



## Vertical ridge augmentation of atrophic posterior mandible using an inlay technique with a xenograft without miniscrews and miniplates: case series

### ABSTRACT

Even if the rehabilitation of partially or totally edentulous posterior mandible with implant supported prosthesis has become a common practice, local conditions of the edentulous ridges may be unfavorable for implant placement and a vertical and horizontal augmentation may be necessary. In case of an horizontal osteotomy with the interposition of bone in the form of a "sandwich" to augment the alveolar ridge, it has been reported that the use of miniscrews and miniplates increases the risk of fracture of the osteotomy segments. The purpose of this study was to use an inlay technique, without the use of miniscrews and miniplates for stabilization of the transported bone fragments. 9 consecutive patients (6 men and 3 women) aged between 26 and 51 years were enrolled in this study. A horizontal osteotomy was performed 2-3 mm above the mandibular canal, and two oblique cuts were made using a piezosurgery device. As the patients refused the harvesting of autogenous bone, an inlay procedure was proposed using blocks of collagenated cancellous equine bone (OsteoBiol® Sp-Block, Tecnos®, Giaveno, Italy) without miniscrews and miniplates. The blocks were inserted mesially and distally between the cranial osteotomized segment and the mandibular basal bone. The residual space was filled with particles of cortico-cancellous porcine bone (OsteoBiol® Gen-Os®, Tecnos®). A resorbable collagen membrane (OsteoBiol® Evolution, Tecnos®) was applied above the buccal surface of the surgical site.

4 months after surgery, the Authors proceeded with the implants insertion. The postoperative course was uneventful in 7 of the 9 patients. No dehiscence of the mucosa was observed at the marginal ridge of the mobilized fragment. Newly formed bone was present near the osteotomized segments, and was observed to be in close contact with the particles of biomaterials. No gaps or connective tissue were present at the bone-biomaterial interface. Histomorphometrical results showed:  $44 \pm 2,1\%$  newly formed bone,  $18 \pm 0,8\%$  marrow spaces,  $33 \pm 2,4\%$  residual grafted material.

### CONCLUSIONS

From the results of this study, it is possible to suggest that the equine collagenated block can be considered as a good material for bone regeneration in inlay grafting procedures in atrophic posterior mandibles. As noted by the Authors, "the rigidity of the equine collagenated block allowed to eliminate the use of miniscrews and miniplates and simplified the technique. Besides, the rigidity of the block allowed maintenance of the space".

### VERTICAL AUGMENTATION

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