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MODERN ASPECTS OF LABORATORY DIAGNOSIS OF CHRONIC OSTEOMYELITIS IN CHILDREN

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Annotation
The article summarizes various classical and modern aspects of acute and chronic hematogenous osteomyelitis in children. The results of own observations and laboratory, instrumental, immunological studies performed in a large contingent of patients with various forms of hematogenous osteomyelitis, as well as the results of various methods of surgical treatment are considered; issues of etiology, pathogenesis, differential diagnosis and complex staged treatment of children were discussed; original ideas about the modern classification of these topical diseases are expressed; six illustrative clinical examples from among their own observations are given. The publication is intended for pediatric surgeons and specialists in related specialties.

Keywords: hematogen osteomyelitis, bone tissue, collagen, prognosis, rehabilitation, children

The use of laboratory research methods in practice First of all, the study of blood is a laboratory method for detecting a bacterial pathogen. But this method is not so relevant for the chronic form of the disease that has developed in the human body. The inflammatory process causes leukocytosis, which in the acute phase, at the height of the disease, can reach 30 and above. Indicators such as ESR and C-reactive protein detect infection and show the severity of the disease. Often, during the examination, it is necessary to differentiate the disease from others, no less serious, such as post-traumatic periostitis, erysipelas, rheumatism, tuberculosis, neoplasms and actinomycosis of bone tissue. Methods of laboratory research in case of damage to the joints: The use of instrumental techniques for diagnosis. These methods include microbiological and radiological diagnostics. In order to correctly diagnose and determine the cause of the disease, it is necessary to investigate how pathogenic microorganisms are released in those places where the bone is damaged, as well as from the joint fluid and blood. Difficulties in the examination arise in patients with a developed hematogenous form, since a positive culture is detected in less than 50% of situations. One of the well-known studies is densitometry, which allows you to understand how bones are prone to fracture and destruction. Basic forms of microbiological research. This type of diagnosis has several ways to identify pathogens. Brief description of each of them: Bacterioscopy. Taking a smear from the mucous membrane in order to assess the state of the microflora. The preparation of the analysis takes place within a few days, and its decoding is carried out only by a doctor. Examination of the contents separated from the fistula during its formation. It may have purulent contents, as a result of which the diagnosis is difficult. Serological methods. Able to detect antigens and antibodies and include several reactions after a visual observation of the site of the joint lesion. Such methods allow not only to assess and detect the true causative agent of the infection, but also to consider the state of the microflora of the mucous membranes. Features of x-ray examination X-ray diagnostics is one of the most common methods for any type of osteomyelitis. It is based on the preparation of images of the affected limb, which are performed in two projections. In this way, it is possible to determine exactly where the infection is localized, how pronounced the symptoms are, as well as its prevalence in the tissues. In a child, manifestations of a developing disease can be noticed already on the fifth day, in adults - on the fifteenth. X-ray can be done several times during treatment to track the positive or negative dynamics. One of the disappointing

indicators of the development of the disease is the spread of the periosteal reaction to the previously healthy periosteum. X-ray osteomyelitic signs include: by the beginning of the second week, the line between compact and spongy substance disappears; bone fractures become oval or round; the relief of the periosteum thickens and changes; sequesters are noticeable by the end of the first month. An X-ray image allows you to visually study the state of the skeletal system, prescribe treatment procedures in an on-line mode, excluding the transition of the disease from an acute form to a chronic one. Especially often it is used in the study of diseases of the teeth. The importance of computed tomography CT is most often used in the chronic form, the occurrence of recurrent moments. It involves the image of a limb on a computer, allows you to evaluate not only the qualitative state of the bones, but also quantitative. This method makes it possible to detect sequesters of soft tissue areas that are affected and are not replaced by new growths for a long period of time, and purulent stagnation, if left untreated, leading to sepsis. Tomography makes it possible to build tactics for a phased surgical intervention if there are indications for this process. The effectiveness of fistulography in determining therapy. This technique can be attributed to the X-ray diagnostic method. Fistulography is a technique that involves the introduction of a certain substance into the fistula, and then fluoroscopy is performed in this area. Before preparing everything necessary for the formation of a fistulogram, an x-ray is preliminarily performed to analyze the cavity under study before the procedure begins. At the next stage, the edges of the fistula opening are lubricated with a solution of iodine with alcohol and the contents are taken, and then a contrast agent, prepared and heated in advance, is injected. When the fistula passages are completely filled, the cannula is taken out and the hole is sealed with a plaster. Then, within the framework of radiology, it is important to again conduct an examination using images, where it will be revealed how the fistulous passages are located. As a result, after the entire procedure, the fistula is released from the previously introduced content, the affected parts of the joints are processed and washed. The productivity of magnetic resonance imaging in determining the disease MRI allows you to determine in percentage terms how much the bone parts are affected by the infection. When carrying out this method, the doctor sees where there are still healthy tissues, and where damaged areas are localized. It is more effective than scintigraphy - the introduction of radioactive isotopes and analysis that look swollen. According to experts, it is a large two-dimensional image during radiation. Positive practice has also been recorded in the detection of sequesters. MRI is available at any stage of the course: when there are only prerequisites for pathology, when it is already developing, and even in severe cases, when the disease can be

complicated. The use of scintigraphy as a method of rapid detection of infection It allows you to explore the metabolism of the tissue system. It is carried out using radiation equipment (radionuclide diagnostics). A specialized substance is injected intravenously into the bone department, which tends to linger and accumulate in the bones. After that, the radiation is fixed by the detectors of the device that captures the signal. The introduction of the drug is accompanied by the use of 1 liter of water: thus, the accumulation of the contents is better and the radiation load on the body is reduced. Constructiveness in the use of ultrasound. This technique involves the use of equipment that performs ultrasound. Previously, among doctors it was believed that it is effective only in case of damage to soft tissues and cavities that contain fluid. Recently, it has been used in the examination of the hip joints, spine, and the detection of fractures of tubular bones. Ultrasound is used as a diagnosis of osteomyelitis of the upper or lower jaw, especially in children who are acutely experiencing inflammatory processes. Conclusion The effectiveness of each of the methods is confirmed by many years of practice of use by doctors actively involved in the diagnosis of osteomyelitis. They are aimed at early detection of the disease using various samples, tests, maintaining clinical protocols, studying tables and visual features of the manifestation of symptoms, reading analyzes at the biological level. If the development of the disease has already occurred, these techniques are aimed at shaping the doctor's understanding of the patient's health status, the clinical diagnostic picture of the signs, and his prospects in the process of the upcoming treatment. When a person has already received recommendations and frequent painful sensations in the joints cease to bother, these methods can help identify the causes that entail not only primary symptoms, but also chronic relapses.

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