



Influence of the height of the antrostomy in sinus floor elevation assessed by cone beam computed tomography: a randomized clinical trial

LATERAL ACCESS SINUS LIFT

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ABSTRACT

After a sinus floor elevation procedure, the elevated space tends to be lost due to the pressure balance within the sinus cavity. Consequently, to counteract the shrinkage of the augmented volume, biomaterials, implants, or devices have been proposed. The aim of this study was to evaluate the influence of the height of the antrostomy on the dimensional variations of the elevated space after sinus floor elevation.

Twenty-four healthy volunteers planned for sinus floor elevation were included in the study. An antrostomy of either 4 mm (group A) or 8 mm (group B) in height was prepared in the lateral wall of the sinus. Collagenated cortico-cancellous porcine bone (OsteoBiol® Gen-Os®, TecnoSS®, Giaveno, Italy) was used to fill the elevated space and softly condensed. A collagen membrane (OsteoBiol® Evolution, 0.3 mm thick) was placed to cover the antrostomy.

Three cone-beam computed tomography scans (CBCTs) were taken for each patient at three different time points: (T0) before sinus floor elevation; (T1) 1 week after the surgery evaluating dimensional changes compared with the T0 and T2 tomography scans; and (T2) 9 months after sinus floor elevation comparing dimensional changes with T0 and T1. After 1 week (T1), the sinus floor was found elevated in the middle region by 12.0 ± 2.3 mm in group A, while in group B, the height was 11.8 ± 2.1 mm. After 9 months (T2), the respective heights were 9.9 ± 2.4 mm and 8.9 ± 2.7 mm, with a reduction of -2.1 ± 2.2 mm in group A and -3.0 ± 2.6 mm in group B. The area in a central position was reduced by 25.5% to 34.2%, showing a slightly higher shrinkage in group B compared to group A. However, no statistically significant differences were found between the two groups.

CONCLUSIONS

The present study illustrated the anatomical dimensional changes evaluated by CBCT after sinus floor elevation applying a collagenated cortico-cancellous porcine bone and a lateral access antrostomy with either approximately 4 or 8 mm of height. No major statistically significant differences in hard tissues were found between the two evaluated groups, meaning that in maxillary sinus floor elevations performed by the lateral approach the size of the antrostomy did not affect the clinical and radiographic outcomes.

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