



A 6-month histological analysis on maxillary sinus augmentation with and without use of collagen membranes over the osteotomy window: randomized clinical trial

LATERAL ACCESS SINUS LIFT

048

ABSTRACT

When in the posterior edentulous maxilla the bone volume is insufficient for implant placement, it is necessary to perform a bone augmentation procedure, including the elevation of the sinus membrane from the floor of the maxillary sinus in order to allow the placement of a bone graft. As there are some doubts about the need for using a barrier concurrently with a graft in sinus augmentation procedures, in this randomized clinical trial histological and histomorphometrical analysis were used to assess the effectiveness of the use of a membrane in lateral sinus augmentation procedures, investigating the effect of a resorbable collagen membrane over the osteotomy window on maxillary sinus augmentation healing. After the informed consent was signed, all patients enrolled for this study underwent at least one session of oral hygiene before the sinus elevation procedure. Maxillary sinuses were allocated to either a control (membrane) or test (no membrane) group, using a computerized random allocation process. All the patients were treated with the same surgical technique consisting of sinus floor augmentation via a lateral approach. After the elevation of the sinus membrane, the sinuses were grafted with a mixture of autogenous bone harvested from the lateral bone wall and collagenated cortico-cancellous porcine bone (OsteoBiol® mp3®, Tecness®, Giaveno, Italy) and the sinuses in the control group were covered with a reabsorbable collagen membrane (OsteoBiol® Evolution, Tecness®) and the mucoperiosteal flaps were sutured with reabsorbable sutures.

After 6 months and immediately prior to the implant placement, one bone biopsy was harvested from the lateral window and the bone samples were processed and forwarded to the Institute of Biomedicine, the Sahlgrenska Academy Gothenburg University, Sweden for histological examination.

CONCLUSIONS

On the basis of the results of the histological and histomorphometrical analysis, the Authors concluded that compared with sites which were not covered, the use of the membrane may slightly increase the amount of vital bone over a period of 6 months and the use of a membrane seems to reduce the proliferation of the connective tissue and the graft re-absorption rate. Anyway, further studies are needed to explore the advantages of the use of membranes for the sinus augmentation procedure and the influence on the amount and quality of regenerated bone.

A Barone¹
M Ricci¹
U Covani¹
RF Grassi²
A Quaranta³
U Nanmark⁴

1 | Department of Surgery, University of Pisa, Tirrenian Stomatologic Institute, Versilia Hospital, Lido di Camaiore, Italy
2 | Department of Surgery and Dentistry, University of Bari, Bari, Italy
3 | Department of Dentistry, University of Rome "La Sapienza", Rome, Italy
4 | Institute of Biomedicine, The Sahlgrenska Academy Gothenburg University, Gothenburg, Sweden

ORIGINAL ARTICLE
Clinical Oral Implants Research
2013 Jan; 24(1):1-6

Grafted with
BONE SUBSTITUTE
OsteoBiol® mp3®
MEMBRANE
OsteoBiol® Evolution