

SEMI-OCCLUSIVE CAD-CAM TI-MESHES FOR GUIDED BONE REGENERATION

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Aims: GBR is a widely used technique for the treatment of atrophic jaws with a good success rate in short and long term studies. However, this technique is not lacking of complications and a wide range of barrier devices has been tested for simplify and standardize GBR procedure. The aim of this study is to investigate clinical and histological features of a new GBR titanium CAD-CAM device called Semi-occlusive Titanium Mesh.

Methods: five patients with partial edentulism of the maxilla/mandible, with vertical/horizontal bone defects, were treated with GBR procedure in order to achieve implant- supported restorations.

The device used was a semi-occlusive CAD-CAM Ti-mesh with a CAD-CAM laser sintered micro-perforated scaffold with 0.4 mm pore size.

8 months after GBR during re-opening surgery (T1), surgical and healing complications were evaluated and histological and histomorphometrical analyses of the regenerated bone were performed.

Results: a total of 5 patients with 6 treated sites were enrolled. One healing complications were recorded and classified as late exposure of the device 4 months after GBR. At 8 months well-structured new regenerated trabecular bone with marrow spaces was present. The percentage of newly formed bone was $30.37\pm 4.64\%$, marrow spaces $56.43\pm 4.62\%$, residual grafted material $12.16\pm 0.49\%$ and residual bone chips was $1.02\pm 0.14\%$.

Conclusions: within the limitations of this study, the results show that semi occlusive Ti-Mesh could be used for vertical and horizontal ridge augmentations. Nevertheless, further clinical and histological studies are need.