

DANYLO HALYTSKY LVIV NATIONAL MEDICAL UNIVERSITY

DENTISTRY FACULTY

Department of Otorhinolaryngology

OTORHINOLARYNGOLOGY

Methodical recommendations

for individual work on Otorhinolaryngology

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Lviv – 2022

Danylo Halytsky Lviv National Medical University
Department of Otorhinolaryngology

**Methodical recommendations
for individual work on *Otorhinolaryngology*
for the 4th year (English) students
in specialty "Medicine"**

Lviv – 2022

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Subject plan of independent work in the Department of Otorhinolaryngology

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2.	Otogenic intracranial complications, otogenic sepsis.	2
3.	Nasal valve, osteomeatal complex.	2
4.	Deformation of the external nose, rhinoplasty.	3
5.	Functional voice disorders.	3
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8.	Allergic diseases of the ENT organs.	3
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11.	Phytotherapy in otorhinolaryngology.	3
12.	Physiotherapy in otorhinolaryngology.	3
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15.	Pharyngeal cancer.	3
16.	Premalignant laryngeal lesions.	3
	Total	45

TOPIC 1

Differential diagnosis of sound conduction and sound perception disorders (2 h)

THE ACTUALITY OF A TOPIC: Hearing research methods play an important role not only for timely and correct diagnosis, but also for the appropriate impact on the treatment process, prognosis and recovery of the patient. Diagnosis, the choice of rational treatment tactics, which includes the implementation of various research methods, are impossible without a deep knowledge of the anatomy of the external, middle and inner ear. Studies that are the basis of audiological examination of patients with hearing impairment are necessary to understand the role of these anatomical structures in the implementation of the mechanisms of sound conduction and perception. Methods of research of the auditory analyzer, as well as methods of research of other sense organs, are divided into subjective and objective. The use of methods of research of the auditory analyzer is necessary in the work of ENT doctors, pediatricians, family doctors - to detect ear disease and rational treatment tactics.

PURPOSE OF A LESSON: to study the symptomatology and diagnostics of disturbances of sound and sound apparatus; to learn the principles of their differential diagnosis.

SUMMARY OF THE TOPIC. To diagnose the nature of auditory dysfunction, it is necessary to know the physiology of the auditory analyzer, the mechanisms of sound conduction and the theory of sound perception, to have an understanding of the main stages of audiological research and to be able to interpret the data obtained during the examination.

Disturbances of a sound conduction (conductive deafness) occurring at an acute catarrh of a middle ear, in exudative otitis, in acute otitis media, a mesothympanitis, in injuries of a tympanic membrane, the following signs are characteristic:

- 1) complaints about hearing loss, stuffiness in the ear, low-frequency ear noise;
- 2) lateralization of sound in the Weber experiment towards the sick ear;
- 3) Rinne negative test;
- 4) the relative increase in bone conduction time in the Schwabach test;
- 5) in the Federici test, hearing will be better than the mastoid;
- 6) the presence of bone-air interval (tonal threshold audiometry), during which the thresholds of bone conduction are within the normal range, and the thresholds of air-conduction sounds are increased by 20-40 dB or more, the perception of low sounds is significantly disturbed, the curve of air perception is ascending;
- 7) tympanometric curves type C (acute catarrh of the middle ear) or B (exudative otitis).

Disturbances of sound perception (perceptual hearing loss), which are observed in acute and chronic sensorineural hearing loss of different genesis, are characterized by the following signs:

- 1) complaints about sudden or gradual hearing loss, high frequency ear noise of varying intensity;

- 2) lateralization of the sound in the Weber experiment toward a healthy ear or one that hears better;
- 3) positive test Rinne;
- 4) reduction of bone conduction time in the Schwabach test;
- 5) in the Federici experience, hearing will be better from the tragus;
- 6) increase of bone and air conduction thresholds mainly at high frequencies up to 30-70 dB in the absence of bone-air interval, the curve has a descending nature (tonal threshold audiometry);
- 7) the presence of the phenomenon of accelerated volume increase;
- 8) tympanometric curves type A, raising the thresholds of the acoustic reflex.

Determining the nature of impaired auditory function is a necessary and necessary factor in the diagnosis of ear diseases and the choice of the right therapeutic tactics.

KEY QUESTIONS TO THE TOPIC:

1. What is the mechanism of sound conduction?
2. What theories of sound perception are there nowadays?
3. Give definitions of "conductive hearing loss" and "perceptual hearing loss".
4. Specify diseases of the ear that are accompanied by disturbance of sound conduction or sound perception. What are the methods of investigation of hearing?
5. Specify signs of sound disturbance.
6. Name the signs of impaired hearing.
7. With what conditions do differential diagnostics of disturbances of sound conduction and sound perception conduct?

RECOMMENDED LITERATURE:

1. Otorhinolaryngology: textbook / Yu.V. Mitin, Yu.V. Deyeva, Ya.Yu. Gomza et al. — 6th edition. — Kyiv: «MEDICINE». — 2020. — 264 p.
2. Color Atlas of ENT Diagnosis, 5th edition / Bull TR, Almeyda JS. — Thieme: Stuttgart. — 2010.— 296 p.
3. Lecture Notes on Diseases of the Ear, Nose and Throat / Bull PD. — 9th edition. — Blackwell Science Ltd. — 2002.— 181 p.
4. Ear, Nose and Throat and Head and Neck Surgery: An Illustrated Colour Text / Dhillon R, East C. — 4th edition. — Churchill Livingstone. — 2013.— 132 p.

TOPIC 2

Otogenic intracranial complications, otogenic sepsis. (2 h)

THE ACTUALITY OF A TOPIC: Despite the current trend to reduce the number of intracranial complications, this pathology remains the focus of otolaryngologists and physicians of other specialties (neurologists, neurosurgeons, infectious disease specialists, ophthalmologists, anesthesiologists, etc.). Mortality from intracranial complications, according to various authors, is from 15% to 50%. Therefore, every specialist to whom such a patient turns, especially a family doctor, should be able to recognize the beginning of otogenic intracranial complication.

PURPOSE OF A LESSON: to get acquainted with the clinic, diagnostics, differential diagnostics of otogenic intracranial complications and tactics of treatment of such patients.

SUMMARY OF THE TOPIC. In the pre-antibiotic era, there was significant incidence of mastoiditis and intracranial complications (ICC) caused by otitis media, which presented high rate of mortality. After the introduction of antimicrobial agents, there has been a reduction in the incidence from 2.3% to 0.04% . However, nowadays, intracranial complications still represent a situation of risk given that mortality rate is high, reaching 36%. The most common ICC are meningitis, cerebral abscess, extradural abscess and thrombophlebitis of lateral sinus (TLS).

Spread of infection from the ear and temporal bone causes intracranial complications of otitis media. Spread of infection occurs through 3 routes, namely, direct extension, thrombophlebitis, and hematogenous dissemination. Extracranial complications are usually direct sequelae of localized acute or chronic inflammation. The complications of otitis media include the following:

- Chronic suppurative otitis media
- Postauricular abscess
- Facial nerve paresis
- Labyrinthitis
- Labyrinthine fistula
- Mastoiditis
- Temporal abscess
- Petrositis
- Intracranial abscess
- Meningitis
- Otitic hydrocephalus
- Sigmoid sinus thrombosis
- Encephalocele
- Cerebrospinal fluid (CSF) leak

History and Physical Examination. Headache and fever are the most frequently observed early manifestations of complications associated with otitis media. Other manifestations are as follows:

- Severe otalgia
- Vertigo
- Lethargy
- Nausea and vomiting
- Mental status changes
- Fetid otorrhea

Physical examination. A high index of suspicion is necessary in order to diagnose a complication of otitis media. The persistence or recurrence of acute infection within 2 weeks of treatment suggests impending complications.

Complications typically are associated with subacute or chronic infections, but acute otitis media remains the most common cause of meningitis. Meningitis in the setting of acute suppurative otitis media in a child may suggest an anatomic abnormality such as a Mondini malformation. A Mondini deformity is a specific type of inner ear dysplasia, which may present as a spontaneous perilymphatic fistula due to a stapes footplate deficiency. This anatomic abnormality may predispose the patient to recurrent meningitis and profound sensorineural hearing loss.

The following signs or symptoms are suggestive of intracranial complications:

- Fever associated with a chronic perforation
- Lethargy
- Focal neurologic signs (eg, ataxia, oculomotor deficits, seizure)
- Papilledema
- Meningismus
- Altered mental status
- Severe headaches

Presentation of intracranial complications includes the following:

- Brain abscess - Fever, possibly seizures or focal neurologic signs, headache
- Meningitis - Fever, meningismus
- Otitic hydrocephalus - Headache, signs of increased intracranial pressure in the setting of otitis media
- Sigmoid sinus thrombosis - Spiking fever, otitis media, edema and tenderness over mastoid cortex, headache

KEY QUESTIONS TO THE TOPIC:

1. What otogenic complications do you know?
2. Name the localization of otogenic brain abscesses.
3. How to diagnose otogenic meningitis?
4. What stages of abscess do you know?
5. What are the known symptoms of sigmoid sinus thrombosis?
6. What is the tactic of treating patients with otogenic complications?

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2. Color Atlas of ENT Diagnosis, 5th edition / Bull TR, Almeyda JS. — Thieme: Stuttgart. — 2010.— 296 p.
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TOPIC 3

Nasal valve, osteomeatal complex (2 h)

THE ACTUALITY OF A TOPIC: There is a clear causal relationship between the pathogenesis of nasal breathing disorders and the shape of the nose. Pathological changes in the nasal valve lead to difficulty in nasal breathing. Due to the complexity of the morphology and physiology of nasal breathing, the operation of the nasal valve will be appropriate to describe in detail the details of the structure of the external nose and their functions.

PURPOSE OF A LESSON: to get acquainted with the terms, clinical anatomy of the nasal valve and osteomeatal complex.

SUMMARY OF THE TOPIC. The nasal valve and nasal valve area are two entities which should not be confused. The nasal valve area is the narrowest portion of the nasal passage. It is bounded: medially by the septum; superiorly and laterally by the caudal margin of the upper lateral cartilage and its fibro-adipose attachment to the pyriform aperture ('empty triangle'); inferiorly by the floor of the pyriform aperture.

The nasal valve, on the other hand, is the specific slit-like segment between the caudal margin of the upper lateral cartilage and the septum. From a physiological and surgical point of view, this distinction is fundamental. The nasal valve area is the site of the highest nasal resistance. Therefore, small deformities of the valve area may severely impair the dynamics of nasal air flow. Rhinomanometry and nasal endoscopy permit the best definition of valve pathophysiology.

The term "Osteomeatal complex" (synonyms: Ostiomeatal unit, OMC) represents the area on the lateral nasal wall (middle meatus) that receives drainage from the anterior and medial ethmoid cells, frontal sinus, and maxillary sinus. It is an anatomically constricted area that is prone to blockage, especially in the presence of structural anomalies, mucosal swelling or tumors. In addition, ostia themselves are small. An impairment in the ventilation of sinus due to such reasons lead to Chronic rhinosinusitis (CRS).

Boundaries:

- Medially: Middle turbinate
- Laterally: Lamina papyracea
- Superiorly and posteriorly: Basal lamella
- Inferiorly and anteriorly: It is open

Components: Functionally, significant structures of the Ostiomeatal complex are:

1. Uncinate process (Hook like bony extension of medial wall)
2. Hiatus semilunaris (Crescent passage between uncinate process and ethmoid bulla through which middle meatus communicates with ethmoidal infundibulum)
3. Frontal recess (Drainage channel of frontal sinus)
4. Bulla ethmoidalis (most constant and largest anterior ethmoid air cell that projects inferomedially over hiatus semilunaris)

5. Ethmoidal infundibulum (Funnel shaped passage through which anterior ethmoid cells and maxillary sinus drains into middle meatus)
6. Maxillary sinus ostium (Drainage channel of maxillary sinus)
 - Anatomic variations:
 1. Deviated Nasal Septum
 2. Concha bullosa (Enlarged, pneumatized middle turbinate)
 3. Intralamellar cell (Air cell within vertical portion of middle turbinate)
 4. Paradoxical middle concha (Convexity of turbinate directed towards lateral nasal wall)
 5. Haller cells (Infraorbital ethmoid air cells)
 6. Agger Nasi cells (Extension of anterior ethmoid air cells into lacrimal bone)
 7. Uncinate process bulla
 8. Deviation of uncinat process
 - A: Concha bullosa
 - B: Haller cells
 - C: Agger Nasi cells

KEY QUESTIONS TO THE TOPIC:

1. Define the term nasal valve.
2. What structures of the nasal cavity form the section of the nasal valve?
3. Name the functions of the nasal valve.
4. Describe how the Cottle test is performed.
5. What are the treatment options for nasal valve pathology?
6. What are the elements of the nasal cavity that make up the osteomeatal complex.
7. Explain the theory of the rhinogenic origin of W. Messerklinger sinusitis.
8. Explain the theory of "isthmus surgery" by M.E. Wigand.

RECOMMENDED LITERATURE:

1. Otorhinolaryngology: textbook / Yu.V. Mitin, Yu.V. Deyeva, Ya.Yu. Gomza et al. — 6th edition. — Kyiv: «MEDICINE». — 2020. — 264 p.
2. Color Atlas of ENT Diagnosis, 5th edition / Bull TR, Almeyda JS. — Thieme: Stuttgart. — 2010.— 296 p.
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TOPIC 4

Deformation of the external nose, rhinoplasty (3 h)

THE ACTUALITY OF A TOPIC: Deformation of the outer nose occurs in almost 80% of the world's population, but more often among the male half. This pathology is a change in the back of the nose, nasal septum, which leads to a violation of the proportionality and symmetry of the outer nose. Nasal plastic surgery or rhinoplasty is an operation aimed at changing the external contours and proportions of the nose in order to correct deformities. Rhinoplasty can be combined with septoplasty - an operation to eliminate the curvature of the nasal septum and restore nasal breathing.

PURPOSE OF A LESSON: to get acquainted with variants of deformation of the outer nose, types, principles and technique of cosmetic rhinoplasty.

SUMMARY OF THE TOPIC. A nasal deformity is an abnormality in the structure and appearance of the nose that results in difficulty breathing, impaired sense of smell and other concerns.

Patients with a nasal deformity may also be prone to snoring and noisy breathing, nosebleeds, dry mouth, chronic sinusitis (inflammation of the sinus passages) and sinus infections. Oftentimes, these issues are accompanied by displeasure with the shape and appearance of the nose.

There are several types of nasal deformities, including:

- Congenital (present at birth) deformities: These include cleft palate, nasal mass or weakness in the structure of the nose.
- Enlarged adenoids: Adenoids are lymph glands found at the back of the nose. When they become enlarged, they can block the airway and cause sleep apnea.
- Enlarged turbinates: There are three turbinates, or baffles, on the side of each nostril that clean and humidify the air before it goes to your lungs. Swollen turbinates can interfere with breathing through the nose.
- Deviated septum: This is when the wall of cartilage between your nasal passages is malformed or bent to one side. A deviated septum can be congenital or caused by trauma.
- Saddle nose: Sometimes known as a boxer's nose, the saddle nose has an extremely flat or concave bridge. It is associated with trauma, cocaine abuse or certain diseases.
- Aging nose: The aging process can cause drooping that leads to obstruction, as the sides of the nose collapse inward.

Whether nasal deformities are visible on the outside of the nose or hidden inside, the most common symptom is difficulty breathing. Other symptoms include:

- Loud breathing
- Snoring
- Sleep apnea
- Congestion
- Mouth breathing
- Diminished sense of smell or taste
- Frequent bloody noses

- Chronic sinusitis (inflammation of the sinus passages)
- Frequent sinus infections
- Facial pain or pressure

Surgical options include:

Rhinoplasty: This is a reshaping of the nose, performed either for better nasal functioning or for an improved appearance.

Septoplasty: This is the surgical straightening of the septum, the cartilage and bone that separates the two nasal chambers.

Closed reduction: This procedure repairs a broken nose without surgery. It is most successful within a week after trauma to the nose.

KEY QUESTIONS TO THE TOPIC:

1. Define the concept of "deformation of the outer nose."
2. Name the types of deformities of the outer nose.
3. What is the clinical significance of the combination of cosmetic rhinoplasty with endonasal surgery to restore respiratory function.
4. Rhinoplasty: definitions, main types.
5. What are the possible complications of rhinoplasty.

RECOMMENDED LITERATURE:

1. Otorhinolaryngology: textbook / Yu.V. Mitin, Yu.V. Deyeva, Ya.Yu. Gomza et al. — 6th edition. — Kyiv: «MEDICINE». — 2020. — 264 p.
2. Color Atlas of ENT Diagnosis, 5th edition / Bull TR, Almeyda JS. — Thieme: Stuttgart. — 2010.— 296 p.
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TOPIC 5

Functional voice disorders (3 h)

THE ACTUALITY OF A TOPIC: Voice, along with hearing and vision, is one of the main mechanisms for communication, so in modern society, voice problems significantly affect the quality of life. And for people of some professions (singers, actors, announcers, teachers, educators, business leaders, politicians, clergy), the voice is also a tool that provides a full professional activity. Voice disorders can also occur in children. Due to their emotionality, women suffer from voice disorders several times more often than men (approximately 8 times). Against the background of constant tension of the vocal cords and psycho-emotional overload, functional disorders can occur: dysphonia - a violation of the sound of the voice or aphonia - its absence.

PURPOSE OF A LESSON: to get acquainted with the basic types of functional disorders of voice formation, the factors that lead to their occurrence, the main manifestations of dysphonia and phonasthenia, diagnostic methods and basic principles of treatment.

SUMMARY OF THE TOPIC. A classification system of characterizing functional voice disorders was proposed by Koufman in 1982, including the categories of conversion aphonia/dysphonia, habituated hoarseness, inappropriate falsetto, vocal abuse syndrome, postoperative dysphonia, and relapsing aphonia. Vocal abuse syndrome accounts for over 70% of functional dysphonia in this system. Others advocate the umbrella term of "muscle tension dysphonia." In these systems, subtypes of muscle tension dysphonia (MTD) can be used including psychogenic, habituated, compensatory, and organic abnormalities resulting from misuse or abuse.

- Psychogenic
- Inappropriate falsetto
- Habituated
- Compensatory
- Organic lesions from muscle tension dysphonia

Evaluation

- History
- Physical examination
- Laryngeal examination

With the popularization of fiberoptic laryngoscopy, Koufman reported 4 basic patterns of muscle tension dysphonia (MTD) that may be seen in both functional dysphonia and those patients with organic lesions. For those patients with organic lesions, these patterns tend to be compensatory. [12] These types of muscle tension dysphonia (MTD) are as follows:

Type I: Glottic/laryngeal isometry features a posterior chink due to simultaneous (and inappropriate) contraction of the posterior cricothyroid muscle and lateral cricoarytenoid muscle during phonation.

Type II: Supraglottic/plica ventricularis is A false vocal fold approximation that may be functional or compensatory.

Type III: Supraglottic/partial anterior-posterior contraction.

Type IV: Supraglottic/complete anterior-posterior contraction in which the petiole of the epiglottis approximates the arytenoids.

Treatment & Management

- 1) Vocal hygiene. All voice rehabilitation should include the elimination of vocally abusive behaviors such as throat clearing, habitual yelling or screaming, habitual breath holding, or improper glottic valving during exercise. Inhaled irritants such as tobacco and toxic chemicals should be avoided. Gastroesophageal reflux should be controlled. Patients should demonstrate proper fluid intake, and medications with drying potential should be minimized to optimize laryngeal hydration.
- 2) Voice therapy. Stemple has classified the different treatment philosophies of voice therapy into the following 5 categories:

Symptomatic voice therapy addresses the identification and elimination of vocally abusive behaviors through facilitating approaches. These techniques facilitate a target or a more optimal vocal response by the patient. Examples include auditory feedback, head positioning, laryngeal massage, and relaxation. Disorders of misuse or abuse benefit from this treatment philosophy.

Psychogenic voice therapy addresses the underlying emotional and psychosocial issues that are causing the dysphonia. Patients with conversion dysphonia would benefit from this approach.

Etiological voice therapy focuses on recognition and elimination of the cause of the voice disorder, which may be multifaceted. Muscle tension dysphonia may benefit from this approach.

Physiologic voice therapy, a type of biofeedback, involves the use of acoustic and aerodynamic analysis to direct the patient's vocal function back to objectively normative physiologic voice function. Physiologic voice therapy may be useful on a patient with falsetto.

KEY QUESTIONS TO THE TOPIC:

1. Give a classification of functional diseases of the larynx.
2. Name the causes, clinic and methods of treatment of dysphonia and aphonia.
3. Etiology, clinic and principles of phonasthenia therapy.
4. Mutism: causes and treatment.

RECOMMENDED LITERATURE:

1. Otorhinolaryngology: textbook / Yu.V. Mitin, Yu.V. Deyeva, Ya.Yu. Gomza et al. — 6th edition. — Kyiv: «MEDICINE». — 2020. — 264 p.
2. Color Atlas of ENT Diagnosis, 5th edition / Bull TR, Almeyda JS. — Thieme: Stuttgart. — 2010.— 296 p.
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TOPIC 6

Physiology of lymph adenoid pharyngeal ring (3 h)

THE ACTUALITY OF A TOPIC: The relevance and social significance of the physiology of the lymphadenoid pharyngeal ring is due to the high level of morbidity, especially in childhood. Acute inflammatory diseases of the throat occupy one of the first places among all ENT pathology. Although in the past operations on lymphoid formations of the throat were among the most common otorhinolaryngological interventions, nowadays the indications for them are significantly narrowed. This is due to new data on the important role of lymphadenoid structures in the formation and functioning of local and systemic humoral immunity.

PURPOSE OF A LESSON: to study the basic functions of structures of the lymphadenoid pharyngeal ring.

SUMMARY OF THE TOPIC. Heinrich Wilhelm Gottfried von Waldeyer-Hartz first described the incomplete ring of lymphoid tissue, situated in the naso-oropharynx, in 1884. The ring acts as a first line of defence against microbes that enters the body via the nasal and oral routes.

Waldeyer's ring consists of four tonsillar structures (namely, the pharyngeal, tubal, palatine and lingual tonsils) as well as small collections of lymphatic tissue disbursed throughout the mucosal lining of the pharynx (mucosa-associated lymphoid tissue, MALT).

Key facts about Waldeyer's Ring

Pharyngeal tonsil - In the roof of the nasopharynx. Covered with respiratory epithelium

Tubal tonsils - In the roof of the nasopharynx - covered with respiratory epithelium

Palatine tonsils - in the oropharynx - covered with stratified non-keratinized squamous epithelium.

Lingual tonsils - at the posterior one-third of the tongue - covered by stratified non-keratinized squamous epithelium

During upper respiratory tract infections (URTI), the pharyngeal and palatine tonsils can become enlarged, resulting in adenoiditis or tonsillitis, respectively. The inflammation is typically of bacterial origin. Consequently, hypertrophied lymphoid tissue may lead to obstruction of the airway. Persistent inflammation after antibiotic treatment with beta-lactamase activity can indicate surgical therapy.

It should also be noted that in following a complete adenoidectomy, some patients may still experience symptoms of adenoiditis. One possible causative factor could be tubal tonsillar hypertrophy (TTH) – a condition in which the tubal tonsils compensated for the absence of the adenoids, and became enlarged.

KEY QUESTIONS TO THE TOPIC:

1. Name the lymphoid formations that compose the lymphadenoid pharyngeal ring.
2. Describe clinical anatomy of the tonsils.

3. What is the immune function of the tonsils?
4. What is the hematopoietic function of the tonsils?
5. What is the reflex function of the palatine tonsils?

RECOMMENDED LITERATURE:

1. Otorhinolaryngology: textbook / Yu.V. Mitin, Yu.V. Deyeva, Ya.Yu. Gomza et al. — 6th edition. — Kyiv: «MEDICINE». — 2020. — 264 p.
2. Color Atlas of ENT Diagnosis, 5th edition / Bull TR, Almeyda JS. — Thieme: Stuttgart. — 2010.— 296 p.
3. Lecture Notes on Diseases of the Ear, Nose and Throat / Bull PD. — 9th edition. — Blackwell Science Ltd. — 2002.— 181 p.
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Topic 7.

Methods of olfactory research. Olfactory disorders due to SARS-CoV-2 (COVID-19). Rehabilitation methods for olfactory disorders. (3 h)

THE ACTUALITY OF A TOPIC: In 2020, a global pandemic of the coronary virus infection COVID-19 caused by the SARS virus - CoV-2 was recorded. It is known that the loss of sense of smell is one of the key symptoms of this dangerous disease. Therefore, knowledge of the clinic, diagnosis and principles of treatment of these diseases is necessary in the clinical practice of physicians of various profiles - otorhinolaryngologists, family physicians.

PURPOSE OF A LESSON: acquaintance with methods of research of sense of smell, olfactory disturbances at SARS-CoV-2 (COVID-19), methods of rehabilitation at olfactory disturbances.

SUMMARY OF THE TOPIC.

Part 1. Methods of studying the sense of smell.

Study of olfactory function is called olfactometry. All studies of the sense of smell are divided into qualitative and quantitative. Qualitative study of the sense of smell is carried out using a set of odorous substances of different receptor orientation (table 1).

Table 1

Approximate composition of a set of odorous substances for a qualitative study of the sense of smell

1) olfactory substances mainly olfactory action (ie those that act mainly on the olfactory receptor):		ground coffee	
		ground cinnamon	
		dill oil	
		tobacco	
		rum extract	
		water extract of onion 1: 100	
	2) odorous substances of mixed action, ie those that act olfactory and auxiliary receptors);	a) olfactory substances of olfactory-trigeminal action:	an aqueous solution of ammonia 2%.
acetone			
iodine solution 5%,			
ethanol			
formaldehyde			
camphor oil			
b) olfactory substances of olfactory-glossopharyngeal action, ie with a flavor component:		odoform	
		5% acetic acid solution	
		chloroform	
		pyridine	
c) olfactory substance olfactory-glossopharyngeal-trigeminal action:		acetic acid with a concentration of more than 20%	

All fragrant substances are poured into identical vials with ground glass caps. The uncorked vial is presented to the patient's nostrils. The study can be performed monorinally, ie separately for each half of the nose (in this case, one of the halves of the nose is isolated by pressing the wing of the nose to the alteration), or birinally. The patient is asked to smell the contents of the vial, answer whether he smells and, if so, name or describe it. Fragrant substances are offered at intervals of 20-30 seconds to prevent adaptation.

Nowadays, foreign companies produce various kits for the study of smell by the method of active sniffing, among which a set of scented felt-tip pens is especially noteworthy.

A qualitative study of the sense of smell should answer the following questions:

- whether the patient's perception of odors is impaired;
- which group of odors is perceived worse or not perceived at all;
- whether odor recognition is impaired;
- which group of odors is recognized worse or not at all.

Quantitative study of the sense of smell.

In the study of olfactory function in persons with full breathing through the nose using mostly sets of odorous substances of different dilutions, placed in the same glass vials with ground corks.

- simple tincture of valerian - 0.8; 0.4; 0.2; 0.1; 0.05; 0.025; 0.0125; 0.0062;
- acetic acid - 0.8; 0.4; 0.2; 0.1; 0.05; 0.025; 0.0125; 0.0062; 0.0031; 0.0015; 0.0007.

The starting material is diluted first at the rate of 8 volume parts to 2 volume parts of distilled water, and then - twice, etc. All dilutions are placed in identical vials with symbols. The research methodology does not differ from the described methodology of qualitative research. The average olfactory thresholds are for a simple tincture of valerian - the threshold of perception (PS) 0.0125, the threshold of recognition (PR) 0.025, for acetic acid - PS 0.025, PR 0.05.

In the practice of otorhinolaryngologists, olfactometers with forced injection of the odorous mixture into the nasal cavity are more widely used. Unlike olfactometers with active sniffing, which seem to be as close as possible to physiological conditions, they also allow to study patients with limited or no breathing through the nose. All existing models of such olfactometers are derived from their prototype - olfactometer Elsberg-Levi (Elsberg-Levi). The group of olfactometers also includes devices of our design - OKI (clinical pulse olfactometer) - 68 and OKI - 70.

Up to 1/3 of their volume of fragrant substance is poured into tanks of olfactometers. A certain amount of air is injected through a longer tube with a syringe or other dosing device. Passing over the surface of the odorous substance (in some olfactometers - through it), the air is saturated with its vapor. In a nostril of the patient insert the oil tips connected to a shorter tube of the tank, and open the crane. In this case, the excess air saturated with steam fragrant substance (fragrant mixture) enters the nasal cavity of the subject, who is asked if he smelled, and if so, what.

Gradually increasing the dose of air introduced into the tank, and, consequently, the volume of the odorous mixture that enters the nasal cavity, determine:

- a) the threshold of odor perception (PSZ);
- b) the threshold of recognition (identification) of odor (PRZ).

If the patient has a complaint of olfactory disorders, or if pathological changes in the nasal cavity are detected, the study is performed monorinally, ie separately for each half of the nose. In such cases, a continuous tip - oil (without a hole) is inserted into the nostril, which is not currently being examined. At mass inspections of practically healthy persons researches are carried out binary.

In clinical practice, in order to obtain data for differential diagnosis, perform research with at least two odors of different receptor orientation. The most commonly used simple tincture of valerian (fragrant substance mainly olfactory action) and 20% solution of acetic (acetic) acid (fragrant substance, which, in addition to olfactory receptors, also acts on the terminus of the trigeminal and pharyngeal nerves).

Thresholds of smell are usually equal to:

for valerian tincture - PSZ 3-5 ml; PRZ - 5-7 ml;

for acetic acid - PSZ 5-7 ml; PRZ - 7-8 ml.

It is necessary to remember that fragrant properties of tinctures and extracts, for example, tinctures of valerian, various releases can differ (depending on time and a place of gathering of vegetable raw materials, etc.); therefore, it is necessary, after each replacement of the odorant in the olfactometer tank, to redefine the normal values of PSZ and PRZ in groups of healthy individuals.

More modern olfactometers are built on this principle, with the difference that the set of odorous substances used for testing is expanded, and the compressor that supplies the odorous mixture is controlled by a modern electronic circuit.

The ratio of PSZ and PRZ of odorous substances of different receptor orientation is different, depending on the form (level) of lesions of the olfactory organ.

If olfactory disorders are caused by the difficulty of getting odorous substances into the olfactory slit, ie in cases of conductive hyposmia, at the same time and equally increases PSZ and PRZ of odorous substances of different receptor orientation.

In patients with perceptual hyposmia, in particular in cases of olfactory neuritis, PSZ and PRZ of substances of mainly olfactory action increase, and PSZ and PRZ of substances of mixed action remain normal or close to norm.

In the case of trigeminal neurinoma, the perception of olfactory-trigeminal odors is selectively impaired. Finally, in the case of dysfunction of the central part of the olfactory analyzer (for example, in patients with brain tumors) is determined only by the violation of the recognition of odorous substances of different receptor orientation. Instead, PSZ for all odorous substances remain normal or close to normal.

Part 2. Olfactory disorders in SARS-CoV-2 (COVID-19). Rehabilitation methods for olfactory disorders

The researchers analyzed data from residents of the United States and the United Kingdom and the United States from the appendix. Almost 1/3 reported COVID-19-related symptoms. Of these, more than 18,000 people reported having had a coronavirus test, and more than 7,000 had tested positive. The researchers also noted that the loss of taste and smell (anosmia) was impressive: 2/3 of users with a positive result for coronavirus reported this symptom compared to more than 1/5 of participants who had a negative test result.

Subsequently, scientists developed an algorithm that predicted the probability of COVID-19 with almost 80% accuracy based on human data: gender, age and a combination of four main symptoms (loss of taste or anosmia, severe or persistent cough, fatigue and loss of appetite).

In clinical trials, there was a lower likelihood of nasal discharge / rhinorrhea / rhinitis or edema / obstruction / nasal blockage with SARS-CoV-2 than with other coronaviruses.

Research in this direction has continued at the pathohistological level. Researchers at the Universities of London and Reading have found that COVID-19 does not simply cause loss of smell as a result of swelling of the nasal mucosa, but is associated with inflammation of cells near the olfactory neurons. Even in the first reports from Wuhan (China), Iran, Italy it was said that anosmia was a significant symptom

From early reports from Wuhan, Iran, and then Italy, it was known that olfactory loss (anosmia) was a significant symptom of COVID-19. While in other acute respiratory infections, anosmia occurs due to swelling of the nasal mucosa, the appearance of secretions and a mechanical obstacle for odorants (molecules of odorous substances) to get to the olfactory receptors. However, for SARS-CoV-2 coronavirus, the nature of odor loss is different. Many people with COVID-19 reported a sudden loss of sense of smell and then a sudden and complete return to normal sense of smell in a week or two. Interestingly, many of these people said that their sense of smell could not be attributed to a stuffy nose.

Initially, it was thought that the SARS-CoV-2 virus caused the destruction of olfactory neurons, causing the patient to lack taste and smell. However, studies have shown that ACE2 receptors (angiotensin-converting enzyme 2, ACE2), which are used to transmit coronavirus, are not on olfactory neurons, but on supporting sustentacular cells. In COVID-19 infected patients, nasal edema occurs in the olfactory analyzer. The rest of the nose and sinuses look normal, and patients have no problems with nasal breathing.

There is a possibility of central disturbance of the olfactory analyzer due to changes in the brain, which were detected at autopsies in patients with positive COVID-19: microangiopathy and DIC syndrome, diffuse hypoxic and focal ischemic brain damage, histological - destructive-productive thrombosis. hemorrhages, dystrophic changes of neurons, sludge of erythrocytes in the lumen of blood vessels.

When the viral load decreases, the swelling of the corresponding area decreases, the movement of odorants to sensitive receptors is restored and the sense of smell returns to the patient. In some cases, the restoration of the sense of smell takes longer. This situation is due to damage to sustentacular cells and olfactory neurons. Scientists have studied that these neurons are regenerated by the body from a pool of stem cells in the nasal mucosa.

Patients with anosmia after COVID-19 should be recommended "olfactory training" using odorous substances of different characteristics and concentrations. To do this, have several containers with these fragrant substances (for example, essential oils, aromatic oils, coffee, etc.) with you and sniff them during the day until you have at least some olfactory sensations. Keep in mind the possibility of allergies to certain odorous substances. Therefore, it is necessary to carefully collect the patient's medical history and report the possibility of complications.

MAIN ISSUES TO THE TOPIC:

1. What is the process of olfactory research called?
2. What are the 2 basic types of methods of olfactory research?
3. What methods belong to the qualitative study of the sense of smell?
4. How are fragrant substances divided for qualitative olfactory research?
5. What odorous substances have a predominantly olfactory effect?
6. What groups of substances of alternating action do you know?
7. What fragrant substances have olfactory-trigeminal action?
8. What fragrant substances have olfactory-glossopharyngeal action?
9. What fragrant substances have olfactory-glossopharyngeal-trigeminal action?
10. How is quality olfactometry performed?
11. What methods belong to the quantitative methods of olfactometry?
12. What diseases can be differentiated depending on the types of olfactory disorders?
13. What is the method of restoring the sense of smell in its disorders?
14. What substances are used in the rehabilitation of the sense of smell?
15. What are the contraindications to this method of olfactory rehabilitation?

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Topic 8

Allergic diseases of the ENT organs. (3 hours).

THE ACTUALITY OF A TOPIC: Allergic respiratory diseases are an extremely important problem, which largely shape the incidence and prevalence of pathology in the population. According to statistics, 8-12% of the world's population suffer from various forms of allergies. In recent years, there has been a tendency in the world to significantly increase allergic pathology, various manifestations of allergic reactions and diseases, and there is a forecast that by the middle of the XXI century, this pathology will be the most common among mankind. Respiratory allergies are a major concern for professionals today. The nasal mucosa is the first to come into contact with inhaled allergens, which leads to a high prevalence of allergic rhinitis (AR). Allergic rhinitis affects the mental, physical and social aspects of a sick child's life, morally and financially exhausting family members.

PURPOSE OF A LESSON: to get acquainted with the principles of diagnosis, treatment and prevention of allergic diseases of the upper respiratory tract.

SUMMARY OF THE TOPIC: Allergic rhinitis (rhinosinusitis) is a serious chronic disease of the upper respiratory tract, which is based on IgE-dependent reaction on the surface of the mucous membrane. In this regard, the disease belongs to the category of atopic pathology and is often combined with bronchial asthma (BA) and atopic dermatitis.

The pathogenesis of allergic rhinitis is based on immediate hypersensitivity reactions (according to Jell - Coombs), in which the main role is played by specific immunoglobulins - IgE. The starting point is the contact between the causative allergen and the nasal mucosa, while due to the degranulation of smooth cells develops a clinical early phase of the reaction and starts the process of further allergic inflammation. After a single exposure to the allergen, signs of allergic inflammation may last for several days.

Allergic rhinitis (AR) is classified as follows: 1) by the duration of symptoms: a) periodic - lasts <4 days a week or <4 weeks; b) chronic - lasts > 4 days a week and > 4 weeks; 2) the intensity of symptoms: a) mild - none of the following criteria; b) moderate or severe - the presence of ≥ 1 of the criteria: sleep disturbances, impaired daily functions, rest or sports, difficulties at work or study, severe symptoms; 3) for allergens that cause symptoms: a) seasonal - caused by seasonal allergens; b) year-round - caused by allergens that occur during the year.

The main symptoms of AR include: nasal discharge of watery secretions; sneezing, often - paroxysmal; stuffy nose and thick mucous secretions; itchy nose and conjunctiva (and redness), ears, palate and throat; olfactory disorders; dryness of the oral mucosa; sometimes - systemic symptoms: sleep disturbances, concentration and ability to learn, a slight increase in body temperature, headache, depressed mood.

The main diagnostic methods include:

1. Studies confirming the diagnosis of allergy: positive results of scarification skin tests with inhaled allergens, increased concentration of specific IgE in the serum

2. Anterior rhinoscopy and nasal endoscopy: bilateral, not always symmetrical swelling of the nasal mucosa, which is covered with watery secretions
3. Cytological examination of a nasal smear: increased percentage of eosinophils $\geq 2\%$
4. CT of the nose and paranasal sinuses

Differential diagnosis of allergic rhinitis.

Some other conditions can cause symptoms similar to AR. These include non-allergic rhinitis with eosinophilic syndrome (NARES), which may be the first manifestation of intolerance to pyrazolone drugs, as well as rhinitis in endocrine, occupational diseases, the effects of infectious diseases, side effects of drugs, including abuse of vasoconstrictor drugs - drops. In the case of diagnosis of A.r. it is necessary to make a differential diagnosis with diseases such as idiopathic rhinitis, polyposis rhinosinusitis, chronic sinusitis, cystic fibrosis, Wegener's disease, benign and malignant tumors of the nasal cavity and paranasal sinuses. Diagnosis of AR is complex and involves medical otolaryngological examination and specific diagnosis of a significant allergen.

Treatment of allergic rhinitis. According to the current EAACI / ARIA agreements and the national Protocol for the treatment of AR, as well as other allergic diseases, includes four main areas: education of patients; elimination therapy; pharmacotherapy; specific immunotherapy (SIT) with allergens. All these positions are carried out only by doctors, and SIT - exclusively by allergists. Leading experts in the world believe that the therapy of A.r. should be combined and contain both SIT allergens, and pharmacotherapy, thus depending on character of a course of a disease at the concrete patient, its weight and prescription the sequence of components of treatment should change..

Combined pharmacotherapy of AR contains the following areas:

1. elimination therapy - complete or partial, which is usually very difficult to carry out during active AR. Promising means for washing away allergens from the nasal mucosa;
2. treatment of AR in the acute period with antihistamines (AGP);
3. anti-inflammatory therapy - the most effective topical glucocorticosteroids (THC);
4. the initial phase of SIT on the background of reduced intensity of pharmacotherapy - especially in CAR or SAR (outside the flowering season of plants).

Educational programs for patients and the elimination of significant allergens must be included in the treatment of patients with AR of any form and severity. In the domestic Protocol it is recommended in the flowering season with seasonal (intermittent) A.r. use topical AGP, cromones, and in case of their ineffectiveness - systemic AGP of the third generation or THC, in case of eye symptoms - eye drops in combination with AGP or glucocorticosteroids. Outside the flowering season, patients are recommended to perform SIT by different methods. With a mild year-round (persistent) A.r. and detection of a limited range of allergens appoint FTA on the background (if necessary) of previous therapy with AGP, cromones and THC. In moderate and severe forms of surfactants use THC, AGP and SIT allergens with a mandatory assessment of its effectiveness. In case of ineffectiveness of SIT, only pharmacotherapy is continued. In complicated forms of AR aerosol forms of glucocorticosteroids, AGP and antileukotriene drugs (polyallergy, bronchial asthma, bronchial hyperreactivity), antibacterial therapy, bacterial lysates

(infectious sinusitis), surgical treatment (nasal polyposis, hypertrophic rhinitis, etc.) are shown.

MAIN ISSUES ON THE TOPIC:

1. What is the etiology of allergic rhinitis?
2. What are the types of allergic rhinitis?
3. The main diagnostic criteria of seasonal AR.
4. The main diagnostic criteria of year-round AR.
5. Clinical manifestations of AR.
6. Differential diagnosis of AR.
7. List the main methods of diagnosing AR.
8. Describe the method of scarification skin tests.
9. Endoscopy of the nose in AR: the main signs of the disease.
10. Cytological examination of a nasal smear in AR.
11. What are the possible changes in CT in AR?
12. What are the principles of treatment of AR?
13. What are the differences in the treatment of seasonal and perennial AR?
14. What antihistamines do you know?
15. What is specific immunotherapy and what are the indications for it?

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Topic 9

Mycosis of the ENT organs (3 hours)

THE ACTUALITY OF A TOPIC: An important problem of modern otorhinolaryngology is the diagnosis and treatment of mycoses of the upper respiratory tract and ear. Mycoses of the ENT organs in recent decades are an important problem of modern clinical medicine not only in Ukraine but also around the world. According to the scientific literature, the share of fungal lesions of the ear and upper respiratory tract in the structure of chronic inflammation of these habitats is 22.1%. The main causative agents of mycotic lesions of the ENT organs are opportunistic fungi of the genera *Aspergillus*, *Renicillium*, *Mucor* and yeast-like fungi of the genus *Sandida*, which are characterized by a low level of pathogenicity and are part of the resident microflora of the macroorganism.

PURPOSE OF A LESSON: to get acquainted with the peculiarities of the course, diagnosis, treatment of various forms of mycoses in otorhinolaryngology.

SUMMARY OF THE TOPIC. Methods of diagnosis of fungal infections. Smears from mucous membranes are performed with sterile (preferably wet) tampons, delivery to the laboratory should be as soon as possible. Biopsy material is transported in saline or nutrient medium. For mycological examination, it is necessary to send materials from the layers on the mucous membrane of the pharynx, "crusts" on the mucous membrane of the nasal cavity or different colors and shapes (for example, in the form of "folded paper") masses in the external auditory canal.

Immunological diagnosis of mycoses is based on the detection of pathogen antigens in blood and other biological fluids, which are normally sterile. Serological diagnosis allows you to detect antibodies in the blood to the components of the pathogen. Unfortunately, serial sets of antibodies and antigenic diagnosticums have been developed for only a few of the most common pathogens of mycoses (*candida*, *cryptococcus*, *aspergillus*, and dimorphic fungi). Immunodiagnostic methods have certain shortcomings, in particular, insufficient sensitivity and specificity, cross-reactions and so on.

Molecular diagnostics allows to determine the presence in the blood and other media of fragments of pathogen cells or products of its metabolism without the use of antibodies (gas-liquid chromatography and polymerase chain reaction). Unfortunately, in Ukraine at present these methods of diagnosing mycoses are rarely used due to the high cost of devices and reagents for their implementation. More often, immuno- and molecular diagnostics are used when deep invasive mycoses are suspected.

Mycoses of the nose and paranasal sinuses. Currently, most authors distinguish between 5 forms of fungal sinusitis: invasive (acute zip, granulomatous, chronic) and non-invasive (sinus mycetoma and eosinophilic fungal sinusitis).

Acute fungal sinusitis develops in patients with diabetes mellitus and immunodeficiency, is characterized by the rapid spread of fungi by vascular invasion into the orbit and brain. Among the most important symptoms are pain, swelling around the

eyes, with the development of proptosis, chemosis and ophthalmoplegia. Rhinocerebral mucormycosis is characterized by an extremely severe course, in which there is a necrotic reaction with minimal manifestations of inflammation and fungal invasion of blood vessels, including carotid arteries and cavernous sinuses. In such cases, without timely adequate treatment, the mortality rate is extremely high. Acute fungal sinusitis requires urgent surgery and massive intravenous antifungal therapy.

Chronic fungal sinusitis is a slowly progressive fungal infection with a low degree of invasive process, more common in patients with diabetes. According to our observations, cases of invasive forms of fungal sinusitis, which would be confirmed histologically, did not occur.

Sinus mycetoma (fungal body) most often develops in the maxillary sinus, but there are other localizations. In the literature there are reports of a case of removal of a mycetoma from a sphenoidal sinus. The main complaints of patients are: purulent discharge from the nasal cavity, the presence in the discharge of inclusions in the form of granules, brown or black sand, a feeling of heaviness in the projection of the maxillary sinus, headache.

In some cases, there is a link between the presence of mycetoma and dental procedures in the alveolar process of the upper jaw. According to many authors, mycetoma can be formed when the filling material enters the cavity of the maxillary sinus. At the same time, other authors believe that fungi can deposit heavy metals in the center of the fungal body, resulting in X-ray examination and CT or MRI revealed an inhomogeneous decrease in sinus pneumatization with a hyperintensive area in the center (calcification), which is often mistaken for a foreign body. The fungal body consists of a dense conglomerate of intertwined fungal hyphae and is accompanied by a slight inflammatory reaction in the form of edema of the mucous membrane. Treatment is careful removal of the fungal body, preferably using endoscopic techniques. The appointment of antifungal drugs for sinus mycetoma is not appropriate.

The diagnosis of "eosinophilic fungal sinusitis" (EGS) was proposed by a group of specialists from the Mayo Clinic. The lack of sensitization to fungal antigens in most patients allowed the authors to propose to replace the existing definition of "allergic fungal sinusitis" with EGS.

The main criteria for the diagnosis of EGS are:

- 1) the presence of chronic rhinosinusitis;
- 2) the presence of allergic mucin, which contains eosinophils and products such as Charcot-Leyden crystals and major basic protein (MBP);
- 3) the presence of fungi in the mucus, confirmed culturally and / or histologically.

It is believed that damage to the mucous membrane as a result of the pro-inflammatory action of MBP creates conditions for bacterial proliferation.

The content of sinuses in EGS has a characteristic color from yellow to brown and "rubber-like" consistency. Allergic mucin and polyps can form a partially calcified mass, the increase of which can lead to bone erosion as a result of pressure and even to the spread of sinus contents into the orbit or brain. Characteristic of MRI in EGS is heterogeneity with the presence of areas with significantly reduced density on T2 images, which correspond to fungal mucin, and inflammatory changes in the surrounding tissues

with increasing density. Fungal masses on T2 MRI images look like optically empty spaces due to the deposition of calcium and heavy metal compounds on them.

Treatment of patients with EGS is surgery to restore aeration of the sinuses and the subsequent appointment of antifungal drugs and rinsing the nasal cavity and paranasal sinuses with solutions of antifungals and antiseptics with antifungal action.

Otomycosis - inflammation of the outer and middle ear of fungal origin. It is caused mainly by pathogenic fungi that grow in the thickness of human skin, namely: *Aspergillus* (*A.niger*, *A.fumigatus*, *A.flavus*), *Penicillium*, *Rhizopus* and yeast-like fungi of the genus *Candida*. Most often (approximately 70%) pathogenic fungi colonize the skin of the external auditory canal, causing otomycosis of the external auditory canal with a long, recurrent course, with the prospect of chronic inflammation. The risk group for fungal infections of the skin of the external auditory canal includes people who work for a long time in cold or hot climates, high humidity and pollination, whose skin is in contact with chemicals, thermal agents. Recently, otomycosis of the external auditory canal has become more common in people who visit the pool for a long time, do water sports. The development of a fungal pathological process in them is due to the ingress of water into the outer ear, which contains spores of pathogenic fungi. The development of otomycosis of the external auditory canal in patients with endaural hearing aids remains relevant, provided they remain in the external auditory canal for a long time, untimely replacement of endaural inserts and in case of personal hygiene. Contribute to the development of otomycosis of the external auditory canal prolonged suppuration due to exacerbation of chronic purulent otitis media, or acute purulent otitis media with a prolonged course. Microtraumas, abrasions of the walls of the external auditory canal accelerate the invasion of pathogenic fungi into the skin. Otomycoses of postoperative cavities and fungal otitis media (10%) occur in a smaller percentage (approximately 20%). Typically, these pathological conditions occur on the background of long-term local or general antibiotic therapy, hormone therapy, allergic sensitization, metabolic disorders (especially in patients with diabetes), beriberi.

The clinic of otomycosis is diverse - a fungal pathological process, or runs with signs of itching of varying intensity, or with severe local pain, a feeling of distension and the presence of a foreign body in the ear. This diversity of the clinical course of otomycosis is due to the processes of insemination and germination of mycelium in the skin, as well as the presence of concomitant pathogenic flora. *Staphylococcus aureus* and *Pseudomonas aeruginosa* are most often sown next to pathogenic fungi, and sometimes *Proteus*. In the case of massive growth of fungi and obstruction of the external auditory canal, symptoms of hearing loss, autophony, hyperesthesia of the auricle and parotid areas may appear.

Otoscopically in the external auditory canal determine the mass of mycelium of fungi, the color of which depends on the type of pathogen. For *A.niger* - black dots on the walls of the bony part of the external auditory canal, eardrum, for *A.flavus* - yellow or yellowish-green discharge, for *A.fumigatus* - green discharge or dots, for fungi of the genus *Penicillium* - white with yellowish shade of crust of soft consistency and liquid serous content in the auditory canal. Otomycosis caused by yeast-like fungi of the genus *Candida* is characterized by areas of desquamation of the skin of the auditory canal, the presence of caseous masses in the lumen of the auditory canal and the transition of the

process to the auricle. Fungal otitis media is accompanied by perforation of the eardrum of various sizes, sometimes even several, and causes hearing loss of the conductive type, even after the inflammatory process subsides.

Microscopy and culture of pathological material on nutrient media are crucial in the diagnosis of otomycosis. The use of a certain fungicide and the effectiveness of treatment depend on this.

Treatment of otomycosis begins with careful toilet of the external auditory canal and the appointment of local fungicides with a broad spectrum of action, and in case of awareness of the sensitivity of the pathogen, prescribe targeted antifungal therapy. Dosage forms that use it - liquid forms of alcohol solutions, creams, ointments, iodine preparations. Since both anaerobes and aerobes can be sown from the external auditory canal along with the fungal flora, it is advisable to prescribe combined dosage forms (with antifungal and antibacterial effects). Desensitizing drugs are prescribed separately. In the case of recurrent forms of otomycosis, otomycosis, which occurs on the background of severe somatic pathology, immunodeficiency, prescribe general fungicide therapy.

Fungal diseases of the pharynx. Mycotic diseases of the pharynx are almost not found in isolation and are accompanied by fungal pathology of the oral cavity (oropharyngeal mycosis). It should be remembered that oropharyngeal candidiasis is often a manifestation of dysbiotic disorders of the gastrointestinal tract, especially in pediatric patients.

Mycotic pathology of the pharynx is characterized by a variety of clinical manifestations, so often there is a need for differential diagnosis with specific diseases, malignant neoplasms, granulomatosis. A special problem is the timely diagnosis and treatment of oropharyngeal mycoses in AIDS patients. Acute pseudomembranous candidiasis may be the first manifestation of HIV infection and develops in 80-90% of such patients. According to the Moscow City Center for AIDS Prevention and Control, oropharyngeal candidiasis is the most common pathology of the ENT organs in HIV infection at the stage of primary manifestations (stages 2-A and 2-B) and secondary diseases (3A-B) [1]. Candidiasis of the mouth and pharynx in HIV-infected people indicates the progression of the disease. In acute pseudomembranous oropharyngeal candidiasis, local white layers first appear on the mucosa, followed by films resembling curdled milk. Under the film, which is easily removed, is a bright red mucous membrane, sometimes with a bleeding surface. The films can merge, spreading to the entire mucous membrane of the mouth and pharynx. It is also possible the presence of film islands on the background of continuous hyperemia of the mucous membrane. As a rule, such pathological changes are practically not accompanied by painful sensations, but in case of accession of a bacterial infection painful erosions and ulcers can be observed.

MAIN ISSUES ON THE TOPIC:

1. What does the term mycosis mean?
2. What does the term otomycosis mean?
3. What are the main factors in the development of otomycosis?
4. Describe the patient's clinic for otomycosis.
5. Give the principles of treatment of otomycosis.

6. What does the term sinus mycetoma mean?
7. What are the main factors in the development of fungal sinusitis?
8. Describe the principles of diagnosis of fungal sinusitis.
9. What are the main factors in the development of sinus mycetoma?
10. What are the causes of sinus mycetoma?
11. How to diagnose sinus mycetomas?
12. Give the principles of treatment of sinus mycelium.
13. What does the term oropharyngomycosis mean?
14. Describe the clinical course of fungal diseases of the pharynx.
15. Give the principles of treatment of fungal diseases of the pharynx.

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TOPIC 10

Complications of acute tonsillitis (3 h)

THE ACTUALITY OF A TOPIC: Tonsillitis is one of the first ENT pathologies. Acute tonsillitis can cause severe complications (abscess, phlegmon of the neck, sepsis, etc.) and lead to other diseases (nephritis, polyarthritis, myocarditis, rheumatism). This question remains relevant, because timely diagnosis of the inflammatory process allows you to prescribe adequate treatment and prevent complications.

PURPOSE OF A LESSON: to get acquainted with the clinic, early diagnosis, differential diagnosis of complications of acute tonsillitis and methods of their treatment.

SUMMARY OF THE TOPIC.

Complications of tonsillitis are rare and usually only occur if it's caused by a bacterial infection. They're usually the result of the infection spreading to another part of the body.

Possible complications of tonsillitis include:

- a middle ear infection (otitis media) – where fluid between the eardrum and inner ear becomes infected by bacteria
- quinsy (peritonsillar abscess) – an abscess (collection of pus) that develops between one of the tonsils and the wall of the throat
- obstructive sleep apnoea (OSA) – where the walls of the throat relax during sleep, which causes breathing difficulties and poor sleep

Other complications of tonsillitis are very rare and usually only occur if an underlying bacterial infection is left untreated. They include:

- scarlet fever – a condition that causes a distinctive pink-red skin rash
- rheumatic fever – this causes widespread inflammation throughout the body, leading to symptoms such as joint pain, rashes and jerky body movements

glomerulonephritis – an infection (swelling) of the filters in the kidneys that can cause vomiting and a loss of appetite

Diagnostic considerations. Consider infectious mononucleosis (MN) due to Epstein-Barr virus (EBV) in an adolescent or younger child with acute tonsillitis, particularly when it is accompanied by tender cervical, axillary, and/or inguinal nodes; splenomegaly; severe lethargy and malaise; and low-grade fever.

An individual with herpes simplex virus (HSV) pharyngitis presents with red, swollen tonsils that may have aphthous ulcers on their surfaces. Herpetic gingival stomatitis, herpes labialis, and hypopharyngeal and epiglottic lesions may be observed.

Differential Diagnoses

- Gastroesophageal Reflux Disease
- Ophthalmologic Manifestations of Leukemias
- Lymphomas of the Head and Neck
- Malignant Nasopharyngeal Tumors
- Malignant Tonsil Tumor Surgery

KEY QUESTIONS TO THE TOPIC:

1. What are the complications of acute tonsillitis known to you?
2. Name the localization of abscesses located in the pharynx.
3. What is the difference between paratonsillitis and paratonsillary abscess?
4. What are the therapeutic tactics for lateropharyngeal abscess?
5. Describe signs of tonsillogenic sepsis.
6. How is the adenoflegmon different from the spilled phlegmon of the neck.

RECOMMENDED LITERATURE:

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Topic 11

Phytotherapy in otorhinolaryngology (3 h)

THE ACTUALITY OF A TOPIC: The use of herbal medicines is becoming more popular. This is due to the fact that in comparison with synthetic drugs, which cause a large number of side effects, especially allergic in nature, most herbs have a long-term therapeutic effect, have good tolerability. That is why in modern medicine the importance of herbal medicine is constantly growing, due to the biological safety for the body of most herbal remedies. These features determine the role of phytotherapy and its means in the long-term outpatient treatment of patients with chronic diseases, at the stage of post-hospital rehabilitation treatment, as well as in sanatorium conditions.

PURPOSE OF A LESSON: to get acquainted with the basic principles of phytotherapy (pharmacological properties of medicinal plants), and to study the use of medicinal plants for the treatment and prevention of ENT diseases.

SUMMARY OF THE TOPIC. Modern foreign and domestic experience shows that phytotherapy is currently one of the promising areas in medicine. The term "Phytotherapy" ("Phytotherapeia" - a word of Greek origin, phyto-plant, therapeia-treatment) - a method of treatment of various human diseases, based on the use of medicinal plants and complex drugs from them.

"Phytotherapy" and "phytopreparations" were first introduced by the French physician Henri Leclerc (1870-1955). "Phytopreparations" are medicines that are obtained exclusively from plant raw materials or herbal substances and are used for the prevention and treatment of diseases. Actually, plants were the first raw material for the manufacture of medicines. Phytotherapy is characterized by a soft, gradual, versatile effect of biologically active components of individual medicinal plants on the human body without adverse adverse changes. Due to the fact that the biologically active components of plants in their chemical structure are very close or even identical to those produced by the human body, they actively contribute to the normalization of vital processes, improve metabolism, provide the body with essential vitamins and minerals. The main pharmacological action of biologically active substances of medicinal plants is that they are able to reduce the amount and severity of damage to various organs and tissues, and in general - to increase the body's resistance to the harmful effects of environmental factors. The action of herbal medicines is determined by the following active substances contained in different parts of the plant: alkaloids, glycosides, tannins, essential oils and others. It is believed that herbal medicine is completely safe and harmless.

With the help of medicinal plants you can successfully treat and prevent ENT diseases: *Althaea officinalis* has an enveloping, protective, anti-inflammatory, expectorant and analgesic effect and is used in acute laryngitis and acute pharyngitis. Cornflowers (*Ocimum basilicum*) have analgesic and bactericidal action and are used in acute pharyngitis, otitis externa. *Eucalyptus globulus* (*Eucalyptus globulus*) has antiseptic and anti-inflammatory effects and is used in acute tonsillitis, rhinopharyngitis,

laryngotracheitis. St. John's wort (*Hypericum perforatum*) drugs have antibacterial action on gram-positive flora used in inflammatory diseases of the oropharynx, nasal boils, otitis externa. *Kalanchoe pinnata* (*Kalanchoe pinnata*) has an anti-inflammatory effect and is used for boils and soft tissue abscesses, otitis externa, to stimulate reparative processes after operations on the ENT organs, in particular after tympanoplasty. Coriander (*Coriandrum sativum*) has antibacterial, stimulating properties for the regeneration of damaged cells, is used externally as a wound healing and antiseptic for boils, soft tissue abscesses, in combination with other herbs for the treatment of pharyngitis and tone. Stinging nettle (*Urtica dioica*) drugs have hemostatic, hematopoietic, tonic, prophylactic, anti-inflammatory and vasoconstrictive effects, used in acute laryngitis, acute pharyngitis and nosebleeds. Linden heart leaf (*Tilia cordata*) has a diaphoretic, anti-inflammatory, sedative effect, is used in acute pharyngitis and acute tonsillitis. Raspberry (*Rubus idaeus*) has diaphoretic, anti-inflammatory properties, is used in acute pharyngitis and acute rhinopharyngitis. Peppermint (*Mentha piperita*) has an anesthetic, analgesic effect and is used for laryngitis, pharyngitis and rhinopharyngitis. Marigold drugs (*Calendula officinalis*) drugs have anti-inflammatory, wound-healing, bactericidal properties used in otitis externa. Steam (breast) (*Agrimonia eupatoria*) has antibacterial, anti-inflammatory and hemostatic effects and is used in the healing of postoperative wounds and others.

The Department of Otorhinolaryngology used various methods of postoperative local chemotherapy with drugs of autumn and celandine in the treatment of laryngeal papillomatosis. (OA Borisov, YR Barilyak). Late autumn flower (*Colchicum autumnale*) has a strong antiproliferative agent and celandine (*Chelidonium majus*) has antispasmodic, analgesic, sedative, anti-inflammatory properties, internal use of celandine juice in combination with local gives good results in treatment. The main thing to remember is the dosage and use of a particular herb according to the recipe. At application of phytotherapy teas, plant extracts, broths, creams, ointments, syrups, candles, tablets, capsules are used. In medicine, a number of ready-made dosage forms of herbal pharmaceuticals are used, in particular: licorice root, thyme extract, althaea, and others. There are dozens of studies of some herbal medicines that confirm the effectiveness of treatment of ENT diseases. For the treatment of rhinosinusitis use herbal medicine which includes gentian root, primrose flowers, sorrel, elder flowers and verbena. They have secretolytic, anti-inflammatory, immunomodulatory and antiviral effects. For the treatment of tonsillitis use herbal medicine which includes marshmallow roots, chamomile flowers, horsetail grass, walnut leaves, oak bark, yarrow herb and dandelion herb. Components of chamomile, marshmallow and horsetail help to increase the activity of non-specific protective factors of the body. Polysaccharides, essential oils and alkaloids of chamomile, marshmallow, dandelion have anti-inflammatory effects.

Herbal medicine also includes apitherapy (the use of bee products for medicinal purposes) and aromatherapy (the use of essential oils).

Aromatherapy is an ancient, age-old art of using essential oils, plant volatiles and other aromatic substances to promote physical health and cosmetic body care. Each of the methods of aromatherapy allows nutrients to enter the body in different ways: through the respiratory system or skin. Often phytotherapy is used in health complexes, herbal teas are prescribed, etc. for the prevention and treatment of ENT diseases.

MAIN ISSUES ON THE TOPIC:

1. Definition of the term "Phytotherapy"?
2. Definition of the term "phytopreparations"?
3. Name the main stages of development of herbal medicine?
4. What are the current areas of research in the study of medicinal plants?
5. Basic principles of phytotherapy in the treatment of ENT diseases?
6. Name the pharmacological properties of medicinal plants?
7. What herbs and remedies are used in otorhinolaryngology?
8. How often is phytotherapy used?
9. Name the forms of application of medicinal plants?
10. Name the methods of administration and use of medicinal plants used in the treatment of diseases of the ENT organs.
11. Phytotherapy in the complex treatment of patients diagnosed with laryngeal papillomatosis?
12. Name the dosage forms of herbal pharmaceuticals for the prevention of ENT diseases?
13. Name dosage forms of herbal pharmaceuticals for the treatment of ENT - diseases?
14. Definition of the term "Aromatherapy"?
15. The use of herbal medicine in health complexes in ENT diseases?

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Topic 12

Physiotherapy in otorhinolaryngology (3 h)

THE ACTUALITY OF A TOPIC: Physiotherapy is designed to help adults and children with acute, chronic and exacerbations of chronic diseases of the ear, throat and nose that need treatment. Physiotherapeutic procedures in the absence of contraindications are included in the complex therapy of all patients in the acute period, in the exacerbation of chronic diseases and in the period of medical rehabilitation of patients in the longer term. This question remains relevant in the future, because the main task of physiotherapy is to achieve the greatest therapeutic effect with the least load on the body.

PURPOSE OF A LESSON: to get acquainted with modern methods of physiotherapeutic treatment of diseases of the ENT organs, and to assess their importance in clinical practice.

SUMMARY OF THE TOPIC. Physiotherapy treatment in otorhinolaryngology is aimed at helping adults and children with acute, chronic and exacerbations of chronic diseases of the ear, nose and throat.

In physiotherapy there is a great variety of factors and techniques, which allows individual impact on the body and targeted impact on the pathological process without a negative side effect.

The most modern and effective methods of physiotherapy include:

- galvanization and therapeutic electrophoresis;
- pulse current, sinusoidal modulated currents (diadynamotherapy, amplipulse therapy, electrical stimulation);
- electric currents of high frequency and high voltage (d'arsonvalization, fluctuorization);
- electric and magnetic fields (franklinization, inductothermy, magnetic therapy);
- ultrasound therapy, ultraphonophoresis of drugs;
- microwave therapy and MX-phoresis of drugs (centimeter and decimeter wave range, EHF therapy, UHF therapy);
- laser therapy;
- light therapy (treatment with infrared and ultraviolet radiation, phototherapy);
- aerosol therapy (thermal moisture inhalations, inhalations of drug mixtures and oil solutions, ultrasonic inhalations);
- oxygen therapy (inhalation of oxygen-carbogenic mixture and oxygen-herbal cocktail, inhalation of singlet oxygen).

In the treatment of diseases of the ENT organs, electrophoresis is often used - a method of introducing drugs (which are soluble in water) into body tissues using a direct electric current. After their introduction, an ionic depot is formed in the tissues, which is slowly absorbed and provides a constant flow of the drug into the blood. This in combination enhances the processes of regeneration and resorption of tissue breakdown products. Electrophoresis minimizes the side effects of the drug. The indications for the

use of this method of complex treatment are determined by the medicinal properties of the administered drug, taking into account the indications for the use of direct current. Therefore, it can be argued that it is difficult to find a disease in which drug electrophoresis could not be used to advantage.

Ultraphonophoresis is a combined effect on the body of ultrasound and applied drugs. The essence of ultraphonophoresis is that ultrasound loosens connective tissue and increases the permeability of cell membranes, thus accelerating the transfer of applied drugs from the skin and mucous membranes into the depths of tissues. Anti-inflammatory drugs, glucocorticoids, antibiotics, antispasmodics and vasoconstrictors are used for ultraphonophoresis. It is used for: tonsillitis, rhinitis, pharyngitis, laryngitis, eczema of the external auditory canal, otitis, neuritis of the auditory nerve.

Laser therapy can treat vascular disorders in almost any source of inflammation, thereby reducing the intensity of inflammation and reduce the manifestations of allergies. Restoration of blood circulation in the area of laser irradiation can accelerate wound healing. Low-intensity (therapeutic) laser radiation is harmless and painless for the body, and in many diseases, laser therapy is generally the only type of physiotherapy that is safe for the patient. The main indications for the use of laser therapy: pain, microcirculation disorders, immune status disorders, allergic manifestations, inflammatory diseases, the need to stimulate the regenerative processes in tissues and organs.

Inhalation therapy is one of the main components of comprehensive treatment programs. Moisturizes the mucous membrane of the nose, pharynx, larynx, helps to thin the mucus, acts on numerous receptors embedded in the mucous membrane. Prescribe inhalations for sinusitis, bronchitis, pneumonia, asthma and other respiratory diseases. Contraindications to inhalation: fever, allergic reactions to drugs for inhalation, propensity to nosebleeds, mental disorders, brain disorders.

Quartz tube. The principle of operation is based on ultraviolet radiation, which has a powerful antibacterial effect. With its help you can deal with viruses and microbes of various origins. Ultraviolet rays penetrate into the body to a small depth and promote the activation of many processes in the body. Short ultraviolet waves are considered to be the most useful.

Ultrasound therapy. The basis of the biological action of ultrasonic vibrations (over 16,000 Hz), not audible to the human ear, are mechanical, thermal and physicochemical factors. As a result, there is a micromassage of body cells, increasing the thermal energy in them, which stimulates biochemical and biophysical processes. Ultrasound has analgesic, desensitizing, anti-inflammatory and tonic effect. It is used for chronic tonsillitis, lymphadenitis, laryngitis, scarring in tissues; improving the tone and lifting of facial skin.

Darsonvalization. Method of treatment with pulsed alternating sinusoidal current of high frequency and voltage. Used mainly for local exposure. Therapeutic effect: reduction of pain, improvement of tissue trophism, stimulation of wound healing, acts on the tone of peripheral vessels. Indications: pain, neuralgia, postoperative period, improved blood circulation in the pathologically altered area.

Thus, physiotherapy solves an important task in otorhinolaryngology - to achieve the greatest therapeutic effect with the least load on the human body.

MAIN ISSUES ON THE TOPIC:

1. Is physiotherapy indicated for diseases of the ENT organs, why?
2. Name the methods of physiotherapy used in otorhinolaryngology.
3. Describe the method of drug administration by electrophoresis.
4. What is the essence of ultraphonophoresis?
5. The main indications for the use of laser therapy?
6. What are the possible indications and contraindications to inhalation therapy?
7. Describe the method of physiotherapy - Darsonvalization.
8. What is the principle of operation of a quartz tube?
9. How does ultrasound therapy affect the ENT organs?
10. What drugs are used for ultraphonophoresis?
11. Name the methods of physiotherapy that are indicated for pharyngitis.
12. Describe the essence of inhalation therapy?
13. In which diseases of the ENT organs is electrophoresis indicated? Are there any contraindications to this physical therapy?
14. Is UHF therapy indicated for sinusitis?
15. What are the indications and contraindications to ultrasound therapy?

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Topic 13

Nasal bleedings (3 h)

THE ACTUALITY OF A TOPIC: Epistaxis (nosebleed) is one of the most common ear, nose, and throat (ENT) emergencies that present to the emergency room or primary care. There are two types of nosebleeds: anterior (more common), and posterior (less common, but more likely to require medical attention). The source of 90% of anterior nosebleeds lies within Kiesselbach's plexus (also known as Little's area) on the anterior nasal septum. This activity reviews the cause, pathophysiology, and presentation of epistaxis and highlights the role of the interprofessional team in its management.

PURPOSE OF A LESSON: recall the causes of epistaxis; describe the common anatomic locations of epistaxis; summarize the treatment options for epistaxis; review the importance of improving care coordination among interprofessional team members to improve outcomes for patients affected by epistaxis.

SUMMARY OF THE TOPIC.

Epistaxis (nosebleed) is one of the most common ear, nose, and throat (ENT) emergencies that present to the emergency department or the primary care clinic. There are two types of nosebleeds: anterior (more common), and posterior (less common, but more likely to require medical attention). The source of 90% of anterior nosebleeds is within Kiesselbach's plexus (also known as Little's area) on the anterior nasal septum. There are five named vessels whose terminal branches supply the nasal cavity:

The watershed area of these five vessels is in the anterior nasal septum, comprising Kiesselbach's plexus. This lies at the entrance to the nasal cavity and so is subject to extremes of heat and cold, and of high and low moisture, and is easily traumatized. The mucosa over the septum in this area is especially thin, making this the site of the majority of epistaxis. More rarely, vessels in the posterior or superior nasal cavity will bleed, leading to the so-called "posterior" epistaxis. This is more common in patients on anticoagulants, patients who are hypertensive, and patients with underlying blood dyscrasia or vascular abnormalities. Management will depend on the severity of the bleeding and the patient's concomitant medical problems.

There are multiple causes of epistaxis which can be divided into local, systemic, environmental, and medication-induced.

Local causes:

- Digital manipulation
- Deviated septum
- Trauma
- Chronic nasal cannula use

Systemic causes:

- Alcoholism
- Hypertension
- Vascular malformations

- Coagulopathies (von Willebrand disease, hemophilia)

Environmental factors:

- Allergies
- Environmental dryness (more common in winter months)

Medications:

- NSAIDs (ibuprofen, naproxen, aspirin)
- Anticoagulants (warfarin)
- Platelet aggregation inhibitors (clopidogrel)
- Topical nasal steroid sprays
- Supplement/alternative medications (vitamin E, ginkgo, ginseng)
- Illicit drugs (cocaine)

While epistaxis is a very common spontaneous problem, rarer etiologies such as neoplasms or vascular malformations must always be in the differential diagnosis, particularly if additional symptoms such as unilateral nasal obstruction, pain, or other cranial nerve deficits are noted.

MAIN ISSUES ON THE TOPIC:

1. How is epistaxis (nosebleed) categorized?
2. How common is epistaxis (nosebleed)?
3. What is the general workup approach to epistaxis (nosebleed)?
4. What is the general treatment approach to epistaxis (nosebleed)?
5. What is the anatomy of the nose in reference to epistaxis (nosebleed)?
6. What causes epistaxis (nosebleed) to occur?
7. Where does epistaxis (nosebleed) typically originate?
8. What causes epistaxis (nosebleed)?
9. How does trauma cause epistaxis (nosebleed)?
10. How does dry weather cause epistaxis (nosebleed)?
11. How do drugs cause epistaxis (nosebleed)?
12. How do septal deviations and spurs cause epistaxis (nosebleed)?
13. How does inflammation cause epistaxis (nosebleed)?
14. How do vascular abnormalities cause epistaxis (nosebleed)?
15. How common is epistaxis (nosebleed)?
16. What are the age and sex demographics for epistaxis (nosebleed)?
17. What is the prognosis of epistaxis (nosebleed)?
18. How can epistaxis (nosebleed) be avoided?

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1. Otorhinolaryngology: textbook / Yu.V. Mitin, Yu.V. Deyeva, Ya.Yu. Gomza et al. — 6th edition. – Kyiv: «MEDICINE». – 2020. – 264 p.
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Topic 14

Foreign bodies of the ENT organs. (3 h)

THE ACTUALITY OF A TOPIC: Foreign bodies (FBs) in the ear, nose or throat are extremely common emergency presentations to ENT.

Foreign bodies in the ear or nose are more common in children, people with learning difficulties and patients with psychiatric conditions. Oesophageal soft foreign bodies are seen in older people or with oesophageal disorders.

Whilst ear FBs do not tend to cause serious complications, aspirated or ingested FBs can lead to life-threatening airway compromise or oesophageal perforation.

PURPOSE OF A LESSON: to get acquainted with modern methods of physiotherapeutic treatment of diseases of the ENT organs, and to assess their importance in clinical practice.

SUMMARY OF THE TOPIC. The approach taken for a FB will depend on where the suspected foreign body is located.

From the history, it is important to clarify the nature of the object, when it was ingested or inserted, and any previous history of FB insertion.

For ear foreign bodies, ask about any pain or discharge from the ear, and any associated hearing loss*

For nose foreign bodies, ask about issues with breathing and about any nasal discharge

For ingested foreign bodies, clarify specifically the nature of the object, whether sharp (e.g. a fish bone) or soft (e.g. cooked meat); check for any dysphagia, including if the patient is able to swallow saliva

*Any live insects in the ear should be drowned in oil

Examination will be dependent on where the suspected foreign body is located. For the ear, direct visualisation of the FB is usually possible with otoscopy, whilst for the nose, use an age-appropriate Thudicum speculum (size 0 or 1 for children, 2 or 3 for adults) and a head-torch or otoscope is usually required.

For FB in the pharynx, visual examination of oropharynx can be attempted using a Lack's tongue depressor and head-torch. Palpate for points of tenderness on the neck (and assess whether this moves on swallowing), as well as for surgical emphysema. A flexible nasal endoscopy (FNE) is usually required as an adjunct for examination, especially if not visible on initial assessment.

Red Flags for Foreign Bodies

- The important red flags for any patient presenting with a foreign body include:
- Any signs of airway compromise, such as stridor, dysphonia, or drooling
- Any signs of oesophageal perforation, such as chest pain, features of sepsis, or surgical emphysema
- Any history of button battery ingestion
- If any of the above are present, request the help of a senior immediately.

Management

The urgency of FB removal depends entirely on the location and nature of the FB, and the patient's clinical status. An A to E approach should always be employed on initial assessment. For an ingested FB, if there are any signs of airway compromise, proceed as for a patient with stridor.

Button batteries can erode and cause irreversible caustic burns, therefore any button battery ingested must be removed immediately.

Ears

Ear foreign bodies can be removed using an array of instrumentation, such as microsuction with a Zoelner sucker, crocodile forceps, Jobson-Horne probes, or wax hooks

If the FB is medial against the tympanic membrane or simply it cannot be removed, patients can be safely discharged home with a view to removing the foreign body under GA (unless a button battery in which case immediate removal is needed).

Nose

Nose FB management is similar to that for ear FB, however emergency removal under GA should be performed if the patient is distressed or any signs of breathing difficulty. If unable to remove or unsure if the FB is present, consent and work-up for examination under anaesthesia and removal.

Throat

If the FB is visualised in the oropharynx and the patient can tolerate the procedure, removal may be attempted using Magill forceps. Otherwise, removal should be attempted with endoscopy under GA (either via pharyngoscopy / laryngoscopy or rigid oesophagoscopy).

MAIN ISSUES ON THE TOPIC:

1. Red Flags for Foreign Bodies
2. How should we evaluate and work up suspected foreign bodies?
3. When should foreign bodies be removed in the ED vs. managed in the OR?
4. What equipment do you need to manage an airway with a foreign body?

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TOPIC 15

Pharyngeal cancer (4 h)

THE ACTUALITY OF A TOPIC: Chronic laryngeal pathology, malignant tumors of the larynx remain one of the most relevant and social topics of otorhinolaryngology. Given the fact that over the past decade their number has increased significantly among people of working age, and their untimely diagnosis leads to disability, deterioration of quality of life and even death in a short terms. Knowledge of the clinic, diagnosis (especially early) of tumors of the upper respiratory tract and the principles of their treatment is essential in the practice of not only otorhinolaryngologists, but also neurologists, neurosurgeons, therapists, infectious diseases specialists, tuberculosis, dermatovenereology, and family physicians.

PURPOSE OF A LESSON: to get acquainted with the clinic, early diagnosis, differential diagnosis of malignant pharyngeal tumors and methods of their treatment.

SUMMARY OF THE TOPIC Pharyngeal cancers include all malignant tumors arising in the nasopharynx, oropharynx, or hypopharynx. These cancers are most commonly squamous cell carcinomas. Alcohol and tobacco use are the two most important risk factors and are responsible for the majority of cases. Other risk factors include certain viral infections, poor oral hygiene, and workplace-related exposures, such as radiation. The clinical presentation depends on the location of the tumor. Symptoms may include a growing cervical lump, persistent sore throat, dysphagia, or a change in the voice. Diagnosis is confirmed based on tissue biopsy, whereas the extent of spread is determined via imaging modalities like CT or MRI. Treatment usually requires a combination of surgery, radiation therapy, and chemotherapy.

Epidemiology. Age: 50–60 years in nasopharyngeal cancer; approx. 55–70 years in oro- and hypopharyngeal cancer. Sex: ♂ > ♀ 2 to 3:1

Clinical features

- Usually asymptomatic for a long time .; first manifestation often swollen cervical lymph node(s)
- Nasopharyngeal cancer
 - Painless lymphadenopathy
 - Obstruction of the Eustachian tube: recurrent otitis media; conductive hearing loss
 - Discharge, nosebleeds, impaired nasal breathing
 - Infiltration of caudal cranial nerves → Garcin syndrome
- Oropharyngeal cancer and hypopharyngeal cancer
 - Common early symptom: local lymph node metastases causing enlarged cervical lymph nodes
 - Severe ear pain
 - Foreign body sensation, dysphagia, sore throat
 - Muffled voice
- Metastatic disease

Diagnostics

- Panendoscopy with biopsy: visualization of the tumor and surrounding anatomy
- Histopathological examination (confirmatory test)
 - o Determines type, grade, and extent of the tumor
 - o Pleomorphic cells and mitotic figures are seen in tissue samples from lesions which have undergone neoplastic change (from dysplasia to SCC).
- CT or MRI imaging: assesses tumor infiltration depth and invasion of surrounding structures

Treatment

- Early or localized pharyngeal cancers
 - o Complete surgical resection of the tumor (preferred) or
 - o Radiation therapy
- Locally advanced pharyngeal cancers
 - o Induction chemotherapy , concurrent chemoradiation or radiation therapy
 - o Surgical resection only carried out if there is response to induction therapies, or if tumor has well-defined margins
 - o Additionally, excision of the cervical lymph nodes (neck dissection) may be indicated.
- If inoperable, or if the patient rejects surgery: primary radiotherapy or radio- and chemotherapy

KEY QUESTIONS TO THE TOPIC:

1. What are the most common malignancies in the pharynx?
2. Name the tumors that belong to the tonsillary (radiosensitive)?
3. Provide clinical description and diagnosis of malignant pharyngeal tumors.
4. Describe differential diagnosis of malignant pharyngeal tumors, depending on their location.
5. What methods of treatment for malignant pharyngeal tumors do you know?

RECOMMENDED LITERATURE:

1. Otorhinolaryngology: textbook / Yu.V. Mitin, Yu.V. Deyeva, Ya.Yu. Gomza et al. — 6th edition. – Kyiv: «MEDICINE». – 2020. – 264 p.
2. Color Atlas of ENT Diagnosis, 5th edition / Bull TR, Almeyda JS. – Thieme: Stuttgart. – 2010.– 296 p.
3. Lecture Notes on Diseases of the Ear, Nose and Throat / Bull PD. – 9th edition. – Blackwell Science Ltd. – 2002.– 181 p.
4. Ear, Nose and Throat and Head and Neck Surgery: An Illustrated Colour Text / Dhillon R, East C. – 4th edition. – Churchill Livingstone. – 2013.– 132 p.

TOPIC 16

Premalignant laryngeal lesions (4 h)

THE ACTUALITY OF A TOPIC: About two-thirds of cancers of the ENT organs - of the larynx. Important etiological factors that lead to the development of benign and malignant neoplasms of the larynx include smoking and alcohol consumption. Precancerous diseases of the larynx also occur after chronic inflammatory processes of the larynx. Timely detection of precancerous diseases of the larynx can increase the effectiveness of treatment.

PURPOSE OF A LESSON: to get acquainted with etiology, pathogenesis, clinic, diagnostics, differential diagnostics, methods of conservative and surgical treatment of premalignant conditions of larynx.

SUMMARY OF THE TOPIC. The identification of precancerous lesions is the basis of an early diagnosis, and of a treatment that allows, in the great part of cases, the preservation of organ functions. The aims of this study were: the evaluation of the less invasive treatment for precancerous lesion of the larynx to minimize the recurrences, the estimation of number of further operation required.

Premalignant laryngeal lesions are also known as precancerous lesions, preneoplastic lesions, squamous intraepithelial lesions, hyperplastic epithelial lesions, among others. By definition, a premalignant lesion is considered in a hyperplastic and dysplastic stage (keratinization) of epithelial lesions in the glottic region that may or may not develop into an invasive carcinoma.¹ In clinical practice, they are commonly classified as leukoplakia, erythroplakia, erythroleukoplakia, and chronic laryngitis, although there is no consensus on this issue. Regarding the epidemiology of premalignant lesions, the data found in the literature are scarce. However, it is known that these lesions are more prevalent in males and usually affect individuals above 50 years of age.

The evolution of laryngoscopic procedures in outpatients has provided better access to important information for safe and easy diagnosis of laryngeal pathologies. Preoperative assessment procedures have also evolved, and the introduction of new endoscopic methods is providing more informative analyses of lesions of the vocal folds.

The dissociation between the diagnostic imaging in the preoperative and transoperative periods in patients submitted to laryngeal microsurgery has been observed in clinical practice, especially with respect to benign lesions of the vocal folds. Neither comparisons concerning premalignant lesions nor studies regarding the concomitance of benign and premalignant laryngeal lesions are found in the medical literature.

KEY QUESTIONS TO THE TOPIC:

1. Give a definition of premalignant pathologies of the larynx.
2. Name the obligatory and optional premalignant diseases.
3. Specify the most frequent localization of premalignant processes in the larynx.
4. Name the clinical signs of premalignant diseases of the larynx.

5. Name the principles of diagnosis and differential diagnosis of premalignant laryngeal diseases.
6. List the methods of treatment of premalignant diseases of the larynx.

RECOMMENDED LITERATURE:

1. Otorhinolaryngology: textbook / Yu.V. Mitin, Yu.V. Deyeva, Ya.Yu. Gomza et al. — 6th edition. — Kyiv: «MEDICINE». — 2020. — 264 p.
2. Color Atlas of ENT Diagnosis, 5th edition / Bull TR, Almeyda JS. — Thieme: Stuttgart. — 2010.— 296 p.
3. Lecture Notes on Diseases of the Ear, Nose and Throat / Bull PD. — 9th edition. — Blackwell Science Ltd. — 2002.— 181 p.
4. Ear, Nose and Throat and Head and Neck Surgery: An Illustrated Colour Text / Dhillon R, East C. — 4th edition. — Churchill Livingstone. — 2013.— 132 p.