

PC153

Evaluating the Efficacy of Micro-cut Design Allografts in Treating Multiple Gingival Recession Defects: A Case Series

Chih-Yun, Tao DDS, MS

Fay Periodontics, Shawnee Kansas and Kansas City Missouri, USA



Introduction

While autogenous connective tissue grafting remains the gold standard for the treatment of gingival recession due to its predictable outcomes¹, the advent of acellular dermal matrix allografts (ADMA) offers a viable alternative that eliminates the need for a secondary surgical site and enhances patient comfort, particularly in cases involving multiple recession defects.² This case series examines the clinical efficacy of a novel ADMA (Cytoplast MicroDerm™) featuring a micro-cut surface design (Figure 1) and evaluates its potential as an alternative treatment for managing multiple gingival recession defects.

Methods

Six patients (ages 28–52 years) with a history of orthodontic treatment were enrolled in the study. Five patients presented with RT1-3 recession defects in the mandibular anterior region, characterized by a detectable cemento-enamel junction (CEJ) and absence of cervical steps. One patient exhibited RT1 recession in the maxillary anterior region, with an undetectable CEJ and cervical steps present. A tunneling technique was employed for flap preparation, and an acellular dermal matrix with micro-cuts design was used as an alternative to autogenous tissue. Sling sutures (6-0 and 7-0) were placed and removed at four weeks. The follow-up period is up to 6 months.

Outcomes

Complete root coverage (CRC) was achieved in all treated sites for two patients in the mandibular region and one in the maxillary region. Partial root coverage (PRC) was noted in the mandibular incisors for two patients, while one patient exhibited mixed outcomes. No adverse events were reported during the observation period. Grafts initially exposed or folded into double layers healed smoothly, without signs of infection or discomfort. Early adaptation with vascular ingrowth was observed at two weeks, and the gingival margin stabilized by four weeks.

Conclusion

The novel micro-cut design allograft enhances periodontal therapy by facilitating effective graft integration and improving both aesthetic and functional outcomes in the treatment of gingival recession.

Cases Presentation



Case 1: RT2 recession with lack of attached KG in mandibular incisors. PRC and phenotype alteration were noted at 6 months.



Case 2: RT1 recession with lack of attached KG in mandibular incisors. CRC and phenotype alteration were noted at 3 months.



Case 3: RT1 recession with shallow vestibule in mandibular incisors. CRC and increased vestibular depth were noted at 3 months.



Case 4: RT2 recession with lack of attached KG in mandibular incisors. PRC was noted at 4 weeks



Case 5: RT3 recession in mandibular incisors after periodontal treatment. CRC was noted on teeth #22, 27.



Case 6: RT1 recession with cervical steps in maxillary teeth. Veneers were planned. CRC was achieved.

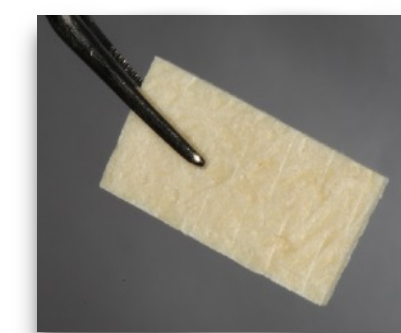


Figure. 1: Acellular dermal matrix with a micro-textured surface design enhances graft-to-host contact and promotes cellular infiltration for improved healing.^{3,4} Vascular ingrowth was clinically observed at two weeks in Case 1. The dry ADM is easy to trim to the desired size. It can be securely sutured to the recipient site. Rapid rehydration within seconds allows for efficient handling during surgery.

References

1. Chambrone L, Tatakis DN. Periodontal soft tissue root coverage procedures: a systematic review from the AAP Regeneration Workshop. *J Periodontol*. 2015 Feb;86(2 Suppl):S8-S11.
2. Tai H, Moses O, Zohar R, Meir H, Nemcovsky C. Root coverage of advanced gingival recession: a comparative study between acellular dermal matrix allograft and subepithelial connective tissue grafts. *J Periodontol*. 2002 Dec;73(12):1405-11.
3. Mata, A., Boehm, C., Fleischman, A. J., Muschler, G. F., & Roy, S. Connective tissue progenitor cell growth characteristics on textured substrates. *Int J Nanomedicine*. 2007;2(3):389-406.
4. Marinelli et al. Histologic Evaluation of Wound-Bed Preparedness Following Microsurfaced Skin Grafts for the Treatment of Deep Burn Wounds: Results from a Randomized Controlled Trial. Poster presented at 2023 AMSUS Annual Meeting; February 13, 2023; National Harbor, MD.