Clinical case

Treatment of multiple recessions in the aesthetic sector through the use of the bilaminar technique: Description of the surgical technique and results

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ABSTRACT

Gingival recession, defined as partial radicular denudation by apical displacement of the gingival margin, involves the vestibular alveolar bone and the free gingiva located above it. Gingival recessions were classified by Miller according to the prognosis for root coverage. Different surgical procedures and flap designs have been proposed for the treatment of multiple recessions in the aesthetic area.

This paper presents and describes the treatment of multiple adjacent gingival recession affecting the aesthetic zone, which were treated using the bilaminar technique, connective tissue graft and enamel matrix derivatives in combination with a coronally advanced flap.

Use of the bilaminar technique resulted in successful root coverage for treatment of multiple gingival recession.

KEYWORDS

Gingival recession; Connective tissue graft; Mucogingival surgery; Emdogain.

INTRODUCTION

Gingival recessions are a pathological manifestation encountered quite frequently in our daily practice. Their most typical location is the oral face of the teeth.[1] Different classifications systems for gingival recession have been described throughout history, however, the Miller classification system (1985) one of the most cited in the scientific literature.[2]

In recent decades, the need to solve the problems generated by root exposure, such as dentine hypersensitivity and root caries, have led to the proposal of numerous therapeutic modalities for coating exposed roots, especially at the level of the incisors and bicuspids.

We currently have two fundamental techniques to address the treatment of multiple recessions, such as the modified combined thickness coronally advanced flap[3] and the supraperiosteal tunnel technique.[4,5]

Selection of one surgical technique over another depends on the local anatomical conditions of the area to be treated and the patient's requirements.[3] The local anatomical conditions are related to the tooth and adjacent soft tissues. Regarding the tooth, it is necessary to consider the dimension of the radicular exposure (width and depth), the number of recessions and the loss of cervical hard tissue associated with radicular exposure. Regarding soft tissues, it is important to analyze the quality and quantity of keratinized tissue apical and lateral to the radicular exposure, as well as the depth of the vestibule and the presence of the frenulum next to the muscular tension surrounding the margins of the soft tissues.

Different systematic reviews and meta-analyses show that connective tissue grafts (CTJ) offer superior results in obtaining keratinized gingiva and root plaque versus pedicled flaps without the use of soft tissue grafts or substitutes.[6-8]

Gingival recessions do not always of inflammatory or traumatic origin. They may be due to dental malocclusions, orthodontic treatment[9] or the presence of frenula and muscle insertions.[10] The treatment of multiple gingival recessions is indicated both for improvement of the periodontal prognosis, due to better control of bacterial plaque, and to improve the aesthetic appearance.

Figure 1. Initial clinical situation.

Figure 2. Before treatment, multiple localized recessions from 21 to 26.

The objective of this work is to present treatment that consisted of a bilaminar surgical technique with a connective tissue graft and enamel matrix derivatives to correct gingival recessions in the aesthetic sector.

CLINICAL CASE

A 22-year-old woman who comes to our clinic due to the presence of multiple gingival recessions from teeth 21 to 26. The patient states that her longest teeth have an unsightly appearance. No medical history of interest or drug allergies and does not smoke.

Periodontal clinical examination revealed multiple vestibular gingival recessions (Miller class I) that affected teeth 21, 22, 23, 24, and 26 (Figures 1 and 2). No clinical or radiographic signs of periodontitis were observed.

Therefore, the treatment objectives were: A) Achieve complete root coating. B) Improve the aesthetics by ensuring that the resulting tissue that covers the

Figure 3. Flap design.

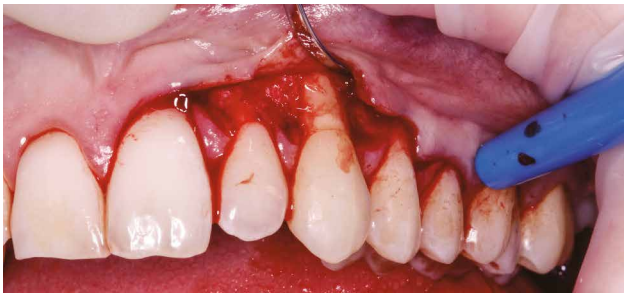

Figure 4. Design of the partial-total-partial flap.

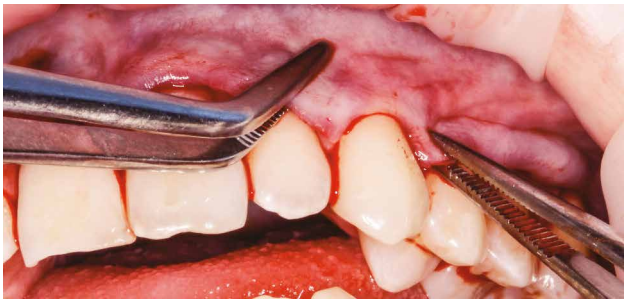

Figure 5. Observe the elasticity of the flap.

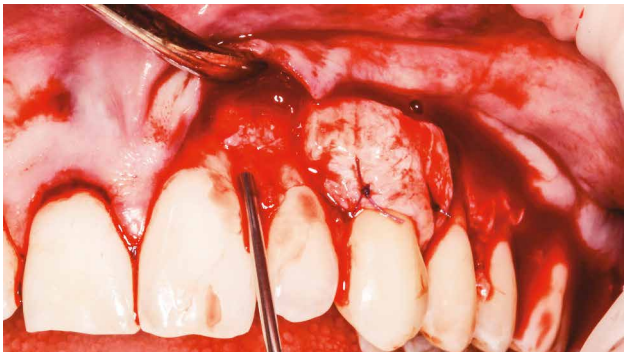

Figure 6. ITC placed at the level of tooth 23 and application of Emdogain® gel.

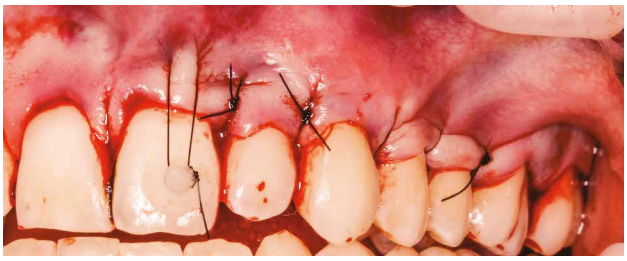

Figure 7. Suspensory sutures.

Figure 8. Follow-up at one week.

recessions naturally imitates the neighboring tissues in color, shape and consistency.

The surgical technique chosen to approach the treatment was by means of a coronal reposition flap (CRF) combined with a connective tissue graft (CTG) plus the use of enamel matrix proteins (Emdogain®).

Surgical procedure

Prior to the intervention, the patient was rinsed for one minute with a chlorhexidine mouthwash. The surgical technique began with the preparation of the recipient bed, making oblique sub-segmental incisions in the interdental areas, which were continued with an intrasulcular incision in the recession defect (Figure 3). A flap was raised using the partial-total-partial flap technique in a corono-apical direction (Figure 4). The most apical portion of the flap was raised to partial thickness to facilitate its coronal displacement, this incision cuts the superficial muscular attachments included in the thickness of the flap. Mobilization of the flap was considered adequate when the marginal portion of the flap passively exceeded the cementoenamel junction of the treated teeth and when the surgical papillae covered the anatomical papillae (Figure 5). The tanatomical interdental papilla tissue was de-epithelialized to receive the surgical papilla.

Mechanical and chemical decontamination of the root surfaces was then carried out. For this, the exposed root areas were carefully smoothed with ultrafine Perioset

Figure 9. Follow-up after 2 weeks.

Figure 10. Follow-up at one month.

Figure 11. Follow-up at 6 months.

Figure 12. Follow-up at 9 months; Complete root coating in all treated areas.

burrs. After thorough debridement and softening of the root surface, the exposed root was chemically treated with 24% ethylenediaminetetraacetic acid (Prefgel) for two minutes, followed by an abundant saline lavage. After profuse rinsing with sterile saline solution, Emdogain® gel was placed on the exposed root surfaces.

Once the recipient bed was created, we proceeded to obtain a CTG from the palatal masticatory mucosa and the said graft was positioned at tooth 23 through simple sutures in the connective tissue of the de-epithelialized papillae (Figure 6).

Subsequently, the vestibular flap was advanced coronally, completely covering the cementoenamel junction. Suspension sutures were performed with 5/0 non-absorbable sutures to allow adaptation and stabilization of each surgical papilla on the interdental connective tissue bed and a dental suspension suture at the level of tooth 21 (Figure 7).

We performed follow-up a week after the intervention (Figure 8) and after 15 days we removed the suture, observing a good healing (Figure 9). Photographic follow-up after 1, 6 and 9 months showed a complete root coating and a favorable aesthetic outcome (Figures 10, 11 and 12).

DISCUSSION

Periodontal plastic surgery is carried out for aesthetic and physiological reasons, such as root sensitivity, root caries, cervical abrasion and to facilitate plaque control in the affected areas.[11] Therefore, the objectives include achieving successful coverage of the exposed root surfaces, as well as good aesthetics and functionality.

Numerous studies have shown the effectiveness of the use of a CTG for root coating.[12-14] In addition, the bilaminar techniques[15-17] have greater predictability in terms of the root coating obtained, provide a better blood supply, graft protection, ease of fixation and decrease in the graft contraction compared to other non-laminar models. We see in the literature that we can expect complete root coating in Miller classes I and II. However, in recent years, it has been shown that we can also achieve complete coating in class III gingival recesses.[18]

Enamel matrix derivative is a resorbable material consisting of hydrophobic proteins extracted from embryonic enamel of developing porcine origin.[19] In this case, proteins derived from enamel were used. It is important to state that there is scientific evidence that supports the use of regenerative techniques through the

use of these proteins to improve stability and long-term coating results through the induction of the formation of new periodontal fibers on new cement.[20,21]

In our clinical case, the graft dimension was adequate to cover only the root surface of tooth 23. Our decision-making process included clinical considerations regarding patient morbidity and the possible side effects of obtaining another graft from the palate. Therefore, the availability of substitutes (Emdogain®) is very useful for the treatment of multiple gingival defects to reduce patient morbidity and, at the same time, obtain a favorable aesthetic outcome and root coating.

CONCLUSIONS

The coronally advanced flap in combination with connective tissue and Emdogain® are predictable and showed effective aesthetic results after 9 months.

The choice of surgical technique for the treatment of gingival recessions should be the one that, contrasted in the literature, obtains the best therapeutic result with the lowest patient morbidity.

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