



## SENSITIVITY OF MICROORGANISMS TO LOCAL ANTIBACTERIAL PREPARATIONS USED IN PURULENT INFLAMMATORY DISEASES OF THE MAXILLOFACIAL REGION IN CHILDREN

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**Abstract:** In pediatric surgery, purulent inflammation is one of the most common problems, accounting for 50% of all surgical conditions. The most promising area to address this need is local treatment of purulent wounds. Despite numerous studies devoted to surgical treatment of purulent inflammatory diseases of the orofacial region, many postoperative problems remain unresolved: inadequate wound management in the postoperative period may lead to progression of the inflammatory process and the need for repeated operations; secondary hospital infections, lack of bacteriologic control of wound secretions, and inadequate antibiotic therapy also prolong inpatient treatment.

**Key words:** sensitivity of microorganisms, antibacterial drugs, children.

**Introduction.** The incidence of acute odontogenic infection in children is 43-52 cases per 1000 population in the age group under 18 years annually. The reasons for the increase in the number of purulent-inflammatory diseases in children include the decrease in the level of oral cavity sanitation in pediatric patients, the desire to save a tooth by all means, the development of purulent processes in doubtful cases in children with an aggravated premorbid background. A number of features of the course of purulent-inflammatory diseases of the maxillofacial region in children can be noted, which in different age periods determine a high frequency of diagnostic errors [3]. They are caused by the rapid development of diseases

and high frequency of complications, aggressive course of phlegmon and osteomyelitis in children. This situation determines the need to improve the methods of diagnostics and treatment of inflammation in dentistry in children of different ages [1, 2].

Antibiotic therapy as one of the components of conservative treatment of purulent process in the maxillofacial region also shows a decrease in the effectiveness of their prescription due to short-term or excessively long courses of antibiotic therapy, uncontrolled independent use of antibiotics, prescription of drugs in low doses. Requirements for the use of antibiotics are determined by the goals of antibacterial policy, which is based on the prevention of the development of resistance of microorganisms

to antibiotics. Its main components are: the presence of the bacterial nature of the disease, the choice of antibiotics based on the data of microbiological studies, optimization of dosages and methods of antibiotic administration, periodic replacement of widely used drugs with recently created or rarely prescribed (reserve), combined prescription of drugs. allocation of antibiotics for outpatient and inpatient practice, the use of step antibiotic therapy, constant analysis of strains of microorganisms and their sensitivity in the hospital environment to antibiotics.

The prescription of antibiotics for children has its own peculiarities. It is necessary to take into account the antibiotics that the child has previously taken. In outpatient conditions, antibacterial drugs for children should be administered orally. It should be noted that a number of antibiotics when used in children can cause undesirable effects (aminoglycosides, chloramphenicol, sulfonamides), tetracyclines (tetracycline, doxycycline) are not prescribed until 8 years of age, and fluoroquinolones (norfloxacin, ofloxacin, ciprofloxacin, pefloxacin) until 18 years of age. Correction of initial antibiotic therapy in children should be carried out after 48-72 hours if there are no signs of improvement, and earlier if inflammatory symptoms increase [4, 5].

**Purpose of the study:** Creation of optimal conditions for early cleansing and healing of purulent focus and development of an effective and reliable method of local treatment. To study the peculiarities of the course of purulent inflammatory process and the results of local treatment of odontogenic phlegmons of maxillofacial region in children.

**Materials and methods:** To compare the effectiveness of antiseptic action of the preparation "Microdacyn Wound Care" based on hydrochloric acid HClO and wound dressing based on silver ions "Vliwaktiv Ag" in 30 patients cytological study of the wound surface after removal of phlegmons of different localization in the maxillary region:

submandibular, parotid, masseter and floor of the mouth cavity was carried out. Material for the study was taken from patients before and after dressing at intervals of 1, 3, 5 and 7 days. The wound surface was removed with a sterile spatula, then fixed in alcohol and microscoped after staining.

The results of cytologic examination showed the effectiveness of the proposed complex local treatment, which can be explained by the wound-healing properties of silver ions. The following changes were observed depending on the duration of dressing from the time of primary surgical treatment of purulent wounds.

On day 1-3 on cytograms of patients with phlegmona diffuse neutrophilic infiltration, extensive tissue destruction and detachment of necrotic masses were observed (Fig. 1).

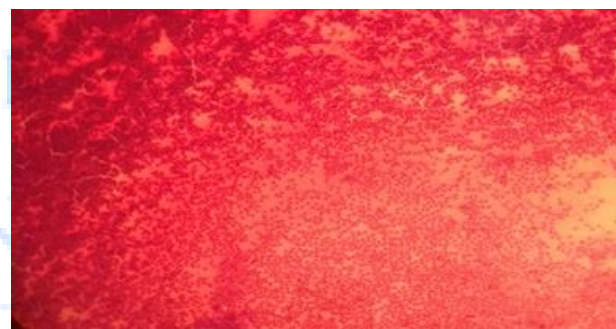


Fig 1. Necrotized soft tissue layers with diffuse neutrophilic leukocytic infiltration. (1st day. B-y. I. A. Heme-eosin staining. Eq. Ob.x 4.0.

By day 5-7 in the patients of the main group after wound dressing there was a decrease in inflammatory-cell leukocytic infiltration, absence of desquamated epithelial cells and necrotic masses in smear-prints. Macrophages were detected against the background of leukocytes, and among single leukocytes - fibroblasts, which indicated the strengthening of regenerative and reparative processes in the focus (Fig. 2).

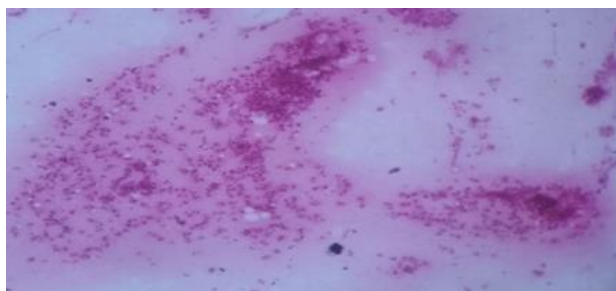


Fig 2. Surface with a small content of leukocytes, single epithelial cells with an admixture of fibrocytes. In patients with phlegmon of the submandibular region in the comparison group on the 15th day of treatment. (regenerative type of cytogram) Eq. x10.

Cytologic study of smears from the wound surface confirmed the presence of acute diffuse purulent inflammatory infiltrate on the wound surface. Repeated application of nanocoating on the wound promoted resorption, reduction of inflammation and detachment of necrotic masses. In patients of the comparison group a similar cytologic picture was obtained on the 3rd day against the background of traditional therapy.

From the 5th day in the patients of the main group leukocytic infiltration and clearly expressed appearance of macrophages and fibroblasts were observed. This cytologic picture proves that young granulation tissue is maturing in the wound.

In patients in the comparison group, similar changes were not observed until day 10.

The cytograms of the coated group showed a high number of macrophages and fibroblasts on day 7. The morphologic pattern was consistent with maturation of immature connective tissue. On day 10, the microscopic and macroscopic images of the patients in the main group corresponded to phases II-III of the wound process, which was confirmed in some cases by dense granulation tissue with an admixture of plasma cells. The comparison group showed a similar picture on the 15th day.

Thus, the results of cytologic study confirmed the high efficiency of the author's method of using the wound dressing "Vlivaktiv Ag" in the

complex treatment of patients with phlegmonitis of the face and neck, as well as complications of osteomyelitis in wound healing.

This method of using nanocoatings greatly facilitates the application of dressings, is easily removed from the wound surface and does not cause pain and tissue damage in patients.

In connection with the above, we consider it advisable to widely introduce and use such coatings in practical medicine.

**Conclusion.** The above facts and verdicts convincingly demonstrate the effectiveness of Microdacyn Wound Care wound preparation based on hydrochloric acid (HClO) and wound dressing based on silver ions "Vlivaktiv Ag" in the treatment of abscesses and phlegmons of soft tissues of the oral cavity, maxillofacial region and allow us to recommend them for wide application.

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