

Flap versus flapless procedure for ridge preservation in alveolar extraction sockets: a histological evaluation in a randomized clinical trial

ABSTRACT

Tooth extraction generally results in a loss of bone volume and remodelling of soft tissues and it is recommended to preserve the alveolar ridge in order to maintain the existing soft and hard tissues, in view of the subsequent rehabilitation treatments. In order to ensure an adequate architecture of the alveolar bone and soft tissues, necessary to obtain a functional and aesthetic prosthetic rehabilitation, the use of various techniques and biomaterials has been proposed over the years.

The aim of this study was to evaluate and compare the histological and histomorphometric features of two different procedures carried out in extraction socket grafting: the flapped and flapless technique. For the study, 34 patients were randomized to receive tooth extraction and ridge preservation with cortico-cancellous porcine bone (OsteoBiol® mp3®, Tecnos®, Giaveno, Italy), and a trimmed collagen membrane (OsteoBiol® Evolution, Tecnos®) with a full thickness mucoperiosteal flap and primary soft tissue closure (control group), or, with a flapless procedure and a secondary soft tissue closure (test group). The collagen membrane was covered with an advanced flap in the control sites, whereas no flap was raised and the collagen membrane was left exposed in the test sites.

In order to evaluate the percentages of newly formed bone, residual graft particles and marrow spaces, 3 months after ridge preservation bone core samples were harvested from both groups and processed to be observed under light microscopy.

Histological and histomorphometrical analyses did not report significant differences between the two groups and the mean percentages of newly formed bone, soft tissues and residual grafted particles were 22.5 and 22.5%, 59.3 and 59.4%, and 18.2 and 18.2% respectively for flap and flapless approach.

CONCLUSIONS

The present randomized clinical trial was performed to evaluate clinical and histological differences between flap versus flapless ridge preservation procedure. As no differences in the histologic and histomorphometric analysis were found, the Authors concluded that *"this study supported the hypothesis of the non-detrimental effect of collagen membrane exposure on bone regeneration during the ridge preservation procedures with a flapless approach"*.

ALVEOLAR REGENERATION

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