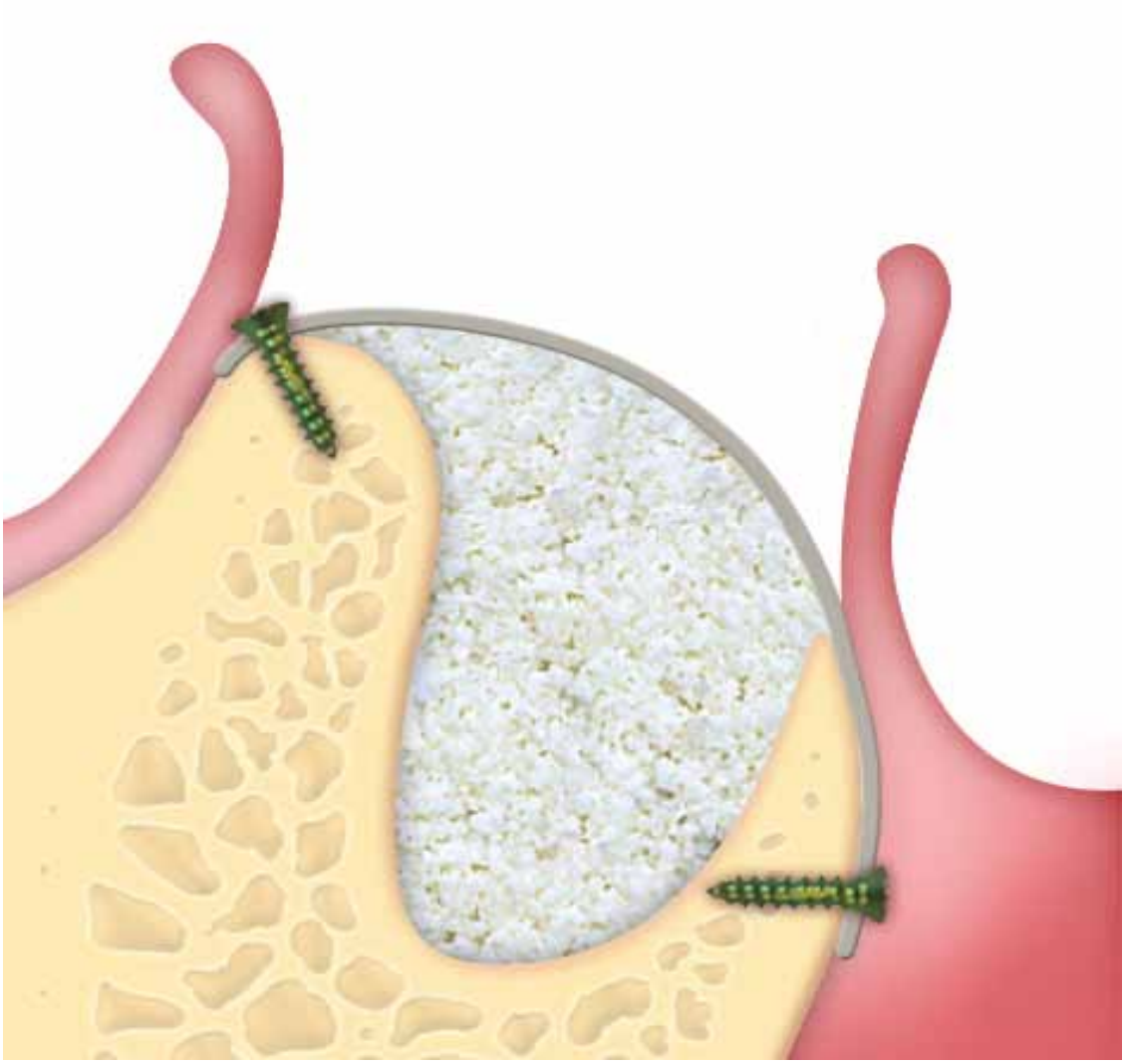
Horizontal augmentation



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HORIZONTAL AUGMENTATION

064

The Bone Lamina Technique: a novel approach for lateral ridge augmentation - a case series

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ABSTRACT

Even if nowadays dental implants are considered a successful option for the treatment of edentulousness, resorption of the alveolar ridge is still a concern as it may interfere with optimal three dimensional implant placement. In order to overcome this problem, different guided bone regeneration (GBR) technique have been suggested. As collagen membranes and nonresorbable membranes reinforced with titanium both present some drawbacks, in this case series the Authors present a different treatment approach for lateral ridge augmentation, called "Bone Lamina Technique". This technique uses a xenogenic cortical bone shield in combination with particulated bone substitutes and a thin collagen barrier, resulting in a biocompatible and mechanically stable concept for space maintenance and blood clot protection.
Four systemically healthy patients (aged 48 to 59 years) with inadequate dental alveolar ridge widths were selected for inclusion. All ridge defects were augmented using a xenogenic cortical bone shield (OsteoBiol® *Lamina*, Tecnoss®, Giaveno, Italy) in combination with a particulated bone substitute (OsteoBiol® *mp3*®, Tecnoss®) and a thin collagen barrier (OsteoBiol® *Evolution*, Tecnoss®) positioned on top of the bone Lamina. At re-entry surgery, biopsy specimens were harvested for histologic analysis and the results revealed a sufficient amount of bone structure for implant placement without additional augmentation procedures.

CONCLUSIONS

After the GBR, in all cases it was possible to place one or two implants without the need for additonal augmentation procedures. Postoperative healing was uneventful, and clinically healthy mucosa without signs of infection covered the defect after 5 to 6 days.
The Authors affirmed in their conclusions *"this case series inaugurated a novel clinical approach for lateral ridge augmentation, the Bone Lamina Technique. Re-entry surgery revealed that sufficient amount of bone was achieved in all treated cases and implants could be placed without an additional augmentation procedure. Histology revealed osteoconductive properties of the material and also indicated that resorption of the cortical Lamina had taken place. Therefore, this approach may have the potential to act as a biologic and stable barrier technique for augmentation procedures"*.

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Vertical splitting of the mandibular body as an alternative to inferior alveolar nerve lateralization

HORIZONTAL AUGMENTATION

065

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ABSTRACT

The inferior alveolar nerve lateralization (IANL) technique allows placement of longer implants, gives better initial stabilization and reduces the treatment time, but nerve repositioning is a complex procedure, with a high risk of complications. This is why, in this article, the Authors present the vertical ridge-splitting technique as an alternative to IANL in order to allow the placement of longer implants for the rehabilitation of severely atrophic posterior mandibles. The ridge-splitting/expansion technique consists in the creation of a new implant bed by longitudinal osteotomy of the alveolar bone. The buccal cortex is repositioned laterally by green stick fracture and the technique is usually performed simultaneously with implant placement and significantly shortens the treatment time.
In this study, 143 patients, who had between 1.8 and 8 mm residual crestal height above the mandibular canal, were treated with the vertical splitting of the mandibular body, performed by piezoelectric surgery, followed by bone expansion and insertion of conical implants of 10 and/or 12 mm in length. The survival rate of the 636 implants inserted was of 99% at the end of 12 months, with minor complications.
As in one osteotomy the buccal cortical bone was fractured while screwing the implant, this was treated by creating perforations in the cortical bone for mechanical retention of the cortico-cancellous bone block (OsteoBiol® *Dual-Block*, Tecnoss®, Giaveno, Italy). Then, the site was covered by a collagen membrane (OsteoBiol® *Evolution*), with an uneventful healing.

CONCLUSIONS

The vertical ridge-splitting technique is a relatively simple procedure for the prosthetic rehabilitation of severely resorbed posterior mandibles. It can be performed in case of minimal bone height, allowing for greater implant stability, and minimizing the risk of neurological disturbance.
In one case treated in this study, it has been necessary to insert a cortico-cancellous bone block, covered by a collagen membrane which proved to support the proper healing.

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HORIZONTAL AUGMENTATION

095

Regeneration of atrophic crestal ridges with resorbable lamina: technical note

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ABSTRACT

Block grafts, both autologous and heterologous, and titanium grids are frequently used in surgical procedure aiming to increase the mandibular bone base, both horizontally and vertically, for implant purposes in atrophic distal ridges. In case of autologous block grafts, it is necessary to perform one operation in a donor site and a second one in the recipient size, with a considerable discomfort for the patient. Heterologous block grafts do not need two operations, but they do need the use of synthetic screws and pins for their fixation. Titanium grids are manageable with difficulties in the event of exposure and are removed with difficulty. In this work, a technique is proposed for the reconstruction of vertical and horizontal atrophic ridges with the use of a resorbable biomaterial of porcine origin, the cortical lamina, together with the collegenated and pre-hydrated granules and resorbable membranes of mesenchymal tissue (OsteoBiol® *Lamina,* OsteoBiol® *mp3®,* OsteoBiol® *Evolution*, Tecnoss®, Giaveno, Italy). Ten patients, 3 males and 7 females, aged between 30 and 58 years, received a procedure of mandibular bone regeneration of atrophic ridges, with the insertion of a total of 16 implants. The implants were stabilized on the basal bone, leaving a gap between the lamina and the surface of the implant itself so that it could be filled with osteoconductive biomaterial. A collagen membrane was used to slow resorption (OsteoBiol® *Evolution*, Tecnoss®) and to occlusally cover the defect. After 6 months, it was possible to see newly formed bone around the implants, and the complete integration of the previously inserted lamina.

CONCLUSIONS

The results demonstrated that the use of porcine cortical laminae with a thickness of 0.9 mm allows for the creation of a rigid moldable box, in which it is possible to use collagenated and granulated fillers that can be easily reached by blood vessels and transformed into bone in order to act as a support for the implant load. It has been demonstrated the good vascularization of the graft combined with the integration of the lamina, which does not need to be removed. Consequently, the Authors concluded "*our results allow us to propose this technique as a potential alternative to those used to date*".

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