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Root Coverage with Free Gingival Graft – Clinical Case Report

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Abstract: *The periodontal surgical procedures has been increasingly progressing, in order to develop anatomic characteristics as well ideal strutural periodontium, lost due the gingival retractions. Based on that, this article reports a clinical case where it was performed a free gingival graft (FGG), observing the necessity of creating a band of keratinized gingival tissue. The obtained result was satisfactory from the clinic point of view.*

Keywords: *Gingival retraction. Gingival Graft. Periodontology.*

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I. Introduction

Nowadays, the patients' esthetic desire stimulated the search of new materials and techniques, mainly with the evolution of adhesive dentistry and composite resin and also metal-free dental restoration. For the result to be esthetic and predictable, the gingival framing is necessary[1].

The gingival recession is defined as the apical migration of the gingival margin in relation to the cementoenamel junction. During this process, it can have exposure of the cement to the oral cavity, which might result in abrasions, caries and hypersensitivity of the root surface. It has multifactorial etiology, being the factors more commonly mentioned the bacterial biofilm, improper teeth position, tooth eruption, occlusal trauma, tooth brushing trauma, high insertion of the frenulum or muscle fibers, bone dehiscences, lip pressure and reduced strip of inserted gengiva[2].

Due to the problems caused by the gingival recessions, periodontal surgical procedures are indicated[3]. The subepithelial connective tissue graft technique currently described is seen as a great option for esthetic correction of multiple gingival recessions and owns as advantages: the similarity of colors between the graft and the gingival tissue adjacent, the favor of the blood supply of the periosteum and to the graft on the receptor region, minimizing the probability of tissue necrosis and the failure of the technique4. The graft technique of the conjunctive tissue, although presents more than one surgical site, presents high predictability, absence of "keloid", double blood supply and healing by first intension[3].

The free gingival graft (FGG), consists on the removal of a tissue fragment from the palate and the transplant for the region with disability of the keratinized tissue or with the root denuding. The indication of the gingival graft epithelium-connective tissue are : extention of the keratinized tissue, root coverage, edentulous crest correction, peri-implantitis correction, assistance to the maxillofacial surgery, association to the remnant moved laterally. The specific contraindications of all the root coverage techniques are : bad quality of the donator tissue, the recessions of Miller class III and IV and a mesiodistal diameter of the exposed root superior to the hotizontal dimensions of the interproximal tissues5.

The most commonly area utilized as a donor area is the hard palate. The palatal mucosa constitutes the main donation source of connective tissue, as it is covered by a keratin layer. The removal area of the graft is located between the last palatine roughness and the posterior palatal canal (from the first premolar to the second molar). Under the epithelial tissue, it is found a very fibrous and dense connective tissue, being considered a donation tissue of a better quality5.

The objective of the present work is to report a clinical case of root coverage utilizing FGG, clarifying important aspects to be considered in its indication, such as the advantages and limitations associated to the technique.

II. Clinical Case Report

Pacient I. L. S., female, 47 years old, leucoderma, who looked for dental assistance at the clinic of the graduation in Odontology of Paranaense University – UNIPAR, complaining about exposed root and dental sensibility. During the anamnesis the patient reported not being smoker, not presenting systemic alteration and not making continued-use medication. To the intra-bucal clinical exam it was noticed the gingival recession on

the elements 33 and 34 (Picture 1), associated to good oral hygiene, however, with plaque, due to the difficulty of brushing the region.

The treatment plan based itself in Scaling and Root Planning (SRP) and on the sensibility control with the performance of fluoride toothpaste application sessions on the affected region, followed by FGG, since that on the clinical exam it was observed the lack of keratinized tissue. The patient was informed about the surgical procedure and the necessity of creating this band of keratinized tissue, where the coverage probability is low, since the procedure is not made to this purpose. First it was performed the SRP session and later, two sessions of fluoride toothpaste, which took to a great improve of the sensibility condition.

Picture 1. Gingival Recession on the elements 33 and 34.

Surgical Technique.

On the second phase of the treatment it was performed the FGG. It was decided to perform the classical technique without the root conditioning with citric acid. It was done the local antisepsis with topic iodine povidona to 10% (PVP-I) extra oral and mouth wash with chlorhexidine into the oral cavity, topical anesthesia on the needle punction region (Benzotop – Benzocaine 200mg/g Nova DFL) and infiltrative anesthesia on the receiving area and greater palatine on the donation area with articaine 4% (articaine hydrochloride and epinephrine, Nova DFL).

Preparation of the receptor region.

On the sequence, utilizing a lamina 15c installed in a scalpel handle number 3 it was performed the intrasulcular incision over all the tissue border of the denuded region and relaxing incisions on mesial and distal areas (Picture 2), respecting the gingival margin of the following teeth from the elements 33 and 34. It was performed a divided remnant, because the periosteum is going to be the nutrition source to the graft, the receptor region is prepared to remove the insertions which can tension the graft.

Picture 2. Preparation of the receptor region.

Graft removal

The graft was removed from the palate and its dimension corresponded to the receptor region. To the measurement of this dimension, it was utilized a mold with sterile filter of surgical thread, and it was taken to the donor region to demarcate the size of the graft. A wet gauze was positioned to maintain the hydration of the region. The donation area was the palate, which was chosen respecting important anatomic structures, such as the greater palatine artery (risk of bleeding) and roughness palatine (because the donation tissue has genetic memory), so, the graft can be collected from the mesial of the first premolar until the mesial of the second molar, the graft thickness was of approximately 1.5mm. Upon the extraction, the graft was maintained in a wet gauze during the time which the palate was sutured to stem the bleeding. On the following, the graft was stabilized, the lip was retracted to verify that there is no tension in the region, the graft has to be passive to the receptor region, the graft was positioned on the exposed periosteum and sutured in position (Picture 3). It was

utilized absorbable suture material Vycril (Poliglactina, Ethicon / Johnson & Johnson), which were realized two horizontal sutures on the sides of the graft, and two suspension sutures.

Picture 3. Graft positioned and sutured on the receptor region.

Post-surgery Medication

The patient was medicated with Meloxicam 15 mg, 1 pill once a day for 5 days, patient oriented about hygiene and other post-surgery instructions. It was not observed any complications during and post-surgery period.

Post-surgery evaluation

Ten days after the surgery the suture was removed. It could be observed the normality aspect of healing, being visible the reepithelialization (Picture 4). The patient was reoriented about the mouth hygiene.

The donator area also presented a good pattern of healing by second intension and beginning of the palate reepithelialization (Picture 5).

Another evaluation was performed after 60 days, where it was found great healing, gain of keratinized tissue on the area (Picture 6) and resolution of the complaints.

Picture 4. Aspect of the receptor area with 10 days of post-surgery.

Picture 5. Aspect of the donator area with 10 days of post-surgery.

Picture 6. Aspect of the receptor area with 60 days of post-surgery.

III. Discussion

The free gingival graft (FGG) is a modality of periodontal surgery widely utilized, mainly with the objective of increasing the keratinized mucosa band inserted. However, it just can be employed with the objective of root coverage, in recessions of Class I, which means, the retractions which do not exceed the mucogingival line, and non esthetics areas.

The procedure to free gingival graft is delicate and requires attention in relation to some details considered fundamental to the success of the therapy. It is right that the free gingival grafts can show limitations and complications. Many times, the color of the tissue can present itself suboptimal, because this technique tends to promote a similar repair as a scar where it highlights the difference of colors between the grafted tissue and the receptor area7.

The complications on the post-surgery and on the healing process of the graft are rare cases, however the pain is almost constant, mainly on the donator area. The palatine area presents itself as anatomic limitations vases and nerves, being its deepness very important on the mucosa quantity to be removed. On the regions where the palate deepness is shallow exists a bigger chance of harming the greater palatine artery, causing excessive or prolonged bleeding being this the most worrying and common preoccupation on the performance of the free gingival graft9.

It is known that the FGG can ease the post-surgery coronary migration of the marginal gingival tissue over the root surfaces before denuded, providing a late root coverage. This phenomenon is named creeping attachment and occurs on the post-surgery period up to two years10.

In the present case, the option to the technique of free gingival graft was taken due to the necessity of creating a keratinized gingival band and allow, with the help of the creeping attachment, a root coverage, to reestablish the periodontal health compromised by the difficulty on the plaque control and minimizing the hypersensibility and the esthetic inconvenient7.

According to Duarte, the root coverage can or cannot be total, but the gain of inserted gingiva is of an excellent predictability, which there is a tendency of having an improvement of the result on long term5.

IV. Conclusion

Although it has a limited use in esthetic conditions and generating discomfort on the post-surgery, the free gingival graft is a viable alternative and highly predictable to the gingival recessions treatment, because it permitted creating a band of keratinized tissue, contributed to the improvement on the hygiene of the region and reduced the dentine hypersensibility.

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