



## Maxillary sinus augmentation: histologic and histomorphometric analysis

### LATERAL ACCESS SINUS LIFT

004

#### ABSTRACT

A limited quantity of bone volume, related to an excessive resorption of the alveolar bone following a tooth extraction and enlargement of the maxillary sinus, can complicate the implant placement in the posterior maxilla. In order to allow a predictable implant placement, sinus floor lifting and grafting have been proposed. In this study, the Authors aimed to compare from a histological point of view the use of 100% autogenous bone versus a combination of autogenous bone and cortico-cancellous porcine bone for the sinus floor augmentation procedure.

For this study, 18 patients were selected following these criteria: need for bilateral sinus lifting and grafting, presence of severe maxillary bone atrophy, presence of a residual maxillary sinus floor of less than 3 mm and presence of healthy systemic conditions. The surgery was performed under general anesthesia and the bone for grafting was harvested from the iliac crest.

Each patient received 100% autogenous bone in one randomly selected sinus (control side) and a 1:1 mixture of autogenous bone and cortico-cancellous porcine bone particles (OsteoBiol® Gen-Os®, Tecnos®, Giaveno, Italy) in the contralateral sinus (test side). The bony sinus windows were covered by a resorbable collagen membrane (OsteoBiol® Evolution, Tecnos®). 5 months after surgery, all patients received at least 2 implants on each side of the maxilla and bone biopsy specimens (2 from each side) were taken at the time of implant placement.

The histologic evaluation of the test sites at 5 months showed the presence of some residual cortico-cancellous bone particles and that the incompletely resorbed bone graft was well integrated and in complete continuity with the new bone tissue formation. No significant differences in bone percentages were observed in the bone biopsies from test and control sites.

#### CONCLUSIONS

In the present study, cortico-cancellous pig bone particles at 5 months became partially resorbed and surrounded by new woven bone. On the basis of the findings from this study, the Authors concluded that the cortico-cancellous pig bone particles have the capacity to support bone augmentation and can be successfully used in a 1:1 mixture with autogenous bone harvested from the iliac crest in case of severe maxillary atrophies (class V Cawood).

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#### ORIGINAL ARTICLE

The International Journal of Oral & Maxillofacial Implants  
2005; Jul-Aug; 20(4):519-25

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