



## MODERN PECULIARITIES OF COMPLEX TREATMENT OF PURULENT- INFLAMMATORY DISEASES OF THE MAXILLOFACIAL REGION

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Purulent infection occupies one of the leading places in the structure of morbidity among the surgical pathology of the maxillofacial region. Many aspects of pyoinflammatory diseases are currently being revised due to the constantly changing relationship between different types and strains of microbial pathogens and the human body. The very likelihood of developing an infectious process, the features of the clinical course and the prognosis largely depend on the factors that determine these relationships. The effectiveness of the treatment of patients with purulent-inflammatory diseases is largely determined by early diagnosis, which presents significant difficulties, as evidenced by a high percentage of diagnostic errors (30-50%). The situation is aggravated both by the lack of information about the state of the acute odontogenic focus of inflammation, perimaxillary soft tissues, and the lack of available informative diagnostic and prognostic tests.

At present, to predict the complications of purulent-inflammatory processes, a method has been developed based on the study of the ability of pathogens to inactivate a number of factors of natural anti-infective resistance. A known method for predicting the course of purulent-inflammatory diseases caused by cultures of *Staphylococcus aureus* or *Escherichia coli*, including the determination of anti-complementary activity in the pathogen. For diagnostic purposes, the parameters of the blood coagulation system were studied. Examining the coagulogram revealed an increase in homeostasis during the first three days of the development of phlegmon of odontogenic etiology. The general background of coagulation (plasma recalcification time and its tolerance to heparin) was slightly increased.

When studying the individual components of the homeostasis system - fibrinase, fibrinogen and fibrinolytic activity, a significant increase was noted. The authors believe that this fact indicates the development of a compensatory-adaptive reaction of the body and can be used to assess the severity of the pathological process. An increase in all indicators of the homeostasis system indicates the possibility of developing thrombosis. A well-known forecasting technique based on the severity of the general reaction of the body (body temperature, heart rate), these blood parameters (ESR, white blood cell count), as well as the localization of the pathological focus. Currently, a search is underway for non-invasive methods for diagnosing and predicting the disease.





Thus, the antioxidant coefficient ceruloplasmin-transferrin of the oral fluid reflects the severity of the course of acute odontogenic purulent-inflammatory diseases of the maxillary fossa and the degree of damage to the bone and soft tissue structures of the focus of acute odontogenic inflammation, allows for differential diagnosis of acute purulent periostitis and acute odontogenic osteomyelitis [1,12,15,].

According to N.V. Malychenko (2005), evaluation of the effectiveness of treatment by various methods by identification CD-markers using the immunohistochemical method made it possible to determine the numerous proliferation of vessels, the appearance of collagens and factors contributing to early tissue regeneration when using phonophoresis with Coltex.

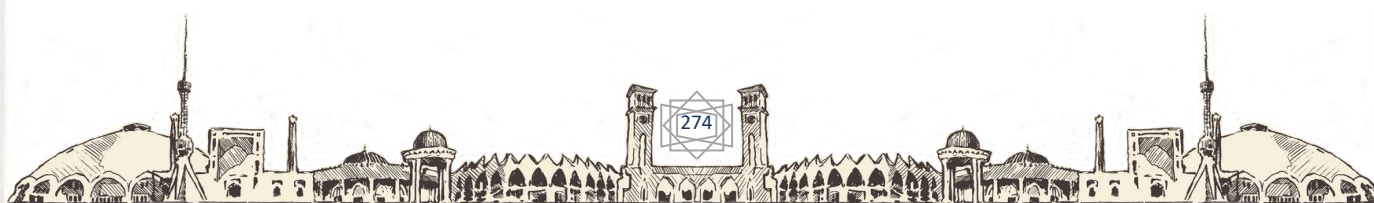
An increasing number of cases are described, associated with an increase in the number of patients with a complicated course of pyoinflammatory processes in the maxillofacial area. Secondary complications of odontogenic phlegmon, such as sepsis, mediastinitis, thrombophlebitis of the facial veins, intracranial inflammatory processes are often characterized by a pronounced increasing intoxication, rapid onset and rapid spread to adjacent anatomical areas [2,5].

In recent decades, an increasing number of researchers of the pathogenesis of the development of acute purulent-inflammatory diseases of the maxillofacial area have been assigned to the syndrome of endogenous intoxication. Endogenous intoxication is a multicomponent process characterized by a toxic effect on the body of end and intermediate metabolic products. The starting factor in the development of endogenous intoxication is bacterial exo- and endotoxins.

Characteristic features of the syndrome of endogenous intoxication in purulent-inflammatory diseases of the maxillofacial area are: staging, abundant intake of toxic substances into the circulatory, lymphatic system, as well as into the interstitial fluid. Consequently, cellular metabolism and metabolism are disturbed, the balance of biological systems of the body is shifted, protective functions fade, which ultimately leads to the development of multiple organ failure [1,2,5].

So, S.S. Ksembaev (2006) proposes to assess the effect of endogenous intoxication syndrome on the blood-brain barrier using neuropsychological and neurolinguistic methods to identify speech disorders (aphasia), writing (agraphia), reading (alexia), counting purposeful movements (apraxia) and recognition (agnosia).

There are also well-known methods for clinically determining the quality of the treatment performed by the area of collateral edema, the timing of suppuration, the nature of purulent exudate, the severity of the pain syndrome, the degree of microbial contamination of the wound, the timing of the appearance of granulations and the degree of epithelialization. But clinical tests alone do not give a complete picture of recovery. To confirm clinical indicators, laboratory methods are required, which include the determination of a complete blood count, microbiological, immunological research methods, and the mandatory determination of an antibiogram [4].







A significant proportion of patients with purulent-inflammatory process have a humoral, cellular or combined immunodeficiency state, and in this case a hyperergic type of inflammation develops [6,7,9].

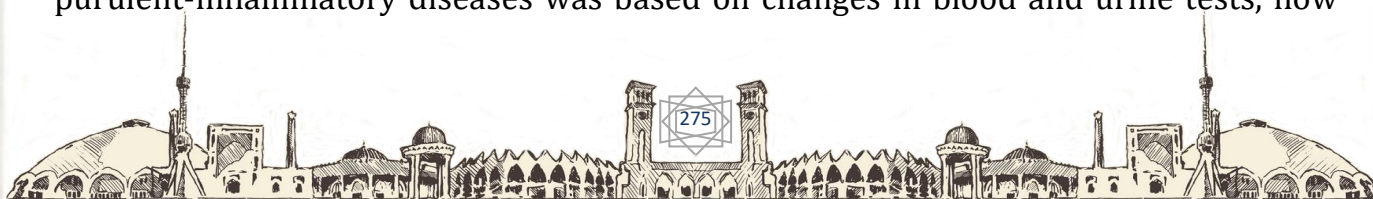
The development of a protracted and chronic course of purulent-inflammatory diseases mainly depends on such factors of the immune system as the phenomenon of delayed-type hypersensitivity and autoimmune reactions. A low phagocytic number is combined with a reduced total percentage of the final stages of phagocytosis, which indicates the depletion of the reserve oxygen-dependent mechanisms of bactericidal neutrophilic granulocytes at the beginning of the odontogenic purulent-inflammatory process, insufficient killing and splitting of the antigen. Inflammation acquires a long, sluggish chronic course if the antigen is not completely removed or the immune system does not recognize its own proteins, as well as if the secretion of anti-inflammatory cytokines is impaired. In this case, inflammation tends to spread and massive tissue damage, which aggravates the severity of clinical manifestations and contributes to the development of more severe complications [11,13].

General immunological reactivity is reduced against the background of chronic diseases and due to acute infectious diseases (influenza, acute respiratory viral infections, tonsillitis) E.A. Durnovo (2003) indicates that the most important indicators characterizing the state of general immunity during the development of phlegmon of the maxillofacial region are: indicators of oxygen-dependent metabolism of blood neutrophils and activity of the total fraction of protein cations, antioxidant activity of blood serum [16].

With age, according to the results of many studies, the effectiveness of antigen recognition and further transmission of the pathogen necessary for its elimination decreases. In addition, with age, the ability to proliferate T-cells is reduced and this defect is associated with premature depletion of clone power. The next change concerns the reduced sensitivity of T cells to cytokines (interleukin2, interferon). This is due to a decrease in the binding of interleukin-2 to its receptor and a violation of the transmission of surface tension. As a result, the proliferative activity of T cells is enhanced to a lesser extent by interleukin-2 [17].

An imbalance of immunoglobulins leads to a decrease in the effectiveness of antimicrobial protection, as a result of which susceptibility to infections increases with age. The course of any inflammatory process, in addition to immune mechanisms, determines the state of hematopoiesis, the expression of molecules, their adhesion, the synthesis of chemokines, the ability of cells to pass through the vascular wall and accumulate in the focus of acute inflammation. The starting point for the chain of events in the focus of acute inflammation is an increase in the level of pro-inflammatory cytokines, which is determined by the functional activity of cells - effectors of inflammation (granulocytes, monocytes, lymphocytes) [4,14].

If earlier the assessment of the severity and prediction of the clinical course of purulent-inflammatory diseases was based on changes in blood and urine tests, now





the indicators of its cellular and humoral reactions are an objective criterion for the functioning of the immune system. At the same time, a certain pattern has been established between the severity of the inflammatory process and changes in the cellular and humoral immunity.

The most informative indicators are recognized: phagocytosis, the content of immunoglobulins, indicators of cellular immunity: the number of T-cells and their ratio. A number of researchers note an increase in immunodeficiency states associated with the widespread use of antibiotics, their depressive effect on immunity and nonspecific protective factors.

Also, for the detection of immune deficiency, an immunogram plays a primary role, which includes a set of indicators of immunocompetent cells and characterizes the functional state of the immune system. Of the analyzed parameters of the immune system in patients with acute odontogenic abscesses and phlegmons of the maxillofacial area, the most manifest indication is the expression of membrane receptors of neutrophilic granulocytes and the relationship of subpopulations of T-lymphocytes, which characterizes them as the most significant diagnostic markers of the severity of the disease and evaluation of the effectiveness of both traditional therapy and therapy using immunocorrection [7].

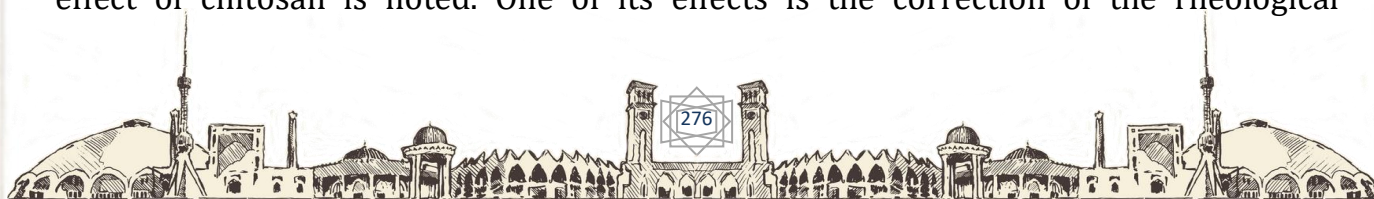
A comprehensive approach to the treatment of odontogenic phlegmon is generally accepted, including the mandatory opening of a purulent focus followed by antibiotic therapy, local daily dressings and antiseptic treatment of the wound. Wound healing is an adaptive process requiring the integration of multiple processes such as cell migration and proliferation, angiogenesis, connective tissue degradation and synthesis. Specialized cells - platelets, leukocytes, macrophages, epithelial cells, histiocytes, fibroblasts, interacting with each other with the participation of cytokines and growth factors, ensure wound healing [10].

Under conditions of inflammation, microcirculation disturbance inhibits redox processes due to a drop in oxygen tension, which also reduces tissue resistance to infection. One of the reasons for the development of microcirculatory disorders is the direct damage to the capillary endothelium by antigen-antibody complexes.

Correction of hemorheological disorders becomes essential in the complex therapy of purulent-inflammatory diseases in those areas that have a rich network of blood vessels. This is especially noticeable in iron deficiency anemia. So with this disease, hemorheological characteristics, such as erythrocyte aggregation, change. This leads to a decrease in the transport potential of the blood and a decrease in the delivery of oxygen to tissue microregions. Therefore, to improve microcirculation, rheopolyglucin, polyglucin (dextran derivatives) are prescribed.

Their effectiveness is associated with an increase in the movement of fluid from the tissue into the bloodstream [16].

In the treatment of acute purulent diseases of the maxillofacial area, the positive effect of chitosan is noted. One of its effects is the correction of the rheological







properties of blood. No less effective is Traumeel-S, and the parenteral form is used as an immunomodulating agent.

So, Inoyatov A.Sh. (2006) determined the clinical and microbiological rationale for the use of Bakstims in the treatment of children with abscesses and phlegmon of the maxillary tract. He proved that Bakstims optimally restored the parameters of local and general immunity by suppressing streptococci and staphylococci. Moreover, due to the drug Bakstims, the wound process proceeded without complications in children, the number of bed-days decreased due to the faster recovery of children, which also had an economic benefit.

Nicotinamide, which is part of the feramide, takes part in the biochemical processes of the neoplasm of protein molecules. The trivalent iron contained in the feramide is less toxic and has a higher level of bioavailability due to the slow release of the drug, so the iron-containing bacterium, which was mentioned earlier in the dissertation of the genus *Thiobacillus*, is able to convert ferrous iron to ferric, which makes heme iron easy to digest.

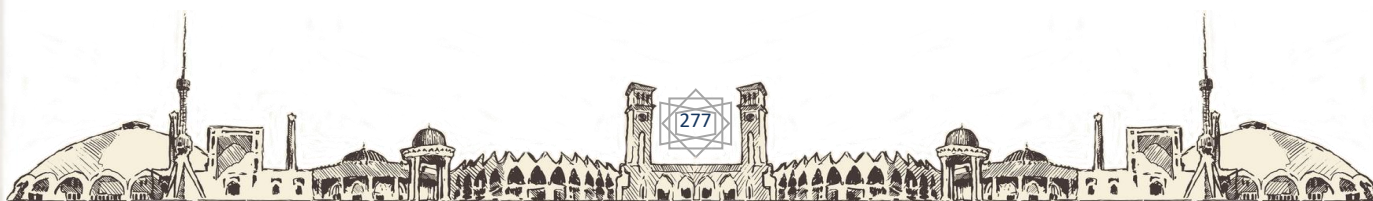
Since feramide has iron compounds in the form of protein and hydroxide polymaltose complexes, which with great difficulty penetrate from the intestine into the blood, and then only due to active transport, which explains the impossibility of an overdose of the drug, and differs from salt iron compounds that are absorbed along a concentration gradient. Obviously, with this, first of all, the insufficient "efficiency" of inflammation is associated with many atypically current and chronic purulent-inflammatory diseases.

Thus, the analysis carried out indicates that new and unusual manifestations have appeared in the clinical picture of purulent-inflammatory diseases, which significantly complicate their diagnosis. Patients with an atypical course of purulent-inflammatory diseases of the maxillofacial region or with signs of its chronicity belong to the group with an unfavorable clinical prognosis, which requires the creation of new evidence-based approaches to their treatment.

### CONCLUSIONS:

1. The cause of the development of odontogenic abscesses and phlegmon in childhood are staphylococci and streptococci. In the mechanism of occurrence of acute odontogenic abscesses and phlegmon, modified macrophages, T-, B-cells of the immune system are isolated.

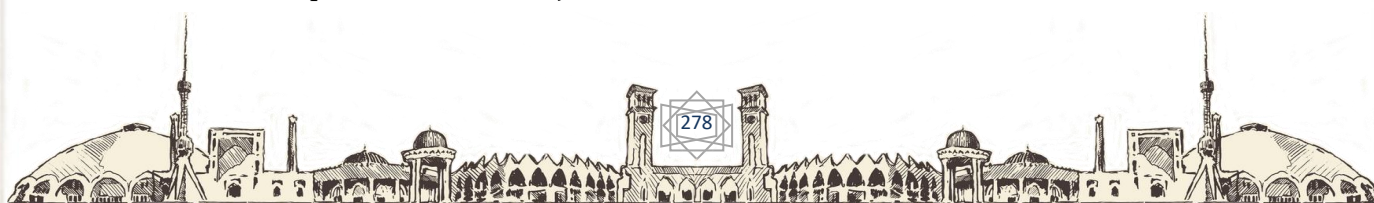
2. Modern methods for diagnosing acute odontogenic abscesses and phlegmon in childhood are clinical, radiological, immunological and microbiological research methods. The principles of therapy are surgical and therapeutic. Among the surgical ones, it is worth noting the wide excision of the wound, drainage, the imposition of a draining bandage. Therapeutic support should be considered the use of anti-inflammatory, analgesic and antibacterial drugs, as well as immunomodulators.





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19.

**Annotation:** *The urgency of the problem of diagnostics and treatment of purulent-inflammatory diseases of the PMO is determined by the need for further study and development of fundamentally new methods for predicting the nature of the course and increasing the effectiveness of treatment.* Existing diagnostic methods, including clinical ones, do not always allow adequate monitoring of the pathological process, which does not give the doctor a timely, effective correction of the patient's treatment. The review describes the modern foundations of the complex treatment of inflammatory diseases of the maxillofacial region. The question is raised about the need to develop new therapeutic measures to combat this disease.

**Key words:** Treatment, purulent-inflammatory disease, maxillofacial area.

**Аннотация:** Актуальность проблемы диагностики и лечения гнойно-воспалительных заболеваний ЧЛЮ определяется необходимостью дальнейшего изучения и разработки принципиально новых способов прогнозирования характера течения и повышения эффективности лечения.

Существующие методы диагностики, включая клинические, не всегда позволяют адекватно отслеживать патологический процесс, что не дает врачу своевременную, эффективную коррекцию лечения больного. В обзоре описаны современные основы комплексного лечения гнойно-воспалительных заболеваний челюстно-лицевой области. Поднимается вопрос о необходимости разработки о новых лечебных мероприятий по борьбе с этим заболеванием.

**Ключевые слова.** Лечение, гнойно-воспалительные заболевание, челюстно-лицевая область.

