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Bone Plant: Innovation in alveolar ridge one-step reconstruction and implantation

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Statement of the Problem: Dental rehabilitation in edentulous patients with severe maxillary resorption has traditionally been treated with bone grafting to restore the alveolar ridge. This complex technique has a number of problems, including unpredictable medium to long term success rates and overall cost. The search for new methods and materials dictates a search for the development of less invasive approaches.

To avoiding these complications we suggest new solution – BonePlant.

Objectives: The purpose of the study was to assess the effectiveness of using a Bone Plant implant in individuals who had various degrees of alveolar ridge erosion..

Materials and Methods: This clinical study included 17 patients (30-78 years old) 11 maxillary and 6 mandible, with different stages of alveolar ridges resorption, with functional and aesthetic complaints requiring and with follow up period of average 4 years. To plan implant therapy, clinical, laboratory, and computed tomography techniques were employed.

There are 49 implants total in the bone plant. Approximately 4 months after the procedures, loading began. In the clinic, prosthetics were created in accordance with approved procedures. Fixed prostheses on implants were used to rehab the patients, with good aesthetic and functional outcomes.

The following factors were examined in order to assess the effectiveness of prosthetic rehabilitation: implant success, prosthesis survival, and implant marginal bone level (MBL). MBL was assessed by digital x-ray were taken immediately and 3 months, 1 year, and 4 years after implant installation. A subsequent CT scan was done to evaluate the implant's precision.

Results: There were no significant intraoperative or immediate postoperative problems during the postoperative periods in any of the patients. Clinical and X-ray investigations six months after the prosthetic rehabilitation revealed no evidence of inflammation around the implants. We had one instance where an implant was revealed as a result of using the incorrect surgical approach, therefore we had to perform a second surgery to hide the exposed wound. Unfortunately, an infection caused us to lose 2 bone plant implants.

After 3 months loss of the marginal bone of 0.2 ± 0.25 mm (MBL), after 12 months of observation, there was a slight loss of the marginal bone over time $0,8 \pm 0.48$ mm (MBL), $1,3 \pm 0.32$. mm (MBL), after 4 years of observation. After 5 years, the effectiveness of implants was 97.4%.

Conclusion: Bone plant is a cutting-edge solution that allows us to concurrently implant and restore a variety of alveolar ridge abnormalities, minimizing additional risks associated with conventional methods. The achieved graft is extremely reliable and provides the option to load in less time.

Recent Publications

1. Hakobyan, G., Boyadjian, A., Boyadjian, M, Harutyunyan A. et al. Clinical advantages of improving the excessive gingival display (EGD) by surgical repositioning of the upper lip. *Clin Oral Invest* 26, 7265–7275 (2022).
2. Hakobyan G. et al. Clinical Outcome of Immediate Loading UV-Photofunctionalized Implants in Patients with Completely Edentulous Mandible, Placed with Guided Surgery. *J. Maxillofac. Oral Surg.* (2022). DOI:10.1007/s12663-022-01798-z
3. Hakobyan G. et al. Evaluation of the survival rate of short implants placed in the posterior atrophic mandible: 5-year clinical study. *Quintessence Int* 2022 Aug 17;53(8):690-696.

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Biography

Edwin Rostami is a distinguished and highly accomplished oral and maxillofacial surgeon, renowned for his expertise in treating complex oral and maxillofacial problems and diseases. With a wealth of surgical experience and a commitment to excellence, Dr. Rostami has made significant contributions to the field of oral and maxillofacial surgery. Dr. Rostami's vision and leadership shine through in his role as the Owner and Director of the "Imperial Implant Center" LLC. In this capacity, he has overseen the growth and success of this esteemed institution, known for its excellence in oral and maxillofacial surgery. His responsibilities extend beyond the operating room, as he also coordinates the daily activities of the clinical and administrative staff, ensuring that patients receive the highest level of care and service.

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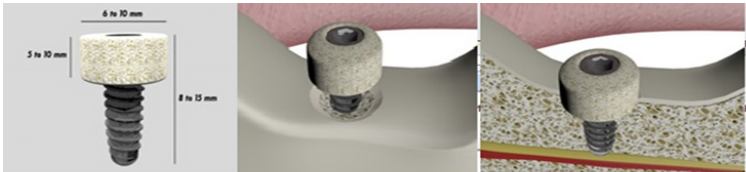


Fig. 1,2,3 Bone Plant combination of cylindric allograft bone and implant fixture

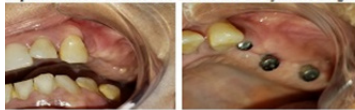


Case 1 Fig. 7,8,9 After exposure of the alveolar bone segment, the bone site of implant is prepared, after which the implant fixture is inserted into the site and the cylindric allograft bone fills the bone defect.

Case 2



After exposure of the alveolar bone segment, the bone site of implant is prepared, after which the implant fixture is inserted into the site and the cylindric allograft bone fills the bone defect.



Case 2 Fig. 18,19,20 before the installation of abutments, the gum healings formers were removed



Case 2 Fig. 21,22 Final prosthetics with a ceramic-metal bridge based on implants. X-ray after implantation