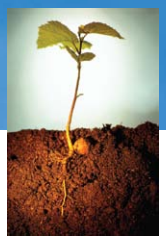

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Tomographic evaluation of the influence of the placement of a collagen membrane subjacent to the sinus mucosa during maxillary sinus floor augmentation: a randomized clinical trial

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ABSTRACT

During a sinus floor augmentation procedure, a perforation of the sinus mucosa may occur with a percentage varying between 10 and 55%. If the perforation has large dimension, it is necessary to close it by means of sutures or fibrin glue, or to protect it with collagen membranes. As there is still lack of information regarding the advantages of the use of a membrane placed subjacent to the sinus mucosa, the aim of this randomized clinical trial was to study the influence of a collagen membrane on the dimensional changes of augmented maxillary sinus floor. For this trial, twenty patients were recruited and randomly assigned to two groups: test and control. After the elevation of the maxillary sinus mucosa, a collagen membrane with standardized dimensions was placed at the test sites subjacent to the sinus mucosa and the elevated space was filled with a xenograft, both at test and control sites. A collagen membrane was then used to cover the antrostomy at both sites, and sutures were applied to close the wounds.

The filler material used was a collagenated corticocancellous porcine bone granules (OsteoBiol® *Gen-Os*®, Tecnoss®, Giaveno, Italy). The membrane used subjacent the sinus mucosa at the test sites as well as to cover the antrostomy at both test and control sites was an equine collagen membrane (OsteoBiol® *Evolution*, Tecnoss®).

All the patients were subjected to Cone beam computed tomographies (CBCTs) before surgery (T0), after 1 week from sinus floor augmentation (T1), and after 9 months of healing (T2). Dimensional changes over time of soft and hard tissues were evaluated on the CBCTs. The primary outcome variable was the change in height of the elevated sinus floor zone between 1 week and 9 months. The secondary outcome variable was the area variation of the elevated zone between 1 week and 9 months. After 1 week of healing, the sinus floor was elevated by 10.0±2.8 mm and 10.6±2.5 mm at the no-membrane and membrane groups, respectively. After 9 months of healing, a similar reduction of the height was observed in both groups, with a consequent total vertical augmentation of 8.6±2.8 mm at the no-membrane sites and 9.1±3.1 mm at the membrane sites. After 9 months of healing, the hard tissues subjacent to the sinus mucosa appeared to be partially corticalized in three patients in the no-membrane group and in six patients in the membrane group. No statistically significant differences were found between the sites with and without the placement of a collagen membrane.

CONCLUSIONS

In this study, the limitation was the absence of long-term clinical outcome. Anyway, within this limitation, the Authors concluded that *"the use of a collagen membrane subjacent to the sinus mucosa did not influence the dimensional variations of the augmented regions and the clinical outcome after 9 months of healing also in the absence of perforations"*.

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