

Anatomy Lab #5

\* Sections of midbrain at 2 levels:

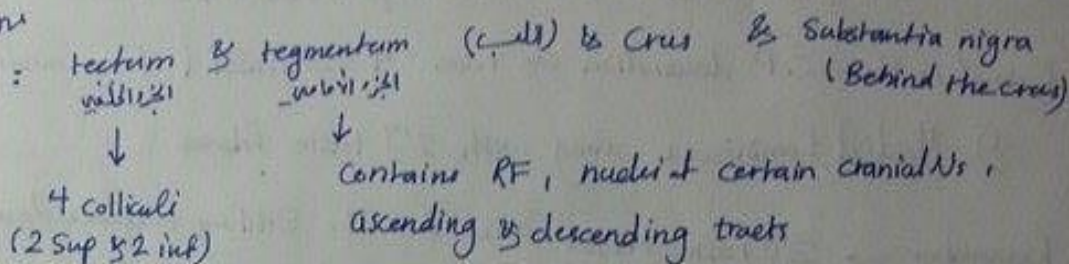
1 At the level of Inferior Colliculus

2 at the level of Sup. Colliculus

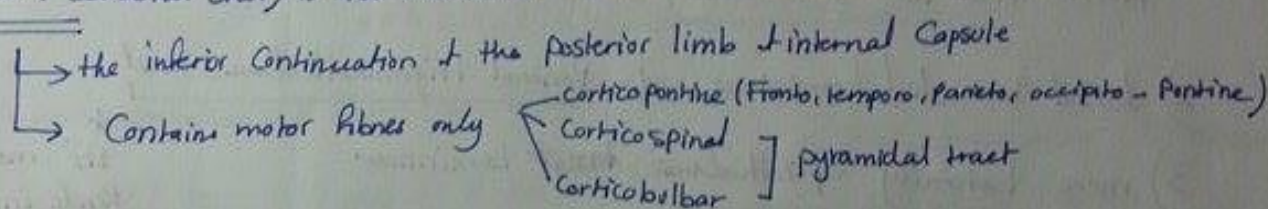
1 At the level of Inf. Colliculus

- Close to the Pons

- Basic structure of mid brain



- Crus (cerebral crus) is also known as Basis Peduncle or cerebral Peduncle.



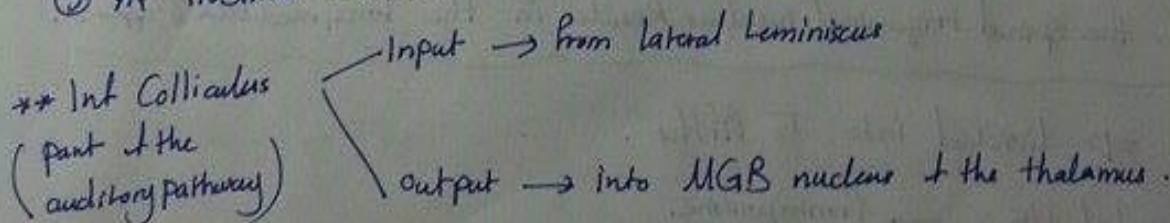
\* Corticoponto cerebellar tract brings info to the Cerebellum about intended movements

\* At the level of inf. colliculus, the S.C.P. decussate.

the S.C.P. decussation along the motor decussation insure that each cerebellar hemisphere controls its ipsilateral side muscles.

\* Characteristics of the section of midbrain at Inf. colliculus: =

- 1 At the inf. colliculus
- 2 At S.C.P. decussation (dentato rubro thalamic cortical tract decussation)
- 3 At trochlear nucleus.



\*\* btw the inf. colliculus & MGB → brachium of Inf. colliculus.

\* Lateral Lemniscus ends at this level. (so if we took more rostral sections we won't see the lateral Lemniscus)

\* around the cerebral aqueduct → Periaqueductal grey matter (PAG) contains:

- 1) part of endogenous pain pathway
- 2) nuclei & CNs
  - Trochlear N
  - mesencephalic nucleus & Trigeminal N

- Q → which cranial N's nuclei appear at this level?

- 1) Trochlear N
- 2) Mesencephalic nucleus + trigeminal N.

Remember the Solitary nucleus is in the medulla.

\* Around the midline there is always MLF

\* Central tegmental tract → brings info from the cortex, basal ganglia into the cerebellum  
↳ is related to the dorsal trigeminothalamic tract

\* Lateral to the S.C.P decussation we have 4 Lemnisci (From medial to lateral):

1) Medial Lemniscus along with 2<sup>nd</sup> taste fibres

Remember → 2<sup>nd</sup> taste fibres arise from the Solitary nucleus decussate then ascend to VPM nucleus of the thalamus along with the Medial Lemniscus then from VPM into somatosensory cortex to the face area.

2) dorsal to medial Lemniscus ⇒ Ventral trigeminothalamic tract

3) more Laterally Spinothalamic ~~tract~~ Lemniscus

4) Further Laterally → Lateral Lemniscus. (ends here)

↳ its mother nuclei reside in the spinal trigeminal nucleus

\* What are the effect/s of lesion affecting the following --?

A) Medial Lemniscus → Contralateral Loss of Proprioception, stereognosis, vibration, 2 point discrimination -- etc.

B) Spinal Lemniscus → Contralateral loss of Pain, temp & Simp. touch

C) Lateral Lemniscus → impaired hearing more in the contralateral ear  
not a complete loss but more impairment

\* Remember the spinal trigeminal nucleus resides in the Pons, medulla & upper SC

\* the Crus ⇒ divided into 5 parts.

1) the medial 1/5 → frontopontine

2) the lateral 1/5 → temporo-parieto, occipito pontine

3) 3 (1/5) (middle) → pyramidal tract

\* Corticopontine fibres are small in diameter

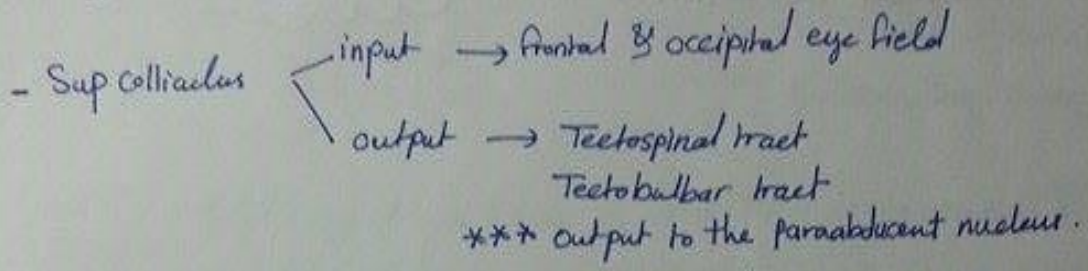
\* Corticospinal / corticobulbar are heavily myelinated.

\* Lesion in the Crus Cerebri at the Level of int. colliculus =>

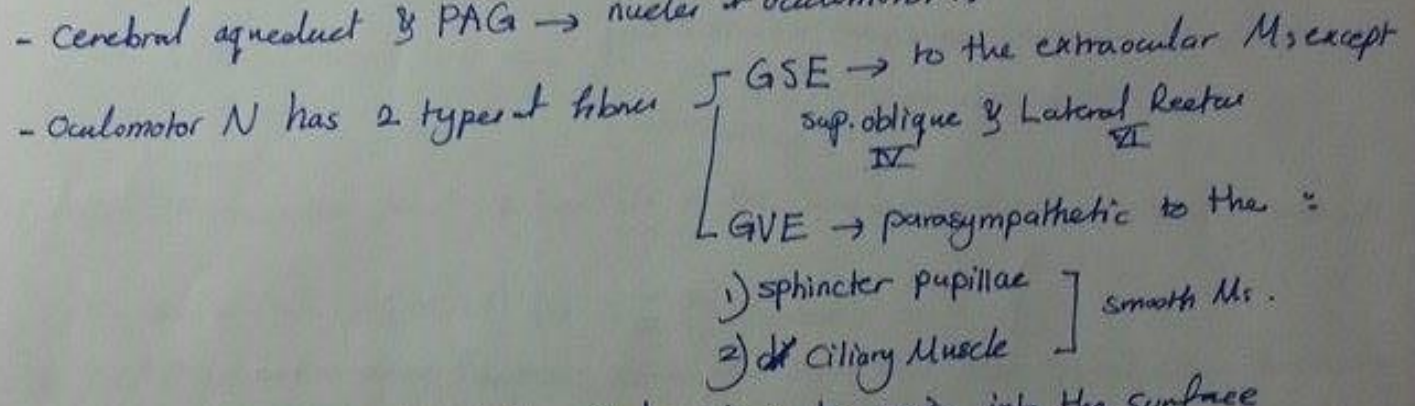
- 1. Contralateral Flaccid paralysis
- if we lesioned Ant + RF (extrapyramidal) -> Contralateral spastic Paralysis.

2. Midbrain at the Level of sup. colliculus:

- at Sup. colliculus
- at Red nucleus
- at nucleus of oculomotor.



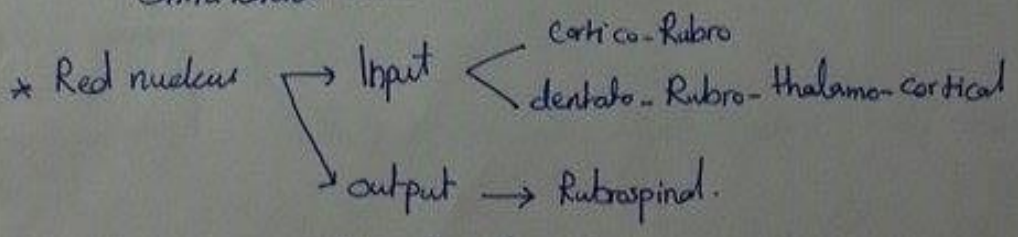
- Cerebral aqueduct & PAG -> nuclei of oculomotor N



- oculomotor N passes through the Red nucleus to arise into the surface btw the 2 Crus cerebri

- here we see 3 Lemnisci (Lateral Lemniscus is not present) most lateral is spinal Lemniscus

- at this Level -> all Lemnisci have been decussated -> so Lesions here produce Contralateral effect.



\* a Lesion at this Level ->

- Contralateral spastic paralysis
- Ipsilateral external squint (downward & outward deviation of the eye, dilated pupil, unresponsive to light & accommodation Reflexes)

\* a pt with Lt spastic paralysis & external squint in his Rt eye.  $\Rightarrow$

Lesion at the Rt crus cerebri

\* a pt with Lt spastic paralysis & his tongue is deviated into the Rt  $\Rightarrow$

Lesion at the Rt 1/2 of the medulla.

- the two previous conditions are called crossed / alternating hemiplegia.

**a rule** whenever the pt is having a paralysis & a manifestation of Cranial nerve involvement the Lesion is in the **Brain Stem**