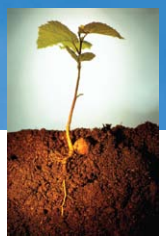

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Xenogeneic dermal matrix versus autologous connective tissue graft versus no graft at abutment connection for improving aesthetics: 6-month outcomes of a randomised controlled trial

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ABSTRACT

Peri-implant soft tissue recession is a common finding in single-tooth implant restorations, impairing the restoration aesthetics due to the exposure of the metal component. Autologous connective tissue harvested from the palate and used in conjunction with a coronally repositioned flap has been successfully applied in the treatment of gingival recession, but this technique is associated with with several disadvantages, such as the need for a second surgical site, post-operative pain, limited graft availability and more time needed for the intervention.

In order to overcome these limitations, alternative graft materials have been introduced. In particular, porcine-derived collagen has shown promising results in the treatment of gingival recession, and more recently, a new xenogeneic dermal matrix has been tested in animal models as a sub-epithelial graft for the augmentation of keratinised tissue, showing good biocompatibility and stability in the host tissue, and the same gingival thickness gain as that achieved with autogenous connective graft.

The aim of this multicentre randomised controlled trial was to evaluate the efficacy of xenogeneic dermal matrix versus autogenous connective graft and control treatment (no graft) in augmenting/improving the width of peri-implant keratinised mucosa and facial soft tissue levels.

Patients requiring an increase in keratinised gingiva width were enrolled and randomly divided into three different groups for grafting procedures at the implant uncovering stage: either xenogeneic dermal matrix (Group X), autogenous connective tissue graft (Group A) or no graft (control, Group C). The primary outcomes were width of keratinised tissue and facial soft tissue levels, evaluated at three different time points (T0, implant uncovering stage; T1 and T2, six weeks and six months after surgery, respectively). Secondary outcomes were: implant failure, complications, marginal bone loss, papilla index, facial soft tissue level, pink esthetic score, and aesthetic assessment by patients. The xenogeneic dermal matrix used (OsteoBiol® *Derma*, Tecnoss®, Giaveno, Italy), was a 2-mm thickness one, shaped to adapt to the implant site. After six months, the width of keratinised tissue increased by 0.16±1.01 (P=0.79), 1.05±0.76 (P=0.01) and 0.80±1.73 mm (P=0.28), and facial soft tissue level was -0.95±0.85 (P=0.04), 0.32±0.57 (P=0.15) and 0.35±0.79 mm (P=0.30) respectively in Groups C, X and A groups. Between-group analysis showed that, with respect to control, only facial soft tissue level (1.31 mm, P=0.01) and width of keratinised mucosa (2.43 mm, P=0.01) outcomes in the autogenous graft group were statistically significant at T2. Mean marginal bone loss between T0-T2 was -0.4±0.4mm, with no differences between groups. Between the two dental centres, only facial soft tissue level at T0-T2 was significantly different, by 0.67±0.62 mm (P=0.03).

CONCLUSIONS

Based on the results, the Authors concluded that "*The outcomes of the present study reveal that autogenous connective tissue grafting can attain significant gains in facial soft tissue height and keratinised mucosa width as compared to no-graft controls at six months. Nonetheless, at this early stage, no clinical advantages of augmenting the soft tissues versus not doing so were apparent*".