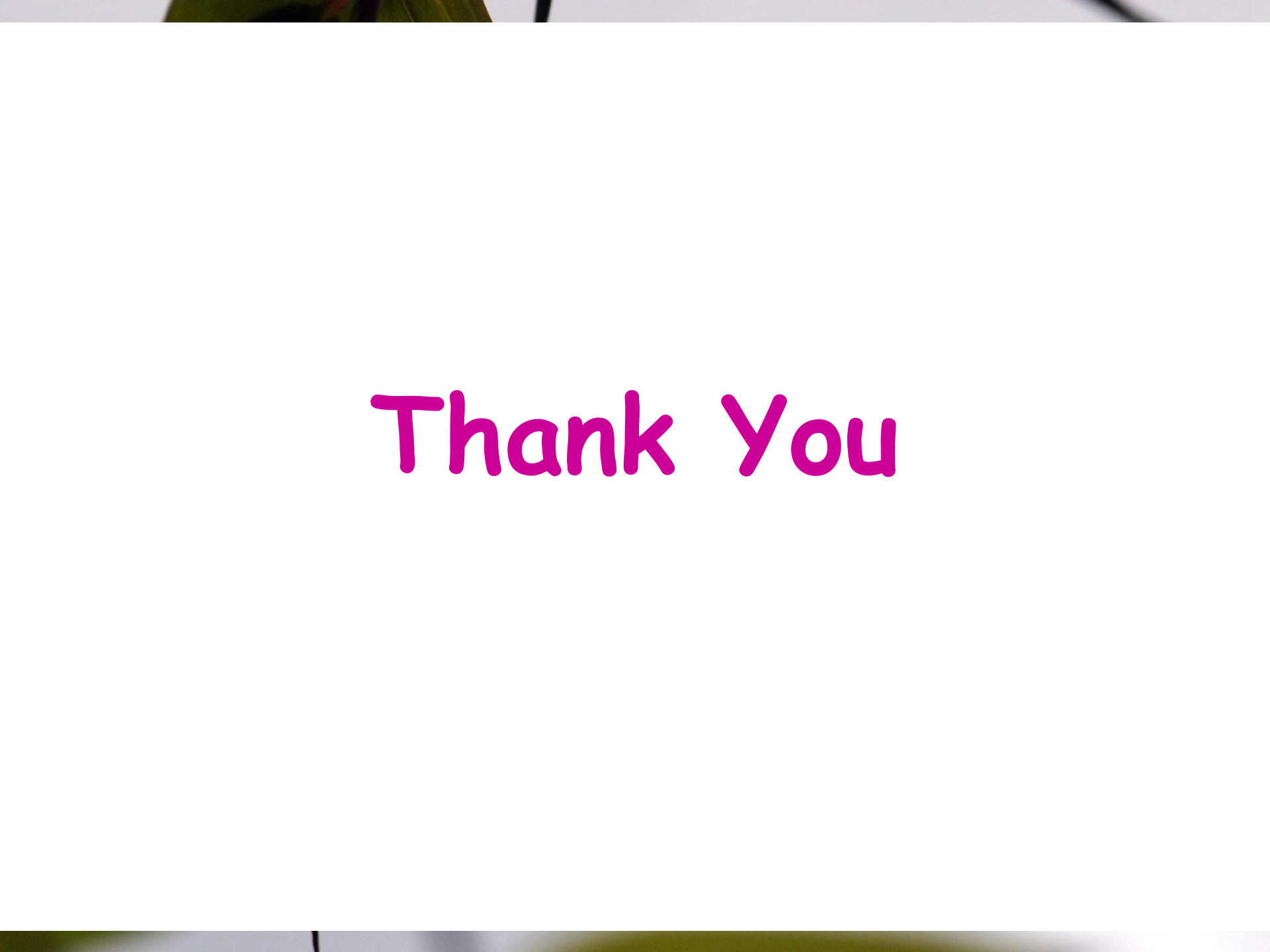
Proximal-to-Distal MCA Aneurysm Dissection

Simple clipping technique for MCA aneurysms.



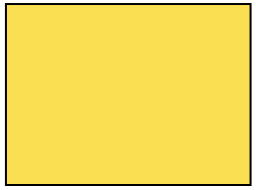
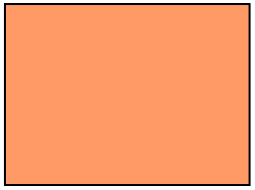
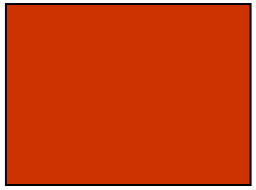
Draining Areas



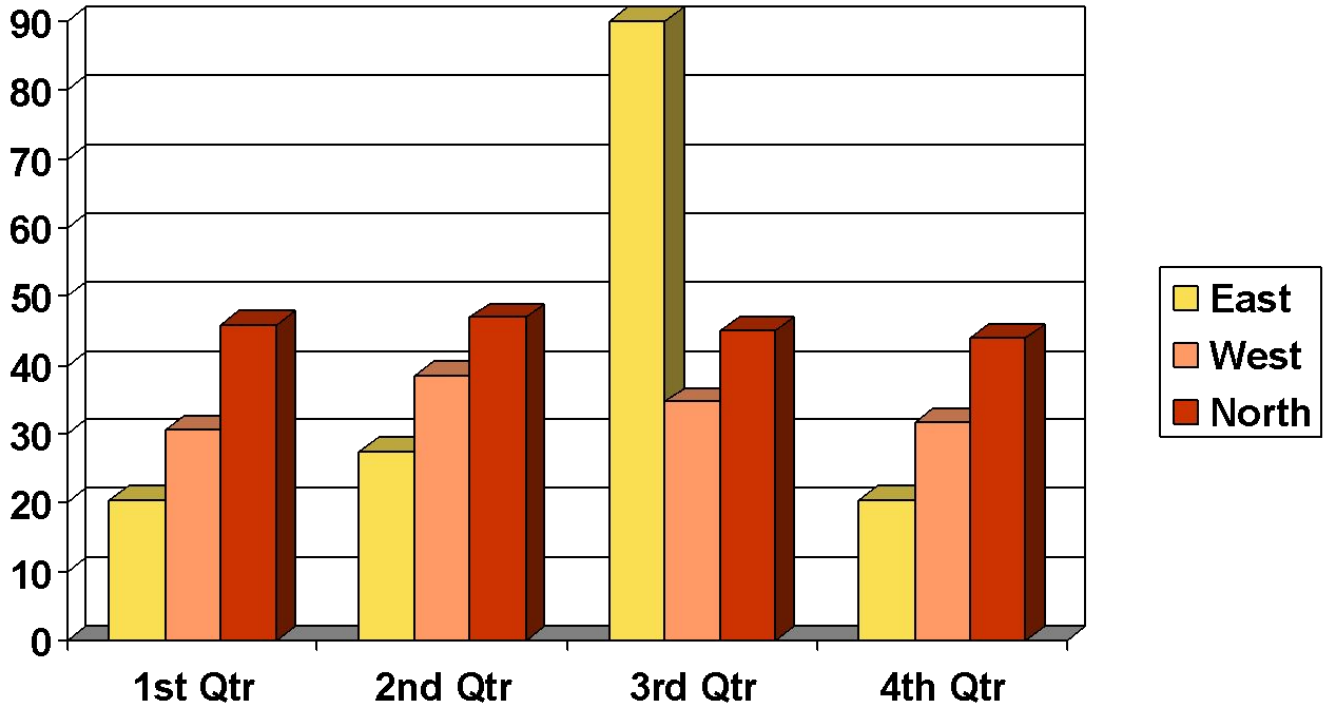

Thank You

Colour scheme

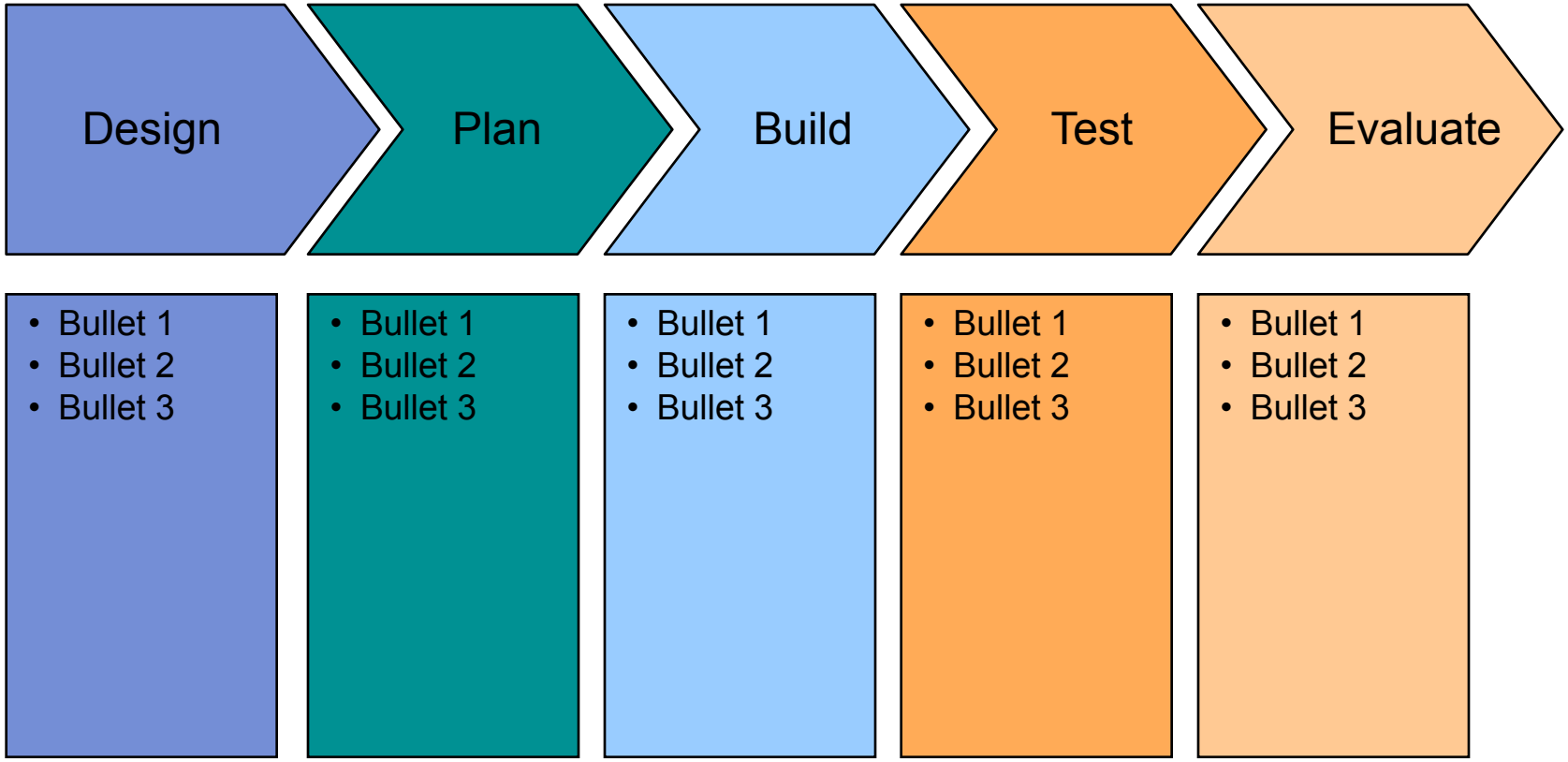
Background	Text & Lines	Shadows	Title Text
			

Fills	Accent	Accent & Hyperlink	Followed Hyperlink
			

Sample Graph (3 colours)



Process Flow



Example of a table

Title	Title
Data	Data

Note: PowerPoint does not allow you to have nice default tables - but you can cut and paste this one

Examples of default styles

- Text and lines are like this
- Hyperlinks like this
- Visited hyperlinks like this

Table	

Text box

Text box
With shadow

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