



Tunnel and Pouch Technique for Management of Multiple Gingival Defect with thin Gingival Biotype

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Abstract

Traumatic tooth brushing habits and anatomic variations often leads to gingival recession. The exposed root surfaces not only result in sensitivity but are unaesthetic too. Furthermore, the tissue resistance to such changes are very low in thin gingival biotype. Periodontal plastic surgery plays a pivotal role in such cases. Many soft tissue graft material and technique have been studied by various clinicians and researchers. From the point of view of evidenced based practice, autologous connective tissue grafts have the highest predictability and success rate. In this current case report, connective tissue graft is used along with tunnel and pouch technique for recession coverage of multiple defects in thin gingival biotype.

Keywords: Periodontal Plastic Surgery; Root Coverage; Tunnel and Pouch; CTG

Abbreviations

CTG: Connective Tissue Graft; EVP: Evidence Based Practice

Introduction

The apical shift of the gingival margin with respect to the cemento-enamel junction is defined as Gingival recession [1]. Various predisposing factors have been suggested, like periodontal biotype, impact of tooth brushing, cervical abrasion margin, orthodontic treatments and other.

Periodontal plastic procedures are the key to such clinical challenges. Most of the procedure involves either the movement of tissues [2] (advancement, laterally) or creating pouch and / or tunnel. Periodontal and aesthetic implant surgery widely uses

Connective tissue as a treatment option along with the above mentioned movement of the tissues.

Previously, the early indications of Connective tissue grafts were only to increase tissue thickness. However, Langer and langer [3] were the first one to use sub-epithelial connective tissue in both isolated and multiple recession coverage of adjacent teeth. Raetzke [4] enveloped the CTG while Allen [5] modified it by tunneling it supra-periosteally. To date, various modification and variations are available in the literature.

The current case report discusses the use of CTG in tunnel and pouch technique for recession coverage of multiple adjacent teeth in thin gingival biotype.

Materials and Methods

A 23 years old young female patient reported with chief complaint of hypersensitive teeth and receding gum in upper front teeth. On further periodontal evaluation, following clinical findings were elicited (Figure 1A):

- Miller class I gingival recession in 14
- Miller class II gingival recession in 12 and 13
- Inadequate attached gingiva: 1mm in 12, 13. 2 mm in 14.
- Thin biotype.
- Trauma from occlusion in 31.

After receiving appropriate consent from the patient for the procedure, local anesthetic agent was administered. Scaling and root planning was done on the exposed root surface (Figure 1B). The trauma from occlusion with respect to right mandibular central incisor was managed by selective grinding. Sulcular incisions were placed (Figure 1C). With the help of blunt instrument, a tunnel was created (Figure 1D).



Figure 1

The orthodontic buttons were bonded on facial aspects of 12, 13 and 14 (Figure 2A). The Connective tissue (Figure 2B) was procured by trap door technique from palate (Figure 2C). The plastic palatal stent was given to the patient for uneventful healing of the secondary trauma. The procured connective tissue graft was received in the tunnel and pouch created. The sutures were placed by coronally advancing the flap to bonded brackets (Figure 2D).

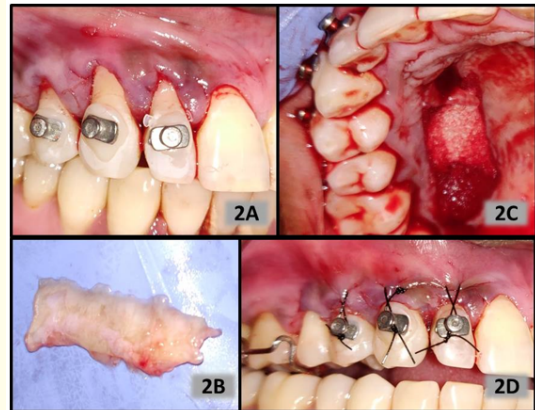


Figure 2

Postoperative instructions were given to the patient. She was instructed to refrain from brushing at the level of surgical site for minimum of two weeks. Appropriate analgesics for pain management and 0.2% Chlorhexidine mouthrinses were advised.

Patient was recalled after 14 days for removal of sutures and orthodontic buttons (Figure 3A). The patient was recalled after 1 month (Figure 3B) and 4 months (Figure 3C) post-operatively to evaluate the healing.



Figure 3

Results and Discussion

During the entire post-operative observational period, signs of necrosis or hemorrhage were ruled out. Patient did not report of pain from the palatal donor site post 15 days of healing. On the day of suture removal, the first sign of graft acceptance was noted. The tissue healing, pain and discomfort reduced eventually. The goal of the treatment: root coverage and increase in tissue thickness and increase in apico-coronal and bucco-lingual dimensions of gingival tissues were achieved. Significant improvement of aesthetic aspect and the coverage of roots with tissue graft, absence of scars left behind by suture were the notable finding (Figure 4A, 4B).



Figure 4

Oates and co-worker [6] in their systematic review have concluded that the predictability and success rate is high with use of connective tissue graft. Among all the procedures reviewed, CTG was concluded to be the biomaterial with maximum success rate.

The Connective tissue graft from palate transfers its genetic information in form of keratinization. This transfer from donor to recipient site, where the recipient site has little contribution to quality and quantity on final outcome is termed as Fibro-genesis [7]. The quality of harvest plays a major role. The results obtained in the current case report suggest procurement of good quality CTG graft.

However, insufficient CTG graft, patient's refusal to have a second surgical site and morbidity are few of the disadvantages of the procedure [8]. But, when rationally weighed, the advantages are more than the disadvantage.

Conclusion

An evidence based practice always results in promising clinical outcome. The CTG used in tunnel and pouch technique showed satisfactory results. Larger sample size with long follow up would prove the clinical efficacy of the procedure altogether.

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Nil.

Conflict of Interest

None.

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