

## Case Report

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# Coronally Repositioned Semilunar Flap for Root Coverage: A Case Report

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### ABSTRACT

Gingival recession is one of the most commonly encountered periodontal problem. It is one of the most difficult to treat periodontal issue since it requires great amount of clinical skills and patient co-operation. There are plethora of techniques and their modifications available with different levels of predictability for root coverage. One of the highlighted technique amongst many is the coronally repositioned semilunar flap. It has various advantages like tension free flap during healing (without sutures), better predictability and minimal clinical skills required. This case report describes in detail a case treated with semilunar flap and discusses further about it.

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### Introduction

One of the commonest and difficult to treat periodontal condition is the gingival recession. Gingival Recession is defined as location of the gingival margin apical to the cemento-enamel junction [1]. The main etiologic factors of gingival recession are:

**Periodontal disease:** - it is the interaction between bacterial infection and the host immune response causes bone resorption, and down-growth of the epithelium followed by gingival recession [2].

**Mechanical forces:** Faulty tooth brushing—A common cause is improper brushing technique with aggressive tooth brushing leading to gradual abrasion the gingival tissue. In these cases, gingiva appears to be free of inflammation, the apical shift of the marginal gingiva denudes root surfaces [3].

**Iatrogenic factors:** Orthodontic movement—the movement of the teeth may result in the loss of the alveolar plate, followed by gingival recession [4].

**Restorative dentistry:** Crown preparations extending subgingivally is one of the reason for gingival recession [5]. Poorly-designed dentures can lead to the gingival recession [6].

**Anatomical factors:** Many anatomical factors can be correlated to gingival recessions. These are alveolar bone dehiscence, high frenum pull, gingival biotype and tooth position [7-9].

### Overview of Various Techniques for Root Coverage

Several techniques have been proposed for the treatment of isolated gingival recession defects. The main treatment goals are

to achieve root coverage and increasing keratinized tissue width. Some of the pedicle soft tissue grafts like lateral pedicle graft, double papilla flap and oblique rotational flap, advanced flaps like coronally advanced flap [13] and semilunar flap have shown successful root coverage [10-14].

Coronally advanced flap combined with additive treatments like non resorbable barrier, resorbable barrier, enamel matrix derivative, platelet rich plasma, acellular dermal matrix, growth factors, tissue engineering and low intensity laser therapy have also shown predictable root coverage [15-21]. In this case report we intend to discuss simple & predictable technique of root coverage i.e. Coronally Repositioned Semilunar flap.

### Technique

To begin with, the case selection for any root coverage procedure is of utmost importance. The prognosis of any root coverage procedure in Miller's class 1 & 2 gingival recession is much better as compared to the Millers class 3 & 4 gingival recession cases. After appropriate case selection, the initial preparation which consists of plaque control instruction, scaling and root planing is done 2 weeks prior to surgery. On the day of surgery, adequate anesthesia is obtained at the surgical site. The exposed root surfaces need to be planed thoroughly. A no. 15 blade is used for the incision. A semilunar incision is made following the scalloped shape of the free gingival margin. It extends till the core of the papilla but does not disturb papillary tip. The incision can be extended into the alveolar mucosa if the width of Keratinized tissue is insufficient to cover the recession. The incision should curve apically mid facially so that the apical part of the flap rests on bone after it is displaced. A crevicular incision is given. Following this, it is continued as a full thickness flap till the apical semilunar incision. This completely frees the tissue from the underlying bone. The crescent shaped facial tissue is then displaced coronally

towards the cemento enamel junction so as to cover the denuded root surface. The tissue is compressed in place with a moist gauze for 5- 10 minutes [22].

### Case Report

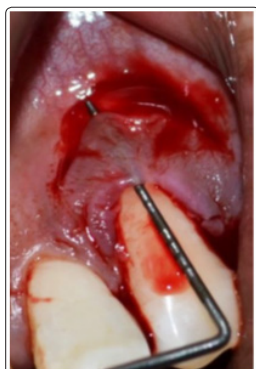
A forty-five-year-old male patient reported to the Department of Periodontics with the chief complaint of gums moving upwards in the left upper side region of the mouth since past 3 months. On examination, patient was found to be suffering from Chronic Periodontitis with generalized periodontal pockets and Miller's Class 1 gingival recession in relation to maxillary right and left canine (13 and 23). For treating the gingival recession, a semilunar flap procedure was decided. Adequate anesthesia was attained at the surgical site. A semilunar incision was made following the contour of free gingival margin extending till the core of the interdental papilla. It was followed by placing a crevicular incision. The tissue between the two incisions was reflected (full thickness) with the periosteal elevator. A through and through passage could be observed. The flap was coronally advanced with the digital pressure and moist gauze to completely cover the denuded root surface. The flap was compressed at the new site for 5 minutes using a moist gauze. A tinfoil was placed and a periodontal dressing was given over it for 1 week. The patient was given the necessary post operative instructions and medications. The patient was evaluated 1 week, 1 month and 6 months post operatively.



**Figure 1:** Pre-operative view



**Figure 2:** Semilunar incision given in gingival recession in relation to 23



**Figure 3:** Crevicular incision given & probe under the full thickness flap displaying the through and through passage



**Figure 4:** Semilunar flap repositioned coronally



**Figure 5:** Periodontal dressing placed



**Figure 6:** One week post-operative view



**Figure 7:** One month post-operative view



**Figure 8:** Six months post-operative view

### Discussion

The coronally repositioned periodontal flap has been mentioned by numerous writers in the literature. Kalmi was one of the first to describe a type of coronal repositioned flap which was performed after gingivoplasty of the attached gingiva [23]. Similarly,

Nordenram and Harvey employed surgical techniques that covered the denuded roots by coronally repositioning the mucoperiosteal flaps [24-26]. Many others like Sumner and Ward introduced modifications of the coronal repositioned flap. Bernimoulin et al. described a two-step coronally repositioned periodontal flap wherein a free gingival graft placed as well [27-29]. These numerous publications had affirmed the clinical success of the coronally repositioned flap as a root coverage procedure.

In the late 1980s, Tarnow introduced the semilunar coronally repositioned flap [22]. This technique is advantageous over other coronally positioned flaps as no sutures are required as well as there is no tension on the flap whatsoever. The vestibule depth is not affected and most importantly it does not interfere with the existing papillary unit.

The semilunar flap is indicated in cases of Miller's Class I gingival recession with minimal labial sulcus depth. In case when adequate zone of keratinized tissue is not present, a free autogenous soft tissue graft can be attempted. This procedure can be used where esthetics is a major concern. It can also be used to treat gingival recession around previous full coverage restorations in the anteriors [22].

Many case reports such as those by Jahangirnezhad, Ramya & co workers have been previously published [30,31]. These also showed a similar efficacy in the root coverage and highlighted the superiority of the procedure as compared to other root coverage procedures.

## Conclusion

This case report represented a particularly valuable technique for root coverage i.e the coronally repositioned semilunar flap. The procedure overshadows the other root coverage techniques in the sense of clinical ease, postoperative patient comfort and predictable outcomes.

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