

BRAIN PROSECTION GOALS

SESSION I - Membranes of the Brain

Introduction	Self-study
• Types of nerve cells • Parts of brain	• Attachments and venous sinuses in relation to • Falx cerebri • Tentorium cerebelli • Falx cerebelli • Diaphragma sellae • Nerve supply of meninges of • Anterior middle and posterior cranial fossae • Subarachnoid cisterns • CSF circulation • Cisternal puncture
Prosection	
• Dura, arachnoid & pia mater • Dural folds, venous sinuses • Subarachnoid cisterns • Cerebello-medullary cistern (cisterna magna) • Interpeduncular cistern • Cisterna pontis • Cisterna ambiens	

Diagrams to be drawn

- Meninges of brain
- Transverse section of spinal cord through upper cervical region

SESSION II – Blood Vessels of Brain and Base of Brain

Prosection	Self-study
Circle of Willis: • Internal carotid arteries • Anterior cerebral arteries • Anterior communicating artery • Posterior communicating arteries • Posterior cerebral arteries Other arteries: • Basilar artery • Anterior choroidal arteries • Middle cerebral arteries • Vertebral arteries • Superior cerebellar arteries • Anterior inferior cerebellar arteries • Posterior inferior cerebellar arteries • Anterior & posterior spinal arteries Base of brain • Cerebral peduncles • Optic chiasma • Tuber cinereum • Interpeduncular fossa • Mammillary bodies • Posterior perforated substance • Anterior perforated substances • Superficial attachment of all cranial nerves	Origin, course, branches and areas of distribution of • Internal carotid artery • Vertebral artery • Basilar artery Formation and applied anatomy of circle of Willis Venous drainage of brain Collateral circulation in case of block in • Internal carotid artery • Vertebral artery Subclavian steal syndrome

Diagrams to be drawn

- Blood vessels of the brain
- Distribution of blood supply on superolateral, medial and inferior surface of cerebral hemisphere
- T S of Medulla oblongata at pyramidal decussation

SESSION III – Hindbrain: Medulla oblongata and Pons

Prosection	Self-study
Medulla oblongata External surface • Anterior median fissure • Posterior median sulcus • Pyramid • Olive • Inferior cerebellar peduncles • Fasciculus gracilis & gracile tubercle • Fasciculus cuneatus & cuneate tubercle • Foramen caecum • Attachments of IX, X, XI, XII cranial nerves Pons External surface • Basilar sulcus • Transverse fibres • Middle cerebellar peduncles • Attachments of V, VI, VII, VIII cranial nerves	• To draw and label transverse sections of medulla oblongata through ➤ Pyramidal decussation ➤ Sensory decussation ➤ Mid-olivary level • To draw and label transverse sections of pons through ➤ Facial colliculi ➤ Upper pontine level • Nuclei of origin, functional components, course and distribution of: ➤ Oculomotor nerve (III cranial nerve) ➤ Trochlear nerve (IV cranial nerve) ➤ Trigeminal nerve (V cranial nerve) ➤ Abducent nerve (VI cranial nerve) ➤ Facial nerve (VII cranial nerve) ➤ Vestibulo-cochlear nerve (VIII cranial Nerve) (Auditory pathway) ➤ Glossopharyngeal nerve (IX cranial nerve) ➤ Vagus nerve (X cranial nerve) ➤ Accessory nerve (XI cranial nerve) ➤ Hypoglossal nerve (XII cranial nerve)

Diagrams to be drawn

- T S of Medulla oblongata at sensory decussation
- T S of Medulla oblongata at mid-olivary level
- T S of pons at facial colliculus

SESSION IV–Cerebellum, Fourth Ventricle, Midbrain

Prosection	Prosection
Cerebellum • Superior vermis • Inferior vermis • Vallecula of cerebellum • Flocculo-nodular lobe • Superior medullary velum • Inferior medullary velum • Fissura prima • Horizontal fissure • Postero-lateral fissure • Cerebellar cortex - layers • Arbor vitae cerebelli • Superior cerebellar peduncle • Middle cerebellar peduncle • Inferior cerebellar peduncle • Deep intracerebellar nuclei (especially dentate nucleus) Fourth ventricle Roof • Median and lateral apertures • Median dorsal, lateral dorsal and lateral recesses • Tela choroidea and choroid plexus of fourth ventricle Floor of fourth ventricle • Stria medullaris • Median sulcus • Medial eminence • Facial colliculus • Superior and inferior fovea • Sulcus limitans • Locus coeruleus • Hypoglossal triangle • Vagal triangle • Vestibular area	Midbrain • Tectum • Superior and inferior colliculi • Brachium of superior colliculus • Brachium of inferior colliculus • Cerebral peduncles • Crus cerebri • Substantia nigra • Tegmentum Self-study • Fissures & lobes of cerebellum, functional & developmental divisions of cerebellum • Cerebellar cortical architecture ▪ Purkinje cell ▪ Cerebellar glomerulus • Cerebellar nuclei • Connections & functions of cerebellum • Attachments, functional tracts in ▪ Inferior Cerebellar peduncle ▪ Middle cerebellar peduncle ▪ Superior Cerebellar peduncle • Boundaries, communications, recesses, choroid plexus and applied anatomy of fourth ventricle • Location, connections and functions of ▪ Red nucleus ▪ Substantia nigra • Location and components of ▪ Crus Cerebri ▪ Auditory pathway • Nuclei of origin, functional components, course and distribution of ▪ Oculomotor nerve ▪ Trochlear nerve

Diagrams to be drawn

- T S of pons at trigeminal nucleus
- T S of midbrain at inferior colliculus
- T S of midbrain at superior colliculus
- Floor of fourth ventricle

SESSION V–Cerebrum: Sulci, Gyri, Lobes and Functional areas

Prosection • Median longitudinal fissure • Superolateral surface • Medial surface of cerebral hemisphere • Inferior surface Lobes (with boundaries) • Frontal lobe, parietal lobe, temporal lobe and occipital lobe Superolateral surface • Central sulcus • Precentral gyrus • Postcentral gyrus • Superior, middle & inferior frontal gyri • Posterior ramus, ascending and horizontal rami of lateral sulcus • Pars orbitalis, pars triangularis& pars opercularis • Insular cortex • Superior, middle & inferior temporal gyri • Supramarginal and angular gyri • Parieto-occipital sulcus • Preoccipital notch • Intraparietal sulcus • Superior & inferior parietal lobules • Lunate sulcus	Medial surface • Corpus callosum – Rostrum, Genu, Trunk / body, Splenium • Callosal sulcus • Cingulate gyrus • Cingulate sulcus • Medial frontal gyrus • Paracentral lobule • Calcarine sulcus • Parieto-occipital sulcus • Cuneus • Precuneus • Paracentral lobule • Paraolfactory gyrus • Parahippocampal gyrus • Lamina terminalis • Optic chiasma • Ant. Commissure • Interventricular foramen of Monro • Thalamus • Hypothalamus • Hypothalamic sulcus • Interthalamic adhesion • Pineal body • Cerebral aqueduct • Fornix • Choroid fissure
Inferior surface • Olfactory sulcus • Olfactory bulb • Olfactory tract • Olfactory trigone • Olfactory striae - medial and lateral • Gyrus rectus • Anterior, posterior, medial and lateral orbital gyri • Rhinal sulcus • Parahippocampal gyrus and uncus • Hippocampus and dentate gyrus • Medial & lateral occipito-temporal gyri • Lingual gyrus	Functional areas • Primary somatomotor area (Ms I) • Secondary somatomotor area (Ms II) • Primary somatosensory area (Sm I) • Secondary somatosensory area (Sm II) • Broca's motor speech area • Wernicke's sensory speech area • Primary auditory area (A I) • Auditory association area (A II) • Primary visual area (V I) • Visual association area (V II) • Higher association areas

Self-Study

Boundaries, sulci and gyri, functional areas, connections, blood supply and applied anatomy of:
Frontal lobe, Parietal lobe, Temporal lobe, Occipital lobe

SESSION VI –Cerebrum: White Matter, Lateral Ventricle, III Ventricle

Prosection	Lateral ventricle
White matter • Corpus callosum • Rostrum • Genu • Trunk • Splenium • Tapetum • Forceps minor • Forceps major • Anterior Commissure • Posterior Commissure • Habenular Commissure • Fornix and commissure of fornix (Hippocampal commissure) • Stria terminalis • Striahabenularis (Striamedullaris thalami) • Corona radiata • Internal capsule- Anterior limb, genu, posterior limb, retrolentiform part and sublenticular part • External capsule • Extreme capsule	Anterior Horn • Septum pellucidum • Head of caudate nucleus • Genu of corpus callosum Body • Floor- thalamus, caudate nucleus, thalamostriate vein, stria terminalis, choroid plexus • Roof- trunk & splenium of corpus callosum Posterior Horn • Medial wall- bulb of post. Horn & calcar avis • Lateral wall- tapetum Inferior Horn • Collateral trigone • Roof- stria terminalis, tail of caudate nucleus • Floor- hippocampal eminence, pes hippocampi, collateral eminence, choroid fissure and plexus
III ventricle • Roof • Floor- Infundibular & optic recesses • Lateral wall • Anterior wall- lamina terminalis • Posterior wall- pineal & suprapineal recesses	Self study • Classification and definition of each type of white matter of cerebrum • Areas connected by various association bundles (short and long), commissural fibres and projection fibres • Parts, type of fibres, areas connected, functions and blood supply and applied anatomy of - Internal capsule - Corpus callosum • Boundaries, communications, recesses, choroid plexus formation and applied anatomy of - Third ventricle - Lateral ventricle

Diagrams to be drawn

- Cerebrum – Sulci and gyri on superolateral, medial and inferior surface

SESSION VII – Limbic System (the edge of hemisphere) and Basal nuclei

Prosection	Self-study
Parts of limbic system ➤ Olfactory tract ➤ Olfactory trigone ➤ Olfactory striae ➤ Diagonal band of Broca ➤ Piriform cortex - entorhinal area ➤ Paraterminal gyrus ➤ Indusium griseum ➤ Gyrus fasciolaris ➤ Cornu ammonis ➤ Hippocampal gyrus ➤ Dentate gyrus ➤ Paraolfactory area ➤ Cingulate gyrus ➤ Isthmus ➤ Parahippocampal gyrus ➤ Fimbria, crura, body & columns of fornix ➤ Stria terminalis ➤ Septal nuclei in septum pellucidum and in lamina terminalis Basal nuclei ➤ Head, body, tail of caudate nucleus ➤ Lentiform nucleus ➤ Globus pallidus ➤ Putamen ➤ Amygdala ➤ Claustrum	• Components and functions of limbic system • Olfactory pathway • Parts & connections of fornix & functions of hippocampus • Components, connections, functions, blood supply & applied anatomy of corpus striatum / basal nuclei

Diagrams to be drawn

- Horizontal section of cerebrum depicting basal nuclei and internal capsule
- Lateral ventricle of brain showing
 - Relations of anterior horn
 - Relations of body and inferior horn
 - Relations of posterior horn

SESSION VIII–Nuclei and connections of thalamus and hypothalamus

Prosection	Self-study
Parts of diencephalon • Dorsal thalamus • Hypothalamus • Epithalamus • Metathalamus (medial & lateral geniculate bodies) • Subthalamus • Optic chiasma • Optic tracts • Tuber cinereum • Mamillary bodies • Posterior perforated substance • Pineal body • Pineal stalk • Habenular nucleus • Habenular commissure • Posterior commissure	• Visual pathway • Nuclei, connections & functions of ▪ Thalamus ▪ Hypothalamus

Diagrams to be drawn

- Visual pathway
- Auditory pathway