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Gingival recession coverage using submerged graft with root surface biomodification

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ARTICLE INFO

Article history:
Available online 30 December 2016

Keywords:
Gingival recession
Subepithelial connective tissue graft
Laterally repositioned flap
Citric acid biomodification

ABSTRACT

Aesthetic demand has increased tremendously in the recent years and so has the demand for the consequent cosmetic periodontal surgeries. One of the most common aesthetic problems encountered is the gingival recession, especially in the anterior region. Gingival recession is the exposure of root surface due to apical migration of gingival margin. Many patients seek treatment because of aesthetic concerns, root sensitivity or fear of loss of affected tooth. This case report describes management of gingival recession using connective tissue graft and laterally repositioned flap after root surface biomodification.

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1. Introduction

Obtaining predictable root coverage has become an integral part of cosmetic periodontal therapy. Achieving a pleasing smile not only require correction of the position, shape and colour of the teeth but also the framework of gingiva surrounding the teeth.

Gingival recession is defined as the displacement of soft tissue margin apical to the cemento–enamel junction. While marginal tissue recession seldom results in tooth loss, it is often associated with aesthetic concerns, root sensitivity, frenal involvements and a tendency to develop caries.

Gingival recession has multiple etiological factors. Tooth malposition, high frenal and muscle attachments, traumatic tooth brushing, periodontal inflammation, orthodontic tooth movements, etc., can lead to loss of marginal tissue in an area.

Many differing approaches have been advocated to correct gingival levels and to achieve aesthetic contours.[1] The dual goals of recession coverage include complete root coverage upto the cemento–enamel junction and blending of the tissue colour between the treated and the adjacent non-treated areas.

2. Case report

A 38 year old male patient reported to the Department of Periodontics, Government Dental College, Chennai, with the chief complaint of loss of gums in the upper front tooth with accompanying sensitivity. On examination, gingival recession of 9 mm with a pocket depth of 1 mm was found on the labial aspect of 21 [Fig. 1]. Intraoral periapical radiograph revealed no interdental bone loss in relation to 21 [Fig. 2]. The recession was classified as Millers class II recession. Pulp vitality test of the tooth showed a delayed response. So root canal treatment was done for 21 after scaling and root planning.

2.1. *Surgical procedure*

Under LA, pocket epithelium was removed in relation to 21 and the root surface was thoroughly curetted. Intrasulcular

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http://dx.doi.org/10.1016/j.jpfa.2016.12.001

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Fig. 1 – 9 mm gingival recession.



Fig. 2 – IOPA 21.

incisions on the buccal aspect along with horizontal submarginal incisions in the interdental areas were given to raise a partial thickness flap in relation to 11 upto the mucogingival junction. An oblique releasing incision along with a cut back incision were given for the easy mobilisation of the flap. On the distal aspect of 21, a pouch was created for the insertion of the graft tissue [Fig. 3].

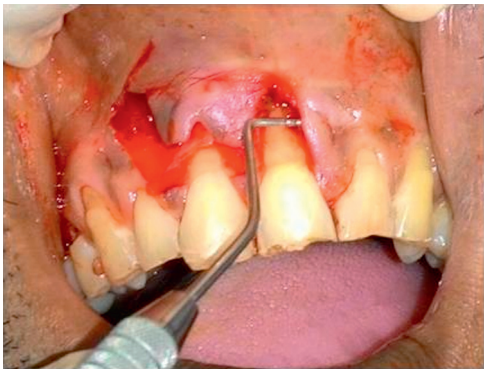


Fig. 3 – Partial thickness flap on 11 and pouch on distal of 21.

After preparation of the recipient site, subepithelial connective tissue was harvested from the palatal region in relation to 23,24,25 using single incision technique [Figs. 4 and 5]. Hemostasis was achieved and the donor site was sutured using 5-0 catgut sutures.

Before transferring the SCTG on to the recipient site, root surface biomodification was done on 21. Cotton pellet soaked with citric acid of pH 1 [Fig. 6] was applied on to the root surface for 2–3 min, after which the root surface was irrigated with water. The SCTG was placed in position [Fig. 7] and secured using periosteal and sling sutures. The flap from 11 region was laterally repositioned and sutured over the SCTG using 5-0

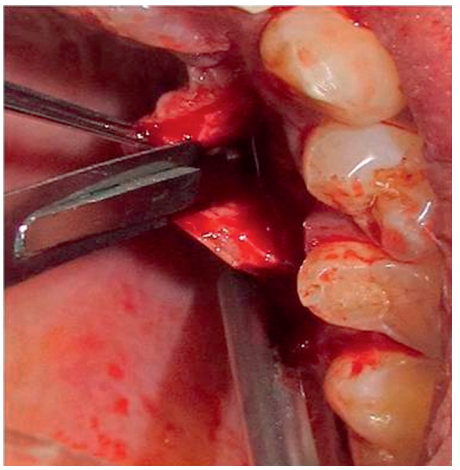


Fig. 4 – Harvesting of subepithelial connective tissue.

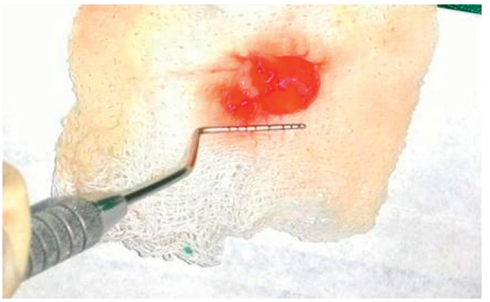


Fig. 5 – Subepithelial connective tissue.



Fig. 6 – Preparation of citric acid of pH 1.

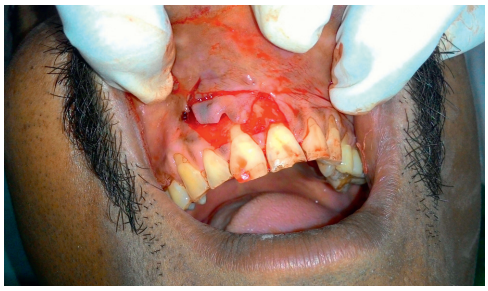


Fig. 7 – SCTG placed in position.



Fig. 8 – Flap laterally repositioned and sutured.

catgut sutures [Fig. 8]. Periodontal dressing was given to protect the surgical site.

Periodontal dressing was removed one week post-operatively. The healing of the donor site had occurred in almost 7 days and the healing at both the donor and recipient site was uneventful.

3. Discussion

Complete root coverage is the primary goal to be achieved while treating gingival recession in patients with aesthetic demands. Many root coverage procedures have been widely proposed and accepted. Grupe and Warren in 1956 suggested the laterally repositioned flap for the treatment of gingival recession.[2] Laterally repositioned flap is used in case of isolated denuded root surface that has adequate donor tissue laterally.

In this case, there was adequate width of attached gingiva and adequate depth of the vestibule in the adjacent area. Also the frenal attachment was mucosal which would not interfere with the lateral repositioning of the flap. So LRF was planned for this case. Advantages of LRF include (i) aesthetic colour matching, (ii) reduced hypersensitivity, (iii) good blood supply to the reflected flap, and (iv) high percentage of root coverage.[3]



Fig. 9 – 3 month post-operative photograph.

Using subepithelial connective tissue graft is considered the gold standard technique for the management of single and multiple gingival recessions. The advantages include (i) it is not as technically demanding, (ii) less time consuming, and (iii) easier to establish and maintain blood supply. The palatal wound created is less invasive, less annoying to the patient and also SCTG has an ability to cause keratinisation of the overlying flap.[4]

Root surface biomodification is intended to decontaminate, detoxify and demineralise root surface, removing smear layer and exposing collagen matrix. It prevents epithelial migration along denuded roots, causes initial clot stabilisation and enhances fibroblast growth and stability.[5]

In this case, the advantages of root biomodification, SCTG and LRF were combined to achieve almost 100% root coverage [Fig. 9] and patient is satisfied with the surgical outcome.

Conflict of interest

The authors have none to declare.

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