

Regaining the pink tissue curtain: a case report

Saurabh Sinha^{1*}, Khushbu Adhikari², Shankar Babu TP³, Koshika Tandon Sinha⁴

^{1,4}Senior Lecturer, Purvanchal Institute of Dental Sciences, Gorakhpur, ²Assitant Professor, UCMS, Bhairahawa, Nepal, ³Private Practitioner

***Corresponding Author:**

Email: dr.saurabhsinha@gmail.com

Abstract

Gingival recession is characterized by the displacement of the gingival margin apically from the cemento-enamel junction (CEJ)⁽¹⁾ and is one of the most common mucogingival deformity observed in our day to day practice. Gingival recession can be generalized or localized and may be associated with one or more surfaces of tooth. The exposed root surfaces may lead to hypersensitivity and increase the chances for developing root caries. It may become difficult to perform plaque control due to decreased amount of attached gingiva and vestibular depth leading to predisposition of the area to gingival inflammation.⁽²⁾

The main indication for root coverage is esthetic demand together with reduction of root sensitivity and management of root caries or cervical abrasion, according the American Academy of Periodontology's positional paper on mucogingival therapy.⁽³⁾ Various modalities have been put forward for treatment of recession in which, according to Miller, root coverage procedure is quite predictable and the patient should be made aware about this procedure. In contrast, according to Dorfman⁽⁴⁾ et al if marginal tissue can be maintained free of inflammation, treatment of recession need not be considered.

Free gingival grafting is a well-established mucogingival procedure for increasing the width of attached gingiva.⁽⁵⁾ This procedure has proven to be reliable in increasing attached gingiva and stopping further progression of recession.

Keywords: Mucogingival, root Coverage, free Gingival Graft, Connective Tissue Graft, Esthetic root Coverage, Bridging, Creeping Attachment

Case Report

A 25 years old male patient visited with a chief complaint of sensitivity of a tooth in lower anterior region. No relevant medical and dental history could be elicited. On intra-oral examination, probing depth of no more than 3mm was reported on all the surfaces of tooth present. There was minimal bleeding on probing and the oral hygiene status was good. A Miller's class II recession with respect to the tooth 41(Fig. 1) was noted. No bone loss was observed in radiographic examination.

The patient underwent phase I therapy which included scaling, root planing and plaque control instructions with reinforcement of brushing technique. The patient was recalled after a month for re-evaluation. The recession on the lower incisor was recorded as apico-coronally 3mm and mesio-distally 2mm. After obtaining an informed consent from the patient, Miller's technique for free gingival grafting to achieve root coverage and simultaneously increase the attached gingiva was considered for the case.

Surgical Procedure

Preparing the recipient site

After adequate local anesthesia had been achieved, thorough root planning with a Gracey#1-2 curette was done with respect to 41. Root bio modification was done using tetracycline powder mixed in distilled water. The horizontal incision (Fig. 3, 4) was made at the level of cemento-enamel junction extending from the line angle of adjacent tooth on either side of the recession

deep into the papilla, creating a well-defined butt joint margin.

Vertical incision was placed extending at the distal terminal of the horizontal incision, well into the alveolar mucosa, so that it is 3mm beyond the apical extent of the recession. A partial thickness flap was elevated and excised apically.

Preparing the Donor Tissue

Tin foil template was used to determine the accurate amount of required donor tissue. The template was prepared by adapting the aluminum foil to the recipient site. The left side of palate was chosen and the area between first and second premolar which had greater thickness was selected to harvest the donor tissue (Fig. 5). The initial incision was outlined by the placement of tinfoil template with a No.15 blade. The obtained graft was inspected for any glandular or fatty tissue remnants and the thickness of the graft was checked to ensure the smooth and uniform thickness.

The graft was placed on the recipient bed (Fig. 6) and was secured by means of interrupted sutures with 5-0 silk sutures (Fig. 7) at the coronal and apical borders.

After suturing a tin foil under the periodontal pack was placed (Fig. 8, 9) for proper adaptation of the graft and protection of the surgical site. The palatal wound was protected by a pack and the pack stabilized by Hawley's retainer (Fig. 8).

Post-Operative Instructions

The patient was advised to refrain from tooth brushing at the surgical site for two weeks. 0.12% chlorhexidine mouth rinse twice a day for 2 weeks and a course of antibiotics including amoxicillin 500mg thrice daily and 400mg of ibuprofen thrice daily for 5 days. The pack was removed after 2 weeks; there was partial necrosis of the graft. Surgical site was irrigated with normal saline followed by suture removal. Satisfactory healing of palatal wound was observed. Patient did not complain of any discomfort. The patient was instructed to use a soft tooth brush with a roll-technique followed by a 60-second rinse with chlorhexidine-di-gluconate for the next 2 months. After that the patient can return to the usual oral hygiene procedures. A satisfactory result was obtained with complete coverage of recession (Fig. 10).



Fig. 1: Gingival Recession Irt 41



Fig. 2: Pre-Operative Radiograph



Fig. 3: Incision Given



Fig. 4: Root Biomodification Done



Fig. 5: Harvesting Site for Donor Tissue



Fig. 6: Graft Placed On Recipient Bed



Fig. 7: Sutures Placed



Fig. 8: Tin Foil Placed Prior To Coe Pak Placement



Fig. 9: Coe Pak & Hawley Retainer Placed



Fig. 10: Two Month Post-Operative

Discussion

This case report presented Miller's class-II recession of tooth no 41, which showed partial root coverage by use of free autogenous soft tissue graft. Miller Proposed criteria for successful root coverage which included absence of bleeding on probing, with a sulcus depth of 2 mm, and soft tissue margin at the cemento-enamel junction and clinical attachment to the root.⁽⁶⁾ Using these criteria for success, Miller treated 100 cases of marginal tissue recession with root planing, saturated citric acid burnished into the root of 5 minutes and with free gingival graft. A 100% root coverage of was attained in the area of deep-wide recession and shallow-wide recession. Holbrook and Ochsenbein also used free gingival graft on 50 documented teeth and reported recession of less than 3mm had 95.5% total root coverage whereas recession of 3-5mm had coverage of 80% and recession more than 5mm had 76% coverage.⁽⁷⁾

Root coverage by placing free graft was first described by Sullivan and Atkins, they reported that free gingival graft offers best results in cases of shallow and narrow recession.⁽⁸⁾ They suggested that after placement of graft over recessed tooth some amount of "bridging" can be observed because a portion of grafted tissue which is covering the root survives by receiving circulation from the vascular portion of the recipient site. In addition to bridging, there can be post-operative coronal migration of free gingival margin due to creeping attachment. Factors which favor creeping attachment are narrowness of the recession, the presence of bone positioned inter-proximally at a coronal level on the facial surface, absence of gross tooth malpositioning, and adequate plaque control. However Miller in his study obtained complete root coverage in area of deep-wide recession by various procedures.

Soft tissue grafting for the purpose of root coverage is technically one of the most demanding periodontal surgery and seeks maximum attention to the details as it is interrelated to multiple factors and any one of them cannot be singled out as 'the most important factor', compared to other procedures of periodontal therapy.

In various studies comparing free gingival grafting with connective tissue graft, the mean percentage of root coverage is greater for connective tissue grafting than free gingival graft, since connective tissue graft is a bilaminar technique receiving dual blood supply from both the recipient bed and from the pedicle flap. Thus the problem of graft necrosis over the denuded root surface is reduced with connective tissue graft compared to free gingival graft. The sub pedicle connective tissue graft is a delicate operative procedure that requires careful technical attention.

Free gingival grafting when used alone or in combination with other technique, has a high predictability rate. However it is more technically

sensitive, seeks more time, and the tissue color match is often less than ideal. Its indication includes: increasing the depth of vestibule, increasing the amount of attached gingiva, augment the area of minimal gingival prior to orthodontic treatment.

It is of prime importance to establish the therapeutic goal of the corrective surgery and its result should be judged against the result of other different techniques. If stabilization of existing recession is the therapeutic objective and full coverage of the exposed root is not required, then a simpler mucogingival procedure should be preferred.

The free gingival graft when performed for increasing the amount of attached gingiva is a relatively simple surgical procedure as compared to its use for root coverage as it is more technically demanding procedure. Overlooking or failing to properly address multiple factors related to root coverage can result in incomplete coverage.

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