



Xenogenic flexible bone lamina graft: a successful alternative to the autogenous onlay bone block graft in alveolar ridge augmentation: a clinical, radiographic and histological evaluation

ABSTRACT

Several surgical procedures for vertical and horizontal bone augmentation have been described with the aim to produce sufficient bony structure for a proper functional and aesthetic placement of endosseous implants. In order to introduce an alternative to the use autogenous bone graft in alveolar ridge augmentation procedures, this study compared from a clinical, radiological and histomorphomtical point of view autogenous onlay block bone graft versus xenogenic flexible bone lamina graft when used in horizontal alveolar ridge augmentation.

Fourteen patients with a maxillary partially edentulous ridge requiring horizontal width augmentation were selected. Patients were randomly divided into two equal groups. Alveolar ridge augmentation was performed in group 1 using intraoral autogenous onlay block bone graft in addition to some particulate xenograft (OsteoBiol® Gen-Os® Tecness®, Giaveno, Italy) to fill the discrepancies around the block. In group 2, a xenogenic soft cortical bone lamina graft (OsteoBiol® Lamina, Tecness®) in addition to particulate xenograft (OsteoBiol® Gen-Os® Tecness®) was used. Xenogenic OsteoBiol® Cortical Bone Lamina graft is made of cortical bone of heterologous origin and after hydration become flexible and can be adapted to the defect morphology. In both groups, the alveolar ridge labiolingual horizontal width was measured before and after the augmentation procedures using the bone caliper (Com Dent, UK) and the Cone Beam Computed Tomography (CBCT). Bony specimens were obtained for histological evaluation and histomorphometric analysis. In autogenous bone graft group as well as in the bone lamina there was a statistically significant increase in bucco lingual ridge width immediately after graft placement. Measurements after 6, 9 and 12 months showed statistically significantly higher mean clinical bucco lingual ridge width than baseline measurement. Anyway, through the whole study period, no statistically significant difference between mean % changes in bucco lingual ridge widths in the two groups was found, nor in the mean bone surface areas and in mean osteoblasts counts.

CONCLUSIONS

Based on the outcomes of the study, the Authors concluded that *“the xenogenic flexible bone lamina graft can be used successfully in horizontal alveolar ridge augmentation as an alternative to the autogenous block onlay bone graft. We recommend further studies testing the same material in vertical alveolar ridge augmentation”*.

HORIZONTAL AUGMENTATION

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ORIGINAL ARTICLE
Journal of Dental Treatment and Oral Care
2017;1(1)

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