

*Aims & Scope (Medicine)*

*Article*

## IMPROVING THE EFFECTIVENESS IN THE COMPLEX TREATMENT OF PERIOSTITIS OF THE JAWS WITH THE USE OF DRUGS DECASAN AND STOMORAD

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**Abstract.** The article displays a scientific research examination of patients undergoing inpatient treatment by the Department of Maxillofacial Surgery in the period 2021-2023. All patients were divided into two groups: patients with traditional treatment (21 people), in whom patients with acute purulent periostitis of the maxillofacial region (PCO), complex treatment was carried out by the traditional method; and patients with the recommended complex treatment (22 people) in whom patients with acute purulent periostitis of the jaws underwent daily antiseptic treatment of the postoperative wound of the oral mucosa with Dekasan and Stomorad spray as part of complex therapy.

**Keywords:** Acute purulent periostitis, inflammatory process, Stomarad, Decasan, lower and upper jaw.

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### Introduction

Purulent-inflammatory diseases of the maxillofacial region still remain one of the most common and complex problems of modern surgical dentistry and maxillofacial surgery, the main cause of intracranial complications and septic conditions, temporary disability among the population (Nesterov A.V., Lebedev M.V., Zakharova I.Yu., 2017).

In the general structure of dental diseases, the frequency of HPD ranges from 55% (Bayrikov et al., 2014, Karpov et al., 2014).

Despite the fact that the primary prevention of HSE CHIO, which consists in the timely sanitation of foci of chronic odontogenic infection, is the most effective, early diagnosis and treatment can reduce the risk of the most serious complications of HPD (Shereshovets et al., 2012).

The main role in the etiology of inflammatory diseases of the maxillofacial region is played by infectious agents, in most cases vegetating on the mucous membranes of the oral cavity, in periodontal pockets and carious cavities. Therefore, most of the research was aimed at isolating and studying the properties of just such a flora. The results of these studies are now indisputable evidence of the etiological significance of microorganisms such as *Staphylococcus* spp., *Streptococcus* spp. (Shalabayeva and others, 2012, Pitts N. 2011), indicating that opportunistic flora also plays a role in the etiology of GVZ CHIO.

It is known that the structure of the causative agents of GVZ 4JIO can vary significantly in different regions of the world (Gaynes R., Edwards J.R., 2015). In addition, in different regions, the causative agents of 4JIO GVZ may exhibit different levels of resistance to antibacterial drugs recommended for the treatment of this pathology (A.V. Goncharova 2011). This is confirmed by the unequal clinical efficacy of the same regimens of antibiotic therapy for HPD in different regions (Chervinets et al., 2013, Petersen P. E. 2009).

Thus, when developing regimens of antibiotic therapy for HPE, it is necessary to take into account not only the spectrum of possible pathogens, but also the regional features of their resistance profile.

**Purpose.**

On the basis of clinical, laboratory and functional research methods, to offer a rational complex of treatment for acute purulent odontogenic processes of the maxillofacial region using dekasol solution and stomorad spray.

**Methods**

The work is based on clinical observations and studies carried out at the Department of Maxillofacial Surgery of Samarkand State Medical University for the period from 2021 to 2023. The study is clinical and laboratory, and was conducted on the basis of the Department of Maxillofacial Surgery "City Medical Association of Samarkand". All patients were divided into two groups: patients with traditional treatment (21 people), in whom patients with acute purulent periostitis of the maxillofacial region (PCO) complex treatment was carried out by the traditional method; and patients with the recommended complex treatment (22 people) in whom patients with acute purulent periostitis of the jaws underwent daily antiseptic treatment of the postoperative wound of the oral mucosa with Dekasan and Stomorad spray as part of complex therapy. In addition, the drug was prescribed as a rinse of the mouth 5-6 times a day during the entire stay in the patient's department until the inflammatory process subsides (Table 1).

**Table 1. Distribution of patients with acute odontogenic processes by age group and sex (M ± m)**

Age groups of patients (years)	Sex							
	Men (n = 25)				Women (n = 18)			
	Group with traditional treatment		Group with recommended treatment		Group with traditional treatment		Group with recommended treatment	
	Abs.	%	Abs.	%	Abs.	%	Abs.	%
19-25	3	6,9 %	1	2,3%	1	2,3 %	2	4,6 %
27-50	6	13,9 %	5	11,6 %	2	4,6 %	5	11,6 %
Over 50 years old	6	13,9%	4	9,3%	3	6,9%	5	11,6 %
The amount	15	34,8%	10	23,2 %	6	13,9%	12	27,9%
Subtotal	25 (58.1 %)				18 (41,9 %)			
Total	43 (100%)							

In total, 25 (58.1%) men with acute odontogenic periostitis were treated, of which 15 (34.8%) used traditional methods of treatment, and in 10 (23.2%) patients with acute purulent periostitis of the upper and lower jaw underwent daily antiseptic treatment of the postoperative wound of the oral mucosa with Dekasan and Stomorad spray as part of complex therapy. In addition, the drug was prescribed as a rinse of the mouth 5-6 times a day during the entire stay in the patient's department until the inflammatory process subsides. Among the 18 (41.9%) women under treatment, traditional methods were used in 6 (13.9%) people, and the recommended comprehensive treatment was used in 12 (27.9%). The age composition of the patients, according to the distribution groups, was approximately the same.

According to the literature data, in the lower jaw in the first place the cause of collateral edema in the area of the lower jaw is the left lower first molar, in the second - the right lower first molar, in the third - the second molars of the lower jaw.

When examining patients with acute odontogenic periostitis, generally accepted diagnostic methods and laboratory tests, examination and consultations of a maxillofacial surgeon and other specialists were used, according to indications.

Attention was paid to the appearance of the patient: facial asymmetry, collateral swelling of the soft tissues of the face, skin color. From the side of the oral cavity, attention was paid to the smoothness of the transitional fold, the size of the inflammatory focus, palpation, percussion of the "causal" teeth were performed. Intraoral contact radiography of the "causal" teeth was performed when patients went to the doctor. The indicators of the general analysis of blood and urine, blood biochemistry, blood sugar in inflammatory processes that were on inpatient treatment in the department of maxillofacial surgery and other departments of the city medical association of the city of Samarkand were evaluated.

The material for microbiological research was exudate after tooth extraction. The collection of material was carried out immediately after the operation of tooth extraction and periostotomy, three days later.

Microbiological indicators of the quantitative content of microorganisms in the wound discharge were calculated by the method of serial dilutions with the determination of the indicator "colony-forming units" (CFU) in 1 ml (CFU/ml). A concentration taken as microbial contamination sufficient to cause acute inflammation is a value of 10<sup>5</sup> CFU/ml.

Cytological studies. The material for the cytological method of research was a smear-scraping from the socket of the extracted tooth and also in the dynamics of treatment, as well as in inflammatory processes of the upper and lower jaw on the day of treatment after tooth extraction and three days after the operation, on the subsequent days of illness. The substrate for cytological examination was taken using a surgical iron. After taking a smear-scraping from the hole, the discharge was applied to a dry sterile slide closer to the short side, carefully distributed with a second slide over the surface, marked, allowed to dry. During the first days after sampling, the material was delivered to the clinical diagnostic laboratory.

Coloring of cytological preparations was carried out according to the Romanovsky-Giemsa method: a dried fixed smear was placed in a cuvette with a working solution of Romanovsky-Giemsa dye for 30 minutes. Washed, dried. Counting of cells in smears-preparations of the wound was carried out by the method "for 200 cells", calculating the percentage.

Statistical processing of the results of the study was carried out using the application package "Microsoft Office - 2010". The reliability of the level of difference between the compared values was assessed using the 1 - Student's test. The relationship of the studied parameters was assessed using the correlation coefficient at the significance level of  $p < 0.05$  and  $p < 0.01$ .

## Results

The results of the obtained microbiological studies in patients with the recommended complex treatment. It should be noted that immediately after the opening of the purulent focus, associations of microorganisms were detected, as well as in patients of the comparison group. The most common associations of three microorganisms (Staph. aureus, Str. viridians, Bacteroides; Staph, aureus, Str. viridians, Peptostreptococcus) - in 12 (54.54%) patients. Associations of four microorganisms (Staph, aureus, Str. viridians, Bacteroides, Peptococcus; Staph, aureus, Str. viridians, Bacteroides, yeast-like fungi of the genus Candida) were observed in 6 (27.27%) patients, two microorganisms (Staph, aureus, Str. pyogenes; Staph, aureus, Str. salivarius) - 4 (18.18%) patients. None of the patients in the wound exudate after periostotomy, as well as in the first group of patients, did not detect a monoculture of microorganisms.

Three days after surgery, a monoculture of microorganisms began to be sown in 17 (77.2%) people, associations of two microorganisms were detected in 5 (22.8%) people. None of the patients in the wound discharge revealed associations of three and four microorganisms. Consequently, there has been a positive trend in the normalization of the microbial landscape of a purulent wound.

Data from the microbiological examination of the wound discharge of the postoperative wound immediately after the operation verified 91 strains. Str. viridians was most often sown in 39 (42.85%) crops, Staph, aureus - 18 (19.78%), Str. salivarius 14 (15.38%), Staph, epidermidis - not sown. Str. pyogenes - 8 (8.79%), yeast-like fungi Candida - 12 (13.18%) cases, respectively.

After three days, in the group of patients with recommended treatments, microorganisms were verified in 44 strains. At the same time, bacteria *Str. viridans* were sown in 25 (56.81%) crops, *Staph. aureus* - 17 (38.63%), *Staph. epidermidis* - in 2 (4.54%). He was determined during verification on *Str. salivarius*, *Str. pyogenes*, *Candida media* in relation to the previous study period.

It was noted that the concentration of microorganisms in 1 ml of wound discharge during this period was an order of magnitude lower than the "critical level" - 102 CFU.

These indicators of quantitative determination of the content of pathogens in a purulent wound in the dynamics of treatment in patients with the use of Stomorad after meals. 1 injection was prescribed for 4-8 injections for 7 days indicate a more rapid normalization of the microbial landscape of the wound, compared with patients of the first group. The contamination of the postoperative wound with microorganisms decreases.

Along with the study of the microbial landscape in acute purulent periostitis of the jaws in patients, we studied the dynamics of healing of the postoperative wound according to cytological studies. In patients using Stomorad topically, after meals. 1 injection of 8 injections for 7 days immediately after the opening of the subperiosteal purulent focus, the following cell content is noted: segmented neutrophils - ( $79.65 \pm 0.25$ )%, stab neutrophils - ( $2.30 \pm 0.72$ ), basophils - ( $0.15 \pm 0.07$ ), eosinophils - ( $1.00 \pm 0.29$ )%, lymphocytes - ( $11.95 \pm 0.21$ ), monocytes - ( $4.18 \pm 0.43$ )%, macrophages - ( $0.59 \pm 0.23$ ), plasma cells - ( $0.18 \pm 0.13$ ) %.

After three days, the relative content of segmented neutrophils decreased to ( $77.85 \pm 2.39$ ) % ( $p = 0.898$  and  $p_1 = 0.192$ ); stab neutrophils and basophils - 0%, eosinophils - ( $0.03 \pm 0.005$ ) % ( $p = 0.066$  and  $p = 0.001$ ), lymphocytes - ( $10.8 \pm 0.21$ ) % ( $p < 0.001$  and  $p_1 = 0.001$ ). The relative content of macrophages increased significantly - up to ( $5.47 \pm 0.38$ ) % ( $p < 0.001$  and  $p_i = 0.001$ ), monocytes - ( $4.29 \pm 0.23$ ) % ( $p = 0.824$  and  $p_1 = 0.001$ ), plasma cells ( $1.35 \pm 0.26$ ) % ( $p < 0.001$  and  $p_1 = 0.001$ ). In addition, during this period, fibrocytes and fibroblasts appeared in the wound in an amount of ( $0.18 \pm 0.09$ ), which indicates the beginning of the regeneration phase.

Thus, the use of Stomorad spray and dekasen antiseptic solution topically, after eating 8 injections of 7 days of purulent wounds in the treatment of patients with acute purulent odontogenic periostitis of the jaws according to cytological studies, activates reparative processes, promotes faster wound healing.

## Discussion

According to the literature, we did not find information regarding the use of a combination of Dekasan antiseptics and Stomorad spray for topical use in the treatment of acute purulent odontogenic periostitis of the jaws. Application: a combination of Dekasan antiseptics and Stomorad spray has an anti-inflammatory and local analgesic effect, has an antiseptic effect against a wide range of microorganisms.

The mechanism of action of the drug is associated with stabilization of cell membranes and inhibition of prostaglandin synthesis.

Benzylamine has an antibacterial effect due to the rapid penetration of microorganisms through the membranes, followed by damage to cellular structures, disruption of metabolic processes and cell lysis.

It has an antifungal effect against *Candida albicans*. It causes structural modifications to the cell wall of fungi and the metabolic chains of mycetes and thus inhibits their reproduction. This property was the basis for the use of benzylamine in inflammatory processes in the oral cavity, incl. infectious etiology.

Until now, microbiological, cytological changes in a purulent wound have not been studied in detail with various methods of treating this disease.

To solve the tasks set in the work, clinical, laboratory and functional studies of patients were carried out, which were performed on the clinical basis of the Department of Maxillofacial Surgery of the Samarkand State Medical Institute in the Department of Maxillofacial Surgery of the city medical association.

43 patients with acute purulent odontogenic periostitis of the jaws were under observation, including 27 men and 16 women. All patients were divided into two groups: those with traditional

and recommended complex treatment. When seeking medical help in the clinic, all patients complained of pain in the jaws, the presence of a "causal" tooth, as well as a subperiosteal abscess.

In the group of patients with traditional treatment (21 people), rubber strips made of sterile glove rubber and gauze graduates were used to drain the subperiosteal purulent focus, conventional drug therapy with the use of anti-inflammatory, antibiotic and desensitizing agents was prescribed, physiotherapy was used.

In the dynamics of treatment, a microbiological, cytological assessment of a purulent wound was carried out. The most common associations of two microorganisms (Staph: aureus and Bacteroides; Staph, aureus and Peptostreptococcus; Staph, aureus and Peptococcus; Staph, aureus and Str. salivarius) - in 17 (80.9 %) patients, less often associations of three microorganisms (Staph, aureus, Str. viridians, Bacteroides; Staph, aureus, Str. pyogenes and Bacteroides) - in 3 (14.3 %) patients. A combination of four microorganisms (Str. viridians, Staph, epidermidis, Bacteroides, Candida albicans; Str. viridians, Staph, epidermidis, Bacteroides, Candida tropicalis) was detected in two patients. Monoculture was not detected in any of the patients in cultures. Three days after surgery, a monoculture began to be sown in 5 (23.8%) people, associations of two microorganisms were detected in 12 (66.6%), associations of three microorganisms in 4 (19.04%). None of the patients in the wound discharge revealed associations of four microorganisms.

On the first day after the operation, 105 strains of infectious agents were verified. A significant proportion was a series of aerobic microorganisms - 105 (47.51%). Str. viridians - 36 (34.29%) and Staph, aureus - 27 (25.7%) were predominantly sown from this series of bacteria, Str. salivarius - 16 (15.23%), Str. pyogenes - 7 (6.66%), Staph, epidermidis - 1 (0.95%) and Candida fungi - 18 (17.14%) were sown less often.

The quantitative content of pathogens in the wound discharge was also subject to variations. In particular, the concentration of aerobic microorganisms for some species in the wound discharge reached or exceeded the "critical level" of 105 CFU/ml. The highest number of bacterial cells was Staph, aureus - 106 CFU/ml, Str. viridians and Str. pyogenes - 105 CFU/ml, the number of other aerobic organisms was below the "critical level".

After three days, in the group of patients with traditional methods of treatment, aerobic microorganisms were verified in 66 cultures. Str. viridians was still predominantly determined in 33 (50.00%) crops, Staph, aureus - 25 (37.87%), Staph, epidermidis - in 8 (12.12%). He was determined during verification on Str. salivarius, Str. pyogenes, Candida media in relation to the previous study period.

At the same time, it was noted that the concentration of microorganisms in 1 ml of wound discharge during this period was an order of magnitude lower than the "critical level" - 105 CFU / ml.

Thus, in the dynamics of traditional treatment of patients with acute purulent odontogenic periostitis of the jaws, there has been a positive trend in the normalization of the microbial flora of the wound discharge. Associations of four microorganisms disappeared, were not verified by re-examination of bacteria of the species Str. salivarius, Str. pyogenes, Candida.

Along with the study of the microbial landscape in acute purulent odontogenic periostitis of the jaws, we studied the dynamics of healing of the postoperative wound according to cytological studies.

Immediately after the opening of the subperiosteal abscess, a typical cytological picture of acute purulent inflammation was verified. Degeneratively altered segmented, stab neutrophils were predominantly detected, macrophages, lymphocytes, plasma cells, monocytes and other cells were present.

On the first day after the opening of the subperiosteal abscess in the wound, the following cell content was noted: segmented neutrophils - ( $81.03 \pm 0.40$ ), stab neutrophils - ( $2.03 \pm 0.78$ ), basophils - ( $0.17 \pm 0.08$ ), eosinophils - ( $0.97 \pm 0.32$ ), lymphocytes - ( $10.70 \pm 0.54$ ), monocytes - ( $4.30 \pm 0.44$ ), macrophages - ( $0.67 \pm 0.24$ ), plasma cells - ( $0.13 \pm 0.08$ ). Thus, degeneratively altered segmented neutrophils were predominantly detected.

After three days, with traditional treatment, the relative number of segmented neutrophils decreased statistically insignificantly to ( $80.53 \pm 0.74$ ) % ( $p = 0.430$ ); stab neutrophils - ( $0.40 \pm$

0.11) % ( $p = 0.08$ ); basophils - 0%; eosinophils -  $(0.43 \pm 0.12)\%$  ( $p = 0.062$ ). The percentage of monocytes decreased statistically significantly to  $(2.90 \pm 0.23)\%$  ( $p = 0.002$ ); The relative content of lymphocytes increased -  $(14.47 \pm 0.28)\%$  ( $p < 0.001$ ), insignificantly - macrophages to  $(0.90 \pm 0.16)\%$  ( $p = 0.172$ ), as well as statistically significant plasmacytes -  $(0.37 \pm 0.05)\%$  ( $p = 0.017$ ).

In the group of patients with the recommended complex treatment (22 people) of the antiseptic solution Dekasan and spray Stomorat has an anti-inflammatory and local analgesic effect, which has an antiseptic effect against a wide range of microorganisms. Dekasan solution and Stomorat spray were applied topically, after eating from 4 to 8 injections for 7 days. And also prescribed conventional drug therapy with the use of anti-inflammatory, antibiotic and desensitizing agents, physiotherapy was used.

According to microbiological studies, immediately after the opening of the purulent focus, typical associations of microorganisms were detected, as in patients of the comparison group. The associations of three microorganisms (Staph, aureus, Str. viridians, Bacteroides; Staph, aureus, Str. viridians, Peptostreptococcus) - in 12 (54.54%) patients. Associations of four microorganisms (Staph, aureus, Str. viridians, Bacteroides, Peptococcus; Staph, aureus, Str. viridians, Bacteroides, yeast-like fungi of the genus Candida) were observed in 6 (27.27%) patients, two microorganisms (Staph, aureus, Str. pyogenes; Staph, aureus, Str. salivarius) — 4 (18.18%) patients.

In total, 91 (58.71%) strains of microorganisms were verified, the contamination of the postoperative wound with microorganisms decreases, as well as the intensity of seeding of microflora.

In the group of patients using Tantum Verde topically, after eating 8 injections for 7 days immediately after the opening of the subperiosteal purulent focus, the following cell content was noted: segmented neutrophils -  $(79.65 \pm 0.25)\%$  stab neutrophils -  $(2.30 \pm 0.72)\%$ , basophils -  $(0.15 \pm 0.07)\%$ , eosinophils -  $(1.00 \pm 0.29)\%$ , lymphocytes -  $(11.95 \pm 0.21)\%$ , monocytes -  $(4.18 \pm 0.43)\%$ , macrophages -  $(0.59 \pm 0.23)\%$ , plasma cells -  $(0.18 \pm 0.13)\%$ .

After three days, the relative content of segmented neutrophils decreased to  $(77.85 \pm 2.39)\%$  ( $p = 0.898$  and  $p_1 = 0.192$ ); stab neutrophils and basophils - 0%, eosinophils -  $(0.03 \pm 0.005)\%$  ( $p = 0.066$  and  $p = 0.001$ ), lymphocytes -  $(10.8 \pm 0.21)\%$  ( $p < 0.001$  and  $p_1 = 0.001$ ). The relative content of macrophages increased significantly - up to  $(5.47 \pm 0.38)\%$  ( $p < 0.001$  and  $p_i = 0.001$ ), monocytes -  $(4.29 \pm 0.23)\%$  ( $p = 0.824$  and  $p_1 = 0.001$ ), plasma cells  $(1.35 \pm 0.26)\%$  ( $p < 0.001$  and  $p_1 = 0.001$ ). In addition, during this period, fibrocytes and fibroblasts appeared in the wound in an amount of  $(0.18 \pm 0.09)$ , which indicates the beginning of the regeneration phase.

In conclusion, it should be noted that the use of Dekasan and Stomorat spray topically, after eating 8 injections for 7 days in the treatment of patients with acute purulent odontogenic periostitis of the jaws, according to microbiological, cytological studies, activates reparative processes, promotes faster wound healing and reduces the duration of hospitalization.

### Conclusion

It was revealed that after opening the subperiosteal purulent focus, aerobic microorganisms are verified in 52.13% of crops, and their concentration exceeds the "critical level" - 105 CFU/ml. Degeneratively altered segmented neutrophils and other inflammatory cells are detected in the wound.

Application: the use of Dekasan solution and Stomorat spray topically, after eating 8 injections for 7 days after the operation, the removal of the causative tooth and the operation of periostotomy helps to reduce their contamination, significantly reduces the intensity, seeding of aerobic microphora in the wound, cells of regenerative and phagocytic type (fibrocytes, fibroblasts and macrophages) are detected.

Positive clinical and laboratory parameters according to microbiological, cytological studies contributed to a reduction in the duration of hospitalization.

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