МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ
БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ
КАФЕДРА ЧЕЛЮСТНО-ЛИЦЕВОЙ ХИРУРГИИ

И. И. Ленькова, И. В. Дударева

ВОСПАЛИТЕЛЬНЫЕ ЗАБОЛЕВАНИЯ СЛЮННЫХ ЖЕЛЕЗ

INFLAMMATORY DISEASES OF THE SALIVARY GLANDS

Учебно-методическое пособие

Минск БГМУ 2018

УДК 616.316-002(075.8)-054.6
ББК 56.6я73
Л46

Рекомендовано Научно-методическим советом университета в качестве учебно-методического пособия 17.01.2018 г., протокол № 5

Р е ц е н з е н т ы: д-р мед. наук, проф., зав. каф. челюстно-лицевой хирургии Белорусской медицинской академии последипломного образования А. С. Артюшкевич; канд. мед. наук, доц. каф. стоматологии детского возраста Белорусского государственного медицинского университета А. К. Корсак; канд. филол. наук, доц., зав. каф. иностранных языков Белорусского государственного медицинского университета М. Н. Петрова

Ленькова, И. И.

Л46 Воспалительные заболевания слюнных желез = Inflammatory diseases of the salivary glands : учебно-методическое пособие / И. И. Ленькова, И. В. Дударева. – Минск : БГМУ, 2018. – 19 с.

ISBN 978-985-567-955-5.

Содержит план изучения темы и блок современной информации по диагностике, клинической картине и профилактике воспалительных процессов слюнных желез.

Предназначено для студентов 4-го курса медицинского факультета иностранных учащихся, обучающихся на английском языке по специальности «Стоматология».

УДК 616.316-002(075.8)-054.6
ББК 56.6я73

ISBN 978-985-567-955-5

MOTIVATIONAL CHARACTERISTICS OF THE SUBJECT

Total: 225 minutes.

Salivary glands make a group of organs that perform certain **functions** essential for the human body:

1) *digestive*, i.e. wetting food and forming a food lump, as saliva makes 10–20 % of the food amount; enzymatic food processing, as secretion contains digestive enzymes such as amylase, lipase, protease, phosphatase, etc. It is functionally related to other organs of the digestive system;

2) *excretory*, i. e. excretion of metabolites, salts of heavy metals and other substances, which is used in treatment with medications having tropism to the glandular tissue;

3) *protective*, with saliva mucin creating a protective film on the teeth and mucous membranes of the mouth. Antimicrobial protection is provided by the presence of non-specific protective factors in the saliva: lysozyme, interferon, RNase, and DNase. The presence of clotting factors and fibrinolytic activity in the saliva provide adequate hemostasis, wound cleaning and regeneration of tissues of the oral cavity in case of injury.

4) trophic, for the organs and tissues of the oral cavity;

5) maintaining water-salt homeostasis, as organic and inorganic chemical compounds and water circulate in the body through the salivary glands. Thus, they transfer from the blood to saliva, then into the gastrointestinal tract, and back into the bloodstream;

6) *endocrine* (salivary glands secrete biologically active substances into the bloodstream: kallikrein, renin, parotin; calcitoninlike substance; growth factors of nerve, epidermis, and mesoderm; erythropoietin; insulinlike substance; lethality factor, etc.). There is a clearly expressed structural and functional relationship between salivary glands and endocrine organs.

Methods of examination:

– Common methods, e.g. interrogation, examination, palpation, and radiography;

– Laboratory methods, e.g. general, biochemical blood tests; urinalysis;

– Specific methods, e.g. probing of excretory ducts, qualitative and quantitative analysis of saliva;

– Special methods, e.g. contrast sialography, ultrasound, PKT/MRI study.

Some of the most common diseases of the salivary glands are **sialadenites**. The parotid glands are often involved in the inflammatory process, which is explained by the presence of narrow and highly brachiferous ducts, low mucin content and low resistance to toxic effects of serous enzyme-producing glandular acini.

For the submandibular gland, the development of the inflammatory process accompanied by salivary stone disease is more characteristic against

the background of thickening of saliva and a difficult outflow from the gland, the sublingual and small salivary glands being rarely involved in the inflammatory process.

The role of infection is crucial in acute sialadenitis and secondary in chronic sialadenitis. By the nature of the pathogen infections are divided into viral, bacterial and mycotic. The ways of infection penetration into the gland are diverse, e.g. hematogenous (for viruses), ascending ductogenous, lymphogenic, and contact (for bacterial and mycotic flora).

Aim of the study: to study clinical displays, diagnostics and the basic principles of treatment of inflammatory diseases of salivary glands (SG).

Objectives of the study:

1. Learning how to collect complaints and the medical history, and to identify early clinical symptoms, characteristic of inflammatory diseases of the salivary glands;
2. Learning how to plan examination of patients;
3. Learning how to make a treatment plan of patients;
4. Learning how to choose a treatment method depending on the diagnosis and clinical course of the disease.

Initial knowledge requirements. In order to master the subject, the student is to revise:

– human morphology: anatomical and topographic position of the SG; blood supply and innervation of the SG; histological structure of the SG; Features of the structure of the SG;

– maxillofacial surgery: examination of patients with pathology of the maxillofacial region.

Test questions on related disciplines:

1. What is mixed and isolated saliva?
2. How are the SG divided according to the nature of the secretion?
3. What is peculiar of the structure of the parotid glands?
4. What is peculiar of the structure of the submaxillary glands?
5. What are the functions of the SG?

INFLAMMATORY DISEASES OF THE SALIVARY GLANDS

Acute sialadenitis:

– caused by the mumps virus;

– caused by influenza and parainfluenza viruses;

– caused by other viruses (cytomegalovirus, Coxsackie enterovirus, adenovirus).

Chronic sialadenitis:

– nonspecific — interstitial, parenchymal;

– specific — actinomycotic, tubercular, syphilitic;

– sialadochites;
– salivary stone disease as exacerbation of chronic sialoadenitis.

ACUTE SIALADENITIS

1) of viral etiology, e.g. epidemic parotitis, influenza etiology, Coxsackie enterovirus, cytomegalovirus;

2) of bacterial etiology, e.g. contact, lymphogenous (Herzenberg paresis), in infectious diseases, after abdominal operations, in cardiovascular failure, in trauma, in the presence of a foreign body in the gland duct.

EPIDEMIC PAROTITIS

Epidemic parotitis is an acute infectious disease caused by filtering virus (paramyxovirus). Parotid glands are affected in 90 % of cases. Infection contamination is airborne. The highest incidence is among children 7–10 y.o., but adults may get infected too. The incubation period varies from 2 to 3 weeks, prodromal 2–3 days. The course of the disease may be mild, moderate, and severe.

Pathogenesis: secretion and salivation decrease, the stroma gets affected.

In a *mild* form, clinical manifestations of the disease are insignificant: an increase in the size of the salivary glands is moderate, more often one-sided and almost painless. When massaging the gland, a small amount of transparent saliva may appear from the duct. General reactions of the body are weak or absent.

In the disease of moderate severity, there is a short prodromal period (2–3 days) of malaise, headache, chills, tenderness in the neck, joints and muscles of the extremities. Appetite deteriorates, body temperature rises to 38 °C, dryness in the oral cavity arises, parotid glands are swollen, usually both, but with an interval of 1–2 days. Glands acquire soft elastic consistency.

In severe form, pronounced prodromal phenomena appear. The swelling in the inflammation area is markedly increased due to the appearance of collateral edema of the soft tissues around the gland. The enlarged and painful parotid gland pushes the ear lobe outward, squeezes and sometimes narrows the external auditory canal. Often develops catarrhal stomatitis with hyperemia of the mucous membrane of the throat. Saliva production sharply reduces or discontinues. The general condition considerably suffers due to weakness, the body temperature goes up to 39 °C. Complications are likely.

Some typical clinical symptoms of mumps are:

1. Presence of Filatov’s points of pain (in front of the earlobe, in the region of the mastoid apex and the area of the mandibular branch).

2. A positive Murson symptom, i.e. hyperemia around the orifice of the excretory duct of the parotid gland and the opening of the orifice like a black dot.

3. Increase in blood amylase and urine diastase over 128 units.

Complications of mumps: orchitis, mastitis, occasionally pancreatitis, acute nephritis, meningitis, and encephalitis. In most cases, they have a benign course and do not become chronic.

Sanitary-epidemic regime includes wet disinfection of the patient's room and belongings. Isolation of patients with mumps is carried out for 9 days from the onset of the disease.

The treatment of mumps is symptomatic. A strict bed regime for 7–10 days is prescribed. To prevent complications, strict oral hygiene is required by rinsing with antiseptics and irrigation. Thermal procedures to the affected salivary glands are indicated, i.e. warming applications, sunlamp, UHF, and UFO. After acute inflammatory reaction, massage of glands, salivary diet, and abundant drinking are recommended. In severe cases, hospitalization in the infectious unit is indicated. Preventive measures include conducting a wet disinfection of the patient's room and belongings, boiling of tableware, room ventilating.

INFLUENZAL SIALADENITIS

Influenzal sialadenitis develops against the background of common symptoms of the flu or immediately after their elimination. In influenzal sialadenitis both large and small salivary glands may be affected.

Clinically, influenzal sialadenitis is manifested by swelling and compaction of the salivary glands, the appearance of multiple small bulgings on the mucous membrane of the lips, cheeks, and nose, the mucosa becoming tuberous. With increasing inflammation, there is an increase in swelling, dryness in the mouth, soreness on turning the head and moving the tongue, and on swallowing. Symptoms of acute inflammation sibside within a few days. Infiltrates in the glandular tissue undergo a prolonged involution — from 3 weeks to several months.

Differential diagnosis is carried out with epidemic and nonspecific siala denitis.

Treatment consists in the appointment of desensibilizing therapy, diet, and instillation of the mouth with solutions of antiseptics.

CYTOMEGALOVIRUS INFECTION (CMV)

Cytomegaly (i.e. inclusive cytomegaly, viral disease of the salivary glands, or disease with inclusions) is an infectious disease of viral origin with airborne, sexual, transplacental, and domestic transmission, or is passed with transfused blood. It symptomatically manifests by weakness, malaise, head and joint pains, runny nose, growth and inflammation of the salivary glands, abundant salivation, mimicking persistent colds and frequently having asymptomatic course. The severity of the course of the disease depends upon the general state of immunity. In the generalized form, inflammation foci

appear throughout the body. Cytomegaly of the pregnant is dangerous, cause spontaneous miscarriages, congenital malformations, congenital cytomegaly, and the death of the fetus.

The causative agent of cytomegalovirus infection — cytomegalovirus — belongs to the family of human herpes viruses. Cells afflicted with cytomegalovirus multiply many times in size, so the name of the disease "cytomegalia" is translated as "giant cells". Cytomegalovirus is found in the body for lifetime. Even with asymptomatic infection, the cytomegalovirus carrier is potentially infectious to uninfected individuals.

The forms of cytomegalovirus infection are congenital, acquired cytomegaly in newborns, and the mononucleosis-like syndrome. Cytomegalovirus infection is diagnosed by a laboratory blood test determining specific antibodies to cytomegalovirus — M and G immunoglobulins.

Treatment of cytomegalovirus infection in uncomplicated mononuclease-like syndrome does not require specific therapy. Usually, it is treated as a common cold. To relieve the symptoms of intoxication caused by cytomegalovirus, the patient is recommended to consume a sufficient amount of water. Treatment of cytomegalovirus infection in people at risk is performed with the antiviral drug ganciclovir (cymevene). In cases of severe cytomegal course, ganciclovir is administered intravenously, since the tablet forms of the drug have only a preventive effect on the cytomegalovirus.

COXSACKIE VIRUS INFECTION

The Coxsackie virus belongs to enteroviruses. The viruses of this group cause a disease that can manifest clinically as paralytic poliomyelitis, aseptic meningitis, herpagina, febrile illness with rash, lymphonodular pharyngitis, pneumonia, acute respiratory disease, epidemic and hemorrhagic conjunctivitis, hepatitis, myocarditis, meningoencephalomyocarditis, etc. With the involvement of the salivary glands, appears sialadenitis similar to mumps, often in combination with quinsy, gingivitis, or vesicular stomatitis. The virus is excreted by the pharyngeal mucosa and intestine.

ACUTE BACTERIAL SIALADENITIS

Etiology: mixed flora (staphylococci, streptococci, pneumococci, diplococci). Pathogenesis: decrease in secretion and reduction of salivation. The main path of penetration is ascending (dental), lymphogenous, and hematogenous. Clinical forms are serous, purulent, and gangrenous (purulent-necrotic). Complications: propagation of the near-pharyngeal space on the cellular tissue, mediastinum, breakthrough into the external auditory canal, neuritis of the facial nerve, erosive bleeding from the carotid artery, and ascending thrombophlebitis.

A secondary inflammation most commonly develops due to a variety of local and general pathological processes which cause changes in its structure and functional impairment.

Local factors of development of bacterial sialadenitis include inflammatory diseases of the mucous membrane of the mouth and throat, teeth, and lymph nodes; tumor of the gland, stricture and stenosis of the gland's excretory ducts; anatomical abnormalities; foreign bodies in the excretory ducts; mechanical trauma and radiation effects on the salivary glands.

Common factors of bacterial sialadenitis include severe generalised infectious diseases, accompanied by severe intoxication of the body and suppression of the body's immune forces; abdominal surgery or operations on the genitals, when the reflex decreases or stops salivation; severe diseases of the cardiovascular system; other chronic diseases with trophic tissue disorders; cachexia; dehydration of the body; chronic intoxication.

Acute sialadenites are clinically divided into serous, purulent, and purulent-necrotic.

The disease has an acute onset. Patients complain of spontaneous pain in the area of the affected gland, an increase in body temperature and increasing dryness in the oral cavity.

On examination, the salivary gland is enlarged and painful on palpation. The mucous membrane in the orifice of the excretory duct is hyperemic and swollen. In the case of serous sialadenitis, when a gland is massaged from the duct, a small amount of turbid, thick, viscous saliva is released. In purulent sialadenitis discharge from the duct is purulent, and the general condition worsens, hyperemia of the skin around the gland is possible.

The diagnosis of acute bacterial sialadenitis is based on the patient's complaints, medical history, characteristic clinical picture and hemogram evaluation (leukocytosis, increase in the number of rod-nuclear neutrophils, increased ESR).

Differential diagnosis should be carried out with mumps and lymphadenitis.

Treatment of acute sialadenitis is complex and includes:

1. Medication therapy (antibacterial, anti-inflammatory, hyposensitizing, detoxifying, immuno-strengthening) with correction of concomitant disease.

2. Normalization of salivation by an active installation of excretory ducts of the gland with solutions of antiseptics or antibiotics with mild massage of the gland.

3. After the normalization of salivation - the salivary diet, physiotherapy (UHF therapy, UFO, sollyx, laser therapy). Effective is topical application of furacilino-novocaine blockades N 8–10 (infiltration of 15–30 ml of solution into the subcutaneous fat surrounding the gland).

With the progression of the purulent inflammatory process, purulent-necrotic melting of the gland tissue and the transition of the process to the cell space can be observed. The clinical picture in this case corresponds to the clinic phlegmon with an extremely severe general condition of the patient. In these cases, primary surgical treatment with drainage of the wound is indicated.

HERZENBERG'S PSEUDO PAROTITIS

Herzenberg's pseudo parotitis, i.e. lymphogenous parotitis is an inflammation of the lymph nodes lying in the thickness of the parotid gland. It occurs as a result of infection from the root of the tongue, the second and third lower molars, often with difficult teething, or from the nasopharynx or tonsils, with which these lymph nodes are closely related.

Parenchyma and ducts of the parotid salivary gland, as a rule, are not involved in inflammation. Gerzenberg (1926) proposed the inflammatory process in the parapsal lymph nodes of the parotid gland to be called false mumps.

On the external examination, an increase in parotid gland is found. The color of the skin is usually unchanged. Salivation is not impaired, a transparent liquid is released from the parotid duct. On palpation is determined a dense painful infiltration with limited mobility.

In serous inflammation, therapeutic measures should be aimed at arresting pathological phenomena and restoring salivation. An additional method of treatment in case of false mumps is physiotherapy, *i.e.* dry heat, electric field of UHF, etc.

CHRONIC SIALADENITIS

Etiology and pathogenesis are not well understood. It is considered as a primarily chronic process, tending to progress and aggravate the inflammatory process. Systematized by the prevalent lesion of the structural components of the salivary gland (parenchyma, interstitium, excretory ducts): parenchymal, interstitial, ductal (sialodohitis).

CHRONIC PARENCHYMAL SIALADENITIS

Chronic parenchymal sialadenitis (PS) is the most common form of chronic inflammation and accounts for 41.5 % of the total number of chronic sialadenites.

Etiology and pathogenesis: it is assumed that the disease is a consequence of a congenital anomaly of the salivary glands — cystic enlargement of the terminal branches of the gland ducts. Of decisive importance in the pathogenesis of the inflammatory process is: a) a bacterial infection penetrating into the gland from the oral cavity in ascending manner;

b) suppression of the factors of nonspecific defense of the organism; c) a persistent decrease in the secretory function of the gland (hyposialia).

Progression of the disease is associated, on the one hand, with further exposure to microflora, and on the other hand, with alteration of the parenchyma of the gland, the appearance of denatured proteins, which are antigens and cause the development of immunopathological reactions. However, recognizing the role of immune disorders in the development of PS, it should be noted that there is a significant difference from the autoimmune sialadenitis inherent in Sjogren's syndrome:

– microscopically absent epimioepithelial islets;

– no signs of systemic involvement of salivary, lacrimal and other excretory glands;

– no signs of an autoimmune disease of other organs and systems;

– absence of such deviations from laboratory indications as persistent increase in ESR, dysproteinemia with hypergammaglobulinemia, increase in the level of immunoglobulins of blood, etc.

Morphological changes in the tissue of the salivary glands indicate a staged process:

– At the initial stage, macroscopically the tissue of the gland retains the normal lobular structure and the usual yellowish-light color of the lobules.

– The expressed stage is marked by enlarged, irregularly shaped lobules of a grayish-cyanotic color.

– The late stage with a significant development of connective tissue, loss of normal lobular structure in some areas, marked increase in intraluminal lymph nodes.

The clinical feature of chronic parenchymal sialadenitis is its chronically recurrent nature.

At the initial stage, without exacerbation, patients do not present complaints, the gland may be somewhat enlarged in size. When the gland is massaged, clear saliva is released from the duct in sufficient quantity. In a clinically pronounced stage, patients notice periodic mild pain in the gland, a feeling of discomfort, a salty or unpleasant purulent taste in the mouth. In some patients, the enlargement and consolidation of the affected gland is observed. The saliva obtained during the massage of the gland has a viscous character, it may contain veins of mucus or white flakes. In the late stage of the disease in patients with bilateral involvement of the parotid glands, in addition to these complaints, there may appear a feeling of periodic dryness in the oral cavity. The glands are enlarged, dense to the touch, painless or slightly painful. The duct's orifices gap, the saliva is viscous, gel-like or with veins of mucus, its amount during the massage of the gland depends on the degree of pathological changes in the gland tissue.

Exacerbation is observed more often in the cold season. Often, the disease worsens after an acute respiratory or odontogenic inflammatory process. The patient complains of the appearance of severe or moderate pain in the affected gland. The body temperature rises. The density and tuberosity of the gland is determined on palpation. When the gland is massaged, pus or muddy saliva with lumps of mucus and veins of pus is released from the orifice of the excretory duct.

In a cytological examination, many neutrophils, mucus, and altered epithelial cells are detected in the smears of the secretion. There is an accumulation of lymphoid elements and block-shaped cells. The level of factors of nonspecific defense of the body is reduced.

On contrast sialograms, a large number of cavities 2–4 mm in diameter are found as "bunch of grapes". In the initial stage in the gland are determined single small cavities, the parenchyma of the gland is unclear, the ducts in certain areas are intermittent, the contours are clear.

In the expressed stage there is a large number of cavities 2–3 mm in diameter. Parenchyma and gland duct orders III, IV, and V are not determined or intermittent. The order I ducts are interrupted.

In the late stage the cavities reach considerable sizes (5–10 mm), the gland parenchyma and its ducts are not detected, or fragments of deformed ducts are seen in separate areas.

Treatment:

– Improvement of gland trophism and normalization of salivation.

– Increase in immunological reactivity of the body.

– Prevention of exacerbations of the inflammatory process.

For this purpose, instillation of the gland through the orifice of the duct with antiseptic solutions and a massage of the gland is carried out. To normalize the trophic processes in the gland, fumigation with a furacilin-novocaine mixture is used. An effective way to improve the rheological properties of saliva is to use a 3 % solution of potassium iodide inside. Anti-enzyme preparations (countertrial, trasilon) are used. In order to increase the body's immune forces, multivitamins and immunostimulants are prescribed (sodium nuklinad, methyluracil, prodiguanos, etc.). With the growth of the inflammatory process, antibacterial drugs are prescribed.

Physical methods of treatment are prescribed after the salivationhas been normalized, e.g. UHF, galvanization and electrophoresis of potassium iodide, helium-neon laser radiation, paraffin, and ozocerite applications.

Prevention of exacerbations of the inflammatory process consists in the elimination of chronic foci of inflammation, sanitation of the oral cavity, hygiene of the oral cavity, the rational daily routine, exercise, the diet that includes proteins, vitamins, mineral salts and substances that promote salivation, a daily massage of the gland.

Patients with chronic parenchymal sialadenitis need to be clinically examined.

The disease should be differentiated with mumps, lymphadenitis, and a tumor.

CHRONIC INTERSTITIAL SIALADENITIS

Chronic interstitial sialadenitis is chronic inflammation, affecting the parotid gland in 85 % of cases, which develops against the background of the general pathology of the body (diabetes, hypertension, chronic prostatitis, diseases of the digestive system, etc.). A characteristic clinical sign is rare exacerbations and a progressive decrease in salivation. Pathogenesis involves neurovegetative organ dysregulation. Histological manifestations: a pronounced sclerosing process leading to atrophy of the parenchyma, replacement of its diffuse accumulations of lymphoid elements and compression of the ducts of the gland with small-cell infiltration, fibrous and fatty tissue.

A uniform increase in the salivary glands is characteristic, while the glands themselves have a smooth, even surface. The skin above them is not changed in color. The opening of the mouth is free. At the initial stage, unpleasant sensations in the region of the glands, pain in the back of the head, a sense of awkwardness in the ears. On the contrast sialogram is found some irregularity in the image of the parenchyma of the gland and narrowing of the ducts of III, IV, and V order.

At the *clinically pronounced stage*, there is a constant, painless swelling in the area of the affected glands. On the contrast sialogram, the gland is enlarged, the parenchyma density of the gland is reduced, the ducts of III–IV order are sharply narrowed, the contours of the ducts remain even and clear.

At the late stage, there are complaints of decreased working capacity, general weakness, there may be dryness in the oral cavity. The salivary glands are enlarged, there is little saliva, a gland massage produces scant saliva secretion. On the contrast sialogram, the parenchyma of the gland is not determined, all the ducts are narrowed, in some areas intermittent, having uneven contours.

Diagnosis: beyond the exacerbation, the gland is not palpable or may be increased at a clinically pronounced and late stage; the patient reports a decrease in salivation. When the gland is massaged, the amount of saliva is insignificant, the saliva is transparent. The cytology of saliva reveals a limited number of cellular elements. Characteristic of the disease are exacerbations once in 2–3 years.

Sialogram: the uniform narrowing of the main and intraglandular excretory ducts with uniform, well defined contours. In many cases there is a picture of a “dry tree”.

Treatment:

– Improvement of gland trophism and normalization of salivation.

– Arrest of the progression of sclerosis of the salivary gland.

– Prevention of exacerbations of the inflammatory process.

To normalize the trophic processes in the gland, fumigation with a furacilin-novocaine mixture is used. In order to further prevent the replacement of the gland tissue with a connective tissue, a 3 % solution of potassium iodide is administered internally, as well as the interstitial administration of this preparation by electrophoresis. It is recommended to perform a massage of the gland, frequent fractional nutrition, increase in the amount of fluid consumed, hygiene of the oral cavity, restoration of the masticatory function.

Prognosis: long-term remission.

SIALODOCHITIS

Sialodochitis is a chronic inflammation of the ducts of the salivary gland. In 98 % of cases, the parotid glands are affected. As etiological factors, narrowing of the mouth of the excretory duct as a result of trauma or obturation of the duct with a foreign body, including the salivary calculus, is considered. Congenital malformation of the ducts is also possible. It often develops after an inflammatory process in the gland.

Pathogenesis:

1) persistent decrease in the evacuation function of the gland (prolonged saliva retention in the ducts);

2) ascending infection of the salivary gland.

Diagnosis: in remission, the gland is not palpable or can be increased at a clinically pronounced and late stage, the patient reports a periodic abundant salivation. On massage, the gland discharges viscous saliva with flakes with a bitter-salty taste. Characteristic are frequent exacerbations.

Ehe initial stage is characterized by periodic swelling when taking spicy food, a salivary colic is possible. Sometimes a large amount of saliva is noted. The discharge is transparent, there may be lumps of mucus. On sialogram, the uneven expansion of the main excretory duct and/or branches I, II, III, IV orders is determined.

A clinically pronounced stage is characterized by complaints of constant spontaneous discharge from the ducts into the oral cavity of a brackish secretion with an admixture of mucus lumps. The sialogram reveals significantly dilated ducts with uneven clear contours.

In the late stage there are frequent exacerbations, purulent or mucopurulent discharge from the ducts. On sialogram, apart from the enlarged sections, significant narrowing of the ducts may be found.

Treatment: massage of the gland in order to improve the evacuation of saliva from the gland duct, frequent fractional nutrition, increase in the amount of fluid consumed, hygiene of the oral cavity, restoration of the masticatory function.

Prognosis: prolonged remission or progression of the disease in the form of frequent exacerbations.

SELF-ASSESSMENT

1. **What are the possible ways of infection into the salivary gland:**
   1) dentogenic retrograde;
   2) hematogenous;
   3) transplacental;
   4) lymphogenous;
   5) contagious.
2. **Which salivary gland produces a larger amount of saliva?**
   1) parotid;
   2) submandibular;
   3) hyoid;
   4) all in the same quantity.
3. **Which condition(s) refers to acute sialoadenitis of viral origin?**
   1) epidemic parotitis;
   2) postgrippos mumps;
   3) Sjogren's disease;
   4) salivary-stone disease.
4. **What special method of examination is not used for chronic inflammatory diseases of the large salivary glands beyond the exacerbation?**
   1) sialography;
   2) stintsigraphy;
   3) MRI;
   4) angiography;
   5) CT.
5. **What enzyme level in the blood increases significantly in case of epidemic parotitis?**
   1) aspartate aminotransferase;
   2) lactate dehydrogenase;
   3) α-amylase;
   4) alanine aminotransferase.

6. **Filatov's pain points in acute parotid gland sialadenitis are:**
   1) in front of the earlobe;
   2) in the external auditory canal;
   3) in the region of the apex of the mastoid process;
   4) in the region of the semilunar incision of the mandibular branch;
   5) along the edge of the lower jaw.

7. **Indicators of blood α-amylase in case of epidemic parotitis are:**
   1) within the norm;
   2) 64–128 units and above;
   3) 12–24 units.

8. **What are the possible complications of mumps?**
   1) orchitis;
   2) mastitis;
   3) pancreatitis;
   4) the jaw bone osteomyelitis.

9. **Indicate the local causes of acute sialadenitis:**
   1) trauma of the gland;
   2) lymphadenitis of intra-organ lymph nodes;
   3) Wisdom tooth eruptions;
   4) stomatitis;
   5) a foreign body in the gland duct.

10. **Indicate the most important links in the pathogenesis of chronic sialadenitis:**
   1) oppression of factors of nonspecific defense of the body;
   2) decreased secretory function of the gland;
   3) disorder of the salivary function;
   4) ascending infection of the gland;
   5) history of acute sialadenitis.

11. **Chronic parenchymal sialadenitis is characterized by:**
   1) frequent exacerbations;
   2) turbid discharge with flakes, bitter-salty saliva;
   3) early xerostomia;
   4) rare exacerbations.

12. **Indicate the radiologic symptoms characteristic of chronic parenchymal sialadenitis:**
   1) the parenchyma of the gland is not clearly visible;
   2) stenosis of the main excretory duct;
   3) in the end sections of the ducts there are cavities of different sizes, filled with contrast mass;

4) there is a narrowing of all ducts of the gland having clear and even contours;

5) there is no image of the ducts IV-V order.

13. Specify the radiologic symptoms characteristic of chronic interstitial sialadenitis:

1) the parenchyma of the gland is not clearly visible;

2) there is no picture of IV–V order ducts;

3) in the end sections of the ducts are located cavities of different sizes, filled with contrast mass;

4) stenosis of all ducts of the gland is marked with clear and even contours;

5) there is an enlargement of the main excretory duct.

14. Indicate the main functions of large salivary glands:

1) digestive;

2) accumulative;

3) excretory;

4) endocrine;

5) protective.

15. Probing the mouth of the excretory duct of the salivary gland is carried out:

1) to detect a foreign body of the duct;

2) to detect soreness of the duct wall;

3) to determine the direction of the arch of the duct;

4) to determine the nature of the secretion from the salivary gland;

5) to detect a salivary stone.

16. Indicate the main radiographic characteristics of the structure of the parotid salivary gland in norm on sialography:

1) the width of the main excretory duct is 1 mm;

2) the width of the main excretory duct is 2 mm;

3) the contours of the ducts are even, clear;

4) the duct emerges from the gland after an arcuate bend;

5) the interlobar ducts depart in a fan-shaped manner;

6) the interlobar ducts extend perpendicularly.

17. Indicate the main radiographic characteristics of the structure of the submandibular salivary gland in norm on sialography:

1) the width of the main excretory duct is 1 mm;

2) the width of the main excretory duct is 2 mm;

3) the contours of the ducts are even, clear;

4) the duct emerges from the gland after an arcuate bend;

5) the interlobar ducts depart in a fan-shaped manner;

6) the interlobar ducts extend perpendicularly.

18. Analysis of the obtained sialogram includes:

1) study of the image of the main excretory duct (degree of filling with contrast, position, length, width, shape, and contours);

2) study of the relationship between the soft tissues of the maxillofacial region and the contrasted gland;

3) study of the image of the intraglandular part of the ducts (their relationship, degree of filling with contrast, position, length, width, shape, and contours);

4) determination of the size, shape, structure, and topography of the examined salivary gland.

Answer key: 1 — 1, 2, 4, 5; **2** — 2; **3** — 1, 2; **4** — 4; **5** — 3; **6** — 1, 3, 4; **7** — 2; **8** — 1, 3; **9** — 1, 2, 4, 5; **10** — 1, 2, 3, 4; **11** — 1, 2; **12** — 1, 3, 5; **13** — 1, 4; **14** — 1, 3, 4, 5; **15** — 1, 5; **16** — 1, 3, 5;**17** — 2, 3, 4, 6; **18** — 1, 3, 4.

REFERENCE

Basic reading

1. *Корсак, А. К.* Воспалительные заболевания слюнных желез у детей : учеб.-метод. пособие / А. К. Корсак. Минск : БГМУ, 2006. 35 с.

2. *Ластовка, А. С.* Органосохраняющая микрохирургия больших слюнных желез : монография / А. С. Ластовка. Минск : БГМУ, 2007.146 с.

3. *Солнцев, А. М.* Заболевания слюнных желез / А. М. Солнцев, В. С. Колесов. Киев : Здоровья, 1991. 312 с.

Optional reading

4. *Бернадский, Ю. И.* Основы челюстно-лицевой хирургии и хирургической стоматологии : учеб. пособие / Ю. И. Бернадский. Москва : Медицина, 2003. 456 с.

5. *Робустова, Т. Г.* Хирургическая стоматология / Т. Г. Робустова. Москва : Медицина, 2003. 504 с.

6. *Тимофеев, А. А.* Руководство по челюстно-лицевой хирургии и хирургической стоматологии : учеб. пособие / А. А. Тимофеев. Киев : Медицинская литература, 2002. 947 с.

CONTENTS

Учебное издание

Ленькова Ирина Иосифовна
Дударева Инна Вячеславовна

ВОСПАЛИТЕЛЬНЫЕ ЗАБОЛЕВАНИЯ СЛЮННЫХ ЖЕЛЕЗ

INFLAMMATORY DISEASES OF THE SALIVARY GLANDS

Учебно-методическое пособие

На английском языке

Ответственный за выпуск А. С. Ластовка
Переводчики И. И. Ленькова, И. В. Дударева
Компьютерная верстка Н. М. Федорцовой

Подписано в печать 28.02.18. Формат 60×84/16. Бумага писчая «Снегурочка».
Ризография. Гарнитура «Times».
Усл. печ. л. 1,16. Уч.-изд. л. 0,92. Тираж 50 экз. Заказ 92.

Издатель и полиграфическое исполнение: учреждение образования
«Белорусский государственный медицинский университет».
Свидетельство о государственной регистрации издателя, изготовителя,
распространителя печатных изданий № 1/187 от 18.02.2014.
Ул. Ленинградская, 6, 220006, Минск.