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FEATURES OF THE CLINIC AND COMPLEX TREATMENT IN CHILDREN WITH ACUTE ODONTOGENIC OSTEOMYELITIS OF THE LOWER JAW

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Summary
Acute osteomyelitis is a purulent inflammation of the jawbone (simultaneously of all its structural components) with the development of areas of osteonecrosis. It is characterized by severe intoxication, clinical, laboratory and radiological signs of purulent-necrotic inflammation of the bone structures of the jaw and soft tissues adjacent to the jaw.

Keywords: osteomyelitis, infectious-inflammatory process, immunobiological barrier

Etiology and pathogenesis. Under odontogenic osteomyelitis is meant an infectious-inflammatory process in the jaw, spreading beyond the periodontium, in which the source and entrance gate for infection and sensitization of the body are previous diseases of the hard and soft tissues of the tooth. It is the presence of teeth that gives specificity to osteomyelitis of the jaws (frequency, age, type of infection, etc.). Of course, the anatomical features of the jaw bones, the physiological characteristics of the child's body, and many other factors have a significant impact on the emergence and development of the pathological process. However, the leading role in the etiology of odontogenic osteomyelitis belongs to the foci of odontogenic infection. The role of different teeth in the occurrence of odontogenic osteomyelitis is far from the same. Odontogenic osteomyelitis occurs most often from chewing teeth, especially from temporary molars and from the first permanent molar.

Odontogenic osteomyelitis of the jaws is observed among people of all age groups, starting from childhood. According to Yu.I. Bernadsky, osteomyelitis of the jaws in children is 34.1% in relation to osteomyelitis in adults. The osteomyelitic process is most often observed in the lower jaw and less often in the upper. In childhood, acute odontogenic osteomyelitis (Fig. 11a, b) of the jaws is more often noted at the age of 7-12 years, which can be associated with the data available in the literature on the highest incidence of dental caries and its complications also

during this period of life. S. M. Derizhanov considered the sensitization of the body to a foreign protein of various origins as the leading link in the pathogenesis of osteomyelitis. On this basis, he formulated and substantiated the allergic theory of the occurrence and development of osteomyelitis. According to the reflex theory of the pathogenesis of osteomyelitis, the central nervous system plays a leading role both in the occurrence of a state of sensitization of the body and in violation of the blood supply to the bones, mainly in the occurrence of vasospasm, trophic disorders, which together creates favorable conditions for the development of osteomyelitis. Based on his research, G.I. Semenchenko came to the conclusion that the pathogenesis of osteomyelitis of the jaw should be interpreted as a neutrophic process. As a result of prolonged irritation of the peripheral nerves by various latent near-apical inflammatory processes, a violation of trophic processes in the bone tissue occurs, which leads to the formation of foci of necrosis in the latter. MM. Solovyov et al. on the basis of experimental data, it was concluded that these reactions (allergic, vascular and reflex) are realized against the background of a decrease in the level of general immunological and specific reactivity of the whole organism, as well as the failure of local immunological systems of the maxillofacial region. In addition to reducing the overall immunological and specific reactivity of the body, the depth and volume of bone tissue damage are significantly affected by the virulence of the microflora of the odontogenic focus and the topographic and anatomical features of the jaw bones. With the development of the inflammatory process caused by pathogenic strains of staphylococcus, the likelihood of a more extensive damage to bone tissue increases. At the same time, non-pathogenic strains of staphylococci and 56 streptococci cause the development of limited (focal) bone lesions or predominantly soft tissue lesions of the maxillofacial region. The high frequency of osteomyelitis of the jaws in children is due to the physiological and anatomical characteristics of the child's body, its status: high reactivity, reduced immunobiological barrier to purulent infection, anatomical and physiological features of the structure of the jaws (constant growth, active restructuring during the period of tooth change, wide Haversian canals, tender bone trabeculae, instability of myeloid bone marrow to infection, abundant blood and lymph circulation, etc.).

For the development of the odontogenic inflammatory process, the anatomical and topographic features of the teeth are also important (with resorbable or unformed roots, i.e. free communication of the tooth cavity with the bone, which causes the rapid spread of the inflammatory process. Pathological anatomy. At the

beginning of the process, the bone marrow is hyperemic and has a dark - red color Later, small yellowish foci appear here, which, merging with each other, form purulent cavities of various sizes. suppurative process is more often observed from the center to the periphery in the transverse direction of the jaw and much less frequently in the longitudinal direction - along the spongy substance of the jaw.From the very beginning, the inflammatory process that began in the bone marrow spreads to the nutrient canals and periosteum. leading to purulent foci, thrombophlebitis occurs, and this process then spreads to the vessels of the compact plate and periosteum. This is what primarily explains the almost simultaneous occurrence of first a serous, and then a purulent process in the periosteum and soft tissues, although the possibility of penetration of pus from the focus in the center of the bone under the periosteum and through the compact layer is not excluded.

Thus, the pathomorphological picture of such a widespread lesion of the bone structures of the jaw can be represented by serous-purulent or purulent-necrotic inflammation. In the first case, the prognosis of the disease is more favorable, and with timely adequate treatment, one can count on the rapid elimination of inflammatory phenomena without any serious consequences.

Differentiating serous-purulent inflammation in the jaw from purulent-necrotic in the early stages of the disease is a very difficult task. Clinic. Acute odontogenic osteomyelitis is one of the nonspecific infectious inflammatory diseases of the body and is characterized by a number of general and local symptoms. General reactions of the whole organism. Patients complain of feeling unwell, headache, general weakness, poor sleep, fever. Chills are possible. Depending on the level of general immunological reactivity of the organism, the virulence of the infection, partly the size of the jaw lesion and some other reasons, the general condition of patients can be severe, moderately satisfactory.

In acute odontogenic osteomyelitis, there are almost always changes in the composition of the blood of patients. Many patients have a decrease in hemoglobin content and the number of erythrocytes, especially with diffuse lesions of the jaws, and in most patients — leukocytosis, a shift of the leukocyte formula to the left and an increase in ESR. From serological studies, the test for C-reactive protein is of greatest interest. It more accurately characterizes the severity of the inflammatory process and its dynamics than such indicators as ESR, leukocytosis, leukogram, etc. Usually, the disease begins acutely, body temperature rises to 38-39 ° C, chills, general weakness and malaise appear. In young children, when the temperature rises, convulsions, vomiting and upset of

the gastrointestinal tract may occur, which indicates an over-irritation of the central nervous system as a result of a high general intoxication of the body. Pallor of the skin and mucous membranes is noted. The child becomes capricious and restless, sleeps and eats poorly.

In most children, the disease begins with an acute or exacerbation of chronic apical periodontitis. In young children, at the onset of the disease, general symptoms (chills, fever, headache, etc.) may prevail. Patients complain of constant pain (sometimes very strong) in the area of the "causative" tooth, and sometimes in the adjacent teeth. The tooth becomes, as it were, higher than the others, there is a sharp pain when closing the teeth, and therefore patients often keep their mouths half open. With the further development of the disease, patients are no longer able to localize pain and note that the entire half of the jaw or head hurts, and the pain can radiate to the ear, temple, nape, eye, etc., depending on the localization of the inflammatory focus. The "causal" tooth is mobile and sharply painful on percussion. Most often, there is loosening of adjacent intact teeth, and percussion of these teeth is also painful. Loosening of all teeth on one side of the jaw indicates a diffuse lesion of the bone. At the same time, pus flows out of the tooth-gingival pockets. The gum adjacent to the teeth and the transitional fold of the mucous membrane become swollen and painful on palpation. There is an increase in collateral edema of the soft tissues of the face, and sometimes the neck. Regional lymph nodes not only increase, but also become painful. Already on the 2-3rd day from the onset of the disease, patients develop a fetid odor from the mouth, especially in the absence of proper care for the teeth and oral cavity. External examination of patients with acute odontogenic osteomyelitis of the jaw has a pronounced asymmetry of the face due to collateral edema of soft tissues near the affected area of the bone .

With the development of the inflammatory process in the zone of the upper jaw, soft tissue edema is more pronounced than with osteomyelitis of the lower jaw. In some patients, the swelling is so significant that it captures the lower eyelid, and sometimes both eyelids. In the first days of the disease, the swelling of the soft tissues resulting from their edema is relatively mild and painless, but in the future, even touching this area causes significant pain. If the inflammatory process develops in those areas of the jaw in which the places of attachment of the masticatory muscles are located, then very soon an inflammatory or reflex contracture of these muscles may occur, which leads to the reduction of the jaws. Usually, reduction is observed in osteomyelitis developing in the posterior parts of the body, angle and branch of the lower jaw. With a diffuse or focal lesion of the

body of the lower jaw, Vincent's symptom is known, due to the fact that in the inflammatory focus the nerve is in a state of overstimulation, which is similar to parabiosis.

The clinical picture of acute osteomyelitis depends on the age of the child, the structural features of the jaws, the localization of the inflammatory process, the general reactivity of the organism, and the virulence of the microflora. The younger the child, the more severe the disease. There is always a strong intoxication of the child's body, due to the imperfection of general and local immunity, low reactivity and exceptionally high absorption of metabolic products from the inflammation site. The soft tissues surrounding the jaw bones are involved in the inflammatory process. Objectively, this is accompanied by periostitis, lymphadenitis, collateral edema of soft tissues. With the localization of osteomyelitis in the upper jaw, the maxillary sinus, orbit, and middle ear may be involved in the process. The inflammatory process often acquires a diffuse character with damage to the growth zones of the rudiments of the teeth. Diagnostics. An x-ray examination of the teeth and jaws at the beginning of the disease can reveal only a picture of the apical periodontium, without visible x-ray changes from the side of the jaw bones. By the end of the 1st bone becomes more transparent, the trabecular pattern disappears, the cortical layer of the bone becomes thinner. These symptoms are initially due to the development of osteoporosis, and then to small-focal bone destruction.

The main features of the clinical course of osteomyelitis of the upper jaw are a milder course, shortened terms of the development of the process, as well as a tendency to limit bone lesions. The latter is due to the anatomical features of the upper jaw: it is less compact than the lower jaw, very well vascularized and pneumatized. The largest adnexal cavity is located in the jaw - the sinus of the upper jaw, which ensures good aeration of the latter.

The main features of odontogenic osteomyelitis of the lower jaw are a more severe clinical course of the disease in general and more frequent and diverse complications from the surrounding soft tissues, which can lead to the development of independent suppurative processes in various areas of the face and neck at a considerable distance from the primary focus. The presence of significant muscle masses directly adjacent to the bone, numerous cellular spaces, as well as a complex system of lymphatic tracts — all this predetermines the spread of the suppurative process in the bone and soft tissues and the associated clinical picture of the disease. When making a diagnosis of acute osteomyelitis of the jaw,

the doctor is obliged to take urgent measures to hospitalize the patient for emergency surgery, especially in the presence of complications.

Treatment

Treatment of acute odontogenic osteomyelitis consists in carrying out a complex of therapeutic measures aimed at the speedy elimination of purulent-inflammatory foci in the bone and surrounding soft tissues, as well as at eliminating 60 violations of the most important functions of the body caused by the underlying disease. Both of these tasks are solved simultaneously, and their results are directly dependent on each other: the faster the suppuration process in the maxillofacial region is eliminated, the more successfully the whole organism copes with the infectious onset, and vice versa. The nature of therapeutic measures and the sequence of their implementation are determined by a combination of clinical data, primarily such as the severity of the disease, the nature and localization of the inflammatory process. Patients are subject to immediate hospitalization in a specialized maxillofacial department or, as an exception, in the general surgical department of a hospital where there is a dental surgeon. Observations show that the sooner these patients are placed in a hospital, the faster the recovery of patients occurs and the less often an acute process becomes chronic. Of decisive importance for the elimination of a purulent-inflammatory focus in the bone and surrounding tissues in acute osteomyelitis is active surgical intervention in the early stages from the onset of the disease. The question of the timely removal of the "causal" tooth is of great practical importance. In acute odontogenic osteomyelitis, all temporary and multi-root permanent, and sometimes single-root (premolars) permanent teeth in the lower jaw, which are the cause of the disease, are to be removed. By removing a tooth, we thereby eliminate the root cause that caused and maintains the suppurative process in the bone, and also provide favorable conditions for the evacuation of pus from the focus in the bone. By removing a tooth, we also eliminate the source of allergization of the body. In this case, the tooth hole after its removal performs a kind of role of natural drainage. It is important to emphasize that after tooth extraction, bone marrow spaces are opened, which, in turn, leads to a decrease in intraosseous pressure and the formation of a more natural and shorter path for the evacuation of pus. In childhood, as a rule, permanent single-rooted teeth are retained. It is most often about the anterior permanent teeth on the upper and lower jaws. With good patency of the root canals and the possibility of daily monitoring of the condition of patients after the opening of the abscess and the subsidence of acute inflammatory phenomena, these teeth are then sealed until

the wound heals along the transitional fold. After tooth extraction, a periostotomy (opening of subperiosteal abscesses) is performed, often from 2 sides with wound drainage.61 In acute odontogenic osteomyelitis, adjacent intact, albeit mobile, teeth should be treated with care, they should be splinted. In the future, they are strengthened and can be saved. As noted above, the elimination of the purulent-inflammatory process in the perimaxillary soft tissues (if any) is important in the treatment of acute odontogenic osteomyelitis of the jaws. Interventions on soft tissues are carried out simultaneously with those on the bone, in particular, simultaneously with the extraction of a tooth.

The primary surgical treatment of a purulent focus includes not only opening an abscess or phlegmon to evacuate pus, but also revision of the purulent cavity, washing and thorough drainage of the wound. Among the activities carried out in the postoperative period, intensive irrigation or dialysis of purulent wounds are important.

General pathogenetic therapy. It consists in carrying out a number of measures aimed at increasing the immunobiological resistance of the body in the fight against infection and restoring the functions of the body, impaired by the underlying disease. At the same time, antibacterial, antihistamine, detoxification, restorative, symptomatic and immune therapy play an important role. However, before prescribing resorptive treatment, it is necessary to organize good patient care (bed rest, abundant oral irrigation, sedatives), and calm the patient. The most common complications of osteomyelitis of the jaws are phlegmon of the cellular spaces of the face, head and neck, somewhat less often — other complications (maxillary sinusitis, arthritis of the temporomandibular joint, cavernous sinus thrombosis, meningitis, mediastinitis, odontogenic sepsis, septic shock).

In children of younger age groups, the infectious-inflammatory process often spreads to the maxillary sinus, orbit, cranial fossa, while in adults it spreads to the neck, to the mediastinum. Acute odontogenic osteomyelitis of the jaw can turn into a chronic form of the course of the disease - chronic osteomyelitis. Sanitation of the oral cavity in the broad sense of the word, carried out regularly and systematically, is the most effective means of preventing acute odontogenic osteomyelitis of the jaws. Prevention of complications of odontogenic osteomyelitis consists in the timely and radical provision of surgical care, best of all in a hospital setting.

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