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“Purulent-inflammatory diseases of the maxillofacial region in children Clinical presentation, diagnostics and treatment.”

study guide

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Annatatsiya

So’nggi o‘n yil ichida bolalarda odontogen yiringli- yalliglanish kasallpklari stomatologik kasalliklarning 20-30% ini tashkil etgan, ulardan 70% i absess va flegmonalar bilan kasalanishga tugri kelgan. Shu sababli bolalarda kechayotgan odontogen yiringli-yalliglanish kasalliklarini erta tashxislash va kasallikning og‘ir asoratlarini oldini olish uchun davolash usullarini takomillashtirish tibbiyot, shu jumladan stomatologiyadagi muxim muammoli masalalaridan biri xisoblanadi.

Bugungi kunda dunyo mikyosida bolalarda odontogen yiringli- yalliglanish kasalliklarini erga tashxislash va kompleks davolash usullarini takomillashtirish orkali stomatologik yordam kursatishni ta’minlash muxim vazifalardan biri xisoblanmokda.

Davlatimizning kadrlar tayyorlash programmasiga asosan malakali bolalar jarox - stomatolog mutaxassislarini tayyorlashda yuz-jag‘ sohasida uchraydigan yallig‘lanish kasalliklarini diagnostikasi, klinikasi va davolashga bag‘ishlangan darslik yaratish zarurati tug‘ildi va bolalar jaroxlik stomatologiyasi fani tematik rejasi asosida ushbu o‘quv adabiyotni yaratishga kirishildi.

Ushbu o‘quv qo‘llanma yaratishda zamonaviy yuz-jag‘ soxasida uchraydigan yallig‘lanish kasalliklarini patogenezi. diagnostikasi va davo choralari haqidagi oxirgi 10-yilda yig‘ilgan dunyokarashlar, olingan ilmiy natijalardan foyidalanilgan.

Ushbu o‘quv adabiyotda bolalar yuz-jag‘ sohasida uchraydigan periodontit, periostit, osteomiyelit, abssess, flegmona, chipqon, xo‘ppos. limfadenit va ko‘chmanchi granulyoma kabi yallig‘lanish kasalliklari diagnostikasi, klinikasi va davo choralari haqida batavsil bayon etilib rasm va chizmalar bilan boyitilgan bo‘lib talabalarga mavzularni oson o‘zlashtirishga mo‘ljallangan.

Аннатация

За последние десять лет одонтогенные гнойно-воспалительные заболевания у детей составляли 20-30% всех стоматологических заболеваний, из которых 70% приходилось на абсцессы и флегмоны. Поэтому совершенствование методов ранней диагностики и лечения одонтогенных гнойно-воспалительных заболеваний у детей с целью профилактики тяжелых осложнений заболевания является одной из важных проблемных задач медицины, в том числе стоматологии.

На сегодняшний день в мировом масштабе одной из важных задач является обеспечение оказания стоматологической помощи путем совершенствования методов диагностики и комплексного лечения одонтогенных гнойно-воспалительных заболеваний у детей.

В соответствии с программой подготовки кадров нашего государства возникла необходимость создания учебника, посвященного диагностике, клинике и лечению воспалительных заболеваний челюстно-лицевой области при подготовке квалифицированных специалистов детского хирургического стоматолога, и началось создание данной учебной литературы на основе тематического плана предмета детская хирургическая стоматология.

При создании данного учебного пособия использованы научные результаты, полученные за последние 10 лет о патогенезе, диагностике и лечении воспалительных заболеваний челюстно-лицевой области.

В этой учебной литературе подробно описаны диагностика, клиника и лечебные мероприятия таких воспалительных заболеваний, как периодонтит, периостит, остеомиелит, абсцесс, флегмона, фурункул, столбняк, лимфаденит и кочевая гранулема, встречающиеся в челюстно-лицевой области у детей, обогащены рисунками и схемами, что позволяет студентам легко освоить темы предназначенный.

Annotation

Over the past decade, odontogenic purulent-inflammatory diseases in children accounted for 20-30% of all dental diseases, of which 70% were abscesses and flegmons. Therefore, improving the methods of early diagnosis and treatment of odontogenic inflammatory diseases in children with the aim of preventing severe complications of the disease is one of the important problematic tasks of medicine, including dentistry.

To date, one of the most important tasks in the world is to provide dental care by improving the methods of diagnosis and comprehensive treatment of odontogenic inflammatory diseases in children.

In accordance with our state's personnel training program, there was a need to create a textbook dedicated to the diagnosis, clinic, and treatment of inflammatory diseases of the maxillofacial region in the training of qualified pediatric surgical dentists, and the creation of this textbook began based on the thematic plan of the subject "Pediatric Surgical Dentistry."

In the creation of this textbook, the scientific results obtained over the past 10 years on the pathogenesis, diagnosis and treatment of inflammatory diseases of the maxillofacial region were used.

This textbook provides a detailed description of the diagnosis, clinic, and treatment of inflammatory diseases such as periodontitis, periostitis, osteomyelitis, abscess, flegmon, furunculus, tetanus, lymphadenitis, and migratory granulomatous disease, which occur in children in the maxillofacial region, enriched with drawings and diagrams, allowing students to easily master the intended topic.

Contents

INTRODUCTION

Generalization of new scientific results and the formation of concepts and views on the essence of odontogenic and non-odontogenic infections, the creation of new classifications are processes related to the knowledge accumulated in recent years in the field of dentistry and related disciplines.

The tendency towards a biological approach to understanding the essence of diseases, general pathomorphosis, and its specific manifestation - nosomorphosis - is reflected in dentistry. The role of premorbid factors in the development of odontogenic infection against the background of immunogenesis disorders has been proven.

Constant changes in the microbial landscape, the tendency to form new bacteriological associations, mainly associations with simple bacteria and fungi, saprophytic and anaerobic forms, and the proliferation of specific microorganisms require clinicians to constantly monitor these changes and select adequate means and treatment methods.

Inflammatory diseases of the maxillofacial region in children occupy a leading place in the activities of a polyclinic doctor. At the same time, their diagnosis is not perfect. This is explained by many circumstances: objective difficulties in examining children, especially young ones, incorrect methodological approach, atypical course of the disease, which can now be more precisely interpreted as pathomorphosis of inflammatory processes.

The lack of a unified methodological position is a significant obstacle to early and correct diagnosis, adequate treatment, and complete rehabilitation of patients. Therefore, taking into account the achievements and developments of recent years, the formation of a scientifically based platform, primarily in related disciplines (pathophysiology, immunology, pediatrics, pathomorphology, hematology, etc.), can allow practical healthcare to improve the quality of treatment of patients with inflammatory processes in the maxillofacial region.

Analysis of extensive materials from various clinics shows that the diagnosis of odontogenic inflammatory processes in 60 to 80% of children hospitalized is insufficient: from 20 to 50% of patients are referred to the hospital with an incorrect diagnosis. In about half of them, temporary or permanent teeth, which were the source of infection, were not removed. Hospitalization is delayed. All this significantly worsens the results of treatment, causing the transition of one form of inflammation to another.

Over the past 10 years, the number of children requiring hospitalization with inflammatory processes in the maxillofacial region in Uzbekistan has increased more than 10 times. This is the result of a decline in attention to the service of pediatric dentistry, especially to such a link as school offices, where the volume and quality of treatment and preventive work have sharply decreased. As a result, severe forms of odontogenic infection reappeared in children, requiring complex treatment, including significantly larger surgical intervention.

Until recently, these factors, for which not medical, but social services were responsible, were kept secret, which led to much lower effectiveness of treatment and preventive measures. Therefore, relying on modern understanding of the mechanisms of development and progression of inflammation, as well as extensive clinical experience, it became necessary to summarize it in a book useful for a wide range of readers: students, doctors, researchers, and representatives of social services.

The purpose of this textbook is to familiarize students of dental faculties and practicing physicians with modern views on the etiology and pathogenesis of odontogenic and neodontogenic infections, as well as with the proposed classification and scheme of the development of various types of inflammation. The authors hope that familiarization with the book's materials by students and doctors will help them form a clear platform in approaches to diagnostic and treatment methods.

It should be noted that the textbook reflects the authors' point of view and does not claim the completeness of the data and concepts.

REGULARITIES OF THE COURSE OF INFLAMMATORY PROCESSES IN CHILDREN'S MAXILAR AREA AND THEIR CLASSIFICATION.

Pathophysiology of inflammation.

Inflammation is a complex reaction of a vessel and connective tissue to damage by a certain agent (biological, mechanical, thermal, radiation, chemical).
Inflammation is characterized by autochthonousness: with the onset of inflammation, it goes through all stages of development, regardless of the duration of the influence of the factor. Inflammation develops cascadingly with the participation of chemical regulators that appear, act, and are inactivated at the site of inflammation. Both the growth and reverse dynamics of its symptoms are controlled by autonomous local chemical "signals" - mediators. And even the end of inflammation is not a decrease in all local reserves, but a result of the accumulation of specific anti-inflammatory mediators and their effect on the focus.

The focus of inflammation constantly tries to isolate (block) itself from surrounding healthy tissues, which is associated with the need to prevent the systemic effects of inflammatory mediators on the body, since they cause life-threatening reactions outside the focus. In such cases, general intoxication, anaphylactic or septic shock, and multiple organ failure are observed. Inflammation always includes three components - alteration, exudation, and proliferation. The inflammatory process begins with primary alteration of the membranes of cells, lysosomes, mitochondria, and vessels, resulting in the synthesis and activation of chemical "signals" - first-order inflammatory mediators - biogenic amines (histamine, serotonin), polyamines (spermin, spermidine, etc.), responsible for the initiation of vascular reactions and exudation. Vascular reactions begin with a brief narrowing of the vessels, followed by dilation and hyperemia of the capillaries. Histamine, bradykinin, and serotonin increase vascular permeability. Plasma passes into the intercellular space through spaces formed in endothelial vessels. Inflammatory edema develops, i.e., exudation develops, which

ensures the transport of the second component of inflammation - leukocytes and other protective agents from the blood to the site of inflammation.

Depending on the type of exudate, exudative (abundant fluid) and productive (abundant cells) inflammation are distinguished. In turn, exudative inflammation is divided into: 1) serous inflammation (exudate is rich in protein); 2) purulent (with a predominance of hemimorphonuclear cells, especially lymphocytes); 3) fibrosis (determination of fibrin-forming coagulation factors); 4) hemorrhagic (must contain a mixture of erythrocytes); 5) catarrhal (exudate produced by mucous membranes). All types of exudative inflammation have their own course, go through all stages of inflammation and end with reparative processes. A continuation of inflammation is an increase in tone in the area of the venules due to serotonin, which leads to the appearance of hemostasis, and consequently, to platelet aggregation, the formation of blood clots; fibrin formation is accelerated.

It arises outside the vessels and partially inside the capillaries. With the appearance of swelling and a layer of fibrin, the body separates the focus of inflammation from healthy tissue. The products of primary alteration cause secondary tissue damage, which in turn leads to the formation of autocoids (humoral agents of secondary alteration), necessary for regeneration processes. Bradykinin, histamine, and prostaglandins, combined with secretion pressure on metabolic products and pain receptors, cause pain characteristic of inflammation.

With the release of plasma, the cells migrate to the site of inflammation. Neutrophils, eosinophilic and basophilic granulocytes, lymphocytes, and macrophages participate in this process. The nature of the inflammatory process largely depends on the scale and nature of migration caused by chemotactic factors (for example, components of complement) and the characteristics of phagocytes. Reparative processes occurring in the focus of inflammation consist of regeneration (substitution of dead cells with cells of the same type) and fibroplasia (formation of fibrous tissue). During regeneration, macrophages and granulocytes brought to the site of inflammation

by plasma flow occupy foreign cells. The body's own enzymes, released from the lpsosomes of phagocytes and mast cells (fat cells), begin to break down tissue fragments and inflammatory products. In the next stage of regeneration, enzymes break down the fibrin layers, and the remaining tissue defects are gradually smoothed out with the help of growth factors formed by fibroblasts, macrophages, lymphocytes, platelets, etc. Such is the simplified scheme of the phases of the acute inflammatory process. In children, chronic inflammation can develop as a primary chronic process or as a consequence of the transition of acute inflammation to chronic inflammation.

This is facilitated by the disruption of inflammatory reactions, excessive activation of macrophages and lymphocytes by cytokines released during macrophage lymphocytic infiltration, constantly maintaining inflammatory phenomena, immune processes (development of cytotoxic, immunocomplex, and anaphylactic reactions). The relevance of the problem of inflammatory processes of the maxillofacial region is associated with an increase in the number of such patients in outpatient and inpatient settings, the diversity of manifestations of these processes, and the severe course of the disease, which leads to serious complications. The proportion of children with inflammatory diseases of the maxillofacial region in the hospital varies from 27 to 61% compared to other patients. The number of children with inflammatory processes at the appointment of a pediatric dental surgeon in outpatient settings: in the group of children aged 1 to 3 years - 16% (compared to other diseases); 4-6 years - 26%; 7-12 years old - 38%; 13-15 years old 20%. Among the causes of changes in the growth of inflammatory processes in the oral cavity and maxillofacial organs, the following are the most significant:

1. Social, economic, and environmental conditions that determine the conditions for the growth and development of children.

2. Changes in the virulence of microorganisms, strains, and their compounds, increasing the influence of anaerobic microflora, and the effects of viruses and protozoa on the body.

3. An increase in the number of factors causing inflammation (biological, chemical, physical, etc.).

4. Low sensitivity of microorganisms to various frequently used medications.

5. The presence of factors of instability of the macroorganism's homeostasis due to an increase in endocrine (diabetes mellitus and thyroid diseases), immune (number of primary and often secondary immunodeficiencies), metabolic, blood, and other background diseases.

6. Ineffectiveness or low effectiveness of the prevention of major diseases Dental diseases in children and their treatment. The patterns of inflammatory processes in the maxillofacial region are associated with age, socio-biological, and socio-hygienic premorbid factors. Among the socio-biological factors, the following should be distinguished:

Low level of physical development of the child. Socio-economic and environmental conditions currently do not contribute to the health of children and their parents. Today, it's hard to imagine a practically healthy parent.

2. Unpleasant course of infancy and the first year of life. Only 30% of 6-month-old babies are breastfed. Most of them are switched to early mixed and artificial feeding. All this, of course, negatively affects the further development of the child's body.

3. Nutrition is one of the main factors influencing the state of health.

4. Inflammatory processes of the maxillofacial region often develop in children with acute or chronic inflammatory diseases of the respiratory, digestive, and urinary systems. Socio-hygienic premorbid factors include:

1) non-compliance with oral hygiene rules - only 30% of children under 6 years of age (urban population) use toothbrushes and partially follow the basic rules of oral hygiene. In rural areas, this percentage is much lower (10%);

2) a decrease in the number of children engaged in physical education, non-compliance with the proper diet (possibly for objective reasons) - both qualitative and

quantitative - negatively affects the specific and nonspecific reactivity and hardening of the body.

The term "minor" itself is quite definitive. If we imagine a large antigenic load on a child's body from the first days of life up to 10-15 years of age by viruses, microorganisms, protozoa, and other biological agents, then it is difficult to explain the compensatory capabilities of the body with such "immaturity." But, of course, immunological reactivity, that is, the ability to introduce the necessary protective-adaptive reactions in a timely manner, is aimed at maintaining homeostasis and ensuring the harmonious development of the child. Different age of a child also requires different reactions of the body to the inflammatory process. Thus, young children react more often with the hypoergic type and only at the age of 3-7 years with the hyperergic type. In young children, the functional imperfection of the reticuloendothelial system, the immaturity of the structural elements of the immune system, and the mechanisms of local and central regulation do not provide adequate antibody production and phagocytic reactions. This often leads to the spread of purulent infection. A characteristic feature of the course of inflammatory processes in childhood is pronounced intoxication. This is due to the fact that the liver and kidneys, which secrete metabolic products, mainly complete their formation by the age of 6-8. Their capabilities quickly exhaust, which is manifested by a significant deterioration of the child's condition even in limited forms of inflammation. The appearance of protein in urine, observed in adults several months after the disease, occurs early in childhood and indicates kidney damage by tissue breakdown products and toxins; intoxication and acute water-salt imbalance in the growing organism increase. A baby consumes 20 times more fluids per 1 kg of body weight than an adult. Inflammatory processes are accompanied by increased body temperature and evaporation, rapid water loss due to increased metabolic processes. This leads to an increase in the concentration of toxins in the blood, which complicates the elimination of metabolites. Inadequacy of the CNS response to the local effect of the infectious agent is characterized by widespread

excitation, manifested by convulsions, nausea, vomiting, and diarrhea. A child, especially at an early age, is distinguished by the fact that metabolism and vital activity occur at a high energy level against the background of slightly reduced reserve capabilities. This is especially important in prolonged inflammatory processes that require significant energy expenditure.

Due to the peculiarities of the development of the main systems of the body, the course of inflammatory processes has a peculiar equivalent of local manifestations:

1) predominance of productive forms of inflammation over exudative forms;

2) low number of autonomous processes:

3) rapid transition to generalized forms;

4) general reactions - responses to the inflammatory agent often precede the development of local processes;

5) general symptoms arise as a result of intoxication. The aforementioned general characteristics of the child's response to the inflammatory process are accompanied by local characteristics, depending on the anatomical and immunobiological regularities of the child's development. Among them, the main ones are: 1. In children, temporary and permanent teeth are in a state of constant development (the period of drying and intra-maxillary development; the period of emergence, growth, formation, and absorption of the roots of temporary teeth).

Temporary and eruptive permanent teeth are relatively less mineralized, have a large pulp chamber and wide root canals. The blood vessels of the pulp are widely anastomosed with the bones of the jaws and the vessels of the periosteum. The absence of a large apical foramen and a formed periodontium in the forming and resorbing roots creates a very close connection with the bone (immature bone marrow). 2. In childhood, jaw bones are rich in organic substances and poor in minerals. They are in a state of constant growth and reconstruction associated with changes in teeth. The cortical layer of bone is thin, and its main mass consists of cancellous substance. It has wide bony tubules, thin and delicate bone trabeculae, between which lies bone marrow, less

resistant to various stimuli. The periosteum is thick and tightly surrounds the bone. 3. Rich vascularization of lymphocytes of the maxillofacial region in children determines the developed anastomosis of soft tissues, teeth, periodontium, jaw and periosteal vessels. This, on the one hand, ensures active regeneration of soft tissues and a high potential for regenerative osteogenesis, and on the other hand, contributes to the spread of inflammation hematogenously. 4. The growth of jaw bones is uneven in intensity and time. During tooth eruption (1-3 years, 6-10 years), the jaws grow more actively. The age of 13-15 is called the "pubertal jump," because during this period bone growth is significantly activated.

The unevenness of growth lies in the fact that the bone grows longitudinally not by its entire weight, but only by individual parts - growth zones; the thickening of bones is carried out at the expense of the periosteum. 5. In children, the soft tissues of the submandibular region have a lower density of fasciae and aponeuroses that limit cellular spaces, are distinguished by their low barrier properties, and against the background of a significant amount of subcutaneous adipose tissue, the inflammatory process rapidly spreads to 2-3 topographic and anatomical areas. Thus, the listed features determine the specific conditions for the occurrence of inflammatory processes in the maxillofacial region in children of different ages. The classification of inflammatory processes of the tissues and organs of the oral cavity and maxillofacial

region in children is presented in Diagram 1.

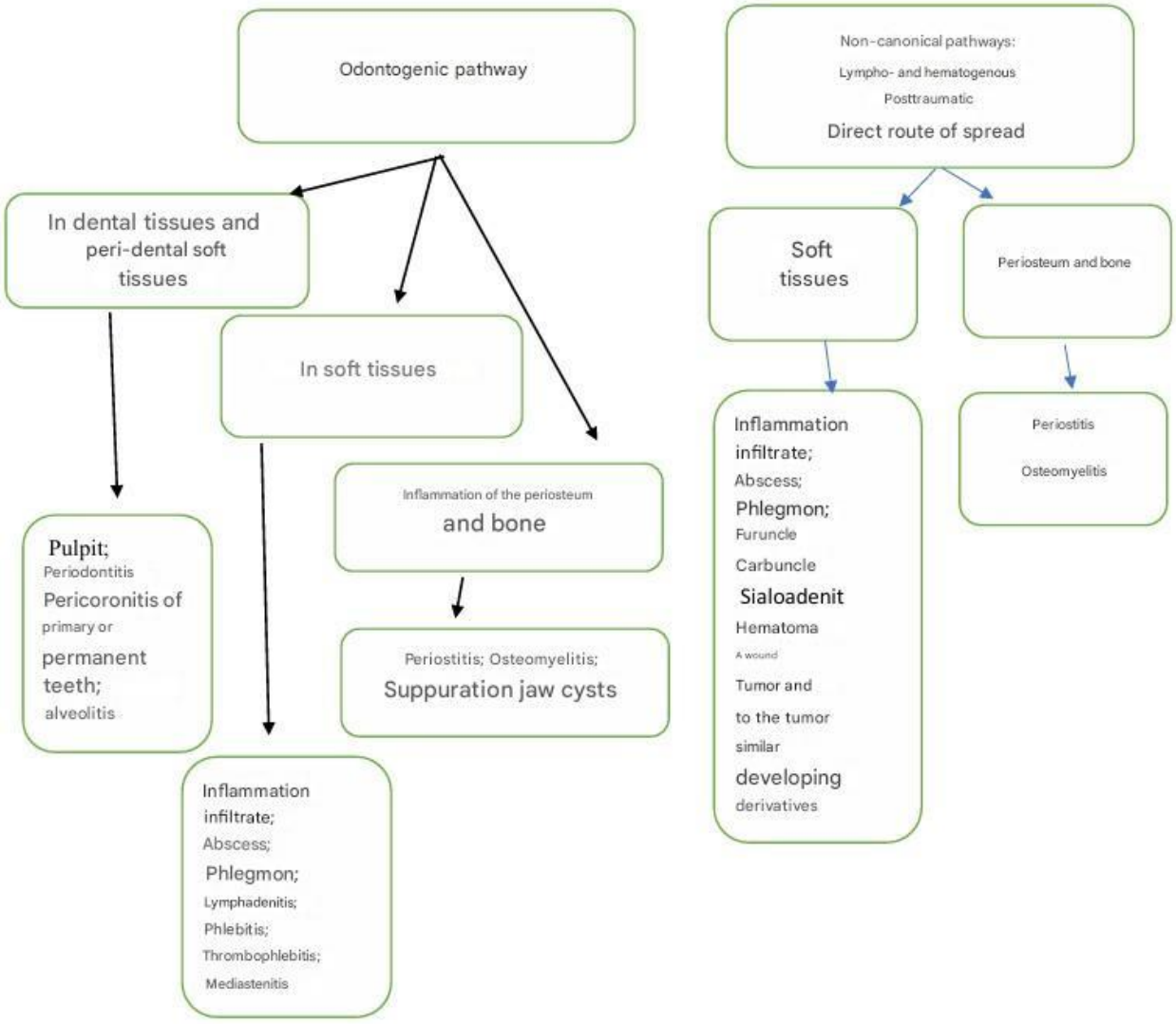

Diagram 1. Classification of inflammatory processes of the tissues and organs of the oral cavity and maxillofacial region

INFLAMMATORY DISEASES OF TEETH AND JAWS

TEMPORARY DENTAL PERIODONTITIS

The issues of etiology and pathogenesis of periodontitis of temporary and permanent teeth in children are well covered in textbooks and teaching aids on pediatric therapeutic dentistry. As for the clinic of periodontitis, it should interest surgeons from several points of view:

1) periodontitis as a source of inflammatory processes in the periosteum and bones (periostitis, osteomyelitis), soft tissues (abscesses, phlegmons) and differential diagnosis of these conditions;

2) methods of surgical treatment of temporary and permanent dental periodontitis, depending on the severity of the process and the child's age.

Periodontitis (periodontitis) is an inflammation of periodontal tissues that later spreads to the bone in a limited manner. In 90% of cases, it is a source of odontogenic periostitis, osteomyelitis, and their complications. Inflammatory diseases of the periodontium are classified as follows (diagram 2).

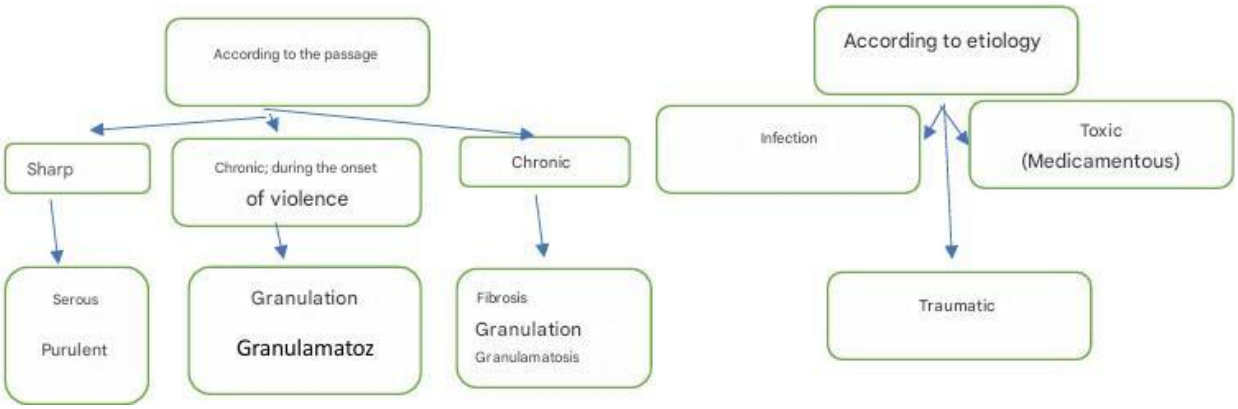

Diagram 2. Classification of inflammatory processes of the periodontium of temporary and permanent teeth

Acute periodontitis of temporary and permanent teeth.

Complaints of the child and his parents - pain in the "caused" tooth during biting, swelling of the gingival tissues.

Clinical presentation. In children, the disease often proceeds without a pronounced acute period, which is associated with the anatomical features of the structure of

temporary teeth, namely: the roots of baby teeth are shorter than permanent teeth; during the development of periodontitis, they are often in a state of resorption; root canals are wide and short; the periodontal gap is wide, periodontal tissues are loose. These properties contribute to the rapid excretion of exudate and the disappearance of tension in the bone focus, which leads to the absence of pronounced pain syndrome - a pronounced indicator of the inflammatory process in the periodontium..

In weakened children, especially in younger and older children, with a decrease in general immunological reactivity and the presence of an allergic reaction, rapid necrosis of the pulp and intensive periodontal infection occur. In this case, facial swelling increases rapidly, pain intensifies, body temperature rises, and significant intoxication symptoms appear. The tooth is mobile, it hurts badly when touched. The diagnosis of acute purulent periodontitis is based on pronounced pathognomonic clinical signs: pain when biting the "causative" tooth, reaction to its percussion - sharply positive: edema of the mucous membrane around the tooth, enlargement of lymph nodes, possible fever; on the target radiograph of the "causal" tooth, the connection of the pulp chamber and canals, and the expansion of the periodontal fissure in the area of the root apex are noted.

Differential diagnosis. Acute purulent periodontitis in children should be differentiated from acute diffuse purulent pulpitis: in periodontitis, the pain is constant, and in pulpitis - paroxysmal, spontaneous. However, acute purulent pulpitis quickly turns into periodontitis, therefore doctors rarely observe acute pulpitis of temporary teeth. Inflammatory changes occur in the gums adjacent to the tooth; percussion of the tooth is more painful than in pulpitis. The treatment of acute dental periodontitis depends on its anatomical and functional state. Therapeutic treatment is recommended if it is possible to preserve the tooth and it should "remain" in the dental arch due to the untimely onset of physiological replacement. When the tooth root is absorbed by almost half its length, or when the crown part is significantly destroyed, or if it is a source of bone infection, it is removed. At the same time, it is necessary to provide for

replacement with a removable prosthesis to prevent further deformation of the defect in the dental arch. In most cases, acute periodontitis does not require medication. Children with uncomplicated acute periodontitis of permanent teeth usually do not consult a dental surgeon. The therapist must make every effort to prevent surgical intervention. If acute periodontitis causes jaw osteomyelitis or septic condition, the tooth should be removed.

Chronic periodontitis of temporary and permanent teeth. With improper treatment of the acute process or with a patient's late visit to the doctor, the inflammation progresses to a chronic stage.

Fibrous periodontitis is characterized by an asymptomatic course. The child usually does not complain of pain during chewing. The radiograph reveals deformation of the periodontal fissure (mainly its expansion). Fibrous periodontitis in children is rare and is observed only in permanent teeth. The most common form of chronic periodontitis of temporary teeth is granulation periodontitis. This focus of odontogenic infection can cause severe diseases of the maxillofacial region, such as chronic pyelonephritis, rheumatism, myocarditis, and septic condition, due to persistent intoxication and allergies of the body.

Inflammatory diseases. In young children, infection of the periodontium and adjacent bones leads to the destruction of bone trabeculae and the formation of a fistula with purulent discharge in the gums (often on the cheek side), replacing the bone marrow with granulation tissue. In granulating periodontitis, the roots of temporary teeth undergo pathological resorption, not from the apex of the roots, but from the floor of the tooth cavity. After this, through the destroyed base, the granulations "grow" from the periodontium into the dental cavity, then into the cavity of caries, which clinically resembles chronic hypertrophic pulpitis, requiring differential diagnosis based on radiograph data. In children aged 2-3 years, chronic granulating periodontitis can lead to the death of the permanent tooth germ or disruption of enamel formation.

A chronic process can sometimes cause embryo displacement and its rupture anomaly. Chronic granulomatous periodontitis is a form that is rarely found in temporary teeth.

In granuloma, symptoms are rare, the process rarely attacks. On the radiograph, a focus of bone tissue destruction with a distinct contour, rounded shape, up to 0.7 cm in diameter (dimensions greater than 1 cm are characteristic of subroot bones) is detected, the root is formed. Such granulomas cause the formation of radicular inflammatory cysts. Marginal periodontitis, caused by mechanical or chemical influences, can also be acute and chronic (incorrect filling, accidental damage to the marginal border, use of anesthetic pastes, etc.).

The progression of chronic periodontitis is clinically similar to acute infectious periodontitis. In children, acute chronic periodontitis is observed significantly more often than acute periodontitis, which is characteristic of temporary teeth.

Treatment. The main task of treating chronic periodontitis is the elimination of inflammation in the periodontium.

The success of treatment and the prognosis of the disease depend on the degree of periodontal tissue breakdown, the reactivity of the child's body, the effectiveness of the therapeutic agents, and the condition (formation or absorption) of the tooth roots at the time of visiting a doctor, which cannot be determined solely by clinical examination data. Radiological examination provides the most complete picture of the nature of the pathological process, as a result of which the degree of spread of the inflammatory process is determined, which is recommended to be carried out during treatment.

In children, the indications for conservative treatment of temporary teeth are limited. They are usually removed. In chronic forms of periodontitis, conservative treatment of permanent teeth in children is used much more often. There are the following methods of surgical treatment of chronic periodontitis of permanent teeth: transplantation, root apex resection, hemisection, amputation of the tooth root and its removal.

Tooth transplantation is the return of a removed and treated (with root canal filling) tooth into a cavity, which is performed with unsuccessful conservative treatment or with trauma (mainly a single root). Therefore, it can be conditionally called the "operation of despair." Unlike transplantation in a tooth injury (complete eruption), the percentage of success of such an operation for chronic periodontitis is minimal. The most popular and effective method of surgical treatment of chronic (granulating, granulomatous) periodontitis is root apex resection (apicoectomia, resectio apicis radicis), which is performed on single-rooted and (rarely) small and large root teeth, which is explained by the risk of damage to the maxillary sinus and mandibular canal.

Indications for apexectomy:

1. Removal of granuloma and excess filling mass from it.

2. Fractures of endodontic instruments (drillbor, pulp extractor) in the canal.

3. Presence of a fistula for a long time after tooth filling.

4. Anatomical features that make it impossible to fill the canal to the apical opening due to the unevenness or narrowness of the root.

Contraindications:

1. Significant destruction of the tooth (destruction of not only the crown part, but also the floor of the tooth cavity) and the absence of prospects for its use for prosthetics.

2. Significant root tremor. Before resection of the root apex, the vascular part of the root canal is subjected to mechanical, antiseptic treatment and subsequently filled with fast-setting filling material. Guttaperch or metal pins can also be used. In the absence of fistulas, the root canals are filled on the day of the operation (filing the canals a few days before the intervention can lead to an exacerbation of the inflammatory process in the periodontium). The operation is performed under local conductive anesthesia. In the projection of the root apex, the mucous membrane and periosteum are incised in a semicircle 1.5-2 cm long, the base of the flap is directed towards the transitional fold. A flap cut in this way, having reached the end of the bone, should

completely cover the defect. The mucosal-periosteal flap is separated with a spacer and sutured with ligatures. Trepanation and removal of the bone wall of the opening are performed with a grooved chisel or boron. The root apex is resected with fissure boron, which is placed perpendicular to the root. Along with the root tip, the granuloma and excess filling mass are usually removed. The mucosal-periosteal flap is placed in place and secured with sutures.

Surgical treatment of chronic periodontitis involves hemisection and partial amputation. There are some similarities in the terminological meaning of these concepts, but according to the definition of the term, section - cutting, hemisection - cutting half, amputation - removal. Therefore, when it is necessary to remove the crown and root of the tooth or only the root, first a section or hemisection, i.e., a half-cut, and then a removal - amputation of the incised part of the tooth. Based on the foregoing, it is more correct to call the surgical intervention root amputation and amputation of the crown and root of the tooth. Hemisection, as a specific measure, is synonymous with coronary separation, since in the first and second practical sense it implies the same actions. During hemisection, the root of the tooth and the adjacent crown are removed. Root amputation involves removing only the root portion of the tooth before bifurcation. Prosthetics of the preserved part is used. Figure 1

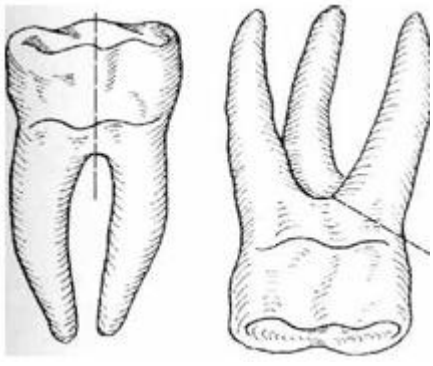

Figure 1. Scheme of hemisection and root amputation: A - hemisection of the lower molar root, B - amputation of the upper molar root

Indications for hemisection and amputation of the tooth root are broader than for resection of the root apex, namely: - the presence of deep pockets in the area of the lower or upper molar roots;

- resorption of the interroot septum;

- perforation of roots in the area of bifurcation.

Instructions:

- presence of deep pockets in the area of the lower or upper molar root; - resorption of the interroot septum;

- perforation in the area of root bifurcation Amputation of the root, crown part with the root of the tooth is performed with significant resorption of bone tissue near all roots; amputation of a part of the root or crown with the root is performed under conductive anesthesia after endodontic therapy and filling of the preserved root of the tooth (Fig. 1, A). In orthopedic dentistry, when the crown is amputated along with the crown root using a fissure diamond used for tooth extraction or a disc, the tooth crown is split in two. Then, the cut crown, along with the root to be removed, is removed with pliers or an elevator. The interradical septum, as well as the bone tissue surrounding the remaining segment of the tooth, is preserved. Before root amputation, the mucosal-periosteal flap separates from the surface of the cheek or palate, and the bone wall of the adjacent cavity is incised. Then the corresponding tooth root is separated from the bifurcation with boron (Fig. 1, B) and removed with an elevator. The sharp edges of the fossa are smoothed by bony teeth. Subsequently, antiseptic treatment of the bone ulcer and replacement of the mucosal-periosteal flap are performed.

Complications of periodontitis can include: periostitis, abscess, phlegmon, lymphadenitis, osteomyelitis, sinusitis, sepsis.

CHILDREN'S TOOTH REMOVAL OPERATIONS

To resolve the issue of indications and contraindications for tooth extraction, it is necessary to know:

timing of eruption of temporary and permanent teeth, formation of roots; features of the clinical course and treatment of pulpitis, periodontitis, periostitis and osteomyelitis, as well as traumatic injuries of teeth and jaws. Considering that teeth in children go through three stages of development, it is advisable to consider the indications for tooth extraction in temporary, replacement, and permanent occlusion.

Indications for tooth extraction in temporary occlusion (up to 6 years of age):

- temporary teeth that obstruct the birth of a child and natural feeding;

- acute odontogenic diseases (purulent periostitis, osteomyelitis, abscess, phlegmon, lymphadenitis). In cases where there are still 2-3 years left until the replacement of a temporary tooth, all efforts must be made to treat it. Only in osteomyelitis, the "causative" tooth must be removed;

- ineffective treatment of chronic granulating periodontitis;

- Absorption of more than 1/2 of the root length and tooth mobility of the II-III degree;

- removal of cutters due to trauma or traumatic dystopia in the presence of root resorption;

- fracture of the crown at the level of the neck or upper third of the root during resorption. Indications for tooth extraction in replaceable occlusion (from 6 to 11 years): - acute odontogenic diseases (purulent periostitis, abscess, phlegmon, lymphadenitis), in which more than half of the roots of the temporary tooth must be absorbed; - conservative treatment of permanent or temporary teeth is not allowed;

- acute or chronic odontogenic osteomyelitis of the jaws;

- acute pulpitis and periodontitis of temporary molars in children aged 9-10 with permanent tooth tonsils;

- ineffectiveness of treatment of chronic periodontitis of temporary and permanent teeth;

- the spread of the inflammatory focus to the interradical septum of permanent or temporary multi-rooted teeth;

- the presence of a temporary tooth or its root, if a permanent tooth has already erupted;

- slow resorption of the roots of the temporary tooth, preventing the timely eruption of the permanent tooth; - all types of traumatic fractures of a temporary tooth and a fracture of the root of a permanent tooth, if it cannot be used for a pin tooth; - a fracture of the crown of a tooth, if its root is in the stage of resorption;

- removal of a temporary tooth as a result of trauma;

- temporary and permanent teeth located along the fracture line.

Indications for tooth extraction in permanent occlusion (from 11 to 15 years): - teeth that are a source of odontogenic acute osteomyelitis of the jaws (mainly molars); - teeth with chronic granulating or granulomatous periodontitis.

Inflammatory diseases of the maxillofacial region, which cannot be treated by one of the conservative or surgical methods (hemisection, transplantation, root apex resection, root amputation); - significant destruction of the crown of the tooth, if the tooth root cannot be used for prosthetics; - complications associated with dental treatment (perforation of the pulp chamber or root base of the tooth in case of exacerbation of inflammation, extremely complete, retention of teeth); - inflammatory diseases of the maxillofacial region;

- Preserved temporary teeth up to 15 years of age, in the presence of correctly located permanent teeth in the jaw (according to radiological examination data); - intact teeth located along the fracture line and interfering with the repositioning of jaw fragments;

- a tooth with a chronic inflammatory process at the apex of the root located on the fracture line of the jaw; - a piecewise or longitudinal fracture of the root of a permanent tooth;

- based on orthodontic indications.

According to orthodontic indications, permanent teeth are removed in children, for example, if they have accumulated in the frontal part of the maxilla and there is

insufficient space in the dental arch (often for canines). In this case, the first premolars or the third molars or their tonsils are removed. In cases where modern orthodontic or surgical methods cannot move to the usual location (palate, tongue, cheek), all incised teeth must also be removed.

In most children, there are no absolute contraindications to tooth extraction, but in some diseases and pathological conditions, it is necessary to temporarily postpone this intervention or prepare the child for it. Some of the diseases listed below can be identified during a detailed medical history..

Contraindications to tooth extraction are:

- cardiovascular diseases (stenocardia, arrhythmia, rheumatism, endocarditis and myocarditis in the acute phase, pronounced decompensation of cardiac activity);

- kidney diseases (acute or acute, chronic glomerulonephritis with decompensated function, renal failure);

- acute infectious diseases (diphtheria, scarlet fever, measles, whooping cough, etc.);

- blood diseases (leukemia, hemophilia, thrombopenia, etc.);

- CNS diseases (meningitis, encephalitis);

- during an episode of a mental illness (epilepsy, schizophrenia, etc.);

- acute inflammatory diseases of the oral mucosa (gingivitis, stomatitis);

- teeth located in a malignant tumor or bone hemangioma.

- such a contraindication for tooth extraction from a malignant tumor is closer to absolute, since tooth extraction makes no sense.

Technique for removing temporary and permanent teeth in children

When removing temporary teeth, it is necessary to consider the features of the jaw structure (small size of the alveolar process and the thin bone tissue of the mucous membrane covering it) and temporary teeth (unexpressed neck, wide root spacing, and the presence of permanent tooth buds). Therefore, it is advisable for children to be well-versed in the technique of using and removing a set of pliers. The technique of removing

temporary teeth differs slightly from the technique of removing permanent teeth, namely: 1) the circular ligament is not damaged, the ends of the pliers do not move deeper after placement;

2) when working with an elevator, the alveolar process must be secured with the fingers on both sides to avoid damaging the nearby soft tissues; no significant movements are made during removal (this allows not to break the crown of the alveolar process, the tip of its root, or the alveolar process and not to expel the jaw);

3) especially carefully remove molars with a broken crown. Their roots spread to the sides and can break when shaken. Therefore, to remove such teeth, it is advisable to use an elevator, which should not be deeply embedded in the tooth socket tissue when approached from the side of the interroot barrier, as it can damage the permanent tooth follicle;

4) Alveolar curettage is not performed to avoid injury or removal of the permanent tooth germ;

5) after removal of the tooth, the edges of the alveoli are carefully compressed to avoid damaging the alveolar process. After removing the tooth, it is necessary to carefully examine its roots to make sure that it has been completely removed. As for temporary teeth removed during root resorption, it is often impossible to separate the resorbed root from its fragments during examination, since physiological resorption occurs unevenly and the edges of the root are as if worn. If the doctor left part of the resorbed root during the removal of temporary teeth, there is no need to end its removal with an elevator, as there is a risk of damage to permanent tooth buds. The latter displaces the remaining root. A typical permanent tooth extraction operation consists of the following sequential steps:

- Separation of the circular ligament of the tooth; - Placing the pliers on top of the tooth; - Moving the pliers to the edge of the alveolar ridge (deepening); - Holding the tooth with the pliers; - Rotation (vibration of the tooth around its axis) and luxation (vibration in the anterior-posterior and lateral directions); - Extraction of the tooth from

the alveolus (traction). The technique of permanent tooth extraction in children does not differ from that of adults. A set of pliers is used for removing individual groups of adult teeth; straight and side elevators are more widely used. When removing permanent teeth in children, it is necessary to take into account the coincidence of the axes of the root, the proboscis, and the direction of movement, as well as the typical anatomical shape of the root and the structure of the alveolar process, i.e., which of its walls is thinner and which is thicker. Knowledge of the latter helps in choosing the correct direction of movements during this operation and thus prevents typical complications - a fracture of the crown, a fracture of the root or its tip. When removing teeth with conical roots (maxillary frontal teeth, canines), rotational movements should be used, combining them with pendulum-shaped teeth, and when removing the upper premolars, as well as the second and third molars, movements should be made first towards the cheek, then towards the palate.

To remove the first upper molar, it is shaken first towards the palate, and then towards the cheek, as the outer wall of the zygomatico-alveolar comb is thickened. When removing frontal mandibular teeth, pendulum-like (first - towards the lips) and rotational movements are used, canines - rotational, premolars - pendulum-like: the first - towards the cheek, the second - towards the mouth. When removing large molars, the first movement is towards the cheek. These recommendations are approximate, and the smallest resistance of the bone can always be noticed and felt with movements during tooth extraction. Such skills, of course, come with experience. But it is necessary to learn that the movements are not measured and sharp.

After removal of a permanent tooth due to granulating or granulomatous periodontitis, careful curettage of the socket and revision of the socket should be performed if there is a fistula..

The following local complications can occur during tooth extraction in children:

1. During tooth extraction:

- fracture of the crown of the tooth (if it is not immediately removed from the mouth, it can enter the airways during inhalation and, as a result, develop mechanical asphyxia);

- fracture of the alveolar process; - injury of adjacent soft tissues; - damage to the follicle of the permanent tooth; - fracture of the antagonist tooth; - eruption or removal of adjacent teeth; - fracture of the jaw; - eruption of the jaw (usually anterior);

- insertion of the tooth root into the maxillary sinus;

- fracture of the maxillary tuberosity;

- Accidental perforation of the maxillary sinus Sudden connection of the oral cavity with the maxillary sinus occurs with subjective and objective signs. Subjective: changes in voice timbre, nasal twitching of speech. Objective: bleeding with air bubbles from the cavity of the removed tooth (in the intact maxillary sinus), a large amount of pus (in odontogenic sinusitis), when probing the hole, the probe penetrates deeper than the length of the hole. When a connection arises between the oral cavity and the maxillary sinus, oral and nasal tests are considered objective: a) oral test - if the nostrils are squeezed with fingers and an attempt is made to blow on the face, then the breath escapes from the recess into the mouth with a whistle; b) nasal test - when an attempt is made to blow on the face, air escapes through the nose and it is impossible to blow on the face.

2. After removal: - early bleeding (often associated with blood disorders or tumors located in the jaw) and late bleeding, the cause of which may be an excessive amount of vasoconstrictors in the anesthetic solution, which leads to persistent vasodilation and bleeding after 2-3 hours; - neurological disorders - the absence of compression of the alveolar edges by the doctor; - failure to comply with the recommendations regarding the proper homeostasis of the teeth and lower jaws after tooth extraction. To prevent the indicated complications, it is necessary to carefully collect the child's history before tooth extraction, choose the method of anesthesia and anesthetic solution, know and be

able to perform various tooth extraction techniques, as well as prepare the child for surgery and give the necessary recommendations for post-intervention behavior.

DIFFICULT TOOTH REMOVAL OPERATIONS

In children, starting from 4-6 months of age, tooth eruption is considered an important and critical period for the body. Although there is an opinion that tooth eruption is a physiological and painless process, this is not always the case. This process is truly physiological, but not painless and requires the inclusion of the body's defense and auxiliary mechanisms, especially in young children. Before tooth eruption, the bony part of the alveolar process, the periosteum covering the periosteum, and the mucous membrane of the gums must be well innervated.

In physiologically uncomplicated eruption of a temporary tooth, it indicates that it appears mainly with a pain reaction from the gums. They increase in size as they approach the alveolar edge of the tooth and become more sensitive to touch (toys, food). After the eruption of the tooth, the gingiva shrinks, and its sensitivity returns to normal. In the complicated process of tooth eruption, these tissues are affected in such a way that they undergo alteration, triggering the entire mechanism of inflammation, which manifests as swelling, redness, and pain in the gingival mucosa. These signs correspond to the clinical picture of inflammation of the tissues surrounding the crown of any erupted tooth - pericoronaritis. When inflammation of the surrounding tissues is eliminated by local defense mechanisms, tooth eruption occurs only with mild signs of inflammation. When this mechanism fails, general symptoms of intoxication appear: anxiety, irritability, fever, signs of irritation of the digestive tract, vomiting, and the child's refusal to eat. Therefore, during the period of temporary tooth eruption, the child is more susceptible to stomatitis, acute respiratory diseases, and other diseases. Sometimes, in children under two years of age, a temporary eruption cyst can form on the tooth, which should have erupted, but for certain reasons was not capable of this. The erupted cyst presents with general and local symptoms. They are characterized by

the layering of gingival tissues over the crown of the tooth with the accumulation of serous or hemorrhagic exudate in this cavity. Permanent teeth usually emerge almost painlessly and unnoticed by the child. Only in isolated cases can pericoronaritis develop around the erupted tooth. Most often, the lower eighth tooth has a tendency towards difficult eruption, which is associated with the anatomical and physiological features of its location (it is cut last, there is insufficient space in the alveolar ridge, the jawbone is denser) and low eruption potential.

The issues of eruption of the eighth tooth (which does not always occur in childhood) are well described in textbooks on surgical dentistry.

Treatment tactics in the period of uncomplicated tooth eruption involve the doctor explaining to the child's parents the importance of hygienic measures for oral care (treating the mucous membrane with antiseptics), prescribing analgesic solutions and gums. Among them, the most common and effective are "Bebiden," "Dentol," containing analgesics, "Dentinox" - a gel with anti-inflammatory and local anesthetic effects. With a pronounced general reaction of the body, symptomatic therapy is prescribed, i.e., antiemetic, antidiarrheal, analgesic, and antihistamine drugs. In both temporary and permanent complications of tooth eruption, surgical treatment with pericoronaritis should be used, the essence of which is the regulation of exudate flow by opening the mucous membrane and periosteum of the "causative" tooth (in acute pericoronaritis) or by incising the cap above it (in a chronic process) under local or general anesthesia. When a cyst forms, the teeth are emptied by opening the "window" above it. Despite the fact that difficult tooth eruption in children accounts for only 1% of all diseases of the maxillofacial region, it requires timely and adequate treatment to understand its clinical manifestations and prevent complications (periostitis, abscess, etc.).

INFLAMMATION OF REMOVED TOOTH CELLS

Alveolitis (alveolitis acuta et chronica) - an inflammatory process of the tissues of the tooth socket that occurs after tooth extraction. Alveolitis mainly occurs during the

period of permanent occlusion; thus, this complication is most often observed in older children. When removing temporary teeth, alveolitis does not arise due to the absence of anatomical conditions for the delay and development of the inflammatory process (a shallow opening remains due to the short roots of the teeth). The appearance of alveolitis can be caused by trauma or incomplete removal of the tooth, insufficient detachment of the circular ligament, and incorrect selection of the instrument for the operation. Microorganisms are usually activated in the socket, penetrating through chronic foci of periodontal infection in granulating or granulomatous processes. Alveolitis can be caused by the excessive introduction of vasoconstrictors into the composition of anesthetic solutions or disruption of the blood coagulation process, as well as disruption of blood clot formation associated with non-compliance with the recommendations after tooth extraction by patients.

Complaints. Children complain of persistent pain in the cavity of the removed tooth, which intensifies with feeding.

Clinical presentation. The disease begins on the 2nd day after tooth extraction. In the postoperative wound, the pain gradually intensifies, the child experiences weakness, fatigue, and a putrid smell from the mouth. Body temperature often rises to subfebrile levels. Usually, when examining the oral cavity, swelling of the oral vestibule and soft tissues of the cheek is detected on the side of the removed tooth. The mucous membrane around the tooth socket is hyperemic, edematous, and painful on palpation. The alveolus is filled with a foul-gray decomposing clot with an unpleasant odor. In some cases, there is no sediment - this is called a dry cell. In adolescents, alveolitis is often accompanied by regional lymphadenitis.

Treatment. If there is no blood clot in the tooth socket and its walls are conditionally clean, the socket is washed with a warm solution of antiseptics. The washing should be performed by bringing the bent needle to the bottom of the cell and using a syringe under pressure. In this case, there should be no residual blood clots or bone tissue fragments left in it. Then the cell is filled with iodoform tincture

impregnated with antiseptic or propolis tincture. The tampon is replaced within 3-4 days, and subsequently after a week. The partially preserved blood clot is washed with a warm solution of antiseptics, then the cell is loosely filled with turunda. If the sediment has completely dissolved, curettage is performed, then the cell is filled with antibiotic powder, gel, solcoseryl gel, or iodoform turunda. This intervention is necessarily performed under conductive anesthesia. A person with alveolitis usually recovers on the 7th-10th day. Acute osteomyelitis in children can be its complication.

Periostitis

Periostitis is an acute or chronic inflammation of the periosteum of the jaw, usually due to odontogenic (rarely traumatic) or other causes. Odontogenic periostitis is a somewhat inappropriate term, since odontogenicity refers to the route of infection to the periosteum and no more. This also applies to osteomyelitis and its complications, if the development of the process is caused by teeth. Children with odontogenic periostitis of the jaws account for 3.3% of all patients who applied to a dental surgeon at the polyclinic. They are mainly children aged 4-5 years (7.7% of the total number of visits in this age group). Periostitis is most often observed in spring and autumn. Odontogenic periodontitis is often a consequence of acute and exacerbated chronic periodontitis. "Cause" teeth are most often: 54, 55, 64, 65, 74, 75, 84, 85 and 16, 26, 36, 46. According to our data, 23% of "causal" teeth in periostitis were previously untreated.

Pathogenesis. The inflammatory process in the periosteum is most often caused by the simple microflora of the periodontium, which penetrates through the dental canal. The logical continuation of this process should be osteomyelitis, for the development of which there are all the conditions in a temporary bite: the bone tissue of the jaw is not fully mineralized, the osteon canals are wide and short, the root canals of the teeth are wide. However, in children, these features contribute to the rapid spread of infection in children, the spread of transitory lymphatic and venous vessels from the periodontium to the periosteum. On the one hand, they are favorable conditions for the spread of infection to the bone (Fig. 2).

A convenient classification of periostitis for a practicing physician is presented in Diagram 3.

Figure 2. Scheme of odontogenic spread of the inflammatory process: 1 - granulation periodontitis of the tooth; 2 - acute purulent periostitis of the jaw; 3 - acute purulent lymphadenitis of the submandibular region; 4 - phlegmon of the submandibular region; 5 - maxillofacial groove abscess

By location - upper jaw (alveolar process, tubercle), lower jaw (angle, horn, edge, alveolar process) - periostitis has its own course characteristics.

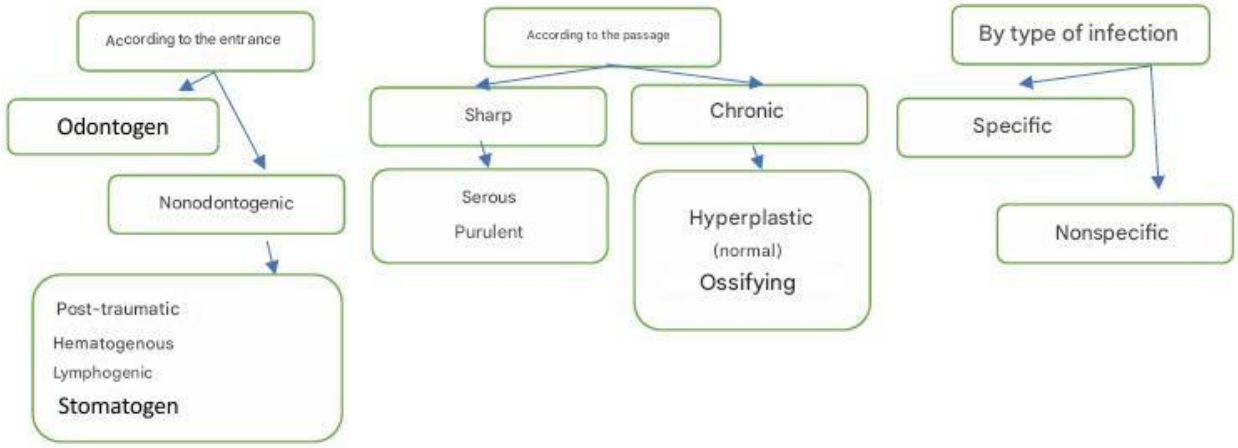

Diagram 3. Classification of periostitis of jaws

This disease is rarely detected in children, as serous inflammatory phenomena quickly turn into purulent inflammation (within 1-2 days). According to our data, only 11% of parents seek help on the day the child begins to complain of toothache, 17% - swelling of the soft tissues around the tooth, 73% - a disorder of general condition. Usually, 3-4 days pass from the onset of toothache until admission to the clinic.

Complaints. If parents consult a doctor in a timely manner, they will complain of toothache when biting, painful swelling of the cheeks and jaw, the child's malaise, and sleep and appetite disorders.

Clinical presentation. In serous periostitis, the child's general condition is less severe, intoxication is moderate, and local symptoms are more pronounced. The disease manifests asymmetry of the face, painful thickening of the periosteum of the jaw, swelling of the surrounding soft tissues. Periodontitis is detected in the "causal" tooth. In the crown of the tooth, there is usually a deep carious cavity, the color is altered; the reaction to percussion is positive. The transitional fold of the alveolar process around the "causal" tooth is smoothed on one side (often with the zygomatic fold), infiltrated, painful, the mucous membrane is hyperemic, swollen. Fluctuations are not detected. The diagnosis of acute odontogenic serous periostitis is based on the above complaints and objective examination data. Acute serous periostitis does not have a specific radiological picture, therefore it is not advisable to conduct this examination to confirm the diagnosis. Only in cases of exacerbation of chronic periodontitis does targeted radiography provide appropriate information about the state of the "causative" dental periodontium. Differential diagnosis of acute serous periostitis is carried out with acute and acute chronic granulating periodontitis, acute purulent odontogenic periostitis.

Treatment. Initially, tactics are determined based on the functional state of the "causative" tooth. In temporary teeth, the stage of root resorption is taken into account, and in permanent teeth, the possibility of therapeutic elimination of the focus is taken into account due to the outflow of exudate through the canals. If conservative medication treatment is ineffective, the tooth is removed. After removing the "causative" tooth, subsequent relief - a decrease in pain, tissue swelling - is not always observed. Therefore, performing periostomy simultaneously with tooth extraction and subsequent drainage of the wound for 3-4 days can be a guarantee of complete healing. By incising the periosteum in serous periostitis, we do not wait for pus to appear, but do this to reduce the tension of the tissues in the area of inflammation. The last rule

applies especially to young children and school-age children. Antimicrobial and antihistamine drugs are prescribed in cases of pronounced intoxication. A complication of acute serous periostitis can be acute purulent periostitis.

Acute odontogenic purulent periostitis.

Acute odontogenic purulent periostitis (periostitis odontogenic acuta punctata) most often occurs at the age of 6-8 with an exchange bite.

Complaints. In purulent odontogenic periostitis, children (or their parents) complain of facial deformation in the lower or upper jaw area, difficulty chewing on the affected side, general intoxication manifested by fever, decreased appetite, and sleep disturbances. Depending on the area of jaw damage, there may be limited mouth opening, pain during swallowing, and others. In most cases, children and their parents do not associate the appearance of soft tissue deformation with toothache, since at the moment of its appearance, the inflammatory process moves from the periodontium to the periosteum. Therefore, when collecting complaints, it is necessary to pay attention to this, that is, to determine from what the disease began and which specific tooth caused it..

Clinical presentation. The clinical picture of acute purulent odontogenic periostitis is characterized by changes in the general condition and pathogenetic local signs. The degree of impairment of the child's general condition in periostitis depends on the initial level of somatic health and the condition of the "causative" tooth. If the child is practically healthy, the changes in their general condition are moderately pronounced. Usually, children experience sleep and appetite disorders, fever, and become irritable and lethargic. In periostitis caused by temporary teeth, the child suffers less than in periostitis caused by permanent teeth. Local signs of acute purulent odontogenic periostitis of the mandible in children, caused by temporary molars, are: - facial asymmetry due to swelling of the tissues of the jaw and lower jaw regions (sometimes the swelling spreads to the infraorbital region, even to the lower eyelid on the affected

side, which is usually observed in young children), with unchanged or slight hyperemia of the skin above them, in cases of prolonged diagnosis and treatment or self-treatment:

- possible restriction of mouth opening due to painful edema of the tissues of the jaw and submandibular regions;

- a smoothed transitional fold from the vestibular side, since the path of spread of purulent exudate in this direction is shorter than on the lingual side, and the roots of temporary teeth are located closer to the outer cortical plate; the mucous membrane of the transitional fold is edematous, hyperemic; palpation in some cases allows for the detection of fluctuations;- the "causative" tooth is mobile (sometimes, in children, both temporary molars are destroyed and mobile); percussion of the tooth may be slightly painful when the inflammation penetrates the periosteum; Pain in the "causative" tooth (as a prognostic sign) indicates a short time since the onset of the disease. In most cases, odontogenic purulent perioditis of the mandible is accompanied by regional lymphadenitis on the affected side.

The clinical picture of acute purulent periostitis of the maxilla in children is quite characteristic: upon examination, the face is asymmetrical due to swelling of the tissues of the cheek, infraorbital region, and half of the upper lip, spreading to the eyelid on the affected side. The smoothness of the nasolabial fold is determined. In the oral cavity, if the abscess is located on the vestibular side of the maxilla, the intermediate fold is "causal" and smoothed and hyperemic at the level of 1-2 adjacent teeth. When the abscess is located on the palate, in rare cases, the child's face is symmetrical, the mouth opens freely. On the palate adjacent to the alveolar process, a protrusion is observed, covered with a hyperemic mucous membrane, palpable with pain and fluctuation. If the roots of the temporary teeth are in the stage of resorption, periostitis does not manifest with a typical clinical picture. Infiltration of periosteal tissues occurs not in the projection of the transitional fold, but close to the necks of the teeth..

Therefore, abscesses are not subperiosteal, but subgingival. Sometimes they do not appear at all, since the excretion of exudate through wide periodontal fissures, root,

and osteome (Gavers) canals compensates for the possibility of abscess formation. The diagnosis of acute purulent periostitis is based on pronounced pathognomonic signs, such as the formation of a periosteal abscess on one side of the alveolar process in the area of the transitional fold, the anamnestic and clinical relationship of the development of the inflammatory process with the "causative" tooth. Usually, these signs are sufficient for the diagnosis of odontogenic purulent periostitis of the jaw. It should be remembered that in children under 4-5 years of age, the course of inflammatory processes in the maxillofacial region is characterized by more pronounced general signs than local ones.

Differential Diagnosis. According to our clinic, errors in the diagnosis of acute periostitis of the jaw in children are up to 15%. Often, polyclinic doctors diagnose periostitis as chronic periodontitis, lymphadenitis, osteomyelitis, purulent follicular and radicular cysts of the jaws, and sometimes even malignant tumors. It is necessary to carry out differential diagnosis of acute periostitis of the jaws with the above-mentioned diseases. Considering that the general condition of the child can be observed in both periostitis and osteomyelitis, differential diagnosis is based on various local clinical signs. Unlike periostitis, osteomyelitis is characterized by "swelling" of the jaw on both sides, mobility of a group of teeth (3 or more), discharge of pus from the dentoalveolar pockets, and the formation of abscesses and phlegmons in the surrounding soft tissues. Sometimes in older children, lymphadenitis in the jaw area (in 7% of cases) is called acute periostitis. In children, it is important to remember the presence of a maxillary lymph node in the projection of the mandibular body closer to its edge. However, in this disease, from the anamnesis, it is possible to observe the appearance of a small, moving, painful round or oval formation in this area, gradually enlarging. Acute purulent odontogenic periostitis of the jaws is most often differentiated by a purulent radicular cyst (according to our data, this diagnosis is made in 5% of cases). Diagnosis is based on radiological examination (the cyst is determined by uniform rarefaction of round bone tissue with clear boundaries, in which the root of the "causative" tooth is

immersed) or during surgical treatment - opening of the abscess (in the case of a cyst, the surgeon "sits" into its cavity and removes the cyst fluid or fluid mixed with pus). In acute purulent periostitis, X-ray examination has limited indications for temporary occlusion, as it only identifies the "causative" tooth, while in permanent occlusion, it determines the tooth's fate - whether to treat it or remove it.

Treatment. According to our clinic, errors in the treatment of maxillary periostitis can reach up to 40%. They consist of prolonging the duration of conservative treatment, incorrect tactics in relation to the "causative" tooth, and a method of surgical intervention, namely: the location of the abscess opening was chosen incorrectly, the incision was made not to the bone, but in the area of soft tissues, the wound was not drained, or it was drained for an unreasonably short time (1 day). Therefore, when treating acute odontogenic periostitis of the jaws in children, we adhere to the following rules: - treatment should be started as early as possible, i.e., immediately after diagnosis; - in acute serous periostitis, the "caused" temporary teeth are removed: when less than 1-1.5 years remain until their replacement; - in serous periostitis, periostotomy is performed from the temporary tooth after removal of the "causative" teeth, which helps reverse the inflammatory process; - in acute serous periostitis, the basis for hospitalization is a significant deterioration in the general condition, pronounced local clinical signs of periostitis, and the presence of allergic reactions or concomitant chronic diseases in the anamnesis; since acute periostitis can quickly transform into acute osteomyelitis in children, in case of a suspicious diagnosis, inpatient treatment should be prioritized. Surgical treatment of acute periostitis, i.e., opening of the abscess and forced drainage of the wound, removal or treatment of the "causative" tooth, is carried out under conductive or general anesthesia. The choice of anesthesia depends on the child's age, their psycho-emotional state, and the presence of background disorders. During an exchange bite, periostotomy should be performed in the lower jaw below the transitional fold, in the upper jaw above it, and parallel to it. In periostitis originating from temporary lower molars, the abscess should be opened below the

transitional fold, as there is a mental opening between their roots, from which nerves and vessels emerge. It should be remembered that in purulent periostitis, it is not necessary to rush to remove the drain after opening the abscess (Fig. 3).

Figure 3. Patient with acute purulent odontogenic periostitis of the left half of the lower jaw.

This is a certain guarantee of successful treatment. If the abscess is on the hard palate, the periosteum should be opened not with a linear incision, but with a triangular or oval incision of the periosteal mucosa. In this case, drainage is not required, as it is not fixed. The shape of the formed opening ensures good exudate drainage. The wound surface on the palate heals secondarily Fig. 4.

e periosteal abscess (below the transitional fold) is marked with a

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Figure 5. Abscess of periosteum of mandible (ulcer drainage) after opening and removal of 75 teeth

After surgical intervention, the child is prescribed oral baths with antiseptics. From the outside, a compress with a 5% DMSO solution is applied to the soft tissues at night (for 4-5 days). From the second day, physiotherapeutic procedures can be performed - UHF, hydrocortisone phonophoresis, DMSO electrophoresis, laser therapy, magnetotherapy. Only the presence of adequate drainage makes the indicated procedures sufficiently effective. Pronounced signs of intoxication include fever, refusal to eat, sleep disturbances, and in cases of tension, antibiotics and antihistamines are prescribed; for jaw pain, non-narcotic analgesics are prescribed in age-appropriate doses. The child needs to drink a large amount of vitamin-rich fluid. It is advisable to perform all therapeutic measures within 4-5 days.

Complications. Periostitis can be complicated by osteomyelitis, soft tissue abscesses, and phlegmon. Since periostitis is accompanied by regional serous lymphadenitis, its transition to a purulent form should be considered a complication of complex treatment of periostitis. If periostitis in a child has a hyperergic type, then prolonged deformation of the jaw may occur, which disappears after a course of physiotherapy aimed at absorbing the thickness of the periosteum. The prevention of these complications is the timely, technically correct opening of the abscess with subsequent prolonged drainage of the wound and removal of the "causative" tooth.

Chronic periostitis.

Chronic periostitis (periostitis chronica) is rare in children, which depends on the characteristics of their immune system and local signs. Odontogenic chronic periostitis usually occurs 10-14 days after the onset of the disease as a result of an untreated inflammatory process in the periodontium. Chronic neodontogenic inflammation of the periosteum can be caused by acute jaw trauma. Simple and chronic ossifying periostitis are distinguished. The disease can occur in older children.

Complaints. The child or their parents complain of painless or slightly painful deformation in a certain part of the jaw. With a prolonged course of the disease, several seizures can be identified in the anamnesis, manifested by the appearance of slight pain and swelling in the jaw area.

Clinical presentation. In simple (hyperplastic) periostitis, a change in facial configuration is observed due to an enlargement of the jaw (often lower) part, while the skin above it remains unchanged. Palpation of the affected area can be slightly painful or painless. Regional lymph nodes in the mandibular region can enlarge. The opening of the mouth is free, the mucous membrane over the smooth transitional fold is bluish in the deformed area. Palpation reveals thickening of the alveolar process. In the odontogenic process, the filled "causal" tooth, its gray crown, is partially or completely destroyed**.** If the patient is not treated at this stage, hyperplastic periostitis transforms into ossifying periostitis, which can be considered human hyperostosis. Radiological examination reveals a shadow of periosteal thickening of the bone along the edge of the jaw in simple periostitis, and in ossifying periostitis (duration of the disease more than 2-3 months) - a newly formed bone area, where individual layers can be distinguished, sometimes - vertical linearity.

Due to the anatomical and topographical features of the structure of the upper jaw, it is difficult to identify the above-mentioned changes. During exacerbations, the clinical picture is similar to acute inflammation of the periosteum.

Differential diagnosis is carried out with fibrous osteodysplasia and osteoblastoclastoma of the jaws, productive and productive-destructive forms of chronic osteomyelitis, specific processes of the jaw - tuberculosis.

Treatment. Many surgeons try to treat chronic periostitis by conservative methods, prescribing medications, physiotherapy, and compresses. Such treatment lasts for several months, but in most cases does not give results. Therefore, in the treatment of chronic periostitis, it is more effective to open the infiltrate in the preosseous part of the thickened periosteum under general or conductive anesthesia. The wound is drained

with a rubber drain and rinsed with antiseptics. Drainage is carried out for 5-7 days. For effective drainage, physiotherapeutic procedures are prescribed - hydrocortisone phonophoresis, helium-neon irradiation, DMSO, potassium iodide electrophoresis. In the ossifying form of periostitis, surgery is performed to smooth out the enlarged bone. If the process is odontogenic, the "causative" tooth is treated or removed. In addition, antihistamines, vitamins, symptomatic therapy, etc. are prescribed. In the acute phase of the process, treatment is carried out in the same way as in acute odontogenic periostitis.

JAW OSTEOMYELITIS

Etiology, pathogenesis and classification

Osteomyelitis (osteomyelitis) is a purulent-necrotic infectious-allergic inflammatory process in the bone, caused by exogenous and endogenous factors against the background of prior sensitization and secondary immunosuppression of the body and accompanied by necrosis of bone tissue. In children, osteomyelitis accounts for 15-33% of inflammatory processes in the maxillofacial region (M.I. Azimov, T.K. Supiyev, V.V. Roginsky, M.M. Solovyev). As O. Sobolev (1829) stated, acute odontogenic osteomyelitis is "inflammation of damaged teeth," and "inflammation" refers to the inflammatory process, while "damaged teeth" refers to the odontogenic pathway. In fact, 88% of all osteomyelitis is odontogenic, i.e., associated with dental diseases. The history of the development of views on the pathogenesis of odontogenic osteomyelitis is quite interesting. The cause of this disease is inflammatory microorganisms (staphylococci, streptococci, anaerobes, fusobacteria and their various associations, etc.). The routes of spread of these microorganisms are also known: these are dental canals and periodontium. But the most interesting question is: "Why doesn't any inflammatory process in the periodontium or periosteum lead to osteomyelitis?" That is, many children suffer from periodontitis, but osteomyelitis occurs only in some cases. What is this related to? For a long time, the experimenters and clinicians did not see differences in the pathogenesis of adult and child osteomyelitis. Moreover, not so

long ago, it was seriously discussed that a single process of osteomyelitis cannot be divided into its components: osteitis, myelitis, periostitis, since this is pathoanatomically unconditioned and clinically contradictory (Lukyanenko V.I., 1986). Currently, the question of the expediency of such a division is hardly discussed. These views already have a well-founded alternative. Even clinically, all researchers describe completely different manifestations, symptoms, course, and complications of these three separate diseases. In addition, the timing and methods of treatment are specific to each of the listed diseases. Clinical parallels in other areas of medicine are quite convincing. Thus, for example, appendicitis does not necessarily have to be peritonitis, and endocarditis is not yet pancarditis. These are all different diseases, each of which has its own pathogenetic features. One of the earliest theories of the pathogenesis of osteomyelitis, presented in all textbooks and monographs, is E. Lecher (1884) and O.O. Bobrov's (1898) "infectious-embolic" theory. First of all, it should be noted that it has nothing to do with jaw bones (flat) and, of course, with odontogenic osteomyelitis. The authors managed to substantiate the provisions of their theory by conducting experiments on tubular bones of animals, observing the movement of the bacterial embolus from the primary focus of infection with blood flow to the bone, the accumulation of this bacterial embolus in the "final" vessels. This, in turn, improves bone nutrition and leads to the formation of a necrotic area ("infarction") in it. Critically assessing this view, it should be noted that subsequent experimental studies by many scientists have proven the absence of terminal vessels in humans (such vessels are found only in the tubular bones of the fetus). However, bone necrosis should be considered not as a link in pathogenesis, but as a consequence of the disease. From the point of view of the objective state of the development of osteomyelitis, the best is SM, formed in the views of M.I. Santotsky, T.O. Popov, and resembling the Artus-Sakharov phenomenon. Derijanov's theory (1940). The experiments were conducted on rabbits sensitized with horse serum and small amounts of microbial bodies, which were the permissible doses administered to the maxillary bone marrow. Such actions led to the

clinical manifestation of acute osteomyelitis. This theory is interpreted as follows. Sensibilization of the animal with horse serum can be equated to the sensitization of a patient with lorogenic, odontogenic, and other foci of inflammation. Against this background, it is possible to imagine a patient's tooth (his acute or chronic periodontitis) that has become a mechanism for triggering the process of osteomyelitis with a permissible dose, presented in the experiment by introducing microorganisms into the bone. Although it is very difficult to compare the routes of infection entry here, there is no odontogenic route in this theory. According to this theory, osteomyelitis develops in the presence of a "sleeping" infection in a sensitized organism. According to the views of G.V. Vasilyev, Ya.M. Snezhko (1953), it is necessary to reduce the immune reactivity of the child's body for bone inflammation. G.I. Semenchenko (1956) based on the classical teachings of I.M. Sechenov, I.P. Pavlov, A.D. Speransky, the ideas of irritability, used a method known in general surgery - irritation of the sciatic nerve and the subsequent development of osteomyelitis of the tubular bones (Kiistscher, 1954; V.V. Taranes, 1958; Hardaway, 1961; Hiier, 1964). G.I. Semenchenko caused acute osteomyelitis by injecting a staphylococcal culture into the jaw bone with horse serum without prior sensitization.. The role of the latter was played by nonspecific sensitization of the body, which was the result of irritation of the inferior alveolar nerve (n. alveolaris inferior) in the vascular bundle with the metallic ring. M.M. Solovyov (1971) considered the causes of local immune processes under the influence of adrenal cortex hormones - glucocorticoids, which activate infectious and allergic processes. V.I. Stetsula (1958, 1962) identified thrombosis and thromboembolism as the leading factor in the development of osteomyelitis. According to S. Vengerovsky (1964), the leading role in this process is played by the spread of purulent exudate along the wide osteomatic canals, the soft, soft components of bone tissue. This is accompanied by edema, infiltration, and profound biochemical changes. M.O. Gruzdev (1978) considered allergic and neurotrophic factors as factors contributing to the transition of inflammation to the reversible part - periostitis to the irreversible part - osteomyelitis.

The main stage of osteomyelitis pathogenesis. In his opinion, inflammatory diseases of the maxillofacial region are hemodynamic disorders (increased blood clotting rate, decreased antithrombin activity, intravascular blood clotting, capillary blockage) and end in bone necrosis. In this regard, heparin is a pathogenetic agent in the treatment of osteomyelitis. The authors of the theories of the pathogenesis of osteomyelitis adequately assess the sensitization of the child's body, equating experimentally induced sensitization with existing chronic inflammatory foci in the body. For example, 67% - chronic tonsillitis, 25% - odontogenic chronic inflammation (periodontitis, pulpitis), 8% - dental diseases. A.M. Solntsev (1970) believed that rabbits are completely incapable of allergic reactions. In the experiment, it could not cause osteomyelitis in any of the 20 rabbits vaccinated with horse serum and infected with pathogenic microorganisms. This fact was confirmed by T.K.Supiyev and Yu.A.Yusubov (1986). Thus, based on the above theories, it can be said that the key to understanding the origin of jaw osteomyelitis in children is based on the following rules: 1) it is impossible to talk about sensitization at all; it is necessary to have an idea of the level of its quantitative indicators; 2) have accurate information about the pathogen, know its characteristics, virulence, and characteristics; 3) it is necessary to know the state of the child's macroorganism and specific indicators of the level of its protection; 4) odontogenicity, i.e., when talking about the gates of infection, it is necessary to experimentally find the mechanisms and ways of development of this process. One of the fundamental studies in this direction is the experimental and clinical observations of Yu.A.Yusubov (1989). In the experiment, odontogenic osteomyelitis in young rabbits was first obtained after vaccination with the immunosuppressive cyclophosphamide in various doses and subsequent administration of 1 billion microbial bodies into the dental canal. In the remaining two series of the experiment, where an immunosuppressant was not used, but traditional horse serum was used for sensitization, osteomyelitis was not observed. This once again confirms the impossibility of modeling osteomyelitis in rabbits by means of sensitization. At

different stages of the experiment, laboratory-biochemical and immunological studies were conducted, confirming the fact of secondary immunosuppression and the body's response to its manifestation. That is, in this case, the result of sensitization, which can be associated not only with odontogenic and lorogenic infections, but also with any previous infectious diseases (ORVI, influenza, bronchitis, pneumonia, etc.), is a significant weakening of the body and, as a consequence, the development of secondary immunological insufficiency. Inflammatory diseases of the maxillofacial region Yu.A. Yusubov found that the shorter the time between the onset of the disease and osteomyelitis, the more pronounced the destructive changes in the bones. Rational classification of osteomyelitis of the maxillofacial region in children, taking into account:

1. The entry point of infection is:

a) odontogenic; b) neodontogenic: - vascular; - stomatogenic; - post-traumatic; - contact.

2. Type of infection:

a) these types of specific (syphilitic, tuberculous, actinomycotic) osteomyelitis are rare in children; b) nonspecific (banal) osteomyelitis: combined effect of strepto- and staphylococcal microflora; fusospiral symbiosis; combined effect of anaerobic and aerobic microorganisms; occurs due to anaerobic microflora.

3. Course of the disease:

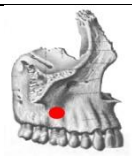
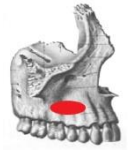
a) acute; b) primary chronic; c) chronic as a consequence of acute: - destructive (absorption of bone); - productive or hyperplastic; - destructive-productive; d) chronic in the attack stage.

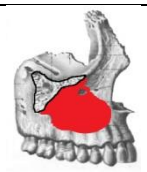
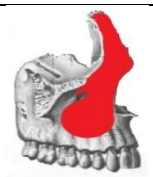
4. Anatomical and topographic features:

a) osteomyelitis of the maxilla or mandible (with a specific localization of the process); b) osteomyelitis of other bones of the maxillofacial region.

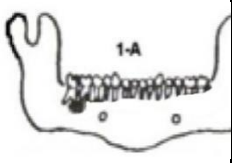
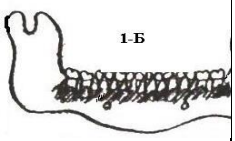
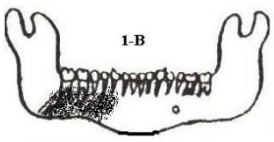
5. Distribution of the process: a) focal; b) generalized.

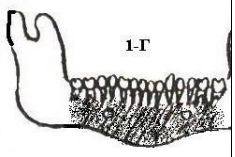
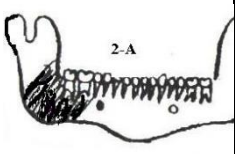
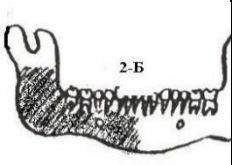
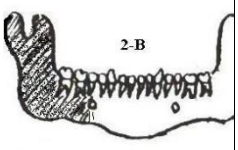
A classification of acute odontogenic osteomyelitis of the upper jaw, reflecting the volume and localization of infectious inflammation in the upper jaw, was proposed by the Department of Pediatric Maxillofacial Surgery of the Tashkent Medical Institute (M.I. Azimov, 1991). The purulent inflammatory process in the jawbone spreads to the surrounding soft tissues. The extent of inflammation in the soft tissues is directly related to the area of damage in the jaw and its size. This situation is reflected in the proposed classification. Degree of spread of purulent-inflammatory processes in the upper jaw and soft tissues (M.I. Azimov, 1991)

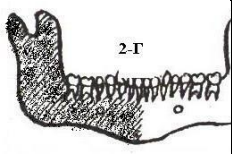
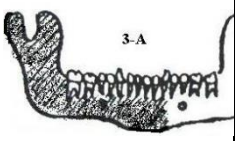
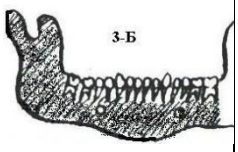
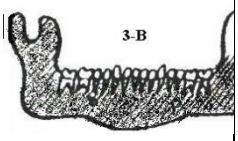
	Location of purulent-inflammatory process	
	Upper jaw	In soft tissue
 1A	Periodontal margin of one tooth: periodontitis, root apex cystogranuloma, pericoronaritis, dentition osteomyelitis, alveolitis	Vertebular surface of jaw and lymph nodes (ostitis, lymphadenitis)
 1B	Alveolar process (dental periodontium of two or more teeth)	Periosteum on both sides of the alveolar process, regional lymph nodes (ostitis, lymphadenitis)
 1V	Alveolar and palatine processes	Ositis, abscess of palate
 1G	Alveolar, palatine processes, anterior surface of maxillary body	Abscesses and phlegmons of the infraorbital and maxillary regions, osteitis.

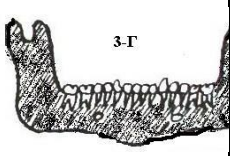
 2A	Alveolar, palatine processes, anterior surface of maxillary body, zygomatic process, zygomatic bone	Suborbital, maxillary abscesses and phlegmons, abscess of palate
 2B	Anterior and orbital surface of maxillary processes, frontal process	Phlegmons of infraorbital, nasolabial-buccal regions
 2V	Anterior and subtemporal surface of maxillary processes	Phlegmons of infraorbital, submandibular and subtemporal regions, abscess of palate
 2G	4 processes of the body of the upper jaw, 4 surfaces and the zygomatic bone	Phlegmons of infraorbital, orbital, buccal, zygomatic, subtemporal, abscess of palate

The prevalence of purulent-inflammatory processes in osteomyelitis of the lower jaw (M.I. Azimov 1991).

Proliferation	Location of purulent-inflammatory process		Patient's appearance
	In the jawbone	In soft tissue	
	Periodontitis, ostitis, pericoronaritis, dental osteomyelitis, alveolitis at border of periodontium of one tooth	Periosteum of vestibular side of jaw, regional lymph nodes (ostitis, lymphadenitis)	
	Alveolar process of jaw (in the area of periodontium of two or more teeth)	Both sides of alveolar process, periosteum, along regional lymph nodes (ostitis, lymphadenitis)	
	Alveolar process and trunk on one side of mandible	Submandibular region, linguomandibular groove, lower part of buccal region	

	Entire mandible body and alveolar growth	Triangles of the submandibular region, glossopharyngeal groove, chin, and floor of mouth	
	Body of mandible with alveolar process, angle and half of horn	Submandibular space, pterygomandibular space, and submasseteric space	
	One side of mandible (without articular and coronal processes)	Submandibular, glossopharyngeal, submandibular, pterygomandibular, and submasseteric cavities	
	One-sided full horn, trunk and alveolar process of mandible	Submandibular, subtemporal, retromandibular, preauricular masticatory and luteal regions, pterygomandibular and submasticatory cavities	

	One side of the mandible (from the articular process to the central line)	Phlegmons of multiple maxillofacial cavities with risk of spread to the cervical region	
	Complete side of mandible - partial body and alveolar process of opposite side	Phlegmons of multiple maxillofacial cavities with risk of spread to the cervical region	
	Body and alveolar process of mandible (without articular and coronal processes) on full one side and opposite side of mandible	Multiple maxillofacial phlegmons with risk of spread to the neck	
	The whole side of the mandible and the opposite side of the body and part of the horn (without articular and coronal processes)	Phlegmons of maxillofacial cavity with risk of spread to the cervical and thoracic regions	

	Pastki jag‘ning to‘liq tanasi va shoxlari	Phlegmons of maxillofacial cavity with risk of spread to the cervical and thoracic regions	

Acute odontogenic osteomyelitis.

Acute odontogenic osteomyelitis of the jaws (osteomyelitis odontogenica acuta) accounts for 60-65% of all osteomyelitis of the maxillofacial region and is most often observed in children aged 6-10 years. Since a child with this disease is usually admitted for an outpatient appointment to a dentist, and not to a hospital for the first time, each specialist should be aware of the pathognomonic signs of this disease. According to our clinic, only 24% of patients were correctly diagnosed by a doctor during an outpatient appointment! Only in 39% of cases did the doctor remove the "causal" tooth, and 20% of patients were hospitalized in a timely manner.

Complaints. Depending on the child's age and the localization of the process (upper or lower jaw, their sections), complaints can be divided into 2 groups: general and local. General - symptoms of intoxication of the body, manifested by fever, headache, loss of appetite, and sleep disturbances, come to the forefront. Local - painful swelling of the soft tissues surrounding the jaw; Deformation of the alveolar process in the part of the "causal" tooth in which pain is observed during biting; movement of 2-3 adjacent teeth.

Clinical presentation. The patient's general condition is serious. The skin and mucous membranes are pale, dry, the child is inhibited or agitated, and the body temperature is significantly elevated. Facial asymmetry is observed due to swelling of the soft tissues adjacent to the inflammatory focus. Here, the infiltrate is palpated and softened in the center, which indicates the formation of an abscess or phlegmon. The

degree of mouth opening depends on which tooth is "in good condition," i.e., on the localization of the inflammatory focus. If the masticatory muscles are involved in the process, contracture - limited mouth opening - occurs. The alveolar process is deformed on both sides - fusiform or flask-shaped. The transitional fold is smoothed at the level of the "causal" and 2-3 adjacent teeth, the mucous membrane in this area is hyperemic. Upon palpation of the alveolar process, pus is discharged from the dentoalveolar pouches. Acute or exacerbated chronic periodontitis is detected in the "Cause" tooth. Adjacent teeth (from 2 to 4) have pathological mobility. If the process is located in the lower position, Vincent's symptoms appear (paresthesia of the lower lip hemisphere due to compression of the inferior alveolar nerve). The process of osteomyelitis in the mandible has a protracted nature and is associated with the main type of blood supply and the dense cortical plate of the bone, with a small amount of spongiosis. The process of osteomyelitis is accompanied by regional lymphadenitis. A high degree of bone inflammation is accompanied by acute, pronounced clinical signs associated with the salivary type of jaw blood circulation, bone porosity, a thin cortical plate, a pronounced spongy layer, proximity to the orbit, the paranasal sinuses, and an abundance of subcutaneous adipose tissue covering the jaw. Radiological data are not informative for diagnosing osteomyelitis in the acute period. Laboratory blood tests show an increase in the number of leukocytes to 15-30 thousand, an increase in ESR to 30-50 mm per hour, a shift of the leukocyte formula to the left, and the presence of C-reactive protein. Proteins, erythrocytes, and leukocytes are found in the urine (as a result of general intoxication).

Differential diagnosis is carried out with odontogenic and neodontogenic abscesses or phlegmons of the orbit, cheek, submandibular region, hard palate abscess, sialoadenitis, specific processes, periostitis, Young's sarcoma, and suppuration of the jaw cyst. Children with acute odontogenic osteomyelitis are treated only in inpatient settings.

Figure 6. Upper jaw left side
Acute odontogenic osteomyelitis
Abscess of retrobulbar region
5th day after opening (drainage in wound)

Figure 7. This very boy in a moment following periostotomy (drainage in wound)

Drug treatment includes intravenous administration of detoxification agents (neohemodez, glucose, isotonic solution), concurrent administration of osteotropic antibiotics - lincomycin, notromycin, clindamycin, cefazolin. Antihistamines, calcium preparations, vitamin complexes containing vitamins A, D, E, B, C, and nonspecific immunomodulators are prescribed. In addition, the child's diet should consist mainly of dairy plants, and the drink should be vitamin-rich and in large quantities. Surgical treatment begins with the removal of the "causative" tooth and the opening of periosteal abscesses on both sides of the alveolar process. In severe forms of acute osteomyelitis in older children, in some cases, perforation of the cortical plate at the site of inflammation is possible for decompression. This intervention should be accompanied by the opening of inflammatory foci in the surrounding soft tissues (abscesses, phlegmon). Wounds are drained with rubber straps (Fig. 8, 9), starting from the 2nd day, antiseptics, proteolytic enzymes are washed, starting from the 3rd-4th day, for effective wound drainage, physical therapy is prescribed - antibiotic electrophoresis, intravenous therapy, proteolytic enzymes, ultraviolet rays, laser therapy, magnetotherapy. From the outside, bandages with 5-10% DMSO are applied to the soft tissues near the focus of inflammation. Antiseptic medications are prescribed for frequent mouth rinsing. It is necessary to observe the rules of oral hygiene. Complications of acute maxillofacial odontogenic osteomyelitis in children can include

chronicity of the process, sinusitis, temporomandibular arthritis, parotitis, the development of septic conditions, etc. Complications of the osteomyelitis process can include: deformation of the jaws as a result of the destruction of the growth zones of the jaws, partial adentia of permanent teeth, and ankylosis of the temporomandibular joint.

Hematogenous osteomyelitis.

Acute hematogenous osteomyelitis (osteomyelitis haematogenica) accounts for 7% of jaw osteomyelitis in children; it most often develops in the upper jaw of a child aged 1-2 years. Staphylococcus is the main etiological factor causing hematogenous osteomyelitis of the jaws at an early age, and its biological feature is high resistance to antibiotics. The entry points of infection are umbilical sepsis, purulent skin lesions (strepto- and staphyloderma), microtraumas of the oral mucosa, chroniosepsis, etc. The process begins with acute, pronounced intoxication. In the first 2-3 days, local symptoms are so rare that a diagnosis is usually not made in a timely manner. Symptoms of general disorders predominate and often become the basis for diagnosing acute respiratory diseases or sepsis with a pediatrician. Parental complaints include agitation, crying, refusal to eat, poor sleep, and fever.

Clinical presentation. Depending on the clinical course, 3 types of hematogenous osteomyelitis are distinguished: toxic, septicopyemic, and local focal osteomyelitis. The toxic form proceeds intensively - accompanied by a rise in body temperature and severe intoxication of the body. During the examination, tachycardia, rapid and shallow breathing are detected. A picture of hypochromic anemia in the blood, leukocytosis, left shift of the formula, increased ESR, hypoproteinemia. Against the background of a pronounced general picture, local clinical signs disappear. Careful examination reveals slight edema and slight redness of the mucous membrane of the alveolar processes. Signs of jaw involvement are detected only 4-6 days after the onset of the disease**.** The septicopyemic form develops rapidly and is characterized by a sharp deterioration of

the child's general condition. Unlike the toxic form, local symptoms grow faster. If the upper jaw is affected, then edema and soft tissue infiltration are detected in the infraorbital region (Fig. 10). Exophthalmos can be observed due to inflammation of the orbital tissue; chemosis of the conjunctiva is detected, the eye is closed (Fig. 11). 2-3 days after the onset of the disease, purulent exudate dissolves the cortical plate of the bone and exits under the periosteum (Fig. 12). The alveolar process of the jaw is deformed on both sides, the intermediate fold is smoothed, the mucous membrane is hyperemic, infiltrated. Fluctuations can be detected. The presence of primary infiltrates and fistulas is characteristic (Fig. 13). With damage to the medial parts of the maxilla, nasal breathing becomes difficult due to swelling of the nasal mucosa, and purulent discharge from the corresponding nasal passage is observed. In the inner corner of the eye, edema and infiltration of the tissues, swelling of the eyelids are noted; the skin in these areas is tense and red.

The mucous membrane of the alveolar process is edematous, hyperemic, the intermediate fold is smoothed due to an infiltrate located on the anterior surface of the maxilla. The process spreads to the nasal septum. Fistulas appear around the inner corner of the eye. Both compact plates of the bone may be destroyed, in which case a breakthrough of pus into the nasal cavity or the maxillary sinus is observed. If the lateral parts of the maxilla are damaged, nasal breathing becomes free. Infiltration appears in the upper part of the cheek, sharp swelling of the eyelids is observed, exophthalmos, hyperemia of the sclera and conjunctiva, and significant mucopurulent discharge appears on the eyelids. The process spreads to the zygomatic bone, the pus ruptures along the lower edge of the orbit near the outer corner of the eye, fistulas may also form in the alveolar process. The buds of temporary teeth die. When the disease progresses to the chronic stage, small sequestra form within 1-2 weeks. Large sequestra are usually not formed in the maxilla. Their appearance may be associated with improper treatment. The follicles of permanent teeth can die, be sequestered, and maintain the inflammatory

process. In very rare cases, bilateral diffuse lesions of the maxilla are observed, accompanied by the development of phlegmon of the retrobulbar cavity. Sometimes the facial and tubular bones are affected. The disease is often complicated, leading to the development of septic pneumonia. If the lower jaw is affected, then 3-4 days after the onset of the disease, inflammatory infiltrates develop in the submandibular and parotid masticatory regions. Purulent exudate spreads towards the external auditory canal, accompanied by the dissolution of the bone of the auditory canal and the formation of fistulas. After the opening of purulent foci at the lower edge of the zygomatic arch, fistulas may appear. In osteomyelitis in young children, damage to the temporomandibular articular process is masked by middle ear disease, therefore it is often treated inadequately and is detected much later in older children as unilateral or bilateral ankylosis of the temporomandibular joint. Very rarely in children, acute hematogenous osteomyelitis of the lower jaw transitions to a chronic form (Fig. 14), in which medium and large sequestra appear (2-3 weeks after the onset of the disease). In the area of inflammation, the dental tonsils are destroyed and sequestered, the growth zones of the jaws are affected, and purulent osteoarthritis develops. The disease often has a chronic recurrent character, with the sequestration of new parts of the bone. With such a course of the disease, the indicators of cellular immunity in children decrease (lymphopenia, decrease in the number of active T-lymphocytes). In the early period (up to 10 days), X-ray examination of the jaw does not reveal signs of osteomyelitis. On days 6-7 from the onset of the disease, in rare cases, foci of diffuse lysis and weak signs of bone formation can be detected in the bone tissue of the mandible. Blood and urine tests reveal signs of acute inflammation (erythropenia, leukocytosis, increased ESR, left shift of the formula, appearance of C-reactive protein; presence of protein, erythrocytes, leukocytes in urine).

Diagnostic complaints (sharp disturbance of the child's general condition - agitation, refusal to eat, poor sleep, body temperature up to 39-40°C), objective examination data (swelling of the soft tissues around the upper jaw, hyperemic skin

above it, smoothness of the transitional fold and fluctuation during palpation, bilateral thickening of the alveolar process), blood and urine examination data (erythropenia, leukocytosis, increased ESR)

Differential diagnosis of acute hematogenous osteomyelitis should be carried out with odontogenic osteomyelitis, Ewing's sarcoma, soft tissue abscess, acute parotitis, inflammatory diseases of the middle ear, acute inflammatory diseases of the eye and orbit.

Figure 8. Right-sided haematogenous osteomyelitis maxilla

Figure 9. Left side haematogenous osteomyelitis, Retrobulbarabse with chemosis of eyelid

Figure 10. Upper jaw left side bone epidermal abscess

Figure 11. Upper jaw left acute haematogenous osteomyelitis

Figure 12. Chronic hematogenous osteomyelitis of the left side of the mandible.

Treatment should be early, comprehensive, and carried out only in inpatient settings.

General treatment is primarily aimed at the detoxification of the child's body. It must be agreed upon with the pediatrician. In the first few days, all drug therapy is administered intravenously. For this, venesection or Seldinger venopuncture of the subclavian vein is performed. Subsequently, the drugs can be administered intramuscularly. Among antibiotics, drugs with a wide spectrum of action are prescribed - klaforan, cefazol, cefazolin, cephalosporins, and if necessary, two corresponding antibiotics are administered. For detoxification purposes, an isotopic solution, glucose, neocomiensane, neohemodez, and rheopolyglucin are administered. Optimization of the general somatic status is achieved through passive immunotherapy - anti-staphylococcal hyperimmune plasma, anti-staphylococcal gamma-globulin transfusion. Surgical treatment includes adequate opening of soft tissue abscesses and infiltrates, periosteal abscesses, with subsequent drainage of the wounds and their management according to the principles of purulent maxillofacial surgery. Complications of hematogenous osteomyelitis can be its transition to a chronic stage, sepsis, meningitis, mediastinitis, arthritis, mumps, the appearance of abscesses and phlegmons, the spread of inflammation to the orbit, the destruction of the growth zones of the jaw and the tonsils of permanent teeth. Complications of hematogenous

osteomyelitis can be: secondary deformities of the jaws, bones, and soft tissues of the maxillofacial region, cicatricial torsion of the eyelids, adentia, obliteration of the maxillary sinus, unilateral or bilateral ankylosis of the temporomandibular joint.

Primary chronic osteomyelitis.

In recent years, the literature frequently reports on primary chronic osteomyelitis - Garré's osteomyelitis, in the occurrence of which atypical forms of reaction to microorganisms, a decrease in the protective forces of the child's body, irrational use of antibacterial and other drugs, as well as incorrectly chosen tactics for treating primary odontogenic foci of inflammation play a large role. The disease begins in children aged 7-12 years. During the diagnosis of the primary chronic form of osteomyelitis, it is practically impossible to determine the odontogenic nature of the process, since at the time of examination, there is usually no temporary "causal" tooth, and the teeth on the affected side are intact. Due to the duration of the disease and the lack of clear information in the anamnesis, in most cases, it is impossible to establish the cause. Chronic primary osteomyelitis is mainly observed in the area of the premolars and molars of the mandible. The leading symptom of the disease is thickening of the body or expansion of the jaw angle. Clinical manifestations of inflammation may be absent or weakly and vaguely expressed. Upon palpation, the affected area is dense, painless, the mucous membrane above it is unchanged, and pus does not discharge when cut. Radiological examination reveals enlargement and compaction of the cortical plates, small resorption sites located in the periphery, and periosteal layers.

Chronic odontogenic osteomyelitis

Chronic odontogenic osteomyelitis (osteomyelitis odontogenica chronica) in children is usually a consequence of an acute disease, in the course of which complications arose or its treatment was not carried out in a timely and complete manner. In children, the transition from acute osteomyelitis to chronic osteomyelitis occurs significantly faster than in adults (7-9 days after the onset of the disease), which is due to many reasons:

1) presence of signs of secondary immunosuppression (chronic placenta, recent acute or exacerbation of chronic diseases); 2) a decrease in the body's immune reactivity (amount of T-lymphocytes, IgM, IgG; functional activity of lymphocytes); 3) late admission to the doctor; 4) timely and incorrect diagnosis; 5) incorrect treatment (late removal of the "causative" tooth; incorrect opening of an abscess or phlegmon; incorrect prescription of medications); 6) disproportionate and malnutrition, which weakens the child's body.

Chronic odontogenic osteomyelitis most often develops in children aged 5-10 years in the lower jaw. Periodic exacerbations and a prolonged course of the disease are characteristic. Three clinical and radiological variants of chronic osteomyelitis are distinguished: destructive, productive, and destructive-productive, depending on the processes occurring in the jaw bones (destructive or productive). The destructive form of chronic osteomyelitis is observed in weakened children, mainly in children aged 4-6 years, in the lower jaw. Complaints of children (or their parents) include periodic elevation of body temperature to subfebrile levels, swelling of the adjacent tissues of the jaw, the presence of fistulas with purulent discharge, a taste of pus in the mouth, deformation of the jaws and face, etc. History - acute odontogenic osteomyelitis.

Clinical presentation. Poisoning of the body is insignificant, but its symptoms are observed throughout the entire period of the disease: body temperature is subfebrile, appetite is decreased, the child gets tired quickly; changes appear in peripheral blood (leukocytosis, leukopenia, increased ESR) and urine (presence of protein, leukocytes). Facial deformation is associated with inflammatory infiltration of the soft tissues surrounding the focus in the jaw. Regional lymph nodes are enlarged, mobile, and almost painless. The alveolar process on the affected side is usually enlarged on both sides (Fig. 15). The "causative" tooth was removed earlier or is located in the tooth socket. Its crown is destroyed, the reaction to percussion may be positive. Adjacent teeth are mobile (grade II-III), untreated or not fully treated. The cervix and upper third of the roots are exposed, some teeth can change their position (Fig. 16). The mucous

membrane in this area is swollen and bruised. Fistulas with purulent discharge and "swelling" granulations appear in the alveolar process, which can be located on both sides of it, on the hard palate (Fig. 17), in the scars after the opening of phlegmons and abscesses. Granulation tissue, like the fistula itself, is a reaction to a foreign body without a sequestral box, usually formed around the sequestrum. The inflammatory process intensifies with the cessation of purulent discharge, which is often observed in the chronic stage of osteomyelitis. In this case, abscesses and phlegmons develop in the tissues around the jaw, which is accompanied by a deterioration in the patient's general condition, increased pain, and a rise in body temperature. The presence of additional clinical signs depends on the localization of the process - in the lower or upper jaw. Thus, with damage to the corners and branches of the mandible, trismus can be detected, and with damage to the torso, Vincent's sign. The first radiological signs of bone tissue destruction appear on days 10-14 of the disease. In the upper jaw, sequestra are formed on the 2nd-3rd day, in the lower jaw later, in the 3rd-4th week. In young children (4-6 years), sequestra of medium and large sizes are often formed, in older children - small, capable of absorption and discharge through fistulas. There is no clear boundary of the destruction focus. The final limits of destruction are determined at the end of 6-7 weeks from the first manifestations of the disease.

Figure 13. The patient has chronic osteomyelitis of the left left side of the lower jaw (causal tooth and several adjacent teeth have been removed).

Figure 14. Patient with chronic odontogenic osteomyelitis (destructive form) of left lower jaw

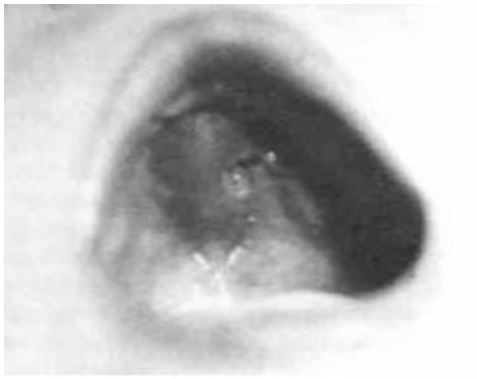


Figure 15. Chronic odontogenic osteomyelitis (destructive form) of left upper jaw, defect of hard palate of oral cavity

Figure 16. Chronic odontogenic osteomyelitis (destructive form)

Fig. 17. Patient with chronic odontogenic osteomyelitis of lower jaw (hyperplastic form) of the left lower jaw

The productive (hyperplastic) form of osteomyelitis develops during the period of intensive growth of the facial skeleton (9-12 years), most often localized in the lower jaw. Children (or their parents) - complain of facial deformation in the area of inflammation. In the anamnesis - acute odontogenic osteomyelitis, periodic growth of deformation and its painfulness.

Clinical presentation. The child's general condition remained practically unchanged. Intoxication symptoms are insignificant; they are more pronounced during the acute phase of the process. Local - deformation of the face due to an increase in bone size in the area of the inflammatory focus. The surrounding soft tissues remain unchanged. Regional lymph nodes are enlarged, inactive, and during prolonged illness can merge, forming conglomerates. The mouth opens freely. The alveolar process in

the focus of osteomyelitis is deformed, dense, slightly painful on palpation. The mucous membrane here is slightly bluish and swollen. The "cause" may be a damaged tooth, the percussion of which may be slightly painful. The adjacent teeth are immobile; they may have been treated before. No leaks. Laboratory indicators indicate a slow chronic process. In addition, a decrease in the number of T-lymphocytes and their blastotransforming ability is observed, which is a test for differential diagnosis with fibrous dysplasia. Radiological examination reveals an increase in bone volume due to the endostal and periosteal structure of the bone tissue. Individual areas of bone consolidation - zones of osteosclerosis, as well as a periosteal reaction on the radiograph, manifesting as a shadow of ossified tissue from the periosteum. The destructive-productive form of chronic odontogenic osteomyelitis is the most common consequence of acute bone inflammation in children aged 7-12 years. Depending on which processes predominate in the bone - death or its structure. Multiple small sequestra may form, which can be absorbed independently or secreted through fistulas. On the radiograph, bone lysis can be seen in the form of isolated small foci of rarefaction, endostatic reconstruction processes - foci of rarefaction alternate with foci of osteosclerosis, which leads to the appearance of a rough spotted image of the bone. Active periosteal layering of the bone is observed. Differential diagnosis of chronic osteomyelitis should be carried out with chronic periostitis, migrating subcutaneous facial granuloma, tuberculosis, actinomycosis, Young's sarcoma, fibrous dysplasia, osteoblastoclastoma, and eosinophilic granuloma.

Treatment. The scope of care for chronic osteomyelitis depends on the nature and extent of the inflammatory process in the bone and the general condition of the child. In chronic odontogenic osteomyelitis, prescribing antibacterial drugs in the remission stage is not advisable; osteotropic antibiotics are effective when the process intensifies. The main attention is paid to drugs that enhance the immune and regenerative properties of the body (pentoxyl, sodium nucleinate, ribomunil, tonsilogen); anabolic drugs (retabolil, nerabol); microbial polysaccharides (prodigiosan; calcium preparations

(calcium gluconate, calcium glycerophosphate, biocalcovite). In addition, vitamins (vitamins A, B, C, D, E) and antihistamine therapy are administered**.** The diet should be enriched with vitamins, microelements (mainly dairy plants). Local treatment of the destructive form of chronic osteomyelitis includes removal of the "causative" tooth, and if it remains, drainage of the inflammatory focus through the fistula by washing it with antiseptics and proteolytic enzymes to accelerate the absorption of sequestra. If these movements are ineffective, the periosteum is opened on both sides of the alveolar process in the area of inflammation. Wounds are drained with rubber drains and rinsed with the same medications as fistulas.

To accelerate bone regeneration processes and increase local immunity, levamisole (0.1 mg levamisole per 0.1 ml of isotonic solution) is administered subperiosteally.

Sequestrectomy in a child is performed in the following cases: 1. "Smoked" by a stream of granulations. 2. On the radiograph - large sequestra completely separated from the jawbone. 3. Dead tooth buds. It should be noted that during sequestrectomy in children, the tissues of the sequestral capsule are not damaged or scraped. Anti-inflammatory therapy is prescribed in the postoperative period.

Treatment for the productive form of odontogenic osteomyelitis includes the identification and removal of the "causative" tooth, opening of the periosteum, and drainage of the inflammatory focus. After this, physical therapy is prescribed, aimed at absorbing the infiltrates. With the formation of large bone layers, the bone layers are removed, and the wound is drained. Complications that can be observed in chronic osteomyelitis in children may include:

- recent periods - formation of abscesses, phlegmons, pathological fractures, exacerbation of chronic osteomyelitis; - long periods - cicatricial deformities of soft tissues; - jaw deformation due to bone tissue defect or hyperostosis; - obliteration of the maxillary sinus; formation of a false joint in the mandible; - underdevelopment of the jaw; - adentia; - ankylosis. The younger the child and the larger the extent of bone tissue

damage, the higher the frequency of these complications. Prevention of chronic odontogenic osteomyelitis and its complications consists of: - detection and treatment of odontogenic inflammatory foci; - timely and adequate treatment of acute and chronic osteomyelitis in full. One of the objective methods for monitoring the effectiveness of treatment of various forms of osteomyelitis. Significant deformation of the body is detected in the area of the removed teeth and is considered radiological. With the help of this apparatus, the processes of bone tissue restructuring are observed. All children who have undergone odontogenic osteomyelitis with bone tissue destruction and tooth germ death must be registered for dispensary observation for the timely provision of orthodontic, orthopedic, and surgical care aimed at preventing and eliminating dentofacial deformities and normalizing chewing function.

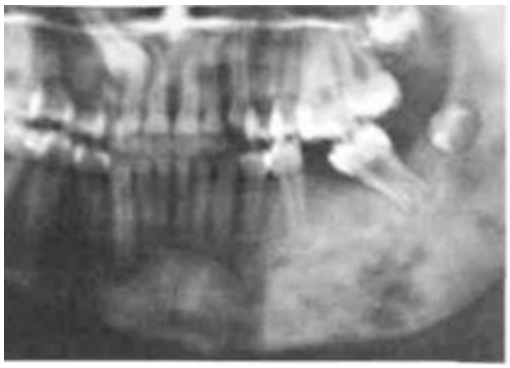


Figure 18. Chronic odontogenic osteomyelitis (destructive form)

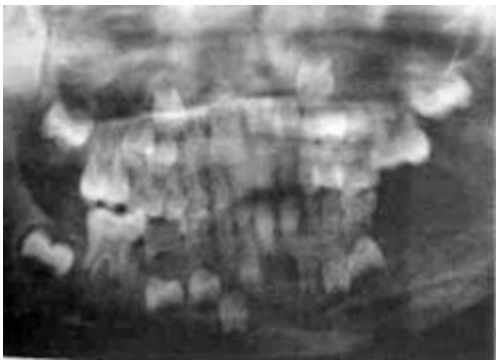


Figure 19. Orthopantomogram of a patient with of left lower jaw odontogenic osteomyelitis (destructive form)

of the mandible after 9 months of treatment

HAYMORITES

Haigmoritis - inflammation of the mucous membrane of the maxillary sinus. The maxillary sinus is the largest air-conducting cavity located in the maxillary layer. The inner wall of the maxillary sinus is the outer wall of the nasal cavity, which is projected onto the inferior and middle nasal passages. It has an opening through which the cavity

connects with the nasal cavity in the anterior part of the middle nasal passage, which is very important to consider when treating sinusitis in older children. Since the fluid level is located below this opening, the puncture should be performed through the inferior nasal passage. The diameter of the opening is from 2 mm to 5 mm, and it passes into an oblique canal 2-19 mm long, which makes it difficult for exudate to escape. The inner wall of the upper posterior section is closely connected with the cells of the latticed labyrinth, in connection with which inflammation can spread in this direction. The upper wall of the maxillary sinus is the lower wall of the orbit. The anterior wall - the facial wall - is covered with soft tissues of the face and can be palpated. The canine fossa is located here, above which the second branch of the trigeminal nerve emerges through the eye socket opening. The posterior wall is a continuation of the external wall, bordering the pterygoid and subtemporal fossae, and is formed by the zygomatic process of the maxilla and its tuberosity. The lower wall of the sinus is the posterior part of the maxillary alveolar process. It is precisely it that closely borders the first and second molars and the fossae of both premolars. Sometimes the bone tissue above the ends of the roots of the aforementioned teeth is absent and can be directly covered by the mucous membrane of the maxillary sinus. Therefore, inflammatory processes at the root tips can lead to inflammation of the maxillary sinus - odontogenic sinusitis. The outer wall of the sinus corresponds to the maxillary tuberosity. In young children, odontogenic sinusitis does not develop because the maxillary sinus is located significantly higher (it completely "descends" by the age of 15-16), and in middle and older children, it occurs with post-traumatic or per continuitatem suppuration of cysts that have invaded the maxillary sinus. Dental surgeons often deal with odontogenic sinusitis, which can be acute, chronic, and subacute chronic.

Acute odontogenic sinusitis

In acute odontogenic sinusitis (haigmoritis odontogenica acuta) - purulent discharge from the corresponding half of the nose, unilateral headache and prolonged feeling of heaviness in the head, neuralgia of the second branch of the trigeminal nerve,

an unpleasant nasal odor that the child himself or others notice, increased amount of nasal discharge, and increased pain when the head is bent.

Clinical presentation. The child's face is asymmetrical due to swelling of the soft tissues on the affected side. The skin in this area may be hyperemic. Pain in the bone walls of the maxillary sinus is determined by palpation.

Figure 20. Child with left-sided odontogenic sinusitis, forehead against the background of diabetes mellitus under the eye and to the soft tissues of the left eye complicated.

Figure 21. Before the enucleation of this child's left eye.

Figure 22. Radiograph of the paranasal sinuses. Right-sided acute odontogenic sinusitis

When examining the oral cavity, the "causal" tooth (usually 16th, 26th) is damaged, and its percussion is painful. Odontodiagnostic data of causative teeth indicate the death of the pulp of this tooth. The transitional fold over the "causal" tooth is smoothed, painful on palpation, and hyperemia of the mucous membrane is possible.

This disease occurs against a comorbid background (diabetes mellitus). For radiographic examination, general radiography is performed in the nasopharyngeal projection. On the radiograph, in acute odontogenic sinusitis, a darkening of the affected cavity with clear boundaries or a decrease in its transparency (adhesion) is observed, while in normal conditions, this cavity resembles a bright area resembling an eye socket in terms of transparency.

The degree of darkening can correspond to the degree of exudate (in purulent sinusitis). Odontogenic sinusitis is characterized by a free upper medial angle of the maxillary sinus, i.e., it corresponds in transparency to the intact side or the orbit. Differential diagnosis of acute odontogenic sinusitis is carried out with acute rhinogenic and acute chronic, suppurative maxillary cysts, acute periostitis, and maxillary osteomyelitis. Treatment of acute odontogenic sinusitis involves removing the "causative" tooth. Upon removal of the anastomosis (due to the aforementioned anatomical features), it is possible to open the cavity with the appearance of an oroantral anastomosis.

Drainage of the maxillary sinus is performed through a catheter inserted through the inferior nasal passage, i.e., a maxillary-nasal anastomosis is performed. Vasoconstricting drops are prescribed to improve the flow of exudate into the corresponding nasal passage. Drug treatment consists of prescribing antibacterial, antihistamine, and analgesic drugs.

Chronic odontogenic sinusitis.

Chronic inflammation of the maxillary sinus (haigmoritis odontogenica chronica) develops in children when timely assistance is not provided or acute sinusitis is not adequately treated. In chronic inflammation of the maxillary sinus, complaints include: unilateral chronic nasal congestion, sometimes - purulent discharge from one nostril with a characteristic odor, decreased sense of smell, feeling of tension or purulent pain on the affected side of the maxilla, headache, and fatigue. The child complains that after

tooth extraction, the hole does not close, granulations "protrude" from it, sometimes (width of the mouth) when liquid food is consumed, the hole flows through the nose.

Clinical presentation. Chronic odontogenic sinusitis usually proceeds without pronounced clinical signs, i.e., the child's face at the examination is symmetrical, the skin on the affected side is of the usual color. Palpation of the anterior wall of the maxillary sinus causes pain. In the oral cavity, the mucous membrane of the upper vestibule is somewhat cyanotic.

Sometimes the only sign of a chronic inflammatory process of the maxillary sinus is the presence of an opening between it and the oral cavity. In inflammatory cases, chronic maxillary sinusitis is accompanied by polyps (often in the lower wall of the maxillary sinus). The radiograph reveals diffuse, often homogeneous, and intense darkening of the maxillary mucosa due to hypertrophy. Inflammatory diseases of the maxillofacial region Differential diagnosis of chronic odontogenic sinusitis in children is carried out with cysts growing into the maxillary sinus, fibrous osteodystrophy, tumors of the maxillary sinus, rhinogenic sinusitis. Dentists often have to make a differential diagnosis with rhinogenic sinusitis, for which the following signs are characteristic: - usually bilateral lesions of the maxillary sinus; - in the anamnesis, there is no information about a tooth that could cause inflammation of the maxillary sinus; - on the radiograph, a "free" upper distal angle of the tooth sinus is detected; - on the radiograph, there is no contact of the tooth with the maxillary sinus.

Treatment. Despite the low incidence of sinusitis in children, this does not exempt the pediatric dentist from knowledge of the clinical picture and treatment tactics of this disease. The tasks of complex treatment of chronic odontogenic sinusitis are: 1) elimination of the cause, i.e., tooth extraction (if any); 2) removal of pathologically altered tissues by performing a maxilotomy; 3) if there is an oroantral joint - its elimination simultaneously with a maxilotomy; 4) ensuring constant good flow from the maxillary sinus through the inferior nasal passage in the postoperative period; 5) treatment with medications. In children, maxilotomy is performed under general

anesthesia in a hospital setting. From the oropharyngeal fold, the mucosal-periosteal flap is incised according to the functions: if it is necessary to close the connection with the cavity, it is advisable to select trapezoidal (opening is carried out not above the tooth neck, but above it) with additional horizontal incisions, which allow closing the connection. Access to the maxillary sinus is achieved by removing a portion of its anterior bone wall using a bormashina. Subsequently, the contents of the maxillary sinus and the pathologically altered mucous membrane are evacuated, and a connection - a nasogymoroanastomosis - is created between it and the nasal cavity in the area of the inferior nasal passage. After the operation, the end of the iodoform swab soaked in vaseline is removed from it, and the maxillary sinus is filled loosely to prevent blood accumulation and suppuration of the hematoma, i.e., to preserve the pneumatization of the cavity. The tampon is removed from the cavity on the 2nd and 3rd days after the operation against the background of initial anesthesia, after which vasoconstrictors and antihistamines are prescribed in the nose. It is necessary to explain to the child the importance of observing oral hygiene (frequent rinsing with antiseptics, brushing teeth). Complications of chronic odontogenic sinusitis can be exacerbation of the process or the development of osteomyelitis per continuitate (see Fig. 22, 23).

INFLAMMATORY PROCESSES OF SOFT TISSUES. INFLAMMATORY INFILTRATE.

In 1988, an expanded meeting of the Scientific Council of the USSR Council of Ministers on surgical dentistry was held in Moscow at the Central Research Institute of Dentistry, where the issue of including such forms as osteitis and inflammatory infiltrate in the classification of inflammatory processes of the maxillofacial region was considered. According to some researchers, osteitis and inflammatory infiltrate do not have clear objective clinical and additional criteria. However, the introduction of these forms allows for a more differentiated approach to treatment planning, preventing surgical interventions.

This process is characterized by the absence of pronounced signs of exudation. After serous inflammation, the process does not progress towards purulent inflammation. After passing this stage, signs of the proliferative stage appear, clinically manifested by the appearance of an infiltrate. In children, odontogenic infection with prolonged signs of serous inflammation (without a tendency to transition to a purulent process or recovery) is often a sign of an areactive or hyporeactive course of the disease. These forms are very rarely observed in children up to 4-5 years of age and most often in children up to 7-12 years of age. These processes are caused by secondary immunodeficiency (as a consequence of the weakening of the body after past illnesses), hypotrophy, various disorders of immuno-endocrine regulation. In children, the number of clinical and additional signs is insufficient to diagnose inflammatory infiltrates in soft tissues or jaw bones (ostitis) caused by injuries, odontogenic or neodontogenic infection, which can only be done by the most experienced clinicians. For the main group of doctors, such diagnoses can serve as legal protection against misconduct, since their incompatibility with the true picture of the disease in terms of the hypodiagnostic side leads to the widespread prevalence of the process. The difficulty in making these diagnoses lies in the similarity of the initial signs of many inflammatory processes in the maxillofacial region. Only without signs of intoxication, the dynamics of the inflammatory process (not collateral edema, but in the direction of improvement or deterioration of the local condition against the background of a practically painless infiltrate) can we talk about an inflammatory infiltrate. Despite the recommendations for conservative treatment of inflammatory infiltrates, it is better to conduct it after opening the inflammatory focus and prolonged drainage. Then physiotherapeutic methods, compresses with various medications will be more effective.

ABSCESSES AND FLEGMONAS

The largest number of children hospitalized annually in maxillofacial surgery hospitals are patients with abscesses and phlegmons. Most abscesses and phlegmons have an odontogenic origin. Such an indicator in group 3 is alarming, since it is a

consequence of insufficient therapeutic and preventive work on the sanitation of oral organs, associated with the high intensity of inflammatory processes of temporary teeth and the first permanent molars. The incidence of abscesses and phlegmons varies significantly throughout the year. It reaches its peak in autumn and spring. Odontogenic abscesses and phlegmons are most often observed in children aged 6-12 years, and neodontogenic abscesses in children under 5 years of age.

An abscess (abscessum) is a localized purulent process of soft tissues. In childhood, subcutaneous adipose tissue in the maxillofacial region is very well expressed, performing protective, shock-absorbing functions, forming rounded contours of the face. However, due to insufficient blood supply, this tissue is often involved in the inflammatory process, as a result of which a cavity, usually filled with pus, appears.

Phlegmon (phlegmon) is a diffuse purulent inflammation of soft tissues. Practice shows that doctors often abuse the diagnosis of "phlegmon" in children, that is, it does not correspond to the true diagnosis. In children, phlegmon can develop only in areas with a high content of subcutaneous adipose tissue or in cases of late seeking of help and improper treatment. Superficial abscesses are usually considered phlegmon; such abscesses are most often observed in children, in which case significant collateral edema rapidly develops in the soft tissues.

Etiology. Streptococci and staphylococci predominate, and mixed microflora present with E. coli and other types of bacilli causes abscesses and phlegmon. In recent years, it has been proven that anaerobes, bacterioids, and clostridia play an important role in the development of abscesses and phlegmons, as well as in the association of aerobic and anaerobic infections. In some cases, the pus obtained during the opening of abscesses and phlegmons prevents the growth of microorganisms in the usual nutrient medium, which indicates pathogens not characteristic of these diseases, which cannot be detected by simple examination methods. This explains to a certain extent the prevalence of abscesses and atypical phlegmon. In children, in 80-90% of cases,

abscesses and phlegmons have an odontogenic origin and arise as a result of the spread of infection from apical foci, chronic periodontitis of temporary and permanent teeth, suppuration of radicular cysts; they are accompanied by acute and chronic osteomyelitis, developing as complications of acute periostitis of the jaws. The regularities of the clinical course of abscesses and phlegmons in children are related to the anatomical and physiological features of facial tissues: 1) in children, the soft tissues of the perimandibular region are characterized by a lower density of fasciae and aponeuroses, limiting one or another anatomical space; 2) softer subcutaneous adipose tissue and intermuscular tissue; 3) incompleteness of the tissue barrier, leading to the spread of the infectious-inflammatory process to new tissue structures; 4) functional immaturity of the lymphatic system, leading to frequent lesions of the lymph nodes; 5) the blood supply to the face is better than to other parts of the body, having its positive (toxins are released from the focus of inflammation faster, hormones, protective factors, oxygen enter, which helps reduce inflammation) and negative (quick spread of infection) sides. In children, blood vessels are also more permeable and susceptible to infection, therefore inflammatory signs such as edema and tissue infiltration have pronounced clinical manifestations; 6) pronounced pain reactions; 7) rapid formation of a purulent focus (within 2-3 days); 8) superficially located abscesses and phlegmons are accompanied by significant deformation of the face - infiltration and sharp edema of the subcutaneous adipose tissue, while deep abscesses are accompanied by impaired chewing, swallowing, and speech functions. Odontogenic processes most often develop during the period of exchange prikus, and neodontogenic processes in children under 5 years of age, in which the lymphatic system is most often affected (lymphadenitis, periadenitis, adenophlegmon). General reactions often occur before the development of signs of a local inflammatory process and are observed even in isolated forms of odontogenic infection, such as acute or chronic acute periodontitis, which sometimes leads to diagnostic errors. In the neodontogenic process, teeth are intact; in the stomatogenic process, changes in the mucous membrane are observed: hyperemia of

certain areas, aphthae, erosions, etc. If the cause of the inflammatory process is a tooth (i.e., an odontogenic process), its crown is partially or completely destroyed, and a change in color can be observed; percussion of the tooth is painful, it may be mobile, the surrounding mucous membrane may be hyperemic and swollen; unilateral or bilateral thickening of the alveolar process. It should be remembered that the inflammatory process in children can be divided into the following types according to clinical manifestations: - hyperergic - general reactions predominate over local signs of inflammation; - hypoergic - general reactions and local signs of inflammation are poorly expressed (in such cases, the acute process transitions to a chronic one without noticeable changes); - normergic - all signs of local inflammation are well expressed against the background of a disorder of the child's general condition. When describing the child's general condition, there is a need to determine their weight. The clinical terms "satisfactory," "moderate" and "severe" are not so clear and should be compared, since the severity of the child's general condition is determined by signs of intoxication. In young children, the level of immunological reactivity of the body is low, which is associated with the functional immaturity of immunocompetent cells at all levels, the incompleteness of local and central mechanisms for regulating their functions. In this regard, immunological defense in inflammation in children aged 3-7 years is weaker than in inflammation.

The central nervous system of children is characterized by a discrepancy between the intensity of excitation and inhibition processes. In general, in children, the metabolism of substances, the activity of individual organs and systems occurs at a high energy level with a decrease in reserve capabilities. In them, changes in the blood (shift of the white blood formula towards young forms of leukocytes, an increase in the total number of leukocytes, an increase in ESR, a decrease in the number of erythrocytes and a decrease in hemoglobin) and more often pathological changes in the urine (proteinuria and hematuria) were observed.

The classification of abscesses and phlegmons of the maxillofacial region is presented in Diagram 1. The tonographic-anatomical areas of the face and neck are shown in Figure 23. The following local clinical signs are characteristic of superficial abscesses and phlegmon: deformation of soft tissues associated with swelling and infiltration, hyperemia of the skin over the inflammatory focus, painful infiltrate on palpation.

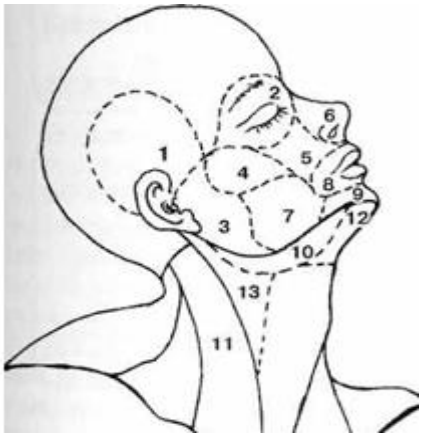
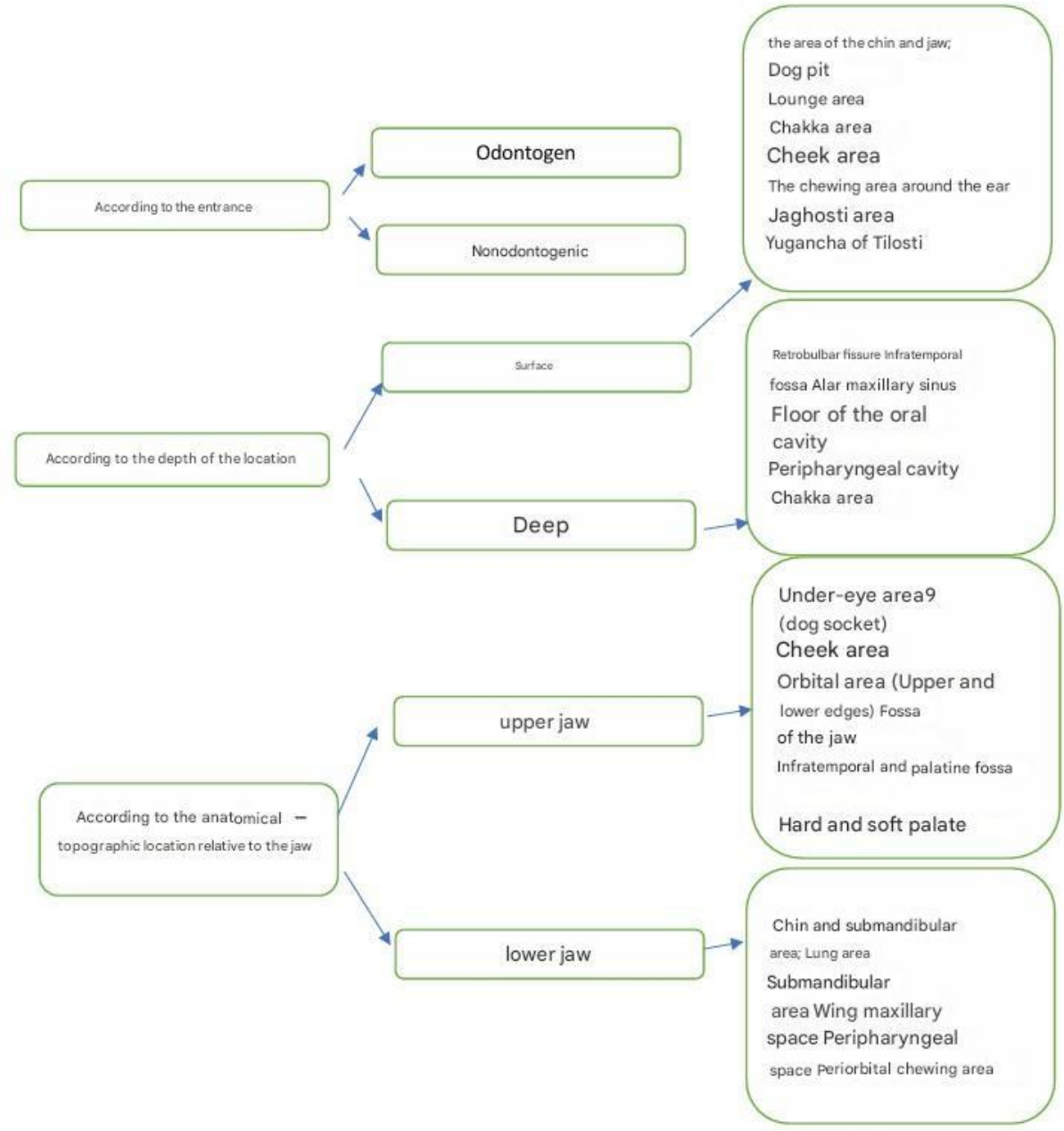


Figure 23. Topographic-anatomical areas of the face and neck: 1 — r.temporalis; 2 — r.orbitalis; 3 — r.parotideomasseterica; 4 — r.zygomatica; 5 — r.infraorbitalis; 6 — r. nasal is; 7 — r. buccal is; 8 — r. oralis; 9 — r. mentalis; 10 — trigonum submandibularis; 11 — r.sternocleidomastoideus; 12 — r.submentalis; 13 — trigonum caroticum

Thus, phlegmon of the submandibular surface is characterized by a change in skin color (hyperemia), significant tissue deformation, and painful palpation of the localization of the process. In the deep process, for example, in the pterygomandibular space, a sharp impairment of function is detected (Trismus II-III degree, pain and inability to open the mouth), tissue deformation is insignificant, the skin is not hyperemic. Differential diagnosis of abscesses and phlegmons of various origins is very important. For the clinician, it is necessary to determine its character:

a) neodontogenic - usually occurs in the topographic and anatomical parts of the face and neck: as a result of an inflammatory process in lymph nodes, suppuration of a post-traumatic hematoma, or spread of the inflammatory process from other parts;

b) odontogenic - associated with dental diseases. It is also important to distinguish between abscesses and phlegmons caused by nonspecific (ordinary) microflora and those caused by specific processes (so-called cold abscesses).



Scheme 4. Classification of abscesses and phlegmons of the maxillofacial region.

Often, the doctor has to conduct differential diagnosis of superficial phlegmons with erysipelas.

Figure 24. Sarcoma of the right submandibular region

Recently, we are increasingly encountering tumor processes and blood diseases in children, the clinical picture of which resembles acute and chronic inflammatory processes of the maxillofacial region. Often, blood diseases - leukemia, non-Hodgkin's lymphoma - have pronounced signs of intoxication and local inflammation. In this regard, in cases of atypical clinical manifestations, as well as in the presence of a suspected tumor, it is necessary to conduct additional studies, namely: 1) a detailed blood analysis with data on the age and age forms of leukocytes;

2) CT (computer tomography);

3) MRI (magnetic resonance);

4) thermography; 5) sternal puncture;

6) radioisotope research;

7) puncture or other type of biopsy, followed by examination of the child by an oncologist, hematologist, neurosurgeon, and other specialists according to indications.

Abscesses and phlegmons of mandible

The mandibular region is bordered by the edge of the body of the mandible and both abdomens of the biceps muscle. It is in this area that abscesses and phlegmons often appear. Here, the mandibular triangle, in which the inflammatory process most often develops, is distinguished. It should be taken into account that the mandibular triangle contains the lower jaw salivary gland and its excretory duct, lymph nodes, facial artery and vein, as well as a large amount of soft tissue.

Complaints. In abscesses, children complain of pain and heaviness in the lower jaw area, pain upon contact with it. If the process is odontogenic, it is known from the anamnesis that pain in the lower jaw region precedes toothache, which is distorted and untreated or not fully cured.

Clinical presentation. The general condition has changed in most cases, but not severely. The child is weak, restless, with decreased appetite and slightly elevated body temperature. Objective: - facial deformation due to infiltration of the tissues of the mandibular region - facial asymmetry. The skin over the infiltrate is hyperemic, sometimes with a bluish tinge;

- Palpation reveals a dense, painful, localized infiltrate above which the skin does not accumulate into a fold. Signs of fluctuation may be observed at the site of the greatest deformity; - mouth opening is usually not disturbed; - in the odontogenic process, a colorless or damaged crown "causative" tooth is detected, percussion of which is painful. In phlegmon of the mandibular region, there is diffuse pain in this area, opening the mouth is painless.

Clinical presentation. In young children, facial asymmetry is observed due to increased body temperature, significant lethargy, adynamia, anorexia, sometimes vomiting, diffuse edema of the soft tissues of the mandibular region, which, unlike an abscess, does not have clear boundaries. The skin here is tense, slightly hyperemic, and does not accumulate well in the folds (Fig. 48). A sharply painful infiltrate is palpated in the center; fluctuation is rarely detected. If the inflammatory infiltrate tends to spread to the pterygomandibular space in the mandibular region, it can be slightly painful and with limited mouth opening. Significant swelling and hyperemia of the sublingual mucosa are observed on the affected side of the oral cavity. The "causative" tooth is eroded or the color of the crown is altered, percussion is painful. The inflammatory process can spread from the lower jaw in the following directions: - submandibular; - sublingual; - to the pterygomandibular space.

Surgical treatment of abscesses and phlegmons of the mandibular region involves adequate opening of the inflammatory focus. Before opening the phlegmon, the area of greatest deformation of the inflammation should be marked with a green diamond solution. Then the skin, subcutaneous adipose tissue, cervical surface fascia, and subcutaneous muscle are incised 2 cm below the edge of the jaw and parallel to it in the mandibular triangle. From the angle of the jaw, it is necessary to retreat 2 cm forward and down. Connecting this point with the center of the chin, we obtain a line in the region of the lower jaw, which is called the line of safe sections. Such a direction of the incision reduces the likelihood of damage to the peripheral branches of the facial nerve, the corresponding veins and arteries. Then, with a hemostatic clamp, it is inserted into the inflammatory focus, which is determined by less tissue tension and the amount of purulent exudate. If the surrounding soft tissues are involved in the process, after opening the main focus in the mandibular region, they are reviewed through the same incision. A drain is inserted into the wound. Medication is administered.

Submandibular abscesses and phlegmons

The submandibular region corresponds to the anatomical boundaries of the submandibular triangle. The upper boundary of this muscle is the maxillofacial muscle, the lower boundary is the superficial fascia of the neck, and the lateral boundaries are the anterior abdominal part of the digastric muscles. Fiber and lymph nodes are located in this area. In this localization, the focus of inflammation is located between the skin and m. mylohyoideus. The development of abscesses and phlegmons in the submandibular region in young children is caused by inflammatory processes in the lymph nodes, an odontogenic focus in the lower scapulae in older children (rarely), as well as the spread of a purulent process from the mandibular region.

Complaints in abscesses - painful swelling of the submandibular tissues upon contact, fever. In an odontogenic process, the child complains of toothache. The general condition of young children is impaired, while in older children it is satisfactory.

Surgical treatment. The abscess opens from the oral cavity in the projection of the middle part of the sublingual region. Distal to the sublingual gland, closer to the lingual surface of the jaw, only the mucous membrane is incised, as the submandibular salivary gland and lingual artery pass deeper. Then, using a "mosquito" type clamp, penetrate into the depths of the inflammatory focus. The wound is necessarily drained with rubber straps.

Jaw-tongue tract abscess. The child complains of painful limited mouth opening, sharp pain when swallowing and chewing food, as well as feeling unwell (weakness, decreased appetite, fever).

Clinical presentation. A pathognomonic sign of a maxillofacial abscess is difficulty opening the mouth (trizm of varying degrees). Due to limited mouth opening, it is necessary to administer Bersh anesthesia or open the abscess under general anesthesia. On examination, the maxillofacial groove is not detected (smoothed) due to swelling and infiltration of the tissues in this area. The mucous membrane here is swollen and reddened. Palpation of the tissues is very painful. The "causative" tooth is usually discolored or partially or completely destroyed, the surrounding mucous membrane is without hyperemia, painful on palpation. A concomitant disease is regional lymphadenitis of the submandibular and retromandibular regions**.**

Surgical treatment. Surgical intervention under local anesthesia for a maxillofacial abscess is possible only with satisfactory mouth opening. The mucous membrane is incised parallel to and closer to the body of the mandible. This is due to the fact that the arteries and veins of the tongue are located medially and more superficially. Then, using a "mosquito" type clamp, they enter the inflammatory focus and release it. In this case, the surgeon's fingers should press the tissues in the distal part of the submandibular region upwards. In cases where the exudate descends into the pterygomandibular space

and an inflammatory focus may be located, opening an abscess of the maxillofacial tract does not give the expected results, as evidenced by the presence of pain and an infiltrate in the projection of the angle of the mandible and beyond. This requires additional extraoral incision of the tissues in this area along the line of "safe" incisions and prolonged drainage of the wound..

Suborbital and canine fossa abscesses

Suborbital abscess The suborbital area contains tissues located at the following boundaries: superiorly - the edge of the orbit, inferiorly - the projection of the transitional fold of the upper vestibule of the mouth onto the skin, externally - the zygomatico-maxillary suture, internally - the nasal wing. The appearance of an infraorbital abscess is caused by teeth 14, 13, 12, 22, 23, 24. The children's complaints are acute pain and swelling of the suborbital tissue. Clinical presentation. Edema and painful inflammatory infiltration are detected in the tissues of the infraorbital region, the skin over which is hyperemic and does not fold. When the swelling spreads to the eyelids, they close tightly. There may be signs of glacial nerve irritation. The mouth opens freely. In the mouth, you can see a "causative" - a damaged tooth with a changed color or hyperemic surrounding mucous membrane, palpation of this area is painful.

Surgical treatment. The opening of an infraorbital abscess is practically indistinguishable from a dental abscess. The only difference is that to reach the focus of inflammation, the clamp is moved closer to the lower orbital border, which is secured externally by the surgeon's finger.

Abscess of the canine fossa.

Below the infraorbital region is the canine fossa, which is the anterior wall of the maxillary sinus. The inflammatory process in the canine cavity is caused by temporary or permanent upper canines and the first premolars, sometimes by incisors. The children's complaints are pain in the affected area and deformation of the tissues of the cheek and nasolabial fold. The clinical course of the disease initially resembles acute purulent perioditis of the upper jaw.

Clinical presentation. Upon examination, swelling of the cheek area, infraorbital and medial part of the upper lip, extends to the lower, and sometimes upper, eyelid on the affected side. The nasolabial fold is smoothed, the wing of the nose is slightly raised. Skin of normal color, palpation of the site, especially bimanual (simultaneously from the skin and vestibule side) causes pain. The mouth is open, the transitional fold of the upper vestibule is smoothed, its mucous membrane (on the side of the face and transitional fold) is hyperemic and edematous. The "causative" tooth (13, 23,53, 63, 14, 24) is usually damaged or filled, its percussion is painful. Surgical treatment of an abscess of the oral cavity consists of excision of tissues transferred over and parallel to the transitional fold of the upper vestibule. Then, adhering to the bones, the canine teeth, where the inflammatory focus is located, are inserted into the cavity and drained with a rubber bushing.

Abscesses and phlegmons of cheek region

The borders of the zygomatic region correspond to the junctions of the zygomatic muscle: above - the lower edge of the zygomatic bone, below - the lower edge of the mandible, anteriorly - the nasolabial fold and its extension to the mandibular border, posteriorly - the anterior edge of the masticatory muscle. The spread of infection from the molars of the upper jaw, as well as from the infraorbital and parotid-masticatory regions, a purulent hematoma after injury or an abscessed form of the furuncle can cause abscesses and phlegmon of the buccal region. In children, buccal abscesses can occur against the background of inflammation of the fatty tissue of the buccal body and the lymph node located in it. Complaints of children with a zygomatic abscess - tissue deformation, pain that intensifies upon touching.

Clinical presentation. Upon examination, a rounded form of a localized painful infiltrate is revealed in the zygomatic region, the surrounding tissues are slightly edematous, the skin is connected to the infiltrate, pronounced hyperemia, poor penetration into the fold. Fluctuations can be observed in the center of the focus.

Opening the mouth is somewhat difficult due to pain and infiltration of the cheek tissue. Therefore, the child restricts mouth opening.

The zygomatic mucosa is hyperemic, edematous, sometimes with toothprints. In the odontogenic process, the color of the tooth changes, and the crown part is partially or completely destroyed. The surrounding mucous membrane is edematous, reddened, and painful on palpation. Complaints of children with phlegmon of the zygomatic region - sharp pain that intensifies when opening the mouth and chewing, as well as significant asymmetry of the cheek, eyelid, upper and sometimes lower lip tissues.

Clinical presentation. The child's general condition deteriorates significantly - adynamia, loss of appetite, sleep disturbances, and fever. Examination reveals diffuse edema of the cheeks, suborbital areas, eyelids, nasolabial fold, and upper and lower lip tissues. In these areas, the skin is reddened, shiny, and does not fold. The child's mouth opening is limited and painful. The mucous membrane of the cheeks, the upper and lower vestibule of the mouth are edematous and reddened; often, tooth marks are visible on the mucous membrane. The purulent process can spread from the cheek area to the preauricular masticatory, temporal regions, and upper lip.

Surgical treatment. In abscesses and phlegmons of the zygomatic region (regardless of their location - close to the skin or mucous membrane), from an aesthetic point of view, incisions are most often made by the oral mucosa in the upper vestibule or below the degree of tooth adhesion, taking into account the location of the parotid duct. The wound should be drained and sutured to the wound.

Oral floor phlegmon.

The maxillofacial muscle, located between the middle of the mandible and the hyoid bone, forms the diaphragm of the floor of the oral cavity. On both sides of the midline, above the diaphragm are the dahno-sublingual and dahno-lingual muscles, and below the diaphragm are the anterior abdomens of the two abdominal muscles. The muscles located behind the diaphragm, as well as the aforementioned muscles and oral

tissue, are connected to the maxillofacial region and all the cellular spaces of the neck. This is especially important in children, since aponeurotic septa do not densely separate the boundaries of anatomical and topographical areas. Precisely for this reason, in one of them (above or below the oral floor diaphragm), the inflammatory process tends to spread, and all clinical signs of oral floor phlegmon are present (Fig. 27). In terms of the onset of the inflammatory process at the floor of the oral cavity, it is important to divide it into two "layers":

1st "layer" - tissues located between the oral diaphragm and the mucous membrane;

2nd "layer" - tissues located between the diaphragm and the skin of the submandibular region.

The clinical and topographical boundaries of the floor of the oral cavity are:

- upper - oral mucosa;

- lower - the skin of the right and left lower jaw and submandibular regions;

posterior - the root of the tongue and muscle attached to the styloid process;

- anterior - the inner surface of the mandibular body.

The cause of phlegmon of the floor of the mouth is usually odontogenic. The ends of the temporary and permanent teeth of the mandible, from the incisors to the first molar, are located above the diaphragm of the floor of the oral cavity and cause an inflammatory process in this area, while the ends of the roots of the second molars are located below the diaphragm. Therefore, depending on which tooth (cut, premolar, molar) causes the inflammatory process, the inflammatory process begins to develop above or below the oral diaphragm. Thus, when the odontogenic inflammatory process spreads from teeth 35, 45, 75, 85, the focus is initially located in the sublingual region, i.e., above the diaphragm, and from teeth 36, 46 - below the diaphragm. Complaints of the child or their parents - painful swelling of tissues at the floor of the oral cavity, difficulty swallowing (inability to eat), fever, headache, weakness, fatigue.

Clinical presentation. If the inflammatory focus is located above the diaphragm during examination, the child's characteristic appearance is: the mouth is half-open, saliva flows freely from it, an unpleasant odor is detected from the mouth. Opening the mouth is restricted due to pain. Changes in skin color, swelling and infiltration of the soft tissues of the submandibular region are not detected. In the oral cavity, a raised tongue can be seen due to swelling of the sublingual tissue, covered with a gray coating. The mucous membrane of this area is hyperemic, palpation is very painful. If the inflammatory focus is located under the floor diaphragm (2nd "layer"), the clinical signs are as follows: the facial skin is pale, gray, the face appears agonizing. The mouth is half-open, and due to painful swallowing, saliva flows from it. The skin of the submandibular and submental regions is tense, shiny, and reddened. Severe painful infiltrate with papillary dissemination is detected. Regional lymph nodes are enlarged, painful, but not palpable due to the presence of an infiltrate.

The causative tooth is damaged, its percussion is painful. The sublingual gland is infiltrated and protrudes above the lower teeth, painful on palpation. Here, the mucous membrane is hyperemic and covered with a fibrinous coating. Compression of the trachea by swollen and infiltrated tissues of the floor of the oral cavity, backward movement of the root of the tongue leads to difficulty breathing and even suffocation. The inflammatory process can spread to the pterygomandibular and parathoracic cavities, the anterior mediastinum. Surgical treatment of such a child should be carried out only in inpatient settings, and the operation under general anesthesia. The size of the incision and its line are determined by the localization of the inflammatory process, its spread, and the creation of conditions for effective exudate drainage. If the focus of inflammation is located above the diaphragm, it can be opened through an intraoral access, but considering the rapid downward spread of the process, it is advisable to perform an extraoral incision. If the focus of inflammation is located on the 2nd "floor," it is opened along the midline or in the projection of the future upper skin fold (arcuate) or along the line of "safe" incisions in the submandibular region. When the

inflammation spreads to the submandibular region, an arcuate incision of the tissue is made in the projection of the future skin fold parallel to the edge of the lower jaw. This fold is determined as follows: a horizontal line is conventionally drawn along the conical ligament parallel to the edge of the mandibular body to the anterior poles of the mastoid processes. That is, along the fold formed when the head is bent down. This line is the upper boundary of the neck. Tissues are cut in this way. Drug treatment should begin with detoxification, not with antibiotic therapy, because the younger the child, the more dangerous the consequences of intoxication. The criterion for improving the child's condition in the postoperative period is a decrease in signs of intoxication.

Jansoul-Ludwig anaerobic phlegmon

The course of the disease depends on the presence of anaerobes (Clr. Perfringens, Act. Hystoliticus, Act. Aedematiens, Clr. Septicum), non-porous anaerobes). In Ludwig's tonsillitis, all tissues of the oral floor, as well as the pterygomandibular and pharyngeal cavities, are involved in the process (Fig. 27). Inflammation progresses very rapidly. Very rare in children, but very dangerous. In the clinical presentation of this disease, signs of intoxication predominate over local manifestations. The following pathognomonic symptoms are characteristic of Jansul-Ludwig phlegmon: 1. Crepitation of tissues. 2. Rapid dissemination of the infiltrate downwards into the neck and anterior mediastinum. 3. Absence of pus upon opening of the phlegmon (excluding the presence of normal microflora). 4. Rotten smell. 5. Upon dissection of the phlegmon, characteristic changes are revealed in the tissues: the cellulose is grayish-green, dark brown, and a cloudy, blood-like (ichorous) fluid with gas bubbles with a characteristic odor is released from the tissues.

Treatment of Ludwig's tonsillitis should be carried out in the intensive care unit. Initially, the inflammatory focus in the wound tissue is opened with solutions of fluids, the floor of the oral cavity is opened as in phlegmon in the same area. The child is washed with the released oxygen (hydrogen peroxide, potassium permanganate), chlorhexidine, and other antiseptics.

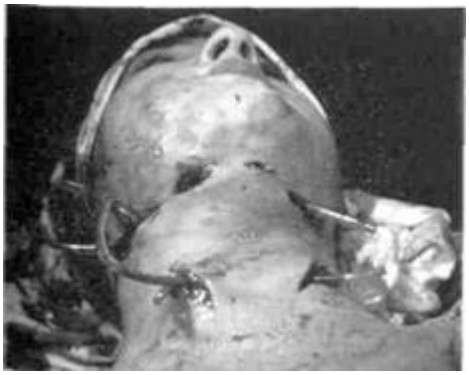


Figure 25. Child with anaerobic Jansul-Ludwig phlegmon after opening of inflammatory foci

To accelerate wound cleansing, it is washed with proteolytic enzymes. In addition to antibacterial, detoxification, antihistamine, general strengthening, and vitamin therapy, it is necessary to administer polyvalent anti-gangrenous serum containing antitoxins against all agents of gas gangrene. If the process spreads downwards to the chest, a thoracic surgeon who drains the mediastinum is involved in treating such a patient. Antibiotics of the 4th-5th generation should be included in antibacterial therapy.

Abscesses and phlegmons of the pterygoid maxilla

The pterygoid sinus is located between the inner surface of the mandibular horn and both pterygoid muscles; posteriorly, it is partially covered by the parotid salivary gland. The cavity of the pterygoid jaw has a very limited volume. Filling with soft tissue, it adheres to the anterior part of the retropharyngeal and anteropharyngeal spaces, the temporal, subtemporal, and pterygoid fossae, and the mandibular triangle, which explains the possible spread of the inflammatory process to these areas. Here, the development of abscesses and phlegmons is associated with inflammatory processes in teeth 36, 37, 46, 47, difficulty in the eruption of lower "mind" teeth in adolescents, as well as purulent hematomas after mandibular anesthesia..

Complaints of children with pterygomandibular abscesses - pain that intensifies during chewing and (sometimes) swallowing, progressive restriction of mouth opening. The inflammatory phenomena do not progress as rapidly as in phlegmon.

Clinical presentation. During the examination, facial asymmetry is usually not observed. Enlarged, painful lymph nodes can be palpated in the mandibular triangle. Opening of the mouth is not possible due to grade III contracture. After performing Bersh anesthesia, hyperemia and edema of the mucous membrane along the maxillofacial fold are observed in the oral cavity, and a sharply painful localized infiltrate is observed on palpation. The causative tooth is damaged, its percussion is painful. Complaints of children with phlegmon of the pterygomandibular space - severe pain, weakness, headache in the area of the angle of the jaw during swallowing and opening the mouth.

Clinical presentation. Due to the rapid progression of intoxication phenomena in the child, the skin becomes pale, and the body temperature rises significantly. Tissue edema is objectively detected under the angle of the mandible, where a sharply painful infiltrate and a package of enlarged lymph nodes can be palpated. Opening the mouth is sharply limited due to the involvement of the medial and lateral pterygoid muscles in the inflammatory process and is possible only after putting the child under anesthesia. During examination, hyperemia and swelling of the pterygomandibular fold and the unspoken arch are observed in the oral cavity, sometimes spreading to the lateral wall of the pharynx. The causative tooth is damaged, its percussion is painful.

Inflammatory diseases of the maxillofacial region Surgical treatment.

Excavation of abscesses of the pterygomandibular cavity is carried out using an extraoral approach along the lines of "safe" incisions in the submandibular region. The skin, subcutaneous adipose tissue, and the superior fascia of the neck are incised, and the bone, reaching the angle of the mandible, is inserted into the pterygomandibular space with a blunt "mosquito" clamp, holding the inner surface of its branches. The

wound is necessarily drained deeply and for a long time, the "causative" tooth is removed.

Abscesses and phlegmons of temporal region

The borders of the temporal region correspond to the connecting lines of the temporal aponeurosis: the zygomatic arch below and anteriorly, the temporal plane formed by the temporal, parietal, and sphenoid bones, the superior and posterior temporal line. The temporal muscle divides the area in depth into two parts - superficial (located between the skin and muscle) and deep (located between the muscle and bone). Inflammatory processes in the temporal region, as a rule, occur secondarily, when the infection spreads from the cheek, parotid-masticatory region, wing of the maxillary and paratypharyngeal cavities, subtemporal and pterygoid fossae. In young children, they appear as a result of damage to the skin of the temporal region by staphylococcus or streptococcus. The anatomical structure of the tissues of the temporal region, the small amount of subcutaneous adipose tissue, the inclination of the temporal bone, and the dense attachment of the aponeurosis to it determine the predominance of phlegmon development compared to abscesses. Complaints of children with superficial phlegmons - rapidly increasing intensely pulsating pain, limited mouth opening, swelling of the tissues of the temporal region. Usually, parents of children with phlegmon of the temporal region seek immediate help - they are afraid of the localization of the process and impairment of mouth opening function.

Clinical presentation. Examination reveals slightly pronounced asymmetry of the tissues above the zygomatic arch and collateral edema extending to the parietal and frontal areas. The skin on it is hyperemic, shiny, and does not fold. Palpation reveals a severe, painful infiltrate of the temporal region. If the appearance is early, there is no pus, no fluctuation. The child has limited mouth opening. In the oral cavity, above the perineal fold, the tenderness of tissues is palpated in the projection of the maxillary tuberosity. Deep phlegmon of the temporal region is rarely observed in children. In such cases, soft tissue deformation does not occur, and the opening of the mouth is

sharply limited. This is a pathognomonic sign of deep phlegmon of the temporal region. Most often, in children, phlegmon of the temporal region causes the spread of the inflammatory process to the subtemporal region, and in adults, phlegmons often develop from the subtemporal region to the temporal region.

Surgical treatment. For superficial abscesses and phlegmons of the temporal region, the skin and subcutaneous adipose tissue are incised in the lower part of the inflammatory focus (parallel to it over the facial arch) to create conditions for effective exudate drainage. Serous inflammation is usually serous, which is associated with early surgical intervention at the stage of serous inflammation. The wound is necessarily drained. In deep phlegmons, an arcuate incision is often made along the temporal line and inserted under the temporal muscle with a blunt "mosquito" clamp. Sometimes the depicted section is combined with the section above the zygomatic arch.

Subtemporal fossa abscesses and phlegmons

The subtemporal fossa is located near the base of the skull, medially to which the wing fossa is attached. There are no anatomical structures that separate the depressions. Through the inferior orbital foramen, the pterygoid foramen communicates with the orbit, and through the orbital foramen - with the cranial cavity. The inflammatory process in this area can often develop in older children as a result of incorrect techniques for performing tuberal anesthesia, as well as against the background of hematomas that arise when the inflammatory process spreads from the pterygopalatine and paratypal cavities. Causal teeth can be high molars. For phlegmons of this locality, it is characteristic that the local signs of the disease do not correspond to the severity of the general reaction of the body.

The child's complaints are painful mouth opening, headache, loss of sleep and appetite, and fever.

Clinical presentation. The child's general condition was significantly altered (intoxication symptoms), but due to the deep location of the inflammatory focus, the external clinical manifestations were not pronounced. Facial asymmetry is observed

due to slight swelling of the temporal tissues, slight swelling of the cheeks and cheekbones, and sometimes the lower eyelid. The skin over the swelling is normal in color, mobile, with limited mouth opening and pain. Examination of the oral cavity reveals edema and hyperemia of the mucous membrane of the upper vestibule and painful infiltrates behind the maxillary tubercle, which is the leading clinical symptom in abscesses and phlegmons of this localization. The "cause" tooth is damaged, its percussion is painful.

Surgical treatment is carried out under general anesthesia in a hospital setting. The "cause" tooth is removed. The phlegmon of the submandibular fossa is incised above the transitional fold of the superior vestibule and enters obliquely into the projection of the mandibular incision along the surface of the maxillary tuberosity in the backward-upward-deep direction. Surgical intervention is performed as soon as possible after the diagnosis. It is in this localization of phlegmon that the most important condition for preventing the spread of the process to the pterygopalatine fossa is the establishment of adequate and prolonged flow of exudate through the drainage, access to which is extremely difficult.

Abscesses and phlegmons of the parotid-masticatory region.

The parotid-masseteric region is located between the zygomatic bone and the inferior border of the arch, the inferior border of the body of the mandible, the anterior border of the masseter muscle, and the posterior border of the mandibular horn. In this area, in older children, abscesses and phlegmons of teeth 36, 37, 46, 47 are more common, and in younger children, neodontogenic abscesses and phlegmons develop as a result of the involvement of lymph nodes in the inflammatory process or the spread of pus as a complication.

Inflammatory diseases of the maxillofacial region: purulent parotitis or Herzenberg's false parotitis.

Isolated phlegmon of the masticatory region is very rare in children. In neodontogenic abscesses and phlegmons in this area in children, we usually talk about superficial processes that occur as a result of skin damage or suppuration of hematomas.

Complaints. With an abscess in this area, children complain of pain, swelling of the tissues in the parotid-masticatory area and difficulty opening the mouth, fever, and headache.

Clinical presentation. The general condition is often disturbed - the face is pale, the child is restless. Examination reveals facial asymmetry due to swelling of the tissues in this area. In the same area, a sharply painful infiltrate is palpated, the skin above it is tense, reddened. Due to the location of the purulent focus under the fascia and masticatory muscle, fluctuation may not be observed. Opening the child's mouth is somewhat limited and painful. The mucous membrane of the cheek is swollen. Traces of teeth are visible on it. If the inflammatory process is odontogenic, then in the oral cavity one can usually see a colorless "causative" tooth, the crown of which is completely or partially destroyed; tooth percussion is painful, the surrounding mucous membrane is swollen, hyperemic. The criterion for determining a superficial or deep abscess of the parotid-masticatory area is the presence of impaired deep masticatory function and asymmetry of facial contours in this area. Depending on the cause of the inflammatory process, for example, purulent parotitis, clinical signs of this disease are also determined.

Complaints. In phlegmon of the parotid-masticatory region, children complain of significant painful tissue swelling, the pain intensifies when opening the mouth. This often leads to food withdrawal. Headaches, weakness, and fever are disturbing.

Clinical presentation. The child's general condition is significantly impaired - he is relaxed, adynamic, and his face is pale. Upon examination, sharp facial asymmetry is observed due to diffuse edema of the parotid-masticatory tissue, the skin above it is tense and hyperemic. A sharp painful infiltrate is palpated, in the center of which fluctuation can be seen. Opening the mouth is limited due to contracture and pain in the

masticatory muscles. The mucous membrane of the cheek swells on the affected side, and tooth marks appear. If the cause of phlegmon is a tooth, the examination reveals a grayish color of the crown, which may be partially or completely destroyed. The mucous membrane around the tooth is hyperemic, palpation is painful. In differential diagnosis, it is necessary to exclude a purulent process in the parotid salivary gland, suppurative anterior fistulas, and suppurative atheromas. The most important is the determination of qualitative and quantitative changes in saliva.

Surgical treatment. If the inflammatory focus is located in the lower parts of the preauricular-masticatory area, the incision is made below the angle of the mandible, in the area of the lower or posterior jaw. When the parotid salivary gland is involved in the pathological process, to avoid damaging the gl.parotis duct, it is advisable to open the focus from the oral cavity above or below the line of articulation of the teeth. If a salivary fistula forms during treatment, it opens into the oral cavity. If the inflammatory focus is located superficially, its opening is carried out along the anterior fold.

Abscess of retrobulbar space

The tissue of the retrobulbar cavity is evenly distributed around the eyeball and in the distal part is connected to the tissue of the pterygopalatine fossa through the inferior orbital fissure. In children, an abscess of the retrobulbar cavity most often develops in hematogenous and less often odontogenic osteomyelitis. This is due to the anatomical features of the inferior orbit, the high location of the maxillary sinus and the low height of the sinus from the inferior orbit to the canine fossa, as well as the porosity of the maxilla in children, a low content of inorganic substances in them, and a rich network of collaterals located in the connective tissue.

The child's complaints are increasing pulsating pain, bulging eyes, headache, and impaired vision (diplopia).

Clinical presentation. Examination reveals a bluish skin due to inflammatory swelling and congestion of the eyelids, with swollen conjunctival tissue (chemosis)

protruding between closed eyelids. The conjunctival mucosa is hyperemic, edematous. Exophthalmos is observed. Pressure on the eyeball is painful, its mobility is limited. In cases of decreased vision, vision deteriorates, and changes appear in the fundus. Examination of the retina reveals dilation of the retinal venules. An abscess of the retrobulbar cavity can be complicated by the spread of infection to the meninges, cavities, and brain, leading to atrophy of the optic nerve and blindness. Increased collateral edema of the eyelids, appearing on the healthy side, deterioration of general condition, and intoxication can sometimes indicate the development of cavernous sinus thrombosis.

Surgical treatment. To open the focus of inflammation in the retrobulbar cavity, under anesthesia, the skin of the orbit is stretched, the skin and subcutaneous tissue are incised, and the marginal edge of the orbit is retracted to the middle so that the scar is later hidden under the lower eyelid. Then, with forceps, it bluntly penetrates the orbit, attaches to its lower wall, and moves into the retrobulbar cavity. Prolonged drainage of the wound is mandatory. In the treatment of abscesses of this localization, consultation with an ophthalmologist is necessary due to possible complications from the organ of vision. If the child's general condition does not improve and meningeal symptoms predominate, urgent consultation with a neurosurgeon is necessary.

Abscesses and phlegmons of the parathyroid cavity.

The pharynx has the following boundaries: external - the pharyngeal process of the medial pterygoid muscle and parotid salivary gland; internal - the lateral wall of the pharynx, posterior - the fascial part connecting the prevertebral fascia with the muscles of the pharyngeal wall, anterior - the interwing fascia, superior - the base of the skull, inferior - the submandibular salivary gland. The lingual vault and sublingual muscles divide the space around the lingual vault into anterior and posterior sections. It should be noted that the internal carotid artery, jugular vein, and lymph nodes pass through the posterior section, while the anterior section contains soft tissue, to which the pterygoid venous plexus adheres superiorly. Through the subtemporal fossa, this tissue attaches

to the tissue of the temporal and pterygoid fossae, the hypoglossal region, where the inflammatory process can spread from the paratyphoid cavity. Isolated development of the inflammatory process in the parathyroid cavity is rarely observed. It can spread from the lower jaw, sublingual areas, or the pterygomandibular space in odontogenic infection, or as a complication of acute or chronic tonsillitis. An abscess of the paratonic cavity can also be a complication of the disease. The inflammatory process can spread from the parathoracic cavity along the pharynx and vascular-nervous bundle to the anterior mediastinum with the development of anterior mediastinitis.

In an abscess of the peripharyngeal cavity, the child complains of unilateral pain during swallowing, in connection with which he refuses to eat. The child's general condition deteriorates significantly - they become irritable, weak, do not sleep well, and their body temperature rises.

Clinical presentation. Upon careful examination, slight tissue swelling can be detected under the angle of the affected side of the mandible. Opening the mouth is slightly limited and painful. Hyperemia and edema of the middle of the soft palate, palatoglossal and palatoglossal arches, protrusion of the lateral pharyngeal wall are observed. If qualified assistance is not provided in a timely manner in such a clinical picture (i.e., in an abscess), then the inflammatory process spreads very quickly and phlegmon develops.

Complaints in phlegmon of the pharynx - pain that intensifies unilaterally during swallowing, depending on the duration of the disease, painful limited opening of the mouth, and sometimes difficulty breathing. The child's condition is severely disturbed - weakness, chills, fever, poor sleep are disturbing, they refuse food, and intoxication rapidly intensifies.

Clinical presentation. Upon examination, tissue edema is detected at an angle of the mandible from the focus, and a deep painful infiltrate is palpated. Examination of the oral cavity is difficult due to limited mouth opening due to contractures of the medial pterygoid muscle, therefore it is better to conduct it under general anesthesia,

especially in young children. After opening the mouth, significant swelling and hyperemia of the soft palate and the corresponding half of the uvula, infiltration of the pterygomandibular fold and the lateral wall of the pharynx are observed. Tissue swelling spreads to the sublingual area and the mucous membrane of the tongue.

Surgical treatment. Adequate opening of the paropharyngeal abscess is achieved by extraoral access in the submandibular region, but the abscess can also be opened by intraoral access. The mucous membrane is incised slightly medial to the pterygomandibular fold and parallel to it at the lower pole of the inflammatory focus. Then they bluntly penetrate into the depths of the purulent infiltrate.

In the extraoral method, the skin, subcutaneous muscle, and superficial fascia of the neck are incised, the posterior pole of the submandibular salivary gland is retracted by 1.5-2 cm from the edge of the lower jaw, and the posterior pole of the submandibular salivary gland is retracted parallel to it. With a "mosquito" type blunt forceps, they enter the peripharyngeal cavity, and the pterygomandibular space is also examined.

General rules for complex treatment of abscesses and phlegmons of the maxillofacial region

Complex treatment of abscess and phlegmon includes surgical and drug treatment.

Surgical treatment presupposes:

1. Determination of the cause of the inflammatory process (odontogenic or neodontogenic) and its elimination (treatment or removal of the causative tooth, treatment of tonsillitis, stomatitis, etc.). 2. Exposure of the inflammatory focus. The absence of pus can indicate that the inflammatory focus has not been "opened." In rare cases, this indicates the opening of the inflammatory infiltrate (purulent formation has not yet occurred). In this case, it is an adequate surgical procedure. The recommendations for opening abscesses and phlegmons along the branches of the facial nerve, cited in many manuals, are insufficiently substantiated, since its branches approach the muscles, i.e., are located deeper than under the skin. Therefore, cutting the skin, subcutaneous adipose tissue, and fascia is safe, as it usually does not cause

any functional disorders. The best cosmetic result can be achieved by cutting along the natural folds of the face (Fig. 28). 3. Determination of the bacteriogram after opening the inflammatory focus is meaningful only when it is possible to obtain a response from the bacteriological laboratory on the 2nd-3rd day after surgery. Often the answer comes at the end of the child's stay in the hospital, that is, after recovery. 4. Drainage. If the drainage is introduced into the inflammatory focus after opening the lesion and is fully functioning, it should not be changed daily. Drainage is taken only if there is no wound fluid. If the inflammation is caused not by ordinary microflora, but by a complex of anaerobic or other microorganisms, it is advisable to use tubular or tubular perforated drains, which allows wound dialysis with medications. When the course of the wound process is complicated, active dialysis and sorbents are used. 5. Doctors often abuse manipulation such as wound washing. Cleansing of the wound should be achieved during the initial sanitation of the inflammatory focus. 6. After opening abscesses and phlegmons, doctors often apply bandages with a hypertonic sodium chloride solution. It should be noted that in this case, the bandage should be changed every 4-6 hours, since with less frequent changes, the bandage dries out and does not perform its osmotic function.

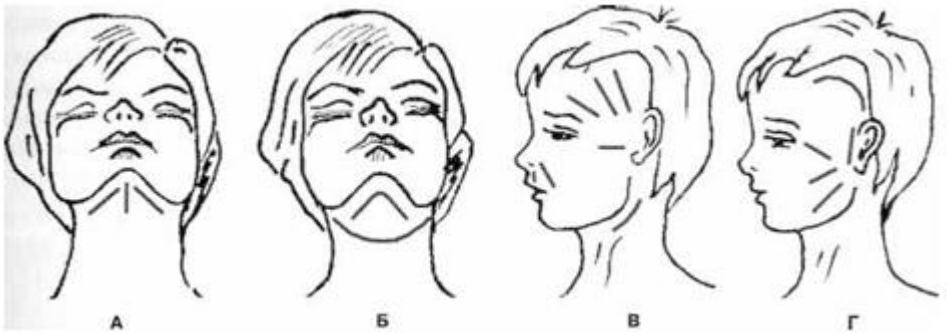


Figure 26. Direction of incisions of the skin of the face and neck for opening abscesses and phlegmons of the maxillofacial region: A - submandibular and submandibular; B - floor of the oral cavity; V - temporal, subtemporal, retromandibular regions, upper lip, pterygomandibular space; G - temporal, masticatory, parotid regions

Yiringli o‘chog‘ yorib ko‘rilganidan keyingi dastlabki kunlarda uzoq vaqt davomida ointment dressings (Ichthyol and Vishnevsky ointment, Shostakovsky balm) were used. In children, as in adults, such bandages make it difficult for the exudate to come out of the wound. The use of a 5% DMSO solution as a carrier for various medications (analgesics, antihistamines, corticosteroids) yields good results. 7. Local drug treatment of the wound should be carried out taking into account the phases of the wound process: Phase I - predominance of alteration and exudation processes; Phase II - predominance of proliferation processes. New ulcers absorb toxins, bacteria, and the products of tissue hydrolysis and decomposition before granulation occurs. Granulating ulcers do not possess this ability. In the first phase of the wound process, it is necessary to use preparations with high osmotic activity, ensuring the intensive flow of exudate from the wound into the dressing, having an antibacterial effect on the causative agent of infection, contributing to the separation and dissolution of necrotic tissues and the evacuation of wound contents. Five groups of preparations are known: 1) ointments based on polyethylene glycol; 2) sorbents; 3) enzymes; 4) antiseptic solutions; 5) aerosols. Ointments based on polyethylene glycol (i.e., preparations of the first group) have a long-term osmotic effect (up to 18 hours), broad antimicrobial activity: 5% dioxidine ointment, containing dioxycol, methyldioxycin, 10% maphenide acetate dioxidine; 1% iodopyrine ointment, iodometryxiden contains either dopors; furogel, 0.5% xinifuryl ointment contains nitrofurans; streptonitol, nitacide contains nitazole; levomycol, levosin contains levomycetin. In cases of delayed wound cleansing and removal of necrotic tissue, enzymes (trypsin, chymotrypsin, chymopsin, iruxol, oflotrimolp) are used. Oil-based (lanolin-vaseline) ointments, together with antibiotics, have a weak short-term antimicrobial effect, since this base disrupts the release of wound contents, does not ensure sufficient separation of the active ingredient from the composition, does not contribute to the deep penetration of antibiotics into the tissue, which can lead to the spread of the inflammatory process. Therefore, they should be used not in the first phase of the wound process, but in the second. 8. Ulcers after the

opening of abscesses and phlegmons heal secondarily. However, at the end of the exudation process on the distended edges, associated with improper granulation of the wound, improper bandaging, during wound cleansing and significant proliferation (on average on days 7-8), the imposition of secondary sutures is indicated. 9. The use of physiotherapeutic treatment methods in the inflammatory process has its own peculiarities, namely: - in the serous stage of inflammation, it is effective only at its beginning. Since this phase is very short in children, prescribing this type of treatment in later periods contributes to the transition of the serous stage to the purulent stage; - it should be taken into account that the use of physiotherapeutic methods is effective when the inflammation has sufficiently left the focus. 10. Often, children with abscesses and phlegmons first consult a pediatrician, who often prescribes alcohol compresses, Vishnevsky ointment, bran, heated salt, etc. Such treatment worsens the child's condition and can lead to the spread of inflammation. 11. General drug treatment includes antibacterial therapy, antihistamines, detoxification agents, immunostimulants, vitamin therapy, antioxidants, antifungal drugs, and symptomatic therapy - analgesics, antipyretics. Their prescription depends on the indicators of the general condition (i.e., the degree of intoxication of the body), as well as the adequacy of local surgical treatment. If long-term treatment is required in young children, intravenous administration of medications is advisable, for which peripheral venous catheterization is performed after hospitalization in the maxillofacial region.

FACE-JAW REGION FURUNCULES AND CARBONCULES.

In children, boils most often occur at the age of 8-12 years, i.e., with the onset of puberty and the appearance of acne and comedones on the face, which can suppurate. According to our clinic, 5% of the total number of patients and up to 10% of children with inflammatory diseases of the maxillofacial region are hospitalized annually for boils. About 30% of boils are located on the face. They are 5-6 times more common in children than in females.

A rash (lat. - chirey) is an acute inflammation of the hair follicle and subcutaneous adipose tissue. The causative agent of the disease is mainly staphylococcus. Skin injuries, its contamination, increased activity of sweat and sebaceous glands, overheating, intoxication, hormonal imbalance, diabetes mellitus, avitaminosis, issues of hygienic skin care for the child

Figure 27.Form of infiltrative eruption of upper lip

Figure 28. Abscessed form of upper lip boil

Figure 29. Abscessed boil of upper lip with purulent necrotic core in center of infiltrate

Figure 30. Appearance of patient with facial furunculosis

Some surgeons call such boils malignant boils.

Complaints - pulsating pain, decreased appetite, headache, fever, appearing in a certain area of the face after an unsuccessful attempt to squeeze out the "swirl."

Clinical presentation. Infiltrative and abscessing forms of a boil are distinguished. In the infiltrative form, symptoms of intoxication are not pronounced. A localized, painful, hard infiltrate is observed, the skin over which is hyperemic, bluish,

and does not form folds (Fig. 29). If elimination measures are not taken at this stage of inflammation, a core forms in the center of the infiltrate within 2-3 days. The second consists of purulent-necrotic dissolved tissue surrounding hair follicles and visible through the thin skin in this area in a yellowish-white color. After the furuncle opens independently, a small amount of pus, mixed with blood and the core, is released. Subsequently, a crater-like depression appears in this area, filled with granulation tissue, and tissue infiltration gradually decreases. In the infiltrative form, with an abscess, the infiltrate enlarges and becomes significantly painful (Fig. 30). Abscessed boils can be accompanied by venous phlebitis, in which skin hyperemia is observed along the surface vein phlebitis. At this time, fever, severe headache, pallor, and increased symptoms of intoxication are observed. When a child's body's defense capabilities decrease, multiple boils can form in different parts of the body. This leads to the development of furunculosis (Fig. 32).

In facial abscesses, signs of intoxication are pronounced, the infiltrate becomes diffuse, the skin over it is bluish-red, several nuclei are emulsified in it, which merge over time. In the center of the infiltrate, softening, and subsequently (due to vascular thrombosis), a large area of necrosis appears. Then the necrotized tissues peel off. Purulent exudate is discharged through numerous hives in the skin, resembling a beehive. Regional lymph nodes are enlarged. The child's general condition is disturbed - all signs of intoxication are pronounced. A shift of the leukocyte formula to the left is detected in the blood. Lupus and abscesses can be complicated by phlegmon and thrombophlebitis in the corneal and ophthalmic veins. With an unfavorable course of the disease, infection into the venous vessels can pass from the corner vein of the face into the cranial cavity, leading to severe complications such as cavernous sinus thrombosis, meningitis, and sepsis.

Differential diagnosis of boils and abscesses is carried out with neodontogenic abscesses and phlegmons. The most important clinical sign in their differentiation is the presence of one or more rods on the surface of the infiltrate.

Treatment. To prevent unnecessary complications, the treatment of boils and abscesses on the face (mandatory!) is carried out in inpatient settings, since only here can the necessary complex of therapeutic measures be provided. In addition, this is determined by quality standards for the treatment of diseases of the maxillofacial region in children. In children, starting treatment from the "so-called infiltrative" stage is very dangerous. Why "just like that"? Because the infiltrative stage (in 90% of cases) had already passed, and the patient only consulted a doctor. Here it is important to distinguish the infiltrative stage from the abscess stage. In the infiltrative stage of the discharge, conservative treatment, i.e., local hypothermia, treatment with ultraviolet rays of the affected area, is advisable. A mechanical diet is prescribed to ensure the peace of facial tissues. In the case of the abscess form of the discharge and the presence of an abscess, the opening of the abscess is carried out under general anesthesia. The direction of tissue opening is chosen taking into account the localization and spread of the inflammatory focus; in case of an abscess, the infiltrate is incised several times. After this, the wound core is drained until it is completely cleansed of the necrotic tissue. It is not necessary to remove the nodule that has not detached from the tissues, as this can lead to the spread of the infection to the surrounding tissues. Antiseptics are used for wound washing, proteolytic enzymes are used for faster removal of necrotic tissue. On the 2nd day after opening and draining the abscess, physiotherapeutic procedures such as ultraviolet, ultraviolet, ultraviolet, ultrasound, and helium-neon irradiation are prescribed for 4-5 days. At night, compresses with 10% DMSO solution are applied to the wound and surrounding tissues, followed by dressings with "Iruxol," "Oflotrimol," "Levamicol." In angular vein phlebitis, heparin is added to the compress with DMSO. On the 5th-6th day after the detachment of the necrotic tissue, the ulcer begins to granulate. With complications of boils and abscesses, additional opening and drainage of the inflammatory foci are carried out to prevent the formation of purulent "pockets." Insulin and sorbents are used locally. Drug treatment of boils and abscesses includes antibacterial therapy and antihistamines, vitamin therapy, and

immunocorrection. If furunculosis is suspected, autohemotherapy is carried out according to the following scheme: 3-5-7-9-10-10-9-7-5-3 ml intramuscularly, fevofitin (beer yeast) is prescribed. Recently, some homeopathic drugs, such as echinacea, have been used for intramuscular or intravenous administration. If the anamnesis shows that children or parents have repeatedly developed boils, it is necessary to examine the blood - it should be inoculated for sterilization, which (when microflora is detected) will help to adjust the child's treatment. In case of deterioration of the child's general condition or pronounced signs of intoxication, detoxification therapy is carried out at the beginning of treatment - intravenous administration of neocompensan, neohemodez; antibacterial and analgesic drugs are used. In some cases, specific stimulating therapy is used - staphylococcal anatoxin and bacteriophage, anti-staphylococcal gamma-globulin and plasma. The doctor should help parents determine the reason for the frequent occurrence of boils, namely: recommending that the child be examined by an endocrinologist and pediatrician.

Figure 31. Abscess of lower lip (2 days after opening)

The abscessed form of the boil can be accompanied by venous phlebitis. In superficial venous phlebitis, redness of the skin is observed. At this time, body temperature rises, severe headaches appear, skin becomes pale, and intoxication symptoms intensify. When a child's body's defenses are weakened, multiple boils can form on various parts of the face and body. This leads to the development of furunculosis.

Carbunculus is a simultaneous lesion of multiple follicles in hair follicles that occurs as a complication of a boil or independently. In facial abscesses, signs of intoxication are pronounced. The infiltrate spreads, the skin over it acquires a bluish-red color, several rods are formed on it, which merge over time. In the center of the infiltrate, softening develops, and subsequently (due to thrombosis of the vessels in this area), a large zone of tissue necrosis appears. Then the necrotic tissues peel off. Purulent exudate comes from numerous hives in the skin, resembling a beehive. Regional lymph nodes are enlarged. The child's general condition is disturbed - all signs of intoxication are pronounced. A shift of the leukocyte formula to the left is detected in the blood. Lupus and abscesses can be complicated by phlegmon and thrombophlebitis in the veins of the face and eyes. With an unfavorable course of the disease, the infection can spread from the corner vein of the face through well-developed veins into the cranial cavity, leading to severe complications such as cavernous sinus thrombosis, meningitis, and sepsis. Differential diagnosis of boils and abscesses is carried out with neodontogenic abscesses and phlegmons. The most important clinical feature in their differentiation is the presence of one or more rods on the surface of the infiltrate.

Treatment. To prevent unpleasant complications, the treatment of boils and abscesses on the face (mandatory!) is carried out in a hospital setting, since only here can the necessary complex of therapeutic measures be provided. In addition, this is determined by quality standards for the treatment of diseases of the maxillofacial region in children. In children, starting treatment from the "supposedly infiltrative" stage is very dangerous. Why "just like that"? Because the infiltrative stage (in 90% of cases) has already passed, and the patient has only consulted a doctor. Here it is important to distinguish the infiltrative stage from the abscess stage. In the infiltrative stage of the boil, conservative treatment, i.e., local hypothermia, treatment with ultraviolet rays of the affected area, is advisable. A mechanical diet is prescribed to ensure the peace of facial tissues.

In the case of the abscess form of the boil and the presence of an abscess, the opening of the abscess is carried out under general anesthesia. The direction of tissue opening is chosen taking into account the localization and spread of the inflammatory focus; in case of an abscess, the infiltrate is incised several times. After this, the wound core is drained until it is completely cleansed of the necrotic tissue. It is not necessary to remove the nodule that has not detached from the tissues, as this can lead to the spread of the infection to the surrounding tissues. Antiseptics are used for wound washing, proteolytic enzymes are used for faster removal of necrotic tissue. On the 2nd day after opening and draining the abscess, physical procedures such as ultraviolet, ultraviolet, ultraviolet, ultrasound, and helium-neon irradiation are prescribed for 4-5 days. At night, a compress with a 10% DMSO solution is applied to the wound and surrounding tissues, followed by dressings with "Iruxol," "Oflotrimol," and "Levamicol." In angular vein phlebitis, heparin is added to the compress with DMSO. On the 5th-6th day after the detachment of the necrotic tissue, the ulcer begins to granulate. With complications of furuncles and carbuncles, additional opening and drainage of the inflammatory foci are carried out to prevent the formation of purulent "pockets." Insulin and sorbents are used locally. Drug treatment of furuncles and carbuncles includes antibacterial therapy and antihistamines, vitamin therapy, and immunocorrection. If furunculosis is suspected, autohemotherapy is carried out according to the following scheme: 3-5-7-9-10-10-9-7-5-3 ml intramuscularly, fevofitin (beer yeast) is prescribed. Recently, some homeopathic drugs, such as echinacea, have been used for intramuscular or intravenous administration. If the anamnesis shows that children or parents have repeatedly developed furuncles, it is necessary to examine the blood - it should be cultured for sterilization, which (when microflora is detected) will help to adjust the child's treatment.

In case of deterioration of the child's general condition or pronounced signs of intoxication, detoxification therapy is carried out at the beginning of treatment - intravenous administration of neocompensan, neohemodez; antibacterial and analgesic

drugs are used. In some cases, specific stimulating therapy is used - staphylococcal anatoxin and bacteriophage, anti-staphylococcal gamma-globulin and plasma. The doctor should help parents determine the cause of the frequent occurrence of furuncles, namely: recommending that the child be examined by an endocrinologist and pediatrician to identify comorbidities (diabetes mellitus, etc.). Local prevention of facial boils involves adhering to skin hygiene rules during pre-pubertal and pubertal periods.

LYMPHADENITIS

Lymphadenitis (lymphoadenitis) is an inflammation of the lymph node, often accompanied by lymphangitis (inflammation of the lymphatic vessels). Staphylococcus plays a leading role in the etiology of lymphadenitis in 94% of cases. The characteristics of the latter are constantly changing: sensitivity to antibiotics decreases, new antibiotic-sensitive strains appear, which are often used to treat inflammatory processes. Streptococci, protozoa, mycobacteria, toxoplasmas, and aerobes are less common pathogens. According to our clinic, the frequency of lymphadenitis in the maxillofacial hospital is up to 21.3% of the total number of patients in the department, and at the outpatient appointment with a pediatric dentist - from 5% to 7%. Neodontogenic lymphadenitis most often affects children under 5 years of age, and odontogenic lymphadenitis affects children older than 6-7 years. Initially, such patients can consult a pediatrician, otolaryngologist, and surgeon. It is alarming that the number of incorrect diagnoses of lymphadenitis reaches up to 40%! Lymph nodes perform important and multi-component functions in the body: 1) barrier-filtration - biofilters; during inflammation, the size of the lymph nodes increases 2-3 times; 2) immunopoetic - they recognize and destroy all "foreign" things that enter the body, not through the digestive system; 3) reservoir lymph is deposited and redistributed; 4) lymph nodes - these are, on the one hand, a "trap" (neutralizes tumor cells) or, on the other hand, are intended for the proliferation and spread of tumor cells. The entire lymphatic system consists of central (thymus, Fabricius' sac) and peripheral (secondary) lymphatic organs (lymph

nodes, spleen, accumulation of lymphoid tissue in the pharynx, mesentery, etc.). Regional lymph nodes of the head and neck are divided into several groups: cranial vault (occipital, superficial and deep, parotid lymph nodes), facial (maxillary, mandibular, posterior and submandibular lymph nodes, submandibular lymph nodes), cervical lymph nodes (superficial and deep lymph nodes) (Fig. 34). In a healthy child, the lymph nodes are not enlarged. If they multiply scattered, this indicates nonspecific or specific inflammation (as a result of microorganism invasion). Depending on the degree of invasion and the type of microorganism, one or another reaction of different groups of lymph nodes is determined. It is necessary to remember that lymph nodes can also enlarge in malignant tumor processes or blood diseases. To determine the symptoms of local inflammatory processes, it is important to know the pathways of lymph flow from specific tissues to the lymph nodes. Thus, for example, the submandibular lymph nodes can "respond" to traumatic, inflammatory, and other processes in the upper and lower lips, nasal cavity, tongue, gums, sublingual and submandibular salivary glands, chin area; the buccal lymph nodes - the alveolar process of the upper jaw can "respond" to similar processes in the area of the eyelids, nose, cheeks.

The growth and development of tissue structures of lymph nodes occurs up to 8-12 years of age. In the first stage of development - the embryonic stage - the second stage accumulates (from birth to 3-4 years) - the development of lymphoid tissue is characterized by the predominance of elements of the lymphocytic series; the third stage (from 4 to 8 years) - intensive development of reticuloendothelial structures - the formation of a cavity; the fourth stage (from 8 to 12 years) - the formation of capsules and trabeculae, the completion of the structural formation of nodes. In humans, more than 50 groups of lymph nodes are distinguished.

Analyzing the existing classifications, we consider that the most clinically justified and convenient for doctors is the classification of lymphadenitis according to three principles: 1. Topographically and anatomically: a) by depth - surface and deep; b) by

location - submandibular, submandibular, submandibular, submandibular, buccal, auricular, etc. 2. By route of entry: a) odontogenic; b) neodontogenic - as a result of respiratory and viral infectious processes, sepsis, specific infection (tuberculosis, syphilis, actinomycosis, AIDS), metastases. According to the course of inflammation: a) acute - serous, purulent (in relation to gangrene of the lymph nodes of the maxillofacial region in children, this is indicated by some clinicians of related specialties, we do not consider it expedient to distinguish this form); b) chronic - hyperplastic, purulent and acute chronic. If the macroorganism is weakened, against the background of high virulence of infection, a decrease in the indicators of nonspecific and specific immunity, the process spreads beyond the boundaries of the lymph node capsule, perylymphadenitis, adenoabscess, or adenophlegmon develops.

Odontogenic lymphadenitis. According to our clinic, odontogenic lymphadenitis (lymphadenitis odonto genica) accounts for 12 to 26% of all inflammatory diseases. We are talking about patients being treated in inpatient settings. In outpatient settings, at the appointment of a pediatric dentist, patients with odontogenic lymphadenitis are found in approximately 70% of all other cases. Odontogenic lymphadenitis is more often observed in the period of exchange prikus, since the "peak" of caries occurs at the age of 6-12 years. In 65% of cases, odontogenic lymphadenitis is caused by temporary second molars, and in 21% of cases by permanent first molars.

Acute serous odontogenic lymphadenitis. Children with acute odontogenic lymphadenitis (lymphoadenitis odontogenica serosa acutae) complain of the appearance of a mobile, painful "ball" on palpation in a certain anatomical area (often in the submandibular region). In some young doctors, the idea arises that the sole area of lymphadenitis development is the submandibular region, but this is not the case. In children, damage to the lymph nodes of the retroauricular, preauricular, zygomatic, and chin areas is often observed. Before enlarging the lymph node, the child notes that they are bothered by toothache or that the tooth has recently been treated.

Clinical presentation. Changes in the child's general condition are minimal: a slight increase in body temperature, no pronounced intoxication. Clinical examination reveals the formation of a painful, sometimes limited mobility round shape on palpation, indicating the process's outflow from the capsule. The resulting skin color is almost unchanged, the skin does not gather into folds. Enlargement of the lymph node on the opposite side is usually not observed. When examining teeth in the oral cavity and upper and lower jaws from this side, a colorless, cavitary, temporary or permanent tooth is detected, and its percussion is painful. Further examination of the "causal" tooth allows for the diagnosis of exacerbation of chronic pulpitis with perifocal periodontitis or acute or exacerbated chronic periodontitis. Often, the mucous membrane in this area is hyperemic, and the symptom of vasoparesis is detected. According to ultrasound data, inflammatory diseases of the maxillofacial region in serous inflammation of the lymph node record two types of images: in the first - lymph nodes of hypoechogenic structure with a distinct smooth contour, of various sizes (the histogram indicates the presence of a dense structure - from 5 to 20-25 conventional units), in the second - lymph nodes of isoechogenic structure with a distinct hyperechogenic contour in the center and insignificant hyperechogenic zones (Fig. 36, 37). During ultrasound examination, the density of any tissue can be determined by constructing a histogram - a graphical representation of the structure of the examined area. If the density of the tissue is sufficient, the base of the histogram resembles a triangle with an abscissa axis, and the denser the tissue, the wider the base of the triangle. In the absence of tissue structure in the study area, which indicates the presence of fluid, a linear histogram is located parallel to the ordinate axis. The structure of a healthy (uninfected) lymph node is designated as "isoechogenic," with areas of "hyperechogenicity" in the center, where the node tissue is denser. Purulent dissolution of the lymph node tissue, i.e., the presence of fluid, is called an "anechogenic" structure. The serous form of lymph node inflammation in children is rarely diagnosed by doctors, as it quickly transitions to a purulent course, especially in children aged 5-6 years.

Figure 32. Cheek, back of jaw, near ear, supermandibular lymph nodes

Figure 33. Posterior ear, submandibular, submandibular, cervical superficial lymph nodes

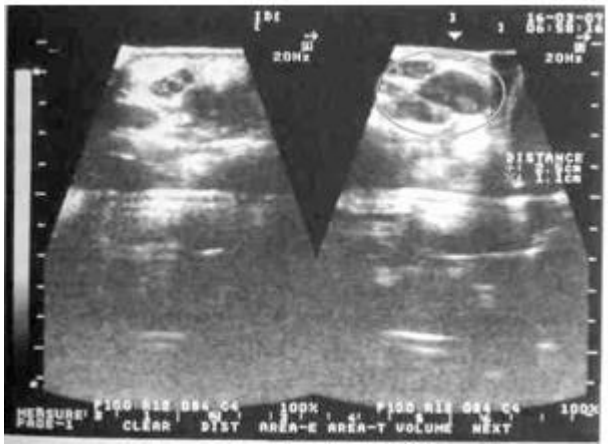


Figure 34. Ultrasound of acute serum lymphadenitis of the right submandibular region. Isoechogenic conglomerate of lymph nodes of various sizes is revealed.

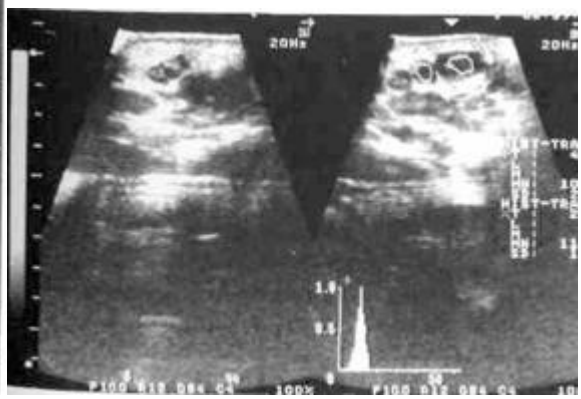


Figure 35. Ultrasound gram. Histogram of node tissue. Its structure remains unchanged, and there is no fluid (purulent).

Acute purulent odontogenic lymphadenitis

Acute purulent odontogenic lymphadenitis (lymphoadenitis odontogenicapurulata acutae) is a consequence of untreated or untreated acute serous lymphadenitis. If the child does not consult a dentist for 5-7 days, serous inflammation usually turns into purulent inflammation, which is also facilitated by the unjustified prescription of physical methods and compresses. Complaints of the mother or child - an enlarged lymph node, the appearance of pain with an accented pulsation in it, a significant increase in body temperature, loss of appetite, changes in the child's behavior, he becomes capricious, restless.

Clinical presentation. The face is asymmetrical due to infiltration in a specific area. The skin here is swollen, reddened, and does not gather into folds (Fig. 39). Palpation reveals an enlarged, painful lymph node. In acute serous lymphadenitis, the boundaries of the lymph node are clear, while in acute purulent lymphadenitis, these boundaries are indistinct, as the inflammatory process spreads from the parenchyma of the lymph node to the outside. The symptom of fluctuation, which should be present in a purulent process, is not always present, even with a superficial localization, since the membrane of the lymph node is dense and tense. The opening of the mouth is free, the "causative" tooth can be found, usually the crown is damaged and colored, its percussion is painful. General symptoms of intoxication are more pronounced than in serous intoxication. There is no distinction between purulent odontogenic or neodontogenic lymphadenitis (or adenoabscess) that can be determined based on the relevant clinical signs, only associated with the "causative" tooth. In odontogenic lymphadenitis, superficial lymph nodes are most often affected, which are usually connected to the periosteum of the jaw. A typical picture of a left shift in the leukocyte formula is observed in the blood test of the sick child. It should be noted that a complete blood count is an informative test for the differential diagnosis of purulent and serous lymphadenitis. Among the known peripheral blood leukocyte ratio indices, the neutrophil-to-lymphocyte ratio index (NLNI) and the neutrophil-to-monocyte ratio

index (NMNI) provide the most information. This method of differential diagnosis is simple, convenient for a practicing physician, and does not require additional expenses (clinical blood tests are conducted in each medical institution).

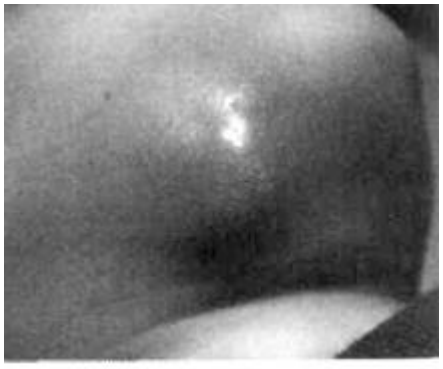


Figure 36. Acute odontogenic lymphadenitis of right submandibular region

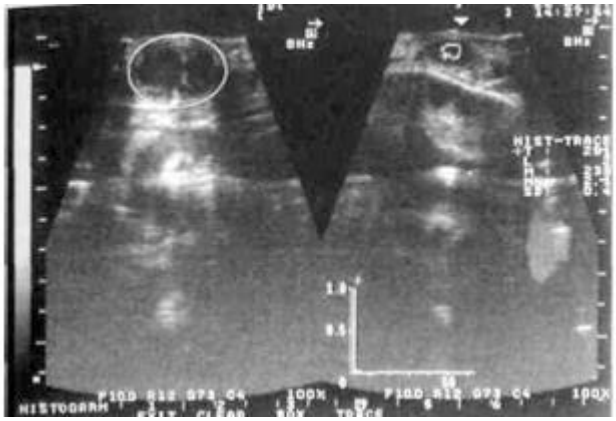


Figure 37. Submandibular acute suppurative ultrasound

According to ultrasound data, the structure of the nodes in purulent inflammation was uniformly hypoechoic (density of zones from 0 to 10 conventional units), which indicated the presence of fluid (pus) in them.

Chronic odontogenic lymphadenitis

According to the classification, chronic odontogenic lymphadenitis (lymphoadenitis odontogenica chronica) can be hyperplastic, purulent, and acute chronic. Chronic hyperplastic odontogenic lymphadenitis is practically not encountered in children, and the doctor deals with chronic odontogenic purulent lymphadenitis, the symptoms of which are fluctuations and the presence of pus upon lymph node puncture. A child's or their parents' complaint is the presence of a "ball" that has been present for a long time, often in the chin or submandibular region, without causing any discomfort. From the anamnesis, it is known that this "ball" first appeared a few weeks or months ago, and its appearance coincided with the appearance of toothache on the affected side. The tooth was not treated or the treatment was not completed. Subsequently, the

toothache disappeared, leaving only a slightly enlarged lymph node, painless or slightly painful. The child's parents indicate several exacerbations of the disease, which manifest as a slight rise in body temperature, enlargement of the node, and its painfulness against the background of an exacerbation of the dental process.

Clinical presentation. Examination allows for the detection of minor facial asymmetry due to a new formation in the affected area, while the skin over the face remains unchanged. A hard, less painful, limited mobility, non-adhesive to the skin, round or oval-shaped formation is palpated, in the center of which fluctuation can be detected. The mouth opens freely. A "causative" tooth with a color change in the crown part (damaged or filled) is detected. Sometimes this tooth is removed at the time of application. In chronic purulent lymphadenitis, according to ultrasound data, an enlarged image of the isoechogenic structure of the lymph node is noted with hypoechogenic zones in the center (density of the central zone on the histogram from 0 to 10 conventional units). In hyperplastic lymphadenitis, an image of an enlarged node with a density of hyperechoic zones from 5 to 40 conventional units is detected on the histogram (Fig. 38). Comparison of histograms of patients with acute purulent and chronic purulent lymphadenitis showed similarity in their density, which ranged from 0 to 10 conventional units. Histograms of patients with acute serous and chronic hyperplastic lymphadenitis were also similar (density from 5 to 40 conventional units). The obtained results indicate the relative objectivity of ultrasound examination, therefore its data should be interpreted in conjunction with clinical data.

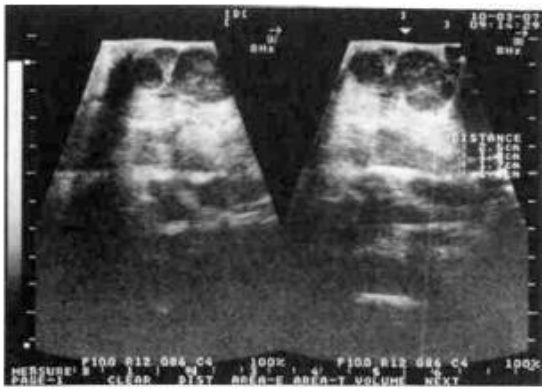


Figure 38. Ultrasound of hyperplastic chronic lymphadenitis of the submandibular region.

Neodontogenic lymphadenitis

Neodontogenic acute lymphadenitis

Neodontogenic diseases preceding the development of inflammatory processes in the maxillofacial region and cervical lymph nodes in children are acute respiratory viral infections (influenza, pneumonia, tonsillitis, otitis, rhinitis) and infectious diseases. Inflammation of the lymph nodes can also be a consequence of purulent lesions of the face and scalp (strepto- and staphyloderma), infected lesions of these areas, damage to the oral mucosa, umbilical wounds in infants, skin cracks, and fissures.

Neodontogenic lymphadenitis (lymphoadenitis odontogenica acuta) most often occurs in children aged 2-5 years, when the body's response to a large number of bacterial and viral pathogens is insufficient for its defense. In some cases, lymphadenitis occurs after vaccination with BCG - so-called "BCG-dogs." Seasonality of the disease is observed in autumn-winter and early spring. The autumn-winter peak is usually explained by the active state of the immune system, which leads to hyperergic reactions, while the spring peak, on the contrary, is explained by the low intensity of metabolic processes, high suppressor and slightly helperic activity of T-lymphocytes, and, in connection with this, the development of a hypoergic course of inflammation.

In acute neodontogenic lymphadenitis, the child's or parents' complaints are the appearance of "balls" in one, often several, anatomical areas (this is one of the differential signs of odontogenic and non-odontogenic processes). Their appearance is accompanied by general signs of the inflammatory process. Determining the presence of lymphadenitis is not a difficult task for a doctor. Its cause is more difficult to determine, as its specific clinical signs and treatment characteristics depend on it. In some cases, the treatment of lymphadenitis ends without determining its cause. Clinical presentation. Depending on the cause of neodontogenic lymphadenitis, the child's age, and their somatic state at the time of illness, the clinical manifestations of the disease have the following characteristics. Often, lesions of lymph nodes in several anatomical areas in the stage of serous inflammation are observed. Such lymph nodes can

accumulate. The diagnosis and treatment of these lymphadenitis is often carried out by pediatricians and infectious disease specialists. Post-vaccination lymphadenitis is characterized by a prolonged course. Among neodontogenic lymphadenitis, the dentist often encounters ENT and viral diseases. In this case, the clinical manifestations do not have specific features, and neodontogenic lymphadenitis proceeds through the same stages as odontogenic lymphadenitis.

Differential diagnosis of acute neodontogenic lymphadenitis should be carried out with abscesses, phlegmons, specific lymphadenitis (syphilitic, tuberculous, actinomycotic), migratory granuloma, sialoadenitis, salivary stone disease, suppurative atheroma.

Chronic neodontogenic lymphadenitis. Chronic neodontogenic lymphadenitis most often occurs in children aged 5-6 years, but depending on the nature of the chronic inflammation, it can be hyperplastic and purulent.

Complaints from the child or their parents - one or more "balls" with mild pain, often in the submandibular region or upper neck after angina, otitis, or ARVI; sometimes these "balls" become enlarged, painful, during which body temperature rises.

Clinical presentation. In chronic hyperplastic lymphadenitis, one or more structures with clear boundaries, limited mobility, almost painless, non-adhesive to the skin, soft-elastic or dense-elastic consistency are visible in the corresponding anatomical area; this structure can acquire a bluish tint (Fig. 42, 43). The child's general condition is not disturbed. With exacerbation of chronic inflammation, the lymph nodes enlarge, become painful, the skin above them changes color and becomes red. With further progression of inflammation, the lymph node softens and its parenchyma may completely dissolve, only the capsule of the lymph node is preserved - a purulent "pouch" is formed.

Figure 39. Child with chronic hyperplastic left temporal lymph node

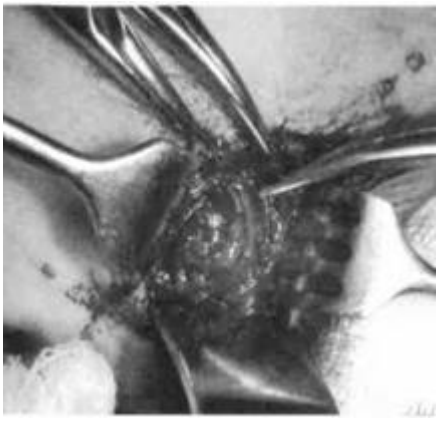


Figure 40. Same child's lymph node removal surgery

Diagnostics. Difficulties arise in the diagnosis of various forms of lymphadenitis (ultrasound, thermal imaging data, indices of the ratio of formed elements of white blood help).

In purulent lymphadenitis, an anechoic site is observed on the histogram, which indicates the dissolution of the node. Thermographic data in lymphadenitis show that a temperature difference of 1.4°C in symmetrical areas testifies to the benefit of the serous process. Temperature fluctuations from 1.6 to 2.6°C and the presence of a "hot zone" indicate a purulent process in the lymph node. In the serous form - the neutrophil-to-lymphocyte ratio index is 2 times lower than in the purulent form, the ISLM index - the lymphocyte-to-monocyte ratio - is 1.5-2 times higher. Chronic lymphadenitis differs from lymphogranulomatosis, lymphocytic leukemia, atheroma, dermoid, epidermoid, lipoma, cervical cysts, malignant tumors, and their metastases.

Treatment. The main thing in the treatment of patients with lymphadenitis is to eliminate the cause that caused it. It is clear that in odontogenic lymphadenitis, treatment or removal of the "causative" tooth is necessary depending on the condition of the tooth, the timing of root formation and resorption, and the child's age. The tactics of treating serous lymphadenitis primarily depend on the day the child visited a doctor

after the onset of the disease - the earlier it is, the more helpful conservative treatment can be. Usually, conservative treatment is used first - compresses with a 5% dimexide solution, in which anti-inflammatory drugs are dissolved. For this, 1 ml of hydrocortisone solution, 50% analgin, and 1% dimedrol per 10 ml of 5% DMSO dissolved in furacilin should be added. Such a solution is prepared tempore! and a classic compress is applied to the site of the enlarged lymph node. By "classic," it should be remembered that the essence of the compress is that the liquid in the gauze napkin must be isolated from the air by parchment paper or cellophane film. Some manuals and textbooks have shown the effectiveness of semi-alcoholic compresses, paraffin applications, Vishnevsky ointment, and UVCH dressing according to Dubrovin for the treatment of serous inflammation of the lymph node. The aforementioned remedies have a certain meaning. This has been confirmed by their use for more than a hundred years, but the effectiveness of the remedy depends on at what stage of the inflammatory process it was used. Since the child did not go to the doctor in the first days of the illness, all these heat treatments only cause congestion in the lymph node and raise the local temperature, which contributes to the development of microorganisms (this explains the transition of serous inflammation to purulent inflammation). Closed ointment dressings should not be used frequently, as they disrupt the normal function of the sweat, sebaceous glands, hair follicles of the skin of the affected area, etc. In the early stages of inflammation, it is logical to use hypothermia, which reduces tissue edema, slows down protein breakdown, reduces tissue acidosis and hypoxia, increases microflora, and energy metabolism in lymph nodes. In children, anesthetic blockades of the cervical lymph nodes are usually not used. If the child visits a doctor within the first 2-3 days from the onset of the disease, the most effective methods are hydrocortisone phonophoresis, DMSO electrophoresis with antibiotics and dimedrol, and laser therapy. The main method of treatment of purulent forms of lymphadenitis is surgical (Fig. 41, 42). The operation should be performed under general anesthesia in a hospital setting. The incisions of the skin and subcutaneous

adipose tissue, as well as the capsules of the lymph node, should be of equal length so that a conical ulcer channel is formed, which complicates the evacuation of objects. The orientation of skin sections is carried out taking into account natural folds and "safe" cut lines. The concept of sanitation of the inflammatory focus includes: 1) removal of the lymph node parenchyma with a curettage spoon (in the presence of not only pus in the parenchyma, but also ruptures of the lymph node); 2) forced drainage of the wound with a rubber tube; 3) dressing the wound with a hypertonic sodium chloride solution or a 5% DMSO solution.

Figure 41. Neodontogenic lymphadenitis of maxilla

Figure 42. The patient's condition where the abscess was opened and drained

If we encounter acute suppurative or chronic suppurative lymphadenitis that has been present for a long time, if there is a superficial localization and fluctuation, we can recommend the method used in our clinic. At the opposite poles of the abscess, two skin openings are inserted, located at a distance of 2-3 cm from each other, through which polyvinyl chloride perforated tubes are inserted (for drainage of the abscess cavity and subsequent washing). This method allows it to be performed without an incision, so that deforming scars do not form in the facial area, which improves the cosmetic result of the operation. After the opening of the abscess, physical procedures are prescribed - enzyme electrophoresis, ultraviolet radiation, magnetotherapy, helium-neon radiation, ultraviolet radiation, which makes sense only with adequate drainage of the inflammatory focus. In both odontogenic and neodontogenic hyperplastic

lymphadenitis, it is advisable to remove such a node with subsequent pathohistological examination. Depending on the severity of inflammation and intoxication of the body, the following groups of medications are changed: detoxification, antihistamine, antioxidant, B and C vitamin preparations, immunostimulants. The following tactics are proposed for the use of antibiotics: in acute neodontogenic inflammation of the lymph nodes, accompanied by a general reaction of the body, weakened young children are prescribed antibiotics (ampicillin, cefazolin, klaforan) in age-appropriate doses, which accumulate in soft tissues, i.e., in the lymph nodes. In acute odontogenic lymphadenitis and its chronic forms, the general condition of the child is satisfactory, and the use of antibiotics in adequate surgical treatment is not advisable. Complications. Lymphadenitis of the maxillofacial region can be complicated by adenophlegmon (Fig. 43), and adenophlegmon - by phlebitis, thrombophlebitis, sepsis. The above-mentioned complications can be caused by the following reasons: 1) sharp weakening of the child's body against the background of previous viral and infectious diseases; 2) the presence of simple microflora (staphylococcus, streptococcus, bacillus, diplococcus) (clostridia, fusobacteria, etc.); 3) untimely and untreated intestine; 4) errors in diagnosis. To prevent lymphadenitis, timely sanitation of the oral cavity, as well as acute and chronic inflammatory foci in the area of the child's head, neck, and upper respiratory tract, is necessary. Prevention of the transition of one form of lymphadenitis to another - timely and high-quality treatment immediately after the patient's visit to the doctor and diagnosis.

Figure 43. Adenophlegmon of the right submandibular region, with the phlegmon opening and draining.

Migratory granuloma

A migratory granuloma, by its nature, is nothing more than chronic hyperplastic lymphadenitis of odontogenic origin. It occurs as a complication (often) of granulating chronic periodontitis. The cause of migratory facial granulomas in children is usually the first permanent molars, which are affected by caries and its complications earlier than other teeth. Periodontitis is usually complicated by chronic hyperplastic lymphadenitis, where granulation tissue develops in the form of separate accumulations - granulomas. Odontogenic subcutaneous granuloma has a "causal" connection (in the form of a pull) with the affected tooth, manifested by the formation of a "pathway" connecting the affected tooth with the lymph node. Complaints of children - deformation of tissues, usually with a bluish surface, or the presence of a fistula in the submandibular region, from which periodically pus is discharged. From the anamnesis, it is known that the tooth was treated for a long time before the disease or the affected tooth was not treated. Then the tissues in the submandibular or submandibular area swelled and gradually became denser. Subsequently, pus appeared here, which opened independently, after which a fistula appeared on the skin.

Clinical presentation. The child's face is slightly asymmetrical due to a dense, localized infiltrate (usually in the mandible or jaw area) with minimal pain. The skin here is bluish, shiny, thinned, with small purulent discharge (Fig. 44).

Figure 44. Migratory granuloma of 46 teeth of submandibular region

In the oral cavity, a destroyed "causative" tooth is detected, and along the transitional fold, it is always possible to palpate the weight that connects the tooth with the fistula and maintains chronic inflammation of the soft tissues. The general state usually does not change. Treatment of migratory granulomas in children consists of removing the tooth that caused the development of the inflammatory process, carefully scraping the opening, incising the tragus along the transitional fold, and excision of the fistula. Prevention of the disease through timely treatment of caries complications.

Subject tests

TOOTH REMOVAL

1. An 11-year-old child was shown to remove 54, 65 teeth. The crowns of the teeth are intact. Select the necessary surgical pliers:

A. S-shaped with spines on the cheek;

B. *8 - without spines on the zygomatic cheek;

C. Spears (bayonets);

D) straight lines;

E. Spiny wedge-shaped.

2. A 9-year-old girl was shown to remove the remaining crowns of 74 teeth due to an attack of chronic periodontitis. Select the necessary surgical pliers:

A. S-shaped without spines on the cheek;

B. Straight lines;

C) * Spiny cuneiform;

D) Non-spiny cuneiform;

E. Beak-shaped, curved in a plane.

3. A 6-year-old girl was shown to remove 71, 72, and 82 teeth with preserved crowns. Select the necessary surgical pliers:

A. S-shaped with spines on the cheek;

B. S-shaped, without spines on the cheek;

C) straight lines;

D) Spiny wedge-shaped;

E. * Thornless Conifers.

4. A 14-year-old child was shown to remove 16 teeth with a partially eroded crown due to chronic granulomatous periodontitis. Select the necessary surgical pliers:

A. * C - spiny on the cheek on the right;

B. C-shaped with spines on the left cheek; C. S-shaped without spines on the right cheek;

D. S-shaped without spines on the left cheek;

E. Straight lines.

5. State the absolute indications for permanent tooth extraction in children:

A. Deep acute caries of the multi-rooted tooth;

B. Chronic granulating periodontitis of a single-rooted tooth;

C. Acute pulpitis of a multi-rooted tooth;

D. *Acute odontogenic osteomyelitis of the jaw;

E. Acute serous odontogenic periostitis of the jaw, arising from the anterior tooth.

PERISTITIS OF JAWS

1. An 8-year-old girl complains of pain and swelling in the left half of the lower jaw, with a body temperature rising to 38°C. Objectively: face is asymmetrical due to swelling of the tissues of the left cheek and lower jaw, the skin of the cheek is hyperemic. The deep carious cavity of the tooth, the fold passing from the vestibular side at the level of teeth 73, 74, 75, is smoothed, infiltrated, palpation of which is painful. Fluctuation symptom is positive, tooth mobility is at - degrees.

Make a clinical diagnosis:

A. Acute dental periodontitis;

B. Acute serous periostitis of the lower jaw;

C. *Acute purulent odontogenic periostitis of the mandible;

D) exacerbation of chronic periodontitis;

E. Acute localized osteomyelitis of the lower jaw.

2. During the examination of a 9-year-old child, the dentist identified a dense area of round shape with a smooth surface in the area of teeth 63, 64, 65 on the right side of the mandible. His palpation is slightly painful. Adjacent soft tissues have indistinctly expressed inflammatory infiltration. Skin is unchanged. The submandibular lymph nodes are enlarged, dense, and painless. Two weeks ago, the boy received a blow to the right side of his lower jaw.

Make a preliminary diagnosis:

A. Acute serous periostitis of the right lower jaw;

B. Migratory right-sided facial granuloma;

C. *Chronic traumatic periostitis of the right lower jaw;

D. Right-sided productive form of mandibular osteomyelitis;

E. Radicular cyst of the right lower jaw.

3. A 7-year-old girl was diagnosed with acute serous odontogenic periostitis of the mandible below 84 teeth. Determine what changes can be detected on an X-ray of the mandible:

A. No changes in the bone and "causal" teeth;

B. * In the "Cause" tooth, there are changes characteristic of chronic periodontitis;

C. Osteoporosis foci, the "cause" periodontal gap of equal width along the entire length of the tooth;

D. "Cause" sequestration foci in the dental area - changes characteristic of chronic periodontitis;

E. Foci of bone destruction, equally widened periodontal cleft of the "cause" tooth.

4. A 6-year-old boy was diagnosed with acute purulent odontogenic periostitis of the maxilla above 64 teeth. What changes can be detected in a child's blood:

A. No change;

B. "Leukocytosis, neutrophil shift to the left, lymphopenia, increased ESR;

C. Leukocytosis, neutrophil shift to the right, lymphocytosis, increased ESR;

D. Leukopenia, eosinopenia, lymphocytosis, basophilia;

E. Leukopenia, eosinophilia, lymphopenia, monocytosis.

5. A 9-year-old girl was diagnosed with acute purulent odontogenic periostitis of the lower jaw on 75 teeth. Name the local pathogenetic clinical signs of this disease:

*A. Subcutaneous abscess on one side of the alveolar process, on the surface of the "causal" tooth;

B. Severe swelling of the peri-maxillary tissues, pathological mobility of the teeth;

C. Presence of the "Causative" tooth, fistulas with purulent discharge along the transitional fold;

D) muffle-like infiltration of the alveolar process;

E. Subcutaneous abscess on both sides of the alveolar process, presence of a "causal" tooth.

6. A 11-year-old boy was diagnosed with acute purulent odontogenic periostitis of the maxilla above the affected tooth. Choose the right treatment:

A. * Removal of the tooth, periostotomy above the transitional fold, prescription of anti-inflammatory therapy;

B. Treatment of the tooth, periostotomy above the transitional fold, prescription of anti-inflammatory therapy;

C. Tooth extraction, periostotomy below the transitional fold, anti-inflammatory treatment;

D. Tooth extraction, anti-inflammatory therapy, physiotherapy;

E. Dental treatment, anti-inflammatory therapy, physiotherapeutic treatment.

JAW OSTEOMIELITIS

1. A 7-year-old girl was diagnosed with "destructive-productive form of chronic osteomyelitis of the lower jaw." Name the changes characteristic of this disease on the radiograph:

A. Osteoporosis of bone tissue, additional shadow of ossified periosteum;

B. At the apex of the tooth root - a focus of bone resorption with an indistinct contour, partial resorption of the tooth root;

C. *Foci of destruction are replaced by foci of osteosclerosis, the bone is mottled, roughly spotted, the periosteal reaction is pronounced;

D. Areas of absorption of porous and compact matter are observed, the periosteal structure of the bone is weakly expressed;

E. The affected area does not have clear boundaries, foci of bone tissue destruction are identified.

2. A 13-year-old child was diagnosed with a "productive form of chronic mandibular osteomyelitis." Identify the changes characteristic of this disease on the radiograph:

A. *Foci of osteoporosis and zones of osteosclerosis of bone tissue, increased bone size, additional shadow of ossified periosteum;

B. At the apex of the tooth root - a focus of resorption with a luminous contour, partial resorption of the tooth root;

C. Foci of thinning alternate with foci of osteosclerosis, the bone is mottled, roughly spotted;

D. Areas of absorption of porous and compact matter are observed, the periosteal structure of the bone is weakly expressed;

E. The affected area does not have clear boundaries, foci of bone tissue destruction are identified.

3. A 6-month-old child was brought to the admissions department by ambulance. The skin of the right eyelid is sharply hyperemic, the eye opening is closed. At the edge of the inferior orbital, closer to the outer corner of the eye, there is a fistula, the right maxillary alveolar process is enlarged in a clutch-like manner, the transitional fold is smoothed. Body temperature 39.7 "C, the child is restless. The child has a history of purulent skin disease. Make a clinical diagnosis:

A. Neodontogenic abscess of the right zygomatic region;

B. Neodontogenic abscess of the right hypoglossal region;

C. *Hematogenous osteomyelitis of the right upper jaw;

D. Right eye dacryocystitis;

E. Phlegmon of the retrobulbar region.

4. A 9-year-old girl was diagnosed with acute purulent odontogenic osteomyelitis of the lower jaw. Name the possible methods of local treatment:

A. Opening of the subperiosteal abscess on one side of the alveolar process, removal of the "causal" tooth;

B. Treatment of the "causative" tooth, opening subperiosteal abscesses on both sides of the alveolar process;

C. Removal of the "causal" tooth, sequestrectomy;

D. *Opening of subperiosteal abscesses on both sides of the alveolar process, removal of the "causal" tooth;

E. Treatment of the "causal" tooth, opening of soft tissue abscesses, sequestrectomy.

5. In children, hematogenous osteomyelitis develops mainly at the age of:

A. * Up to 3 years;

B) from 3 to 6 years;

C) from 6 to 9 years old;

C) from 9 to 12 years old;

E. From 12 to 15 years old.

6. Acute odontogenic osteomyelitis of the body of the mandible in children:

A. Benign soft tissue tumors;

B. Periodontitis and periodontitis;

C* Periostitis, phlegmon, suppurative cyst, Ewing's sarcoma;

D. Odontogenic sinusitis, trigeminal neuralgia, musculoskeletal dysfunction;

E. Malignant tumors of soft tissues.

MAXillofacial abscesses and phlegmons

1. A 15-year-old boy complained of a rise in body temperature to 38.5 "C, difficulty opening the mouth, swallowing, pain while eating, speaking, and increased

salivation. It hurts for 2 days. Objectively: edema of the tissues of the left submandibular and sublingual regions, the left maxillofacial tract is infiltrated, smooth, palpation is sharply painful, the mucous membrane is sharply hyperemic, edematous. There is a deep cavity in the tooth, the color of the tooth has changed.

Make a clinical diagnosis:

A. Odontogenic abscess of the left pterygomandibular space from the tooth;

B. Acute odontogenic focal osteomyelitis of the lower jaw;

C. Acute purulent odontogenic periodontitis of the mandible;

D. *Odontogenic abscess of the maxillofacial groove;

E. Acute purulent sialoadenitis of the left submandibular salivary gland.

2. A 15-year-old child was diagnosed with a right pterygoid fossa abscess. Name the symptoms of this disease:

A. Dry mouth, facial asymmetry, pain in the body of the lower jaw;

B. * Limited painful opening of the mouth, swelling of tissues along the transitional fold behind the maxillary tuberosity, pain during palpation of this area, throbbing headache;

C. Inflammatory infiltrate and swelling of the eyelids, lateral inflammation of the cheek area, limited mobility of the upper lip;

D. Sharp swelling of the soft tissues above the zygomatic arch, swelling of the eyelids, positive fluctuation symptom;

E. Inflammatory contracture of the masticatory muscles, sore throat, regional lymphadenitis, inflammatory infiltrate behind the angle of the mandible.

3. A 15-year-old child was diagnosed with an abscess of the left infraorbital region. Name the symptoms of this disease:

A. Dry mouth, facial asymmetry, pain in the area of the left maxillary alveolar process;

B. Painful limited opening of the mouth, swelling of the mucous membrane and pain behind the left tubercle of the upper jaw, throbbing headache;

C. * Swelling of the eyelids, painful infiltration of the tissues of the left hypoglossal region and upper lip, hyperemia of the skin of these areas;

D. Sharp swelling of the soft tissues above the left zygomatic arch, swelling of the eyelids, positive fluctuation symptom;

E. Inflammatory contracture of the masticatory muscles, sore throat, regional lymphadenitis, inflammatory painful infiltrate behind the left corner of the lower jaw, pain during swallowing.

4. 15 yoshli o‘g‘il bolada o‘ng qanot-jag‘ bo‘shlig‘i abssessi tashxisi qo‘yilgan. Bu kasallikning alomatlarini ayting:

A. Og‘iz qurishi, yuz asimmetriyasi, pastki jag‘ tanasining o‘ng tomonida og‘riq;

B. Og‘izning og‘riqli cheklangan ochilishi, shilliq qavatning shishishi va o‘ng tomonda yuqori jag‘ do‘mbog‘ining orqasida og‘riq, yorib yuboruvchi bosh og‘rig‘i;

C. O‘ng jag‘-til yo‘li, til osti valigi to‘qimalarining yallig‘lanish infiltrati va shishi; yutish qiyin;

D. O‘ng jag‘ ostidagi yumshoq to‘qimalarda og‘riq va kuchli shish, musbat flyuktuatsiya simptomi;

E. * Limited painful mouth opening, sore throat, regional lymphadenitis, acute painful inflammatory infiltrate behind the right angle of the mandible

5. A 10-year-old boy was diagnosed with odontogenic phlegmon of the left mandibular region of 36 teeth. Name the symptoms of this disease:

A. *Facial asymmetry due to significant swelling and infiltration of the soft tissues of the left submandibular region on the affected side, presence of a "cause" tooth

B. Painful limited opening of the mouth, swelling of the mucous membrane and pain behind the left tubercle of the upper jaw, throbbing headache;

C. Inflammatory infiltrate and edema of the lateral eyelid and cheek area, upper lip immobile

D. Severe pain, sharp swelling of the soft tissues above the left zygomatic arch, swelling of the eyelids, positive fluctuation symptom; E. Inflammatory contracture of

masticatory muscles, sore throat, regional lymphadenitis, inflammation behind the left angle of the mandible

6. A 13-year-old girl was diagnosed with an odontogenic abscess of the right maxillofacial canal of the tooth with an inflammatory focus located close to the oral mucosa. Choose the optimal method of local treatment:

A. * Removal or treatment of the "Cause" tooth, opening the abscess from the side of the jaw, closer to the mouth;

B. Removal of the "Cause" tooth, opening the abscess into the submandibular region by external access;

C. Removal of the "cause" tooth, opening the abscess by inserting the jaw into the mouth from the side of the tongue near the tongue;

D. Removal of the "Cause" tooth, opening of an abscess in the submandibular region;

E. Removal of the "Cause" tooth, opening of the abscess on both sides of the alveolar process of the mandible.

MAXILAR LYMPHADENITIS

1. A 2-year-old child has a painful "ball" palpated in the upper right cervical region, mobile, not connected to the skin and adjacent tissues, measuring 2x2 cm, appeared just yesterday. The skin on it does not change color and is folded. The child has been suffering from angina since the last week. Make a clinical diagnosis:

A. Right side cervical cyst;

B. Chronic hyperplastic neodontogenic lymphadenitis of the upper right cervical region;

C. *Acute serous neodontogenic lymphadenitis of the upper right cervical region;

D. Acute purulent neodontogenic lymphadenitis of the upper right cervical region;

E. Atheroma of the right upper cervical region.

2. A 7-year-old girl was diagnosed with "acute purulent odontogenic lymphadenitis of the left submandibular region." Determine the following tactics of a dentist:

A. Tooth extraction, anti-inflammatory therapy, dimexide and potassium iodide electrophoresis in outpatient settings;

B. X-ray of the tooth, opening of the abscess under local anesthesia, prescription of anti-inflammatory therapy in inpatient settings;

C. Rinsing with tea primrose, prescribing anti-inflammatory therapy, applying a compress with dimexide to the left lower jaw area;

D. Tooth extraction, opening of the abscess, prescription of anti-inflammatory therapy, physiotherapeutic methods, outpatient observation.

E. * Removal or treatment of 36 teeth according to indications, opening of the abscess, anti-inflammatory therapy in maxillofacial hospital conditions.

3. A 9-year-old child complained to a dentist about left neck swelling that appeared 3 weeks ago (the child suffered from tonsillitis). During examination: in the upper region of the left neck, a slightly painful, dense "ball" measuring 2x3 cm, not connected to the surrounding tissues, is palpated. Which diagnosis is more likely:

A. Atheroma of the upper left cervical region;

B. Lateral cervical cyst on the left;

C. *Chronic hyperplastic neodontogenic left upper cervical lymphadenitis;

D. Acute serous neodontogenic lymphadenitis of the upper left cervical region;

E. Acute purulent neodontogenic lymphadenitis of the upper left cervical region.

4. Lymph node:

A. Central organs of hematopoiesis and immunity;

B. * Peripheral hematopoiesis and immune defense organs;

C. Derivatives of the reticuloendothelial system;

D. To the organs of the endocrine system;

E. Derivatives of the histiocytic system.

5. Choose the correct definition of lymphangitis:

A. Inflammation of the lymphatic vessels collecting lymph from the primary focus;

B. Inflammation of the blood vessels feeding the lymph node;

C) synonym of lymphadenitis;

D) diffuse lymphadenitis, i.e., involvement of several groups of lymph nodes in the inflammatory process;

E. Synonym for specific lymphadenitis.

6. What function does the lymph node not perform:

A. Blood-forming;

B. Protective;

C) Obstacle;

D) *endocrine;

E. Immunological.

7. Which of the listed diagnoses is incorrectly formulated:

A. Acute serous odontogenic lymphadenitis of the left submandibular region;

B. Chronic purulent neodontogenic lymphadenitis of the left submandibular region;

C. Chronic hyperplastic neodontogenic submandibular lymphadenitis;

D. *acute purulent adenoabscess of the left submandibular region;

E. Adenoplegmon of the left submandibular region.

8. Choose the most optimal and informative additional research method for the differential diagnosis of acute non-epidemic mumps and acute serous lymphadenitis:

A. * Ultrasound examination;

B. Radioisotope study;

C. Contrast sialography;

D. Radiological examination;

E. Puncture biopsy.

9. A 5-year-old boy was diagnosed with acute purulent odontogenic lymphadenitis in the left submandibular region. Choose the method of anesthesia during surgical intervention:

A. Infiltration anesthesia;

B. Conductive peripheral (mandibular) anesthesia;

C. *General anesthesia;

D. Local potentiating (mandibular) anesthesia;

E. Conductive central anesthesia.

10. Differential diagnosis of acute serous neodontogenic lymphadenitis with enlargement of the lymph node group, pronounced neutrophilia, significant left shift of the leukocyte formula, eosinopenia and lymphopenia:

A. Cytomegalovirus infection;

B. *Lymphogranulomatosis;

C. Sarcoma;

D) adenovirus infection;

E. Chronic lymphadenitis.

11. Which lymphadenitis develops more frequently in young children:

A) odontogenic;

B) * Neodontogenic;

C. Tuberculosis;

D) related to syphilis;

E. Actinomycotic.

12. At what age does the formation of lymph nodes end:

A. 2-3 years old;

B. 4-6 years;

C. 6-8 years;

C. 8-10 years;

E. *11-12 years old.

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