



SUBEPITHELIAL CONNECTIVE TISSUE GRAFTS FOR THE COVERAGE OF DENUDED ROOT SURFACES: A CLINICAL REPORT

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ABSTRACT

One of the most common aesthetic concerns associated with the periodontal tissues is gingival recession. Gingival recession is the exposure of root surfaces due to apical migration of the gingival tissue margins; gingival margin migrates apical to the cemento-enamel junction. Although it rarely results in tooth loss, marginal tissue recession is associated with thermal and tactile sensitivity, aesthetic complaints, and a tendency toward root caries.

KEYWORDS- Connective Tissue, Full Thickness Flap, Recession, Root Coverage.

DOI Number: 10.14704/nq.2022.20.11.NQ66062

NeuroQuantology 2022; 20(11): 640-645

INTRODUCTION

Periodontal plastic procedures to augment attached gingiva and provide root coverage have become more popular with the increase of aesthetic awareness. The long-term stability of outcomes achieved with periodontal surgery has been of great interest in the scientific community. In addition, whether they obtained surgical outcomes are maintained over time without requiring a secondary procedure is also a concern for many clinicians as well as for patients.¹

Gingival recession is the exposure of the root surface resulting from migration of the gingival margin apical to the cemento-enamel junction (CEJ). It may be localized or generalized and can be associated with one or more tooth surfaces.²

The etiology of the condition is multifactorial and may include plaque-induced inflammation, calculus and restorative iatrogenic factors, trauma from improper oral hygiene practices, tooth malposition, high frenum attachment, improper periodontal treatment procedures, and uncontrolled orthodontics movements. Gingival recession is also a common outcome of the therapies delivered to treat periodontal disease.³

Even though gingival recession may occur without any symptoms it can give rise to pain from exposed dentine, patient concern about loss of the tooth, poor aesthetics or root caries. The denuded root surfaces cause deterioration in the aesthetic appearance, dentin hypersensitivity, and inability to perform proper oral hygiene procedures.⁴



The management of gingival recession and its sequelae is based on a thorough assessment of the etiological factors and the degree of tissue involvement. The initial part of the management of the patient with gingival recession should be directed towards correcting the etiological factors. The degree of gingival recession has to be monitored for signs of further progression. Surgical root coverage is indicated when aesthetics is the prime concern and periodontal health is good.⁵

The techniques used for root coverage are based on tissue displacement whether by translation (pedicle flap procedures) or by grafting (free gingival or connective tissue graft procedures), and use of resorbable and non-resorbable membranes according to the principles of guided tissue regeneration (GTR). Several modifications to the conventional techniques have been developed in an attempt to obtain optimal root coverage and a better esthetic integration.⁶

The SCTG procedure was a significant improvement for periodontal plastic surgery and is currently acknowledged as the gold standard for treatment of gingival recession. This technique utilises subepithelial CTG from the palate. Palate has keratinised tissue with dense lamina propria. The connective tissue grafting along with the various flap techniques can be used to treat recessions. The coronally advanced flap plus connective tissue grafting is still the gold standard in treating recessions.⁷

The predictability of the SCTG procedure is excellent. The main advantages of this procedure are: (1) It provides a good blood supply to the graft and, therefore, has a very good predictability of success, (2) It provides gingival colour match and aesthetics, (3) The donor site wound is less extensive and haemorrhagic and perhaps less uncomfortable to the patient, (4) It is applicable to both single and multiple recessions. However, the disadvantages of this technique include: (a) It is

technically demanding and (b) It is more time-consuming.⁸

On the basis of this knowledge, the aim of the present article was to report on the surgical plastic strategy used to treat a case of gingival recession using connective tissue graft and to document successful clinical outcome.

CASE REPORT

A 19-year-old, healthy male patient reported to the Department of Periodontology and Implantology, Subharti Dental College and Hospital, Meerut, Uttar Pradesh India with a chief complain of poor aesthetics and sensitivity in relation to the upper left front teeth. On taking complete history, patient revealed history of trauma 1 month back. Patient medical history did not reveal any relevant pathology. On extraoral examination, no positive findings were noted. On intraoral examination, Miller's Class II gingival recession defects were observed at teeth #21, without concomitant papillary loss, root caries or radiographic interproximal bone loss (Fig.1). Firstly, OPG was advised and patient was sent to the Department of Oral Surgery to rule out any fracture. Patient was also sent to the Department of Conservative dentistry and Endodontics to evaluate tooth vitality #11,12,21,22. Teeth were diagnosed as vital and patient was kept under observation for 2 months.

PREPARATION OF THE RECIPIENT SITE

Recipient site was prepared carefully with the help of #15 blade, keeping in mind that recipient bed should be wide enough all around from the root surface and sub-epithelial pouch was prepared (Fig.2). After the preparation of recipient site, measurement was taken for donor tissue with the help of UNC- 15 (Fig.3&4).

GRAFT HARVESTING

Donor site was selected for graft harvesting. Graft was removed from left



palatal, 10mm away from the gingival margin and just medial to the first maxillary molar (Fig.5). Using a trap door approach, using UNC-probe size sub-epithelial connective tissue graft was removed from the palate kept in moist gauze piece and inspected for the size and thickness. Excess connective tissue and fat was carefully removed with the help of 15 no. blade to make it 1.5- 2.0mm thick. Graft was placed on the recipient site, stretched and stabilized with the help of horizontal suture (non- resorbable, silk 5-0) (Fig.6).

All the four corners of the graft were sutured to underlying recipient tissue. After stabilization of the graft, pressure was applied on the graft for at least five minutes for close adaptation of the graft tissue and removal of blood clot, which may be present in between the donor and recipient tissue, to increase the possibility of graft acceptance. Finally, sling sutures were placed at the recipient site (resorbable, vicryl 5-0) (Fig.7,8,9). Postoperative instructions were given to the patient and were instructed to avoid brushing at surgical site for at least two weeks; medications were prescribed along with povidone iodine mouthwash. 4 months follow up was done (Fig.10).

DISCUSSION

In this era of patient centred aesthetic outcome, restoring the ideal pink and white aesthetics is a prime requisite. Gingival recessions are very common clinical conditions in the general population and the main aims of the therapy are to improve their aesthetics, increased width of keratinized tissue and reduce hypersensitivity.

The success of surgical procedures for root coverage depends on several factors, such as elimination and/or control of the aetiology of gingival recession, evaluations of the interproximal bone level and choice for the most appropriate surgical technique, which are inherent to each clinical situation and region to be treated. Several mucogingival techniques

have been introduced in literature aiming to correct marginal tissue recessions.⁹

Many different surgical procedures have been used to achieve root coverage, for example pedicle grafts, free gingival grafts, CTG, and guided tissue regeneration. Some techniques, when attempted by the clinician, produce unsatisfactory results. There are many reasons for these failures; they include poor case selection, improper technique selection, poor surgical technique, unrealistic goals, and lack of experience in performing reconstructive periodontal plastic surgical procedures.¹⁰

Of the various techniques used, subepithelial connective tissue graft (SCTG) is considered the gold standard treatment for coverage of denuded roots. Graft was procured by the trap-door technique as described by Edel. Its advantages include the ability to obtain a graft size similar to the incision design, greater visibility, and easier execution. But its disadvantage is that it involves more incision lines and requires more sutures.¹¹

The term "creeping attachment" was first described by Goldman et al¹² as the "postoperative migration of the gingival margin in a coronal direction over a previously denuded root. This migration is often seen to continue for long periods postoperatively until a constant marginal level is reached." In this case report creeping attachment level is zero, showing hundred percentage coverage.

Oates et al¹³ described the benefits of an SCTG for promoting root coverage. The integrity of the proximal tissues determines the extent of root coverage, irrespective of whether the SCTG is associated with CAF. However, increases in KT and gingival thickness are important clinical outcomes that justify the use of the SCTG.

Saleemet al¹⁴ conducted by laterally positioned flap with tetracycline root modifiers was used to cover Millers recession defects in the mandibular anterior region. This technique has been demonstrated to be a reliable and



predictable treatment modality for obtaining root coverage in recession defects for complete or partial root coverage. However careful case selection and surgical management is critical if a successful outcome is to be achieved.

Treatment of gingival recessions has become an important therapeutic issue due to the increasing number of cosmetic requests from patients. Patient's aesthetic demands, due to exposure during smiling or function, of portions of the root surface are the main indication for root coverage procedures. Thus, complete root coverage up to the cemento-enamel junction is the goal to be achieved when the patient complains about aesthetic appearance of teeth. Furthermore, even if complete root coverage is surgically accomplished; the result may not be completely satisfactory in the case of excessive thickness of gingiva or poor blending of the area. This happens very frequently when free or connective tissue graft is harvested from the palate and utilized for root coverage.¹⁵

CONCLUSION

Based on this case report the subepithelial connective tissue graft associated with sub-epithelial punch technique provides an excellent root coverage in case of gingival recessions and improve the root hypersensitivity.

This procedure has the advantage of increasing keratinized gingival height, width and thickness. This technique allows an aesthetic colour match of the gingiva. The collateral blood supply is adequate and hence no occurrence of flap sloughing. However, this technique requires high degree of technical skill and suturing is complicated.

REFERENCE

1. Erley KJ, Swiec GD, Herold R, Bisch FC, Peacock ME. Gingival recession treatment with connective tissue grafts in smokers and non-smokers. *J Periodontol*2006;77:1148-1155.

2. Pradeep K, Rajababu P, Satyanarayana D, Sagar V. Gingival recession: review and strategies in treatment of recession. *Case Rep Dent*2012;2:1-5.
3. Ravipudi S, Appukuttan D, Prakash PS, Victor DJ. Gingival recession: short literature review on etiology, classifications and various treatment options. *J PharmSci Res* 2017;9:215-219.
4. Tugnait A, Clerehugh V. Gingival recession—its significance and management. *J Dent*2001;29:381-394.
5. Alghamdi H, Babay N, Sukumaran A. Surgical management of gingival recession: A clinical update. *Saudi Dent J*2009;21:83-94.
6. Al-Hamdan K, Eber R, Sarment D, Kowalski C, Wang HL. Guided tissue regeneration-based root coverage: Meta-analysis. *J Periodontol* 2003;74:1520-1533.
7. Srinivas BV, Rupa N, Kumari KH, Prasad SS, Varalakshmi U, Sudhakar K. Root coverage using subepithelial connective tissue graft with platelet-rich plasma in the treatment of gingival recession: A clinical study. *J Pharm BioalliedSci*2015;7:530-536.
8. Baker P, Floyd P, Palmer R. Reconstructive and Periodontal Plastic and Aesthetic Surgery. *J Periodontol*2021;5:139-142.
9. Rana TK, Phogat M, Sharma T, Prasad N, Singh S. Management of gingival recession associated with orthodontic treatment: a case report. *J ClinDiagn Res* 2014;8:5-7.
10. Ahathya RS, Deepalakshmi D, Ramakrishnan T, Ambalavanan N, Emmadi P. Subepithelial connective tissue grafts for the coverage of denuded root surfaces: A clinical report. *Indian J Dent Res* 2008;19:134-137.



11. **Aguirre-Zorzano LA, García-De La Fuente AM, Estefanía-Fresco R, Marichalar-Mendía X.** Complications of harvesting a connective tissue graft from the palate. A retrospective study and description of a new technique. *J ClinExp Dent* 2017;9:1439-1444.
12. **Cho JY, Charbeneau TD.** Coronal Positioning of Tissue Previously Treated with Freeze-Dried Dura Mater Grafts: Report of a Case. *J Periodontol* 1986;57:35-38.
13. **Oates TW, Robinson M, Gunsolley JC.** Surgical therapies for the treatment of gingival recession. A systematic review. *Ann Periodontol* 2003;8:303-320.

14. **Saleem M, Tyagi A, Rana N, Kaushik M.** Root Biomodification enhancing the predictability of isolated recession coverage – A 3 year follow-up case report. *J Adv Med Dent Sci Res* 2021;9:112-114.
15. **Zucchelli G, De Sanctis M.** Treatment of multiple recession-type defects in patients with esthetic demands. *J Periodontol* 2000;71:1506-1514.



Fig-1 Pre- Operative View



Fig 2- Sub- Epithelial Pouch Prepared



Fig-3 Measurement Taken for CT Graft

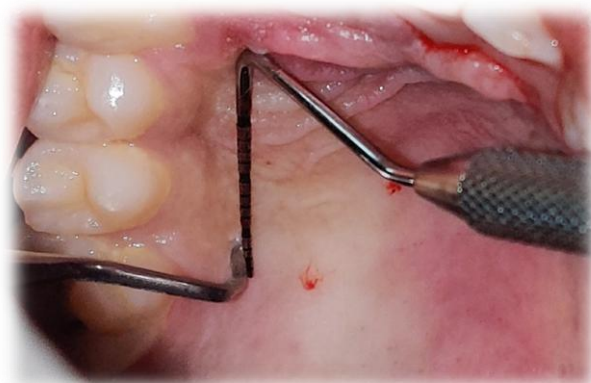


Fig -4 Measurement marked on palate

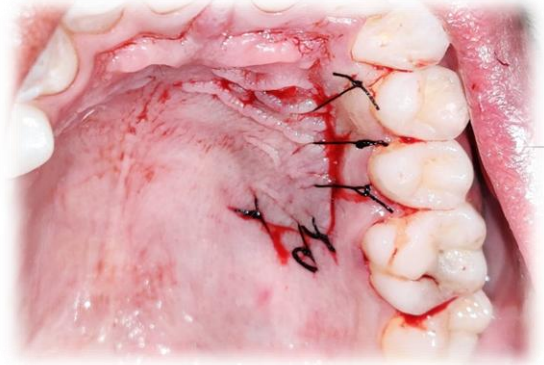
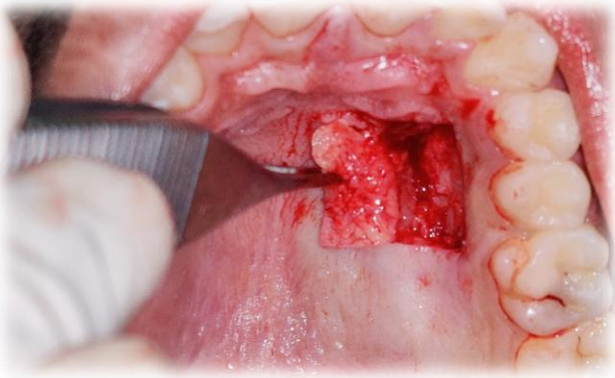


Fig -5 Trap Door Approach for CT Fig-6 Suture Placed on Palatal Donor Site Graft Procurement



Fig-7 Graft Placed on Recipient Site Fig-8 Graft Sutured on Recession Defect



Fig- 9 Epithelium Advanced to cover the Graft



Fig-10:4 Months Post OP