



Coronally advanced flap with connective tissue graft for the treatment of multiple recession defects: Case Report

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Keywords:	gingival recession, esthetic, connective tissue graft

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SUMMARY:

Mucogingival deformities are a group of conditions that affect many patients, having an impact on function and esthetics; they can be congenital, developmental, or acquired. Gingival recession is defined by the American Academy of Periodontology as the location of the gingival margin apical to the amelocemental junction. They can be localized or generalized and include one or more sides of the tooth. Among the treatments, subepithelial connective tissue grafting and acellular dermal matrix can be considered, whose objectives are root coverage and keratinized tissue width.

Case report: A 54-year-old female patient diagnosed with mucogingival deformities around the tooth, was treated with subepithelial connective tissue graft to obtain root coverage in recessions RT2 and RT3. **Conclusion:** The purpose of using a bilaminar technique where a flap is made, and a connective tissue graft is placed to cover gingival recessions is to obtain better esthetic results.

Keywords: Mucogingival surgery, gingival recession, connective tissue

INTRODUCTION:

Mucogingival deformities are a group of conditions that affect many patients, having an impact on function and esthetics; they can be congenital, developmental, or acquired. According to this concept, gingival recessions belong to this group.

Gingival recession is defined by the American Academy of Periodontology as the location of the gingival margin apical to the cement-enamel junction (CEJ) ⁽¹⁾. They can be observed localized or generalized and include one or more sides of the tooth, being considered a common clinical situation, affecting more than 70% of the human population ⁽²⁾.

The different factors that cause this type of conditions are, the inflammation associated with the presence of biofilm and traumatic tooth brushing, although they could also be related to occlusal trauma, tooth position in the dental arch, the anatomy of the alveolar ridge and smoking ⁽³⁾.

Among the most widely used classifications are those proposed by Miller (1985) and Cairo (2011); the latter divides gingival recessions into three groups where RT1 is presented as a gingival recession without loss of interproximal insertion junction, and in which the proximal CEJ is not visible; RT2, there is a gingival recession with loss of interproximal junction. The proximal loss is less than or equal to the vestibular loss, measured from the amelocemental boundary (proximal and vestibular) to the bottom of the pocket and finally RT3 in which the proximal loss is greater than the vestibular loss, measured from the CEJ to the bottom of the pocket. This classification uses the level of proximal insertion as a fundamental parameter ⁽⁴⁾.

To evaluate the prognosis of a root coverage technique, the position of the interproximal tissue is considered, so, if a loss of height of the interdental papillae is observed in the tooth to be treated, the percentage of complete root coverage may be diminished ⁽⁵⁾.

Zucchelli et al. describes a method for predetermining the maximum root coverage level (MRC) which can predict the position of the soft tissue margin after a root coverage procedure focusing on non-carious cervical lesions (NCCL) ⁽⁶⁾. The most common mucogingival surgery procedures for root coverage are:

- Subepithelial connective tissue grafts: currently considered the most effective option for obtaining predictable root coverage with a high esthetic level. The technique combines a flap that covers the graft and a vascular bed thus ensuring the nutrition of the graft, achieving root coverage with high predictability ^(7, 8).
- Acellular dermal matrix: an allograft has been widely used as a substitute for autogenous grafts in mucogingival surgeries, allowing the increase the amount of attached gingiva around the teeth ^(9, 10).

The aim of the present study is to report a clinical case of a female patient, diagnosed with mucogingival deformities around the tooth, which were treated with a coronal positioned flap in combination with connective tissue graft.

CASE PRESENTATION:

A 54-year-old female patient, whose chief complaint was the presence of “uncovered roots” in her upper teeth (10 to 14). During the clinical interrogation, she referred to have diabetes mellitus type II controlled with Metformin, for which she was classified as an ASA type II ⁽¹¹⁾. After the clinical and radiographic analysis, she was diagnosed with mucogingival deformities around teeth in pieces 10 to 14 which were classified according to the new classification of mucogingival and gingival recessions from the new classification of periodontal and peri-implant disease and conditions from 2017, (Figure 1) ⁽¹²⁾.

Placement of connective tissue graft from pieces 10 to 14.

- a) Hygienic phase

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3 Selective scaling and root planning, plaque control and brushing technique were
4 performed. An inter-consultation was made with the restorative postgraduate course
5 to carry out cervical restorations prior to the surgical phase (Figure 2a).
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10 b) Preparation of the recipient site

11 To prepare the recipient site, incisions were made using the coronally advanced flap
12 procedure for the treatment of multiple recession defects performed by Zucchelli
13 (Figure 2b), considering the canine as the axis of rotation (Figure 2c), the flap was
14 reflected with a 15C blade, and the partial-total-partial thickness flap was made
15 (Figure 2d), subsequently the interdental papillae were de-epithelialized. In this
16 case, no type of root conditioning was performed.
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24 c) Donor site (connective tissue graft)

25 The donor site of the gingival graft was the palate of the patient, the technique of
26 Zucchelli (2010) was used, making two horizontal incisions joined by two vertical
27 ones, taking a free gingival graft and later de-epithelialized outside the mouth, with
28 dimensions of 30mm x 5mm, the graft was placed in serum to avoid dehydration and
29 the donor area of the palate was sutured with cross stitches, black silk 4-0, to control
30 bleeding.
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38 d) Placement of the graft in the recipient site

39 Once the free gingival graft was taken from the palate, it was positioned with sling
40 suture with 6-0 Vycril (Figure 3).
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45 e) Postoperative management

46 Ibuprofen 600 mg, 1 tablet every 12 hours for 5 days, Amoxicillin 500 mg, 1 tablet
47 every 8 hours for 7 days and 0.12% chlorhexidine rinses every 12 hours for 1 minute
48 for 7 days were prescribed. The patient was instructed not to perform physical
49 activities; soft and low-fat food; not to expose herself to high temperatures.
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55 f) Re-evaluations

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Sutures were removed after 15 days. Control appointments at 1 week, 2 months and 7 months. A good healing of the graft to the tissues was observed, as well as a partial coverage of the operated site (Figure 4).

DICUSSION AND CONCLUSION

Tavelli et al. performed a systematic review comparing the tunnel technique (TUN) and the coronal advances flap (CAF) and found that the CAF obtained better results in coverage and seems to be associated with a higher percentage of root coverage than TUN when the same grafts (connective tissue or acellular dermal matrix) are used in both techniques ⁽¹³⁾.

Bherwani et al. compared the clinical efficacy of the CAF and the TUN with subepithelial connective tissue graft for multiple gingival recessions, where they evaluated 75 recession defects (Miller class I or II, 39 test sites and 36 control sites). The result was that the CAF is effective for the treatment of multiple adjacent recessions in terms of root coverage and keratinized tissue gain, regardless of the number of defects, and does not require an additional surgical site, as in the TUN ⁽¹⁴⁾.

Azaripour et al. within their research compared the CAF with the modified microsurgical tunnel technique (MMTT) for the treatment of Miller class I and II recessions. They recruited 40 patients with 71 gingival recessions and randomly assigned to CAF or MMTT. A connective tissue graft was applied in both groups. Clinical evaluations were performed at 3, 6 and 12 months, obtaining as a result that both techniques are equally successful in covering Miller class I and II gingival recessions, with high esthetic results ⁽¹⁵⁾.

The purpose of using a bilaminar technique where a flap and placement of a connective tissue graft is performed for the coverage of gingival recessions, is to

obtain better esthetic results. Although in comparison, both techniques, tunnel, and coronal positioned flap, present a high percentage of success.

ACKNOWLEDGMENTS

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Classification of mucogingival conditions (gingival phenotype)						Classification of mucogingival conditions (gingival phenotype)					
10	REC	GT	KTW	CEJ (A/B)	Step (+/-)	12	REC	GT	KTW	CEJ (A/B)	Step (+/-)
RT1						RT1					
RT2	2 mm	2 mm	3 mm	A	-	RT2					
RT3						RT3	4 mm	2 mm	2 mm	A	-

Classification of mucogingival conditions (gingival phenotype)						Classification of mucogingival conditions (gingival phenotype)					
11	REC	GT	KTW	CEJ (A/B)	Step (+/-)	13	REC	GT	KTW	CEJ (A/B)	Step (+/-)
RT1						RT1					
RT2	2 mm	2 mm	3 mm	A	-	RT2					
RT3						RT3	3 mm	2 mm	2 mm	A	-

Classification of mucogingival conditions (gingival phenotype)					
14	REC	GT	KTW	CEJ (A/B)	Step (+/-)
RT1					
RT2					
RT3	3 mm	2 mm	1 mm	A	-

Figure 1: Diagnosis according to the new classification of mucogingival and gingival recessions



Figure 2: a) initial, b) design of the flap, c) incisions, d) split-full-split thickness flap elevation

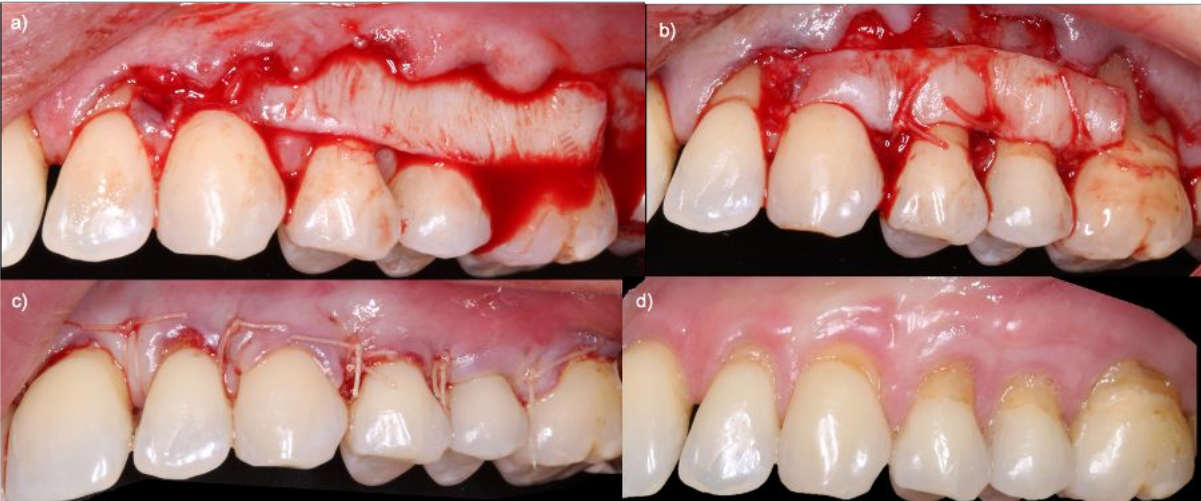


Figure 3: a) try on of the harvested connective tissue graft, b) fixation of the graft with sutures c) flap sutured d) follow up at 7 months



Figure 4: a) initial, b) 7 months follow up after restorative treatment

For Review Only

Classification of mucogingival conditions (gingival phenotype)						Classification of mucogingival conditions (gingival phenotype)					
10	REC	GT	KTW	CEJ (A/B)	Step (+/-)	12	REC	GT	KTW	CEJ (A/B)	Step (+/-)
	RT1						RT1				
	RT2	2 mm	2 mm	3 mm	A		-	RT2			
RT3						RT3	4 mm	2 mm	2 mm	A	-
Classification of mucogingival conditions (gingival phenotype)						Classification of mucogingival conditions (gingival phenotype)					
11	REC	GT	KTW	CEJ (A/B)	Step (+/-)	13	REC	GT	KTW	CEJ (A/B)	Step (+/-)
	RT1						RT1				
	RT2	2 mm	2 mm	3 mm	A		-	RT2			
RT3						RT3	3 mm	2 mm	2 mm	A	-
Classification of mucogingival conditions (gingival phenotype)						Classification of mucogingival conditions (gingival phenotype)					
14	REC	GT	KTW	CEJ (A/B)	Step (+/-)	15	REC	GT	KTW	CEJ (A/B)	Step (+/-)
	RT1						RT1				
	RT2						RT2				
RT3	3 mm	2 mm	1 mm	A	-	RT3					

Figure 1: Diagnosis according to the new classification of mucogingival and gingival recessions

337x130mm (300 x 300 DPI)

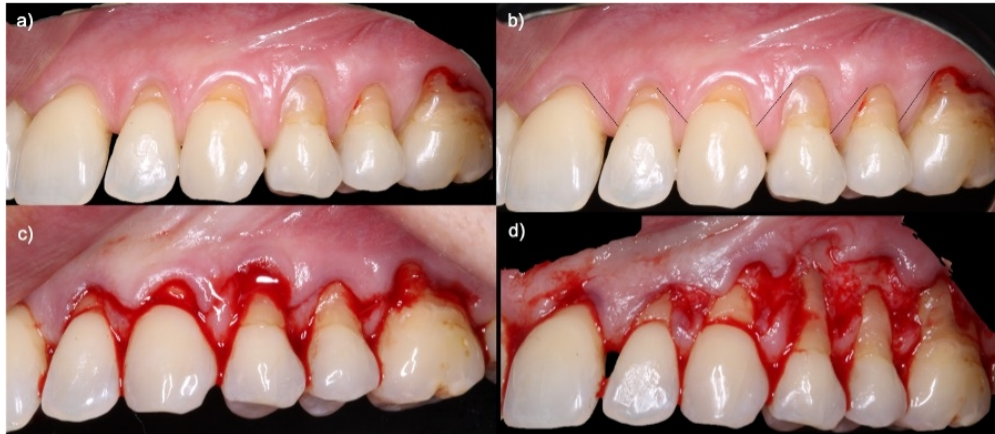


Figure 2: a) initial, b) design of the flap, c) incisions, d) split-full-split thickness flap elevation

159x68mm (144 x 144 DPI)

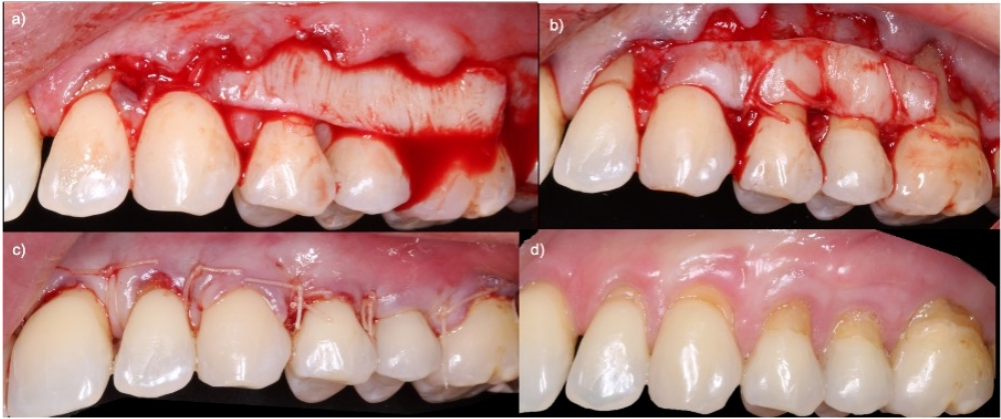


Figure 3: a) try on of the harvested connective tissue graft, b) fixation of the graft with sutures c) flap sutured d) follow up at 7 months

159x67mm (144 x 144 DPI)

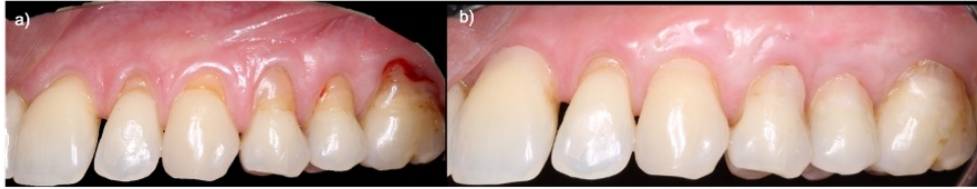


Figure 4: a) initial, b) 7 months follow up after restorative treatment

159x29mm (144 x 144 DPI)

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3 **CLINICAL RELEVANCE:**

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5 Our case report aims to present a clinical case of bilaminar technique for root

6 coverage, consisting of a coronally positioned flap with connective tissue graft in

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8 multiple recessions defects, RT2 and RT3 of Cairo following the technique

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10 described by Zucchelli and De Sanctis with a follow-up at 7 months.

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