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Treatment of Advanced Gingival Recessions Using Lateral Sliding Flap or Bilaminar Technique: Case Report with 5y Follow-up

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Abstract

Introduction: *Gingival recessions can lead to an unpleasant smile. Numerous techniques have been described to reconstruct lost tissue.*

Case Presentation: *In this report, we present a case of bilateral advanced gingival recessions treated with the bilaminar technique and the laterally moved coronally advanced flap. The latter was corrected with a bilaminar technique to increase the keratinized tissue thickness and width.*

Conclusion: *The five years clinical results showed the positive effect obtained by the addition of connective tissue, warranting the stability of the new soft tissue.*

Key Words*: Bilaminar Technique, Coronally advanced flap, Gingival recession, Lateral sliding flap, Root coverage.*

Background

Gingival recession (GR) is defined as a marginal tissue displacement apical to the cementoenamel junction (CEJ) (1). Various surgical procedures have been developed with the goal of achieving complete root coverage (CRC) and esthetics. Lateral sliding flap and coronally advanced flap (CAF) with (bilaminar technique (BT)) or without connective tissue graft (CTG) are some of the most predictable techniques in terms of CRC (2). Utilizing the trapezoidal flap, 85% of CRC was obtained (3). Different factors have been considered by many authors (1)(2) as being a contraindication for the CAF technique. To overcome these limiting anatomical conditions, recent scientific evidence (4) supports the use of the BT.

The presence of a wide and thick band of keratinized tissue (KT) adjacent to the recession can be used for soft tissue coverage. Combining CAF and a laterally moved flaps was described by Zucchelli et al.(2) in 2004 in order to increase root coverage and reduce the risk of recession at the donor site.

In the present article, we report the 5y follow-up of advanced bilateral single GRs affecting the maxillary canines in a female patient that were successfully treated using a laterally moved coronally advanced (LMCA) flap or the BT.

Clinical Presentation

A 45-year-old healthy nonsmoker female presented to the Department of Periodontology, Saint-Joseph University, Beirut, Lebanon, complaining of a lack of self-confidence due to an unesthetic smile caused by advanced GR on her upper canines. Clinically bilateral 8 and 7 mm RT1 recessions (Cairo 2011) on the right and left canines, respectively, were detected (Fig.1). A full mouth bleeding score of 84% and a full mouth plaque score of 72% were calculated.

Figure 1: Gingival recessions on teeth number 13 (a) and 23 (b): (a): recession depth of 8 mm and width of 4mm, note the thick band of KT lateral to the recession; (b): recession depth of 7 mm and width of 4mm; note the absence of apical KT with no interproximal soft tissue loss(c): unesthetic patient's smile after initial phase.

Case management

LMCA flap on tooth 13

A triangular-shaped recipient bed was performed at the mesial side of the recession. The latter and the anatomic papillae were deepithelialized to provide a vascular bed for the laterally moved flap. A pedicle flap was elevated from the distal side, in full thickness in its most coronal 3 mm followed by deep and superficial split thickness incision (Fig. 2). Following instrumentation of the exposed root, the flap was rotated, coronally advanced, and sutured at the recipient site in an apico-coronal direction. A sling suture was performed to create a seal for blood clot stabilization and soft tissue maturation. Ibuprofen 600 mg t.i.d. and a chlorhexidine solution (0.12%) t.i.d. were prescribed.

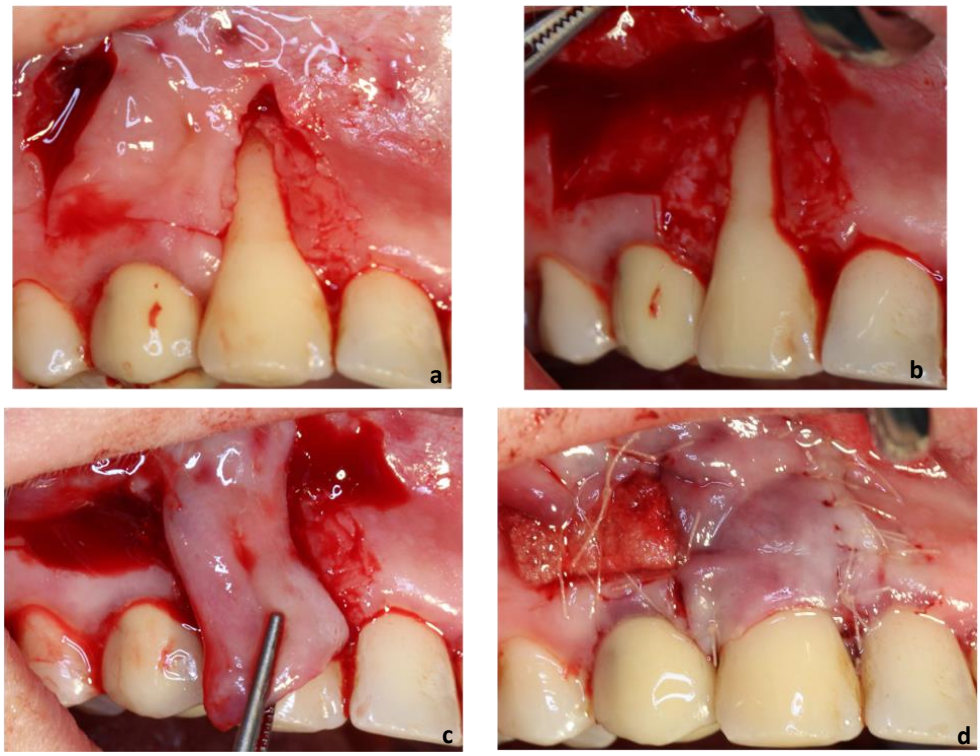

Figure 2: The surgical procedure of the laterally moved, coronally advanced flap on tooth number 13: (a) : Donor and recipient site flap design; (b) : Donor and recipient site flap elevation; (c) : flap passivation; (d) : the flap is rotated, coronally advanced and sutured at the recipient site in an apico-coronal direction. A sling suture is performed to provide a precise adaptation over the underlying tooth surface and a collagen sponge is placed and sutured at the donor area.

BT on tooth 23

A trapezoidal flap with a split-full-split approach (4) was performed. A free gingival graft harvested from the palate was deepithelialized and sutured to the anatomical papillae. The flap was then sutured in an apico-coronal direction and a final sling suture was applied at the coronal portion of the flap (Fig. 3)

However, due to an incomplete root coverage on tooth 13 (Fig. 4), a second surgical intervention using the BT was performed 6M later.

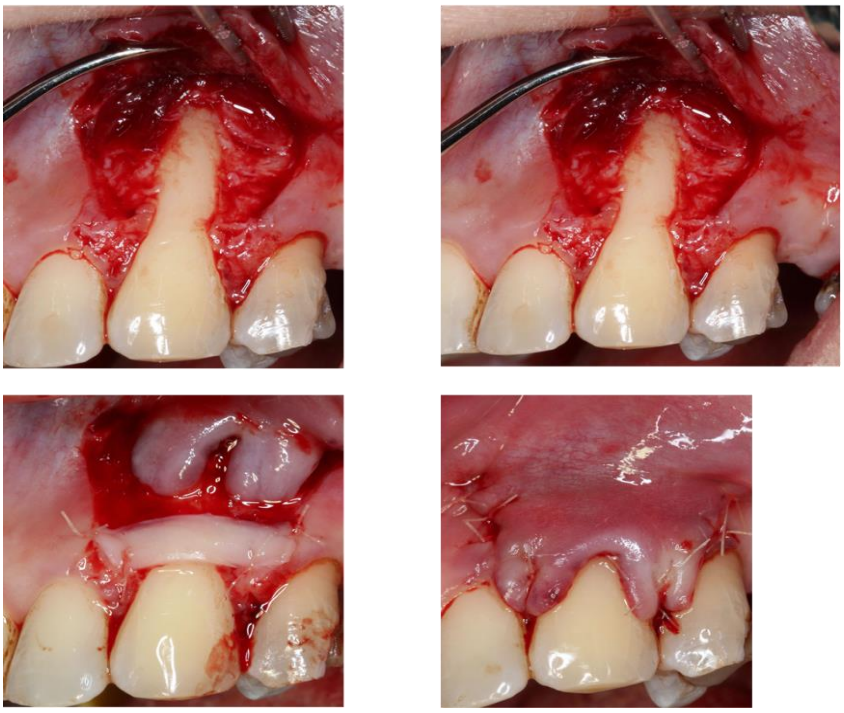

Figure 3 : The surgical procedure of the CAF+CTG (bilaminar technique) : (a) trapezoidal flap design : two horizontal and two vertical divergent incisions extending apically to the alveolar mucosa, (b) : Flap elevation : split thickness at the level of the surgical papilla, full thickness at the gingival margin , deep and superficial dissections apically, (c) : the CTG is sutured to the anatomical papillae, (d) : the flap is sutured in an apico-coronal direction and a final sling suture is applied at the most coronal portion of the flap.

Figure 4: Incomplete root coverage on tooth number 13, 6 months after the LMCA flap procedure

Clinical Outcome

CRC was obtained on both sides and the results were stable after 5y (Fig.5).

Figure 5: 5 years results of the bilaminar technique on the 13 and 23; a: Frontal view; b: Lateral view 13; c: Lateral view 23

Discussion

Root coverage procedures are usually performed to treat hypersensitivity, esthetics, demineralization/caries, or abrasions or when the patient is unable to maintain correct plaque control (5). The major chief complaint reported herein was the unesthetic smile affecting psychologically the patient. The CRC obtained had a positive effect on the patients' chewing and brushing abilities as shown by de Carvalho et al. (6).

Incomplete root coverage can be caused by an inappropriate technique or several limiting factors including loss of the papillary tip, tooth rotation, extrusion, or occlusal and cervical abrasion (7). More importantly, in the case of a prominent root or the absence of KT, a CTG under the CAF is crucial. In the herein case, a LMCA flap was adopted for tooth 13 due to the absence of KT apical to the defect and the presence of a wide band of KT lateral to the defect. An incomplete root coverage was obtained due to the absence of an adequate thickness of the translated flap. To fulfill the patient's demands, an additional procedure was deemed necessary. A BT that resulted in CRC and tissue thickening was chosen. An important aspect of the BT is the presence of the CTG that stabilizes the flap by preventing its collapse and apical retraction (8). A crucial aspect for a successful early healing phase results in blood clot stabilization in a coronal position leading to maturation and additional soft tissue thickening.

Procedures performed using BT result in satisfactory root coverage as well as esthetic results. In a split-mouth randomized controlled clinical trial (RCT) with 11 patients comparing a BT (test) with CAF (control), a mean root coverage of 75% and 69% were obtained for the test and control group respectively. No significant differences in any periodontal parameter were noted, however, at 6M postoperatively, the addition of CTG resulted in a significant increase in KT and gingival thickness (9). In the present case, both canines were prominent and lacked KT. Thus, the BT was considered the technique of choice to increase thickness and width of KT(10).

To reduce patient morbidity, multiple soft tissue substitutes have been suggested, and favorable results reported (11). Nevertheless, long-term outcomes are scarce and few reports show a tendency to relapse (12). A minimal invasive approach utilizing an autogenous graft of reduced dimensions was reported (13) in a RCT on 60 patients equally allocated to “small graft group” (thickness < 2 mm and height = 4 mm) and “big graft group” (thickness ≥ 2 mm and height equals to bone dehiscence). The “small graft group” showed better CRC and increase in KT height, lower analgesic consumption, better patient color match scores, and better periodontist esthetic evaluation. A graft of reduced size was harvested from both sites when applying the BT, which resulted in an uneventful healing with practically no morbidity.

In conclusion, the addition of a CTG provides stability to the flap in the case of inadequate soft tissue and warrants favorable long-term results. Soft tissue maturation and CRC were observed after 5y of performing the BT in advanced recession with high esthetic appearance.

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