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Management of Miller class III gingival recession by Subepithelial connective tissue graft (SCTG) with coronally advanced flap (CAF): A 6-month follow up case report

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Abstract: Mucogingival surgery involving gingival reconstruction has become an integral part of current periodontal practice. Gingival recession, either localized or generalized, may beassociated with one or more surfaces, resulting in attachment loss and root exposure, which can lead to clinical and fuctional problems such as poor esthetic, poor plaque control and root hypersensitivity etc. Miller's Class III recession was treated by the surgical technique of subepithelial connective tissue graft, lead to obtaining adequate root coverage, eliminating the aesthetic deficiency and the dentin hypersensitivity complained by patient. This technique has been attributed to success mainly due to the dual blood supply for graft's nutrition which is originating from the connective tissue of both the periosteum and flap. This case report describes a clinical case of severe Miller Class III gingival recession which is treated by Subepithelial connective tissue graft (SCTG) with coronally advanced flap (CAF) for complete root coverage.
Keywords: Coronally advanced flap, Subepithelial connective tissue graft, Gingival recession, connective tissue graft, Root coverage.

INTRODUCTION

Root coverage is an important aim of periodontal therapy. Gingival recession is defined as exposure of root surface by the apical migration of junctional epithelium (JE), leading to exposed root surface and loss of marginal tissue and attachment, results in poor esthetic appearance and root hypersensitivity [1]

The most common cause of gingival recession is inflammatory periodontal disease, trauma from occlusion, traumatic tooth brushing, mal positioning of tooth, inadequate width of attached gingival and aberrant frenum. Root coverage procedures are mainly indicated to achieve good esthetics appearance, good plaque control, and adequate width of attached gingiva and prevent the root caries [2, 3].

Although several surgical procedures have been used to achieve predictable root coverage. These include pedicle grafts with or without connective tissue grafts, ,free gingival auto graft, connective tissue grafts, coronally positioned flaps (CPF) alone, CPF preceded by a free gingival graft, and CPF with connective tissue graft. Each of these techniques results in varying degrees of success and proposed a variety of treatments for root coverage [4].Among them, the subepithelial connective tissue graft (SCTG) procedure has been viewed as an effective and predictable method to achieve the coverage of denuded root surface in Miller's Class II and I III marginal tissue recession.

Hence, the aim of this study was to evaluate clinically, management of root coverage (Miller class III -gingival recessions) by coronally advanced flap (CAF) with connective tissue graft.

CASE REPORT

A 22-yearold female patient reported to the Department of Periodontology, Career P.G. institute of dental sciences & hospital, Lucknow, U.P India, with the chief complaint of receding gums of her front lower teeth [Fig- 1]. On intra oral examination, it was found class III gingival recession (Acc. to P.D. Miller, 1985) on the front lower teeth. Patient was informed about the procedure and signed consent form by the patient before surgery.

At the time of surgery, local anesthesia was administered first; the exposed root surface was scaled and planed with hand and ultrasonic instruments. A horizontal intra crevicular incision was given at the recession site and extended with two vertical releasing incisions in correspondence to the line angles[Fig- 2].Partial thickness flap was reflected to create a connective tissue bed[Fig- 3].

Fig. 1: Pre-operative

Fig. 2: Incision Placed

Fig. 3: Partial thickness flap reflected to prepare recipient bed

From second quadrant of palatal region, [Fig-4], a SECG was obtained [Fig-5] and placed at the recipient bed (only 31 region)[Fig.-6] and secured with 4–0 vicryl absorbable sutures [Figures-7] and then Flap was coronally advanced to cover SECG and adjacent exposed root for complete multiple root coverage[Fig-8].

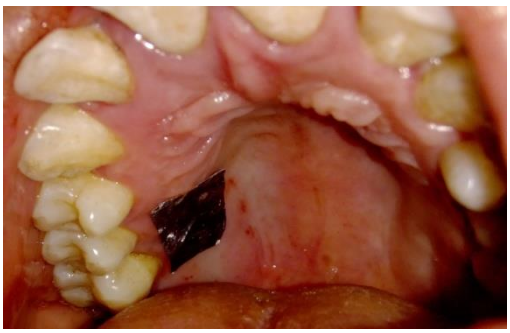

Fig. 4: Donar site(Palate)

Fig. 5: Connective tissue graft obtain from palate

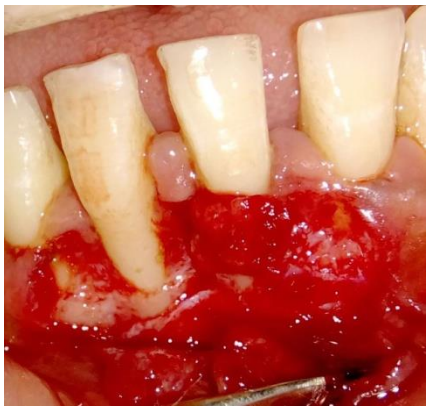

Fig. 6: Placed the graft at recipient site

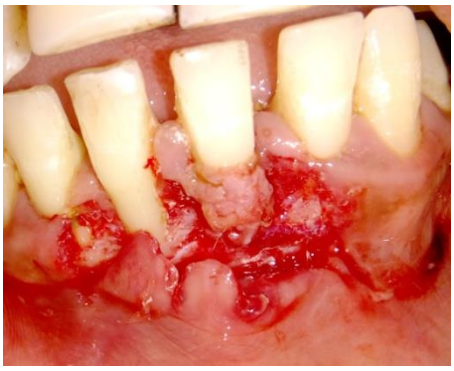

Fig. 7: Suture graft with absorbable suture material

Fig. 8: Advanced the flap coronally and suture for complete coverage of 3141

The Donor site was immediately sutured and covered with acrylic plate to prevent bleeding and the operated area was covered with periodontal pack [Fig-9].

Fig. 9: Periodontal dressing placed

Suture and periodontal dressing was removed after 7- days of surgical procedure. Healing was observed satisfactory and uneventfully. No post-operative complications were created and there were no signs of relapse at the end of 6- month [Fig-10].

Fig.10: 6- month postoperative

DISCUSSION

Gingival recession involves groups of adjacent teeth and is seldom localized to a single tooth; they should all be treated at the same time, to obtain the best esthetic results and to avoid Second surgical procedure. Several mucogingival techniques have been introduced in literature to correct marginal tissue recessions.

Subepithelial CTG with CAF was used for one or two adjacent gingival recession defects to obtain excellent result with color matching.

CAF has been tried with varying degrees of success to cover the recession defects. Histologically, this technique leads to reformation of junctional epithelium and the connective tissue attachment with minimal bonerepair hence, the connective tissue attachment achieved by CAF alone is not stable over long periods [5]. So, various adjunctive agents have been used to speed up healing and to enhance the clinical outcomes. These include the use of root biomodification agents, subepithelial connective tissue grafts (SCTG), barrier membranes, enamel matrix derivatives (EMD), acellular dermal matrix (ADM), platelet rich plasma (PRP), and platelet rich fibrin (PRF), etc. [6].

Initially, in 1963 Bjorn, FGG was used to compensate the inadequate width of keratinized tissue because of partial root coverage was obtained with the FGG but was considered insufficient. So, to provide complete root coverage, a second procedure, involving an envelope technique with was necessary [7].

However, the free gingival graft is commonly applied for increasing the width of keratinized tissue because of it has some limitations and complications such as color match, painful postoperative wound healing, and scar formation in the donor site.

In 1985,Langer and Langer described the CTG technique in root coverage on both single and multiple adjacent teeth [8]. So, advantages of using CTG with CAF, to increase keratinized tissue has a more rapid maturation, and less traumatic healing of the graft in the recipient site because of there is dual blood supply from the overlying flap and palatal connective tissue, which enhance the graft survival rate and also provides excellent esthetic results [9, 10, 11].

In 1972, Karring *et al*. stated that the underlying connective tissue has a direct bearing on the type of epithelium that is superimposed upon it [12]. In 1974Edel, reported that a significant increase in the volume of gingiva can be achieved by grafting gingival connective tissue alone but when multiple adjacent teeth with gingival recessions are present in esthetic regions of the mouth, the preferred surgical technique should be such the one which provides the possibility of achieving maximum root coverage [13].

However, in 1968, Sullivan and Atkins described a technique for coverage of exposed root surfaces using the free gingival autogenous graft and concluded that the graft survival over large expanses of avascular root surfaces was unpredictable, and complete root coverage was rarely achieved [14].

Thus, the use of sub-epithelial connective tissue graft (SCTG) covered by a CAF has shown good predictability and It is important to note that success rate of both treatments modalitis (FGG and SCTG) proved clinically with a high percentage of root coverage and adequate width of keratinized tissue [15]. So that, the quantity and quality of the adequate width keratinized tissue could contribute to the long-term results of the root coverage and CAF + SCTG provided better Clinically Root overage than CAF alone in the treatment of multiple gingival recessions defects [16].

CONCLUSION

The results of this case report favor the theory that root coverage with CTG could produce an increase in root coverage and keratinized tissue. Based on this case report, Miller Class III recession defects can be treated successfully when CTG is combined with CAF.

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