

**ADVANTAGES AND DISADVANTAGES OF ONE-STAGE IMPLANTATION IN
COMBINATION WITH SINUS LIFTING**

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Abstract. This article explores the clinical and procedural aspects of one-stage implantation combined with sinus lifting, a common approach in dental implantology for cases of maxillary atrophy. The method's advantages, including reduced treatment time, improved patient compliance, and cost-effectiveness, are analyzed alongside its disadvantages, such as surgical complexity and potential complications.

Keywords: one-stage implantation, sinus lifting, dental implantology, maxillary atrophy, treatment time.

INTRODUCTION

In case of long-term atrophy of the alveolar process of the upper jaw in the distal sections, the use of endosseous osseointegrated implants is very difficult [1]. After the extraction of teeth in the lateral section of the upper jaw, bone resorption often occurs through pneumatization of the maxillary sinus. It is possible to install implants in this area only with a combination of sinus lifting and bone grafting. As a rule, this operation can be performed in one or two stages.

MATERIALS AND METHODS

When implanting in the maxillary sinus area in case of insufficient bone tissue, open and closed sinus lifting techniques are used [2]. Although the operation to lift the bottom of the maxillary sinus has been known since the 60s of the last century, a number of unresolved issues remain when performing it with the simultaneous installation of dental implants [3]. In recent years, a sufficient number of different techniques have been developed in order to help patients with significant atrophy of the upper jaw, such as autotransplantation of bone blocks, lifting the lower wall of the nasal cavity, etc., aimed at improving the conditions for installing implants. Nevertheless, one of the most popular techniques that has become quite widespread is sinus lifting [4].

We observed 13 patients with various forms of adentia and varying degrees of atrophy of the alveolar processes of the upper jaw in the distal section. Before the surgical intervention, all patients were examined. The examination included anamnesis, general examination,

examination of the oral cavity, instrumental determination of the volume of alveolar bone tissue, study of diagnostic jaw models, orthopantomograms, and targeted X-ray images. During the examination, various types of dental defects, the degree of alveolar bone tissue atrophy, the volume and localization of dental defects were taken into account.

After examination, all patients were offered to undergo surgical intervention to raise the bottom of the maxillary sinus - sinus lifting in order to increase the volume and height of the alveolar process for the purpose of installing dental screw implants.

All 13 patients underwent open classical sinus lift surgery with both immediate and delayed installation of dental implants. One patient underwent sinus lift surgery with delayed installation of implants because the bone height and volume were less than 4 mm. The remaining patients underwent sinus lift surgery with immediate installation of screw dental implants. Two of them underwent bilateral sinus lift surgery with immediate installation of dental implants. The bone plastic material used was a combination of Bio-oss (Geistlich Biomaterials), autologous bone and autologous blood, as well as bioresorbable membranes Bio-Gide (Geistlich Biomaterials).

Under local anesthesia Sol. Ubistesin forte 4%, mucoperiosteal flaps are cut out and peeled off on the edentulous area of the alveolar process of the upper jaw. Under abundant cooling with saline solution, the outer compact plate of the alveolar process of the upper jaw is opened with a spherical bur using a physiodispenser. Small points of bone perforation are marked along the upper border of the cut, after which an opening is created by tapping and using special curettes. Then, using special cutters at low speeds (about 400-500 rpm) with minimal pressure, a channel-bed for a screw implant is formed. In order to avoid perforation of the mucous membrane lining the sinus walls, mandatory depth control was carried out. Then, the mucous membrane of the sinus floor is carefully peeled off from the bone base. The bone wound is cleaned. The resulting cavity was then filled with Bio-oss bone-plastic material in combination with autogenous bone taken during the formation of the implant bed, mixed with the patient's blood. The bone material was advanced toward the sinus floor. Then a screw implant was installed in the prepared bed. The cavity filled with bone material was delimited with a bioresorbable Bio-Gide membrane, and the mucoperiosteal flaps were tightly sutured.

RESULTS AND DISCUSSION

All the operated patients had an uneventful postoperative period. Clinical and radiographic examination was performed after 8-10 months. Full osseointegration of the implants and formation of organotypic bone regenerate after plastic surgery were observed in 12 patients. In one patient who underwent bilateral sinus lifting, 5 implants had to be removed because they did not take. In our opinion, this happened because the patient immediately after the operation began to wear a removable denture, which could affect the primary stabilization of the implants. In the remaining patients, no signs of inflammation of the peri-implant tissues, mobility of the implants and dentures, or radiographic signs of progressive bone resorption in the area of the implant necks were detected during subsequent clinical observation and radiographic examination. The results of our treatment were assessed as positive.

CONCLUSION

Thus, the operation to lift the floor of the maxillary sinus is a rather complex procedure that requires patient observation in the postoperative period. This operation requires fulfilling all the conditions of the technique, that is, creating an isolated space for bone regeneration, separating this space from other tissues using a membrane, and maintaining the created volume for the required period.

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