

**ETIOLOGY AND PATHOGENESIS OF ODONTOGENIC INFLAMMATORY DISEASES
OF THE MAXILLOFACIAL REGION****Makhmudov Jahongirmirzo***

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Annotation. This article analyzes the etiology and pathogenesis of odontogenic inflammatory diseases of the maxillofacial region. Special attention is paid to the review of the literature on this issue.

KEYWORD: Inflammatory diseases, treatment effectiveness, micro-organism, intoxication.

The aim of the study was to improve the complex treatment of patients with acute odontogenic purulent-inflammatory diseases of the maxillofacial region.

RESULTS AND DISCUSSION

Odontogenic inflammatory diseases of the maxillofacial region occupy a significant place in surgical dentistry, accounting for 85 to 95% of all inflammatory processes. The most common are acute and chronic periodontitis, exacerbation of chronic periodontitis, acute purulent periostitis of the jaw, acute osteomyelitis of the jaw, abscess, phlegmon, lymphadenitis.^[1]

Odontogenic inflammatory diseases of the maxillofacial region, among which abscesses and phlegmons occupy a significant share, are characterized by a wide spread and cause significant socio-economic damage.^[2]

According to the literature, the number of patients with acute purulent-inflammatory processes of the face and neck is 3-4% of General surgical patients with purulent infection and 50-70% of the total number of patients being treated in the departments of maxillofacial surgery.^[3] Phlegmon of the maxillofacial region is a serious and extremely dangerous disease. The severity of the condition with a spilled inflammatory process is determined by high intoxication of the body. Well-expressed innervation of the maxillofacial area determines sharp painfulness in the development of inflammatory infiltrate. The danger of phlegmon in the maxillofacial region is due to the proximity of vital formations, as well as anatomical and topographical features of this area, which contribute to the spread of the inflammatory process to neighboring parts of the body.^[4,5]

Odontogenic inflammatory diseases of the maxillofacial region and neck develop as a result of the introduction of

an infectious agent through the root canal of the tooth affected by caries and its complications (intra-canalicular pathway of infection), or through the periodontal pocket into the periapical tissues (retrograde pathway).^[6] For a long time it was assumed that the microbiological landscape in odontogenic infection is represented mainly by monoculture (*Streptococcus*, *Staphylococcus*), or in the form of associations of staphylococci and streptococci, gram-negative rods, diplococci. Due to the development of methods for identifying various microorganisms, the use of modern diagnostic methods, other microbial associations were identified and verified, and the role of gram-negative opportunistic flora and anaerobes was established.^[7]

The study of the etiology of infectious diseases, including infectious and inflammatory processes of the maxillofacial region and neck, up to now has been conducted on the basis of the determination of pure cultures of microorganisms isolated from the pathological focus. This traditional way of cultivating bacteria has clarified many aspects of the physiology of microorganisms, but the growth of pure culture in a suspended state is extremely rare in nature.^[8] Currently, the main part of microbiologists has recognized that the majority of microorganisms in natural and artificially created environments exist in the form of structured communities attached to the surface-biofilms.^[9]

A biofilm is a microbial community characterized by cells that are attached to the surface or to each other, enclosed in a matrix of extracellular polymer substances synthesized by them, and demonstrate a change in the phenotype, expressed in various variations of growth parameters and expression of specific genes.^[10] Microbial biofilms have been found to be an etiological factor in many acute and chronic bacterial infections in humans.^[11] The pathology, the etiological agents of

which are biofilms, is very diverse and includes: caries and its complications, periodontal diseases, otitis media, cystic fibrosis, bacterial prostatitis, infectious endocarditis.^[12] There are indications in the literature that up to 80% of infectious diseases are associated with the formation of these bacterial structures.^[13] A number of studies have shown the role of bacterial films in the colonization of wounds and the course of infectious processes.^[14] In addition to human body tissues, microbial biofilms were found on the surface of implantable devices: orthopedic structures, catheters, mechanical prosthetic heart valves, and rhythm drivers.

A distinctive feature of microbial biofilms is their high resistance to various influences. Resistance to environmental agents is due to the features of the structure and functioning of this multi-level system. A biofilm is a multicellular cluster that supports and protects microbial cells. The matrix is permeated with pores and channels that ensure the distribution of nutrients and the exchange of metabolic products with the surrounding biological fluid. The outer layers of cells are more aerated relative to the inner parts, which provides favorable conditions for the life of anaerobic microorganisms in the center of the biofilm. The biofilm matrix differs in its composition in different types of microorganisms. It consists of up to 90% of polysaccharides, proteins, lipids, and nucleic acids. The vital activity of bacteria in the biofilm is provided by intercellular interaction carried out by signaling molecules called Quorum-sensing (QS).^[15] Currently, some of the molecules responsible for QS in bacteria have been studied in detail: acetylhomoserine lactone (AHL), auto-inductor-2 (AI-2), and peptide auto-inductors. In dentistry and maxillofacial surgery, microbial biofilms play an important role, which are "responsible" for the etiology of the carious process, diseases of the tissues surrounding the tooth, and inflammatory processes of the maxillofacial region and neck.

Studies have shown that pure cultures of *E. faecalis* introduced into the root canal of the tooth are able to form a biofilm on its walls. It was found that even after endodontic treatment, these microbial communities are detected in the channels. In periodontitis diseases, microbial biofilms are detected in the area of periapical abscesses, granulomas and cysts in 83%, 69.5% and 95% of cases, respectively. The ability to form microbial communities was found in isolates isolated from subperiosteal abscess.

The above confirms that microbial biofilms are a complex multi-level system that significantly affects the pathogenesis of many diseases, including the pathology of the maxillofacial region and neck. However, to date, only isolated information about the structure and features of biofilm formation in foci of odontogenic infection is found in the specialized literature. In this regard, the study of microbial communities formed by pathogens of

infectious and inflammatory diseases of the maxillofacial region and neck, which are at the peak of modern world science, allows us to determine fundamentally new ways to approach the treatment and prevention of complications of this pathology.^[16]

Recently, in order to more quickly remove microbes, their toxins, tissue breakdown products, and wound cleansing, wound dialysis has been used. The use of dialysis of purulent wounds can actively affect the physiological course of the wound process, expands the possibility of applying early secondary stitches, reduces the duration of treatment, improves functional and cosmetic results. Sukachev V. A. and Buliev M. (1998) used systems used for single intravascular infusion. Shalumov K. Z. (1996) after performing a wide opening of the purulent focus, a perforated catheter was inserted extrafocally through the base of the wound into its lumen. Then the wound was drained with an aseptic dressing. Subsequently, a system for single transfusion was connected to the free end of the catheter and fractional dialysis of the purulent wound was performed by irrigation. Washing masses were released into the lumen of the wound and absorbed into the dressing material, which was changed if necessary. In the future, the wound was stitched. The duration of inpatient treatment was 13.5-0.5 bed days.^[17,18]

Most authors associate the increase in the number of patients with purulent-inflammatory processes of the face and neck with a decrease in resistance of the body. In this regard, the study of immunological disorders at the systemic and local levels is a promising direction of diagnosis, which allows to expand the understanding of the mechanisms of development and course of purulent-inflammatory diseases of the maxillofacial region, as well as to conduct effective therapeutic measures.

The appearance in recent years of specialized dental clinics equipped with modern diagnostic and therapeutic equipment, the introduction of new materials and modern methods of treatment in the clinic allowed early diagnosis of the inflammatory process in the periapical bone tissues and its adequate treatment, which in General significantly improved the results of the able-bodied population of the country.

The complexity and complexity of the tasks of treating patients with purulent diseases of CHLO necessitates a comprehensive solution, which consists of a combination of surgical and conservative methods aimed at fighting pathogenic microflora, General intoxication of the body, and stimulation of regeneration processes. However, the specificity of CHLO does not always allow for extensive surgical treatment of wounds, and therefore local treatment after surgery remains an actual method of choice.

A number of reasons, among which are the insufficient application of measures for the prevention of dental

diseases; the lack of comprehensiveness and consistency; the constant emergence and development of new strains of antibiotic-resistant pathogenic microorganisms; the spread of hospital-acquired infections; the absence of a planned reorganization of the mouth, deterioration of material living conditions and nutrition, the environment, the change in the total resistance and nonspecific immunity and the presence of somatic pathology leads to increased morbidity.

One of the ways to improve the effectiveness of treatment was to improve the methods of delivering antibiotics to the site of a purulent-septic focus.^[19] Currently in clinical practice CH widely used intra - muscular and intravenous methods of administration of antibiotics. Less commonly used intra-arterial, endolymphatic and lymphotropic methods of antibiotic therapy. This is due to the lack of clear indications for their use in domestic and foreign literature. In the literature, there is also no data on the combined use of these methods of administration of antibiotics, depending on the form, severity and localization of GVZ CHJO and neck. Possible disadvantages and complications of regional antibiotic therapy are not covered.

Local treatment is aimed at quickly clearing the focus of inflammation from exudate, suppressing local infection and stimulating reparative processes.

Therapy of inflammatory diseases of the oral and maxillofacial region is a complex, multi-component approach. And its main method today is surgical - an indispensable opening of the purulent focus and its drainage, which ensures the outflow of exudate, prevents the spread of pus in neighboring anatomical areas.

CONCLUSIONS

The goal of complex treatment is to reduce intoxication, restore the disturbed balance between the body and the environment.

Since the main etiological factor of purulent-inflammatory processes are microorganisms, the main importance is the impact on the pathogenic microflora - the use of antibacterial drugs, both a wide spectrum of action, and taking into account the sensitivity of the flora.

The search for means to influence the inflammatory focus and pathogens of surgical infection led to the use of a number of enzyme preparations, such as trypsin, chymotrypsin, chymopsin, lysozyme, etc. The use of enzymes in purulent-inflammatory processes is a logical continuation of their action as anti-inflammatory substances with necrolytic properties.

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