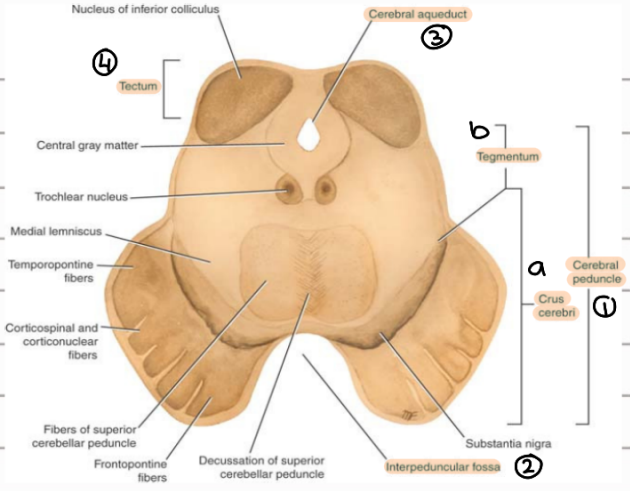
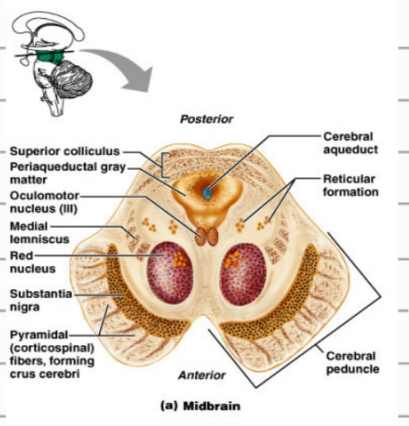
BRAIN STEM (PART 2)

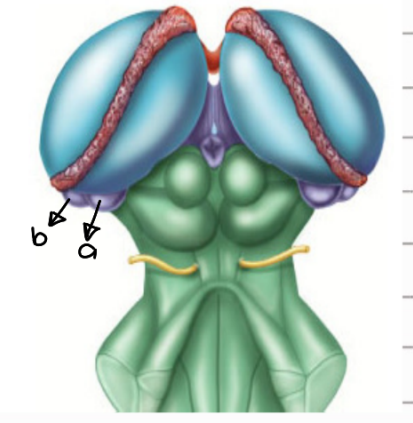


Midbrain

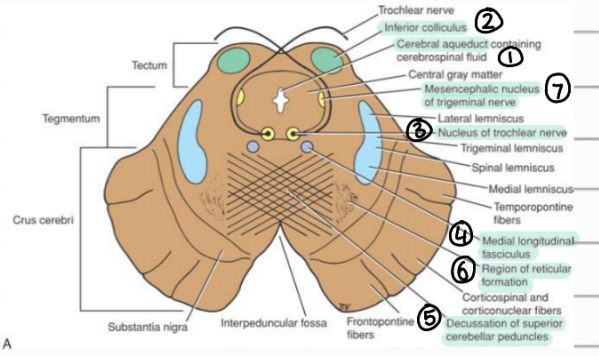
- bet. diencephalon & pons
- Structures:
  1. 2 cerebral peduncles (ant. to ③), divided by ⑤ into:
     a) Crus cerebri (ant. to ⑤)
     b) tegmentum (post. to ⑤, ant to ③)
  2. inter peduncular fossa (CN 3 origin)
  3. cerebral aqueduct (cavity, passage bet. 3rd ventricle (sup.) & 4th ventricle (inf.))
  4. tectum (post. to ③, has 4 colliculi)
  5. substantia nigra



- post. view of midbrain:
  1. 4 colliculi of tectum
  2. trochlear N origin
  3. 2 thalami:
     - divided to rt & lt by 3rd ventricle
     - egg shaped & has multiple nuclei
     - has geniculate bodies
       a) medial → for auditory pathway
       b) lateral → for visual pathway
  4. sup. brachium (connects sup. colliculus to b)
  5. inf. brachium (connects inf. colliculus to a)



- Level of inferior colliculus
  1. cavity: cerebral aqueduct
  2. post. to ①: inf. colliculi
  3. ant. to ①: nucleus of CN 4 (motor) (the only N arising in post. aspect of midbrain)

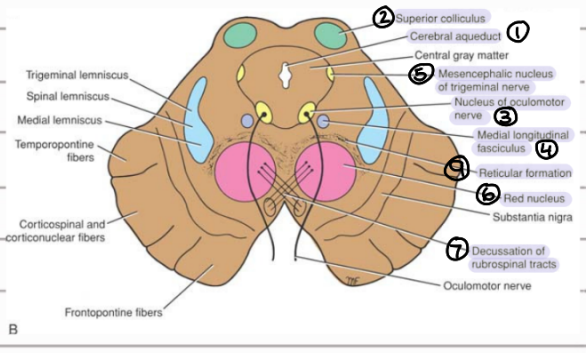


  4. medial longitudinal fasiculus (MLF) anterolateral to ③, connects motor nuclei of eye movement (CN 3,4,6) with vestibular nuclei & upper cervical segments.
  5. decussation of sup. cerebellar peduncles → form sup. cerebellar peduncle & move to cerebellum (has fibers like dentothalamic & globose emboliform rubral pathway
  6. reticular formation (lat. to ⑤, extends from medulla to midbrain)
  7. mesencephalic nucleus of trigeminal (lat. to ①, exits in midbrain)

- Crus Cerebri
  - On ant. surface of midbrain
  - 5 sections (all for descending tracts)
    - lat. fifth → temporopontine fibers
    - med. fifth → frontopontine fibers
    - 3 middle fifths → corticospinal fibers

- Substantia Nigra
  - darkly stained due to presense of dopaminergic neurons & high levels of melanin
  - anatomically in midbrain
  - functionally in basal nuclei (motor activity, initiate movement & muscle tone)
  - degeneration causes difficulty in initiating movement (parkinson) with tremor & bradykinesia or akinesia
  - post. to it the 4 lemnisci :
    a) medial lemniscus → most ant. & med.
    b) spinal lemniscus
    c) trigeminal lemniscus
    d) lateral lemniscus → most. post. & lat.

- Level of Superior Colliculus :
  ① Cavity : cerebral aqueduct
  ② post. to ① : Sup. colliculus
  ③ antero lat. to ① : nucleus of CN3 (motor)
  ④ MLF
  ⑤ mesencephalic nucleus of trigeminal
  ⑥ rubral nucleus (post. to substantia nigra, ant. to ①), biggest nucleus of reticular formation & round mass of grey matter, high vascularity & iron pigment
  ⑦ early decussation of rubrospinal tract
    - recieves afferent fibers from cerebral cortex, cerebellum, substantia nigra, thalamic nuclei, spinal cord
    - gives efferent fibers from spinal cord, reticular formation, thalamus, substantia nigra (motor coordination
  ⑧ pretectal nucleus
    postero lat. to sup. colliculus, associated with light reflexes
  ⑨ reticular formation



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