

MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY
Department of OTORHINOLARYNGOLOGY

CONFIRMED by

Vice-rector for scientific and pedagogical work



Eduard BURIACHKIVSKYI

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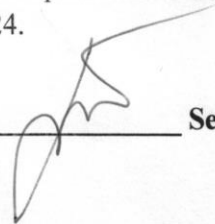
GUIDELINES
TO THE INDEPENDENT WORK OF HIGHER EDUCATION ACQUIRES
ON THE EDUCATIONAL DISCIPLINE

Course IV Faculty Medical

Academic discipline: **Otorhinolaryngology**

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Head of the department



Sergiy Pukhlik

Authors: Associate Professor, PhD Olga Titarenko

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Topic: "Inflammatory diseases of the external ear"

Aim

As a result of independent study of this topic, students should

Know:

- anatomy of the external ear of adults and children,
- etiology, pathogenesis, so the clinic of various diseases of the external ear
- possible complications of these diseases
- methods of treatment and prevention

Be able

- clean the external auditory canal from pathological secretions by dry and wet methods,
- take material for bacteriological research
- inject powder, liquid and ointment medicines into the ear canal,
- make an incision of a complicated boil, abscess
- perform primary surgical treatment of external ear wounds,
- remove the body from the external auditory canal.

Basic concepts. Inflammatory diseases of the external ear are accompanied by pain, itching, and hearing loss. In addition, various complications often arise that reduce work capacity and require serious examination and treatment. Inflammatory diseases of the external ear can also be the first symptoms of diabetes, psoriasis. They always occur with chronic purulent otitis media, because they can simulate them.

Therefore, timely bacteriological, general clinical examination is mandatory for such patients. Treatment, for example, of otomycosis, requires a doctor to monitor the patient for many months.

Class equipment. 1) Toolkit for endoscopic examination of ENT organs. 2) Paracentesis needle, ear catheter, pneumatic watering can, Politzer balloon, Jeanette syringe, Hartmann set, surgical instruments for antromastoidotomy. 3) Operating microscope. 4) Schemes, tables, slides, models.

Plan

1. Theoretical questions:

A sulfur plug is an accumulation of sulfur in the external auditory canal as a result of excessive secretion of sulfur glands or a violation of its normal evacuation. Sulfur retention is facilitated by an increase in its viscosity, congenital narrowness of the auditory canal, and exostoses. Sulfur can have an admixture of the epidermis, which peels off due to inflammatory diseases of the skin of the external auditory canal.

Clinic. Usually, the sulfur plug is asymptomatic. The patient turns to the doctor after water gets into the ear, when the sulfur plug gets soaked and swells, completely blocking the lumen of the external auditory canal. As a result, the patient's hearing suddenly deteriorates. There may be complaints of ringing in the ear, a feeling of distension, or the feeling of one's own voice as if in one's head - autophony. Diagnosis is not difficult. The cork is usually clearly visible during otoscopy.

Treatment. Washing of the external auditory canal using a Jeanet syringe is used. Pulling the auricle back and up, the jet of water is directed along the back-upper wall of the auditory canal. The water should be at body temperature so as not to cause caloric irritation of the labyrinth and not to cause dizziness. Of course, the plug is easily washed out. The external ear canal is dried with cotton wool. Put turunda with 3% boric alcohol for 2-3 hours. If the first washing is not effective, it is recommended to instill 3% hydrogen peroxide into the ear 2-3 times a day for 3 days, and then repeat the procedure. It must be remembered that in the presence of dry perforation of the tympanic membrane, water can enter the tympanic cavity and cause an exacerbation of the inflammatory process. Therefore, before washing the ear, it is necessary to carefully collect the anamnesis and find out whether the patient has ever had purulent discharge from the ear. In this case, washing is contraindicated and the sulfur plug is removed using a blunt hook.

External diffuse otitis.

Spilled inflammation of the external auditory canal occurs as a result of penetration into the skin of streptococci, staphylococci, streptococci or diphtheria bacilli and other pathogens during scratching, sharp foreign bodies that injure the skin of the external auditory canal, as a result of prolonged suppuration from the ear, chemical and thermal damage to the skin. Sometimes this disease is caused by various fungi. In this case, it is called otomycosis.

The causative agents of otomycosis can be molds of the genus (*aspergillus*, *penicillium*, *rhizopus*) and yeast-like fungi of the genus *Candida*. In the development of the disease, sensitization of the body to certain pathogens, long-term antibiotic therapy is important.

Patients may develop dermatitis on other areas of the skin.

Clinic: Patients complain of itching in the boil, burning, pain in the boil, but less intense than with a boil. During otoscopy, hyperemic skin with barely visible swelling is visible at first. Over time, increased desquamation of the epithelium occurs, serous secretions appear, which then become purulent. Purulent secretions mix with the decaying epithelium to form a gruel-like mass with an unpleasant odor that fills the external auditory canal. Hearing loss is possible. The inflammatory process covers all layers of the skin. Later, ulcers covered with granulations will form. The damage extends to all parts of the external auditory canal and even to the eardrum.

In patients with otomycosis, the inflammatory process is less pronounced. On the skin of the external auditory canal, mycelium of the fungus is visible, the color of which depends on the type of the latter. This disease can be very long-term.

Treatment: It is necessary to prohibit the patient from combing the skin of the external auditory canal with wet tampons, because this worsens the course of the disease.

It is necessary to clean the ears by washing with a 2% solution of boric acid or furacillin (1:5000), followed by drying with a dry cotton swab. After cleaning the external auditory canal, 5% streptocidal ointment, synthomycin emulsion, etc. are applied to the skin.

A good effect of using ointments, which include corticosteroids and antibiotics: oxycort, fluorocort, etc.

Appropriate drugs clotrimazole (conesten), nitrofungin, mycoseptin, nystatin, etc. are used to treat otomycosis. All patients with diffuse otitis externa of both bacterial and fungal nature should be prescribed nonspecific hyposensitizing therapy: Ca²⁺ drugs and antihistamines.

Physiotherapy procedures are also prescribed: UHF, Ray-2, short ultraviolet rays. A good effect is given by endural irradiation with a low-energy helium-neon laser.

Erysipelas is an infectious disease characterized by acute focal serous or serous-hemorrhagic inflammation of mucous membranes or skin, fever and intoxication.

Etiopathogenesis - the causative agent of the peak is β - hemolytic streptococcus group A. Microorganisms usually penetrate through microtrauma, scratches, wounds.

Erysipelas begins with the introduction of streptococci into the skin. A serous inflammation occurs, while a large number of toxins and enzymes are released, which leads to toxicosis, purulent-resorptive fever. A large amount of BAS, especially histamine, enters the bloodstream. This often leads to impaired vascular permeability and inflammation can become serous and hemorrhagic. Damage to the skin itself with its pronounced swelling, as well as the predominant spread of streptococcus along the lymphatic channels leads to a local violation of lymph flow. In the following, streptococci are able to form L-forms that are long-term in the skin, lymphatic vessels and, under certain conditions, defiant relapses of the disease (immunity to the pathogen is short-lived and unstable).

Classification of erysipelas:

I. According to the nature of local manifestations:

- erythematous,
- erythematous-bullous,
- erythematous-hemorrhagic
- Bullous and hemorrhagic.

II. By flow weight:

- easy,
- medium weight,
- heavy

III. By nature of distribution:

- localized,
- wandering,
- metastatic.

IV. By frequency of occurrence:

- primary,
- repeated
- recurrent.

Clinic: The incubation period lasts from several hours to several days.

There are 3 periods in the flow of erysipelas:

- A) primary,
- B) in the heat of the moment,
- C) recovery.

The temperature is elevated. The auricle swells greatly and increases in size. Her skin reddens sharply. There is sharp pain when touching the shell. In the erythematous-bullous form, bubbles filled with serous exudate appear against the background of erythema. Redness and swelling often spreads to the nipple. Often, these changes on the appendage are mistakenly considered a sign of mastoiditis.

Diagnosis. Differentiation between erysipelas and mastoiditis in the absence of changes in the tympanic membrane is not difficult. In the presence of purulent otitis, a differential diagnosis can be made only after observing the development of the disease for 2-3 days.

Further spread of redness and swelling beyond the ear and nipple indicates the hysterical nature of the inflammation.

Treatment of erysipelas can be local and general:

A) General treatment:

- antibacterial therapy uses semi-synthetic penicillins (ampicillin 2.0-4.0 per day) in combination with sulfonamide drugs.
- detoxification therapy is usually necessary during the first 4-5 days. IV infusions of crystalloid solutions are used (1.5 2.0 L x day)
- Desensitizing therapy consists in the introduction of antihistamines (diphenhydramine, tavegil, diazolin), calcium preparations (calcium chloride or calcium gluconate 10% at 10.0 IV once a day for 5-6 days).

B) Local treatment

In case of erythematous and erythematous-hemorrhagic forms, UV irradiation in suberythemic doses, treatment with a thin ball of streptocidal ointment is used locally. In bullous forms, large bubbles are opened by wet-drying bandages with antiseptics (furacilin, boric acid).

Chondroperichondritis - will be formed as a result of penetration of the infection into the auricle. It is observed with damage to the auricle, with insect bites, burns, frostbite and as a rare complication after plastic surgery of the external auditory canal.

Symptoms: severe pains in the ear are noted even before the appearance of changes on the surface of the auricle. Then redness and swelling of the entire auricle becomes noticeable, the temperature rises. In mild cases, the process may end at this stage - inflammatory changes may pass. In severe cases, the swelling of the shell increases due to the formation of purulent exudate between the callus and the cartilage. The shell becomes soft and fluctuating. Then the purulent melting of cartilage and rejection of dead tissue begins. As a result of this process, distortion of the auricle occurs. The process does not extend to the lobe because it does not have cartilage.

Treatment: In the first days of the disease, warming compresses and ointments are used. When purulent exudate is formed, a wide incision is made parallel to the contours of the shell. The abscess cavity is scraped with a spoon and the dead cartilage areas are removed. The cavity is

filled with a turundum moistened with an antibiotic solution. A wet bandage is applied to the ear. Dressings are done daily.

Furuncle of the external auditory canal is a frequent disease of the external auditory canal: it is located in the membranous-cartilaginous part of the auditory canal, which has hair and glands. Irritation of the skin of the hearing passage is a moment that contributes to the penetration of infection. All manipulations in the ear with pins and fingers are therefore dangerous, especially in the face suffering from purulent discharge from the ear.

Emergence of a furuncle is facilitated by a change in the body's reactivity under metabolic disorders affecting (diabetes), hypovitaminosis, general or local cooling.

Symptoms - Patients consult a doctor about pain in the ear. Under the thin ball of skin is a very sensitive skin. In addition, a boil located on one of the walls of the ear canal will experience pressure from the opposite wall due to the narrowness of the ear canal. Pain is often given to the head, teeth, neck; they increase during chewing as a result of the pressure transfer of the articular head of the lower jaw to the external auditory canal.

In addition to independent pains, it is possible to note a sharp soreness when touching and pressing on the tragus and on the lower wall of the auditory canal. Touching the auricle also causes pain. The auditory canal in the cartilaginous part narrows in the stage of maturation of the furuncle. It is almost closing. Hearing decreases due to the closure of the lumen of the auditory canal or a boil with pus. Regional lymph nodes are swollen and painful. The temperature is slightly elevated. During an objective examination, swelling of soft tissues in front and behind the ears under the auricle is noted. If the furuncle is located in the initial part of the external auditory canal, then in the first hour a spherical tumor of the skin appears on one of the walls, then edema joins. If the inflammatory process is located in depth, then for the examination it is necessary to use a narrow funnel, the introduction of which is often very painful.

After 2-3 days, a white-yellow dot appears in the center of the swelling. This is a necrotic rod that separates, freeing the path of the emerging pus, after which the pain subsides and the well-being improves.

The infection can spread to the parotid gland through Santorini's fissures and cause inflammation of the latter. Fiber is often involved in the inflammatory process in front of and behind the yushka. When an abscess of the soft tissues of the mastoid occurs, it is sometimes difficult to distinguish it from a subperiosteal abscess in mastoiditis.

Treatment: Antibiotics or sulfonamide drugs are prescribed. In order to affect the impaired reactivity of the body, autohemotherapy and vitamins are prescribed.

In the first days of the disease, it is recommended to use warming compresses made of burin liquid. A tampon moistened with 3% boric acid or drilling fluid alcohol is introduced into the hearing passage.

When a boil is abscessed under local infiltration anesthesia with 0.25-0.5% novocaine solution, 1% lidocaine solution, it is opened.

In order to rule out mastoiditis, R-ography of temporal cysts according to Schuller Mayer is performed on both sides. It can be difficult to resolve the issue when a patient with chronic purulent otitis media develops otitis externa with pronounced swelling of the soft tissues behind the ear. Careful examination and observation during treatment also helps to exclude the presence of mastoiditis.

Otohematoma is a limited accumulation of blood in the area of the auricle, which arose spontaneously or as a result of trauma, without breaking the integrity of the skin. It is clinically manifested by the gradual or one-time formation of a round or oval protrusion in the ear area.

Causes of otohematoma:

The main cause of an otohematoma is damage to the blood and lymphatic vessels of the auricle, which can be caused by both local effects on the external ear and systemic pathologies.

In this regard, 2 forms of otohematoma are distinguished:

Traumatic. The most common variant of the disease. A hematoma is formed as a result of a blow to the auricle or when it is fractured. The causes are household, industrial and sports ear injuries.

This pathology is most often found in athletes who are engaged in boxing or other types of martial arts. In elderly people, an otohematoma can occur with long-term compression (for example: when compressing the ear in a dream).

Spontaneous Most often, this is a violation of blood coagulation in hemophilia, antiphospholipid syndrome, oncohematological diseases, hemorrhagic diatheses, thrombocytopenic conditions, and the risk of hemorrhage is increased by vitamin deficiency, degenerative changes in cartilage, and prolonged exposure to cold.

Manifestations and symptoms of otohematoma

The first signs of the disease are the gradual or rapid formation of swelling in the upper part of the auricle, and large otohematomas sometimes fill the entire cavity of the auricle. The skin covering the otohematoma is usually hyperemic and has a bluish tint, but if the lymphatic component predominates, the normal body color may remain. The auricle itself, with the exception of the lobe, thickens, and its contours are smoothed. Otohematomas of traumatic etiology are almost always accompanied by some pain, a feeling of distension and heaviness. Spontaneous and mildly expressed hematomas are painless when touched and are not accompanied by painful sensations.

Diagnosis of otohematoma

Diagnosis of an otohematoma is not difficult, and the main task of an otolaryngologist when making a diagnosis is to determine the probable etiological factor and carry out differential diagnosis with other similar diseases.

Methods of treatment of otohematoma

Therapeutic tactics depend on the size of the hemorrhage in the auricle. The essence of treatment is to empty the otohematoma cavity and prevent the development of bacterial complications.

Puncture aspiration. It is carried out for large accumulations of lymph and blood that occurred less than 3 days ago. In aseptic conditions, the entire content of the otohematoma is removed using a syringe and a needle. After this manipulation, a bandage is applied, which tightly covers the area of the ear.

Dissection of hematoma of the auricle. Surgical intervention is necessary when it is impossible to empty the hematoma by aspiration. During the operation, an arcuate incision is made along the edge of the otohematoma, after which all its contents are removed. Next, the cavity is treated with antiseptic preparations, sutures are applied to the wound or a drainage system is installed.

The prognosis for recovery from otohematoma is favorable. Depending on the method of treatment, recovery occurs within 3 days to 2 weeks.

Complication

The most frequent complication is the transformation into an abscess of the auricle. This happens as a result of secondary infection of the contents of the otohematoma, which was not removed in time. In the absence of timely treatment of the abscess, perichondritis develops, followed by purulent melting of the cartilage and leads to deformation of the auricle.

Materials for self-control

Questions for self-control.

1. Name the types of microbial pathogens in otitis externa.
2. What are the ways of penetration of the microbial flora into the skin of the external auditory canal and auricle
3. Clinic and possible complications of furuncle of the auditory canal.
4. Differential diagnosis of furuncle with mastoiditis.
5. Differential diagnosis of otomycosis.
6. Pathanatomical and clinical classification of goiter.
7. Treatment of ringworm of the external ear.
8. Clinic of chondroperichondritis of the auricle.
9. Surgical treatment of chondroperichondritis of the auricle
10. Prevention of inflammatory diseases of the external ear.

Test tasks for self-control

1. What clinical symptoms are not characteristic of inflammatory diseases of the external ear?
 1. Pain
 2. Purulent discharge from the auditory canal
 3. Dizziness
 4. Presence of spontaneous nystagmus
 5. Redness of the auricle.

2. Pathoanatomical signs of hysteria:
 1. Inflammation of the skin of the auricle with clear borders of hyperemia
 2. Absence of clear boundaries of inflammation
 3. Neither that nor that

3. Treatment of furuncle of the auditory canal in the stage of infiltration
 1. Surgical
 2. Tamponate of the auditory canal with turunda with 700 alcohol
 3. Tubus - quartz
 4. Autohemotherapy

4. Application of irradiation of the external auditory canal with a low-energy laser in the stage of abscess
 1. Correct
 2. incorrect

5. Treatment of otomycosis by lubricating the skin of the auditory canal
 1. Lugol's solution
 2. boric alcohol
 1. Introduction of turund with hydrocortisone emulsion.
 2. Administration of turund with nitrofurin, clotrimazole solution.

6. Indicate the indication for hospitalization of the patient in the infectious department with the diagnosis
 1. Otomycosis
 2. Furuncle of the auditory canal
 3. Chondroperichondritis of the auricle
 4. Besykha
 5. Foreign body of the auditory canal

7. Specify contraindications for the use of laser therapy:
 1. furuncle of the auditory canal
 2. Besykha
 3. Otomycosis
 4. Chondroperichondritis

8. Ultraviolet irradiation is shown:
 1. With chondroperichondritis
 2. otomycosis
 3. Beshihi
 4. Diffuse external otitis
 5. Eczema of the auditory canal.

9. The end result of chondroperindritis of the auricle and tympanic membrane parts of the external auditory canal are:

1. Mastoiditis
2. Acute otitis media
3. The appearance of keloid scars
4. Changes in the shape of the auricle and stenosis of the auditory canal.

A list of practical skills needed to master the topic.

- 1) Detection of sulfur plug and foreign body of the ear.
- 2) Cleaning the ear.

Task 1. A 35-year-old female patient complains of pain that intensifies when chewing and opening her mouth. He has been sick for 2 days, the disease is associated with the removal of sulfur from the ear with the help of a pin. Objectively: the auricle is not changed, when pressing on the pinna there is a sharp pain, palpation of the behind the ear area is painless, during otoscopy, hyperemia and diffuse infiltration of the skin of the external auditory meatus is determined, expressed in the membranous-cartilaginous part, the tympanic membrane is hyperemic at the edge, hearing not broken Make a diagnosis.

- A. Acute purulent otitis media.
- B. Furuncle of the external auditory canal.
- S. Right-sided diffuse external otitis.
- D. Right-sided mastoiditis.
- E. Sulfur plug.

Task 2. Patient M., 36 years old, came to the ENT clinic with complaints of intense itching in the right ear, a feeling of congestion in it, which appeared a week after self-cleaning the ear with a metal pin in order to remove sulfur. Objectively: the area behind the ear and the auricle on the right have not changed. In the bony part of the external auditory meatus, there are clusters of 75 caseous secretions with black spots.

- A. Furuncle of the external auditory canal.
- B. Allergic otitis.
- S. Mastoiditis.
- D. Acute purulent otitis media.
- E. Otomycosis.

Approximate tasks for processing the theoretical material:

Learn:

1. Etiology of otitis externa Name the main etiological factors of inflammation of the external ear
2. Clinic of furuncles and diffuse external otitis. Make a classification of clinical manifestations of the listed diseases
3. Diagnosis of sulfur crust Give a list of the main methods of diagnosis and removal of sulfur crust
4. Differential diagnosis of otitis externa and otitis media Fill in the table of differential diagnosis of otitis externa and otitis media
5. Treatment of various types of diseases of the external ear. Draw up a typical scheme for the treatment of various types of diseases of the external ear

Диференційний діагноз гострого середнього гнійного і зовнішнього отиту.

Symptoms	acute purulent otitis media	acute otitis externa
Pain when chewing	absent	present
Tragus symptom (pain when pressing)	in adults - negative, in children of the first years of life it can be positive (due to the	positive

on the tragus)	absence of a bony division of the external ear canal).	
Discharge from the ear	muco-purulent	purulent
Hearing	Hearing loss	can decrease only in case of closure of the external auditory canal (furuncle).
Pulsation of pus	may be	absent

LIST OF REFERENCES

Basic:

1. R. Corbridge, N. Steventon. Oxford Handbook of ENT and Head and Neck Surgery//Paperback, 2020. - 496 p.
2. Y. Mitin, Y. Deyeva, Y. Gomza, V. Didkovskiy etc. Otorhinolaryngology// Medicine, 2018. – 264p.
3. R. Probst, G. Grevers, H. Iro. Basic Otorhinolaryngology. A Step-by-Step Learning Guide//Thieme, 2017. – 430p.
4. M. M Paparella. Paparella's Otolaryngology Head & Neck Surgery (2 Volumes)// Hardcover, 2020. – 460p.

Additional:

5. Pukhlik S.M., Titarenko O.V. Otorhinolaryngology// Odessa, 2011. – 172 p.
6. S.N. Kumar. Clinical Cases In Otolaryngology// Paperback, 2016. – 260p.
7. R. Pasha, J.S. Golub. Otolaryngology-Head and Neck Surgery : Clinical Reference Guide// Paperback, 2017. - 800 p.
8. J. A. Seikel, D.G. Drumright, D.J. Hudock. Anatomy and Physiology for Speech, Language, and Hearing //Format Hardback, 2019. - 700 p.
9. K.S. Helfer, E.L. Bartlett, A.N. Popper, R.R. Fay. Aging and Hearing: Causes and Consequences// Hardback< 2020. – 326p.
10. A. Al-Qahtani, H. Haidar, A. Larem. Textbook of Clinical Otolaryngology// Hardback, 2020. - 1155 p.
11. Z. Mu, J. Fang. Practical Otorhinolaryngology, Head and Neck Surgery: Diagnosis and Treatment// Hardback, 2020. - 314 p.
12. H.H. Ramadan, F.M. Baroody. Pediatric Rhinosinusitis// Paperback, 2020. - 300 p.
13. P.W. Flint, B.H. Haughey, V.J. Lund, K.T. Robbins, J.R. Thomas, M.M. Lesperance, H.W. Francis. Cummings Otolaryngology: Head and Neck Surgery, 3-Volume Set// Format Hardback, 2020. - 3568 p.

Electronic information resources

1. World Health Organization. URL: www.who.int/ru/index.html.
2. European Regional Office of the World Health Organization. URL: www.euro.who.int.
3. www.ama-assn.org – American Medical Association
4. www.dec.gov.ua/mtd/home/ - State Expert Center of the Ministry of Health of Ukraine
5. <http://bma.org.uk> – British Medical Association
6. www.gmc-uk.org - General Medical Council (GMC)
7. www.bundesaerztekammer.de – German Medical Association

Theme: Forms of mastoidites.

Actuality of topic: Acute purulent mastoidites is called inflammatory infectious disease of mastoid processes. Today mastoidites occurs quite frequently within the population of different age groups and particularly frequent in child age due to anatomic peculiarities of structure of middle ear in this age, as well as tendency towards infectious diseases, which are complicated by diseases of ear. Suffered mastoidites may be the reason of stable hardhearing, of development of chronic inflammation of middle ear, threatening intracranial complications. Probability of the latter is related with no diagnosis at right time, as well as with mistakes in treatment tactics of mastoidites. Therefore doctor of many different specialities come across with contingent of such patients.

The educational purposes.

The students should know:

- Possible terms of a beginning of an inflammation in a mastoid;
- Clinical signs of mastoidites;
- Methods of diagnostics of mastoidites;
- The clinical forms of typical and atypical mastoidites;
- Methods of treatment of mastoidites;
- Tactics of treatment in the postoperative period.

The students should know how:

- On a basis of knowledge of a clinical signs to put the diagnosis a mastoiditis;
- To estimate of otoscopy picture of the patient with a mastoiditis;
- To estimate a roentgenogram on Shuller;
- To determine a stage of an acute mastoiditis;
- To assign adequate treatment in dependence on a stage of a mastoiditis;
- Correctly to carry out conservative treatment of the first stage of a mastoiditis.

Theoretical contents of a subject.

Acute mastoiditis is a complication of acute otitis media. This is inflammation of the bony tissue of the mastoid process which occurs in malignant course of acute suppurative otitis media. The inflammation easily extends from the tympanic cavity onto the cells of the mastoid process through the entrance to the antrum due to the high virulence of the microbes

Primary mastoiditis occurs in rare cases associated with injury to the mastoid process, tuberculosis, syphilis, actinomycosis and metastasis in general septicaemia.

Incorrect use of antibiotics therapy for acute otitis and also unreasoned abstention from paracentesis, blowing of tube auditive can cause secondary mastoiditis.

Changes in the mastoid process associated with typical mastoiditis vary depending on the stage of the disease. Mucoperiosteal (I) and bone-alterative (II) stages of mastoiditis are distinguished.

Symptoms. The clinical signs of mastoiditis can be local and general. The general symptoms are impairment of the patient's general condition, fever, changes in the blood, etc. They do not differ substantially from those of acute suppurative otitis media.

The subjective symptoms are pain, noise in the ears, and hearing loss. Examination of a typical mastoiditis patient reveals hyperaemia and infiltration in the skin overlying the mastoid process (due to periostitis). The pinna is displaced either anteriorly or inferiorly.

The mastoid process, especially the apex, and sometimes its posterior margin, are very tender to palpation. Inflammation in the mastoid process can be activated causing subperiosteal abscess due to passage of pus from the mastoid cells to the periosteum. The differential blood count shifts to the left; the leukocyte count is moderately high; the ESR gradually increases.

The specific otoscopic symptom of mastoiditis is sagging soft tissue of the posterior-superior wall of the bony part of the external acoustic meatus at the tympanic membrane (the anterior wall of the antrum). Otopyorrhoea is often pulsating and profuse. The consistency of pus is often creamy. Pus can fill the acoustic meatus immediately after its cleaning.

Zygomatic abscess. It is due to infection of zygomatic air cells situated at the posterior root of zygoma. Swelling appears in front of and above the pinna. There is associated oedema of upper eyelid. Pus in these cases collects superficial or deep to temporalis muscle.

The apex- cervical forms of mastoiditis:

Bezold's abscess. It is seen when pus breaks through the tip of mastoid into the sheath of sternomastoid muscle. A swelling is seen in the upper part of neck.

Citelli's abscess. In this case pus breaks through inner table of mastoid tip and travels along posterior belly of digastric muscle. Swelling is seen in the digastric triangle of neck.

Orleansky. Pus spread to the parapharyngeal space through the stylomastoid foramen.

Mure. Pus spreads through the medial plate of the mastoid tip to the retropharyngeal space.

Masked (latent) mastoiditis. It is a condition of slow destruction of mastoid air cells but without the acute signs and symptoms often seen in acute mastoiditis. There is no pain, no discharge, no fever and no mastoid swelling but mastoidectomy may show extensive destruction of air cells with granulation tissue and dark gelatinous material filling the mastoid. It is not surprising to find erosion of the tegmen tympani and sinus plate with an extradural or perisinus abscess.

Aetiology. The condition often results from inadequate antibiotic therapy in terms of dose, frequency and duration of administration.

Clinical features. Patient is often a child, not entirely feeling well, with mild pain behind the ear but with persistent deafness.

Tympanic membrane appears thick with loss of translucency. Slight tenderness may be elicited over the mastoid. Audiometry shows conductive hearing loss of variable degree. X-ray of mastoid will reveal clouding of air cells with loss of cell outline.

PETROSITIS. Spread of infection from middle ear and mastoid to the petrous part of temporal bone is called petrositis.

Like mastoid, petrous bone may also be pneumatised but only in about 30% of individuals. Two groups of air cell tracts lead from mastoid and middle ear to the petrous apex.

Gradenigo's syndrome is the classical presentation and consists of a triad of external rectus palsy (VI th nerve palsy), deep-seated orbital or retro-orbital pain (V th nerve involvement) and persistent ear discharge.

Persistent ear discharge with or without deep-seated pain inspite of an adequate cortical or modified radical mastoidectomy also points to petrositis.

Fever, headace, vomiting and sometimes neck rigidity may also be associated

Diagnosis. Roentgenography of the temporal bone is very important for diagnosis. An X-ray picture shows diffuse reduction of pneumatization and shaded antrum and the cells. During later stages of the disease the bony septa can be destroyed with formation of clear sites on X-ray pictures (due to destruction of bone and accumulation of pus).

Treatment. Depending on the stage of acute otitis media and mastoiditis. Conservative treatment includes administration of antibiotics and sulpha preparations (locally and intramuscularly). The patient should first be tested for sensitivity to these preparations; their effect on the microflora in the ear should also be tested. Desensitizing preparations and physiotherapy (UHF, SHF, wanning compresses on the ear and the mastoid process) are used. The condition of the nose, the paranasal sinuses and the nasopharynx should be thoroughly examined in each particular case, especially in children.

If conservative treatment fails, objective symptoms intensify, and complications develop in the areas adjacent to the middle ear, surgical intervention is necessary.

Basic differential diagnostic symptoms of AMO and mastoiditis.

Symptoms	AMO	Mastoiditis
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General (overall) condition	Improves	Inspite of treatment deteriorates
Pain in ear	After perforation decreases	Inspite of perforation does not decrease
Noise in ear	Gradually decreases	Inspite of treatment does not decrease
Hearing	Improves	Does not improve
Excretion from ear	Stands less, after then disappears. From serous - blood and mucoid-purulent stands mucoid	Purulent; purulent-blood in very big quantities
Palpation of mastoid process	Painless, may be painful during the first days of disease (mastoidal reaction)	Sharply painful
Skin of postauricular region	Unchanged	Infiltrated, swollen mastoid process, smoothness of postauricular fold
Change in tympanic membrane and external acoustic meatus	Correlative to stages	Infiltrated, thickened (mastoidal type); hanging of postero-superior wall of acoustic meatus
Percussion of mastoid process	Painless	Painful

Differentiative symptoms of mastoiditis and furuncul of external acoustic meatus.

Symptoms	Function of external acoustic meatus	Acute mastoiditis
Spontaneous pain	Increase during chewing (mastication)	Does not increase while chewing (mastication)
Pain caused by pressing	Maximum while pressing on tragus	Maximum while pressing on mastoid process
Pain caused by pulling the auricle	Extremely painful	Painless
Condition of external acoustic meatus	Swelling of skin of cartilaginous part	Swelling of bony part (hanging of posterior wall)
Tympanic membrane	Normal	Changed
Hearing	Normal	Decreased
Temperature	Normal or slightly increased	Increased nearly always

The operation on the mastoid process, known as mastoidectomy, is performed under local and sometimes under general anesthesia.

Indication:

1. Acute coalescent mastoiditis.
2. Incompletely resolved acute otitis media with reservoir sign.
3. Masked mastoiditis.
4. As an initial step to perform:
 - (a) endolymphatic sac surgery
 - (b) decompression of facial nerve
 - (c) translabyrinthine or retrolabyrinthine procedures for acoustic neuroma.

Patient lies supine with face turned to one side and the ear to be operated upper most. A curved incision is made behind and following the attachment of the auricle. The incision extends

from a point on a level with the upper margin of the pinna to the mastoid tip. In infants and children up to 2 years, the incision is short and more horizontal. This is to avoid cutting facial nerve which is superficial in the lower part of mastoid. Incision cuts through soft tissues up to the periosteum. Temporalis muscle is not cut in the incision. Periosteum is scraped from surface of mastoid and posterosuperior margin of osseous meatus. Tendinous fibres of sternomastoid are sharply cut and scraped down. The lips of the wound are drawn apart with retractors to keep the mastoid surface open for examination. Should a fistula be darkened and soft portions of bone be discovered, the operation must be started at this place. Should a fistula be absent, the operation must be started in a typical place determined by landmarks. The upper border of the operative area is the temporal line; the anterior border is the spine above the external auditory meatus and the latter's posterior wall. Trephination is begun by attacking the bone right behind the spine on the *planum mastoidenum* to the antrum. In an adult antrum lies 12-15 mm from the surface. Horizontal semicircular canal is identified.

All the carious and soft bones should be removed carefully until the antrum has been exposed. The antrum is then widened somewhat with a small curette, and the granulations are thoroughly scraped out with utmost care. Care must be taken in opening the mastoid process to avoid injury to the sigmoid venous sinus, the dura mater, the middle cranial fossa, the facial nerve and the external semicircular canal. Lateral wall of the mastoid tip is removed exposing muscle fibres of posterior belly of digastric. Zygomatic cells situated in the root of zygoma, retrosinus cells lying between sinus plate and cortex behind the sinus are removed.

The operation is usually concluded by filling the wound with antibiotic powder and packing it lightly with tampons. Sometimes mastoid cavity is thoroughly irrigated with saline to remove bone dust and the wound closed in two layers. A rubber drain may be left at the lower end of incision for 24-48 hours in cases of infection or excessive bleeding. A meatal pack should be given to avoid stenosis of ear canal. Mastoid dressing is given.

Antibiotics started pre-operatively are continued post-operatively for at least one week. Culture swab taken from the mastoid during operation may dictate a change in the antibiotic.

Complications:

1. Injury to facial nerve.
2. Dislocation of incus.
3. Injury to horizontal semicircular canal. Patient will have post-operative giddiness and nystagmus.
4. Injury to sigmoid sinus with profuse bleeding.
5. Injury to dura of middle cranial fossa.
6. Post-operative wound infection and wound breakdown.

Prognosis is favourable provided the patient applies to the doctor in due time and is given effective treatment.

Prophylaxis consists in early and rational treatment of acute otitis media.

Mastoiditis (antritis) in children. The mastoid process is underdeveloped in neonates and nursing infants; only a prominence can be found at the place of its future location. There is an antrum in this prominence, into which the purulent process extends from the middle ear. A subperiosteal abscess is likely to develop if the petrosquamous and tympanomastoid fissures are not closed.

The local *symptoms* are few. The otoscopic picture is characterized by indistinct topography of the tympanic membrane; its color can be pink or slightly yellowish. X-ray pictures of temporal bones reveal decreased transparency of the antrum in some cases.

Antritis is always associated with a vigorous general reaction of the child's gastrointestinal tract, the respiratory and nervous systems. The child's conduct varies from flaccidness to excitation; he cries, does not sleep; the symptoms of meningitis are not infrequent. Appetite is very poor, stools are frequent and liquid, and the baby loses his weight. The skin is pale-grey and moist; the heart sounds are dull, the pulse is frequent; tachypnoea develops. The temperature reaction does not always agree with severity of the condition. Body temperature can be normal,

subfebrile or be as high as 38-39°C. The blood picture is characterized by neutrophilic leucocytosis; the ESR is accelerated.

Treatment includes local therapy and intramuscular injections of antibiotics. UV-therapy is helpful.

Surgical treatment includes antral puncture, antrotomy, and mastoidotomy (in children after three ears age).

Stuffs for selfverification.

Questions for selfverification:

1. Etiological factors of development of a mastoiditis.
2. Role of virulence of a microflora, reactivity of an organism in development of a mastoiditis.
3. Role of the local factors (structure of a mastoid, nasal respiration, presence of the locuses of an infection contamination of upper respiratory ways).
4. Stage of current of a mastoiditis.
5. Early and late clinical signs of a mastoiditis.
6. Otoscopy picture of an acute mastoiditis.
7. X-ray diagnostics of purulent mastoidites.
8. Type of mastoidites on localization.
9. Atypical current of mastoidites.
10. The differential diagnosis of a mastoiditis with a furuncle of external acoustical passage.
11. The differential diagnosis of a mastoiditis with a neuralgia of an occipital nerve.
12. Conservative treatment of mastoidites (local and general), indication, criterion of an assessment of efficacy.
13. Surgical treatment of mastoidites, indication.
14. Technique and possible complications of a mastoidotomy.
15. Peculiarities of postoperative period, assignment of adequate conservative therapy.

Subject of educational research work of the students: To make the table of the typical and atypical forms of acute purulent mastoidites in dependence on primary localization of a suppurative focus of an osteomyelitis of a temporal bone (in figure of temporal bone to designate places of localization of the process).

LIST OF REFERENCES

Basic:

1. R.Corbridge, N.Steventon. Oxford Handbook of ENT and Head and Neck Surgery//Paperback, 2020. - 496 p.
2. Y.Mitin, Y.Deyeva, Y.Gomza, V. Didkovskiy etc. Otorhinolaryngology// Medicine, 2018. – 264p.
3. R.Probst, G.Grevers, H.Iro. Basic Otorhinolaryngology. A Step-by-Step Learning Guide//Thieme, 2017. – 430p.
4. M. M Paparella. Paparella'S Otolaryngology Head & Neck Surgery (2 Volumes)// Hardcover, 2020. – 460p.

Additional:

5. Pukhlik S.M., Titarenko O.V. Otorhinolaryngology// Odessa, 2011. – 172 p.
6. S.N.Kumar. Clinical Cases In Otolaryngology// Paperback, 2016. – 260p.
7. R.Pasha, J.S.Golub. Otolaryngology-Head and Neck Surgery : Clinical Reference Guid// Paperback, 2017. - 800 p.
8. J. A.Seikel, D.G.Drumright, D.J.Hudock. Anatomy and Physiology for Speech, Language, and Hearing //Format Hardback, 2019. - 700 p.
9. K.S.Helfer, E.L.Bartlett, A.N.Popper, R.R.Fay. Aging and Hearing: Causes and Consequences// Hardback< 2020. – 326p.

10. A.Al-Qahtani, H.Haidar, A.Larem. Textbook of Clinical Otolaryngology// Hardback, 2020. - 1155 p.
11. Z.Mu, J.Fang. Practical Otorhinolaryngology, Head and Neck Surgery: Diagnosis and Treatment// Hardback, 2020. - 314 p.
12. H.H.Ramadan, F.M.Baroodly. Pediatric Rhinosinusitis// Paperback, 2020. - 300 p.
13. P.W.Flint, B.H.Haughey, V.J.Lund, K.T.Robbins, J.R.Thomas, M.M.Lesperance, H.W.Francis. Cummings Otolaryngology: Head and Neck Surgery, 3-Volume Set// Format Hardback, 2020. - 3568 p.

Electronic information resources

1. World Health Organization. URL: www.who.int/ru/index.html.
2. European Regional Office of the World Health Organization. URL: www.euro.who.int.
3. www.ama-assn.org – [American Medical Association](http://www.ama-assn.org)
4. www.dec.gov.ua/mtd/home/ - [State Expert Center of the Ministry of Health of Ukraine](http://www.dec.gov.ua/mtd/home/)
5. <http://bma.org.uk>– British Medical Association
6. www.gmc-uk.org- *General Medical Council (GMC)*
7. www.bundesaerztekammer.de – German Medical Association

Theme: Contemporary methods of surgical treatment of chronic purulent middle otitis.

The actuality of the theme: Chronic purulent middle otitis is the most frequent disease of the ear and you can meet it in 20-25 per cents of cases among the all pathology of ENT organs . But unsymptomatically taking chronic otitis, especially epitympanitis , can suddenly causes the hard intracranial complications (meningitis, sepsis, brains abscesses, etc. The frequency of chronic suppurative inflammation of the middle ear, its aggravation leading to a temporary and sometimes permanent loss of working ability, to the development of diminished hearing and other dangerous complications define social significance of the disease. Any physician must know the symptoms of chronic suppurative middle otitis and its complications. He must to be able to prevent its development, and if necessary he must send the patient to the hospital for urgent treatment. That's why the knowing of contemporary methods of surgical treatment of chronic purulent middle otites is necessary for doctors of different types.

The educational purposes:

The students should know:

- The indications and contraindications to various forms of an operative intervention at chronic purulent middle otites;
- The indications to various forms of sanative operations at chronic purulent epitympanitis;
- The indications and contraindications to hearing restoring operations;
- Forms of sanative operations;
- Stages and types of tympanoplasties;
- Peculiarities of current and support of the postoperative period.

The students should know how:

- To determine a degree of the destructive process in the middle ear at chronic purulent otites;
- To assign an adequate method of a surgical intervention in dependence on the form of a chronic purulent middle otitis and given acumetry;
- Correctly to assign medicamental therapy in the postoperative period.

Theoretical questions for the lesson

Treatment of chronic suppurative epitympanitis is more difficult than of chronic suppurative mesotympanitis. Conservative treatment is effective in cases with anterior epitympanitis. Local treatment includes daily irrigation of the attic by attic needle with the following warm solutions: 40% alcohol, 3% alcohol solution of boric acid, 0,25% solution of formaldegide. Conservative treatment is usually ineffective in cases with the medial and posterior location of the marginal perforation in the superior parts of the tympanic membrane. A surgical intervention is necessary in such cases. If chronic inflammation is confined to the attic, atticotomy is performed. Attico-antrotomy is necessary if the process extends to the antrum. Both operations are sparing; the hearing function is preserved. If caries extends to the cavities of the middle ear, the diagnosis is confirmed otoscopically, roentgenographically, and by other instrumental examinations, a radical surgery is necessary. The presence of signs of intracranial complications (sinus thrombosis, meningitis, cerebral abscess and abscess of the cerebellum) is the absolute (vital) indication for a radical operation on the ear in suppurative otitis media. The operation should be performed immediately. Surgical intervention is also required in the presence of sings of mastoiditis, paresis of the facial nerve, and labyrinthitis. In the other cases the extent of operative intervention should be determined with consideration of the auditory and vestibular functions of the ear.

The radical operation. The radical operation essentially consists in the tympanic cavity, the epitympanic recess, the antrum with the remaining mastoid cells and the external auditory meatus being thrown into one wide cavity. Therefore, this operation is also known as radical mastoidectomy. A thorough removal of carious bone and the cholesteatoma will ensure free pus

drainage through the auditory canal and prevent possible intracranial complications.

The operation begins with opening the antrum, as in mastoidectomy; next follows the removal of the upper section of the posterior bony wall of the external auditory meatus and the external wall of the attic. Here, in the depth of the operative cavity, great care must be taken to avoid injury to the facial nerve, as the descending knee of the facial nerve canal is located in the depth of the posterior bony wall of the auditory meatus. The concluding stage of the operation is removal of all necrotic auditory ossicles apart from the stapes. Polyps, granulations and carious bone are carefully removed with a curette. The operation is rounded off with a plastic repair in order that the walls of the operative cavity may later be overgrown with epidermis. For this purpose one or two flaps are cut out of the skin of the posterior wall and roof of the external auditory meatus and are transplanted on to the lower or upper parts of the wound. The flaps serve as a source of epidermis for the whole trephination field. The skin wound behind the ear is either sutured or left open if the meninges are exposed. The operation area is packed with a tampon soaked in iodoform or antibiotic solution. Dry dressing is first applied on the sixth to eighth day following the operation, provided there is no fever or pain in the wound. The postoperative treatment is rather complicated and normally continues for at least six to eight weeks. In some cases, tympanoplasty is performed if there is no affection of the middle ear together with signs of an intracranial complication. The aim of this operation is not only to remove pathological tissue from the middle ear but to repair the drum. Not infrequently the hearing also improves as a result of this operation.

Tympanoplasty is the surgical reconstruction and building of new sound conduction apparatus. It is an operation to eradicate disease in the middle ear and to reconstruct hearing mechanism. It may be combined with mastoidectomy if disease process so demands. Type of middle ear reconstruction depends on the damage present in the ear. Transformation should be improved in (a) dry perforation of the tympanic membrane; (b) disruption of the ossicular chain; (c) dry adhesive process in the tympanic cavity. The procedure may be limited only to repair of tympanic membrane (myringoplasty), or to reconstruction of ossicular chain (ossiculoplasty), or both (tympanoplasty).

Contraindications for tympanoplasty are the following: (a) exacerbation of chronic otitis and especially the presence of labyrinthine, intracranial or septicopyemic complications; (b) considerable affection of the sound perception apparatus; (c) obstruction of the auditory tube. Reconstructive surgery of the ear has been greatly facilitated by development of operating microscope, microsurgical instruments and biocompatible implant materials.

From the physiology of hearing mechanism, following principles can be derived to restore hearing surgically: *An intact tympanic membrane* to provide large hydraulic ratio between tympanic membrane and stapes footplate. *Ossicular chain* to conduct sound from tympanic membrane to oval window. *Two functioning windows*, one on the scala vestibuli (to receive sound vibrations) and the other on the scala tympani (to act as a relief window). If it is only one window, as in stapes fixation or closure of round window, there will be no movement of cochlear fluids resulting in conductive hearing loss. *Acoustic separation of two windows* so that sound does not reach both the windows simultaneously. It can be achieved by providing an intact tympanic membrane, preferential pathway to one window (usually the oval) by providing ossicular chain and by the presence of air in the middle ear. *Functioning eustachian tube* to provide aeration to the middle ear. *A functioning sensorineural apparatus*, i.e. the cochlea and VIIIth nerve.

Types of tympanoplasty. Wullstein classified tympanoplasty into five types:

Type I Defect is perforation of tympanic membrane which is repaired with a graft. It is also called myringoplasty.

Type II Defect is perforation of tympanic membrane with erosion of malleus. Graft is placed on the incus or remnant of malleus.

Type III Malleus and incus are absent. Graft is placed directly on the stapes head. It is also called myringostapediopexy or columella tympanoplasty.

Type IV Only footplate of stapes is present. Graft is placed directly on the footplate and round window separated; sound waves in this case act directly on the footplate.

Type V Stapes footplate is fixed but round window is functioning. In such cases another window is created on semicircular canal and covered with a graft. Also called fenestration operation.

Several modifications have appeared in the above classification and they mainly pertain to the types of ossicular reconstruction.

Myringoplasty. It is repair of tympanic membrane. Graft materials of choice are temporalis fascia or the perichondrium taken from the patient. Sometimes homografts such as dura, vein, fascia or cadaver tympanic membrane are also used. Repair can be done by two techniques - the underlay or the overlay. In underlay technique, margins of perforation are freshened and the graft placed medial to perforation supported by gelfoam. In overlay technique, the graft is placed lateral to fibrous layer of the tympanic membrane after carefully removing all squamous epithelium.

Ossicular reconstruction. It is required when there is destruction or fixation of ossicular chain. Most common defect is necrosis of the long process of incus;

the malleus and the stapes being normal. In others, there is additionally the loss of stapes superstructure leaving only a mobile footplate and malleus. Yet in others only the footplate is left; all other ossicles, the malleus, incus and stapes superstructure are destroyed.

Repair of ossicular chain can be achieved by the use of autograft incus or cartilage, homograft ossicles, or the prosthetic implants *made of* ceramics or teflon. The techniques commonly employed in ossicular reconstruction in such cases are the incus transposition or a sculptured ossicle.

Most common ossicular fixations are the ankylosis of stapes footplate as in otosclerosis, and the congenital or acquired fixation of head of malleus in the attic.

Ankylosis of stapes can be corrected by removal of the fixed stapes and its replacement by a prosthesis while the attic fixation of malleus head entails removal of the head of malleus and entire incus and then establishing contact between handle of malleus and the stapes.

Stuffs for selfverification

Questions for selfverification:

1. Name the absolute indications to the radical operation.
2. What relative indications for execution of the sanative operation on a middle ear?
3. What main purpose of sanative operations?
4. Name principles of the radical operation.
5. Main surgical stages of the radical operation.
6. What complications of the radical operation are possible?
7. Peculiarities of a postoperative period current of trepan cavum.
8. What final aim of postoperative period current of trepan cavum?
9. What clinical signs and the diagnostic aspects determine a choice of a method of sanative the operation?
10. The indications and contraindications to an atticotomy.
11. Name principles of the atticotomy.
12. The indications to tympanoplasties.
13. Name contraindications to hearing restoring operations.
14. What main stages of hearing restoring operations?
15. Name main types of a tympanoplasty on Wulshtein, indication to performing of this or that type.
16. What peculiarities of medicamental therapy and dressings after the operation of a tympanoplasty?

Approximate tasks for the study of theoretical material

The main tasks	Instructions	Answers
Explore:		
Etiology	Name the main etiological factors chronic purulent otitis	
The clinical manifestations of the disease	Make a classification of clinical manifestations chronic purulent otitis	
Diagnosis	To give the list of the basic methods of diagnostics chronic purulent otitis	
Differential diagnosis	Fill in the table of differential diagnosis of the disease	
Treatment	To make the standard scheme of treatment chronic purulent otitis	

1. Make a dictionary of basic concepts on the topic
2. Fill in the orientation card for independent preparation of the student with the use of literature on the topic (the need to include in the guidelines of the orientation card is decided by the staff of the department):

Test tasks for self-control:

- 1) What are the advantages of mastoidoplasty performed according to reasonable indications:
 - A) Allows to eliminate or reduce the cavity in the mastoid process, to achieve epithelialization.
 - B) Allows you to create an open cavity in the mastoid process.

- 2) What is tympanoplasty?
 - A) This is a type of surgical intervention on the middle ear to reconstruct or create a new sound conduction apparatus to improve hearing.
 - B) This is a type of surgical intervention on the middle ear for the reconstruction of the tympanic cavity in chronic suppurative otitis media for better drainage.
 - C) This is a type of middle ear surgery to reconstruct or create the eardrum.
 - D) This is the closure of the tympanic membrane defect with an auto- or xenograft.

- 3) What is the main essence of the third type of tympanoplasty according to Woolstein and what are the indications for this type of operation?
 - A) In the creation of a "small" (simplified) tympanic system (without attic) with a non-free or free graft during general ear surgery, if the tympanic membrane, malleus and incus are destroyed.
 - B) In the creation of a small, reduced tympanic cavity by means of a non-free or free graft in the destruction of the tympanic membrane, malleus, anvil and stirrup legs.
 - C) In creating a new path for sound waves by fenestrating labyrinth, with the destruction of the tympanic membrane, the bones to fix the foot plate of the stirrup.
 - D) In the creation of a "large" tympanic system with a non-free or free autograft with preliminary atticotomy in case of destruction of the tympanic membrane and malleus.

4) What is the essence of radical (general cavity) ear surgery?

- A) In the elimination of the inflammatory focus; creating a single cavity from the mastoid process, antrum, tympanic cavity and external auditory canal.
- B) In the elimination of the inflammatory focus; isolation of the tympanic cavity from the mastoid process and antrum, creating a single cavity with the external auditory canal.
- C) In the elimination of the inflammatory focus, the isolation of the tympanic cavity from the mastoid process, the creation of a single cavity with the external auditory canal and antrum.
- D) In the elimination of the inflammatory focus, the isolation of the antrum from the tympanic cavity, the creation of a single cavity with the external auditory canal and the mastoid process.

5) How many types of Woolstein tympanoplasty are there?

- A) Five
- B) Four
- C) Six
- D) Three

LIST OF REFERENCES

Basic:

1. R. Corbridge, N. Steventon. Oxford Handbook of ENT and Head and Neck Surgery//Paperback, 2020. - 496 p.
2. Y. Mitin, Y. Deyeva, Y. Gomza, V. Didkovskiy etc. Otorhinolaryngology// Medicine, 2018. – 264p.
3. R. Probst, G. Grevers, H. Iro. Basic Otorhinolaryngology. A Step-by-Step Learning Guide//Thieme, 2017. – 430p.
4. M. M Paparella. Paparella'S Otolaryngology Head & Neck Surgery (2 Volumes)// Hardcover, 2020. – 460p.

Additional:

5. Pukhlik S.M., Titarenko O.V. Otorhinolaryngology// Odessa, 2011. – 172 p.
6. S.N.Kumar. Clinical Cases In Otolaryngology// Paperback, 2016. – 260p.
7. R.Pasha, J.S.Golub. Otolaryngology-Head and Neck Surgery : Clinical Reference Guid// Paperback, 2017. - 800 p.
8. J. A.Seikel, D.G.Drumright, D.J.Hudock. Anatomy and Physiology for Speech, Language, and Hearing //Format Hardback, 2019. - 700 p.
9. K.S.Helfer, E.L.Bartlett, A.N.Popper, R.R.Fay. Aging and Hearing: Causes and Consequences// Hardback< 2020. – 326p.
10. A.Al-Qahtani, H.Haidar, A.Larem. Textbook of Clinical Otolaryngology// Hardback, 2020. - 1155 p.
11. Z.Mu, J.Fang. Practical Otorhinolaryngology, Head and Neck Surgery: Diagnosis and Treatment// Hardback, 2020. - 314 p.
12. H.H.Ramadan, F.M.Barood. Pediatric Rhinosinusitis// Paperback, 2020. - 300 p.
13. P.W.Flint, B.H.Haughey, V.J.Lund, K.T.Robbins, J.R.Thomas, M.M.Lesperance, H.W.Francis. Cummings Otolaryngology: Head and Neck Surgery, 3-Volume Set// Format Hardback, 2020. - 3568 p.

Electronic information resources

1. World Health Organization. URL: www.who.int/ru/index.html.
2. European Regional Office of the World Health Organization. URL: www.euro.who.int.
3. www.ama-assn.org – American Medical Association
4. www.dec.gov.ua/mtd/home/ - State Expert Center of the Ministry of Health of Ukraine
5. <http://bma.org.uk>– British Medical Association
6. www.gmc-uk.org- General Medical Council (GMC)

7. www.bundesaerztekammer.de – German Medical Association

Theme: Diseases of the nasal cavity.

The theme actuality. The acute and chronic rhinites result of blockage of nasal respiration, violation of local immunodefence of a mucosa of upper respiratory tract, promotes originating of acute and chronic sinuites, otites, laryngitises, diseases of the broncho-pulmonary system and other violations in an organism. In this connection early diagnostics and adequately assigned treatment promotes elimination of undesirable complications of a rhinitis. In some cases the distress of functions of a nose wears nonperishable character, that is undesirable has an effect for work capacity of the patient, his social adequacy. Differential diagnostics of rhinites with other inflammatory and tumoral diseases of upper respiratory tract is important. The stated data prove importance of the purpose of the given practical occupation.

The educational purposes.

The students should know:

- Anatomy, physiology, methods of examination of a nose, of paranasal sinuses;
- Main signs of acute and chronic rhinites;
- Objective changes of a mucosa of a nose at a rhinitis;
- Differential diagnostics of rhinites and sinuites.

The students should know how:

- Correctly to put the diagnosis a rhinitis;
- To carry out differential diagnostics of rhinites, utilizing of endoscopic methods of examination and X-ray examination;
- To assign adequate course of treatment;
- To make of adrenalisation of a mucosa of a nose, insufflation of drag.

Theoretical contents of a subject

Acute catarrhal rhinitis (common cold) is an acute non-specific inflammation of the nasal mucosa. The aetiology of acute rhinitis is determined by decreased local or general reactivity of the body and activation of microflora of the nose. The disease usually occurs following general or local chilling that interferes with the protective nervous and reflex mechanisms.

The clinic of acute catarrhal rhinitis includes three stages, which are continuous with one another: the first stage is dry irritation, the second stage is characterized by increased mucous secretion, and the third stage (resolution) is characterized by mucopurulent secretion. Acute rhinitis begins with the feeling of dryness, tension, burning, and itching in the nose and often in the pharynx and the larynx; sneezing is annoying. The patient complains of indisposition, chill, discomfort and headache (mostly pain in the forehead). The body temperature is elevated. Nasal respiration becomes difficult-from insignificant impediment to a complete obstruction due to obturation of the nasal meatuses with swollen mucosa. Olfaction is impaired significantly. The sense of taste is also altered. The speech becomes nasal (rhinolalia clausa). Profuse watery discharge from the nose is characteristic of the first day of acute rhinitis. The amount of mucus in the discharge increases later. This can cause hyperaemia and swelling of the skin at the nose vestibule and of the upper lip. The nasal discharge becomes seropurulent in 4 or 5 days. The amount of nasal discharge decreases gradually during the next few days, swelling of the mucosa subsides, respiration through the nose and olfaction are restored, and the patient recovers in 8-14 days from the onset of acute catarrhal rhinitis.

Treatment as a rule is given on out-patient basis. If rhinitis is severe and is attended with high temperature, the patient is recommended bed rest at home. The course of acute rhinitis can be aborted by thermal, counter-attractive, and sudorific procedures. Hot bath is recommended for the feet and the lumbar region; hot tea, 0.5 g of acetylsalicylic acid is also recommended. UV-therapy, application of mustard plasters to the calves, UHF, or diathermia are also useful. Before

nursing an infant, it is necessary to suck off mucus from each side of the nose using a rubber syringe. Two drops of a vasoconstrictive substance should be instilled into each nostril 5 minutes before breast-feeding. Four drops of a 2 per cent colloid silver solution should be instilled. Adults should be given galasoline, or otrivin, and sanorine at all stages of acute catarrhal rhinitis.

Chronic rhinitis. The main forms of chronic rhinitis are catarrhal, hypertrophic, atrophic, vasomotor and allergic. The disease is common.

Chronic catarrhal rhinitis. The onset of chronic rhinitis is connected as a rule with frequently recurring acute inflammation in the nasal cavity (including inflammations associated with various infections), irritating environmental effects such as dust, gas, dry or moist air, variations in ambient temperature, etc.

The main symptoms of chronic catarrhal rhinitis are impeded respiration through the nose and rhinorrhoea; both signs are manifested moderately. Respiration through the nose becomes periodically difficult, mostly due to chilling. The passageway through one side of the nose is usually obstructed permanently. Nasal respiration is even more difficult when the patient lies on his side

Chronic hypertrophic rhinitis. The main signs of hypertrophic rhinitis are impeded respiration through the nose, mucous nasal discharge, and thickened and swollen nasal mucosa, mainly in the entire inferior and middle concha. The mucosa is usually red-blue, gray-blue and covered with mucus. In the presence of mucopurulent discharge, inflammation of the paranasal sinuses should be excluded. The posterior ends of the inferior conchae are usually thickened; application of vasoconstrictor drops don't causes the reduction of nasal concha.

Chronic atrophic rhinitis. Common chronic atrophic rhinitis can be diffuse or circumscribed. Mineral dust (silicates, cement) and that of tobacco produce a strong effect on the condition of the nose. Common symptoms of the disease are crusts in the nose. Meagre tenacious mucus (or mucopurulent discharge) adheres to the mucosa and dries into crusts. The patient complains of dryness in the nose and the pharynx, and impairment of olfaction. Separation of the crusts often causes nosebleed, usually from the Kiesselbach area.

Treatment of chronic rhinitis. Treatment of various forms of chronic rhinitis includes the following: elimination of possible factors which cause and maintain rhinitis; specific medicamentous therapy of each particular form of rhinitis; surgical management for special indications; physiotherapy and climatic treatment.

Astringent substances are used for chronic catarrhal rhinitis. These are a 3-5 per cent protein silver or colloid silver solution and a 3-5 per cent silver nitrate solution. If the mucosa is swollen, it can be treated with an iodine-glycerol solution. The treatment with the mentioned preparations should not continue for more than 10 days. Physiotherapy is also recommended: UHF or microwaves on the nose and UV-therapy endonasally. Courses of instillation of peloidin, inhalations of balms should be alternated. If hypertrophy is insignificant, sparing surgical interventions are recommended: ultrasound disintegration, cauterization with chemical substances (silver nitrate, trichloroacetic acid, chromic acid), electric current, or extreme cold. If hypertrophy is significant and respiration through the nose is impeded, partial resection of the hypertrophied parts of the conchae (conchotomy) is recommended.

Treatment of atrophic rhinitis. The patient should take care of his nose so that crusts and nasal discharge should not accumulate in the nasal cavity. The nose should be cleaned once or twice a day by irrigating the nasal cavity with isotonic sodium chloride solution containing an additive of iodine (6-8 drops of a 5 per cent iodine tincture per 200 ml of the solution). Irritants should periodically be used: the mucosa should be treated with an iodine-glycerol solution once a day in the course of 10 days, this stimulates the secretion of the glands in the nasal mucosa. A 30 per cent potassium iodide solution (8 drops 3 times a day, for 2-3 weeks) should be given per os for the same purpose.

Ozaena is a pronounced atrophy of the nasal mucosa and the nasal bones marked by formation of fetid crusts which produce a firm layer on the nasal mucosa. Metaplasia of the columnar ciliated epithelium into squamous epithelium associated with ozaena is characteristic for the

major part of the nasal mucosa. It mainly occurs in women and begins in the young, its cause is unknown. The disease persists during the whole life. Ozaena patients complain of marked dryness in the nose, intensive crusting, and fetor. The respiration through the nose is impeded. Olfaction is lost completely. *Diagnosis* is established by the fetid odour from the nose, the presence of many crusts and atrophy of the nasal mucosa and bony walls of the nose.

Allergic and vasomotor rhinitis.

The aetiology of the *allergic* form depends basically on the allergen. Allergic rhinitis can be seasonal or permanent (non-seasonal). Seasonal allergic rhinitis recurs regularly at the same time of the year, when the specific plant is in blossom. Permanent (non-seasonal) rhinitis is caused by many various substances (allergens) with which the patient often comes in contact, e.g. house dust, fur of domestic animals, pillow feathers, book dust, some foods, various microflora.

Vasomotor rhinitis occurs due to disordered nervous mechanisms accounting for the normal physiology of the nose. Sympathetic stimulation causes vasoconstriction and shrinkage of mucosa, while parasympathetic stimulation causes vasodilation and engorgement. The long application of the vasoconstrictor drops, the deformation of the nasal septum may also cause this disease.

The main symptom of both forms of rhinitis is paroxysmal sneezing attended by nasal hydrorrhoea and difficult nasal breathing. This triad of symptoms is more or less pronounced in all cases. The rhinoscopic signs of rhinitis are oedema and pallor of the mucosa, and cyanotic or white spots on it.

The allergic form of the disease is characterized by increased eosinophil counts and appearance of eosinophils in the nasal mucus.

Treatment depends on the findings of the allergological examination and includes elimination from the patient's environment of allergens, purulent foci or microbial allergy. Treatment includes specific and non-specific hyposensitization of the patient, local procedures, including surgery and action on the nervous system.

Specific hyposensitization is conducted in conditions of an allergological laboratory because severe allergic reactions are possible following administration of the allergens. The identified allergen should be highly diluted and administered to the patient in gradually increasing microdoses (subcutaneously or into the nose, on the mucosa, regularly during the course of several weeks). The body can thus produce protective antibodies to the allergen.

Non-specific desensitization is used in both allergic and vasomotor forms of rhinitis. Antihistaminics (suprastine, tavegyle, diazolin, klaritin) and hormones (hydrocortisone, prednisolone, prednisone) are used for the purpose. Topical steroids such as beclomethasone, dipropionate and flunisolide acetate used as aerosols are very effective in the control of symptoms. Topical steroids have fewer systemic side effects but their continuous use beyond 3 weeks is not recommended. Sodium chromoglycate stabilises the mast cells and prevents them from degranulation despite the formation of IgE antigen complex. It is used as 4% solution for nasal drops or aerosol powder. It is useful both in seasonal and perennial allergic rhinitis.

Preparations of calcium, sulphur, and vitamins are also helpful. Local methods of treatment, including endonasal novocain block, submucous administration of corticosteroids, cauterization of the reflexogenic zones of the nasal mucosa with strong acids, silver nitrate, intranasal physiotherapy, sclerotherapy are used for treatment of both forms of rhinitis. Electrophoresis of various medicinal solutions is the most common method of physiotherapy for rhinitis. Endonasal electro-phoresis with a 2 per cent calcium chloride solution is used most frequently. Long-standing vasomotor rhinitis often increases the volume of the conchae and imposes permanent difficulties in nasal breathing. Surgical treatment (sparing inferior conchotomy, submucous destruction of the inferior conchae with ultrasound) is most rational in such cases.

Stuffs for selfverification.

Questions for selfverification:

1. Etiological factors of an acute rhinitis.

2. Pathogenesis and stages of an acute rhinitis.
3. Treatment of an acute rhinitis in dependence on a stage of the process.
4. Factors promoting development of a chronic rhinitis.
5. Classification of chronic rhinites.
6. Etiology, pathogenesis, clinic, differential diagnostics and treatment of chronic hypertrophic rhinitis.
7. Etiology, pathogeny, clinic, differential diagnostics and treatment of a chronic hypertrophic rhinitis.
8. Etiology, pathogeny, clinic, differential diagnostics and treatment of a chronic atrophic rhinitis.
9. Etiology, pathogeny, clinic, differential diagnostics and treatment of a chronic vasculomotor rhinitis.
10. Etiology, pathogeny, clinic, differential diagnostics and treatment of a chronic allergic rhinitis.
11. An etiology, pathogeny, clinic, differential diagnostics and treatment of an ozena.

Subject of educational research work of the students: To make the list of medicines for treatment of the different forms of rhinites.

LIST OF REFERENCES

Basic:

1. R. Corbridge, N. Steventon. Oxford Handbook of ENT and Head and Neck Surgery//Paperback, 2020. - 496 p.
2. Y. Mitin, Y. Deyeva, Y. Gomza, V. Didkovskiy etc. Otorhinolaryngology// Medicine, 2018. – 264p.
3. R. Probst, G. Grevers, H. Iro. Basic Otorhinolaryngology. A Step-by-Step Learning Guide//Thieme, 2017. – 430p.
4. M. M Paparella. Paparella'S Otolaryngology Head & Neck Surgery (2 Volumes)// Hardcover, 2020. – 460p.

Additional:

5. Pukhlik S.M., Titarenko O.V. Otorhinolaryngology// Odessa, 2011. – 172 p.
6. S.N. Kumar. Clinical Cases In Otolaryngology// Paperback, 2016. – 260p.
7. R. Pasha, J.S. Golub. Otolaryngology-Head and Neck Surgery : Clinical Reference Guid// Paperback, 2017. - 800 p.
8. J. A. Seikel, D.G. Drumright, D.J. Hudock. Anatomy and Physiology for Speech, Language, and Hearing //Format Hardback, 2019. - 700 p.
9. K.S. Helfer, E.L. Bartlett, A.N. Popper, R.R. Fay. Aging and Hearing: Causes and Consequences// Hardback< 2020. – 326p.
10. A. Al-Qahtani, H. Haidar, A. Larem. Textbook of Clinical Otolaryngology// Hardback, 2020. - 1155 p.
11. Z. Mu, J. Fang. Practical Otorhinolaryngology, Head and Neck Surgery: Diagnosis and Treatment// Hardback, 2020. - 314 p.
12. H.H. Ramadan, F.M. Barody. Pediatric Rhinosinusitis// Paperback, 2020. - 300 p.
13. P.W. Flint, B.H. Haughey, V.J. Lund, K.T. Robbins, J.R. Thomas, M.M. Lesperance, H.W. Francis. Cummings Otolaryngology: Head and Neck Surgery, 3-Volume Set// Format Hardback, 2020. - 3568 p.

Electronic information resources

1. World Health Organization. URL: www.who.int/ru/index.html.
2. European Regional Office of the World Health Organization. URL: www.euro.who.int.
3. www.ama-assn.org – American Medical Association
4. www.dec.gov.ua/mtd/home/ - State Expert Center of the Ministry of Health of Ukraine
5. <http://bma.org.uk> – British Medical Association
6. www.gmc-uk.org - General Medical Council (GMC)

Theme: «Secondary tonsillitis at infection diseases and diseases of the blood system».

The theme actuality. The angina as a sign of other disease meets at children's illnesses (scarlet fever, diphtheria, mononucleosis), at virus lesions of upper respiratory tracts, at blood diseases. In this connection in each concrete case there is a necessity legibly to designate character of disease, its clinical signs showing in upper respiratory routes. Knowledge of the given subject are necessary for the doctors of many specialties.

The educational purposes:

The student should know:

1. Cause of acute secondary anginas, their clinical exhibiting.
2. To differentiate features of inflammatory changes in a pharynx in dependence on the etiological factor.
3. Characteristic changes of morphological composition of a blood at an agranulocytosis, contagious mononucleosis, ulcerative anginas.

The student should know how:

1. To collect the anamnestic data and to estimate pharyngoscopy picture.
2. To carry out the differential diagnosis at various lesions of a blood.
3. To decrypt the data of laboratory researches.

Contents of a subject.

AFFECTIONS OF THE PHARYNX IN SYSTEMIC DISEASES

Infectious mononucleosis. This infectious disease is probably caused by a special lymphotropic virus which occurs together with *Listerella* genus. It is believed that infection occurs by air-borne droplets or by contact; the nasal cavity and the pharynx are the portals of infection. Children and the young usually develop mononucleosis. The disease is characterized by a fever, tonsillitis-like changes in the fauces, adenosplenomegaly, and changes in the blood (high counts of leukocytes and atypical monocytes). The incubation period lasts 4-5 days (sometimes 10 days). At the onset of the disease the body temperature rises to 38-40° C and persists at this level from 5 days to 2-4 weeks (for longer periods in rare cases). The symptoms are sometimes alleviated periodically during this stage. An early and permanent sign of the disease is enlarged lymph nodes, first on the neck and then in the groin, armpits, and the abdomen. The spleen and the liver are also enlarged in most patients. Changes in the fauces usually follow the enlargement of the lymph nodes; they are similar to those occurring in catarrhal, lacunar, fibrinous, and less frequently necrotic tonsillitis.

The most characteristic symptom of the disease is a moderate leucocytosis with a predominance of mononuclear cells, which may number 50 to 90 per cent of the total leukocytes, a great number of altered monocytes.

Treatment. Bed rest and high-calorie diet rich in vitamins are prescribed. Antibacterial preparations prevent secondary infection; the causative agent is insensitive to them. Gargling with disinfectant or astringent solutions is useful. Necrotized areas are treated with a 10 per cent silver nitrate solution. General light (UV) treatment is recommended.

Agranulocytosis (agranulocytic angina). Affection of the tonsils is the specific symptom of this disease. Agranulocytosis is considered not as an independent nosological disease but as a response of the haemopoietic system to various pathological factors (such as infection, toxicosis, radiant energy) or as a result of altered haemopoiesis in systemic diseases of the blood. Agranulocytosis occurs mostly in women; it is a rare disease affecting mostly adults.

Symptoms. The prodromal period is characterized by indisposition; it lasts 1-2 days. Fulminant, acute, and subacute forms of agranulocytosis are distinguished. In the former two cases the disease begins with high temperature (to 40° C), chills, and bad general condition. Necrotic and ulcerative changes in the pharynx, mainly in the region of the palatine tonsils, occur simultane-

ously. Necrosis often spreads onto the mucous of the pharynx, gums, and the larynx. In rare cases, the destructive changes occur in the intestine and the urinary bladder. Necrosis can extend onto deep underlying soft tissues and bones.

The blood is characterized by a very low count of polymorphonuclear leukocytes, or they can be absent.

Treatment is aimed at activating the haemopoietic system and controlling secondary infection. Exemption of all medicines that can cause agranulocytosis (amidopyrine, sulphanilamide, salvarsan, etc.). Blood transfusion, antibioticotherapy, hormone preparations and other means of treating agranulocytosis are prescribed. The diet should be sparing; the patient must gargle the throat with antiseptic solutions; the necrotized matter should be removed.

Septic angina (alimentary toxic aleukia). The onset of this disease is marked by a sudden fever of 39° to 40 °C, inflammatory and necrotic signs in the throat, petechial eruptions and severe hemorrhage from the nose and mouth.

The anginal stage is not the onset of the disease and follows food intoxication that has been in progress for one to three weeks without any significant signs.

The disease is caused by cereal food such as millet, wheat, rye, barley, buckwheat, and oats, that had been left out in the field during the winter.

Ingestion of this grain, in particular millet, will cause a bitter taste and a burning sensation in the mouth, pharynx, esophagus and stomach, as well as numbness in the tongue. These symptoms are often accompanied by nausea, vomiting, and headache. Yet in other cases, the absorption of this food for only two or three weeks is followed by headache, prostration and weakness. Punctate hemorrhage looking like flea bites appears on the skin. Already at this early period of septic angina, blood analysis will reveal a progressive reduction in the leukocyte count, viz., onset of the period of leukopenia. The whitish or yellowish-brown membrane which appears on the tonsils marks the onset of necrosis which soon, in fact in 24 hours, causes deep ulcers. This ulceration commonly affects not only the tonsils which soon collapse completely but other aggregations of lymphadenoid tissue as well, and may extend to the palatine, pharyngeal and esophageal mucosa and, sometimes, to that of the oral cavity.

Withdrawal of toxic products from food at the initial period of the disease, prior to the onset of anginal symptoms, may often bring recovery, especially if the total amount of toxic food eaten has been moderate. Advanced septic angina is frequently fatal.

Treatment. At the first signs of the disease, toxic products should be immediately withdrawn from food, and lavage of the stomach undertaken. The patient is then given large doses of magnesium sulfate or sodium sulfate to cleanse the stomach of toxic food residue. The diet must be nourishing and rich in proteins and vitamins, and drink must be given in plenty to help expel toxins from the body. Local treatment, apart from the use of gargles, and anesthetic ointments, is by sprinkling the ulcerated surfaces with streptocide or sulfadimezin powders twice daily.

Intramuscular antibiotics injections have been used with success.

Herpangina. Viral tonsillitis is caused by adenoviruses. The causative agent of herpangina is type A Coxsackie virus. The disease is usually sporadic. The disease is highly contagious. The onset of herpangina is acute. The body temperature rises to 38-40°C, the patient complains of pain in the throat during swallowing, headache, and muscular pain in the abdomen. Vomiting and diarrhoea are also possible. Changes in the blood are moderate: slightly increased leucocyte counts, more often slight leucopenia, insignificant shift to the left. During the first hours of the disease diffuse hyperaemia of the pharyngeal mucosa can be revealed pharyngoscopically. Small reddish vesicles can be seen on the soft palate, tongue, palatine arches, and, less frequently, on the tonsils and the posterior wall of the pharynx.

Necrotic (ulcerous-necrotic) tonsillitis of Simanovsky-Vensana. Symbiosis of *Bacillus fusiformis* and *Spirochaeta buccalis* that is often found in the mouth of healthy people in the avirulent state is believed to be the pathogenic factor. The incidence of the disease is low and sporadic. The morphological changes are characterized by necrosis of the surface of one tonsil with formation of an ulcer whose floor is covered with a loose fibrinous membrane underlied by

necrotized lymphoid tissue. The patient complains of discomfort in the throat during swallowing, fetid breath and hypersalivation. The body temperature is usually normal. The leucocyte count moderately increases. The regional lymph nodes are enlarged on the involved side; they are moderately painful to palpation. Swallowing is usually painless. The disease lasts 1 to 3 weeks but can in some cases persist for several months.

Treatment consists in tending the mouth cavity, cleaning the ulcers from necrotized matter, gargling with disinfectant solutions. The surface of the ulcer is treated with an iodine tincture, silver nitrate or other solution, but neosalvarsan or novarsenol is believed to be the most effective. Novarsenol (0.3-0.4 g at 1-2-day intervals) and antibiotics should be injected intravenously in severe cases.

Fibrinous (fibrinomembranous) tonsillitis. Follicular or lacunar tonsillitis can sometimes develop like fibrinous tonsillitis when a membrane is formed from the ruptured purulent follicles. The fibrinous membrane spreads over onto the sites of necrotized epithelium in the lacunar orifices; it fuses with the adjacent sites of affection to form a confluent patch which can extend beyond the boundaries of the tonsils.

Table of Distinctive Symptoms of Diphtheria and Lacunar Tonsillitis

Symptoms	Tonsillitis	Diphtheria
Swollen tonsils	Less marked than in diphtheria, frequently it is bilateral	More severe, accompanied by edema of the palate arches, uvula and soft palate. May be unilateral
Patches	Spread within free areas	Extend beyond tonsils to palate arches, soft palate and posterior pharyngeal wall
Color of patches	Yellowish	White, grey -white, dirty-grey
Adherence of patches	Patches superficial and peel off easily	Patches deep, with necrosis of mucous; in typical cases strip off with difficulty to leave a bleeding surface
Pain on swallowing	Sharp	Not always marked
Regional lymph nodulus	Swollen, individual nodes easily palpated and extremely tender	Markedly swollen nodes on both sides from early days of disease, edema of subcutaneous tissue; flattened out contours of neck
Constitutional disturbance	Less severe than in diphtheria	Increasingly severe in toxic form
Fever	Within 39-40 °C	From subfebrile to 40 °C; more stable
Bacteriological examination	Negative (for Loeffler's bacilli)	Positive in most cases

Treatment. Rational treatment includes sparing conditions, local and general therapy. The patient must remain in bed during the first days of the disease and then abstain from physical work. The patient should be separated from the others; he should use separate dishes and other objects. In very severe cases the patient should be hospitalized. Food should be nutritious, rich in vitamins, soft, and not irritating. Treatment includes also gargling with a warm solution of sodium chloride or hydrocarbonate, furacin, potassium permanganate, calendula or camomile tea. A warming compress should be applied to the neck. Salicylates and antibacte-rial preparations should be used for general treatment.

The choice of antibacterial preparations depends on the gravity of the disease and the danger of complications. The antibiotic is administered usually for 5 days, which is, as a rule, sufficient to normalize body temperature and to improve the patient's condition. In order to eliminate reliably the infectious focus, it is necessary to continue the antibiotic therapy for another 3-5 days, or it is better to replace common by bicillin. If the patient is sensitive to penicillin, broad-spectrum antibiotics should be given in appropriate doses. Nystatin is given to patients to prevent candidiasis. If the course of acute tonsillitis is not aggravated by any factors, sulpha drugs are used instead of antibiotics. Desensitizing preparations such as suprastine, hysmanale, diazoline, etc. are recommended.

Stuffs for selfverification.

Questions for selfverification.

1. What is an angina?
2. Secondary anginas, their classification, cause.
3. Feature of clinical current of a ulcerative angina.
4. Treatment of an angina Symanovsky-Vensan/
5. Forms of a diphtheria of a pharynx.
6. Differential diagnosis of a lacunar angina and a diphtheria of a pharynx.
7. Clinical changes at a infection mononucleosis.
8. Characteristic changes of the formula of a blood at a infection mononucleosis, agranulocytosis, alimentar-toxic aleukia.
9. What medicinal preparations render toxic effect on an bone brain?
10. The principles of treatment of an agranulocytosis.

Subject of educational research work of the students: To make graphological frame of a subject « Acute secondary tonsillitis».

LIST OF REFERENCES

Basic:

1. R.Corbridge, N.Steventon. Oxford Handbook of ENT and Head and Neck Surgery//Paperback, 2020. - 496 p.
2. Y.Mitin, Y.Deyeva, Y.Gomza, V. Didkovskiy etc. Otorhinolaryngology// Medicine, 2018. – 264p.
3. R.Probst, G.Grevers, H.Iro. Basic Otorhinolaryngology. A Step-by-Step Learning Guide//Thieme, 2017. – 430p.
4. M. M Paparella. Paparella'S Otolaryngology Head & Neck Surgery (2 Volumes)// Hardcover, 2020. – 460p.

Additional:

5. Pukhlik S.M., Titarenko O.V. Otorhinolaryngology// Odessa, 2011. – 172 p.
6. S.N.Kumar. Clinical Cases In Otolaryngology// Paperback, 2016. – 260p.
7. R.Pasha, J.S.Golub. Otolaryngology-Head and Neck Surgery : Clinical Reference Guid// Paperback, 2017. - 800 p.

8. J. A.Seikel, D.G.Drumright, D.J.Hudock. Anatomy and Physiology for Speech, Language, and Hearing //Format Hardback, 2019. - 700 p.
9. K.S.Helfer, E.L.Bartlett, A.N.Popper, R.R.Fay. Aging and Hearing: Causes and Consequences// Hardback< 2020. – 326p.
10. A.Al-Qahtani, H.Haidar, A.Larem. Textbook of Clinical Otolaryngology// Hardback, 2020. - 1155 p.
11. Z.Mu, J.Fang. Practical Otorhinolaryngology, Head and Neck Surgery: Diagnosis and Treatment// Hardback, 2020. - 314 p.
12. H.H.Ramadan, F.M.Baroodly. Pediatric Rhinosinusitis// Paperback, 2020. - 300 p.
13. P.W.Flint, B.H.Haughey, V.J.Lund, K.T.Robbins, J.R.Thomas, M.M.Lesperance, H.W.Francis. Cummings Otolaryngology: Head and Neck Surgery, 3-Volume Set// Format Hardback, 2020. - 3568 p.

Electronic information resources

1. World Health Organization. URL: www.who.int/ru/index.html.
2. European Regional Office of the World Health Organization. URL: www.euro.who.int.
3. www.ama-assn.org – American Medical Association
4. www.dec.gov.ua/mtd/home/ - State Expert Center of the Ministry of Health of Ukraine
5. <http://bma.org.uk>– British Medical Association
6. www.gmc-uk.org- General Medical Council (GMC)
- 7.www.bundesaerztekammer.de – German Medical Association

Theme: Contagious granulomas of upper respiratory tract

The theme actuality: The case rate by chronic contagious granulomas of upper respiratory tract was permanently decreased. The especially large successes in this direction are achieved in treatment of a scleroma. However amount of the patients with a tuberculosis, lues recently has increased. Well-timed diagnostics, rational complex therapy allows to reduce terms of treatment and improves the forecast of these diseases by way of convalescence and regeneration of a working capacity of the patient.

The educational purposes.

The students should know:

- Etiology, pathogenesis of a scleroma, tuberculosis and lues of upper respiratory tract);
- Clinical appearances of disease;
- methods of treatment of disease.

The students should know how:

- To select from given of an anamnesis at kuracia of the patient of the item of information, which display a pathology of upper respiratory tract;
- To reveal the most informative sings of a pathology at objective research of upper respiratory tract;
- To decrypt results of padding methods of research (laboratory, histological, x-ray)
- To carry out differential diagnostics of contagious granulomas and malignant tumours;

Theoretical contents of a subject.

Tuberculosis of the larynx is the most frequently occurring tuberculous affection of the airways. The larynx is infected with tuberculosis mycobacteria mainly by three routes. The most common of them is contact infection with sputum expectorated from the lungs of patients with pulmonary tuberculosis. The other route of ingress is with blood (haematogenic route). The third way of infection spreading is by lymphatics. Three stages are distinguished in the development of a tuberculous process in the larynx: the first stage is infiltration; the second is characterized by formation of ulcers; and the third stage is associated with affection of the cartilages and perichondrium. The vocal function is upset only in cases when the vocal or vestibular folds and the interarytenoid notch are involved. Development of the pain syndrome is associated with infiltration in the epiglottis, posterior surface of the arytenoid cartilages and the ary-epiglottic folds.

The laryngoscopic picture corresponds to the stages of the pathological process. But the most common sites of infection residence should be remembered. These are the interarytenoid space, arytenoid cartilages and the adjacent parts of the vocal cords. Tuberculosis of the larynx progresses slowly.

Treatment. This should first of all be aimed at elimination of the main disease (usually pulmonary tuberculosis). Streptomycin should be administered intramuscularly, 2 times a day. Not less than 60-80 g of streptomycin should be given in one course. **PASA**, phthivazid and other antituberculous preparations are also used. The combined local use of these preparations is believed to have the best effect. Ulcerated surfaces should be cauterized with trichloroacetic acid after preliminary anaesthesia of the larynx with a 5 per cent cocaine solution and a 0.5 per cent citral solution. Anaesthetics should be used to prevent or relieve pain during swallowing.

Tuberculosis of the pharynx occurs comparatively rarely. The clinical *symptoms* are characterized mainly by severe pain during swallowing of both solid food and liquids. As a rule, joining secondary infection accounts for the fetid breath. These symptoms are associated with formation of ulcers mainly on the palatine arches and the mucous membrane of the posterior wall

of the pharynx.

At later stages, the diagnosis is established by the clinical picture, Pirquet's test, microscopic study of granulation taken from the region of the ulcers, and by general examination.

Tuberculosis of the nose. The patho-morphological substrate is the infiltration which is accumulation of tubercles in the submucous layer. Destruction or curd-like degeneration of these tubercles causes ulcers. Crusts are formed in the involved side of the nose. When the crusts are removed, accumulations of translucent tubercles can be seen in the mucous membrane.

Tuberculous otitis arises when infection is spread by the bloodstream from any distant primary focus, usually from the lung. The morphological changes are characterized by formation of specific tubercles which later undergo caseous degeneration. Soft tissues undergo purulent disintegration and the tuberculous granulations rapidly proliferate. If the tympanic membrane is affected, isolated tubercular foci develop in it which decompose and cause multiple perforations. Extension of the process to the bone dissolves the osseous tissue under the action of invading granulations. Tuberculous otitis usually runs a chronic course.

Treatment should begin with active general anti-tuberculosis therapy. Radical operation on the ear is indicated for carious-granulation process in the middle ear together with the general anti-tuberculosis therapy.

Scleroma (rhinoscleroma) is an endemic disease occurring in the middle East, Eastern Europe and Central and South America, in the Western regions of Ukraine and Belorussia. The disease attacks the young. The causative agent is believed to be Friesch-Volkovich bacillus (*Klebsiella rhinoscleromatis*). The pathomorphological substrate is infiltrate consisting of fibrous connective tissue rich in plasma cells and vessels, among which are specific for scleroma Mikulicz's cells, Friesch-Volkovich capsule cells included into the Mikulicz's cell vacuole. The infiltrate also contains hyaline globules (Russel's bodies).

Three stages are differentiated in the course of the disease: the first stage is nodular-infiltrative; the second stage is diffuse-infiltrative or specific; and the third stage is regression (scarring). The so-called atrophic form sometimes occurs which is characterized by atrophy of the mucosa. The main signs of scleroma infiltrates is the absence of ulceration. The incubation period of the disease is very long. The onset of the disease is characterized by atrophy of the mucous membrane which is attended with formation of thick crusts of tenacious mucus. Separate infiltrates can be seen. Scleroma affects mostly the nasal mucosa and the patient complains of dryness in the nose in the early stage of the disease. Rhinoscopy reveals infiltrates in the form of flat or tubercular pale-pink patches; these are absolutely painless to palpation. The infiltrates narrow the lumen of the nasal cavity, the vestibule of the nose, choanae, the nasopharynx, and the larynx. In other words, scleroma infiltrates arise mainly in physiologically narrow areas. Firm scars are later formed at the site of infiltrates. The scars stretch the surrounding tissues and stenose various parts of the respiratory tract.

Treatment can be conservative and surgical. Conservative treatment includes intravenous administration of embichin with 20 ml of a 40 per cent glucose solution. The dose should be gradually increased from 1-2 mg to 4 mg. Streptomycin should also be injected intramuscularly, twice a day, and by instillation into the trachea once a day. Radiation therapy (a total dose of 3000-4000 R) is sometimes effective. Surgical treatment includes excision of the infiltrates and scars, their elimination by cryosurgery (liquid nitrogen).

Syphilis of the pharynx. All stages of syphilis can occur in the pharynx. Hard chancre develops as an erythematous, erosive, and ulcerous lesions. The process is usually unilateral; it can last several months. The disease is associated with unilateral regional lymphadenitis. A hard chancre can develop on the lip, buccal mucosa, tongue, soft palate, or a palatine tonsil. Secondary changes in the pharynx occur 6-8 weeks following the appearance of a hard chancre. Simultaneously similar lesions on the skin develop (roseolas and papules). Roseolas appear on the palatine arches and the tonsils. The specific process in the palatine tonsils differs from acute tonsillitis by normal body temperature and painless swallowing. Pharyngoscopy during the secondary stage is characterized by a copper-hued diffused hyperaemia which extends to the

palatine arches, the mucosa of the soft and hard palate. The secondary-stage papules are greyish-white circular eruptions elevated over the surrounding tissue and circumscribed by a red margin. These lesions (plaques) often ulcerate, and can be seen on the tip and sides of the tongue, on the mucosa of the cheek and the hard palate. *Treponema pallidum* can be found in great quantity in the discharge from the ulcers. The oozing plaques become enlarged and form a large condyloma sometimes crowned with papillar formations. This stage of the disease is characterized by polyadenitis affecting the cervical, occipital, supratrochlear and other lymph nodes.

Diagnosis of the secondary syphilis is established by the positive Wasserman reaction, by discovering *Treponema pallidum* in the papular contents, and by inspection of the pharynx.

Treatment is general and specific. Local treatment includes gargling with weak disinfectant solutions (hydrogen peroxide, camomile tea, and the like).

Syphilis of the nose occurs as a primary sclerosis of the secondary and tertiary stages of the disease. A hard ulcer (chancre) occurs rarely. Development of the syphilitic process in the nose causes the reaction on the part of the occipital and submandibular lymph nodes. They swell but their palpation is painless. Inspection reveals a smooth painless erosion in the vestibule of the nose. The erosion is red and is 0.2-0.3 cm in size. The margins of the erosion have a ridge-like thickening. An infiltrate, whose consistency resembles that of a cartilage, can be palpated under the erosion. Secondary syphilides appear as erythema and papules. Such discharge in neonates or nursing infants suggests examination of the baby for possible specific disease. The tertiary stage of syphilis occurs more frequently than the two former stages. This is characterized by diffuse infiltrates or decomposing gummas. A gumma can be located on the mucosa, the bone, periosteum and cartilage. Bony tissue undergoes necrosis and sequestration.

Syphilis of the larynx manifests itself as a systemic disease. Hard chancre in the larynx occurs in extremely rare cases. The secondary stage is manifested by erythema simulating catarrhal laryngitis with involvement of the mucous membrane of the vocal folds, arytenoid cartilages and epiglottis, and also by papules and large condylomas. The tertiary stage of syphilis of the larynx occurs mainly in males ageing from 30 to 50. Gummas are located mainly in the epiglottis, and less frequently in the interarytenoid notch and on the vestibular folds. When located in the infraglottic space, a gumma appears in the form of a symmetric infiltrate.

Syphilis of the ear. Secondary syphilis (roseola, papule) affects the skin of the external ear simultaneously with similar affections of the other parts of the skin. Affections of the internal ear are most important. Congenital and acquired forms are distinguished. In congenital form, the affections of the internal ear become evident at the age of 10-20. Hutchinson's triad is pathognomonic: Hutchinson's teeth, parenchymatous keratitis, and cochlear neuritis. Hearing disorder is the leading symptom; it is always bilateral. *Treatment* is specifically antisyphilitic.

Stuffs for selfverification.

Questions for selfverification:

1. Etiology of a scleroma.
2. Pathological anatomy of the scleroma process.
3. Clinical stages of a scleroma.
4. Diagnostics of a scleroma.
5. Treatment of a scleroma.
6. Etiology of a lues.
7. Classification of a lues of upper respiratory tract.
8. Clinical appearance of a lues.
9. Common principles of treatment of a lues.
10. A tuberculosis of upper respiratory tract, place of localization.
11. The tract of diffusion of a tubercular infection contamination.
12. The clinical stages of a tuberculosis of upper respiratory tract.
13. A tuberclosis of an ear, feature of a clinical pattern.
14. The principles of treatment of a tuberculosis of upper respiratory tract and ear.

Approximate tasks for the work of theoretical material

1. Make a dictionary of basic concepts on the topic
2. Fill in the orientation card for independent preparation of the student with the use of literature on the topic (the need to include in the guidelines of the orientation card is decided by the staff of the department):

II. Practical work (tasks) that will be performed in class:

The main tasks	Instructions	Answers
1	2	3
<i>Explore:</i>		
1. Etiology	Name the main etiological factors of a scleroma, tuberculosis and lues of the upper respiratory tract)	
2. Signs and symptoms	Make a classification of clinical appearances of diseases	
3. Diagnosis	To give the list of the basic methods of diagnostics (laboratory, histological, x-ray)	
4. Differential diagnosis	Fill in the table of differential diagnosis of the disease of contagious granulomas and malignant tumours;	
5. Treatment	To make the standard plan of treatment of a scleroma, tuberculosis and lues of the upper respiratory tract) etc.	

III. Test tasks for self-control

1 What disease is characterized by "saddle nose"?

- A. Syphilis
- B. Systemic lupus erythematosus
- C. Tuberculosis
- D. Hematoma of the nasal septum

2 Which of the ENT organs is most often affected by tuberculosis?

- A. Nose
- B. Throat
- C. Larynx.

3 What antibiotic is most effective in the treatment of scleroma?

- A. Streptomycin
- B. Penicillin
- C. Etazol
- D. Cefazolin

4 What microbe is the causative agent of scleroma of the upper respiratory tract?

- A. Klebsiella pneumoniae rhinoscleromatis

- B. Bacillus Leffler
- C. Haemophilus ducreyi
- D. Bordetella pertussis

LIST OF REFERENCES

Basic:

1. R. Corbridge, N. Steventon. Oxford Handbook of ENT and Head and Neck Surgery//Paperback, 2020. - 496 p.
2. Y. Mitin, Y. Deyeva, Y. Gomza, V. Didkovskiy etc. Otorhinolaryngology// Medicine, 2018. – 264p.
3. R. Probst, G. Grevers, H. Iro. Basic Otorhinolaryngology. A Step-by-Step Learning Guide//Thieme, 2017. – 430p.
4. M. M Paparella. Paparella'S Otolaryngology Head & Neck Surgery (2 Volumes)// Hardcover, 2020. – 460p.

Additional:

5. Pukhlik S.M., Titarenko O.V. Otorhinolaryngology// Odessa, 2011. – 172 p.
6. S.N.Kumar. Clinical Cases In Otolaryngology// Paperback, 2016. – 260p.
7. R.Pasha, J.S.Golub. Otolaryngology-Head and Neck Surgery : Clinical Reference Guid// Paperback, 2017. - 800 p.
8. J. A.Seikel, D.G.Drumright, D.J.Hudock. Anatomy and Physiology for Speech, Language, and Hearing //Format Hardback, 2019. - 700 p.
9. K.S.Helfer, E.L.Bartlett, A.N.Popper, R.R.Fay. Aging and Hearing: Causes and Consequences// Hardback< 2020. – 326p.
10. A.Al-Qahtani, H.Haidar, A.Larem. Textbook of Clinical Otolaryngology// Hardback, 2020. - 1155 p.
11. Z.Mu, J.Fang. Practical Otorhinolaryngology, Head and Neck Surgery: Diagnosis and Treatment// Hardback, 2020. - 314 p.
12. H.H.Ramadan, F.M.Baroodly. Pediatric Rhinosinusitis// Paperback, 2020. - 300 p.
13. P.W.Flint, B.H.Haughey, V.J.Lund, K.T.Robbins, J.R.Thomas, M.M.Lesperance, H.W.Francis. Cummings Otolaryngology: Head and Neck Surgery, 3-Volume Set// Format Hardback, 2020. - 3568 p.

Electronic information resources

1. World Health Organization. URL: www.who.int/ru/index.html.
2. European Regional Office of the World Health Organization. URL: www.euro.who.int.
3. www.ama-assn.org – American Medical Association
4. www.dec.gov.ua/mtd/home/ - State Expert Center of the Ministry of Health of Ukraine
5. <http://bma.org.uk>– British Medical Association
6. www.gmc-uk.org- General Medical Council (GMC)
7. www.bundesaerztekammer.de – German Medical Association

Topic of the lesson "Benign tumors of the upper respiratory tract and ears"

Tumors of the upper respiratory tract make up 3 - 4% of tumors of all localizations. The larynx is the most frequently affected by tumors (1/2 of all ENT tumors), the pharynx is the second, the nose and paranasal sinuses are the third, and the ear is the fourth most rare.

Despite the growing number of oncologists, the diagnosis of benign and malignant tumors is not always timely. Advanced forms of tumors are not uncommon, when specialized help is no longer needed. The problem of timely diagnosis of benign and malignant tumors remains very relevant.

A doctor of any specialty must diagnose a tumor, and for this he must know the causes and patterns of tumor growth, the clinical picture of a tumor lesion.

Unfortunately, not all doctors are well acquainted with the principles of tumor diagnosis (topical, morphological, differential, clarifying), oncological principles and means of treatment.

Leading oncologists of Ukraine constantly and persistently pay attention to the fact that the success of treatment depends on the timeliness of diagnosis

tumors, and this is largely determined by the level of oncological vigilance and erudition of doctors of various specialties (surgeons, otolaryngologists, dentists, neuropathologists, ophthalmologists, therapists, etc.)

In this regard, great attention is paid to this issue at practical classes in otorhinolaryngology.

Educational goals:

As a result of independent work, students should:

a) know:

- anatomy, physiology, research methods of ENT organs
- the main clinical symptoms of benign tumors of the ENT organs
- early diagnosis with other diseases
- means of treatment of benign tumors of ENT organs.

b) be able to:

- correctly collect the anamnesis of a cancer patient or a patient suspected of having a tumor;
- conduct an objective study of ENT organs in cancer patients;
- be able to perform indirect laryngoscopy and, if necessary, perform anesthesia of the pharynx and larynx;
- to be able to read roentgenograms and tomograms of ENT organs;
- be able to analyze the data obtained during a comprehensive clinical examination of the patient, make a preliminary diagnosis and justify it;
- to be able to prescribe adequate treatment, if it is necessary.

Plan

Materials for self-control.

A question of self-control.

- 1) Signs of benign tumors
- 2) Types of benign tumors of the larynx
- 3) Symptoms of benign tumors of the pharynx
- 4) Types of benign tumors of the nose and paranasal sinuses, ears
- 5) Modern means of research of the ENT organs in patients suspected of having a volume lesion of this localization.
- 6) Morphological verification of benign tumors
- 7) Surgical treatment of benign tumors of the ENT organs.
- 8) The question of dispensation of patients with benign tumors with lesions of the ENT organs.

Theoretical content:

BENIGN TUMORS OF THE LARYNX

Among benign tumors of the larynx, papilloma and fibroma are the most common.

PAPILLOMA OF THE LARYNX

Papilloma is the most common tumor among benign neoplasms of the larynx. This is the most common tumor of the ENT organs in childhood. Laryngeal papillomas in most cases occur in boys.

Papillomas in the larynx are mostly multiple. This process is called laryngeal papillomatosis. In recent years, specialists have proposed the term respiratory papillomatosis, since papillomas, in addition to the larynx, also affect the mucous membrane of the trachea, bronchi, nasal cavity, and pharynx.

Laryngeal papillomas often recur after their removal. After the pubertal period, the propensity for growth and recurrence disappears. Papillomas in adults can undergo malignization, in connection with which their appearance after the period of puberty is considered a precancerous condition. Individual papillomas are more typical for adults, the malignancy of which occurs in 15-20% of patients. Such a high percentage of malignancy makes it possible to attribute the papilloma to obligate precancer.

Nowadays, it is generally recognized that the papilloma virus is the cause of this tumor. However, this has been proven only by immunohistochemical studies. The virus has not been isolated from tumor tissue, and therefore its physicochemical features and genetics have not been studied.

The tumor has the following structure: its stroma consists of connective tissue that has vessels and is a continuation of the subepithelial layer. Parenchyma consists of outgrowths of the epithelial cover with an increased, compared to the norm, number of cell layers and their relatively larger sizes.

Clinic of laryngeal papillomatosis The onset of the disease is characterized by progressive hoarseness against the background of which laryngeal stenosis develops.

The diagnosis is established on the basis of laryngoscopy data. In appearance, papillomas resemble cauliflower, their color is pale pink or gray, recurrent papillomas often acquire a pink color. Papillomas can be localized on the mucous membrane of the vocal, vestibular and laryngeal folds, areas of laryngeal cartilages, laryngeal ventricles, interlaryngeal space, laryngeal and lingual surfaces of the epiglottis. The mobility of the larynx is not disturbed, as the papillomas do not grow into the muscles and nerve formations of the larynx. The clinical diagnosis is confirmed by histological examination data.

Treatment of laryngeal papillomatosis consists of two stages: surgical and anti-relapse therapy. Surgical intervention involves removal of papillomas using a laryngeal curette or laryngeal forceps. In children, this intervention is performed under direct laryngoscopy under intravenous anesthesia, while it is desirable to inject oxygen into the larynx. The operation is performed with the use of an operating microscope, which allows to remove papillomas more gently (preventing insemination of papilloma cells in healthy areas of the mucous membrane) and more carefully (important for preventing further recurrence of the tumor).

To prevent recurrence of papillomas, cryo-influence and ultrasound destruction of the base of papillomas after their removal were proposed. However, these methods did not give the expected result. Of the physical methods of influence, the use of a destructive laser (in particular, CO₂-LASER) is the most important nowadays. The beam of a high-energy LASER coagulates the area of the mucous membrane from which the papillomas were removed.

Medicines are widely used for anti-incidence treatment: 30% alcohol solution of podophyllin, 0.5% colchamine ointment. These drugs treat areas of the mucous membrane from which papillomas have been removed.

Cytostatic prospedin has been widely used in recent years. It is used in the following forms: 30-50% ointment, inhalations, intramuscular and intravenous injections. Treatment is carried out under the control of a blood test, as the development of leukopenia is possible.

A new chapter in the treatment of respiratory papillomatosis is the use of interferons. Interferons belong to a family of polypeptides that have antiviral, antiproliferative, and immunomodulatory

properties. Interferons do not directly affect viruses. They increase the antiviral resistance of cells that are sensitive to viruses, induce the synthesis of inhibitors and enzymes that prevent virus reproduction and control cell proliferation. However, highly concentrated human interferon is very expensive. In this connection, reiferon is used, a recombinant form of interferon. When treating with interferon, individual selection of its dose is necessary. Treatment is long-term and ends after the disappearance of papilloma viruses from the epithelium of the macroscopically unchanged mucous membrane of the larynx.

FIBROMA OF THE LARYNX

Fibroma of the larynx is mainly found in adults, in children this lesion is relatively rare. In most cases, the fibroma has the shape of a small pea, a smooth surface, and a grayish-white color. More often, a fibroma has a thin leg that comes out of the subfold space; less often located on the vocal fold. Fibroma is a formation consisting of fibrous connective tissue, which is covered with flat epithelium. In cases where the tumor has many blood vessels, it is an angiofibroma. A normal fibroma has a gray color, an angiofibroma has a pink or red color, depending on the number of blood vessels in it.

Voice changes are the leading clinical manifestation of laryngeal fibroma. Breathing disorders are rarely observed, since the tumor in most cases is small.

The diagnosis is established during laryngoscopy. In the transparent glottis, the formation of a round shape on the stem, which comes from the subsyllabic space or from the vocal fold, is determined.

Treatment of laryngeal fibroma is surgical. In most cases, the tumor is removed using a laryngeal curette during mirror laryngoscopy. The tumor rarely recurs.

JUVENILE ANGIOFIBROMA OF THE SKULL BASE

Another name for this tumor is juvenile angiofibroma of the base of the skull or nasopharynx. This tumor refers to benign or borderline in connection with its localization. Juvenile angiofibroma accounts for 50% of benign tumors of the nasopharynx. According to the histological structure, it is a benign tumor with a high potential for growth and a tendency to relapse. According to the international histological classification (1974), it belongs to fibromatosis. The tumor occurs at the base of the skull in the area of the nasopharynx only in men (hence its name - juvenile angiofibroma of the base of the skull). Juvenile angiofibroma is a rare disease. One patient with this tumor occurs in 12-16 thousand inpatients with diseases of the ENT organs.

The tumor occurs and is diagnosed during puberty. In most cases, a gradual involution of the tumor occurs after 25 years.

Most of the hypotheses regarding the origin of the tumor in one way or another attribute the leading role to hormonal factors or ectopy of embryonic embryos of the cavernous tissue.

Most often, the tumor originates from the body of the main bone in the nasopharynx on one side and gradually fills it. The tumor has a tendency to grow upward into the main sinus and lattice labyrinth, forward into the nasal cavity, maxillary sinus. At a later stage, the tumor can grow into the pterygoid and subtemporal fossa, the orbit, the middle or, rarely, the anterior cranial fossa with damage to the pituitary gland and optic nerves.

Symptoms and the course of the process depend in most cases on the localization of the tumor and the direction of growth. In the initial stage, a slight difficulty in nasal breathing, mucous secretions are determined. Then the difficulty of nasal breathing increases, the discharge acquires a muco-purulent or purulent character. There is a dullness, a feeling of dull pressure in the head.

The most characteristic symptom of the tumor is frequent nosebleeds, which lead to anemia of the patient.

V.S. Pogosov et al. (1999) developed a clinical and topographical classification of juvenile angiofibroma of the base of the skull, which distinguishes 4 stages of tumor spread.

Stage I — the tumor is localized in the nasopharynx, can penetrate into the nasal cavity. No bone

destruction.

II stage, the tumor spreads to the maxillary sinus, cells of the lattice labyrinth and sphenoid sinus. It is observed bone destruction.

III stage is divided into two. NO a — the tumor spreads to the pterygoid fossa. B stage — the tumor spreads to the orbit and subtemporal fossa.

IV stage — the tumor spreads into the skull cavity. The authors observed 297 patients with juvenile angiofibroma of the base of the skull for 20 years: 5.7% of patients were in stage I, 11.5% in stage II, and 53.3% in stage II. in Sh b — 16.7%, in IV — 12.78%. 62.9% of patients were residents of the city, 37.1% - from rural areas. There were only 4 blood relatives among the patients - 2 pairs of siblings. All patient complaints can be divided into 6 groups:

1st group — difficult nasal breathing, hypo- and anosmia, pain in the paranasal sinuses;

2nd group — symptoms from the ear and auditory tube;

3rd group - swelling of the eyelids and conjunctival membrane, displacement and restriction of the mobility of the eyeball, diplopia, decreased visual acuity, impaired color perception;

4th group — headache;

5th group — deformation of the facial skeleton in the form of enlargement of the external nose (ethmoid variant), swelling in the area of the maxillary sinus on the side of the lesion (maxillary variant).

6th group — one of the most frequent signs of angiofibroma is bleeding from the nose, the frequency of bleeding varies from 1-2 per week to 1-2 per month, the volume of blood loss - from 20-40 ml to 800-900 ml.

The diagnosis is made with anterior and posterior rhinoscopy, finger examination of the nasopharynx. The tumor is very dense, smooth or slightly bumpy, from pale pink to red, depending on whether fibrous or vascular tissue predominates.

X-ray examination, computer tomography, magnetic resonance imaging, angiography, biopsy help establish the diagnosis. Biopsy can be dangerous due to the possibility of bleeding.

Computer tomography and angiography of the external carotid arteries play the main role in determining the distribution of angiofibroma. Complex use of these methods allows you to clearly determine the localization and degree of spread of the process.

Differential diagnosis is carried out with adenoid growths, choanal polyp, papillomas, sarcoma (especially fibrosarcoma), cancer, secondary tumors growing in the nasopharynx.

Treatment of gout is surgical. There are several approaches to tumor removal: 1) through natural ways;

2) through the soft and hard palate;

3) maxillary approaches — rhinotomy according to Denker or Moore. Cryo-influence is used: the tumor is frozen in parts and removed.

Previous ligation of the external carotid and internal maxillary arteries is performed rarely. It is not possible to completely eliminate blood loss by ligation of the carotid artery, since a certain part of the blood supply occurs through the vertebral and internal carotid arteries. Ligation of the external carotid artery does not cause complications.

In most cases, hypothermia is not necessary. To reduce blood flow in the preoperative period, sclerosing substances (in particular, alcohol) are often injected into the tumor.

Unfortunately, there are still cases of death associated with surgery due to acute blood loss.

Radiotherapy has an adjuvant value. The opinion of specialists on this issue is not the same.

Hormonal treatment can be used for preoperative preparation.

Recurrences of the tumor occur in ZO—50% of observations.

BENIGN TUMORS OF THE NOSE AND SINUSES

Benign tumors of the nasal cavity and paranasal sinuses include myomas, lipomas, osteomas, fibromas, and angiomas.

Benign tumors of this localization are characterized by slow growth and a long asymptomatic course. Their pains are usually not sharp, appear in the presence of accompanying chronic

inflammation of this area or crushed branches of the trigeminal nerve. Depending on the localization and size of the tumor, one-sided disturbances of nasal breathing, discharge from the nose, and changes in the sense of smell may be observed. Bleeding from the nose is very rare and is observed only in highly vascular or vascular tumors.

Other tumors, such as papillomas and adenomas of the paranasal sinuses, myxoma, chondroma, cavernous hemangioma of the lateral wall of the nasal cavity, ameloblastoma of the upper jaw and maxillary sinus, are characterized by destructive growth with a tendency to sprout vital areas, a pronounced tendency to relapse, even after a radical intervention. They can become malignant.

The main means of treatment of benign tumors of the nose and paranasal sinuses is surgical, the volume of which is determined depending on the size of the tumor, the degree of their spread, and their localization. In case of tumors of the nasal cavity, external intervention; in the case of damage to the maxillary cavity - Denker's rhinotomy, the lattice labyrinth - Moore's rhinotomy, the frontal sinus - Prizing's rhinotomy.

BENIGN EAR TUMORS.

Epithelial tumors

Papilloma is a tumor of the skin of the external auditory canal or auricle, which is the most common. Treatment - local excision, diathermocoagulation, cryodestruction.

Adenoma (cerumenoma) is a tumor from the apocrine glands of the external auditory canal.

Symptoms are reduced to hearing loss, the presence of discharge from the auditory canal, rarely pain. The tumor can be borderline, that is, in rare cases it can recur, malign in adenocarcinoma. Treatment is surgical. In cases of malignancy - combined (surgery and radiation therapy [SOD = 60 Gy]).

Mixed tumors can originate from the parotid salivary gland, as well as aberrant salivary glands. Tumors are polypoid with a smooth surface. Mixed tumors, arising primarily in the middle ear (tympanic cavity, antrum, or part of the bulb of the jugular vein), are very rare. Myxomas, fibroids, and lymphomas are very rare benign tumors of the ear. Treatment of all these tumors is surgical.

Non-epithelial tumors.

Fibroma - rarely occurs in the external auditory canal, middle ear. Treatment is surgical.

Chondroma is a slowly growing tumor from the cartilage of the external auditory canal. Treatment is surgical.

Osteoma - often occurs in the form of a compact tumor in the area of the cortical layer of the squamous cell, the mastoid process in the external auditory canal in the form of exostoses (bony thickenings). Treatment is surgical in the presence of complications or cosmetic defects.

Among rare tumors of the ear, vascular (flat angiomas), hemangiomas, and telangiectatic nevi should be identified. Treatment is surgical, sclerotherapy, cryodestruction, in some cases supplemented with radiation therapy (up to SOD = 15-20Gy).

Among very rare tumors, glomus tumors, neuroma of the VIII pair of cranial nerves, neuroma of the facial nerve, neuroma of the trigeminal nerve, psamoma (meningioma), epidermoids, and teratomas should be noted. Treatment is exclusively surgical.

Test tasks for self-control.

1) List the main signs of benign tumors, except:

- A. Non-invasive growth
- B. Slow development
- C. No relapses after treatment
- D. It is easy to determine the tissue affiliation
- E. Tendency to metastasis

2) Benign tumors of the ENT organs by morphological structure belong to:

- A. Highly differentiated tumors
- B. Differentiated tumors
- C. Well-differentiated tumors
- E. Radiosensitive tumors
- D. Radioresistant tumors

3) Which of the listed tumors are benign except:

- A. Tonsillar tumors
- B. Angiomas
- C. Fibroids
- D. Fibroids
- E. Osteomas

4) Which benign cyst most often occurs in the paranasal sinuses:

- A. Neuroma
- B. Myoma
- C. Lipoma
- D. Hemangioma E. Osteoma

5) Which benign tumor is most often found in the larynx:

- A. Fibroma
- B. Neuroma
- C. Hemangioma
- D. Chondroma
- E. Osteoma

6) What diagnostic tools are used to confirm the diagnosis of a benign, highly differentiated tumor:

- A. Morphological study
- B. Endoscopy
- C. Computed X-ray tomography
- D. Magnetic resonance imaging
- E. Thermography.

7) Juvenile angiofibroma of the nasopharynx may recur after surgery:

- A. True
- B. Incorrect

8) The main treatment for benign tumors of the ENT organs is surgical:

- A. True
- B. Incorrect

9) Benign tumors of the ENT organs can cause distant and regional metastases:

- A. True
- B. Incorrect

10) Benign tumors of the larynx are characterized by:

- A. Aphonia, dysphonia
- B. Cough, heavy breathing
- C. Dysphagia
- D. Pain

E. Bleeding, hemoptysis

11) With papillomatosis of the larynx, radiation therapy is indicated in complex treatment.

A. True

B. Incorrect

LIST OF REFERENCES

Basic:

1. R. Corbridge, N. Steventon. Oxford Handbook of ENT and Head and Neck Surgery//Paperback, 2020. - 496 p.
2. Y. Mitin, Y. Deyeva, Y. Gomza, V. Didkovskiy etc. Otorhinolaryngology// Medicine, 2018. – 264p.
3. R. Probst, G. Grevers, H. Iro. Basic Otorhinolaryngology. A Step-by-Step Learning Guide//Thieme, 2017. – 430p.
4. M. M Paparella. Paparella's Otolaryngology Head & Neck Surgery (2 Volumes)// Hardcover, 2020. – 460p.
5. *Additional:*
6. Pukhlik S.M., Titarenko O.V. Otorhinolaryngology// Odessa, 2011. – 172 p.
7. S.N. Kumar. Clinical Cases In Otolaryngology// Paperback, 2016. – 260p.
8. R. Pasha, J.S. Golub. Otolaryngology-Head and Neck Surgery : Clinical Reference Guide// Paperback, 2017. - 800 p.
9. J. A. Seikel, D.G. Drumright, D.J. Hudock. Anatomy and Physiology for Speech, Language, and Hearing //Format Hardback, 2019. - 700 p.
10. K.S. Helfer, E.L. Bartlett, A.N. Popper, R.R. Fay. Aging and Hearing: Causes and Consequences// Hardback< 2020. – 326p.
11. A. Al-Qahtani, H. Haidar, A. Larem. Textbook of Clinical Otolaryngology// Hardback, 2020. - 1155 p.
12. Z. Mu, J. Fang. Practical Otorhinolaryngology, Head and Neck Surgery: Diagnosis and Treatment// Hardback, 2020. - 314 p.
13. H.H. Ramadan, F.M. Baroody. Pediatric Rhinosinusitis// Paperback, 2020. - 300 p.
14. P.W. Flint, B.H. Haughey, V.J. Lund, K.T. Robbins, J.R. Thomas, M.M. Lesperance, H.W. Francis. Cummings Otolaryngology: Head and Neck Surgery, 3-Volume Set// Format Hardback, 2020. - 3568 p.

Electronic information resources

1. World Health Organization. URL: www.who.int/ru/index.html.
2. European Regional Office of the World Health Organization. URL: www.euro.who.int.
3. www.ama-assn.org – American Medical Association
4. www.dec.gov.ua/mtd/home/ - State Expert Center of the Ministry of Health of Ukraine
5. <http://bma.org.uk> – British Medical Association
6. www.gmc-uk.org - General Medical Council (GMC)
7. www.bundesaerztekammer.de – German Medical Association