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Early volumetric changes after vertical augmentation of the atrophic posterior mandible with interpositional block graft versus onlay bone graft: a retrospective radiological study

ABSTRACT

When the residual height of the edentulous ridge in the posterior mandibles is not adequate to place implants, it is necessary to perform surgical augmentation treatments in order to gain a sufficient bone height for an implant placement in bone over the inferior alveolar nerve. Autologous bone grafting is considered the "gold standard" for bone augmentation techniques. However, the donor site morbidity, the increased operative time, the soft-tissue injuries and deficiencies in the quality and quantity of augmented available bone represent the disadvantages of this technique.
The aim of the present study was to evaluate volumetric and clinical outcomes of atrophic posterior mandibles treated with xenogeneic bone material inlay and autologous bone onlay grafting techniques. 20 patients were retrospectively sorted into two groups: the inlay group, in which the atrophic posterior mandible was grafted with equine xenogeneic interpositional cancellous bone block (OsteoBiol® *Sp-Block*, Tecnoss®, Giaveno, Italy); the onlay group, in which the atrophic posterior mandible was onlay-grafted with autogenous bone block from the iliac crest. Bone volumes at baseline and at 4 months after surgery were measured by computed tomography scans. Peri-implant marginal bone loss at 1 year was also recorded. After surgery, the height index showed a mean vertical augmentation height of 6.0 mm in the inlay-group and of 7.4 mm in the onlay-group. With reference to loss of vertical bone height during the graft healing, it was registered in both groups, but with no significant differences between the two groups.

CONCLUSIONS

The success rate of the autogenous onlay blocks (82.4%) seemed to be lower than that recorded in patients who had undergone vertical augmentation with interpositional blocks of cancellous equine bone (93.8%); moreover, implants placed in onlay autogenous grafts showed greater bone loss than those inserted in inlay-augmented areas.
Based on the results of this study, the Authors affirm that there is a significant role for the interpositional technique in cases of atrophic posterior mandible. In their opinion, *"xenogeneic cancellous bone blocks grafted in a posterior mandible presenting vertical defects from 3 to 7 mm, performed with an interpositional technique, appeared to be an effective surgical procedure, showing a volumetric bone remodeling similar to that recorded for autogenous bone grafted with an onlay block procedure"*.

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VERTICAL AUGMENTATION

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