

Use of 17% EDTA as an Adjunct in Management of Class I Recession with Semilunar Coronally Advanced Flap - A Case Report

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ABSTRACT

Gingival recession is usually characterized by the apical displacement of the gingival margin, exposing the root surface when related to cemento-enamel junction. It has turned out to be one of the most common perturbations for the patients, apart from esthetic, root sensitivity, progression of periodontal diseases and root caries are the major fields of concern. The goal of periodontist is not only to treat gingival recession but also to rectify the functional and esthetic deficiencies to further combat the periodontal destruction. Semilunar flap is one of the procedures followed to cover recession, being a simple, minimally invasive and effective technique with higher patient acceptance and provides satisfactory results for Miller's class I recession. Semilunar flap when combined with EDTA, as root conditioner provides a biocompatible cell surface for tissue attachment. Here we are presenting a case report where semilunar coronally advanced flap was used for treatment of Miller's Class I recession in maxillary central incisor.

Keywords: EDTA, Esthetics, Gingival Recession, Semilunar Flap.

INTRODUCTION

Gingival recession is the apical migration of the junction epithelium with

exposure to the root surface. The prevalence of gingival recession increases with age and is most commonly encountered issue. It results in root exposure and attachment loss with a localized or generalized form leading to root caries, cervical abrasion, dentinal hypersensitivity and diminished esthetic appearance.¹ In 1985 Miller, described class I recession as gingival marginal tissues that do not extent to mucogingival junction, with no soft tissue and/or interdental bone loss. Most often it is the few millimeters of coronal recession which is visible when the patients smile. Consequently, even a marginal recession can account for persistent dentinal hypersensitivity along with major esthetic problem. In order to conquer these clinical issues, various treatment options have been proposed that usually in the due course of gingival healing knowledge have evolved.^{2,3}

There are various procedures that have been used for the gingival recession. The criteria for the success of root coverage procedures in class I and class II recession are that the gingival margin should be on the cement-enamel junction, pocket depth should be around 2 mm, bleeding on probing should not be present and color should match with the adjacent tissue.

Various procedures have been reported for obtaining predictable root coverage ranging from elaborate procedures like free mucosal grafts to simple procedures like coronally positioned flap.⁴ Success in treatment of gingival recession is directly related to the severity of the involved tissue. Thus, in Miller's class I and class II recession, due no attachment loss, 100% root coverage is feasible.⁵ The supplementary use of demineralizing agent with varying PH as an adjunct to root coverage is usually recommended to remove the bacterial toxins along with the smear layer for the exposure of collagen fibers along the dentinal surface, which in turn retards the epithelia downgrowth and facilitates cell migration.⁶

The main objective of this case report is to describe the treatment of a Miller class I gingival recession using EDTA as adjunct to semilunar coronally advanced flap.

CASE REPORT

A 23-year-old female patient reported to the Department of Periodontology and Oral Implantology, BRS Dental College and Hospital, Panchkula, having a chief complaint of unesthetic appearance and mild sensation in upper front region of jaw since 2 months which usually aggravated on taking hot and cold food and drinks. The sensation usually disappeared after the removal of stimulus. The patient underwent complete medical and dental examination. Patient was systematically healthy and on intraoral examination, grade I calculus (traces only at the gingival margins) deposits and class I gingival recession on the buccal aspect of maxillary central incisor was found. On radiographic evaluation of the tooth, no carious lesion either on the crown or the root portion, no abrasion or abfraction and no periapical lesion were found.

PRE SURGICAL PROCEDURE: Phase I therapy, including scaling and root planing was performed and oral hygiene instructions were given to patient. Patient was advised to

use 0.2% chlorhexidine mouth rinses twice a day for 2 weeks, and proper brushing techniques were demonstrated. Patient was recalled after a week for re-evaluation of the phase I and conducting the surgical phase.

SURGICAL PROCEDURE: After proper assessment of the patient's maintenance protocols presurgical measurements of CAL and PPD were done using UNC 15 probe (Figure 1). Tooth was conditioned using 17% EDTA for 3 minutes before anaesthetizing the tissue (Figure 2). Local administration of 1:100,000 epinephrine was done followed by raising a split thickness flap using 15 no. blade and intracrevicular incision (Figure 4). The semilunar incision was given apical to defect of the involved tooth (21) (Figure 3), from gingival margin in such a way that the outline of the incision was parallel to the curvature of the gingival margin about 2-3mm short of the tip of the papillae. The flap was coronally advanced (Figure 5) and held in its new position with moist gauze for 5 minutes so as to coapt the advancement onto the underlying tissues. The defect was covered using a periodontal dressing (COE-PAK) (Figure 6). The patient was advised to continue following oral hygiene instruction including 0.2% chlorhexidine twice daily for further two weeks.



Figure 1. Preoperative examination with UNC 15 probe



Figure 2. Root conditioning done with EDTA



Figure 5. Flap coronally connected with intracrevicular incision



Figure 3. Semilunar incision given parallel to gingival margin wrt 21



Figure 6. Periodontal pack placed



Figure 4. Intrasulcular incision given with 15 no. blade



Postoperative examination after 3 month

DISCUSSION

The success of root coverage procedures is usually evaluated by the amount of recession covered by assessing and measuring the distance between the cemento-enamel junction and the gingival

margin. The study conducted by, Tarnow DP showed clinically successful results when 20 teeth were treated using semilunar flap without sloughing. Approximately 2 to 3 mm of root coverage was obtained and was consistent with the result obtained in our case.⁷ In another study conducted by Pai BS, 10 cases were treated using the modified semilunar coronally advanced flap technique and all cases met the successful criteria of root coverage. The cases which underwent root coverage procedure observed no or minimal post-operative discomfort due to absence of donor site. The factors necessary for the success of root coverage procedures are appropriate case selection with no loss of interdental papilla and alveolar bone adjacent to defect with sufficient interdental papilla, root surface covered with thick donor tissue. This helped in better and close adaptation of the graft which remained stable upto 8 to 22 months of post-surgical observation. In our study, proper case selection was done with miller's class I recession in which success rate is high for root coverage.^{8,9}

Only scaling and root planing can lead to the formation of smear layer that impairs and hinders the periodontal healing and regeneration. Emphasis was given to the usage of 17% EDTA as an adjunct to the procedure which promoted root decontamination. Periodontitis-affected root surface could not be decontaminated completely by mechanical means alone because the bacterial toxins were not completely eliminated from the root surface and the instrumented surface is usually covered by a smear layer which contains remnants of dental calculus, contaminated cementum and subgingival plaque which acts as a physical barrier between periodontal tissues and root surfaces and thus inhibiting the formation of new attachment.

Ethylene diamine tetra acetic acid (EDTA) used following root instrumentation, to enhance new attachment. This agent exposes dentin collagen and

cementum bound proteins and remove retained toxins from the altered root surfaces. Dentinal tubules get enlarged by treatment into which healing connective tissue can enter. So, root conditioning can be used as an adjunct to mechanical therapy.^{10,11}

In another study conducted by Hrishi T S, the management of gingival recession and its sequelae is based on a thorough assessment of the etiological factors and the degree of involvement of the tissues. The initial part of the management of the patient with gingival recession should be preventive and any pain should be managed and disease should be treated. When esthetics is the priority and periodontal health is good then surgical root coverage is a potentially useful therapy. Similarly, our study focused on patient's esthetic appearance which is a priority and resulted in root coverage desired by the patient.¹²

CONCLUSION

Within limitations of study, it can be concluded that semilunar flap is found to be simple and invasive with various advantages with small single incision and elevation of partial thickness flap leading to decreased or no morbidity, faster healing time, no complicated procedure involved and excellent prognosis provided patient motivation on high plaque control protocols.

Thus, surgical techniques used provided satisfactory results in the treatment of Miller's class I gingival recession for the patient. Surgical technique along with EDTA application on root surface was found to be more effective in treatment of gingival recession.

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