Comparison of two types of grafts at maxillary sinus elevation: RCT

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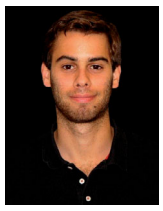

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Introduction

With limited bone availability in the posterior maxilla, the bone can be regenerated with lateral osteotomy surgery of the maxillary sinus, a technique of maxillary sinus elevation best documented.

Main

Comparison (histologically, histomorphometrically and radiologically) of the use of autograft (intraoral) versus xenograft (Osteobiol Mp3®) in maxillary sinus lateral osteotomy.

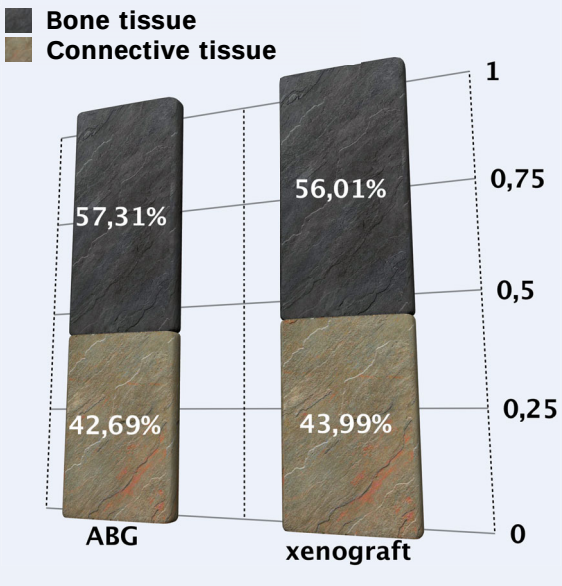
Materials and methods

Split mouth randomized controlled trial with a sample of 12 patients and 6 months of follow-up.
Computed tomography (CT) was performed to evaluate the initial bone height, to simultaneously plan bilateral osteotomy of the maxillary sinus and to harvest the intraoral autograft. The selection of material for each sinus was performed in a blind manner.
After six months, CT was performed to reassess the bone height, to plan the placement of the dental implants and to collect the bone sample.

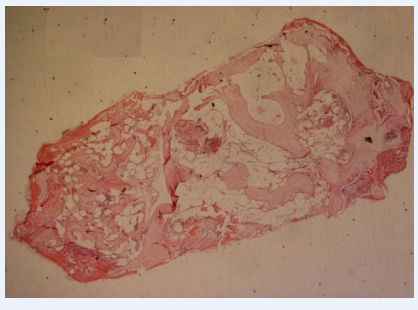
Results

Histologically, several stages of remodeling were observed, without inflammation / infection.
Histologically, the mean percentage of bone / connective tissue was 57.3% / 42.7% vs. 56.0% / 44.0% (autograft vs xenograft, p = 0.380). In the analysis at the patient's scale, there were no significant differences in the performance of the material (p = 0.376). However, a significant effect of the patient (p <0.029) and the patient's material interaction (p <0.001) indicated that the performance of the material depends on the patient.
Radiologically, a bone gain of 7.8 ± 2.4 mm vs. 8.7 ± 2.2 mm (autograft vs. xenograft, p <0.05) was observed, with no significant differences in material performance over time (p = 0.26).

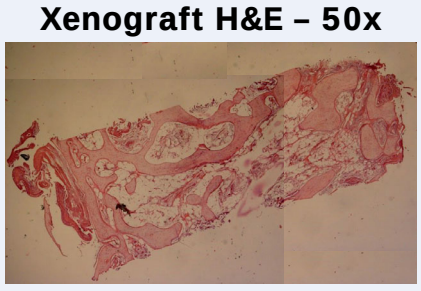
Histomorphometric analysis



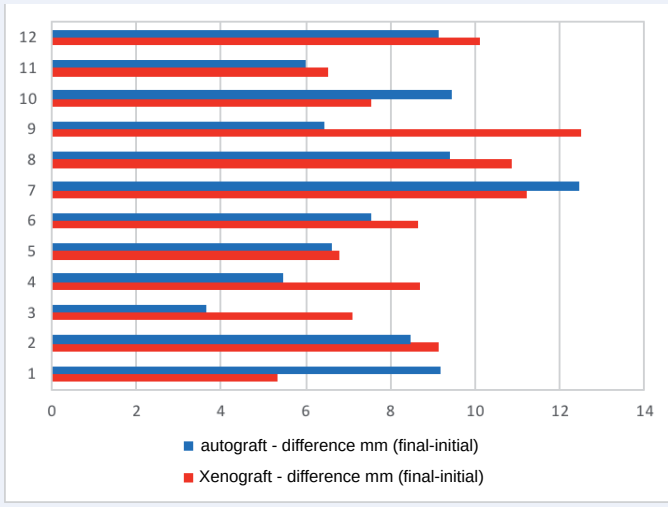
ABG H&E – 50x



Xenograft H&E – 50x



Difference between initial and final CT



Discussion

Autograft due to its properties is, for many authors, the gold standard, has disadvantages such as morbidity and the need for a second surgical site, etc. - reasons justifying the search for biomaterials that try to circumvent these autograft limitations.

The results found in this study indicate values of bone tissue/connective tissue as well as bone height gain and clinical complications similar to those described in the literature.

Conclusions

The use of xenograft presents similar results in terms of histomorphometric and bone height gain compared to autograft.

Clinical Implications

The xenograft is a valid clinical alternative with less morbidity to the use of autograft in the procedures of lateral osteotomy of the maxillary sinus.

Indicação final das fontes de financiamento:

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