



PERI-IMPLANT BUCCAL TISSUE CONTOUR FOLLOWING GUIDED-BONE REGENERATION: A PILOT CASE SERIES

Gargallo-Albiol J, Charafeddine M, Lucas-Taule E, Barroso-Panella A, Hernandez-Alfaro F, Wang HL
 University Internacional de Catalunya - University of Michigan School of Dentistry



OBJECTIVES

The aim of the present study was to evaluate the effect of guided bone regeneration (GBR) during implant placement on the dimensional changes of peri-implant labial tissue contour.

BACKGROUND

Esthetic outcome depends on great variety of factors, including peri-implant soft-tissue contour(1,2). Soft tissue contour depends directly of bone architecture and soft tissue thickness(3). Therefore, clinicians certainly have to focus to gather on labial hard and soft tissue volume around implants to achieve a good esthetic long-term results.

MAT&MET

- Ten maxillary single implants were placed in 10 patients including central, lateral incisors and premolars.
- 5 implants were completely surrounded by native bone (control group) (no GBR).
- 5 implants with buccal bone defects were grafted with deproteinized bovine-derived bone mineral (DBBM) (Bio-Oss®), covered with a collagen membrane (Bio-Gide®)(test group).
- Impressions at T0 (baseline); T1 (6 months); T2 (1 year).
- 3D cast model optical scanning were superimposed and evaluation of peri-implant labial tissue contour changes at two locations: 3mm (A) and 6 mm (B) apical to the crest of the ridge.

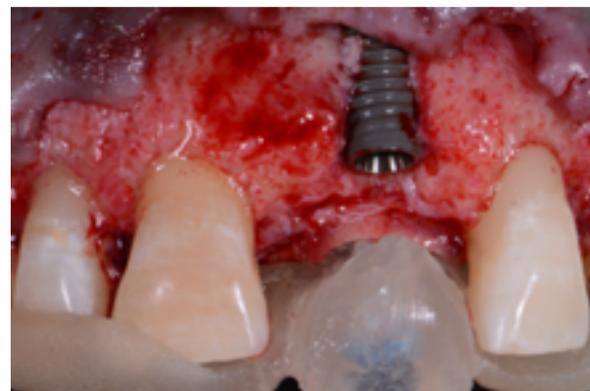


Fig.1



Fig.2

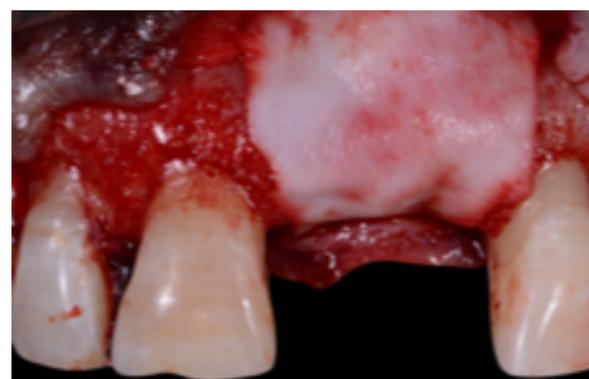


Fig.3



Fig.4



Fig.5



Fig.6

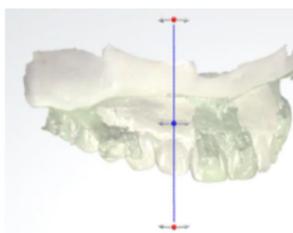


Fig.7

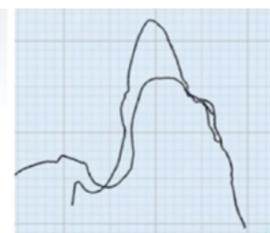


Fig.8

Figuras: 1.Implant insertion. 2.DBBM placement. 3.Membrane placement. 4.Definitive crown connection. 5.Pre-operative three dimensional model scan. 6.Cast models superposition. 7.The long axis at the center of the implant crown. 8.Labio-oral cross sectional image of the superposed cast.

RESULTS

Gain in the peri-implant labial tissue contour:
 T0-T1:

- Control group: (A) 0.57 ± 0.21 (B) 0.34 ± 0.28
- Test group: (A) 1.29 ± 0.85 (B) 1.02 ± 0.95 (p=0.10 and 0.15).

T1-T2:

- Control group: reduced (A) $20\% \pm 9.5$ (B) $43\% \pm 22$
- Test group: reduced (A) $19.4\% \pm 5.5$ (B) $37\% \pm 21$ (p=0.90 and 0.67)

T0-T2:

- Control group: (A) 0.44 ± 0.2 (B) 0.24 ± 0.24
- Test group: (A) 1.05 ± 0.69 and (B) 0.79 ± 0.89 (p=0.09,0.21)

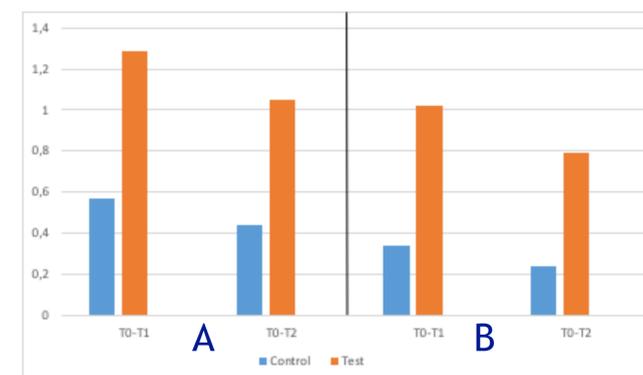


Table 1. The mean labial tissue contour change in test and control groups from baseline to 6 months after crown connection at points A and B in mm.

DISCUSSION

Autogenous bone blocks were highly reduced after 1 year (37%)(4), whereas in the present study the percentage of contour loss was lower (20%). This better contour stability might be related to the low resorption properties associate to DBBM graft.

It is described an important buccal contour gain with the crestal incision and abutment connection at the second surgery(4). Differently, those studies only assessed the most coronal region of the labial contour, whereas the present study included an additional point of measurement (6mm apical to the crest). This apical variation is more dependent on the stability of the graft beneath, being away from the crown area influence.

CONCLUSIONS

- GBR performed simultaneous to implant placement with particulated DBBM bone graft and a collagen membrane, resulted in peri-implant labial tissue gain superior to implants placed without GBR.
- Abutment connection and crown placement improved labial contour in both groups.

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