SUBEPITHELIAL CONNECTIVE TISSUE GRAFT FOR ROOT COVERAGE: CASE-REPORT

A Case Report

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ABSTRACT

The goal of the treatment for gingival recession coverage is to restore the tissue margin to the cementoenamel junction (CEJ) and to create a normal gingival sulcus with a functional attachment. Over the years, numerous surgical techniques has been practiced to correct gingival recession since its introduction by Norberg in 1926. The advent of subepithelial connective tissue graft for root coverage has demonstrated high degree of success. The advantages of this technique are dual blood supply to the graft, better aesthetics, increased keratinised tissue width, and better postoperative healing in the donor site. Periodontal microsurgery for periodontal plastic surgery was introduced by Dr. Shanelac and has proven to be an effective means of improving predictability in periodontal aesthetic procedures. The surgical microscope enhances complete visualisation of the operative field and provides superior magnification and better optical performance compared with dental loupes.[1]

Key words : Subepithelial connective tissue graft; marginal tissue recession; root coverage.

Case report and conclusion: This case report a clinical case in which a Miller's Class 1 & class 2 recession was treated by the surgical technique of subepithelial connective tissue graft, obtaining total coverage, eliminating the aesthetic deficiency and the dentin hypersensitivity complained by patient.2

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INTRODUCTION:

Marginal tissue recession is a common condition in Periodontology and is characterized by the displacement of the gingival margin towards to the mucogingival junction with root surface exposure; it may occur at isolated or multiple areas of oral cavity with different extension degrees.[4] Today, “marginal tissue recession” has been the most accepted term, because the tissue showing the problem can be the alveolar mucosa instead of the gingiva.[5]

Several etiological factors may account for the recessions' appearance, such as traumatic toothbrushing, tooth malpositioning, periodontal disease, frenum and bridle insertions, occlusal trauma, restoration with subgingival overhanging margins, maladapted crowns, extractions of adjacent teeth, orthodontic movement, iatrogenic factors and bone dehiscences.[5] A more detailed analysis of such agents shows that most of them present a common feature: gingival inflammation.

When present, marginal tissue recessions may implicate in compromising the patient's periodontal health, aesthetic, and comfort. Concerning to periodontal health, the recessions are capable of acting as a local modifying factor for the installation and progression of periodontal disease, because an alteration in the normal gingival contour (regular concave arch) occurs, which collaborates for greater bacterial plaque accumulation. This alteration also contributes for an unfavorable aesthetics. Finally, the recessions may compromise the patient's comfort due to the possibility of cervical dentinal hypersensibility occurrence after the root surface exposure to oral cavity.

The surgical treatment is an alternative to obtain patient's aesthetic, diminish or eliminate dentinal hypersensibility and allow better conditions of dental hygiene performance in the affected area. Subepithelial connective tissue graft is the surgical technique mostly studied and presents the most predictability of root coverage; however, the evaluation of factors such as defect's width and height and condition of interproximal gingival and bone tissue are determinant to reach a good prognosis.

In 1985, Miller established the clinical classification of marginal tissue recessions: class I – the recession does not reach the mucogingival junction without loss of interproximal tissue; class II – the recession reaches or surpasses the mucogingival junction without loss of interproximal tissue; class III – loss of interproximal tissue is seen and the proximal

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gingival tissue is apically to the enamel-cementum junction and coronally to the recession; class IV – proximal gingival tissue is at the recession base level. The higher the periodontal tissue loss (Miller's class III and IV), the worse the prognosis related to root coverage amount obtained after surgery.[3]

CASE REPORT

Patient kiranbhai patel, 40 years-old, male, systemically health, non-smoking, presented as chief complaints the esthetic deficiency at tooth #31,41 (figure 1) and dentinal hypersensibility in this same teeth.

After phase 1 therapy, Antisepsis was carried out through aqueous solution of 0.12% chlorhexidine digluconate. After local anesthesia with 2% lignocaine hydrochloride with adrenaline Bitrate (xicaine 2% with adrenaline 1:80,000), scaling and root planing were executed on tooth #31,41. Scaling procedure is necessary to remove the contaminated and exposed cementum.

Baseline data was recorded preoperatively with vertical component of gingival recession as 4 mm on 31 & 3 mm on 41, horizontal component 5 mm, probing depth 1 mm, Clinical attachment level (CAL) 8 mm, and keratinised gingiva 1 mm

(Figure 1).

FIGURE 1 (a) Gingival recession

FIGURE 2(a)

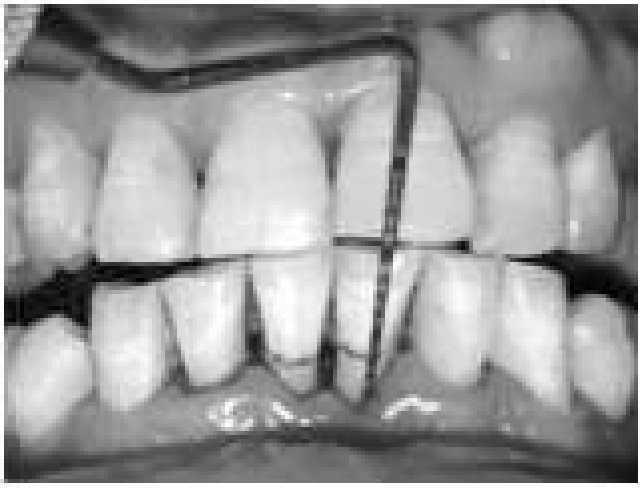


FIGURE 2(b)

FIGURE 2(b)

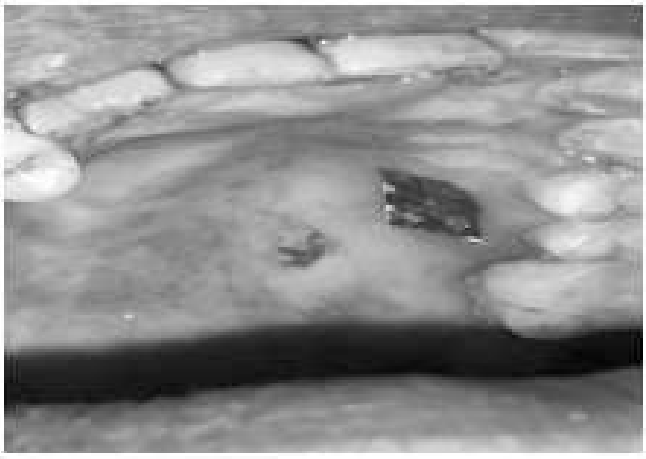
RECEPIENT SITE :

Then, preparation of the recipient site was performed through horizontal incisions, towards enamel-cementum junction direction, at each

papilla (figure 2.a). Following, two vertical relaxing incisions and one intrasulcular incision were executed. Next, full-thickness flap was raised, up to the mucogingival junction and continued as a partial-thickness flap based on this junction. Later, the papilla's epithelium was coronally removed up to their apexes. (figure 2.b) Thorough root planning was done. The concavity in the root was reduced with air-rotor hand piece.

DONOR SITE :

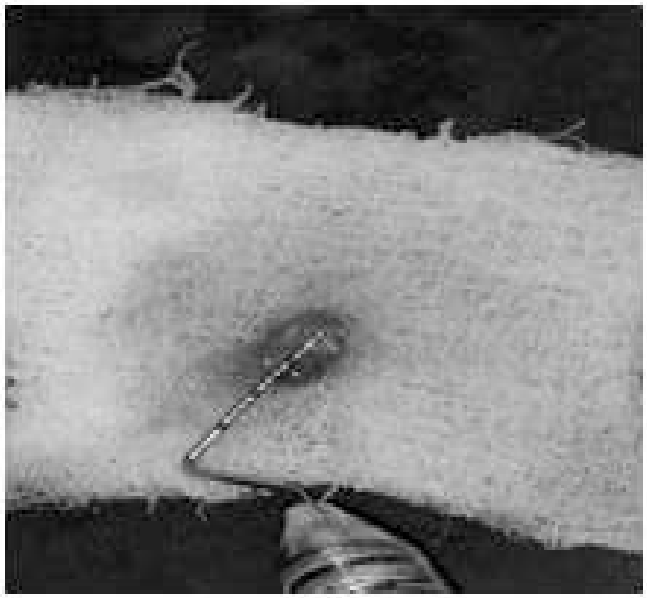
A second surgical site was created on the palate. After administration of local anaesthesia, Connective tissue graft was procured using trape door technique. In this technique ct graft was harvested from palatal area between maxillary first molar and maxillary canine. The graft then placed on sterile gauze pad. Excess fatty glandular tissue was removed and graft is irrigated with saline. Following the reflection of the flap, connective tissue graft was positioned on recipient site to cover the expose facial surface of the roots of the treated teeth with coronal extension of graft corresponding to the level of the cemento-enamel junction. The periosteal side of the connective tissue graft was positioned facing the root surface and was not sutured. The flap then coronally advanced to completely cover the connective tissue graft. Tensionless flap elevation was facilitated by split-thickness flap apical to the bone margin through the periosteum in the vestibule to allow movement of the flap in coronal direction so that the graft was completely covered. Finally, the flap was stabilized with simple interrupted 4-0 vicryl suture. The surgical site was dressed with coe-pack periodontal dressing to prevent apical displacement of flap during the healing period.[7]



a. surgical template

b. Donor site

c. connective tissue



e placement at recipient site

f 4-0 vicryl suture

g 4-0 vicryl suture

h. periodontal dressing(coe-pack)

FIGURE 3 (a,b,c,d,e,f,g,h)

At postoperative period, patient was oriented to use aqueous 0.12% chlorhexidine digluconate mouthrinse for 10 days, and analgesics for pain. Sutures were removed 7 days post-surgery. At 15, 30, and 60 days, as well as 3 months patient's follow-up was performed by radiographs, in which were seen a good root coverage and significant aesthetic improvement.

1 Week follow up

1month follow up

3 month follow up

DISCUSSION :

Several mucogingival techniques have been introduced in literature aiming to correct marginal tissue recessions.[8] During the decades of 1960s and 70s, the most used techniques were coronally positioned flap, laterally displaced flap[9], and the combination of coronally positioned flap with free gingival graft. At the beginning of the decade of 1980s, the use of subepithelial connective tissue graft was disseminated, assuring the obtainment of excellent results in areas with localized root exposure.[10]

The choice of the adequate technique and the long-term success of the procedure depend on the careful evaluation of the defect type, recession's etiology, operator's ability, presence of keratinized tissue, tissue width, predictability, single or multiple gingival recessions, healing, aesthetic result, and risk factors.

Subepithelial connective tissue graft can be indicated for the treatment of single or multiple gingival recessions, correction of the papilla's volume or deformities of the edentulous gingival border, creation and increasing of the amount of the keratinized mucosa and perspective improvement of the root coverage associated with restorative procedures, abrasion or dental caries.[11]

In 1985, Langer and Langer[7] described a technique of subepithelial conjunctive tissue graft for root coverage in the treatment of recessions at single or multiple areas, attributing the procedure success to the double blood supply for the graft's nutrition, originating from the In 1985, Langer and Langer described a technique of subepithelial connective tissue graft for root coverage in the treatment of recessions at single or multiple areas, attributing the procedure success to the double blood supply for the graft's nutrition, originating from the connective tissue of both the periosteum and flap. Additionally, this aforementioned technique is less invasive at the palatal area, causing a minimum postoperative discomfort to patient and offering a great predictability of coverage. Consequently, this technique is the first choice in cases needing good aesthetical outcomes, as the case reported here. Notwithstanding, this methodology also exhibit disadvantages: need of a greater amount of tissue than the required for covering the area due to the contraction suffered by the tissue, from the surgery to its functional incorporation within the receptor site ; and difficulty of standardization of the graft thickness, which may result in aesthetical alterations. Accordingly, these aspects must be observed during the surgical procedure.

In this case report, full-thickness flap up to the mucogingival junction in the receptor site was performed. A partial-thickness flap may implicate in perforation, capable of resulting in flap necrosis, and consequently in bone tissue loss.[12] Furthermore, in partial-thickness flaps, the presence of the highly vascularized tissues adjacent to the root surface may be a necessary condition for root resorption. According to Harris,[13] the desired results after the surgical procedure are: root coverage up to the enamel-cementum junction, tissue firmly attached to the tooth with sulcular probing depth smaller than 2 mm, absence of bleeding on probing, presence of an adequate keratinized tissue, color similar to the

adjacent tissues, tissue's aesthetical contour, and decreasing of the sensibility reported by the patient.

Special attention should be given concerning to subepithelial connective tissue graft indication in cases of Miller's class III and IV marginal tissue recession. The aforementioned technique presents less predictability of root coverage in such recessions, because of the difficulty of graft's adaptation and nutrition which may result in necrosis.[14]

CONCLUSION

The success of this clinical case may be attributed to the precise indication of the technique of subepithelial connective tissue graft due to the high predictability of root coverage in Miller's class I and II and the double blood supply for the graft's nutrition.

REFERENCES:

1. Dhir.V et al Microsurgical treatment of gingival recession by subepithelial connective tissue graft : A case report (periodontology and oral implantology) ADC MJAFI 2011,67:293-295.
2. Alcaras.J et al subepithelial connective tissue graft : a case report RSBO jul-september,2011 8(3)357-62
3. Miller Jr. PD. A classification of marginal tissue recession. Int J Periodontics Restorative Dent. 1985;5(2):8-13.
4. Steffens JP, Santos FA, Pilatti GL. Cirurgias mucogengivais para recobrimento radicular: o enxerto de conjuntivo subepitelial como técnica de sucesso para defeitos isolados. Dental Science. 2008;2(7):207-14
5. Cardoso RJA, Gonçalves EA. In: Proceedings of the 20th Congresso Internacional de Odontologia; 2002. São Paulo: Artes Médicas; 2002. p. 201-48.
6. Fontanari LA, Rodrigues MR, Scremin EI, Kitano MSI, Sampaio JEC, Trevisan Júnior W. Enxerto de tecido conjuntivo subepitelial: uma alternativa em cirurgia plástica periodontal. Perionews. 2009;3(2):131-5.
7. Langer.B,Langer.L Subepithelial connective tissue graft technique for root coverage, J periodontal 1985;56:715-720
8. Wennstrom JL. Mucogingival therapy. Ann Periodontol. 1996;1(1):671-701.
9. Guinard EA, Caffesse RG. Treatment of localized gingival recessions. Part I. Lateral sliding flap. J Periodontol. 1978;49(7):351-6.
10. Langer B, Langer L. Subepithelial connective tissue graft technique for root coverage. J Periodontol. 1985;56(12):715-20.
11. Nevins M, Melloning JT. Periodontal therapy: clinical approaches and evidence of success. Tokyo: Quintessence; 1998. p. 355-64.
12. Edel A. Clinical evaluation of free connective tissue grafts used to increase the width of keratinised gingiva. J Clin Periodontol. 1974;1(4):185-96.
13. Harris RJ. The connective tissue and partial thickness double pedicle graft: a predictable method of obtaining root coverage. J Periodontol. 1992;63(5):477-86.
14. Polson AM. Periodontal regeneration: current status and direction. Hong Kong: Quintessence Books; 1994. p. 53-70