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A NOVEL TECHNIQUE FOR MULTIPLE TEETH RECESSION COVERAGE – MODIFIED SEMILUNAR CORONALLY ADVANCED FLAP

Dental Science

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ABSTRACT

Gingival recession poses a constant concern for the patients and challenge for the practitioners. It results in unaesthetic zones and causes dentinal hypersensitivity. Root coverage procedures have now become an integral part of periodontal plastic surgeries. A number of surgical techniques for esthetic root coverage have been proposed over the years with varying success rates. This case series presents a novel yet simple technique of root coverage for treating multiple teeth recessions.

KEYWORDS

Gingival recession, Root coverage, Modified semilunar coronally advanced flap, Periodontal plastic surgery.

INTRODUCTION

Adequate correction of recession defects is one of the prime goals of periodontal therapy. Gingival recession is described as apical migration of gingival a margin resulting in exposure of root surface. Numerous etiological factors have been described: periodontal disease[1], trauma[2], iatrogenic factors, aberrant frenal attachments, thin gingival biotype, and periodontal treatment related factors[3].

Gingival tissue recession results in the poor esthetic appearance and causes dentinal hypersensitivity. On a longer run it may predispose to root caries[4]. Numerous root coverage approaches have been described in literatures with varying predictability and success rates. They can be broadly classified as pedicle soft tissue grafts, free soft tissue grafts and additive techniques[5] (Table 1).

Pedicle soft tissue grafts	
Rotational flaps • Laterally positioned flap • Double papilla flap	Advanced flaps • Coronally positioned flap • Semilunar flap
Free soft tissue grafts	
Nonsubmerged graft • One stage (free gingival graft) • Two stage (free gingival graft + coronally positioned flap)	Submerged grafts • Connective tissue graft + laterally positioned flap • Connective tissue graft + double papilla flap • Connective tissue graft + coronally positioned flap (subepithelial connective tissue graft) • Envelope techniques
Additive treatments	
• Root surface modification agents • Enamel matrix proteins • Guided tissue regeneration • Non resorbable membrane barriers • Resorbable membrane barriers	

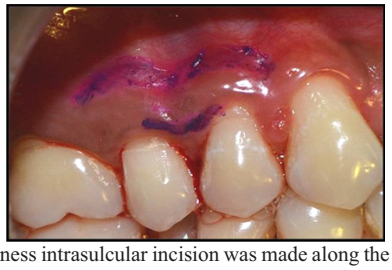
When using pedicle soft tissue grafts, the soft tissues adjacent to the recession area are positioned over the defect. In displaced flaps, the displacement is a vertical movement in coronal direction. The semilunar flap6 differs from the coronally positioned flap in the incision design and in the placement of sutures7,8. Modification of this technique was described by Haghighat et al in 2006 to treat adjacent multiple recessions9. This article describes 4 case reports of modified semilunar flaps in treatment of multiple teeth gingival recessions.

CASE REPORT

A 19 year old male reported with complaint of sensitivity in relation to teeth 24 and 25 (Fig 1). On examination the patient was systemically healthy and had adequate oral hygiene. The recession was attributed to aggressive brushing habit and an alternate technique was advised and monitored. Since the gingival biotype was sufficiently thick apical to the defects, modified semilunar coronally advanced flap technique for root coverage was planned.

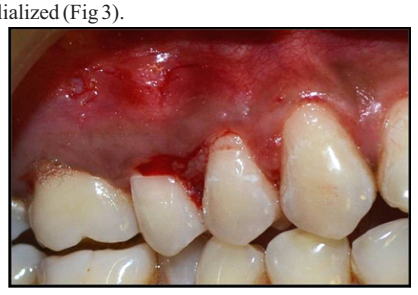
TECHNIQUE:

The procedure was performed under adequate local anesthesia (Lignocaine with 1: 200,000 adrenaline). The root surface was inspected for residual calculus and through debridement was done. Following the curvature of the gingival margins of the teeth with recession, semilunar incision was made apical to the margins. The distance from margin to the incision was calculated by measuring the amount of root coverage needed. Care is taken that the most apical extent of the arc of this incision is usually located in mucosa. The lateral extensions of the incisions should curve coronally within the keratinized tissue to terminate apical to the papilla, mesial and distal to the teeth exhibiting recession, and maintain an adequate distance from the papilla tip in the vertical axis such that the vascularity to the mobilized pedicle is not compromised (Fig 2).

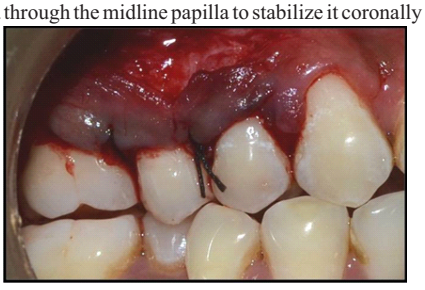


A partial-thickness intrasulcular incision was made along the gingival margins of the two adjacent teeth. A partial-thickness flap, extending

from the marginal tissue coronally to the double semilunar incision apically, was mobilized. The mesial and distal papilla were left intact; over the middle papilla, between the two teeth with recession defects, the incision along the gingival margin is extended to create a new middle papilla tip located apical to that of the original, at a distance equal to that of the recession defect. Following a partial-thickness flap reflection over the midline papilla, the remaining papilla was deepithelialized (Fig 3).



The partial-thickness flap is coronally advanced, with the newly created papilla positioned over the deepithelialized segment. The flap is sutured through the midline papilla to stabilize it coronally (Fig 4).



Post operatively analgesic (Ibuprofen 400 mg BD for 2 days) and antibiotic (Amoxicillin 500 mg TD for 5 days) was prescribed. Patient was instructed to use ice compresses. Post operative instructions were given and the patient was dismissed.

RESULTS

The patient was recalled 7 days post op and the area was examined. There was minimal discomfort. The healing was satisfactory and the sutures were removed. The patient was again recalled after 2 weeks. The healing was complete and patient reported no discomfort. The case was followed for 12 months and the results were stable (Fig 5).

DISCUSSION

The search for a perfect root coverage technique has taken many different approaches with conflicting rates of success and has led to development of a number of innovative surgical procedures to achieve consistently better and more predictable results[10].

Gingival recession is rarely localized to a single tooth. It rather involves multiple adjacent teeth. In such cases the recessions should all be treated at the same time minimizing the number of surgeries needed. At the same time removal of soft tissue from distant areas of mouth should be avoided to minimize patient discomfort[11]. Semilunar coronally advanced flap technique is a simple and less invasive technique. But it was used only in treatment of single tooth recessions. This technique was modified by Haghighat et al in 2006 so as to facilitate coverage of multiple recessions at the same time with single surgical site.

Proper case selection is an important criteria for the success with any root coverage techniques. The following criteria should be fulfilled to attempt semilunar coronally advanced flaps: no loss of intedental papilla or interdental dental bone adjacent to recession site, presence of intact interdental papilla mesial and distal to the site, thick gingival biotype and sufficient blood supply ensured at donar site[6,12]. All the 4 cases selected fulfilled these criteria.

Advantages of this technique are it is technically simple causing less trauma and discomfort to the patient , better esthetic appearance, no tension and better control and stabilization of the coronally advanced flap due to presence of suture in newly created coronally advanced interdental papilla. Also this technique can be used in cases where minimal sulcus depth is present[10]. This particular incision design allows for preservation of papilla ensuring adequate blood supply to the donor site. It also eliminated potential scarring as there are no vertical incisions involved. This technique also involves minimal surgical site with no shortening of vestibule, better coronal mobility, and stability of repositioned flap[9].

The ultimate goal of any therapeutic intervention aimed at root coverage should be to restore the tissue margin at the cemento-enamel junction and to achieve an attachment of the tissues to the root surface so that a normal healthy gingival sulcus with no bleeding on probing and a minimal probing depth is present13. All the four cases described in this report were successful and adequate root coverage was achieved. Patients reported no discomfort during the healing period. In all the cases the healing as good with no hypertropic scars or fibrosis. The color match was excellent and gingival biotype was also good.

CONCLUSION

The modified semilunar coronally advanced flap provides a novel approach for multiple teeth recession coverage as compared to other invasive techniques. The success of this technique is attributed to lack of vertical incisions that provides adequate blood supply and healing without scarring and the partial thickness flap that ensures needed coronal advancement.

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