

Clinical Comparison Of Modified Mucogingival Flap Technique With Novel Fish Derived Collagen Matrix And Connective Tissue Graft In Treatment Of Multiple Mandibular Class III Gingival Recession Defects – Prospective Clinical Trial

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Abstract

Purpose: A modified mucogingival flap technique along with the use of a xenogenic collagen matrix has been attempted to address such clinical scenario.

Aim: To evaluate and compare the clinical outcomes following Modified Mucogingival flap (MMGF) procedure with connective tissue graft / xenogenic collagen matrix in treatment of gingival recession defects.

Materials and methods: 30 patients presenting multiple mandibular class III recession defects were treated using MMGF along with either connective tissue graft (n=15

Results: Both control and test sites exhibited statistically significant ($p < 0.05$) improvement in all clinical parameters at 3, 6 months intervals with respect to baseline. However, control sites showed significant improvement in CAL, VD and RC from 3 to 6 months' time period, whereas test sites showed significant gain in clinical attachment, RC, width of AG, KT and VD from baseline to 3 months with a considerable deterioration of

all these parameters at the end of 6 months. VAS pain scale demonstrated significantly lower pain perception in test subjects. ($p < 0.05$).

Conclusions: Xenogenic collagen matrix along with MMGF yielded short term gain in terms of root coverage, CAL and VD, the improvement in width of AG AND KT were comparable with the control subjects till the end of study. LOW VAS scores in the test subjects showed patient preference towards collagen based scaffolds.

Keywords: Connective tissue graft; Mandibular anteriors; Miller's Class III gingival recession; Mucogingival surgery; Xenogenic fish Collagen matrix.

Introduction

Gingival recession is a composite phenomenon often associated with other mucogingival conditions complicating therapeutic outcome [1]. Root hypersensitivity, the progression of gingival recession, difficulty in plaque maintenance around non – keratinized alveolar mucosa and predisposition to root caries has broadened the scope of mucogingival therapy.

Results

A total of 30 subjects, were treated with two different interventions and were reviewed for 6 months. Clinical parameters were recorded at baseline, 3 months and 6 months after completion of the surgical procedure (Figure 1G, 1H & 2G, 2H) and the VAS response was noted at six weeks post operatively.

Discussion

The definitive goal of mucogingival therapy not only attempts at root coverage but also aims to achieve a healthy and stable mucogingival complex[19].The complicated scenario of managing multiple class III gingival recession with shallow fornix made the study very challenging as it could be affirmed that there is

very limited documentation of RCT'S in the management of class III recession.

The management of advanced recession defects often involves a two-stage surgical protocol, where initial procedure aims at augmenting the vestibular depth and keratinized tissue followed by attempt for root coverage. This clinical trial proposed a modified mucogingival flap technique (MMGF) that aimed to deepen the vestibule. The benefits of the current surgical technique are that the conventional two stage protocol is overridden, and a single stage procedure is attempted. The superficial vestibular incision neither exposed the deeper tissues nor compromised the vascularity explaining the uncomplicated rapid healing which occurred in all the study subjects.

Scientific literature regarding success of root coverage procedures using CTG as augmentation material in class III recession defects at the end 6 months varied from 73-83% (Aroca), 78%. (Yaman) and 74%(Esteibar) [30-32]. This could be comparable with the 67% of mean root coverage obtained in the control subjects of our study but it has to be noted that the authors had included maxillary defects also which could have yielded the better results.

In the current study, statistically significant gain in mean vestibular depth of 1.27 ± 0.52 mm was achieved in the control subjects over a mean gain of 0.76 ± 0.56 mm in the test subjects at the end of 6 months. Vestibular depth as a variable has not been evaluated in most of the root coverage studies. Only few case reports have reported the alterations of this parameter. In the case series by Nicole et al in 2013, the authors evaluated the use of a modified mucogingival flap with connective tissue graft in the management of class I and II mandibular recession defects and they obtained an increase in VD of 0.9 ± 0.5 mm which is in concordance with our study [33].

Mucogingival flap technique used by Nicole was almost similar to the technique used in our study except that the papillary integrity was maintained as they had managed class I and II recession defects in contrary to our study. The benefits of both these techniques were that, the vestibular deepening could be accomplished along with the gingival augmentation.

The short comings in our study were that clinical parameters such as biotype, papillary recession and interdental bone level could have been standardized for better outcome assessment.

Conclusion

The results obtained in our study may not be conclusive owing to the inclusion of advanced recession defects and presence of associated mucogingival conditions. Further studies are warranted with long term follow up using collagen matrices in minimal recession defects which may yield superior results and may enhance the prospects of using xenogenic collagen matrices in the field of mucogingival surgery.

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