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Pathoginetic Analysis of Odontogenic Purulent Inflammatory Diseases in Children

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Abstract. Odontogenic purulent inflammatory diseases are complex pathological conditions influenced by microbial composition, immune response, and the body's overall condition. The development of these diseases is associated with polymicrobial infections, particularly anaerobic bacteria, which play an important role in the progression of osteomyelitis, abscesses, and phlegmon. Disruptions in local tissue circulation, immune defense mechanisms, and predisposing factors further contribute to the severity of inflammation, especially in children. Understanding the role of anaerobic microorganisms and host immune responses is essential for improving the diagnosis and management of odontogenic purulent inflammatory diseases.

Keywords: Odontogenic infection, Anaerobic bacteria, Osteomyelitis.

Relevance of the study. Odontogenic purulent inflammation complications S.M. Derizhanov embolism has no significance in the pathogenesis of osteomyelitis, and the disease can develop in the presence of infection in the sensitized body. Sensitization can occur due to infectious diseases, suppuration processes, absorption of tissue and microorganism decay products, as well as other causes, in which excitation, the desired type of which is not known, develops as a contributing factor to allergies.It has been shown that the development of odontogenic osteomyelitis is justified not only by local conditions in the bone as a result of bacterial embolism subsidence, but, above all, by a specific condition in the whole organism in which complex changes are observed. Further research has also found that the nervous system is important in the development of osteomyelitis. In addition the role of the nervous system in the occurrence of odontogenic osteomyelitis is also listed in the literature data. Studies to determine the position of the nervous system in the pathogenesis of osteomyelitis have been conducted by examining the nervous system of 140 rabbits. Clinical studies in patients with odotogenic osteomyelitis show that a long-term stimulation of peripheral nerves by various latent upper-part inflammatory processes results in a disruption of trophic processes in bone tissue, in which it forms foci of necrosis. Without these changes, g.I. Semenchenko believes that jawosteomielitis cannot develop. The author notes that from the foci of constant excitation, pathological impulses continuously come to the cranial shell, which, in a reflector way, call or support vascular disorders in the jaw. This results in tissue trophic degradation in permanent excitation foci and a full potential for the development of an infectious process. The peculiarity of the inflammatory process in odontogenic osteomielitis separating soft tissue from inflammation is that the increase in the volume of inflamed tissue (marrow, perivascular cletchatka) is limited to the rigid walls of the bone cavity, which is a sharp increase in intra-bone pressure, narrowing of the vessels, causing a violation of microcirculation in them. The pathogenesis of odontogenic osteomyelitis disease according to some authors, this is especially observed in children with an increase in inflammation during the prikus exchange period. It has been studied that the occurrence and development of the inflammatory process is associated with a decrease or disruption of the overall immune response in the body as a result of excessive cooling, muscle exhaustion and emotional exhaustion, stress reactions and, finally, infectious diseases experienced.

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The results of scientific research show that the wide implementation of the techniques of cultivating and identifying anaerobic bacteria into practice of bacteriological laboratories leads to a change in perceptions of the triggers of inflammatory processes. The importance of these bacteria in the development of purulent processes is significant enough, which is confirmed by the data of a number of authors, who indicate to these bacteria the sensitization of patients, especially those with noodontogenic purulent processes. In patients with odontogenic purulent inflammatory diseases, the hyperdiagnostic of the facultative COCC microflora has its place, which, above all, is due to the fact that studies are often conducted without the use of the anaerobic method. In addition, the growth of strict anaerobes is very slow compared to facultative microorganisms, while to accelerate identification there are methods that require high technical equipment – gas and liquid chromatographs. However, many laboratories do not have such equipment. At the same time, etiological diagnostics will not be enough when anaerobes are ignored, sometimes misinterpreted. The result is a large group of unregistered infections, up to 32.2%. Anaerobic (non-spore-forming) and mixed (anaerobic-aerobic) infections present in the body one of the most significant categories of purulent-inflammatory diseases. Bacteroides, Porphyromonas, Prevotella, Peptococcus, Peptostreptococcus, Fusobacterium and some other species have the greatest clinical significance. In surgical dentistry, this is, above all, characteristic of odontogenic inflammatory diseases. Odontogenic purulent inflammations are accompanied by the involvement of a complex of ecosystems in the oral cavity that do not receive representatives of normal microflora. In the foci of infection formed in this, it is detected at very high concentrations. In studies conducted, 71 patients analyzed purulent foci in the jaw-facial area, showing that in 86% of cases normal microflora dominated the oral cavity, and only in 7% of cases did it appear pathogenic. Until now, the mechanisms of pathogenization of Resident microflora have not been sufficiently studied. Changes in protective mechanisms in inflammatory processes, including mucous membranes (surface factors), phagocytosis, Cellular and humoral immunity, can lead to damage to the body's resistance. In a number of works, the participation of anaerobes obtained using the Serological method in pathological processes has been proven.

Usually 2 to 7 species of different microorganisms are identified in the foci of inflammation, with 50% of patients recording obligate and facultative anaerobic species. In purulent inflammatory processes, anaerobic bacteria are involved in the development of other forms of inflammatory diseases. Thus, when examining patients with developing phlegmonae and abscesses in the jaw, with acute limited osteomyelitis in the jaw, they all form anaerobes that do not form a rigid spore. Tissue inflammation in the jaw melaninogenisa, as well as fuzobacteria, peptococci and peptostreptococci have their place. Inflammatory processes in the facial jaw in children are also polymicrobial in nature and have been found to be associated with resident microflora in the oral cavity. Conducted in microbiological studies of periapical abscesses, in which bacterial growth is 82%, of which 50% are isolated anaerobes, and 6% – aerobes, and in 44% of cases a mixed flora is planted, in which the course of the process in a polymicrobial nature and the importance of anaerobic bacteria in the development of this pathology is pushed to the first level. At the same time, to date, the relationship between the age of patients and the composition of the microflora has not been fully determined.

Conclusion. Leads to errors in the interpretation of the etiology and pathogenesis of inflammatory processes in purulent inflammatory diseases. With necrosis and prone to spread, the development of atypical-conductive purulent-inflammatory processes is associated not only with the species and quantitative composition of microflora, but also with a violation of the immune response, which is not specialized in macroorganism. In addition, in children with inflammatory diseases, various somatic conditions are often observed in advance. In children, premorbid factors can be exhaustion, weakness, avitaminosis, rickets, oral-laryngeal, inflammatory diseases in the nasopharynx and clinical features that weaken the body's anti-infection strength.

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