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Soft tissue augmentation applying a collagenated porcine dermal matrix during second stage surgery: A prospective multicenter case series

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ORIGINAL ARTICLE
Clin Implant Dent Relat Res.
2019;1-8

ABSTRACT

As there is not a clear evidence of the effectiveness of the use of collagen matrices as an alternative to sub-epithelial connective tissue grafts (SCTG) for the correction of localized ridge defects around dental implants, this solution cannot be recommended in order to guarantee suitable three-dimensional tissue dimension and long-term stability.
Consequently, the aim of the present multicentre study was to evaluate the effectiveness of a porcine acellular dermal matrix, applied during second-stage implant surgery for horizontal soft tissue augmentation and preservation of dimensional stability. The working hypothesis was that using a porcine acellular dermal matrix buccally positioned, the soft tissue volume can be increased predictably, achieving and maintaining a horizontal gain of at least 0.5 mm.
Twenty patients, requiring minor soft tissue volume augmentation during second-stage surgery, were enrolled. After a crestal incision above the implant, a spilt-thickness flap was prepared to create a buccal pouch and a rehydrated, 2-mm thick acellular porcine dermal matrix (APDM; (OsteoBiol® *Derma standard*, Tecnoss®, Giaveno, Italy) was placed into the recipient site. Silicon impressions were taken before surgery (T0), 2 weeks later at suture removal (T2), 6 months (T3), and 24 months (T4) post augmentation. Soft tissues dimensional changes were evaluated using superimposition of digitalized study casts.
No adverse event such as dehiscence, infection, or bleeding was recorded at any time.
At the 6-month follow-up, there was a significant dimensional gain respect to baseline, and this positive result did not change significantly at the 24-month follow-up. The gain was >0.5 mm in 65.2% and 64.7% of the cases, respectively. Soft tissue shrinkage averaged 34.2% ± 77.0% from T2 to T3 ($P < .01$) and did not change thereafter ($P = .39$). Posterior mandible sites showed a more consistent shrinkage, but the difference was not significant ($P = .23$ at 6-month and .36 at 24-month).

CONCLUSIONS

Within the limitations of this prospective case series due to the absence of a control group, the present preliminary data confirmed that using a porcine dermal matrix allows to achieve a soft tissue augmentation greater than 0.5 mm after 6 months, which was maintained up to 2 years, in two-thirds of the examined cases.