INTERNAL CAPSULE.

one of projection fibres
• There are others too

Location & features

• compact bundle of projection fibres - between

Caudate nucleus & Thalamus } medially

lentiform nucleus } laterally.

• cranially → fan out. → corona radiata.
• caudally → condense → cms cerebri of midbrain

• centripetal & centrifugal fibres of IC connect Cortex. with brainstem and spinal cord.
for sensory and motor innervation of opposite half of body.

Shape & Boundary of IC.

• horizontal section → v shaped.

Bounded → medially → caudate n & Thalamus.
laterally → lentiform nucleus

2

parts.

- 5 parts.

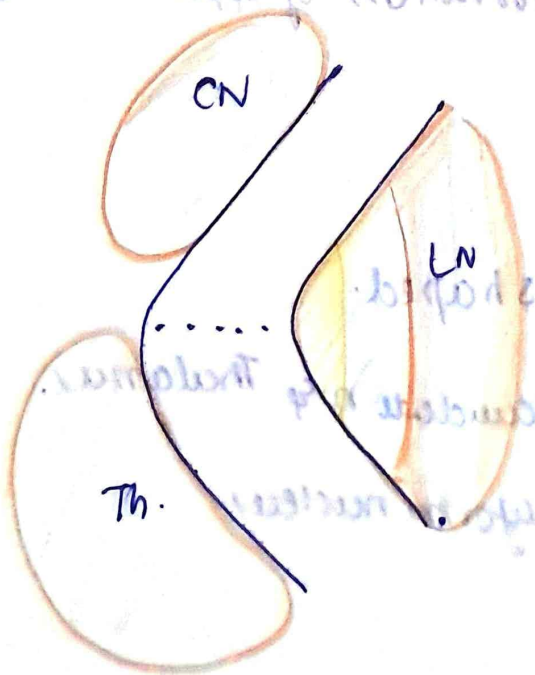
(1) Anterior limb. → between head of CN medially.
ant part of LN laterally.

(2) post limb → btw thalamus medially.
post part of LN → laterally.

(3) Genu. → bend btw ant & post limb.
& concavity of bend → face laterally.

(4) Retrolentiform part → lies behind LN.

(5) Sublentiform part → lies below LN.



3 CONSTITUENT FIBRES of IC.

Motor fibres.

① Cortico pontine fibres.

- originate from all lobes of cerebral hemisphere. & relay in ipsilateral pontine nuclei.
  - ∴ frontopontine → pass through Anterior, post limb & G.
  - → parietopontine. } → pass through → Retrolentiform part
  - → occipitopontine. }
  - → temporopontine. → sublentiform part.
- fibers from pontine nucleus. → relay in cortex of <u>opposite</u> cerebellar hemisphere.

∴ → cortico-ponto-cerebellar pathway.

2. Pyramidal fibres

- arise in cerebral cortex & relay in motor neurons of brainstem & spinal cord.

Corticonuclear fibres

relay with
→ contralateral motor nuclei of cranial nerve.

↓

innervate head & neck muscles

↓

pass through Genu.

Corticospinal fibres

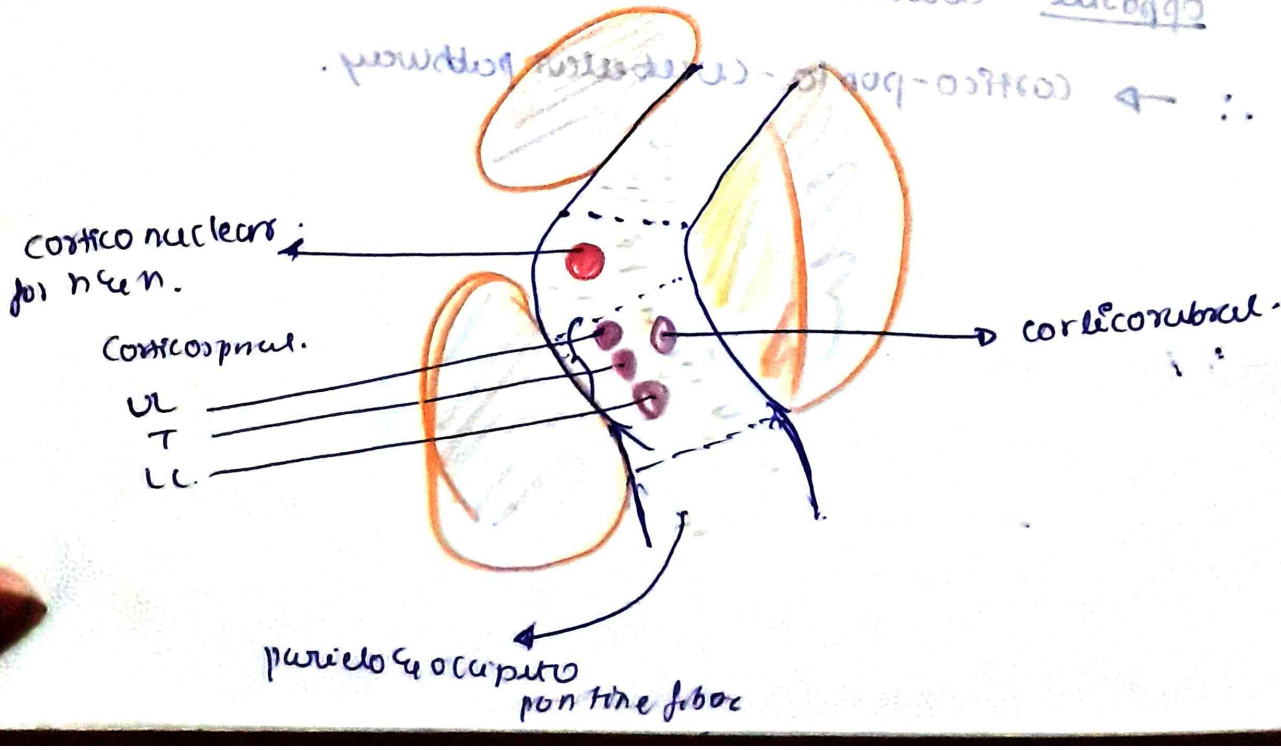
relay in anterior horn cells of opposite side of SC.

↓

innervate UL, LL, Trunk muscles

↓

pass through anterior part of posterior limb.



3. Extrapyramidal fibres

- originate in cerebral cortex & relay in subcortical grey matter.

relay in.

- red nucleus → corticorubral.
- corpus striatum → corticostriate.
- substantia nigra → corticonigral.

Sensory fibres

- Thalamocortical fibres (3rd order neuron fibres) constitute → Thalamic radiation. arise from → terminate

① Anterior thalamic radiation → Ant & DM nuclei of thalamus. → cortex of frontal lobe.

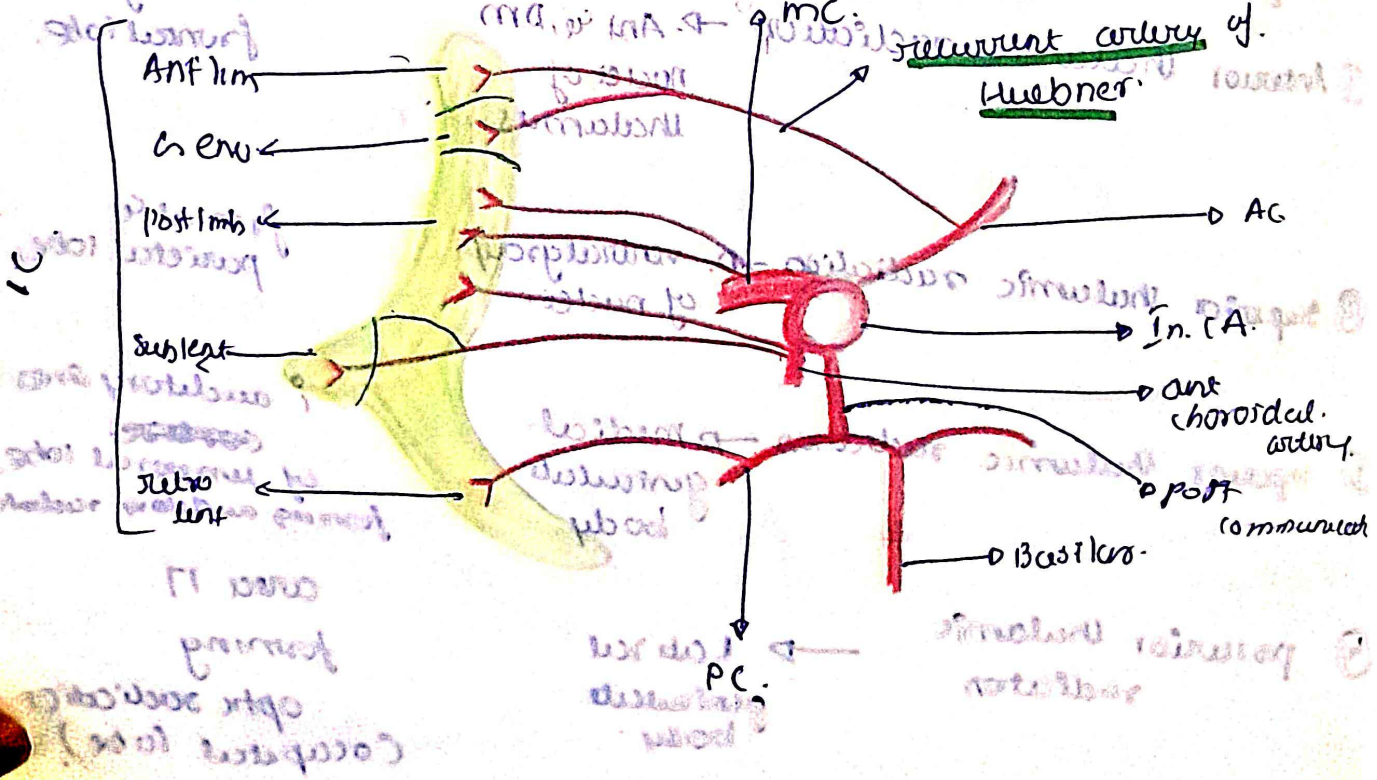
② Superior thalamic radiation → ventral group of nuclei. → frontal & parietal lobe.

③ Inferior thalamic radiation → medial geniculate body. → auditory area of temporal lobe forming auditory radiation

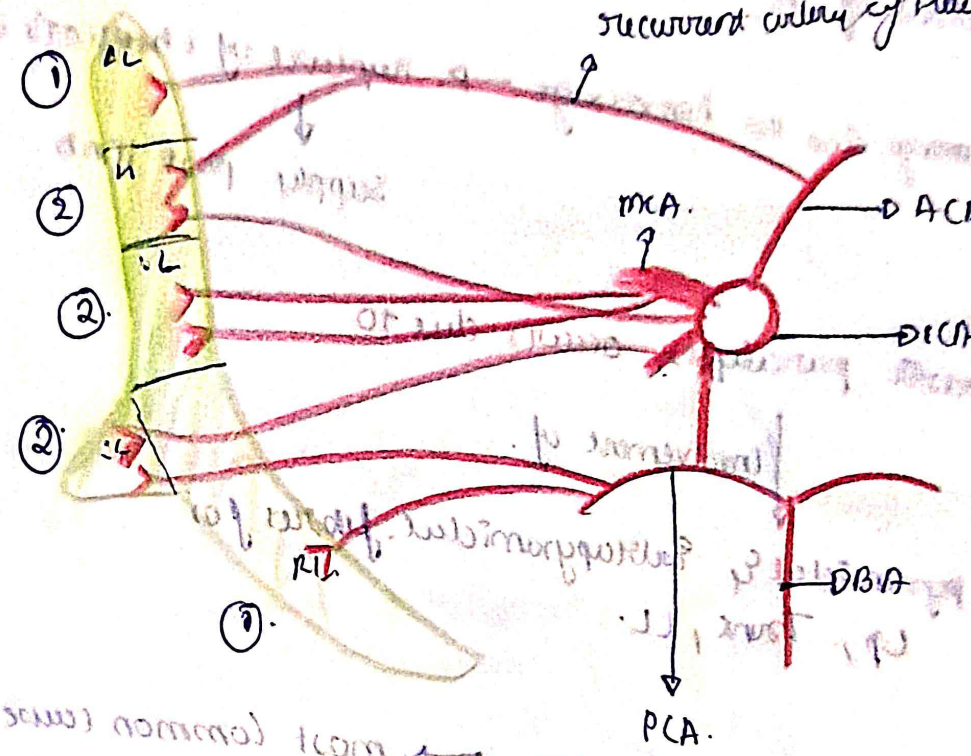
④ posterior thalamic radiation → lateral geniculate body. → area 17 forming optic radiation (occipital lobe).

Thalamic radiation – 1 directional fibres.

BLOOD supply of Internal capsule.



4 ✱ Blood supply. (VS)



• middle cerebral artery → medial & lateral striate branches.

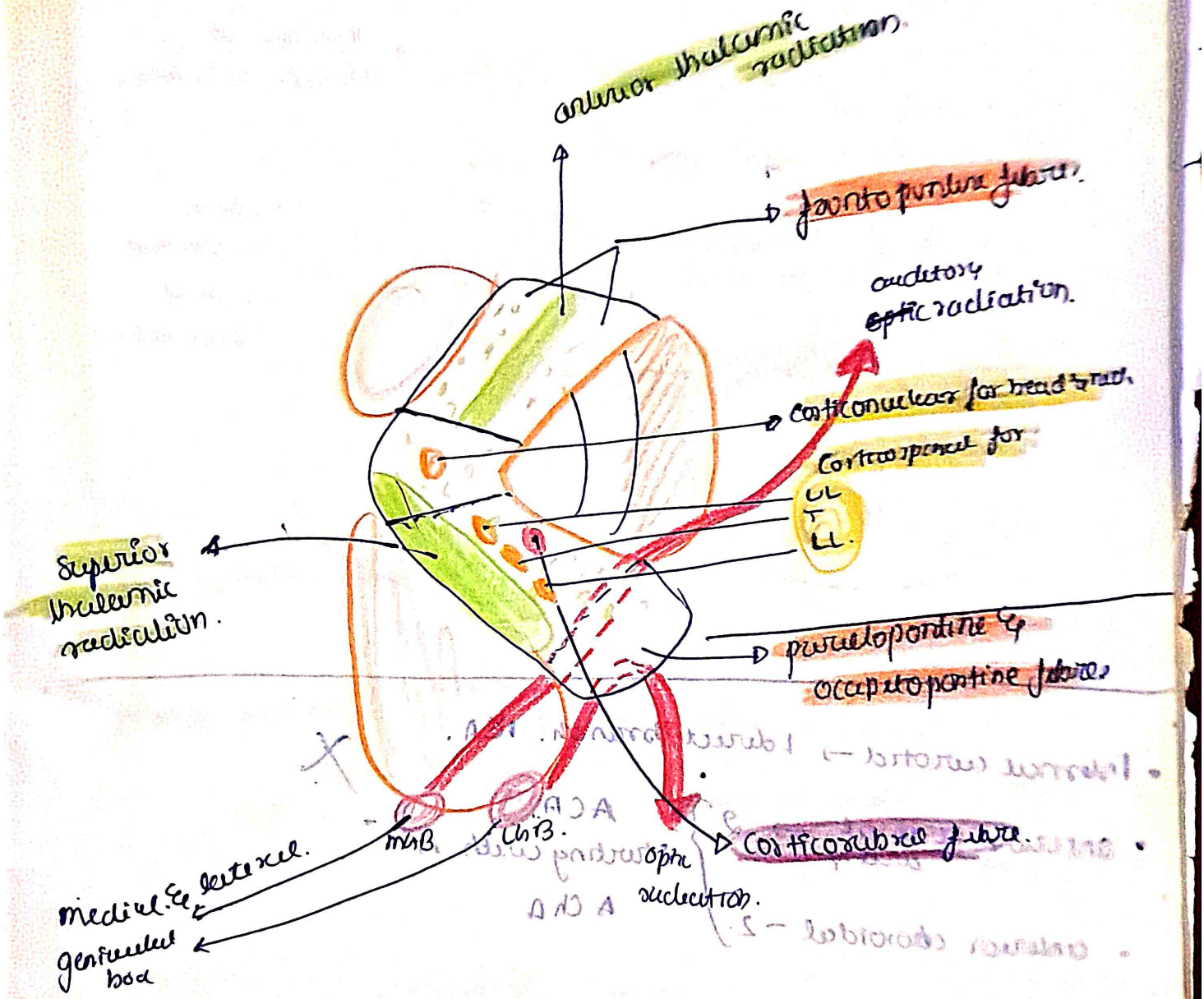
one of LSB → larger → freq. ruptured.

(Charcot) artery

of cerebral haemorrhage.

• recurrent artery of Heubner

FIBRE components of optic radiation.



5 ★ applied aspect.

damage to I.C.

Lesions of IC → corticobulbar hemiplegia.

• damage due to hemorrage → rupture of charcot's artery.

supply post limb.

• spastic paralysis occurs due to

involvement of.

pyramidal & extrapyramidal fibres for Up, Trunk, LL.

→ rupture of charcot's artery → most common cause of hemiplegia.

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recurrent artery of Heubner → thrombosis / rupture → paralysis of face & upper limb on opposite side.

anterior choroidal artery → " → visual & auditory defects.