



## IMPROVING THE EFFICIENCY OF DENTAL IMPLANTATION OF THE UPPER JAW USING THE "ROOT MEMBRANE" METHOD

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### KEY WORDS

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### ABSTRACT

*The article discusses the role and importance of phraseology in the development and enrichment of speech in primary school students. The influence and special role of phraseology in increasing the clarity and effectiveness of speech was also analyzed because the speech of primary school students was narrow.*

One of the limiting factors for the widespread implantation is the insufficient volume of bone tissue for the installation of the implant.[1] The process of dental implantation into the frontal part of the upper jaw, which is atrophied at a high level or accompanied by a vertical fracture of the teeth, requires additional bone products and a long rehabilitation period, the reason for this is, that the vestibular plate of the frontal part of the upper jaw is thin and it is characterized by a fracture during tooth extraction.[2] Bone atrophy after tooth extraction is one of the most important issues of modern dentistry, since significant atrophy of the bone tissue of the jaws makes it impossible to perform intraosseous implantation, and also creates serious difficulties in the orthopedic treatment of patients.[3]

**The purpose of the study.** The study of dental implantation using the "root membrane" method in the upper jaw to

increase the efficiency of preservation of the dental-alveolar segment.

#### **Research objectives:**

1. The study of dental implantation by the "root membrane" method carried out due to complications of caries or fracture of teeth on the example of clinical, radiological and laboratory parameters.

2. Comparison of the results of the indicators of the traditional method and the "root membrane" method, to improve the efficiency of preserving the dental-alveolar segment.

**Materials and methods :** We treated 22 patients, aged 35 to 50 years, who came to us for dental implantation with partial dental adentia in the anterior part of the upper jaw, with chronic apical periodontitis and a tooth root fracture when it was impossible to restore these teeth with orthopedic structures.. There are 12 men and 10 women among them.



**Methods:** Clinical research methods, Radiation research methods (CBCT), Histological research methods.

Clinical example

The patient is 45 years old. Complaints: pain in 21 teeth; fracture in the crown of the tooth; the remainder of 1/3 of the crown of the tooth. Diagnosis: Chronic periodontitis of the 21st tooth.

Treatment plan: Traditional immediate implantation



Figure 1.

Figure 1. Fracture of the crown part of the 21st tooth, there are traces of filling material, it is clear that the tooth is not subject to endodontic treatment. After antiseptic treatment in the oral cavity, local infiltration anesthesia was performed.



Figure 2.

Figure 2. With the help of the ironer tool, the ligaments around the tooth were detached and with the help of the luxator, the tooth was loosened.

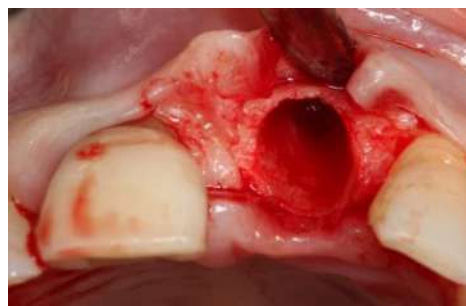


Figure 3.



Figure 4.

Figure 3. The tooth is removed. Curettage of the tooth well was performed. With the help of implantological instruments, the places for the implant was prepared.

Figure 4. Implant placement in the places.



Figure 5.



Figure 6.

Figure 5. The upper part of the implant was closed with a plug. Figure 6. The space around the implant was filled with additional synthetic bone material and free connective tissue taken from the palate.





Figure 7. Stitches are placed on the wound



Figure 8. Overview of the patient's oral cavity from different angles

### The "root membrane" method

This method is also known as partial extraction therapy, root membrane method, and partial root retention. It is aimed at preserving two-thirds of the buccal part of the root in the nest so that the periodontium, along with the bundle bone and the buccal bone, remains intact.[4] The buccal bone has a bilateral blood supply from the gum from above and the periodontal from below. After tooth extraction, the buccal bone is deprived of blood supply from the orbit, and this leads to the loss of part of the buccal bone. The root section preserves the periodontal attachment apparatus, which includes the periodontal ligament (PDL)[5], attachment fibers, vascularization, root cement, bundle bone and alveolar bone. The root fragment remains vital and intact and prevents the expected remodeling of the nest after extraction, as well as supports the cheek/ facial tissues.

### A clinical example using the root membrane method

The patient is aged 35 years. Complaints: pain in the 12th tooth; fracture in the crown of the tooth; aesthetic discomfort. Diagnosis: Chronic periodontitis of the 12th tooth (entodontic treatment is unprofitable).

Treatment plan: Implantation by Root membrane method.

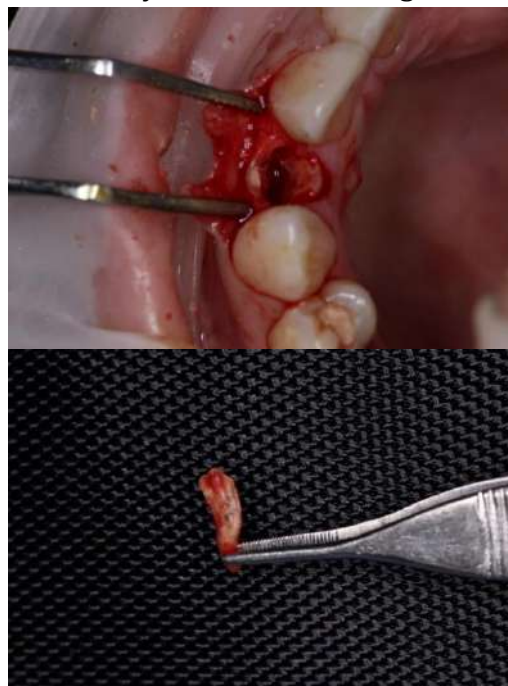


Figure 9. Separation of the vestibular and oral fragment of the root of the 12th tooth.

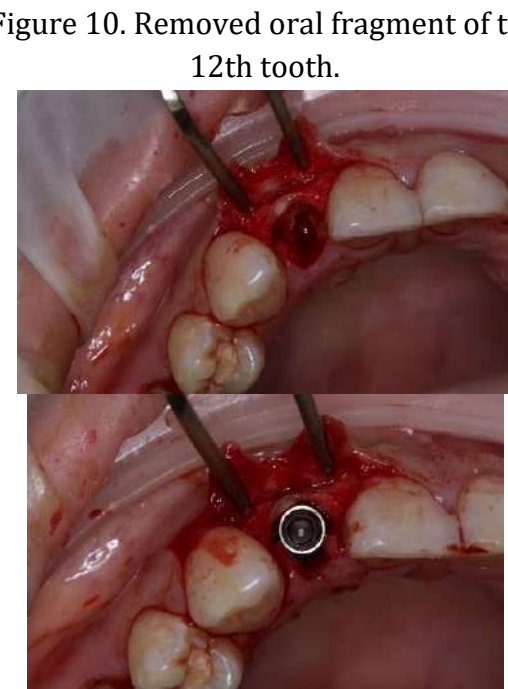


Figure 10. Removed oral fragment of the 12th tooth.





Figure 11. Mechanical and drug treatment of the fragment vestibular root. The bed for the implant has been prepared. Figure 12.

An implant is installed in the prepared places.

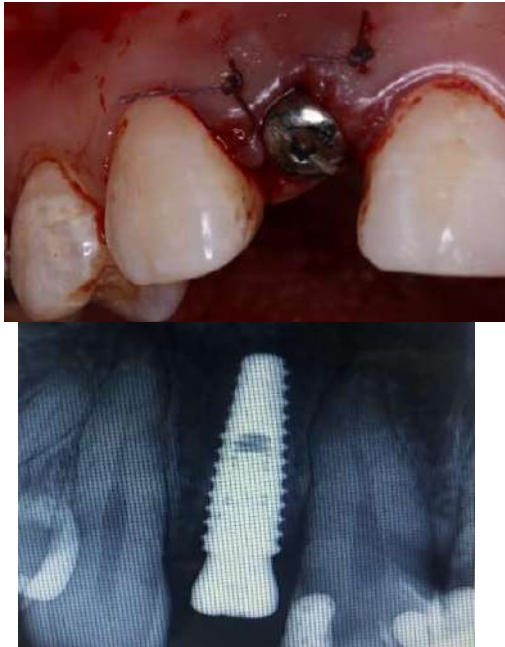


Figure 13. A gum shaper is installed on the implant. Stitches are supplied. Figure 14. X-ray image after implant placement

**Research results:**

In the postoperative period, the patients underwent antibacterial therapy for 5-7 days, if possible taking into account the sensitivity of the seeded microflora. The patients complained only of a postoperative wound, moderate pain and swelling. Soreness in the area of the surgical wound stopped for 2-3 days. The skin and oral mucosa in the area of the surgical field are clean, not hyperemic. Moderate swelling of soft tissues was observed in the wound area for 2-3 days. The patients were given daily irrigation of wounds. The stitches were removed on day 7-8.

When checking patients who were treated by the traditional method, it was determined that  $2.6 \pm 1.5$  months were spent for osseointegration. the methods are

set. In addition, osteoresorption was observed in the vestibular plate, that is, changes from  $11.14 \pm 1.2$ mm were observed before surgery and up to  $6.8 \pm 1.5$ mm after surgery. At the same time, changes in the interdental papillae and the zenith of the gingival contour, changes in the biotype of soft tissues, fixation of the vestibular bone wall contributed to a decrease in aesthetic results. At the same time, when carrying out the established methods of checking patients treated with the root membrane method, it was revealed that it took  $1.8 \pm 0.7$  months for osseointegration. In addition, noticeable changes were detected during osteoresobtion of the vestibular plate, i.e. before surgery  $9.14 \pm 0.8$ mm and after surgery  $8.6 \pm 0.2$ mm.

Thus, it can be said that the operation leads to continuous and predictable osseointegration by minimizing the loss of cheek bones caused by the remodeling of the socket, which occurs after extraction.

**Conclusion:**

As the study shows, the reason is that when a fragment of the buccal root is intentionally left, the blood supply will be maintained uninterrupted, and, consequently, the dimensions of the alveolar process can be preserved. Based on these data, we can conclude that the root membrane method is a safe treatment method that ensures a high percentage of implantation success. In addition, this unique technique can ensure the stability of the size of facial and soft tissues around the implantation site without the use of additional biomaterials, such as bone grafts. The dental fibers preserved in the root fragment enhances the aesthetics of soft tissues when they are in the process of aesthetic immediate implant placement.





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