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Vertical ridge augmentation of an atrophic posterior mandible with an inlay technique and cancellous equine bone block: a case report

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ABSTRACT

In the augmentation of atrophic posterior mandible, the inlay technique proved to be reliable and successful. For this technique, both autogenous bone and xenografts are used with similar results. Nevertheless, the use of xenografts has been associated with some disadvantages, such as persistence of residual material due to their slow rate of resorption and the need of their stabilization by means of titanium bone plates and miniscrews. In order to overcome the postsurgical patient morbidity, researchers have examined new graft materials, for examples a cancellous equine bone graft that does not require miniplates or miniscrews, thereby avoiding the need for subsequent surgery to remove these components.
In this article, the Authors describe a successful implant prosthetic rehabilitation in an atrophic left posterior mandible in a 62 year old man using a cancellous equine bone block as grafting material. In order to allow subsequent implant placement for the prosthetic rehabilitation, an inlay procedure using a cancellous equine bone block (OsteoBiol® *Sp-Block*, Tecnoss®, Giaveno, Italy) was proposed. After the cancellous equine bone block graft material have been shaped and placed between the cranial osteotomized segment and the mandibular basal bone, a resorbable collagen membrane (OsteoBiol® *Evolution*, Tecnoss®) was applied to the buccal surface of the surgical site. As underlined by the Authors, *"the block used in the present study was produced following a method that avoids a ceramic coating of hydroxyapatite crystals, thereby enhancing the speed of physiologic resorption. The presence of collagen makes these blocks more compact and less fragile than other commercial blocks, allowing them to be shaped and fixed without a high risk of breakage and placed without bone plate fixing. Furthermore, the presence of collagen promotes blood clotting and invasion of regenerative and reparative blood cells"*.

CONCLUSIONS

The histological evaluation showed new bone formation within the cancellous portion of the blocks and no foreign body reaction and the computed tomography and conventional radiography showed a 5 mm mean vertical bone gain. The new bone was in intimate contact with the biomaterial at all sites; no empty space was observed between the bone and the biomaterial at high magnification. The vertical bone gain obtained allowed the surgeon to insert an implant of adequate length for a reliable fixed prosthetic rehabilitation.
Based on these results, the Authors concluded that *"Cancellous equine bone grafts may be an effective alternative to autogenous bone and inorganic bovine bone grafting for reconstruction of the posterior mandible using the inlay technique"*.

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