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Clinical Results of Complex Treatment in Reducing Complications of Inflammation After Complex Dental Extraction

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Abstract: The clinical efficacy of complex treatment methods in reducing inflammatory complications that develop after complex tooth extraction procedures has been studied. During our study, we analyzed the incidence of postoperative alveolitis, periostitis, swelling, pain, and signs of inflammation in patients. Therefore, the complex treatment included antibacterial therapy, anti-inflammatory drugs, antiseptic treatment, and physiotherapeutic procedures. The results showed a significant reduction in the number of inflammatory complications, rapid relief of pain, and acceleration of the wound healing process when a complex approach was used. The results of our study confirm the high effectiveness of complex therapy in preventing complications after complex tooth extraction.

Keywords: Tooth Extraction, Therapy, Inflammation, Antibacterial Therapy, Pain Syndrome, Complex Therapy, Clinical and Operative Methods, Physiotherapy

Introduction

One of the most pressing issues of today is that complex tooth extraction operations are among the most frequently performed procedures in dental surgery. The process of extracting teeth, especially those that are retained, dystopic, or have complex anatomical root anatomy, is often accompanied by postoperative inflammatory complications. Such complications include alveolitis, periostitis, soft tissue infiltration, pain syndrome, swelling, and limited mouth opening. These conditions negatively affect the general condition and quality of life of patients, and also cause a temporary decrease in working capacity. Postoperative inflammatory processes, in particular, often lead to delayed wound healing, secondary infection, and the need for long-term treatment[1,2]. Therefore, such complications may be more severe in patients with chronic somatic diseases or in individuals with a weakened immune system. Therefore, the prevention of complications after complex tooth extraction, their early detection, and the development of effective treatment methods are among the urgent problems of modern dentistry.

In view of this, in recent years, special attention has been paid to the use of complex treatment methods in clinical practice. The inclusion of antibacterial drugs, anti-inflammatory agents, antiseptic treatment, physiotherapy, and local regenerative agents in complex therapy increases the effectiveness of treatment. This approach ensures faster resolution of the inflammatory process, reduction of pain and swelling, and acceleration of the wound healing process[3,4,5].

In this regard, the study of the clinical effectiveness of complex treatment methods in reducing inflammatory complications after complex tooth extraction is of great scientific and practical importance**.**

Research Objective

It consists in studying the clinical effectiveness of complex treatments in reducing inflammatory complications that develop after complex tooth extraction practices, assessing the course of postoperative pain, edema, alveolitis and other inflammatory symptoms, and improving and better identifying effective preventive and therapeutic measures in accelerating the wound healing process[6].

Methodology

The study was conducted in the Department of Oral Surgery from 2025 to 2026, involving patients who underwent complex lower molar tooth extraction. A total of 60 patients were included in the study. The patients were aged 18 to 60 years and required extraction of retained, disto-positioned, or complexly anatomically positioned lower molars. All patients were divided into two groups according to their clinical condition:

In the main group, 30 patients underwent ionized saline solution of Octenisept as an antiseptic and cooling solution to the surgical site after complex tooth extraction. In the control group of 30 patients, standard treatment methods and traditional antiseptic agents were used. During the study, the general dental condition of the patients, oral hygiene, the presence of signs of inflammation, and postoperative clinical indicators were studied. Complex dental

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extraction was performed under local anesthetic according to standard dental surgery rules.

The following clinical indicators were evaluated in patients after the operation:

- Intensity of pain syndrome;
- Soft tissue swelling;
- Degree of limitation of mouth opening;
- Development of alveolitis and other inflammatory complications;
- The time for epithelialization and healing of the wound.

Results and Discussion

In 2024–2025, N. N. On the basis of the Burdenko Dental Polyclinic, 200 patients requiring complex removal of lower molars were clinically and laboratory examined. During the study, patients were divided into two groups: in the main group, the operating area was watered with ionized saline with Octenisept ions, and in the control group, a simple saline solution was applied[7,8]. The results of the study showed that in the control group, serous alveolitis was observed in 10% of cases, while in the main group this figure was only 1%. This confirmed that Octenisept ionized solution significantly reduces postoperative inflammatory complications. During clinical observations, it was noted that in patients of the main group, pain, swelling, and signs of inflammation decreased faster already on the third day after surgery[9,10,11]. In addition, epithelialization of the alveolar bone occurred much faster than in the control group. Dynamic observations have revealed the contraction of the wound surface and the activation of regenerative processes in the main group. Biochemical tests of oral fluid and blood serum showed that the level of malondialdehyde (MDA) was lower in the main group than in the control group. This indicates that there is less free radical oxidation of lipids and a decrease in oxidative stress levels. According to the results of histological and immunohistochemical studies, it was observed that the inflammatory stages changed faster and the regeneration processes were more active in the groups where the ionized solution of Octenisept was used[12,13]. In the control group, tissue regeneration was significantly slower. Mast cell dynamics also confirmed that regeneration processes were more active in the main groups[14]. In particular, the group treated with ionized Octenisept showed a high rate of healing by day 14.

The results showed that the use of a saline solution ionized with Octenisept ions reduced the length of rehabilitation of patients, reduced the risk of inflammatory complications, and accelerated the recovery of alveolar cells[15].

Conclusion

It was found that irrigation of the surgical site with a physiological solution ionized with Octenisept ions after complex lower molar extraction operations has high clinical efficacy. This method significantly reduces the risk of developing inflammatory complications, in particular serous alveolitis, accelerates epithelialization of the wound surface, and activates tissue regeneration processes. The results of biochemical, histological, and immunohistochemical studies confirmed the antioxidant and antiseptic effects of the ionized solution of Octenisept. A decrease in MDA levels indicated a decrease in oxidative stress, which served a mild postoperative period. Thus, the use of a physiological solution ionized with Octenisept ions can be recommended as an effective preventive and therapeutic method in dental practice for complex lower molar removal operations.

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