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Influence of the dimensions of the antrostomy on osseointegration of mini-implants placed in the grafted region after sinus floor elevation: a randomized clinical trial

ABSTRACT

As in a systematic review with meta-analysis on sinus floor elevation, it was observed that the best results were obtained when implants with a rough surface and membrane on the antrostomies were used, but no evaluations on different dimensions or position of the antrostomies were performed, the aim of the present randomized clinical trial was to evaluate the osseointegration of mini-implants placed in grafted sinuses with lateral windows of two different dimensions, so to verify the hypothesis that a higher bone-to-implant contact of the mini-implants would be observed in the group with smaller compared with larger dimensions of the antrostomies. Twenty patients were randomly divided into two groups of 10 patients each: the large group with antrostomies 8 mm high and the small group with antrostomies 4 mm high. The antrostomies of 8 or 4 mm in height were prepared using a sonic-air instrument and the elevated space was filled with collagenated corticocancellous porcine bone (OsteoBiol® *Gen-Os*®, Tecnoss®, Giaveno, Italy), and a collagen membrane (OsteoBiol® *Evolution*) was placed on the antrostomy. The flaps were subsequently sutured. The sutures were removed after 1 week. After 6 months of healing, mini-implants were placed in the grafted region. Biopsy specimens including the mini-implants were harvested 3 months after placement. The histologic analysis showed similar amounts of new bone-to-implant contact in both the large (41.1%±19.5%) and the small (42.8%±13.2%) groups (P=0.940). Low amounts of residual xenograft were observed after 9 months of healing, showing a trend of slightly higher amounts in the small compared with the large groups. This might be related to a higher loss of biomaterial through the large compared with the small antrostomies. The new bone density around the implants was 31.7%±8.2% and 34.0%±7.9% in the large and small groups, respectively (P=0.623).

CONCLUSIONS

In the present study, antrostomies of different dimensions were prepared, but no differences were found between the two groups in terms of new bone-to-implant contact and new bone density around the mini-implants. This, made the Authors conclude that *"the dimensions of the antrostomy had no influence on the histologic outcomes in relation to new bone formation"*.

LATERAL ACCESS SINUS LIFT

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