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Implant survival following vertical and horizontal bone augmentation with a synthetic biphasic calcium phosphate: long-term follow-up datas.

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Introduction

Bone augmentation is frequently necessary to support dental implant placement procedures. Autogenous bone is considered to be the current gold standard for bone augmentation; however, only limited amounts of autogenous bone can be harvested at the implantation site. Furthermore this procedure may lead to morbidity problems.

Objectives

As an alternative, commercially available bone substitutes may be used to limit some of the drawbacks associated with autogenous bone. Straumann® BoneCeramic is a commercially available synthetic bone graft substitute comprising porous biphasic calcium phosphate, in the form of granules, which has been on the market since 2004. In this study we report long-term implant survival rate.

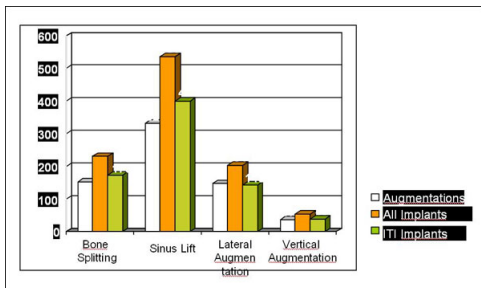


Fig. 1: Distribution of augmentation procedures and inserted implants

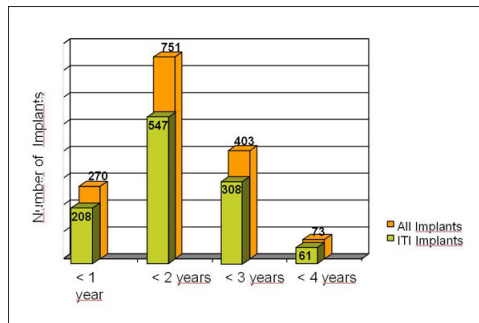


Fig. 2: Follow up distribution of inserted implants



Fig. 3: Survival- and failure rate of implants inserted in combination with Straumann BoneCeramic®

Material and Methods

In all indications, with exception of bone splitting, Straumann® BoneCeramic was used in combination with autogenous bone. For vertical augmentation procedures bone particles were first fixed to the alveolar ridge and subsequently covered by the synthetic graft particles. A resorbable collagen membrane was always used to protect and stabilize the augmentation site. Implants were mostly inserted simultaneously into the augmented bone. Functional loading occurred between 3 and 5 months post-surgery, depending on the indication.

Results

Between January 2005 and December 2008 we performed 332 sinus floor elevations, 153 bone splitting procedures, 148 lateral augmentations and 37 vertical augmentations using this new material. A total of 1025 dental implants, from various different manufacturers, were inserted.

We disposed of 3 years follow data for 73 implants placed, at least 2 years follow up data for 403 implants and at least 1 year follow up data for 751 implants.

Four implants were lost, three after sinus lifts and one following vertical augmentation. The overall success rate was 99.6%.



Fig. 4: Insertion of the implant (ITI®) after sinus elevation



Fig. 5: Surface covering with autogenous bone from the tuber region



Fig. 6: Straumann Bone Ceramic for complete filling of the augmentation site



Fig. 7: Covering of the sinus window with a resorbable membrane (Bio Gide®)

Conclusions

The result is encouraging, also in comparison to previous data obtained with the use of autogenous bone alone. The positive influence of the material on the healing process can be related to its osteoconductive and resorption characteristics.



Fig. 8: Panorex pre operative



Fig. 9: Panorex post operative

Literature

1. Zafiropoulos G.-G. et al.: Treatment of intrabony defects using GTR and autogenous Spongiosa alone for combined with HA/beta-TCP Bone Substitute or Bovine-Derived Xenografts, JPeriodontol 2007,78,2216
2. Jensen S.S. et al.: Evaluation of a novel biphasic calcium phosphate in standardized bone defects A histologic and histomorphometric study in the mandibles of minipigs, ClinOralImplRes 2007,18,752
3. Schwarz F. et al.: Guided Bone regeneration at dehiscence-type defects using biphasic HA/Beta TCP (Bone Ceramic) or a collagen-coated natural bone mineral (BioOss): an immunohisto-chemical study in dogs, IntJORAImaxillofacSurg 2007,36,1198
4. van Asche N. et al.: Bone Ceramic vs. BioOss bei der Behandlung von Dehiscenzen entlang Implantaten, ClinOralImplRes 2008
5. Chiapasco M. et al.: Maxillary sinus grafting with Bio-Oss or Straumann® BoneCeramic followed by delayed placement of Straumann Dental Implants

This Poster was submitted by *Andres Stricker*.

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Poster Faksimile:



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Poster 255 Topic: Long-term studies

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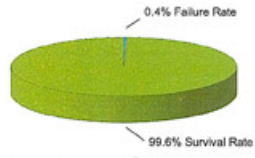


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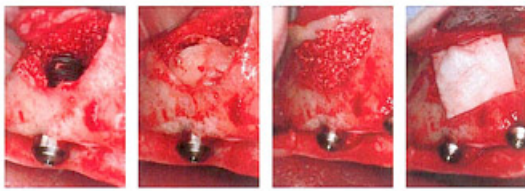
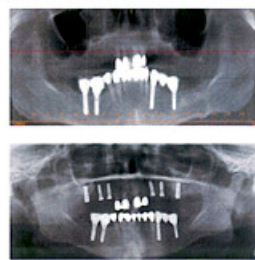



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References

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