

Overview of the Brain – Neuroanatomy and MR Anatomy

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American Board of Psychiatry and Neurology

Subspecialty Board of Headache Medicine

American Board of Pain Medicine

American Board of Medical Acupuncture

California Permit for X-Ray Fluoroscopy Supervisor and Operator

Medical Director



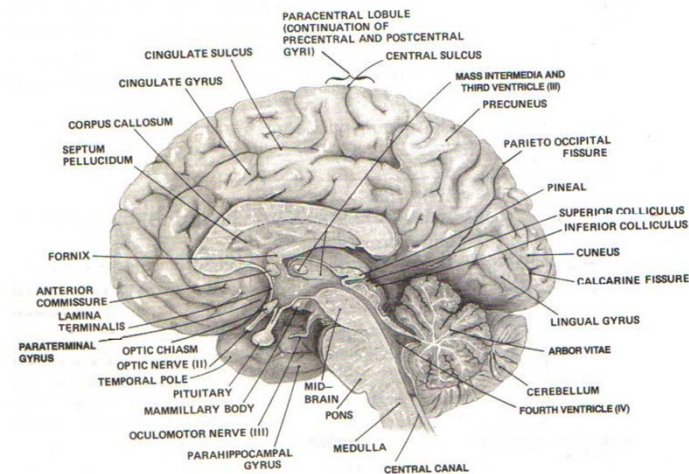
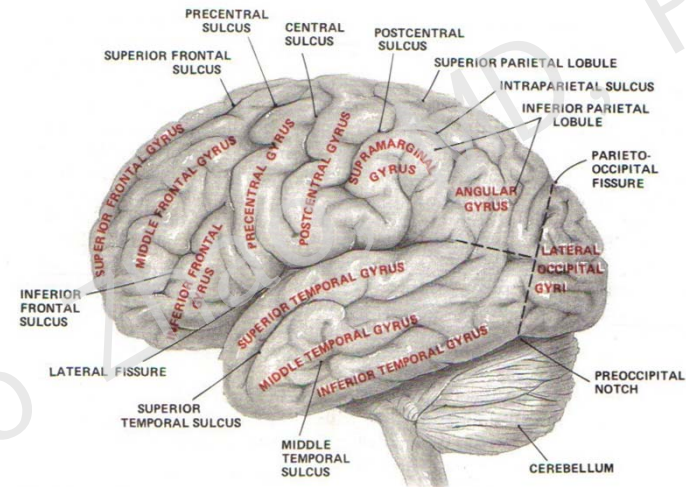
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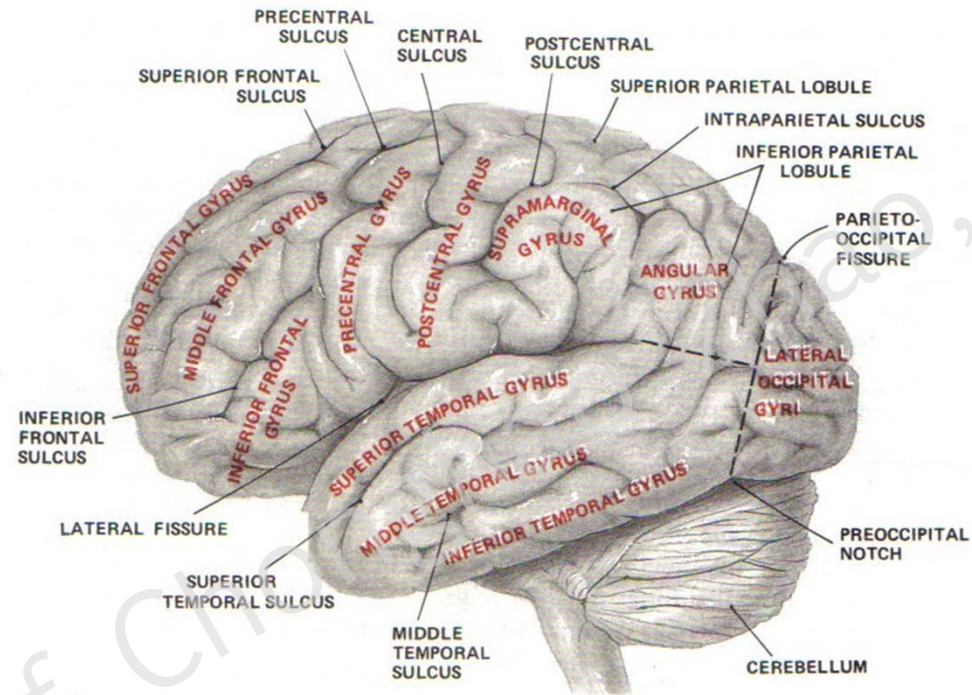
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The Brain

- CNS – brain + spinal cord
- Brain
 - weight:
 - 1380 g in weight in young man
 - 100 g less in young woman
 - 3 parts: cerebrum, cerebellum, brainstem



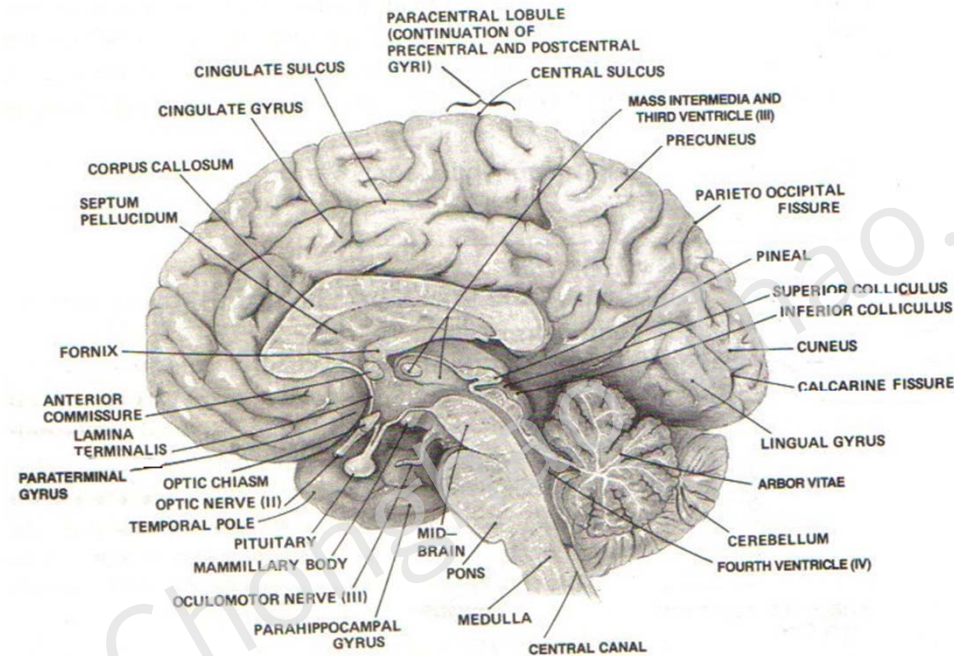
Cerebral Cortex – Lateral View



- Gyrus-eminence; furrow-sulcus or fissure
- Lateral views, 4 lobes
 - Frontal lobe: anterior to the central sulcus, above the lateral fissure
 - Parietal lobe: between central sulcus and parieto-occipital fissure, above the imaginary horizontal line of lateral fissure
 - Temporal lobe: below the imaginary horizontal line of lateral fissure, anterior to the parieto-occipital fissure
 - Occipital lobe: posterior to the parieto-occipital fissure



The Brain –Mid-Sagittal View

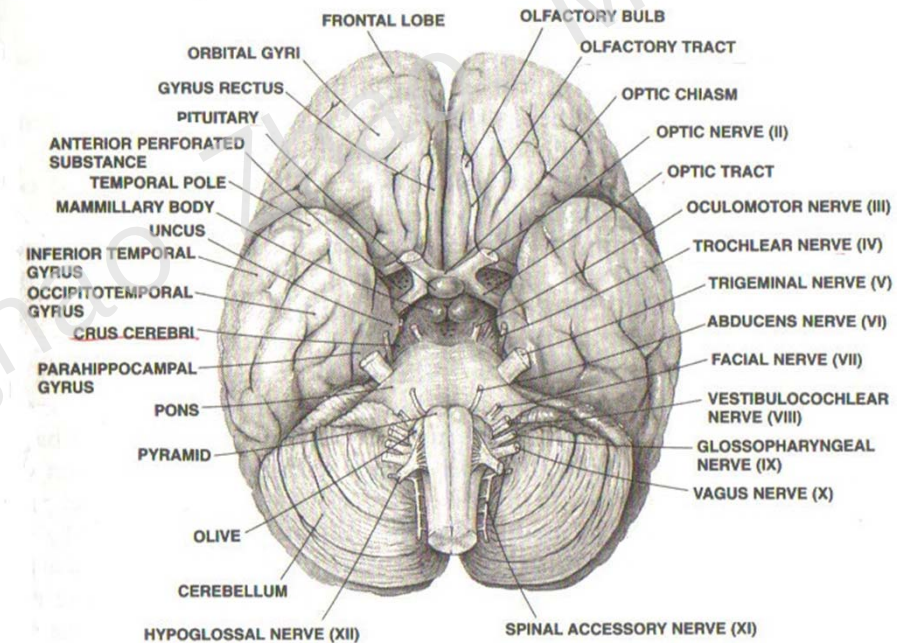


- Extension of central sulcus: frontal & parietal lobe
- Parieto-occipital fissure: parietal & occipital lobe
- Cingulate gyrus: below the cingulate sulcus
- Limbic lobe: paraterminal gyrus, parahippocampal gyrus, cingulate gyrus
- Ventricles: lateral, 3rd, 4th
- Mid-brain, pons, medulla
- Cerebellum
- Optic chiasm, optic nerve, pituitary, mammillary body, oculomotor nerve, septum pellucidum, corpus callosum, inferior and superior colliculus

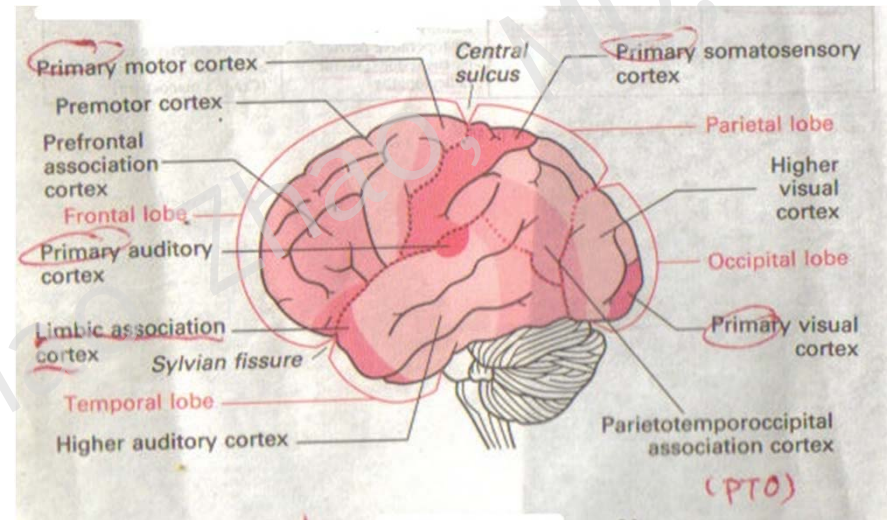
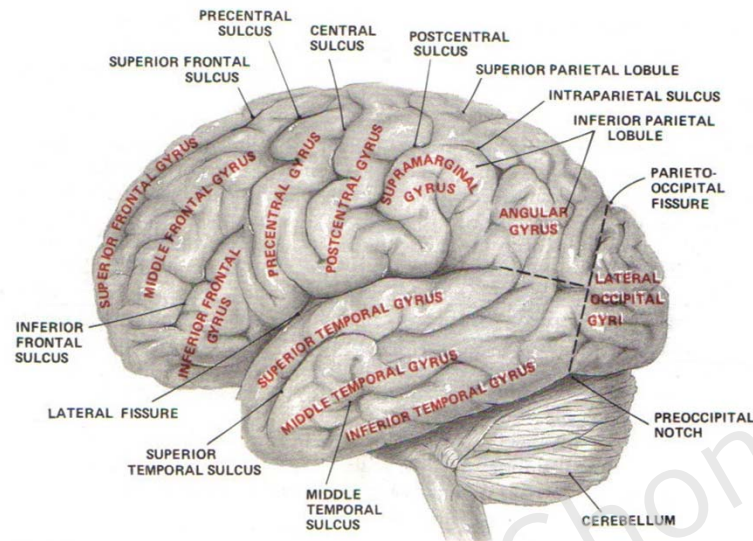


The Brain-Ventral View

- Cranial nerve:
 - CN1: under the inferior surface of frontal lobe
 - CN2, 3: Mid-brain
 - CN 4: junction of midbrain and pon
 - CN 5: pon
 - CN 6, 7, 8: junction of pon and medulla
 - CN 9, 10, 11, 12: medulla
- Parahippocampal gyrus, cerebellum, pituitary, mammillary body



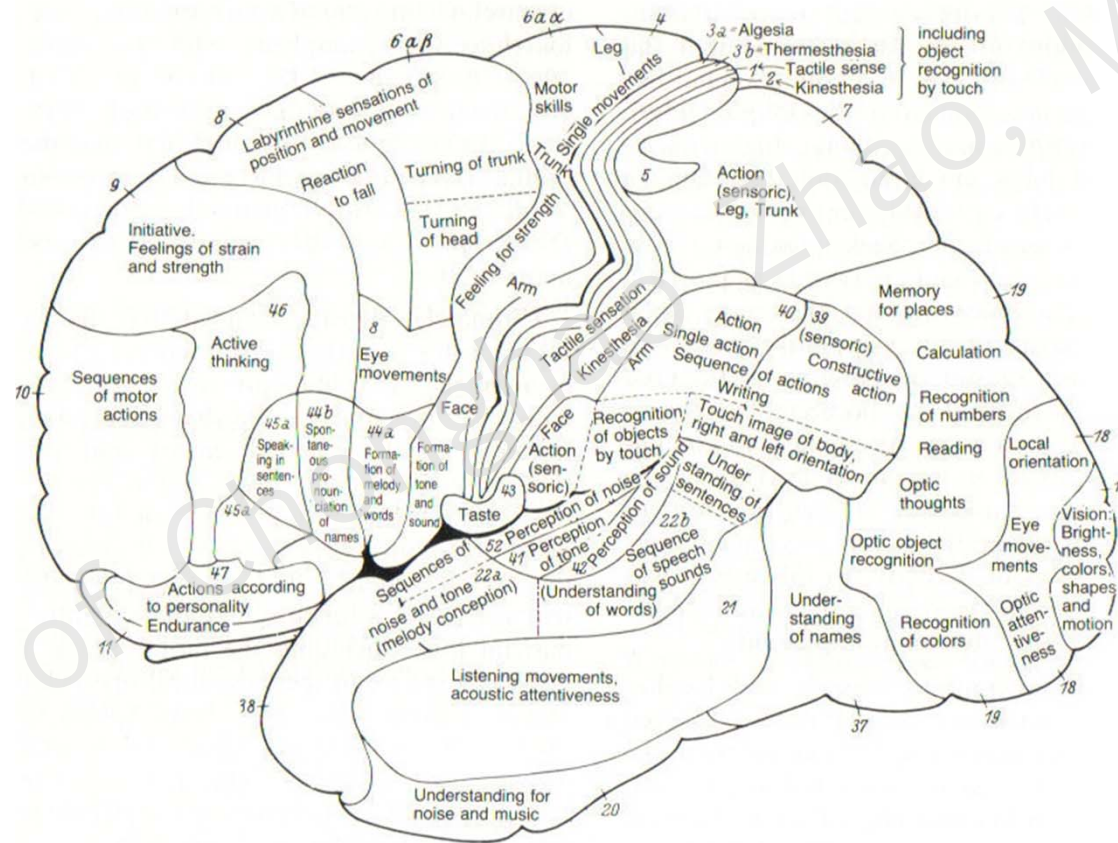
The Brain – Localization of Functions of the Cerebral Cortex



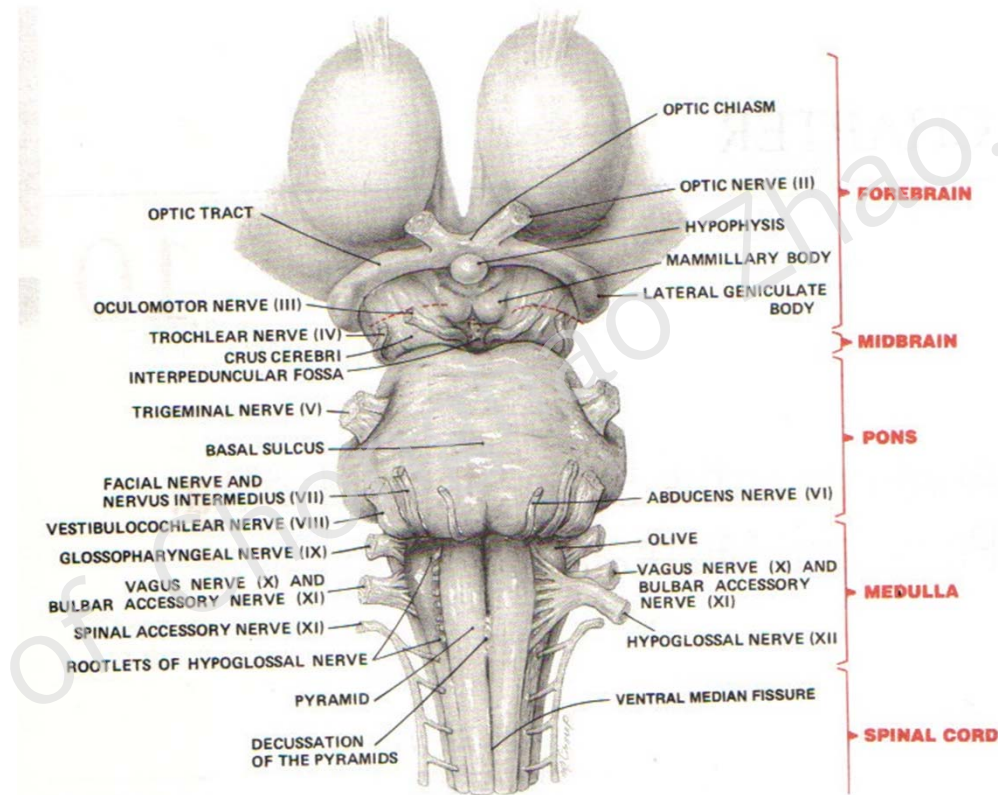
- Primary motor cortex (area 4): precentral gyrus of the frontal lobe
- Primary somatosensory cortex (area 3,1,2): postcentral gyrus of the parietal lobe
- Primary auditory cortex (area 41): superior temporal gyrus of the temporal lobe
- Primary visual cortex (area 17) : tip of the occipital lobe



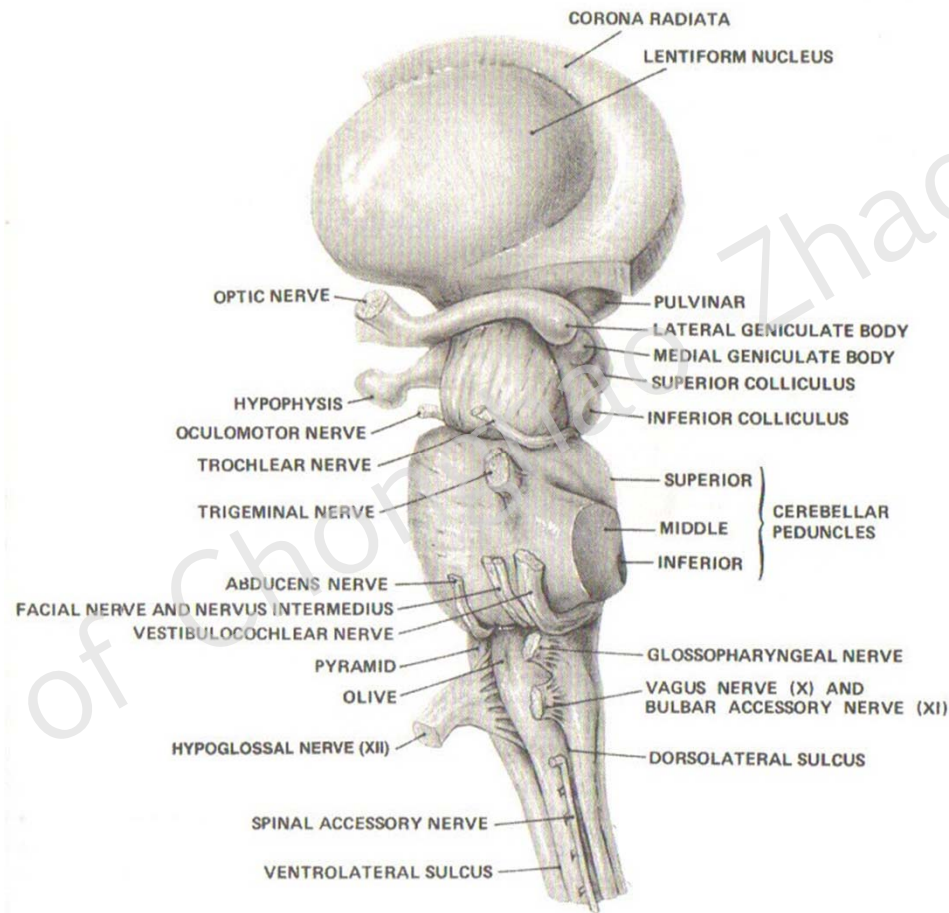
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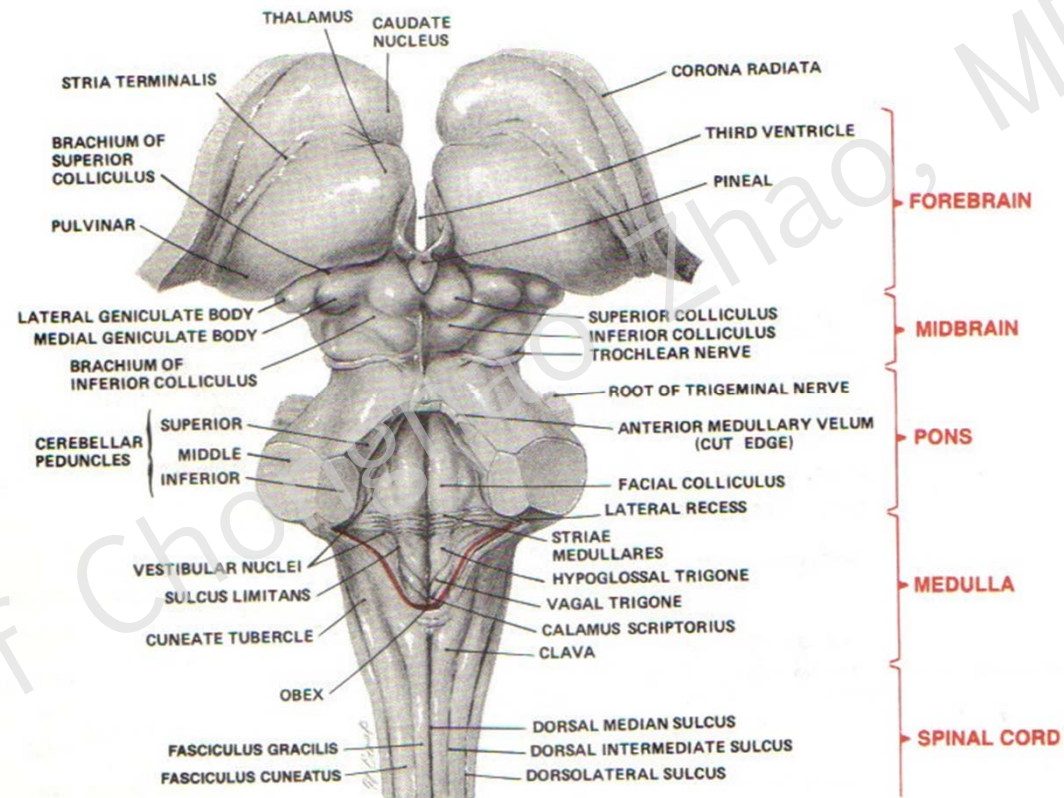
Brainstem – Anterior View



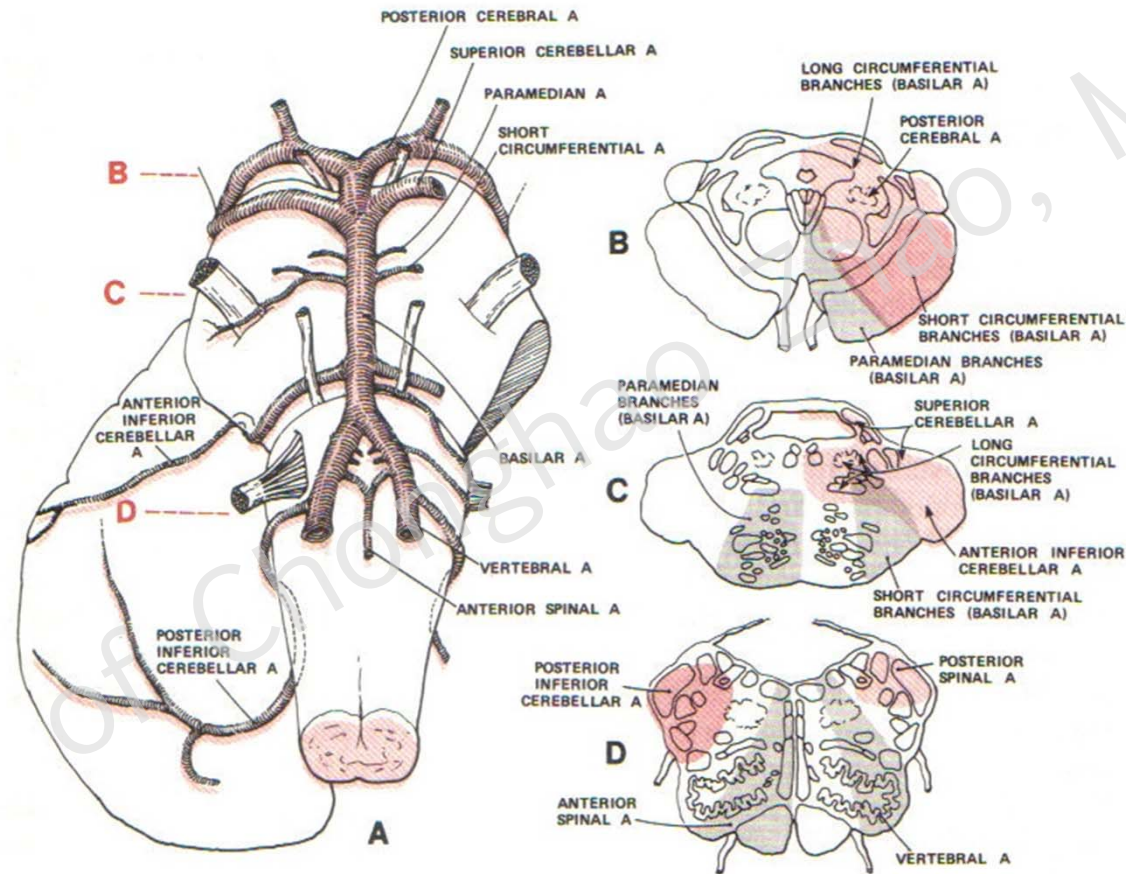
Brainstem – Lateral View



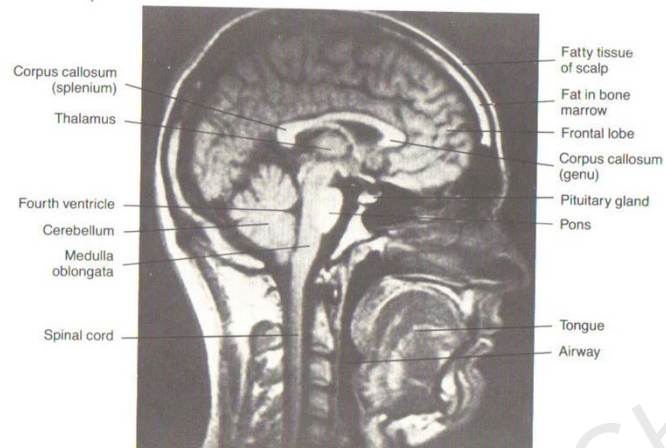
Brainstem – Dorsal View



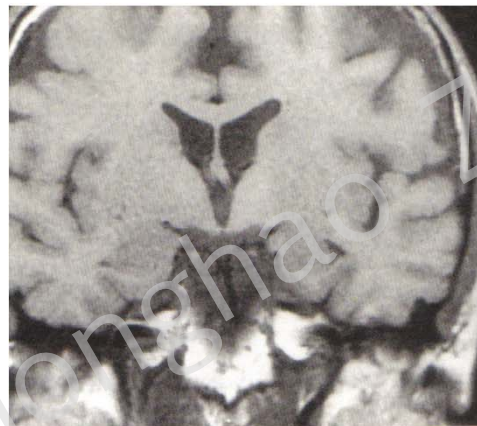
Blood Vessels at the Brainstem



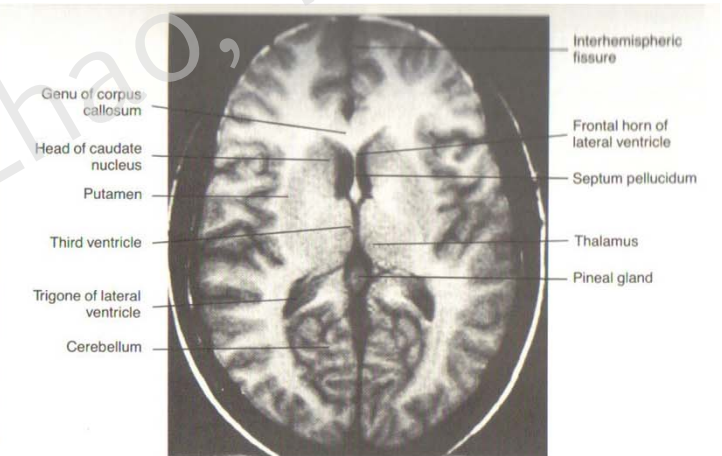
MR Anatomy of the Brain



Sagittal View



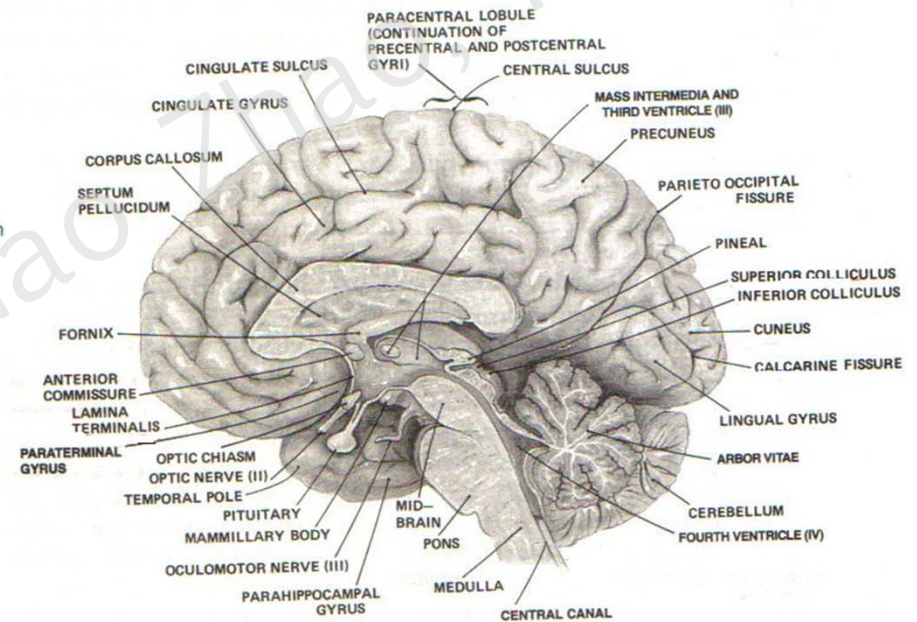
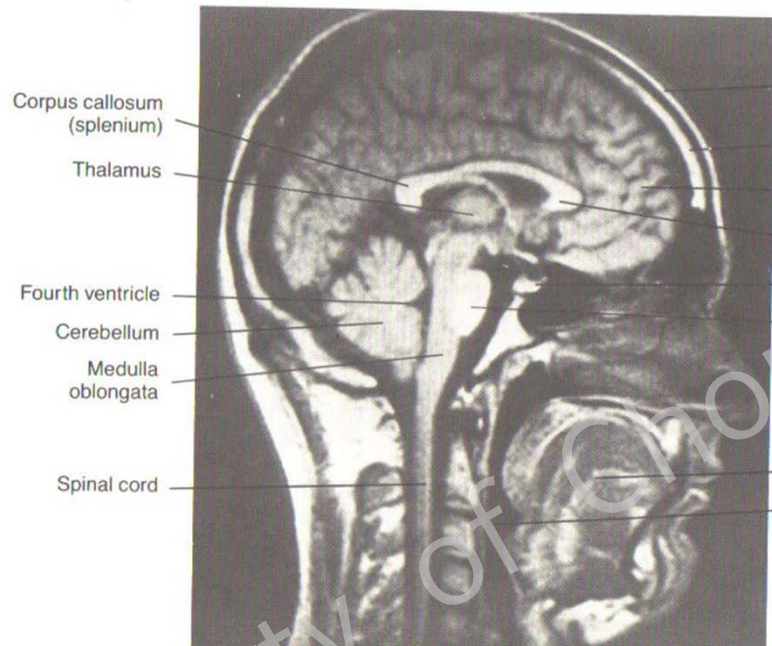
Coronal View



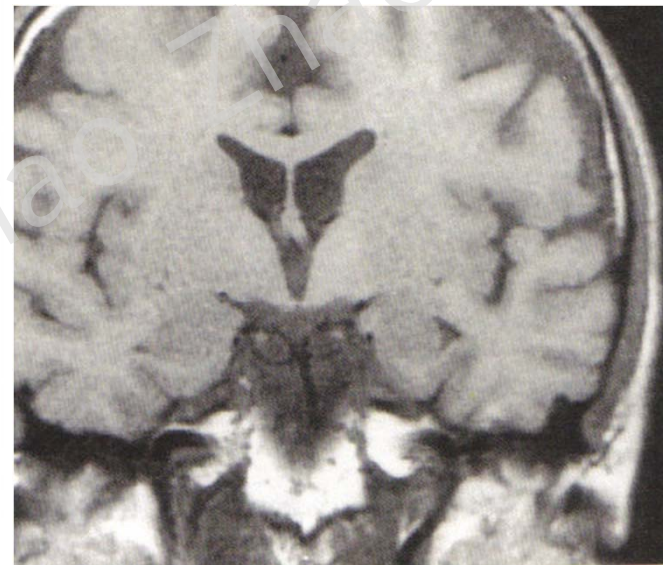
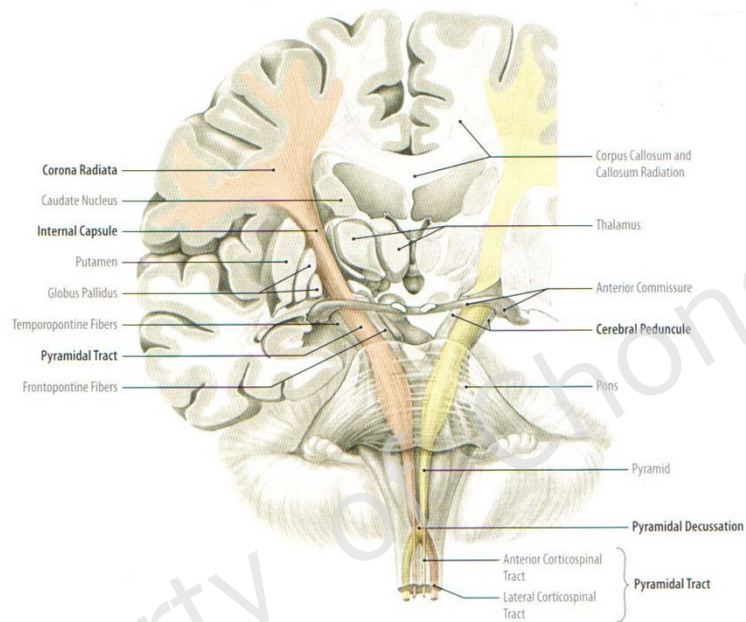
Axial/Horizontal View



MR Anatomy of the Brain – Mid-sagittal View



MR Anatomy of the Brain – Coronal View



MR Anatomy of the Brain – Axial/Horizontal View

