

A Semilunar Coronally Repositioned Flap and Laser Buccal Frenotomy Aided in the Treatment of Isolated Gingival Recession

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Abstract

Gingival recession is defined as the oral exposure of the root surface due to the displacement of the gingival margin apical to the cemento-enamel junction, and it is regularly linked to the deterioration of dental esthetics. Its etiology is multifactorial, including teeth position within the dental arch, bony dehiscence, alveolar mucosa thickness, incorrect tooth brushing, orthodontic treatment, and periodontal disease. The first step in an effective management and prevention program is to identify susceptibility factors and modifiable conditions associated with gingival recession. Successful treatment of recession-type defects is based on the use of predictable root coverage periodontal plastic surgery procedures. With the introduction of minimally invasive surgery, various techniques proposed for managing GR minimize patient morbidity and maximize surgical outcomes. The present case report is that of a 34-year-old male patient with the primary complaint of receding gums associated with tooth sensitivity in the upper back tooth region. A novel technique of modified semilunar coronally advanced flap technique is described in this case report.

Keywords: Frenotomy, Gingival recession, Laser, Semilunar coronally repositioned flap.

INTRODUCTION

Gingival recessions are commonly encountered in dentistry and pose esthetic concerns.^[1] A plethora of surgical techniques have been already proposed in an attempt to achieve complete root coverage including pedicle flaps (coronally or laterally advanced flaps), free gingival grafts, and connective tissue grafts (CTG) with varying degrees of success.

Before considering the treatment of gingival recession defects, it is important to identify etiological factors. At present, the true etiology still remains unclear. Thus, gingival recession defects frequently have multifactorial causes.^[2]

The major susceptibility factors are the thin gingival tissue, absence or a narrow band (<2 mm) of KT, probing depths extending beyond the MGJ, and a positive history of progressive gingival recession, and/or inflammatory periodontal disease.^[2]

The major consequence is root hypersensitivity, which can cause patient discomfort. Among the proposed range,

MILLER'S (1985) and CAIRO'S (2011) classifications for GR are the most accepted.^[3]

MILLER has classified gingival recession into three classes. Class I represents marginal tissue recession not extending up to the MGJ, and Class II is where the recession extends to or beyond the MGJ. Class III and IV represent cases where there is interdental bone and soft-tissue loss with tooth malpositioning.^[3]

CAIRO has classified GR into three types: Recession type 1, 2, and 3, based on the assessment of clinical attachment loss (cal) at buccal and interproximal sites. RT1 represents no loss

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Received: Jul. 05, 2024; **Accepted:** Aug. 06, 2024; **Published:** Aug. 20, 2024

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How to cite this article: Reddy PVN, Chandaka M, Vijay VK, Jayavel N, Ahamed S, Rani R. A Semilunar Coronally Repositioned Flap and Laser Buccal Frenotomy Aided in the Treatment of Isolated Gingival Recession. J Res Adv Dent 2024;15(5):1-3.

Access this article online

Website:
www.jrad.co.in

DOI:
<https://doi.org/10.53064/jrad.2024.15.5.543>

of interproximal attachment. RT2 denotes the case where the interproximal attachment loss is less than or equal to the buccal attachment loss and RT-3 constitutes interproximal attachment loss greater than the buccal attachment loss.^[3]

Many periodontal plastic surgery techniques have been proposed to treat gingival recessions. The coronally advanced flap technique is one of the most common approaches, and its association with CTG has demonstrated the highest rate of success related to complete root coverage.

However, the coronally advanced flap approach may result in shallowing of the vestibule and scarring of the vertical incisions.^[4]

Other surgical approaches have been proposed to obtain root coverage with simplified techniques, such as the semilunar coronally advanced flap described by Tarnow.^[4] He stated that the semilunar technique would provide several advantages over other surgical procedures such as no vestibular shortening, a flap free of tension, and no disruption of existing papilla.^[5]

MATERIALS AND METHODS

Clinical presentation

A 34-year-old male patient with no significant medical history reported to the Department of Periodontology with a primary complaint of receding gums in the upper right back teeth region for 6 months. The patient has no history of adverse habits such as smoking, alcoholism, and bruxism or other parafunctional habits.

On intraoral examination, Miller's Class 1 gingival recession in # 14 (Figure 1) with aberrant maxillary buccal frenum was observed. The recession parameters such as recession height, recession width, and width of keratinized tissue were measured with the help of a periodontal probe. A recession coverage procedure along with laser buccal frenotomy was planned, and explained to the patient and written informed consent was obtained before the surgical procedure.

Surgical procedure

After anesthetizing the surgical site with 2% lignocaine, buccal frenotomy (Figure 2) was done using a diode laser to reduce the muscle pull. Using a 15 c Bald Parker blade a semilunar incision (Figure 3) was made 2 mm from the tip of the papilla following the curvature of the free gingival margin into the alveolar mucosa. Then, a split-thickness dissection was made from the initial incision line coronally and was connected with an intrasulcular incision made mid-facially. This mid-facial tissue was then coronally positioned to CEJ to cover the receded root surface. The advanced flap was stabilized by an anchor suture (Figure 3) on the buccal surface of the tooth with a composite cement. The patient was given post-operative instructions and was prescribed suitable anti-microbial and analgesics.

Suture removal was done after 2 weeks and the patient was put on a periodontal maintenance regimen for 3 months.



Figure 1: Recession defect # 14

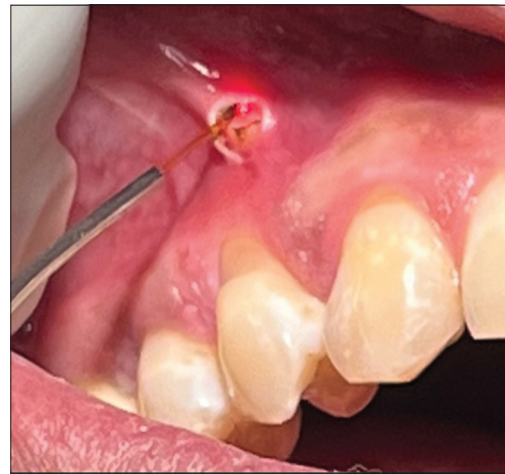


Figure 2: Laser buccal frenotomy

RESULTS

An acceptable root coverage was seen after 2 weeks which was stable even after 3 months (Figure 4). Moreover, the patient was satisfied with the final outcome of the root coverage procedure.

DISCUSSION

The primary goal of any surgical approach for treating gingival recession defect will be complete root coverage. Despite numerous techniques available for the treatment of multiple gingival recession defects, the inherent problems of a limited quantity of available grafts, the need for two surgical sites, compromised patient esthetics, post-operative discomfort and increased costs of treatment have limited the success of one single universal technique.^[6]

At present, successful treatment of recession-type defects is based on the use of clinically predictable root coverage periodontal plastic surgery procedures.^[7]

It has therefore been suggested that at least two different types of gingival recessions may exist: one related to mechanical



Figure 3: Advanced flap stabilized with anchor suture



Figure 4: 3 months post-operative view

factors (tooth brushing) and one associated with destructive periodontal disease.^[8]

Besides tooth brushing trauma and periodontitis, factors such as tooth malposition, alveolar bone dehiscence, high muscle attachment, frenal pull, and iatrogenic factors have been associated with the development of gingival recession.^[8]

The buccal frenum is a band of connective tissue located inside the mouth that adheres the mucosa of the buccal region of the oral cavity to the alveolar ridge of the maxillary and mandibular dental arches.^[9] This buccal tie in adults can struggle with gingival recession.^[9]

The presented technique utilized the combined advantages of laser buccal frenotomy and SLCRF with no disturbance to the adjacent interdental papillae, no shortening of the buccal vestibule, and has least flap tension.^[10]

Tarnow in 1986 reported the semilunar coronally re-positioned flap technique, which is indicated in areas with minimal labial

probing depth and an adequate band of keratinized gingiva.^[11] The modification in the original semilunar technique seems to provide better control over flap positioning, stabilization, and nutrition.^[12]

In the modern evidence-based era, the interest was mostly focused on the predictability of soft-tissue reconstruction over the exposed root thus obtaining CRC along with pleasant esthetics.^[13]

This technique is preferably to manage isolated gingival recession which serves as a predictable root coverage procedure.

CONCLUSION

This novel semilunar coronally repositioned flap technique with buccal frenotomy has been demonstrated to be effective for root coverage in Miller's class 1 gingival recession (Figure 4), providing significant gingival recession reduction, clinical attachment gain, and dentinal hypersensitivity reduction.

REFERENCES

1. Singh N, Uppoor A, Naik D. Semilunar coronally advanced flap with or without low level laser therapy in treatment of human maxillary multiple adjacent facial gingival recessions: A clinical study. *J Esthet Restor Dent* 2015;27:355-66.
2. Imber JC, Kasaj A. Treatment of gingival recession: When and how? *Int Dent J* 2021;71:178-87.
3. Nair V, Sabarish R, Ravindran D, Balaji SK. A minimally invasive approach to managing isolated gingival recession. *Cureus* 2023;15:e37195.
4. Santamaria MP, Saito MT, Mathias IF, Silveira CA, Casati MZ, Sallum EA, et al. A novel modification of semilunar coronally advanced flap for the treatment of gingival recession: Case series. *Int J Periodontics Restorative Dent* 2017;37:235-40.
5. Tarnow DP. Semilunar coronally repositioned flap. *J Clin Periodontol* 1986;13:182-5.
6. Schlee M, Lex M, Rathe F, Kasaj A, Sader R. Treatment of multiple recessions by means of a collagen matrix: A case series. *Int J Periodontics Restorative Dent* 2014;34:817-23.
7. Chambrone L, Salinas Ortega MA, Sukekava F, Rotundo R, Kalemaj Z, Buti J, et al. Root coverage procedures for treating localised and multiple recession-type defects. *Cochrane Database Syst Rev* 2018;10:CD007161.
8. Wennström JL. Mucogingival therapy. *Ann Periodontol* 1996;1: 671-701.
9. Baxter R, Merkel-Walsh R, Lahey L, Knutsen C, Zaghi S. The buccal frenum: Trends in diagnosis and indications for treatment of buccal ties among 466 healthcare professionals. *J Oral Rehabil* 2024;51:369-79.
10. Haghighat K. Modified semilunar coronally advanced flap. *J Periodontol* 2006;77:1274-9.
11. Santana RB, Mattos CM, Dibart S. A clinical comparison of two flap designs for coronal advancement of the gingival margin: Semilunar versus coronally advanced flap. *J Clin Periodontol* 2010;37:651-8.
12. Satpathy A, Lenka B, Mohanty R. Modified semilunar advanced flap with connective tissue graft technique for root coverage: A case report. *Indian J Forensic Med Toxicol* 2020;14:8198-202.
13. Cairo F, Nieri M, Pagliaro U. Efficacy of periodontal plastic surgery procedures in the treatment of localized facial gingival recessions. A systematic review. *J Clin Periodontol* 2014;41:S44-62.