



BACKGROUND AND AIM

Studies have shown that sinus membrane elevation, with the immediate installation of implants without graft materials, has resulted in bone neo-formation, based on the principles of guided bone regeneration. The present controlled clinical pilot study proposed to assess blood clot contraction and bone neo-formation following maxillary sinus lift (MSL) with immediate implant placement without using grafts using cone beam tomography exams.

MATERIAL AND METHODS

Ten implants were placed in ten patients with a residual bone crest height >4 and <7mm, in maxillary premolars or 1st or 2nd molars regions, using MSL and immediate implant placement without grafts, by means of the lateral window approach. A resorbable membrane (Bio-Gide®, Geistlich, USA) was used to close the window. Computed tomography images were taken after 10 (T1) and 180 (T2) days to assess the rate of blood clot contraction and bone neo-formation. The images were analyzed by OsirixMD software. The Shapiro Wilk test was used to verify the normality hypothesis and the data were submitted to Student's paired t-test.

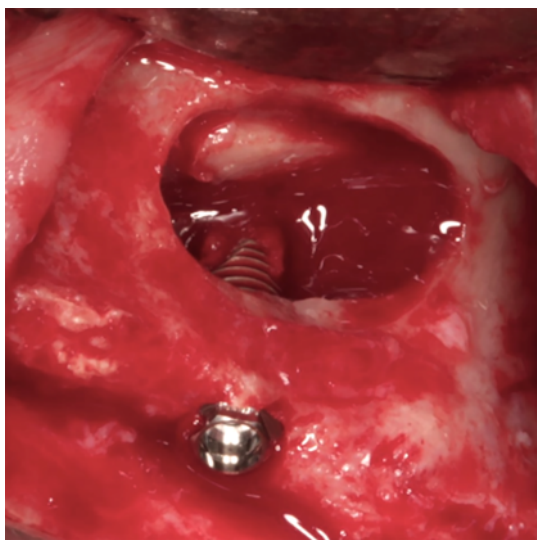


Fig. 1. Position of implant insertion, supporting the bone lateral window that remained attached to the membrane.

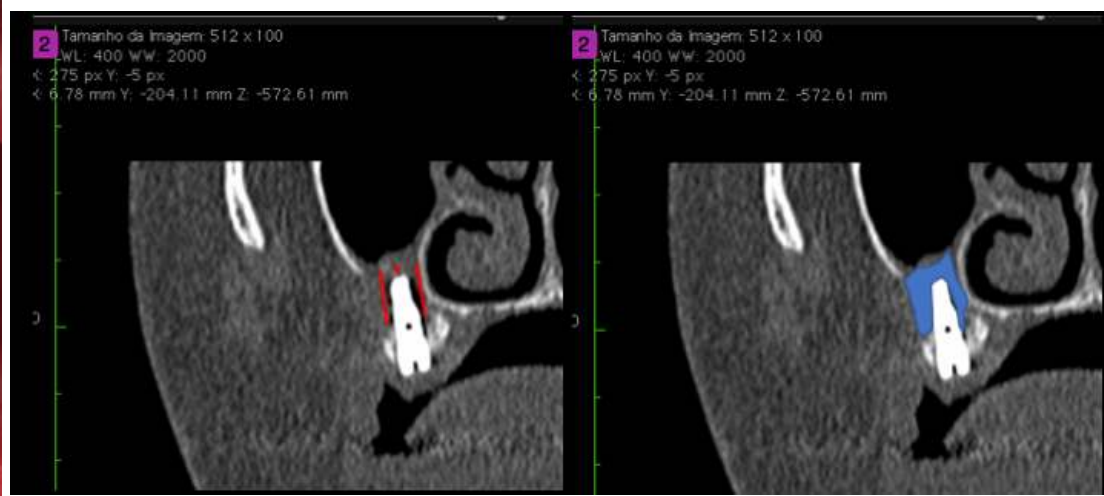


Fig. 2 Measurement methodology. Oblique coronal section, corresponding to the panoramic slice, which allowed evaluation of the apical, mesial and distal implant height measures and blood clot volume in T1.

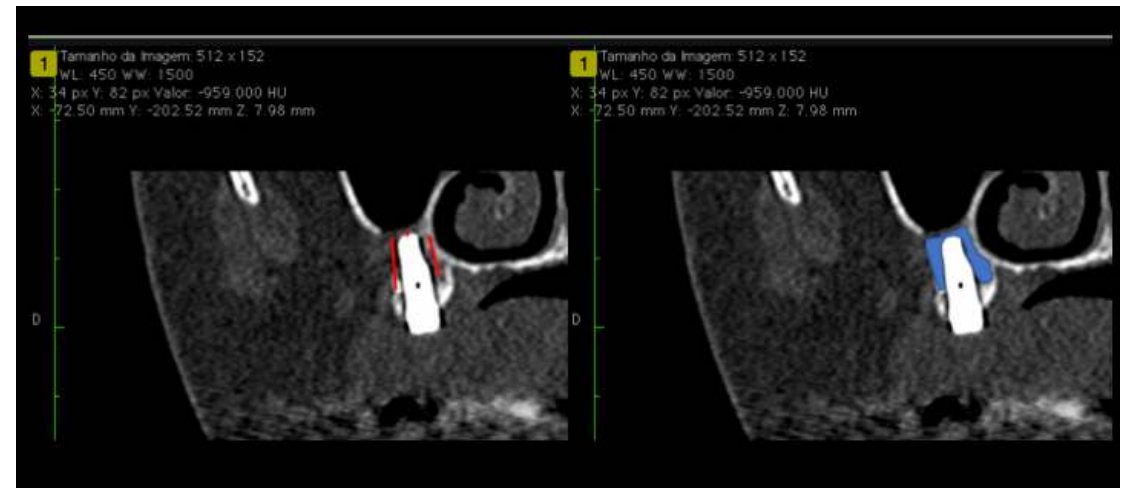


Fig. 3. Measurement methodology. Oblique coronal section, corresponding to the panoramic slice, which allowed evaluation of the apical, mesial and distal implant height measures and new bone formation volume in T2.

RESULTS

The mean of bone clot height in mesial, apical and distal area referred to implant, presented 4.77mm, 0.77mm and 5.30mm respectively. The mean measurements of new bone formation presented 2.95mm, 0.44mm and 3.45mm. The height contraction (coagulum/new bone formation), between T1 and T2, presented 38%, 43% and 35% respectively, with a significant statistic value p<0.05. The volume measurements at T1 presented a mean volume of 0.90cm³ sd± 0.60 cm³ and at T2 a mean volume of 0.75cm³ sd± 0.62cm³, with a significant volume contraction between T1 and T2, p<0.005. The mean blood clot contraction was 16.52% ± 8.60%.

	Mesial	Apical	Distal
T1	4.77mm	0.77mm	5.30mm
T2	2.95mm	0.44mm	3.45mm
Contraction	38%	43%	35%
p=	0.00001	0.00041	0.00011

Table 3 – Percentage and significance of contraction (Coagulum/New bone formation, height) at mesial, apical and distal measurements referred to implant. Test T student – 0.05 level significance

CONCLUSIONS

The present study demonstrates consistent bone formation around all assessed implants, although with significant contraction of the blood clot. The need for longitudinal studies to establish a long-term prognosis in different modalities of prosthetic rehabilitation of those implants is strongly suggested.

REFERENCES

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