



PROGRAM REALIZACJI ZAJĘĆ

Schedule for anatomy classes.

Przedmiot: ANATOMIA PRAWIDŁOWA

Human anatomy

Tematyka ćwiczeń.

Kierunek: LEKARSKI - semestr zimowy - moduł 2/7

Field of study: Faculty of medicine - fall semestr - part 2/7

Head and Neck

LABORATORY CLASSES 1

Wet lab classes with PBL and SGD (Classes will be conducted at the *Collegium Anatomicum*. Wet preparations.

Classes implemented using VR, *Anatontage* and the „inverted spotters” method).

1. Muscles of the facial expression
 - Attachments, main action, innervation
2. Facial nerve
 - Corticonuclear tract and nuclei, Facial canal, motor part, motor branches, parasympathetic fibers, secretory fibers and sensory fibers.
 - Course and branches (greater petrosal nerve, stapedial nerve, chorda tympani, motor branches)
 - Pterygopalatine ganglion, submandibular ganglion, sublingual ganglion. Pre- and postganglionic fibers.
 - Innervation range
 - Main types of the lesions
3. Muscles of the mastication
 - Attachments, main action, innervation
 - Accessory muscles of mastication.
4. Trigeminal nerve
 - Trigeminal ganglion, division and general course of main branches
5. Mandibular nerve (third branch of the trigeminal nerve)
 - Nuclei
 - Course and branches (especially its motor branches)
6. External carotid artery
 - Origin, course, main branches, place of termination and terminal branches
7. Facial artery
 - Origin, course, main branches, place of termination
8. Superficial temporal artery
 - Origin, course, main branches, place of termination
9. Maxillary artery (without the pterygopalatine part)
 - Origin, course, main branches, place of termination
10. Temporal and infratemporal fossae
 - Boundaries, connections, contents
11. External nose
12. Nasal cavity
 - Boundaries, vestibule, meatuses, olfactory and respiratory regions of the nasal cavity mucous membrane
 - **Olfactory nerves (CN I)**, olfactory tract and olfactory pathway.
 - Sensory innervations of the head.
13. Paranasal sinuses
 - Topography, places of drainage in the nasal cavity, significance
 - Nasal conchae and nasal meatus.

14. Innervation of the nasal cavity
 - Ophthalmic and maxillary nerves
 - Course, branches, innervation range (especially participation in the innervation of the nasal cavity)
15. Parasympathetic ganglia of the head
 - Ciliary and pterygopalatine ganglia (localization, roots, branches)
 - Facial nerve (greater petrosal nerve)
16. Vasculature of the nasal cavity
 - Ophthalmic artery
 - Origin, course, branches (especially participation in the vasculature of the nasal cavity)
 - Maxillary artery (the pterygopalatine part)
 - Branches (especially participating in the vasculature of the nasal cavity)
 - Kiesellbach's area
17. Pterygopalatine fossa
 - a. Boundaries, connections and contents

LABORATORY CLASSES 2

Wet lab classes with PBL and SGD (Classes will be conducted at the *Collegium Anatomicum*. Wet preparations. Classes implemented using VR, *Anatome* and the „inverted spotters“ method).

1. Vestibule of the **oral cavity**
 - Boundaries
 - Structure of the lip and cheek
2. Proper oral cavity
 - Boundaries
 - Oral cavity floor
 - Oral cavity roof
 - Hard palate
 - Soft palate, fauces
 - Palatine tonsils
 - Localization, innervation, vasculature
 - Tongue
 - Parts
 - Surfaces
 - Mucous membrane (lingual papillae, lingual tonsil)
 - Muscles, innervation (motor, sensory, gustatory)
3. Innervation of the oral cavity
 - Glossopharyngeal nerve
 - Nuclei, course, branches, range of the innervation (participation in the innervation of the tongue)
 - **Hypoglossal nerve - CXII**
 - Corticonuclear tract and nucleus, course, participation in the innervation of the tongue
 - Maxillary nerve (palatine nerves)
 - Mandibular nerve (lingual nerve, buccal nerve)
 - **Facial nerve (chorda tympani) - CVII**
4. Vasculature of the oral cavity
 - Lingual artery
 - Origin, course, main branches, range of the vasculature
5. **Teeth**
 - General structure of the tooth
 - Types and amount of the deciduous (milk) and permanent teeth
 - Connection of the tooth to the tooth socket. Structure and role of the gingivae
 - Innervation (including typical places of the anaesthesia) and vasculature of the teeth
 - Maxillary nerve (superior alveolar nerves)
 - Mandibular nerve (inferior alveolar nerve)
6. **Salivary glands:** parotid, submandibular, sublingual glands
 - Localization, ducts and their orifices, secretory innervation, vasculature
7. Otic and submandibular ganglia
 - Localization, roots and branches
 - Facial nerve (chorda tympani)
 - Glossopharyngeal nerve (tympanic and lesser petrosal nerves)

9. Maxillary artery (alveolar arteries)
10. Muscles of the neck- localization, attachments, actions and innervation)
 - Superficial muscles of the neck
 - Suprahyoid and infrahyoid muscles
 - Prevertebral muscles
11. Triangles of the neck (boundaries and contents)
12. Fascia of the neck
 - Superficial fascia of the neck
 - Deep fascia of the neck and its layers (pretracheal and prevertebral)
 - Fascial spaces of the neck (anterior middle and posterior space of the neck, previsceral space, retrovisceral space, prevertebral space)
 - Spaces between the layers of the neck fascia (their contents and connections to the mediastinum)
13. Cranial nerves participating in the innervation of the neck muscles
 - **Accessory nerve - CXI**
 - Nuclei, course, range of the innervation
 - Mandibular nerve (mylohyoid nerve)
 - Facial nerve (Digastric and marginal mandibular branches)
14. Spinal nerve
15. Cervical plexus
 - Roots and localization
 - Sensory nerves
 - Ansa cervicalis (its roots, localization, branches and range of the innervation)
 - Phrenic nerve (course and range of the innervation)
16. Occipital and posterior auricular arteries
 - Origin, course, main branches range of the vasculature

LABORATORY CLASSES 3

Wet lab classes with PBL and SGD (Classes will be conducted at the *Collegium Anatomicum*. Wet preparations. Classes implemented using VR, *Anatome* and the „inverted spotters“ method).

1. Pharynx
 - Localization and topography
 - Parts (nasopharynx, oropharynx, laryngopharynx) walls, openings
 - Layers of the pharyngeal wall
 - Structure of the mucous membrane in the particular parts
 - Pharyngobasilar fascia
 - Muscles of the pharynx (constrictors and elevators)
 - Retropharyngeal and parapharyngeal spaces
 - Innervation of the pharynx (pharyngeal plexus)
 - Vasculature of the pharynx (ascending pharyngeal artery, palatine arteries)
2. Esophagus
 - General information about esophagus
 - Cervical part of the esophagus (topography, innervation and vasculature)
3. **Vagus nerve - CX**
 - Nuclei, course, branches of the cranial and cervical parts (pharyngeal branches, superior laryngeal nerve, recurrent laryngeal nerve, cardiac branches)
4. Cervical part of the sympathetic trunk
 - Localization and topography of the ganglia, origin of the preganglionic fibers, branches of the particular ganglia (gray communicating rami, vascular rami, splanchnic nerves)
5. Larynx
 - Morphology, localization and topography
 - Skeleton (cartilages, ligaments and joints)
 - Laryngeal cavity (vestibule, middle compartment with ventricle of the larynx, infraglottic cavity)
 - Inlet of the larynx, glottis, rima glottidis
 - Muscles of the larynx (localization, functional groups, innervation)
 - Innervation and vasculature of the larynx
6. Trachea
 - General information about trachea

- Cervical part of the trachea (topography, innervation and vasculature)
- 7. Vagus nerve (laryngeal nerves)
- 8. Superior and inferior thyroid arteries
 - Origin, course, main branches, range of the vasculature
- 9. Thyroid gland
 - Structure and function
 - Localization and topography
 - Vasculature
- 10. Parathyroid glands
 - Structure and function
 - Localization and topography
 - Vasculature
- 11. Venous drainage of the head and neck (main veins- their origins, courses and orifices)
 - Facial, retromandibular, external jugular, anterior jugular, internal jugular, vertebral, deep cervical veins and pterygoid plexus
- 12. Lymphatic drainage of the head and neck
 - General information about lymphatic system
 - Main lymphatic vessels (thoracic duct, right lymphatic duct, jugular trunk)
 - Main groups of the lymphatic nodes located in the regions of head and neck
 - Localization, region of drainage, availability of the palpable examination
- 13. Skin innervation of the head and neck.

Clinical anatomy of the visual system.

14. Eyeball

- Wall of eyeball
 - Fibrous (external) layer: sclera, cornea
 - Vascular (middle) layer: choroid, ciliary body, iris
 - Nervous (inner) layer: retina [parts of the retina: optic part, ciliary part, iridial part]
 - Fundus of the eye: optic disc, macula lutea
- Anterior and posterior chambers of eyeball: their boundaries and contents
- Circulation of the aqueous humor
- Autonomic eyeball innervation
 - Origin of parasympathetic and sympathetic fibers
 - Ciliary ganglion: its topography, roots, branches, range of innervation
 - Ciliospinal center
 - Somatic eyeball innervation
 - Long ciliary nerves (from CN V1)
- Refractive media of the eye:
 - Cornea
 - Aqueous humor
 - Lens
 - Vitreous body
- The pathway of the visual light rays
- Lens accommodation
- Visual pathway- whole course (including cerebral section), nuclei connected to the visual pathway, primary visual cortex
- Pupillary light reflex (direct and consensual)
- 15. Accessory organs of eye
 - Orbit
 - Skeleton of walls
 - Connections and contents of optic canal, superior and inferior orbital fissures, fossa for lacrimal gland, fossa for lacrimal sac, nasolacrimal canal
 - External muscles of eyeball - attachments, action and innervation
 - **superior rectus- CN III**
 - **inferior rectus- CN III**
 - **lateral rectus- CN VI**
 - **medial rectus- CN III**
 - **superior oblique- CN IV**
 - **inferior oblique- CN III**
 - Lacrimal apparatus

- Structure and pathway of tears outflow
 - secretory innervation of the lacrimal gland (greater petrosal nerve, pterygopalatine ganglion, lacrimal nerve - from CN V1),
 - Conjunctiva
 - Palpebral conjunctiva
 - Bulbar conjunctiva
 - superior and inferior fornix of conjunctiva
 - Structure of eyelids
 - skin, eyelashes and their glands
 - Tarsus and tarsal glands
 - Levator palpebrae superioris, palpebral part of orbicularis oculi and tarsal muscle (action and innervation)
 - Palpebral conjunctiva
 - Innervation of particular parts of eyelids.
16. Vascularization of eyeball, lacrimal gland, and eyelids
- Ophthalmic artery- origin, course, branches
 - Vorticosae veins
 - Superior and inferior ophthalmic veins- their course and connections with cavernous sinus and pterygoid plexus

 LABORATORY CLASSES 4

Wet lab classes with PBL and SGD (Classes will be conducted at the *Collegium Anatomicum*. Wet preparations. Classes implemented using VR, *Anatome* and the „inverted spotters” method).

Ear - Clinical anatomy of the organ of hearing.

REVIEW - TEMPORAL BONE

1. External ear
 - Auricle- general structure, innervation, blood supply, lymphatic drainage
 - External acoustic meatus- general structure, course and its significance for otoscopic examination, ceruminous and sebaceous glands, innervation, blood supply, lymphatic drainage
2. Tympanic membrane- structure, details visible during otoscopic examination, role in transfer of sound
3. Middle ear
 - Tympanic cavity
 - Walls of the tympanic cavity and clinical significance of middle ear topography for spreading the inflammatory processes
 - Compartments of the tympanic cavity
 - Auditory ossicles- malleus, incus and stapes- structure, connections and role in transfer of sound
 - Muscles of the middle ear- stapedius and tensor tympani- location, innervation and modulating role in transfer of sound
 - Chorda tympani
 - Innervation and blood supply of the tympanic cavity
 - Mastoid antrum and cells- location and clinical significance of their topography for spreading the inflammatory processes
 - Pharyngotympanic (auditory) tube- structure, role in function of the middle ear
4. Internal ear
 - Bony labyrinth- structure of the cochlea, vestibule and semicircular canals
 - Membranous labyrinth
 - Utricle and saccule containing maculae with receptors of equilibrium
 - Semicircular ducts containing ampullary crests with receptors of equilibrium
 - Cochlear duct- containing spiral organ with receptors of hearing
 - Internal acoustic meatus and its contents- vestibulocochlear nerve, facial nerve and labyrinthine artery- its role in blood supply of the internal ear
5. Auditory pathway- whole course (including cerebral section), nuclei connected to the auditory pathway, primary auditory cortex
6. Main structures of the brain connected to the vestibular system- vestibular nuclei, medial longitudinal fasciculus, vestibulospinal tract, cerebellum.

• REVIEW - HEAD AND NECK

- Clinical anatomy.
- Radiological visualization of nasal cavity and paranasal sinuses in X- ray and NMR examination.
- Radiological visualization of oral cavity, teeth, salivary glands and other head structures in X- ray, sialographic and NMR examinations
- Radiological visualization of pharynx in CT and NMR examination
- Laryngoscopic and radiological visualization of larynx
- Radiological visualization of neck in CT, NMR and angiographic examinations
- Radiological visualization of eyeball and its accessory apparatus in X- ray, CT and NMR examinations
- Radiological visualization of ear in X- ray, CT and NMR examinations

CREDIT 2

Credit: HEAD AND NECK - SPOTTERS / inverted spotters

Credit: HEAD AND NECK - SCQ / MCQ

MCQ - Multiple Choice Question
SCQ - Single Choice Question