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November
2010

Published in:

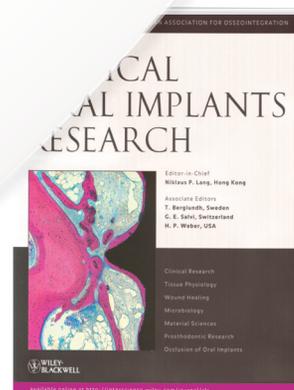
CLINICAL ORAL IMPLANTS RESEARCH

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Clinical evaluation of particulate allogeneic with and without autogenous bone grafts and resorbable collagen membranes for bone augmentation of atrophic alveolar ridges”*

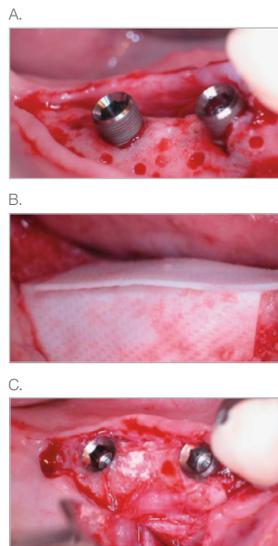
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*Beitlitum I, Artzi Z, Nemcovsky CE. Clinical evaluation of particulate allogeneic with and without autogenous bone grafts and resorbable collagen membranes for bone augmentation of atrophic alveolar ridges. Clin. Oral Impl. Res. 2010, 21(11): 1242–1250.



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“Clinical evaluation of particulate allogeneic with and without autogenous bone grafts and resorbable collagen membranes for bone augmentation of atrophic alveolar ridges”



(A) Implants were partly inserted to avoid injury to the inferior alveolar nerve. Coronal 3–4mm of the implants are not imbedded in the supporting bone, thus supporting the bone graft and membrane. (B) Following application of the bone graft, a ribose cross-linked collagen barrier membrane was applied in a selective bi-layered technique; the deeper layer completely covers the bone graft and underlying bone and the upper layer cover mainly the occlusal area. (C) Clinical aspect of the implants at the time of second-stage implant surgery. Note the new hard tissue formation, covering almost the entire extent of the implant surface exposed previously, compared with the situation at the time of implant placement as can be appreciated in (A).

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ABSTRACT.

Objectives

To evaluate the clinical outcome of bone augmentation with the use of particulate mineralized freeze-dried bone allograft (FDBA) with or without the addition of autogenous bone chips, applied in a bi-layered (BL) technique, covered by a resorbable cross-linked collagen membrane.

Materials and methods

Fifty patients presenting with a vertical and/or lateral ridge deficiency of at least 3mm were included: Group FDBA, N=27 patients, particulate FDBA was the only graft; and Group BL, N=23 patients, a BL bone grafting procedure where autogenous bone chips were the inner layer and FDBA the outer. Bone graft was covered with a ribose cross-linked collagen barrier membrane. Ridge dimensions were clinically or radiographically (computerized tomography scan) measured at the time of the bone augmentation procedure and at implant placement or uncovering and the maximum linear vertical or horizontal calcified tissue gain was calculated. Statistical analysis consisted of linear regression analysis, with maximum bone gain being the dependent variable.

Results

In the FDBA group, mean vertical bone gain was 3.47mm (SD 1.25) and the horizontal, 5mm (SD 1.28), while in the BL values were 3.5mm (SD 1.2) and 3.6mm (SD 1.72), respectively. Addition of autogenous bone does not appear to statistically significantly enhance the results. Spontaneous membrane exposure occurred in 24% of the cases and was the only variant that significantly influenced results ($P<0.001$).

Conclusions

Large vertical and/or horizontal ridge deficiencies may be treated with FDBA and ribose cross-linked collagen barrier membranes with good clinical outcome. No added effect of the application of a layer of autogenous bone in these bone augmentation procedures could be demonstrated. Spontaneous membrane exposure was the only parameter to affect the degree of new calcified tissue formation.