Corpus Callosum. 4 Mark

largest commissure.
connects neocortex of two hemispheres except anterior & lower part of temporal lobe } it's by anterior comm }

10cm long
100-300 million fibres.

External features and relations of Corpus callosum.

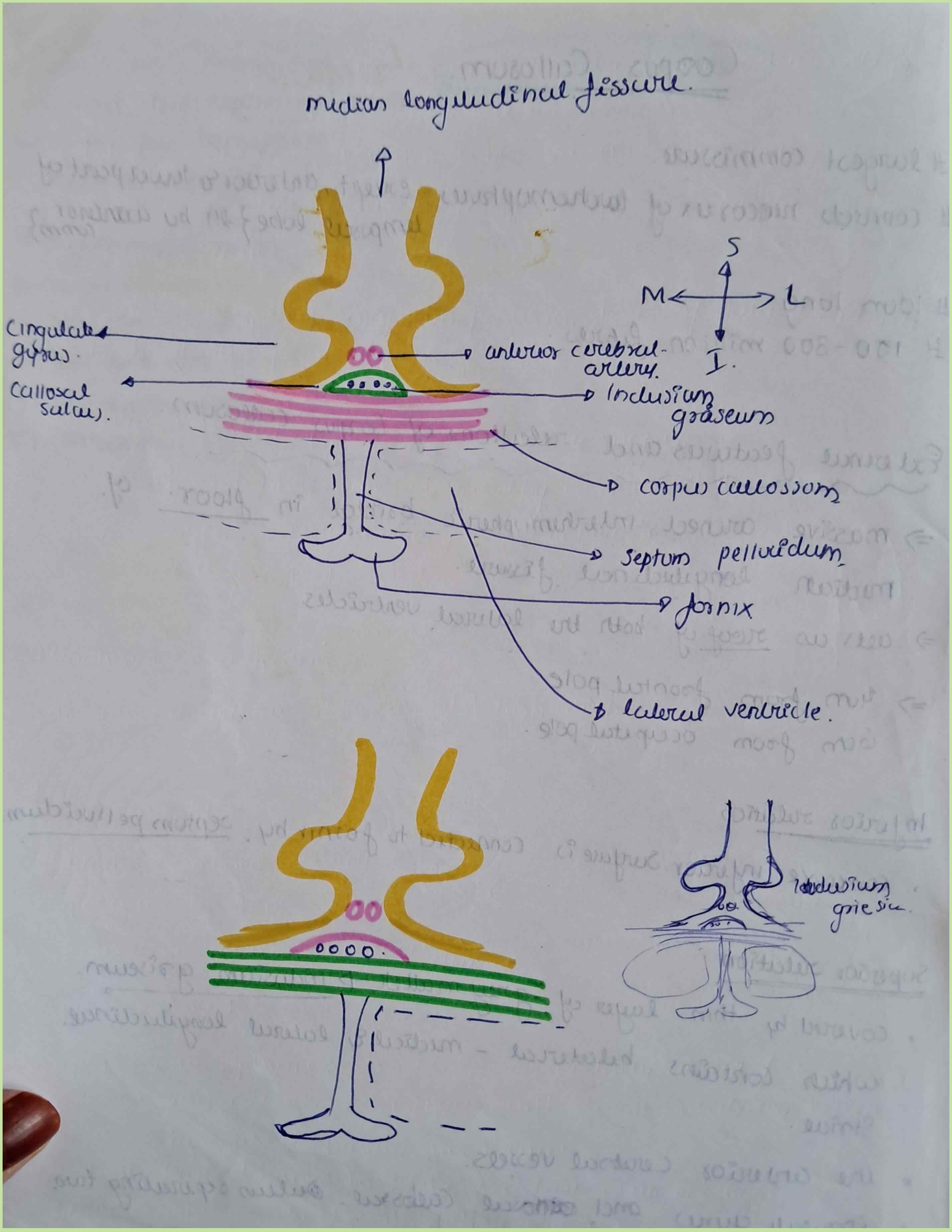
⇒ massive arched interhemispheric bridge in floor of median longitudinal fissure.
⇒ acts as roof of both the lateral ventricles.
⇒ 4cm from frontal pole
6cm from occipital pole.

Inferior relation

. concave inferior surface is connected to fornix by. septum pellucidum.

Superior relation

. covered by thin layer of grey matter → Indusium griseum.
which contains bilateral - medial & lateral longitudinal Striae.
. the anterior cerebral vessels.
. cingulate gyrus and callosal sulcus separating two.


median longitudinal fissure.
S
M
L
I.
Cingulate gyrus.
Callosal sulcus.
anterior cerebral artery.
Indusium griseum
corpus callosum
septum pellucidum
fornix
lateral ventricle.
Indusium griseum.

Parts of Corpus Callosum.

from anterior to back : rostrum, genu, body, splenium.

Genu

- Curved anterior extremity. → lies 4cm behind frontal pole.
- It forms anterior boundary of anterior horn of lateral ventricle.
- fibres of genu curved forwards on either side to anterior part of frontal lobe. → forms fork like str → forceps minor.

Rostrum

- Extension of genu downwards and backwards.
- rostrum is connected to lamina terminalis.
- forms floor of anterior horn of lateral ventricle
- fibres extend inferiorly to connect orbital surface of 2 frontal lobes

Trunk

- middle part between genu & splenium.
- fibres connects most of frontal & anterior part of parietal lobes of 2 cerebral hemispheres.
- It forms roof of central part of lateral ventricle.

Splenium

- posterior extremity.
- It overhangs thalamic pulvinars, pineal gland & lectum of midbrain.
- tela choroidea, posterior choroidal arteries. and great cerebral vein of galen → lies below splenium.

- fibres connect posterior part of parietal lobes, temporal & occipital lobes of 2 hemispheres.
- fibres connecting occipital lobes sweep backwards above calcarine sulcus forming large fork-like str.

→ forceps major.

- swelling of forceps major on posterior horn of lateral ventricle, bulb of the posterior horn.

Tapetum : formed by fibres from trunk & splenium.

- lamina of white fibres not intersected by corona radiata.
- forms roof and lateral wall of posterior horn & lateral wall of inferior horn.

Functional Significance.

→ interhemispheric transfer of information.

BLOOD SUPPLY

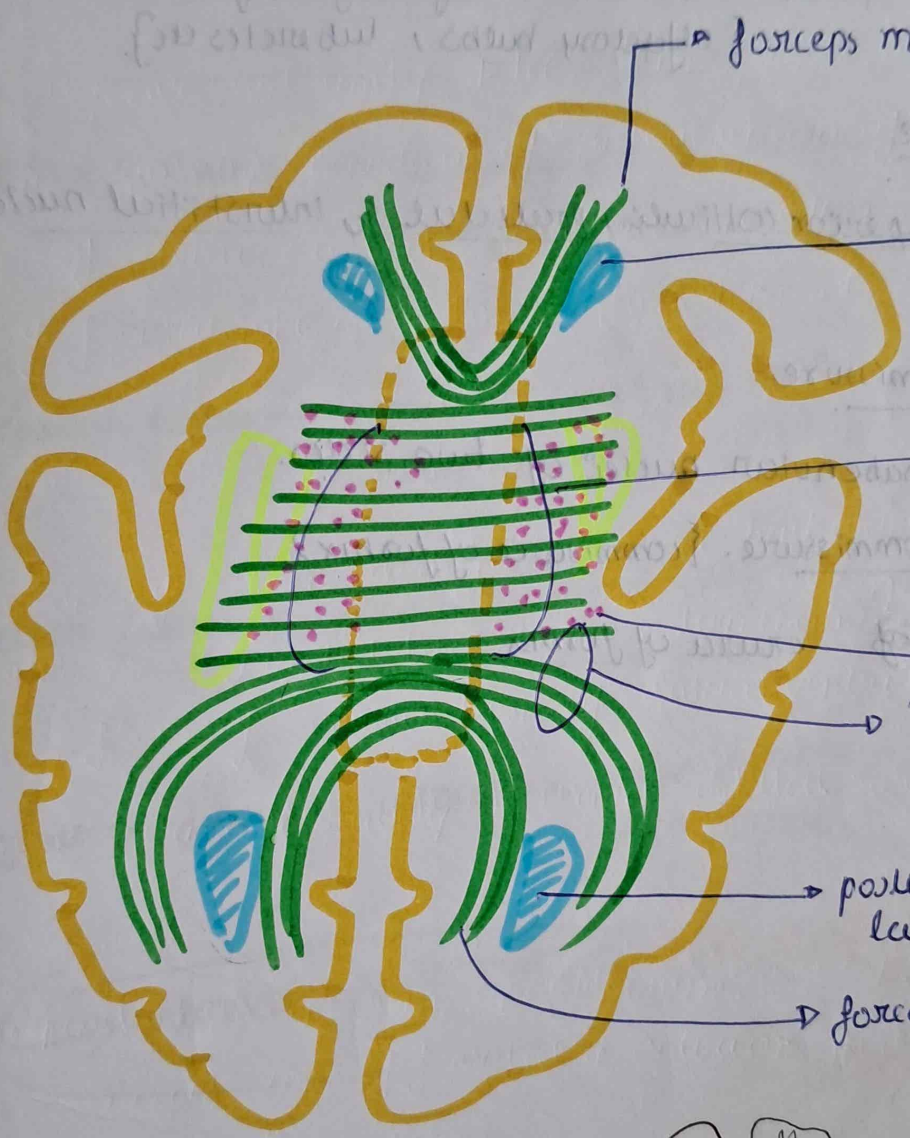
- Anterior cerebral artery.
- posterior cerebral artery.
- anterior communicating artery.

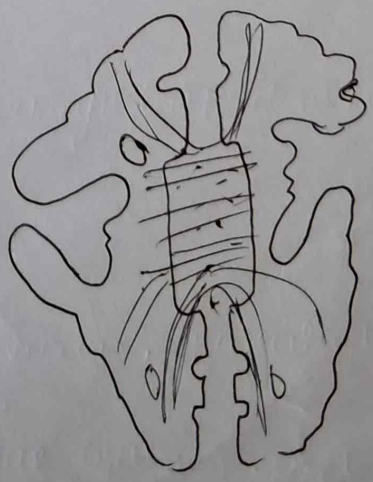
Applied Aspects.

- split brain Syndrome : If cc is congenitally absent / sectioned surgically, each hemisphere will become isolated & he/she will behave as if having two brains.

ie, if they are trained to perform a task with one hand, they are unable to do it with other hand.

- lesions of anterior corpus callosum: akinetic mutism.
  posterior corpus callosum: alexia without agraphia.





Anterior commissure.

2 parts.

→ neocortical component : connect anterior & lower part of temporal lobe.

→ paleocortical component : Interconnects olfactory regions & olfactory bulbs, tubercles etc.

posterior commissure.

- Interconnects superior colliculi, pretectal & interstitial nuclei of two sides.

Habenular commissure.

- Interconnects habenular nuclei of two sides.

Hippocampal commissure. (commissure of fornix).

- Interconnects crura of fornix.

Projection Fibres.

- projection fibres connects cerebral cortex to the subcortical centres → corpus striatum.
  Thalamus.
  brainstem.
  spinal cord.

- corticofugal fibres → go away from cortex (cortical efferents) to centres in other part of CNS.

- corticopetal fibre → come to cerebral cortex from other centres in CNS.

- projection fibres of neocortex → corona radiata
  → internal capsule.

- projection fibres of allocortex → fimbria
  → fornix.