

Button-Assisted Coronally Advanced Flap for Gingival Recession Coverage: A Case Report

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ABSTRACT:

Gingival recession is the exposure of root surface by an apical shift in the position of gingiva. Due to the increasing number of cosmetic demands from patients, treatment of gingival recession has become a major therapeutic issue. For recession defects involving adjacent teeth in esthetic areas of the mouth, it is ideal to select surgical techniques that allow all recession defects to be simultaneously corrected with the soft tissue located close to the defects themselves. This case report outlines a treatment approach which combines coronally advanced flap with orthodontic buttons for flap stabilization, for the treatment of Miller's Class I recession defects. Since it is important and technically difficult to achieve and protect the most possible coronal position of the gingiva in immediate postoperative phase with the surgical procedure alone, orthodontic buttons were applied in this study. Three months postoperative results showed that the coronally advanced flap combined with orthodontic buttons for stabilization is a very effective approach for treatment of Miller's Class I recession defects.

Keywords: Coronally advanced flap, Esthetics, Gingival Recession, Orthodontic Button.

INTRODUCTION

Marginal tissue recession is a common feature in populations with good as well as poor standards of oral hygiene. It is the displacement of the gingival margin apical to the cemento-enamel junction (CEJ) with exposure of the root surface.¹ The important causative factors for its development are tooth brush trauma and plaque-induced periodontal inflammation. The major indications for root coverage procedures are esthetic demands and root hypersensitivity. Each clinical situation must be carefully evaluated to determine the most appropriate surgical approach to achieve the esthetics expected by the patient. Coronally advanced flap (CAF) is a frequently used mucogingival procedure to achieve root coverage.² Various authors have used CAF by shifting gingiva in a coronal direction alone or in combination with free gingival or a connective tissue graft or according to the principles of guided tissue regeneration with bioabsorbable or non-resorbable membranes.³

This case report describes a case of gingival recession which was treated by CAF with orthodontic buttons and suspensory sutures.

CASE REPORT

A 39 year old female patient reported to the Department of Periodontics, Govt. Dental College, Thiruvananthapuram with the presenting complaint of receding gums and sensitivity in relation to upper right corner teeth since 1 year. She was systemically healthy and not under any medication.

On clinical and radiographic examination, Miller's Class I marginal tissue recession with cervical abrasion was diagnosed on 13 and 14. (Figure 1, 2)



Figure 1



Figure 2

Figure 1, 2: Pre-operative view showing gingival recession on 13 and 14

The gingival biotype was thick. Gingival recession depth, pocket depth and clinical attachment level (CAL) was measured using UNC-15 periodontal probe. The distance between the most apical point of CEJ and gingival margin (gingival recession depth) was found to be 5mm on 13 and 3mm on 14.

Oral prophylaxis was done and oral hygiene instructions were given. Glass ionomer restoration was done on 14. Routine blood investigations were done before the surgical procedure. Orthodontic buttons were bonded on the middle 1/3rd of facial aspect of 13 and 14 using flowable composite resin. (Figure 3)



Figure 3: Orthodontic buttons bonded on teeth; Figure 4: Horizontal incision placed

Surgical Procedure

After administration of adequate local anesthesia (2% Lignocaine with 1:80000 adrenaline), a horizontal incision (Figure 4) was made from distal aspect of 12 to mesial aspect of 15. A mucoperiosteal flap was elevated 3-4mm apical to the exposed root surface (Figure 5). The apical most portion of flap was undermined to facilitate coronal displacement of the flap. After flap was raised, root planning was done with Gracey curettes. The flap was coronally advanced and the central area of the flap was stabilized using suspensory sutures on to the orthodontic buttons (Figure 6). The interdental papilla was sutured by direct loop sutures. Suturing was done using 4-0 silk sutures. A periodontal dressing (Coe Pack) was placed over the surgical area and postoperative instructions were given.



Figure 5: Flap elevated; Figure 6: Flap coronally advanced and held in place with suspensory sutures around the orthodontic buttons

Postoperative Management

The patient was advised to abstain from brushing and flossing around the surgical area until suture removal and to consume soft/semisolid food during the first week after surgery. Amoxicillin 500mg thrice daily for 5 days and Ibuprofen 400mg thrice daily for 3 days was prescribed. The patient was also advised to rinse with 0.2% chlorhexidine digluconate mouthwash twice daily for first 15 days. The periodontal dressing, sutures and button were removed 14 days after surgery (Figure 7).



Figure 7: Two week post-operative view; Figure 8: One month post-operative view

After this period, the patient was advised to resume mechanical tooth cleaning of the treated area using a soft toothbrush by roll technique for 1 month. The patient was recalled for prophylaxis after 2 and 4 weeks of suture removal. The patient was evaluated 2 weeks, 1 month (Figure 8) and 3 months postoperatively. On recall visits, there was uneventful healing along with root coverage and reduction in dentin hypersensitivity. On patient evaluation, complete root coverage was achieved from baseline to 3 months (Figure 9,10) with gain in clinical attachment level and keratinized tissue.



Figure 9, 10: Three month post-operative view

DISCUSSION

The main indications for root coverage procedures are esthetic /cosmetic demands, root hypersensitivity and management of shallow root caries lesions and cervical abrasions. Changing the marginal soft tissue

topography to facilitate plaque control is another common indication for root coverage procedures.¹ Studies on surgical root coverage procedures demonstrated that good results can be achieved irrespective of the utilized surgical technique, provided that the biologic conditions (no loss of interdental soft and hard tissue height) for obtaining root coverage are satisfied.^{4,5}

Complete root coverage up to the CEJ is the goal to be achieved when the patient complains about esthetic appearance of teeth. When a free or connective tissue graft (CTG) is harvested from the palate and utilized for root coverage, though complete root coverage is surgically accomplished, the result may not be completely satisfactory due to excessive tissue thickness or poor blending of the area.⁴ According to Pini-Prato *et al.*, the success and predictability of the therapy depends on patient-related, dentist-related, site-related and technique-related factors.⁶ The flap thickness, flap tension before suturing and the position of the gingival margin at the end of the surgery appeared to be fundamental in achieving complete root coverage.^{3,7}

Coronally advanced flap (CAF) is a root-coverage procedure that does not involve a palatal donor site and was demonstrated to be a safe and predictable approach.⁸ In patients with high esthetic demands, the CAF is the first choice when there is adequate keratinized tissue apical to the root exposure.^{9,10} With this approach, the soft tissue used to cover the root exposure is similar in color, texture, and thickness to that originally present at the buccal aspect of the tooth with the recession defect; thus, the esthetic result is more satisfactory.¹¹

Multiple gingival recessions, affecting esthetic areas of the mouth, were successfully treated with an envelope type of CAF.⁴ In the envelope type of flap, vertical releasing incisions are avoided in order to prevent damage to the blood supply of the flap. Furthermore, vertical releasing incisions often result in unesthetic visible white scars which

can be even more unsatisfactory for the patient than the root exposure itself.

Zucchelli *et al* have suggested modified CAF technique for the resolution of multiple adjacent recession-type defects.¹¹ Aroca *et al.*¹² reported a technique, which include the composite stops placed at the contact points of the teeth to prevent collapse of the suspended sutures into the interproximal spaces.

As it is difficult to protect and achieve the most possible coronal position of the gingival margin during early healing period with routine periodontal plastic surgery techniques, Ozcelik O *et al*³ used orthodontic buttons in order to stabilize the flap in the immediate postoperative period. Orthodontic buttons are used by the orthodontists routinely as an inactive component to provide strong bond for attachment of accessories such as elastics. The most important part of this technique is to guarantee the anchorage of the coronally displaced flap. The suspensory sutures used in this technique provided the maximum coronally positioning of the flap and in addition stabilized the flap in the coronally displaced position during two weeks of wound healing.

CONCLUSION

Though CTG is considered the gold standard treatment for single and multiple areas of recession, a simpler, less invasive approach, such as a CAF, may yield an equally acceptable result. To achieve the best clinical and esthetic success, a careful assessment of existing anatomic parameters, such as the amount of keratinized tissue, the periodontal biotype, and vestibule depth, is a vital part of the surgical decision-making process. The usage of the orthodontic buttons and suspended sutures with CAF technique is an effective method in treating multiple adjacent type gingival recessions. This can be considered as promising technique in terms of both clinical (root coverage) and patient centered (esthetics) parameters. In the present case report, the surgical technique resulted in complete soft tissue root coverage. The final

esthetics, both color match and tissue contours, were highly acceptable.

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