



Management of Multiple Gingival Recessions by Coronally Advanced Flap with and without Connective Tissue Graft: A Case Report

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ABSTRACT

Background: Gingival recession is the most common and undesirable condition of the gingiva and usually caused by improper tooth brushing technique. The techniques used for the root coverage are based on tissue displacement either by displacement flap or by subepithelial connective tissue grafting (SCTG).

Case Presentation: In the present case report, a 38 years old, healthy male patient reported to the clinic with bilateral class I gingival recession on the buccal aspect of maxillary canines and premolars. The patient used a medium bristle toothbrush with horizontal strokes for oral hygiene maintenance. The depth of gingival recession was measured 2-3 mm from the cementoenamel junction (CEJ). After scaling and root planning correct brushing technique was advised to the patient. The main objective of the treatment was to cover the exposed root surfaces to improve esthetics and reduce dentinal hypersensitivity. According to the treatment plan, the 1st quadrant was treated by a coronally advanced flap (CAF) and the 2nd quadrant by CAF+SCTG.

Results and Conclusion: One-year post-operative evaluation revealed uneventful healing at both surgical sites. Almost 80 % and 100% root coverage was reported at the 1st and 2nd quadrant respectively. In the present case, CAF+SCTG showed a favourable outcome for root coverage and hypersensitivity compared to CAF alone.

Key Words: Gingival recession, Coronally advanced flap, Connective tissue graft, Root coverage procedure, Dentinal hypersensitivity

INTRODUCTION

Gingival recession is the most common and undesirable condition of the gingiva with a high prevalence rate in the adult population. More than 50 % of the population has one or more sites with a gingival recession of 1 mm or more.¹ Furthermore, improper tooth brushing is one of the important etiological factors for gingival recession.² Patient education and sustained motivation about brushing technique is the key to the long-term success of the management for traumatic gingival recession.³ Even though the gingival recession may occur without any symptoms it can give rise to pain from exposed dentin, patient concern about tooth loss, poor esthetics and inability to perform proper oral hygiene procedures or development of root caries.⁴ The recessions can act as a local contributing factor for the initiation and progression of periodontal inflammation because the alteration in gingival morphology leads to greater plaque accumulation.

The widely used clinical classification for the gingival recession was proposed by Miller in 1985.⁵ The classification is based on the amount of periodontal tissue loss and prognosis of the case. The greater the amount of periodontal tissue loss, the worst will be the prognosis related to the root coverage procedure. The techniques used for root coverage are based on tissue displacement whether by displacement flap or by free soft tissue grafting. Several modifications to the conventional techniques have been developed in an attempt to obtain optimal root coverage and better esthetic integration. The present case report aimed to describe the management of multiple gingival recessions by coronally advanced flap with and without connective tissue graft, as well as to compare the success predictability of both techniques.

CASE REPORT

Thirty-eight years old, male patient was referred to the Department of Periodontology, College of Dentistry at King

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Khalid University with a complaint of the sensitive tooth to cold and long tooth display while smiling. Complete clinical examination revealed bilateral class I gingival recession, 2-3 mm in depth from CEJ, on the buccal aspect of maxillary canines and premolars (Figure 1a). Moreover, no significant findings were recorded on radiographic examination. The patient was using a medium bristle toothbrush with horizontal strokes for oral hygiene maintenance. The patient was instructed to use Modified Stillman's technique to prevent a progressive recession. Scaling and root planing was done to eliminate the local etiological factors. After re-evaluation, it was decided to treat the quadrants by Coronally Advanced Flap (CAF) with and without Connective tissue graft depending on the availability of keratinized tissue in each quadrant.

It was decided to treat the 1st quadrant by CAF alone, because of the presence of an adequate zone of keratinized tissue and attached gingiva. Following administering infiltration local anaesthesia, the surgical site was prepared according to the technique described by Allen & Miller (figure 1b).⁶ Initial incisions comprised of two oblique divergent bevelled incisions directed apically in the alveolar mucosa, by using no.15 blade at the mesial and distal line angles of the teeth with gingival recession (Figure 1b). After intrasulcular incisions, cross sub-marginal and interproximal incisions preserved the interdental surgical papillae which were de-epithelized. A split-full-split approach was used to elevate the flap. A passive coronal mobilization of flap was achieved at the level of the cemento-enamel junction by sharp apical dissection. The flap was secured in coronal position by using a sling and simple interrupted 4-0 Vicryl suture material (Figure 1c).

For the 2nd quadrant, it was decided to use CTG along with CAF for the management of recession. This technique was selected due to the availability of inadequate width of attached gingiva with the area of interest (figure 1a). Following the administration of local anaesthesia (infiltration), the recipient site was prepared according to the technique described by Allen & Miller.⁶ Recipient site was prepared similarly as described in the 1st quadrant operation. The recipient site was covered with a moist gauze piece to avoid dehydration. A tinfoil template was used to transfer measurements on the palate for the donor tissue. A similar size of subepithelial connective tissue graft was harvested by the trap door approach from the right palatal vault, 10 mm away from the gingival margin and mesial to the first maxillary molar. The harvested graft was kept in a moist gauze piece and inspected for size and thickness. Excess connective tissue and fat were carefully removed with the help of Castroviejo scissor. The graft was placed on the recipient site, stretched and stabilized with the help of a 4-0 Vicryl suture (Figure 2b). The flap was secured in coronal position by sling and simple interrupted suture using 4-0 Vicryl suture (Figure 2c).

Post-operative medications and instructions were prescribed to the patient and directed to avoid brushing at the surgical site for at least two weeks. Follow up on the tenth day revealed signs of graft acceptance in the 2nd quadrant and uneventful healing of the flap in the 1st quadrant. At the same time, sutures were removed from the donor as well as recipient site in quadrant 1 and 2 respectively. Oral hygiene instructions were reinforced and the patient was kept under regular follow-up. One year follow-up showed that the entire graft was accepted with complete root coverage (100%) in the 2nd quadrant compared to partial (80%) in the 1st quadrant (Figure 1d and 2d). Besides, the patient reported a marked reduction in dentinal hypersensitivity as compared to baseline in both quadrants.

DISCUSSION

The present case report evaluated and compared the clinical efficacy of CAF alone and in combination with SCTG to cover the exposed root surfaces of Miller Class I. The success of surgical procedures for root coverage depends on several factors, such as elimination and/or control of the aetiology of gingival recession, evaluations of the interproximal bone level and choice for the most appropriate surgical technique.⁵ In 1985, Langer and Langer described a technique of subepithelial connective tissue graft for root coverage in the treatment of recessions at single or multiple areas.⁷ Although all periodontal plastic surgical procedures are effective in reducing the extent of the exposed root surface, with a concomitant gain in clinical attachment level (CAL) and width of keratinized tissue but from an aesthetic and subjective point of view, complete root coverage represents the desired treatment goal.

Several techniques have been introduced in the literature such as coronally positioned flap, laterally displaced flap, and the combination of coronally positioned flap with free gingival graft. The use of subepithelial Connective tissue graft was disseminated; assuring the obtainment of excellent results in areas with localized root exposure.⁸ The objective of mucogingival plastic surgeries was the successful coverage of exposed root surfaces, assuming patient's esthetic and function. Many surgical techniques have been evaluated in an attempt to achieve a more effective and predictable root recession coverage while minimizing surgical complications.⁹ The only limiting criterion in utilizing a coronally advanced flap is the need for a band of at least 1mm of keratinized tissue.¹⁰ This rate of long-term successful outcomes of the treatment was similar to that previously reported in the literature for other root coverage procedures.^{10,11} Some clinical and biological advantages of the technique adopted in the present study might be related to the split-full-split-flap elevation as already suggested by Zucchelli & de Sanctis.¹² the split-thickness elevation at the level of the surgical pa-

pilla guarantees anchorage and blood supply in the interproximal areas mesial and distal to the root exposure; the full-thickness portion, by including the periosteum, confers more thickness, and thus better opportunity to achieve root coverage.

The predictability of the SCTG procedure was excellent. The main advantage of this procedure is that it provides a good blood supply to the graft and, therefore, has very good predictability of success, and provides gingival colour match and esthetics. However, the disadvantages of this technique include technically sensitivity and increase morbidity compared to CAF because of the second surgical site.

CONCLUSION

In the present case report, CAF along with SCTG showed the best outcome for root coverage and a significant increase in the width of the attached gingiva. In addition to root coverage with CAF alone, CAF+SCTG showed good results in terms of colour matching and root coverage. Both surgical procedures resulted in significant relief in dentinal hypersensitivity. A good clinical diagnosis, the width of keratinized gingiva and cooperation of the patient plays a vital role in decision making and expected outcomes.

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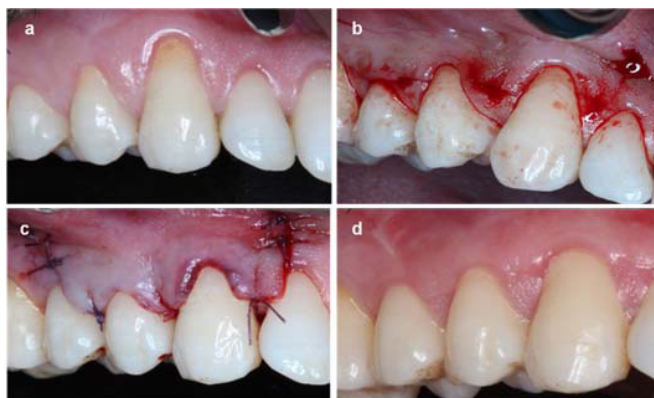


Figure 1: 1st quadrant treated by CAF alone, (a) preoperative view showing 2-3 mm of recession, (b) initial incisions, (c) flap sutured in coronal position, (d) 1 year follow up of surgical site.

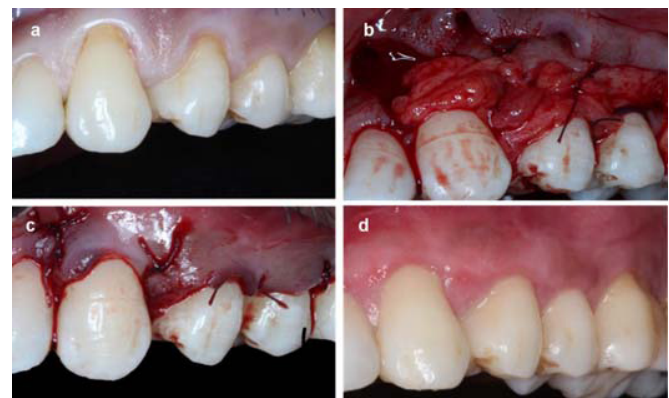


Figure 2: 2nd quadrant treated by CAF+SCTG, (a) preoperative view showing 2-3 mm of recession, (b) SCTG sutured in place (c) flap sutured in coronal position, (d) 1 year follow up of surgical site.