

# Improving the Complex Therapy of Acute Odontogenic Osteomyelitis of the Lower Jaw in Children

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**Abstract** Acute odontogenic osteomyelitis is a purulent—infectious inflammatory disease of the jaw bones, in which the source of infection is teeth affected by caries and its complications. Teeth give the jaw bones an anatomical feature not found in other parts of the skeleton. Only in the jaws is the bone tissue in direct contact with the source of infection, from where the infection can come for a long time. This makes the mechanism of development of acute odontogenic osteomyelitis different from the mechanism of development of the disease in other bones.

**Keywords** Acute odontogenic osteomyelitis, Bacteriological studies, Purulent process

## 1. Introduction

To date, many issues of etiology and pathogenesis, prevention, and treatment of children with purulent-inflammatory diseases of MFR have not been sufficiently resolved, which attracts the attention of researchers and scientists to the problem [Artemova A.V., Dikisar A.A., Shchekina L.A. 2013; Kabanova A.A., 2013., Chou AC. 2016; Zemann W., 2011].

The importance of studying this problem is determined not only by the frequency of osteomyelitis of the jaw in children but also by the change in recent years in the clinical course of odontogenic osteomyelitis with a predominance of chronic, sluggish, relapsing forms, the occurrence of various complications [Germain N., 2009; Yamazaki T. et al, 2013].

Inflammatory diseases of MFR with concomitant pathology are characterized by high medical and social significance (Shargorodsky A.G., 2010; Urazaeva A.E., 2013). This contingent of patients requires active, sometimes quite expensive treatment in a hospital setting. With this pathology, high rates of morbidity with temporary disability are noted, and finally, inflammatory diseases of MFR with concomitant pathology, being a formidable pathology, become one of the main causes of disability (Sizintseva T.A., Weinstein E.A., 1991;) and mortality from dental diseases (Kozlov V.N., 1990; Shargorodsky A.G., 2001; Supiev T.K. 2001).

Indirect electrochemical oxidation (IECO) of blood with sodium hypochlorite (SHC) is still of particular interest in the complex treatment of infectious and inflammatory ET. However, there is only limited information in the literature

on the effect of HCG on the state of the pro-/antioxidant system, which is very contradictory (N.M. Fedorovsky, 2014; E.A. Petrosyan and co-author, 2010).

## 2. The Purpose of the Study

To increase the effectiveness of complex therapy of acute odontogenic osteomyelitis of the lower jaw in children.

## 3. Research Material and Methods

The work presents observations of 124 children aged 4 to 17 years with acute odontogenic osteomyelitis of the examined boys there were 65 (52.41%), girls 59 (47.58%) in the Department of Pediatric Maxillofacial Surgery of the Tashkent State Dental Institute clinic from March 2019 to October 2020.

Depending on the treatment, all children were divided into 3 groups:

Group I – 30 children with odontogenic phlegmons who received traditional treatment

Group II – 46 children with odontogenic phlegmons who used "voskopran" in the form of a bandage against the background of traditional therapy.

Group III – 48 children with odontogenic phlegmon in whom, against the background of traditional therapy, "voskopran" was used in the form of a bandage and intravenous drip application of succinasol.

VoskoPran is a series of sterile mesh bandages impregnated with wax and medicinal ointments. The basis of the bandages is a synthetic mesh that does not leave fibers in the wound. The mesh provides a drainage effect for wound exudate and good air exchange. Beeswax contains a large

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number of amino acids, minerals, and vitamins. The wound perceives the organic matter of wax as an active wound-healing medium. The therapeutic ointment provides a prolonged therapeutic effect. An ointment dressing that stimulates healing. Methyluracil ointment stimulates cellular regeneration processes, accelerates wound healing, has an anti-inflammatory effect, and increases local immunity. The bandage is well-modeled on any part of the body.

Choose the appropriate size of the ointment dressing (the bandage should protrude beyond the edges of the wound). Open the sterile inner packaging of the bandage. If necessary, the bandage can be cut without removing the protective film. Remove one protective film from the bandage and apply a bandage to the wound. Remove the second protective film and cover the bandage with a sterile gauze cloth or an absorbent bandage (MediSorb, Wax Sorb), depending on the degree of exudation, fix it with a RolePlast patch or any bandage. The bandage may remain on the wound for several days, depending on the condition of the wound.

#### 4. Results of the Study

When using Voskopran (in the form of a wound dressing) in place of traditional treatments for the treatment of odontogenic phlegmon of the maxillofacial region, pain, swelling of soft tissues, and purulent discharge from the wound decreased in children by 6-7 days of treatment, but weakness and capriciousness persisted, as well as bone thickening and enlargement of regional lymph nodes. When using traditional treatment + Wax membrane (in the form of a wound dressing) + Succinazol (intravenous drip application) by day 6-7 of treatment, there was a dynamic decrease in general and local clinical signs, pain disappeared, soft tissue edema, purulent discharge from the wound decreased. Along with this, clinical signs of intoxication were eliminated faster in patients of this group, pulse, body temperature (for 2-3 days), sleep and appetite returned to normal.

In the second and first groups, wounds recovered from necrotic plaque on average on the fourth day, which is one day more than in the third group. In addition, in patients from the third group, the termination of the purulent department was noted on average on the 3rd-5th day, and the termination of the serous department on the 4th-5th day. With traditional treatment, these data are equal to 6-7 and 7-8 days, respectively. The period of infiltration resorption occurred in the first groups on the 7th-8th day and the second on the 5th-7th day after autopsy. While in the third group, infiltration resorption was observed for 4-6 days. It was also noted that in the group of patients where "Voskopran" was used as a wound dressing and Succinazol IV drip application, the timing of the appearance of granulation and epithelialization of the wound began several days earlier than in other study groups.

Clinical observations have shown that the inclusion of the drug "Voskopran" in the treatment complex in the form of wound dressing + Succinazol in/in drip application has a

positive effect on wound healing: the drug provides faster wound cleansing, promotes the maturation of granulations and allows you to prepare the wound for closure at an earlier date.

Clinical observations of the condition of purulent wounds showed higher efficacy in group III of patients who received intravenous succinazol compared with groups I and II of patients. After applying the wax, the wound surface was quickly cleaned of necrotic overlays, inflammatory phenomena decreased, suppuration disappeared, granulations appeared and the wound healed with a soft, aesthetic scar.

Thus, with the proposed method of treatment – the "Voskopran" dressing, along with maintaining the phase of the regenerative process, its intensification was also noted compared to previous methods due to the acceleration of each of the phases of the regenerative cycle. According to the results of the study, the use of "Voskopran" turned out to be more effective than the traditional method.

The general condition of patients of group III with the use of Voskopran improved from 2-3 days after opening the wound, accompanied by a decrease in body temperature from 38.80 C in the first days to normal for 2-3 days of the disease. The condition of the wound indicated the presence of a high therapeutic effect of this method of treatment: on the second day after the wound was removed, the amount of exudate released decreased sharply and was in most cases of a serous-bloody nature.

After 5-7 times ultrasound treatment of the wound, there was no discharge from the wound, and the wound was cleansed of necrotic masses. A decrease in the infiltration of tissues surrounding the wound in patients of group III was noted from the 5th day of the disease.

Similar shifts in the state of the wound surface in patients of group II with traditional treatment appeared somewhat later - from the 7th day of the disease. Symptoms of wound healing were observed in patients in both groups (II-III) from 6-7 days after opening the foci of inflammation. The average number of days of stay of patients with phlegmon in the hospital when included in the complex therapy of vosokpran was 6 days, in patients with abscesses - 4 days, which is 3 days less than with traditional treatment.

#### 5. Conclusions

Thus, an assessment of the clinical and morphological parameters of the wound surface in patients with abscesses and phlegmon of the maxillofacial region showed that using Voskopran and Succinazol was the most effective compared with traditional therapy.

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