

Root coverage with laterally positioned flap

Léo Guimarães **SOARES***

Lisiane **CASTAGNA***

Celso Renato de Souza **RESENDE***

Denise Gomes da **SILVA****

Eduardo Muniz Barretto **TINOCO*****

Márcio Eduardo Vieira **FALABELLA******

Abstract

Gingival recession is a common clinical condition that brings esthetic discomfort, sensitivity, among other problems. Looking for a satisfactory outcomes both esthetically and functionally, several techniques have been proposed to root coverage, including the laterally positioned flap — which is a pedicle graft technique that, despite some limitations and a few indications, may achieve good outcomes in some cases. Due to the lack of predictability, the treatment of class III gingival recession is considered a major challenge for dental professionals; thus in the case reported in this paper, we aimed the root coverage in a class III by means of the laterally positioned flap technique.

Keywords: Gingival recession. Periodontics. Dentin sensitivity.

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Contact address

Léo Guimarães Soares

Praça Garcia 99 - Centro
CEP: 25.850-000 - Paraíba do Sul/RJ - Brazil
E-mail: dr_leog@hotmail.com

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* MSc in Periodontics (Unigranrio). PhD student in Periodontics (UERJ).

** MSc in Periodontics (Unigranrio). PhD student in Materials Science (IME).

*** PhD in Periodontics (UERJ). Adjunct Professor of Periodontics, Unigranrio.

**** PhD in Periodontics (Oslo, Norway). Adjunct professor of Periodontics, Unigranrio/UERJ.

***** PhD in Periodontics (UERJ). Adjunct Professor of Periodontics, Unigranrio/UFJF.

Introduction

Gingival recession is defined as an apical migration of the gingival margin in relation to the cemento-enamel junction (CEJ). Gingival recession may cause the patient to feel esthetic discomfort and dentin hypersensitivity.¹

There are several techniques with the purpose of achieving the coverage of exposed root surfaces.² The main indications to mucogingival procedures for root protection are: Increase of keratinized tissue,³ root coverage,² correction of edentulous ridges,⁴ peri-implant correction,⁵ biological dressing,⁵ aid to maxillofacial surgery,⁶ adjunctive frenulectomy⁷ and to increase keratinized tissue and prevent gingival recessions in orthodontic movements.⁸ The presence of an alveolar bone dehiscence is considered a prerequisite for the development of a marginal tissue recession.⁸

The choice of a repositioned flap may lead to improved esthetic conditions, gingiva rearrangement, reduced root sensitivity, but also may present limitations, such as: shallow vestibule, little attached gingiva and wide recessions, with prominent roots.⁹

The elimination of some likely etiological factors — as traumatic brushing, local irritants such as calculus, improperly adapted restorations, misplaced orthodontic bands — and the adoption of a strict and proper plaque control, with adjustments on the brushing technique, may stabilize a gingival recession in the long-term.¹⁰

However, when the desired increase of attached gingiva is not obtained, it may be necessary to perform an additional surgery,¹¹ such as the lateral positioning of the flap. Thus, this paper objective was to describe a case where root coverage was achieved with laterally positioned flap.

Case report

In this case report, a 27-years-old female patient, with good general health, searched for assistance complaining of esthetic dissatisfaction. On clinical examination it was found chronic periodontal disease in a few sites and the presence of an isolated gingival recession in tooth #23, classified as Müller class III¹² (Figs 1 and 2). According to the patient's report, it was performed a periodontal surgery in the area about a year before, which certainly



Figure 1 - Initial clinical aspect. Note deep gingival recession in #23 tooth.



Figure 2 - Initial frontal photograph showing gingival Müller class III gingival recession.

contributed to this recession. Endodontic treatment of tooth #23 was also performed prior to this surgery.

Due to the extent of root surface exposed and the lack of attached gingiva in the buccal area, surgical planning was directed to the laterally positioned flap, in order to obtain tissue to cover the root and, hence, connective tissue graft (Fig 4).

Previously to the surgery, the patient received basic periodontal therapy. At the receiving area, it was performed infiltrative anesthesia, intra-sulcular incision in the tooth #23, while maintaining a strip of attached gingiva¹³ in the teeth #24 and #25, associated to relaxing incisions with detachment of a partial flap. The root of the tooth #23 was carefully scraped using Gracey curette 5-6 (Hu-Friedy).

In the donor area, anesthesia was performed and then removed a full-thickness graft. This area was calculated in millimeters with a periodontal probe. The donor tissue was removed from the region of the palate with

an extension from the canine to the mesial area of the first molar (Fig 3). The removed graft was compressed in the receiving area for about 3 minutes and then stabilized with interrupted sutures of 6.0 Vicryl wire. The flap was stabilized with continuous sling sutures in the element #23 and with simple suture with Vicryl 6.0 and Silk 4.0 on the other areas (Ethicon) (Fig 5). In the donor area simple sutures and the application of surgical cement (Coe-Pack®) was also performed.

Anti-inflammatory and analgesic were prescribed as post-operative care, besides mouthwash with 0.12% chlorhexidine gluconate, twice daily to control plaque up to seven days. The sutures were removed 15 days after surgery.

Clinical follow-up after 21 days (Fig 6) and then after 3, 6 and 12 months (Figs 6, 7, 8 and 9) show maintenance of tissue stability, suggesting the functional and esthetic effectivity of the therapy. In Figure 10, an approximate view of the whole case, which allow us to observe the results over the 12 months of treatment.

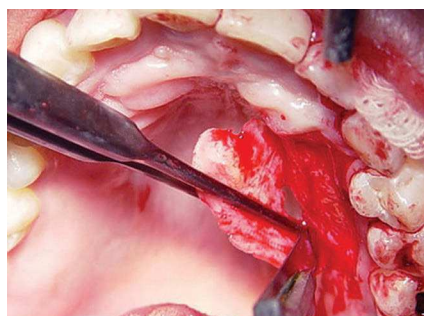


Figure 3 - A 15 mm graft was removed from the palate region.



Figure 4 - Graft stabilized in the receiving area with sutures.



Figure 5 - Sutures performed after laterally positioned flap procedure.



Figure 6 - Aspect of tissue healing after 21 days.



Figure 7 - Aspect after 03 months. Note mild bleeding and plaque accumulation in the element. The patient was instructed to intensify the oral hygiene.



Figure 8 - Aspect after 6 months.



Figure 9 - Final aspect, after 12 months.



Figure 10 - Close-up views: **A)** Initial, **B)** after 21 days, **C)** after 3 months, **D)** after 6 months and **E)** after 12 months.

Discussion

In this case reported, the patient had a complex recession in the tooth #23 due to loss of keratinized tissue including interproximal loss. It was a class III recession according to Müller classification¹², in which marginal tissue recession occurs, and extends to or beyond the mucogingival junction; and loss of interdental bone or soft tissue is apical in relation to the cemento-enamel junction, but coronal to the apical extension of the marginal tissue retraction, thus generating a prediction of partial root coverage. A combination of techniques was indicated as having the best prognosis for this case. The root coverage in this case is in accordance with the literature,¹⁴ where only partial coverage of the recession was achieved in a Müller¹² class III defect, independently of the technique performed.¹⁵

The type of root coverage performed in this case promote several advantages to the recession as esthetic improvement in the region, greater protection against root abrasion, besides reduction of dentin hypersensitivity reported by the patient. However, only classes I and II recessions have predictability of covering 100% of the root by means of surgical techniques. Class III recessions have predictability of partial coverage and Class IV has no predictability for covering.

In many cases, more than one procedure is necessary for the treatment of gingival recession, as in this case reported. Consequently, the combination of two or more procedures have been increasingly used to provide best results.^{16,17} According to the literature,¹⁸ several factors can influence the level of success of each procedure, and the most important to be considered are the interproximal bone level and the selection of the most suitable technique for each particular case.

This case report is in accordance with a recent case report¹⁹ of a Müller class III, where the authors describe the simultaneous application of a combination of three

techniques, including: A connective tissue graft and a laterally positioned flap to treat a Müller class III recession located in the anterior inferior region. Twelve months after the surgical procedures, there was partial root coverage with favorable esthetic results and a gain in clinical attachment level, without any periodontal pockets and bleeding on probing.

In two other cases of gingival recession²⁰ in the area of central incisors, with absence of keratinized mucosa, the authors reported that the use of free gingival graft — despite its limited use in esthetic conditions and generating postoperative discomfort by exposing an open wound in the donor area — provided excellent functional results, promoted efficient attached gingiva and allowed, with the aid of creeping attachment, root coverage that generated esthetic improvement and reduction of tooth sensitivity. In the present case, it was decided for the subepithelial connective tissue graft because it allows a very good final esthetic result, predictability of root coverage, reduction of probing depth, clinical attachment gain and gain in keratinized tissue.¹⁰

Among the places most suitable for obtaining connective tissues are: The palate, the tuberosity and the edentulous ridge, but no doubt, the most commonly used as a donor area is the hard palate, as in this case.^{13,16} In this case it was applied the subepithelial connective tissue graft technique,²¹ which is considered a usual technique for the removal of palatal tissue, where the removed graft is placed on the exposed roots.

One study evaluating 28 patients over 8 years observed possible clinical changes that occur in the buccal gingival wall of donors teeth in the treatment of localized gingival recessions with laterally positioned flap. The authors noted that donors teeth had small and predictable undesirable results, with decreased range of keratinized gingiva, increased recession in a few teeth,

and clinical attachment loss even smaller without interfering plaque and gingival indexes. The authors emphasize that the technique should be properly indicated and performed, and if possible it should be kept a small strip of gingiva in the cervical region of the donor tooth,¹³ which was performed in the present case in the vestibular region of teeth #24 and #25.

The free gingival graft is still considered the most appropriate technique when the aim is to increase the width of attached gingiva.²² However, the technique of connective tissue graft, despite needing more than one surgical site, proves to be quite efficient and advantageous because of its high predictability, the absence of keloid, double blood supply and healing by first intention.¹⁶ Thus, choosing the technique is a crucial moment and it should take into account all aspects of the recession — as the width, height and thickness of adjacent gingiva, and depth of the vestibule on the region — as well as patients' expectation, and even their financial condition.¹⁹ In this case, the choice was influenced by the absence of attached gingiva on the buccal region and because it was a very extensive recession.

According to the recent literature,^{3,8,23} for root coverage, the connective tissue graft technique with coronal repositioning is the most appropriate and with greater predictability, generating less strain on the flap. However in this case it was observed that the technique of laterally positioned flap generated a satisfactory result. This result corroborates findings in the classic scientific literature,²⁴⁻²⁹ where the authors found better results using the laterally moved flap.

Conclusion

As it can be noted in the reported case, class III gingival recession may alternatively be treated by means of a surgical intervention to achieve root coverage. It should be emphasized the importance of evaluating the extent of the recession and the patient's expectation before selecting the most suitable technique for the case, pointing out the importance of taking into account the indications, contraindications and limitations of each technique. Still, it should be emphasized that early diagnosis and instructions on oral hygiene may favor non-surgical conservative procedures, and prevent the progression of gingival recession.

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