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Ways of simultaneous replacement of bone tissue of a hole in a extracted tooth with an autogenous bone graft in order to prevent the occurrence of defects

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Abstract

The aim of this work was to study the immediate and long-term results of bone grafting of the lower jaw after tooth extraction using autologous bone grafts. This study conducted a comprehensive examination of 34 patients aged 18 to 65 years who came for inflammatory processes and injuries in the lower jaw at the clinical base of the Department of Maxillofacial Surgery of the Samarkand Medical Institute in the Department of Maxillofacial Surgery of the City Medical Association for the period from 2018 - 2020. Clinical studies were carried out according to the standard scheme and included instrumental, additional research methods. The operation of bone grafting with the use of auto bone and connective tissue grafts is effective for removing, defects and deformation of the jaw after surgery, the extraction of teeth of which provides the possibility of further full-fledged prosthetics, which leads to an improvement in the quality of life of patients.

Keywords: Tooth extraction, atrophy of the jaw, a transplant from the tubercle of the upper jaw, autobone of the external oblique line of the lower jaw

Introduction

Relevance of the problem: In many (63%) cases after tooth extraction, bone defects and deformities in the alveolar processes of the jaws are observed. Preservation and restoration of bone tissue volume of the alveolar processes of the jaw after tooth extraction, periodontal and tooth-preserving operations is an important problem of surgical dentistry and maxillofacial surgery.

The difference between the bone tissue of the jaws and any other segment of the skeleton is that when the distribution or loss of functional load, resorption processes begin. Moreover, bone loss occurs not only in the area of the extracted tooth, but affects about 20% of the volume of the hole around it. After 2-3 years after removal, a decrease in anatomical size by 40-60% of the alveolar ridge is usually observed and this is characteristic of all population groups (A. Ashman). In the available literature, we did not find works devoted to a detailed study of changes in bone density in the osteoplasty zone using modern techniques for the replacement of jaw defects.

Objective of research: The purpose of this research is to study the immediate and long-term results of bone grafting of the lower jaw after tooth extraction using autologous bone grafts.

Materials and methods

The research was conducted on the basis of the Department of Oral and Maxillofacial Surgery of the Samarkand State Medical Institute and the Department of Oral and Maxillofacial Surgery of the Samarkand City Medical Association. On an outpatient and inpatient basis in the period from 2018 to 2020. 34 patients aged from 18 to 65 years old, who were contacted due to inflammatory processes and injuries in the lower jaw, were examined. According to topographic anatomical and etiopathogenetic characteristics, as well as by type of auto graft, patients are divided into 2 groups. The first group consisted of 16 patients who underwent surgery to remove teeth with the simultaneous installation of a connective tissue graft from the hillock of the upper jaw.

The second group consisted of 18 patients who, after tooth extraction, were “mothballed” with the help of a self-shaving device obtained from the external oblique line of the lower jaw.

During this study, the following methods were used: clinical (interrogation, examination, palpation, auscultation), additional (panoramic radiography, computed tomography, targeted x-ray images).

Results and Discussion

In the first group, the group of patients after removal of the frontal groups of teeth used the technique of immediate dent alveolar reconstruction using a free connective tissue graft from the hillock of the upper jaw. In case of tooth loss along with violation of the integrity of the socket, the aesthetic risk increases. Damage to the hole, as a rule, is represented by a defect in the vestibular cortical plate due to its smaller thickness and less vascularization, thus, when the frontal group of teeth is removed, the vestibular wall can be partially or completely damaged. In order to prevent atrophy in the area of the extracted tooth, it was performed by replacing a bone defect with a free connective tissue graft from a hillock of the upper jaw. This 3-layer transplant (bone, periosteum, mucosa) was ideally integrated with all layers of the recipient zone. Success has been achieved in all cases. We believe that this technique should be widely used in the practice of a dentist surgeon and the practice of maxillofacial surgery.

The second group consisted of patients who were “mothballed” in the holes of the extracted teeth with automatic shavings. In this group, we relied on the Friedmann 2002 study and the goal was to use autogenous shavings as a space-supporting device that stabilizes a blood clot and prevents volume reduction and destruction of overlying soft tissues. Thus, autogenous chips were extracted from the oblique line of the lower jaw using a bone scraper and filled the hole of the extracted tooth with it. In addition, collagen membranes were used to preserve the material in the hole of the extracted tooth. In this group of patients, success was achieved in 16 of 18 cases in two cases, partial resorption of the material was noted on CT.

Conclusion

According to the study of the medical history, additional research methods and statistical data, possible early and late complications after the tooth extraction operation were identified. The observed aesthetic and functional deficiencies make it difficult for further prosthetics. It is extremely important to restore the integrity of the alveolar bone after surgery to remove teeth in the jaws. The reduction in bone volume complicates the further prosthetics of patients with removable and fixed structures. Bone deficiency can lead to impossibility or failure of bone tissue. The operation of bone grafting with the use of auto bone and connective tissue grafts is effective for removing, defects and deformation of the jaw after surgery, the extraction of teeth of which provides the possibility of further full-fledged prosthetics, which leads to an improvement in the quality of life of patients.

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