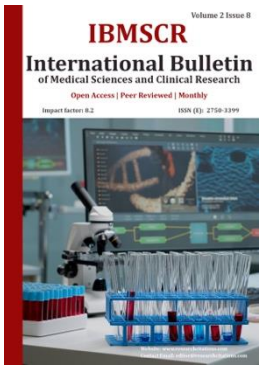

LONG BRAIN AND PONS. THEIR STRUCTURE AND CHANGES WITH AGE.

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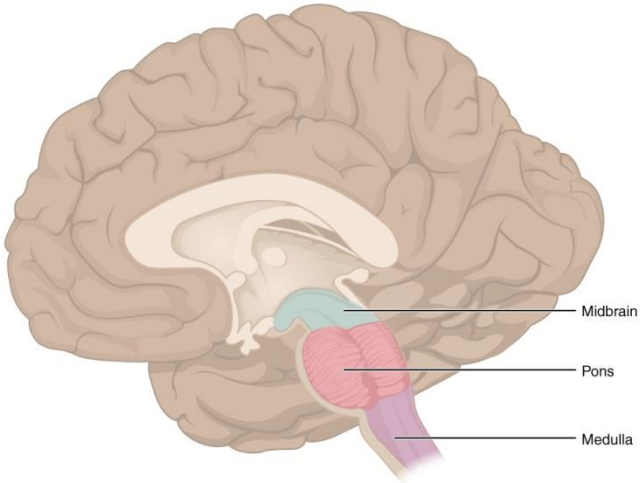
Annotation: This article is about long brain and pons and their structure, changes with age. As we age, our brains shrink in size, especially in the frontal cortex. As our vasculature ages and our blood pressure rises, the likelihood of stroke and ischemia increases, and white matter lesions develop. Memory decline also occurs with age, and brain activation during memory-related tasks becomes more bilateral.

Key words: Long brain, age, gets older, neurons, pons.

The medulla oblongata (lat. medulla oblongata) is a stem-like structure that forms part of the brain stem. It is located in front of the cerebellum and partially below it. It is a cone-shaped mass of neurons responsible for autonomic (involuntary) functions from vomiting to sneezing. The medulla oblongata houses the cardiac, respiratory, emetic, and vasomotor centers and thus participates in the autonomic functions of respiration, pulse, and blood pressure, as well as the sleep-wake cycle. During embryonic development, the long brain develops from the myelencephalon (lat. myelencephalon). The myelencephalon is a secondary vesicle that forms during maturation of the rhombencephalon, or hindbrain.



The forebrain can be considered to consist of two parts:
The back surface of the upper open part is formed by the fourth ventricle.
In the lower closed part, the fourth ventricle narrows at the obex at the end of the long brain and surrounds the central canal.
External surfaces
the anterior median fissure preserves the soft septal folds and extends along the medulla oblongata. It ends in a small triangular area called the foramen cecum at the lower edge of the

pons. The raised areas on either side of this fissure are called the medulla oblongata. Pyramids store pyramidal tracts - corticospinal and corticobulbar tracts of the nervous system. In the caudal (lower) part of the medulla oblongata, these tracts cross, as a result of which the notch is not visible at this point and is called decussatio pyramidum. Some other fibers arise from the parts of the anterior middle fissure above the decussatio pyramidum and run laterally along the surface of the pons and are called the anterior external arcuate fibers.

In the upper part of the medulla, in the area between the anterior lateral and posterior lateral egates, there are a pair of protrusions called Oliva bodies (also called olives). They are formed from the inferior olivary nuclei, the largest nuclei of the olivary bodies.

The posterior part of the medulla oblongata between the posterior middle ethmoid and the posterior lateral ethmoid harbors tracts that enter the posterior cord of the spinal cord. These are fine tufts lying medial to the midline and poniform tufts lying laterally. These tufts are fine and end in rounded ridges called pons. They are formed by masses of gray matter called the nucleus accumbens and the nucleus accumbens. The soma (cell bodies) of these nuclei are second-order neurons of the posterior column-medial lemniscus pathway, and their axons, called internal arcuate fibers or bundles, pass from one side of the medulla to the other and form the medial lemniscus.

Just above the cusps, the side of the medulla oblongata is occupied by the triangular fossa, which forms the lower part of the floor of the fourth ventricle. The fossa is surrounded on both sides by the inferior cerebellar peduncles, which connect the medulla oblongata with the cerebellum.

The lower part of the medulla oblongata, just lateral to the fine tuft, has another longitudinal bump called the tuberculum cinereum. The spinal cord beneath it is formed by a bundle of gray matter called the trigeminal nucleus. The gray matter of this nucleus is surrounded by a layer of nerve fibers that form the spinal tract of the trigeminal nerve. The base of the medulla oblongata is defined by commissural fibers crossing from the ipsilateral side of the spinal cord to the contralateral side of the brainstem; below that is the spinal cord.

Blood supply

Blood supply to the medulla comes from several arteries. Anterior Spinal Artery: It supplies the entire midbrain. Posterior subcerebral artery: This is the main branch of the vertebral artery and supplies the posterolateral portion of the medulla through which sensory tracts pass and synapse. It also provides brain power.

Direct branches of the vertebral artery: the vertebral artery supplies blood to the area between the two main arteries, including the solitary nucleus and other sensory nuclei and fibers.

Development

The long brain is formed from the myelencephalon during fetal development. The final separation of the medulla is visible at the 20th week of pregnancy. [1] Template:Full citation needed. Neuroblasts of the pterygoid plate of the neural tube at this stage form the sensory nuclei of the medulla oblongata. basal plate neuroblasts form motor nuclei.

Neuroblasts of the sphenoid plate produce:

The solitary nucleus contains general visceral afferent fibers for taste as well as a specialized visceral afferent column. Spinal trigeminal nerve nuclei, the common somatic afferent predominates. Cochlear and vestibular nuclei, special somatic afferents dominate. The inferior

olivary nucleus is connected to the cerebellum. Holds the posterior column nuclei, fine and poniform nuclei.

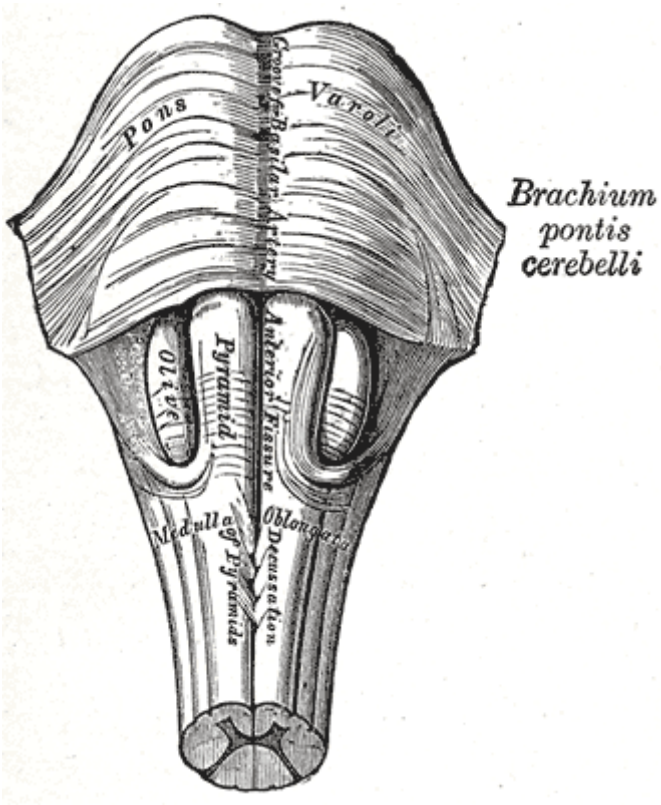
Basal plate neuroblasts produce: The nucleus of the thylotic nerve contains common somatic efferent fibers.

Two types of nuclei (lat. nucleus ambiguus) form special visceral efferent fibers.

The dorsal nucleus of the vagus nerve and the inferior salivary nucleus both give rise to common visceral efferent fibers.

Function

The medulla connects the upper layers of the brain with the spinal cord and is responsible for several functions of the autonomic nervous system:



The structure of the brain is constantly changing from birth throughout the lifetime, meaning that normal aging, free from dementia, is associated with structural brain changes. This paper reviews recent evidence from magnetic resonance imaging (MRI) studies about age-related changes in the brain.

The rational part of a teen's brain isn't fully developed and won't be until age 25 or so. In fact, recent research has found that adult and teen brains work differently. Adults think with the prefrontal cortex, the brain's rational part.

References:

1. Carlson, Neil R. Foundations of Behavioral Neuroscience.63-65
2. Hughes, T. (2003). "Neurology of swallowing and oral feeding disorders: Assessment and management". Journal of Neurology, Neurosurgery & Psychiatry 74 (90003): 48iii. doi:10.1136/jnnp.74.suppl_3.iii48. PMID 12933914. PMC 1765635. [1]
3. Nishizawa H, Kishida R, Kadota T, Goris RC; Kishida, Reiji; Kadota, Tetsuo; Goris, Richard C. (1988). "Somatotopic organization of the primary sensory trigeminal neurons in the hagfish,

Eptatretus burgeri". J Comp Neurol 267(2):281–95. doi:10.1002/cne.902670210. PMID 3343402.

4. Rovainen CM (1985). "Respiratory bursts at the midline of the rostral medulla of the lamprey". J Comp Physiol A 157 (3): 303–9.. doi:10.1007/BF00618120. PMID 3837091.