



The effectiveness of the use of xenogeneic bone blocks mixed with autologous Concentrated Growth Factors (CGF) in bone regeneration techniques: a case series

ABSTRACT

In case of insufficient bone volume of the edentulous ridge, implant placement may result difficult or impossible. For this reason, most of the times it is necessary to adopt a specific surgical procedure in order to fill major bone defects and create the proper site for implant insertion. To do this, different surgical techniques are currently available, in combination with the use of biomaterials of different origin. Even if the use of autologous bone as a grafting material is considered the gold standard, this procedure has some disadvantages, including morbidity and limited availability of donor site. This is why different biomaterials have been proposed, such as xenogeneic bone derived biomaterials (of bovine, equine, porcine origin). Beside these biomaterials, the use of different preparations of platelet concentrates, alone or in combination with other biomaterials, has also been evaluated with promising results.

The aim of this study was to clinically and histologically evaluate the combination of Concentrated Growth Factors (CGF) and xenogeneic bone in vertical and/or horizontal ridge augmentation.

For the study, seven patient who required oral implant and ridge augmentation surgery, were selected and the parameters assessed were: a) the capability of CGF to permeate the bone scaffold; b) the degree of bone regeneration; c) the clinical success rate. Patients were divided into two groups: in Group 1 implants were placed during oral surgery session (simultaneous implants); in Group 2 implants were placed 4 months after surgery (delayed implants), when full graft integration was achieved. For the preparation of CGF, venous blood samples were obtained from each patient and each blood sample was centrifuged in order to obtain the CGF. The whole CGF obtained was mechanically mixed with the blocks of collagenated xenogeneic biomaterial (OsteoBiol® *Sp-Block* and OsteoBiol® *C-Block*, TecnoSS®, Giaveno, Italy) using the Round Up device (Silfradent srl, Italy). The permeated blocks were then placed: *Sp-Blocks* (square) were used for horizontal ridge augmentation, whereas *C-Blocks* (cylinder) were used for vertical bone augmentation.

CONCLUSIONS

The results of this study showed that the permeated grafting material resulted in effective bone regeneration, as confirmed by histomorphometric analysis. All implants were successfully in function at the 12 months follow-up and radiographic examinations showed a good implant integration in both types of graft. The Authors concluded that the technique proposed can be considered a viable option in bone regeneration surgery, even if future scientific researches are necessary in order to confirm that the use of heterologous materials in combination with platelet concentrates promotes bone regeneration.

HORIZONTAL & VERTICAL AUGMENTATION

077

Ezio Gheno¹
Andrea Palermo²
Luigi Fabrizio Rodella³
Barbara Buffoli³

1 | Private Practitioner in Somma Lombardo (Va), Italy
2 | Private Practitioner in Lecce, Italy
3 | Section of Anatomy and Physiopathology, Department of Clinical and Experimental Sciences, University of Brescia, Italy

ORIGINAL ARTICLE
Journal of Osseointegration 2014;6(2):37-42

Grafted with

BONE SUBSTITUTE
OsteoBiol® Sp-Block
OsteoBiol® C-Block

MEMBRANE
OsteoBiol® Evolution

HOR

VER