

Porcine-derived xenograft combined with a soft cortical membrane versus extraction alone for implant site development: a clinical study in humans

ABSTRACT

Following a tooth extraction, there is a significant reabsorption of the alveolar ridge with quantitative and qualitative changes of its profile. Often, the reabsorption is more pronounced on the buccal aspect of the ridge than on its lingual/palatal counterpart, with dimensional changes in size and shape. In this article, the Authors report the results of a study performed on 15 patients who required double extraction of contralateral premolars and delayed implant placement who were randomly selected to receive alveolar ridge preservation (ARP) procedure compared with extraction alone (EXT). In this split-mouth study, the test sites (ARP) included 15 sockets treated according to the GBR principle for the ARP procedure with a cortico-cancellous porcine bone xenograft in combination with a soft cortical membrane. The xenogenic bone substitute consisted of cortico-cancellous porcine bone (OsteoBiol® Gen-Os®, TecnoSS®, Giaveno, Italy) in the form of mixed granules with a diameter ranging from 250 to 1000 μm . The membrane was a soft cortical lamina (OsteoBiol® Lamina, TecnoSS®) with a porcine bone origin and a plastic consistency. Horizontal and vertical ridge dimensions were recorded at baseline and 6 months after extractions. After 6 months of healing, it was possible to place implants in all sockets, although some EXT sites had a slight buccal dehiscence requiring bone regeneration procedures after implant insertion. The use of porcine-derived xenograft as intrasocket graft combined with a membrane reduced significantly the bone loss: the mean width for the ARP sites showed a reduction of $1,8 \pm 1,3$ mm versus a reduction of $3,7 \pm 1,2$ mm for the EXT sites. Moreover, a significant vertical reduction was demonstrated in the EXT sites for mid-buccal and mid-palatal/lingual measurements ($3,1 \pm 1,3$ mm and $2,4 \pm 1,6$ mm respectively), whereas in the ARP sites the ridge height remained relatively unchanged ($0,6 \pm 1,4$ and $0,5 \pm 1,3$ mm).

CONCLUSIONS

Based on the results of this study, the Authors concluded that *"it must be considered that the use of a xenograft in combination with a membrane reduces buccal reabsorption in a ridge crest, which naturally tends to a more palatal/lingual position following tooth extraction, thus decreasing possibility of dehiscence and favoring an ideal implant placement. The ARP approach using porcine bone in combination with a soft cortical membrane significantly limited the bone dimensional changes after tooth extraction when compared with EXT. Therefore, even if some EXT sites allowed an implant placement, the most predictable maintenance of the horizontal and vertical ridge dimensions was achieved only with the ARP procedure"*.

ALVEOLAR REGENERATION

050

VM Festa¹
F Addabbo¹
L Laino¹
F Femiano¹
R Rullo¹

¹ | Stomatology Department, Second University of Naples (SUN), Naples, Italy

ORIGINAL ARTICLE
Clinical Implant Dentistry
and Related Research
2013 Oct;15(5):707-13

Grafted with

BONE SUBSTITUTE
OsteoBiol® Gen-Os®

BARRIER -
BONE SUBSTITUTE
OsteoBiol® Lamina