

Medulla oblongata (bulbus medullae spinalis)

- continuation of spinal cord (20–25mm)
- from decussatio pyramidum to pons Varoli
- sulcus bulbopontinus (VI., VII., VIII.)
- fissura mediana anterior (foramen caecum)
- sulcus lateralis anterior (XII.)
- sulcus lateralis posterior (IX., X., XI.)
- sulcus medianus posterior
- pyramis et oliva medullae oblongatae
- fasciculus gracilis – clava (tuberculum ncl. gracilis)
- fasciculus cuneatus – tuberculum cuneatum
- tuberculum cinereum
- pedunculi cerebellares inferiores
- tenia ventriculi quarti
- tela choroidea ventriculi quarti

Pons Varoli

- transverse wall between MO and mesencephalon
- sulcus basilaris (a. basilaris)
- sulcus bulbopontinus (VI. – nervus abducens, VII. – nervus facialis, VIII. – nervus vestibulocochlearis)
- pedunculi cerebellares medii
- V. – nervus trigeminus
- angulus pontocerebellaris
- pars intermedia fossae rhomboidae
- pedunculi cerebellares medii
- stria medullaris
- sulcus medianus
- sulci limitantes
- eminentia medialis
- colliculus facialis (n. VI.)
- recessus lateralis
- area vestibularis
- VIII. – nervus vestibulocochlearis
- tuberculum acusticum

Mesencephalon (middle brain)

- between pons and diencephalon
- crura (pedunculi) cerebri
- fossa interpeduncularis
- substantia perforata posterior (arteriae centrales post.)
- sulcus nervi oculomotorii
- n. III. (nervus oculomotorius)
- corpora quadrigemina (lamina tecti)
- colliculi superiores

- colliculi inferiores
- brachium colliculi sup. (visual tracts)
- brachium colliculi inf. (hearing tracts)
- pedunculi cerebellares superiores
- velum medullare superius
- frenulum veli medullaris superioris
- n. IV. – nervus trochlearis
- On transverse cut are visible *tectum, tegmentum and crura cerebri*

Fossa rhomboidea

Bottom of the IV. ventricle (dorsal side of the brainstem)

It has a rhombic shape

Rostrally continues into *aquaeductus cerebri*, caudally into *canalis centralis*

1. pars superior (mesencephalon) between pedunculi cerebellares sup. (nuclei of V.CN)
2. pars intermedia (pons Varoli) between pedunculi cerebellares medii (nuclei of IV., VII., VIII. CN)
3. pars inferior (medulla oblongata) between pedunculi cerebellares inf. (nuclei of IX., X., XI., XII. CN)

Sulcus medianus, sulci limitantes - form border between
basal plate – as a source of motor neurons and
dorsal plate (alar plate) – as a source of sensory neurons)

- eminentia medialis
- + description of other structures according to the parts

Somatomotor nuclei have:

- XII. – hypoglossus
- VI. – abducens
- IV. – trochlearis
- III. – oculomotorius

Visceromotor nuclei have

- III. – oculomotorius
- VII. – facialis
- IX. – glossopharyngeus
- X. –vagus

Branchiomotor nuclei have:

- V. – trigeminus
- VII. – facialis
- IX. – glossopharyngeus
- X. – vagus

Sensory nuclei have:

- V. – trigeminus
- VII. – facialis
- VIII. – vestibulocochlearis
- IX. – glossopharyngeus
- X. – vagus

Reticular formation (*Formatio reticularis*)

- diffusely ordered net system of gray matter in the brain stem.
- Rostral extends into the thalamus, caudal to the cervical spinal cord segments.
- is phylogenetically old structure containing a large number of nuclear groups.
 Reticular nuclei are formed by interneurons that connect various CNS structures and come to them information of all projection tracts.

- Reticular formation influences the activity of the lower and upper levels of the central nervous system in terms of their activation or inhibition. Under the influence of non-specific system is activated cortex as a whole and cortex is then ready to process the specific information of specific sensory pathways (for example reticular formation regulates sleep and wakefulness).
- Some nuclei of reticular formation during development differentiated some important centers of vital reflexes and autonomic functions (such as breathing, heartbeat, defensive reflex - coughing, sneezing, vomiting, nutritional reflex - sucking, swallowing).
- The reticular formation contains also adrenergic and cholinergic nuclei which produce chemically active substances (neurotransmitters).