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Bone Regeneration
After Procedure for
Preservation of Alveolar
Ridge with BONDBONE®



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Bone Regeneration After Procedure For Preservation of Alveolar Ridge With BONDBONE®

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Introduction

Ridge augmentation techniques are an option after tooth extraction. This procedure is done in order to prevent the loss of bone as a result of atrophic changes that may occur in time. We can say that for the current widely used alloplastic materials based on betatricalcium phosphate and hydroxyapatite the resorption time is 6 - 9 - 12 months². This fact needs to be taken into consideration, when placing an implant in an area with guided bone regeneration. The need for using a membrane to immobilize the bone graft and covering it with a flap increases the complexity of the procedure. The following case study demonstrates the capabilities of biphasic calcium sulphate (BONDBONE®) as a bone graft material that provides predictable results and bone regeneration 4 months post application.

Aim

This case was chosen to present the histopathology result of bone regeneration in a clinical case of conventional implant placement after augmentation of the alveolar ridge using BONDBONE®.

Methods And Materials

A patient, 55 years old with multiple restorations on teeth - #17_16_15_#14; #23_24_#25_#26; #34_35_36_#37; #44_45_46_#47 arrived at the clinic with a chief complaint related to tooth #14. The restorative work was completed five years ago. After the removal of the maxillary right bridge, tooth #14 was diagnosed with class 2 mobility and a periapical lesion, and was indicated for extraction. After an atraumatic extraction, the socket was filled with BONDBONE® without covering the graft with a membrane. Free gingival autotransplant from the neighboring toothless area was mobilized. The gingiva of the extraction wound was fixed with a modified vertical mattress suture and the gingiva graft was fixated with sutures. After four months a mucoperiosteal flap was opened in order to place dental implants in the area of #14, #15 and #16. Bone biopsy was taken with a trephine bur from the sites of the future implants. Sample 1 was taken from the BONDBONE® site, and Sample 2 from patient's own bone from site #15. Histopathology was performed at the Military Medical Academy, Department of Patomorfolgy, Autopsy and Biopsy diagnostics.

Their report states: "Fragment of spongious bone with fibrosing of the bone marrow spaces¹." The results of the biopsy are available at the importers office: "Labtechnology" Ltd. "Vranya" 82 str. Tel: 02/8320888

Conclusion

The presented clinical case confirms that BONDBONE® can be used with predictable success in cases where the bone volume of the alveolar ridge needs to be preserved. The fact that there is no need to use an immobilizing membrane, as well as the quick hardening of the material in the presence of oral fluids are just two of the most significant advantages of the material. It should be emphasized that there is no similar bone grafting material that demonstrates such histomorphological results within such a short period of time. Obviously, the product will be subject to further research.

References

¹ Karl-Erik Kahnberg-Bone Grafting Techniques for Maxillary Implants 2005 Martin Dunitz-Implants and Restorative Dentistry 2001.

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Case 1



Fig. 1 Initial condition prior to extraction of #14 (14.06.2010)



Fig. 2 Clinical condition prior to extraction of #14 (16.06.2010)



Fig. 3 Post extraction



Fig. 4 Socket is filled with BONDBONE®



Fig. 5 Adjustment of a free gingival transplant



Fig. 6 Sutured area

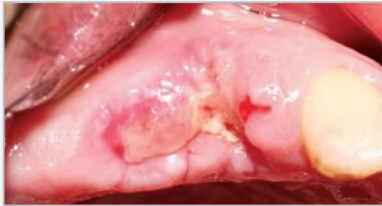


Fig. 7 Following suture removal (25.06.2010)



Fig. 8 Clinical view prior to implants placement (16.10.2010), 4 months after tooth extraction

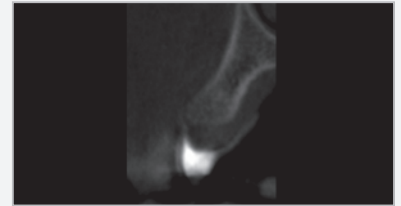


Fig. 9 CBCT of the area. Note bone volume preserved by use of BONDBONE®

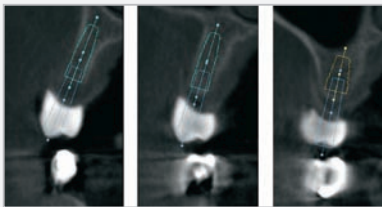


Fig. 10 Planning of the implant position



Fig. 11 Bone biopsy was taken using a trephine bur from the area of #14, #15 and #16

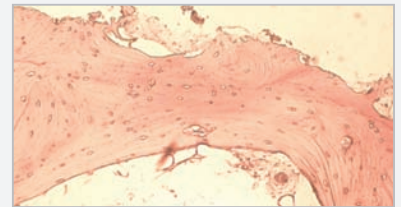


Fig. 12 Sample 1- histology

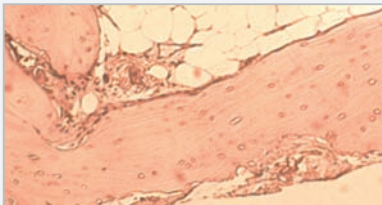


Fig. 13 Sample 2- control area

Case 2



Fig. 1 Implants at day of placement



Fig. 2 Sutures



Fig. 3 Post operative radiograph



Fig. 4 Dental implants at day of exposure



Fig. 5 Final Image



Fig. 6 Final radiograph

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