

Danylo Halytsky Lviv National Medical University
Department of Otorhinolaryngology

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

Lviv – 2021

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МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
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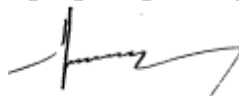
ОТОРИНОЛАРИНГОЛОГІЯ

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чужоземних студентів

IV курсу стоматологічного факультету

підготовки фахівців другого (магістерського) рівня вищої освіти
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Subject plan of independent work in the Department of Otorhinolaryngology

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TOPIC 1

Differential diagnosis of sound conductive 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

Otomycosis (2 h)

THE ACTUALITY OF A TOPIC: An important problem of modern otorhinolaryngology is the diagnosis and treatment of mycoses of the ear. 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 features of the course, diagnosis, treatment of various forms of otomycosis.

SUMMARY OF THE TOPIC. Otomycosis is a superficial mycotic infection of the outer ear canal. The infection may be either subacute or acute and is characterized by inflammation, pruritus, scaling, and severe discomfort. The mycosis results in inflammation, superficial epithelial exfoliation, masses of debris containing hyphae, suppuration, and pain and is responsible for outer ear infections.

Residence in subtropical and tropical locations (likely due to higher humidity), immunodeficiency (eg diabetes mellitus), swimming, frequent manipulation of ear canal (scratching, cleaning, etc)

Diagnosis. Direct examination of the auditory canal with an otoscope is revealing for fungal elements and spores, and findings are more frequent in the medial aspect of the ear canal.

Otomycosis may be a chronic recurring mycosis and correction or improving control of underlying immunodeficiency and keeping the ear canal dry are paramount in management (eg diabetes control). Cleaning or debridement of the auditory canal is essential using a cerumen loop or cotton swab (ENT referral may be necessary). Topical antifungals with proven efficacy include clotrimazole solution (twice daily for 10-14 days), miconazole, nystatin, and econazole.

KEY QUESTIONS TO THE TOPIC:

1. What does the term otomycosis mean?
2. What are the main factors in the development of otomycosis?
3. Describe the clinical course of otomycosis.
4. Give the principles of otomycosis 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. 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 3

Otitis media with effusion (2 h.)

THE ACTUALITY OF A TOPIC: Ear diseases and hearing impairment are one of the most common human pathologies. As for the exudative form, it occurs in 15% of cases and more often in pediatric patients. 3% of patients develop serious disorders with irreversible changes in the hearing aid and the development of deafness. If the ear canal performs its role poorly, a mucous fluid - exudate - is formed in the middle ear. It can develop against the background of infectious processes in the nasopharynx (rhinosinusitis, tonsillitis), as well as otitis and allergic reactions. Often the cause is abnormalities in the structure of the nose and ears, or hypertrophy of the adenoid vegetations and palatine tonsils. With increasing morbidity develops a complex of complications, some of which lead to irreversible hearing loss, damage to brain structures. In this case, the disease has an unfavorable prognosis.

PURPOSE OF A LESSON: acquaintance with the etiology, pathogenesis, clinic, diagnostics and differential diagnosis of exudative otitis, methods of conservative and surgical treatment of patients with this pathology.

SUMMARY OF THE TOPIC.

Otitis media with effusion (OME) is a condition in which there is fluid in the middle ear, but no signs of acute infection. As fluid builds up in the middle ear and Eustachian tube, it places pressure on the tympanic membrane. The pressure prevents the tympanic membrane from vibrating properly, decreases sound conduction, and therefore results in a decrease in patient hearing. Chronic OME is defined as OME that persists for 3 or more months on examination or tympanometry, although some clinicians recommend reserving the term, 'chronic otitis media' for patients in which the tympanic membrane has perforated.

Risk factors for OME include passive smoking, bottle feeding, day-care nursery, and atopy. Both children and adults can develop OME. However, the etiology of these populations are different. The Eustachian tube is positioned more horizontally in younger children. As the child develops into an adult, the tube elongates and angles caudally. Therefore, OME is more common in children, and the position of the head at this age can influence the development of OME.

Hearing loss, although not always present, is the most common complaint in OME patients. Patients or parents of patients may complain of communication difficulties, withdrawal, and lack of attention. During an exam, a clinician may notice impaired speech and language development. Otalgia, earache, can be intermittent in these patients. In many instances, they will have the symptom of aural fullness or a sensation that the ear is popping. In adults, OME is more often unilateral. Adult patients may report tinnitus and the sensation of a foreign body in the external auditory canal. In either children or adults, OME commonly occurs concurrently with upper respiratory infections. Therefore, it is good to ask patients about prior or recurrent ear infections, nasal obstruction, and upper respiratory tract infections.

During a physical examination, signs of OME include opacification of the tympanic membrane and loss of the light reflex. There may also be a retraction of the tympanic

membrane with decreased mobility. If gross retraction of the tympanic membrane is observed, intervention may be required to prevent the formation of a retraction pocket, such as modified cartilage augmentation tympanoplasty.

Age appropriate audiometry and tympanometry should be tested in patients with otitis media with effusion. A 'flat' tympanogram will support a diagnosis of otitis media with effusion. Hearing can be tested in infants with the use of auditory brainstem responses (ABR). This exam tests the electrical activity of the brainstem to acoustic stimuli. The test detects both the frequency range and sound intensity levels in which the patient's brain responds. Patients do not need to be able to speak and do not even need to be awake to perform the test. Therefore, it is ideal for children from birth to 5 years of age.

With older children and adults, although ABR testing can still be performed, it is more common to do a classic audiology exam. This exam consists of playing sounds to the patient's left and right ears at different tones and intensities. Patients are requested to raise either the right or left hand when they hear a sound in the right or left ears, respectively. Results will identify the frequency range and normal hearing levels of the patient.

Otitis media with effusion generally resolves spontaneously with watchful waiting. However, if it is persistent, myringotomy with tympanostomy tube insertion is considered an effective treatment. In this treatment, a ventilation tube allows for air entry into the middle ear, preventing re-accumulation of fluid. After this procedure, many patients do not need additional therapy due to the growth and development of the Eustachian tube angle, which will allow for drainage.

Adenoidectomy is currently utilized in cases of OME that involve enlarged adenoids and is an important addition to management in patients with OME.

Childhood hearing loss can affect language development. Therefore hearing aids may be considered as a non-invasive option to treat OME.

KEY QUESTIONS TO THE TOPIC:

1. Define the term "exudative otitis".
2. What are the etiology and pathogenesis of exudative otitis media?
3. Name the clinical manifestations of the disease.
4. Tell us about the diagnosis and differential diagnosis of exudative otitis media.
5. Specify conservative treatments.
6. Tell us about surgical methods of 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 4

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 5

Deformation of the external nose, rhinoplasty (2 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.
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TOPIC 6

Fungal sinusitis, mycetoma (2 h)

THE ACTUALITY OF A TOPIC: An important problem of modern otorhinolaryngology is the diagnosis and treatment of mycoses of the upper respiratory tract. 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 etiology, clinic, diagnostics and treatment of mycosis of paranasal sinuses, in particular mycetoma.

SUMMARY OF THE TOPIC. Paranasal sinuses mycetomas, or fungus balls, are indolent and non-invasive fungal colonization of the paranasal sinuses.

Noninvasive accumulation of fungal hyphae that branch at 45 degrees

Aspergillus causes fungus balls in nasal antrum of immunocompetent patients with minimal inflammatory response, microabscesses or multinucleated giant cells. Also causes invasive aspergillosis, regardless of immune status, with extension into retroorbital region, cranium or parapharyngeal space; often fatal. Also causes allergic fungal sinusitis

Pathogenesis is thought to be a cascade of processes from insufficient mucociliary clearance leading to sinus colonization and chronic inflammatory response. The patient may only have a mild symptom or be asymptomatic.

Radiographic features

CT. Commonly only a single sinus is affected by the predilection for the maxillary sinus followed by the sphenoid sinus. The frontal and ethmoid are less often affected. A clue to the diagnosis includes soft tissue density within the sinus with/without foci of calcific deposit. Postobstructive change may be observed if the mycetoma obstructs the sinus drainage pathway leading to partial or complete sinus opacification.

Evidence of chronic inflammation with sclerosis and thickening of the wall of the paranasal sinuses. Careful evaluation of the sinus cavity is prudent to exclude bone erosion that is not a feature of mycetoma / chronic fungal sinusitis rather a feature of acute invasive fungal sinusitis 2.

MRI signal characteristics of mycetomas reflect the internal content of the mycelia, vegetative part of a fungus consisting of a conglomerate of hyphae. This contains primarily carbohydrates with some glycoproteins, macromolecular proteins, and iron and manganese.

Differential diagnosis

- allergic fungal sinusitis

- chronic invasive fungal sinusitis
- bone erosion
- soft tissue invasion
- immunocompromised patients
- paranasal sinus mucocele
- sinonasal inverted papilloma

Treatment. Conservative curettage, irrigation with saline or iodine solution, surgery

KEY QUESTIONS TO THE TOPIC:

1. Give a classification of mycosis of the paranasal sinuses.
2. Tell the main causative agents of mycosis of the paranasal sinuses.
3. What treatments are used for allergic fungal sinusitis?
4. What treatments are used in the case of maxillary sinus mycetoma?
5. What treatments are used for invasive fungal sinusitis?

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 7

Pharyngeal cancer (2 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)
 - Determines type, grade, and extent of the tumor
 - 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
 - Complete surgical resection of the tumor (preferred) or
 - Radiation therapy
- Locally advanced pharyngeal cancers
 - Induction chemotherapy, concurrent chemoradiation or radiation therapy
 - Surgical resection only carried out if there is response to induction therapies, or if tumor has well-defined margins
 - 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 8

Otogenic intracranial complications (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?

RECOMMENDED LITERATURE:

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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