

Content available at: <https://www.ipinnovative.com/open-access-journals>

IP International Journal of Periodontology and Implantology

Journal homepage: <https://www.ijpi.in/>

## Case Report

# Treatment of iatrogenically induced gingival recession in orthodontic patient with combination technique of vestibuloplasty and free gingival graft – Case report

M. Sindhu<sup>1</sup>, Tanuja<sup>1</sup>, Rajesh<sup>2,\*</sup>, Ramesh A<sup>1</sup>, Neha<sup>1</sup>, Nikhitha<sup>1</sup>

<sup>1</sup>Dept. of Periodontology, G Pulla Reddy Dental College and Hospital, Kurnool, Andhra Pradesh, India

<sup>2</sup>Dept. of Periodontology, NTR University of Health Sciences, Vijayawada, Andhra Pradesh, India



## ARTICLE INFO

### Article history:

Received 11-03-2023

Accepted 03-04-2023

Available online 22-04-2023

### Keywords:

Oral hygiene maintenance

Vestibuloplasty

Free gingival graft

## ABSTRACT

**Background:** It is well-known that oral hygiene plays a role in the initiation and progression periodontal disease, for maintaining proper oral hygiene sufficient width of attached gingiva along with adequate depth of vestibule is necessary. This case report describes Clark's technique for increasing the vestibular depth. In addition, Free gingival autograft (FGG) is done for treating Miller's class II recession. A 17-year-old female patient referred from the Department of orthodontics, with the chief complaint of receding gums in the lower front region. On clinical examination there is shallow vestibule, Millers class II gingival recession and is also seen. So planned for the combined technique of vestibuloplasty along with free gingival graft to achieve dual benefits of increasing the vestibular depth and root coverage.

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: [reprint@ipinnovative.com](mailto:reprint@ipinnovative.com)

## 1. Introduction

According to the 1999 AAP classification of periodontal disease and conditions, the gingival recession (vestibular, lingual & interproximal) areas are classified under the development or acquired mucogingival deformities.<sup>1</sup> The incidence of the gingival recession is an age - dependent and their development begins relatively early in life.<sup>2</sup>

Though etiology is unclear, periodontal disease and mechanical trauma are considered as one of the primary factors in the pathogenesis of gingival recession. Faulty tooth brushing, intraoral piercings, bruxism and pathological bacteria can induce inflammation in periodontal tissues<sup>3</sup> Some studies have reported that orthodontic therapy can be the etiological causes of gingival recession, and other studies have proclaimed the deepening of the gingival recession after the orthodontic therapy.

However, other studies found no indication of the advancement of gingival recession due to the presence of a fixed orthodontic therapy. Therefore, it is not clear that orthodontic tooth movement can result in gingival recession.<sup>4</sup> This case report presents a successful clinical case of a Miller class II gingival recession in which complete root coverage was achieved by means of the combined technique of vestibuloplasty and use of free gingival graft allowing to achieve better aesthetic results.

## 2. Case Report

A 17-year-old female patient was referred from the Department of Orthodontics, G. Pulla Reddy Dental college and Hospital, Kurnool, India, with chief complaint of receding gums in the lower front tooth region. She was undergoing orthodontic treatment for correction of malocclusion. The patient had localized class II gingival recession in relation to 41 with inadequate attached gingiva and shallow vestibule. Patient with systemically healthy and

\* Corresponding author.

E-mail address: [rajesh.nichenametla@gmail.com](mailto:rajesh.nichenametla@gmail.com) (Rajesh).

no history of previous periodontal surgery were included in the study. Patient was explained about the surgery and informed consent were taken by the patient. Routine laboratory investigation was carried, non –surgical therapy was performed and oral hygiene instructions were given to the patient. After four weeks of phase I therapy, the patient was undergone surgical procedure after removal of arch wire.



**Fig. 1:** pre-operative



**Fig. 2:** Vestibuloplasty done irt 31,32,41,4



**Fig. 3:** Donor site



**Fig. 4:** FGG harvested from palate



**Fig. 5:** FGG stabilized and sutured



**Fig. 6:** Coe pack is placed



**Fig. 7:** Post-operative at one week



**Fig. 10:** Post-operative at 1 month



**Fig. 8:** Post-operative at one week



**Fig. 11:** Post-operative at 3 months



**Fig. 9:** Post-operative at 1 month



**Fig. 12:** Post-operative at 3 months

### 2.1. Surgical procedure

After infiltration of 2% lignocaine on labial mucosal area of surgical site, a horizontal incision given at the mucogingival junction with no.15 surgical blade, the underlying fibers and muscle attachments are dissected with the surgical blade and then T suture is given apically (labial mucosal flap sutured to the underlying periosteum apically to the recipient site). In the donor site free gingival graft is harvested from the palate by classic technique under local anesthesia, the graft should comprise of epithelium and a thin layer of underlying connective tissue (approximately 1.5 mm thickness). After harvesting from the palate, the free gingival graft is placed at recipient site, stabilized and sutured by using a sling-suture technique with 4-0 polypropylene non absorbable suture followed by periodontal dressing. Postoperative instructions followed by oral hygiene instructions were given and oral antibiotics were prescribed. During the postoperative interval plaque control was achieved mechanically and chemically with 0.2% chlorhexidine. The site was evaluated at 1 week and the healing was normal and the surgical site was irrigated with normal saline. The patient was recalled after 1 months and 3 months.

### 3. Discussion

It is well known that orthodontic therapy could leads to gingival recession, the interconnection between orthodontic therapy and gingival recession plays a crucial role in children, teenagers, and adolescents.<sup>5</sup> During orthodontic treatment, gingival phenotype, proclination of teeth, type of therapy and duration of treatment plays a crucial role on alveolar bone remodeling around teeth structure and their surrounding periodontal tissues.<sup>6</sup>

Bone coupling takes place in the aspects of tooth movement, during this process bone resorption can takes place.<sup>7</sup> A study by Yared et.al., shown an increased incidence of alveolar bone dehiscence and gingival recession when the tooth root was disparate away from the central portion of the alveolar bone.<sup>8</sup>

The treatment on labial aspect of marginal tissue recession for aesthetics or root sensitivity is a frequent concern. Several mucogingival surgical procedures have been carried out for the root coverage to prevent hypersensitivity. The localized recession may be a consequent activity of the prominent position of the mandibular anterior teeth, manifestation of bone dehiscence and thin gingival tissue. Many authors believe that the tooth position have an effect on root coverage.<sup>9,10</sup>

For correcting the aberrant frenal attachments and to increase the width of attached gingiva several mucogingival procedures have been deployed, one among the periodontal plastic surgery technique is FGG (free gingival graft). To increase the vestibular depth, vestibuloplasty have been performed in this study. It has been proven that sufficient width of attached gingiva is necessary for maintaining the

proper oral hygiene.<sup>11</sup>

Vestibuloplasty techniques are generally classified as Mucosal advancement vestibuloplasty (obwegeser technique), Secondary epithelization vestibuloplasty (Kazanjians technique, Godwins method, Lipswitch method and Clarks method), and Grafting vestibuloplasty (Mucosal and Skin graft).<sup>11</sup>

Clark (1953) recommended flap be pedicled off the lip and the raw area be left on the alveolar aspect rather than the labial aspect. Apart from Clark's technique of vestibuloplasty, a free gingival graft which is harvested from the palate was used to augment the thin gingival phenotype and prevent further recession.<sup>11</sup> This case report describes a combined vestibuloplasty and free gingival graft for the treatment of shallow vestibule and root coverage.

### 4. Conclusion

The united treatment approach of vestibuloplasty combined with FGG have the binary advantages for augmenting the vestibular depth and coverage of recession. Hence, it has been proven that adequate depth of vestibule is necessary for achieving plaque control.

### 5. Source of Funding

None.

### 6. Conflict of Interest

None.

### References

1. Armitage GC. development of a classification system for periodontal disease and conditions. *Ann Period.* 1999;4(1):1–6. doi:10.1902/annals.1999.4.1.1.
2. Loe H, Aneured A, Boysen H. The natural history of periodontal disease in man: prevalence, severity, extension of gingival recession. *J Periodontol.* 1992;63(6):489–95.
3. Khocht A, Simon G, Person P, Denepithya JL. Gingival recession in relation to history of hard toothbrush use. *J Periodontol.* 1993;64(9):900–5.
4. Lee JB, Baek SJ, Kim M, Eun-Kyoung Pang. Correlation analysis of gingival recession after orthodontic treatment in the anterior region: an evaluation of soft and hard tissues. *J Periodont Implant Sci.* 2020;50(3):146–58.
5. Bollen AM, Cruz JC, Hujoelc PP. Secular trends in preadult orthodontic care in the United States: 1942–2002. *AMJ Orthod Dentofac Orthop.* 2007;132(5):579–85.
6. Henneman S, Holf JVD. Mechanobiology of tooth movement. *Eur J Orthod.* 2008;30(3):299–306.
7. Zawawi KH, Al-Zahrani MS. Gingival biotype in relation to incisors' inclination and position. *Saudi Med J.* 2014;35(11):1378–83.
8. Yared KG, Zenobio EG, Pacheco W. Periodontal status of mandibular central incisors after orthodontic proclination in adults. *Am J Orthod Dentofac Orthop.* 2006;130(1):1–8.
9. Kôliéstal C, Uhlin S. Buccal attachment loss in Swedish adolescents. *J Clin Period.* 1992;19(7):485–91.
10. Steiner GG, Pearson JK, Ainamo J. Changes of the marginal periodontium as a result of labial tooth movement in monkeys. *J Periodontol.* 1981;52(6):314–34.

11. Hb CL. Deepening of labial sulcus by mucosal flap advancement. *J Oral Surg.* 1953;11(2):165-73.

**Ramesh A**, Professor and HOD

**Neha**, Senior Lecturer

**Nikhitha**, Post Graduate Student

### Author biography

**M. Sindhu**, Post Graduate Student

**Tanuja**, Senior Lecturer

**Rajesh**, Professor

**Cite this article:** Sindhu M, Tanuja, Rajesh, Ramesh A, Neha, Nikhitha. Treatment of iatrogenically induced gingival recession in orthodontic patient with combination technique of vestibuloplasty and free gingival graft – Case report. *IP Int J Periodontol Implantol* 2023;8(1):47-51.