

# Management of Gingival Recession Associated With Orthodontic Treatment: A Case Report.

Aaysha Tabinda Nabi<sup>1</sup>, Priyata Ranjan<sup>2</sup>, Irfanul Huda<sup>3</sup>, Anindita Banerjee<sup>4</sup>, Rahul Mohan<sup>5</sup>

<sup>1</sup>Senior lecturer, Department of Periodontics, Buddha Institute of Dental Sciences and Hospital, Patna.

<sup>2</sup>Post graduate final year, Department of Periodontics, Buddha Institute of Dental sciences and Hospital, Patna.

<sup>3</sup>Reader, Department of Prosthodontics, Patna Dental College, Patna.

<sup>4</sup>HOD, Department of Periodontics, Buddha Institute of Dental Sciences and Hospital, Patna.

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## ABSTRACT

Many patients undergo orthodontic treatment for aesthetic improvement. It is well established that the patients who undergo orthodontic treatment have a high susceptibility to present plaque accumulation on their teeth because of the presence of brackets, wires and/or other orthodontic elements on the teeth surfaces with which the oral hygiene procedures might be more difficult. The orthodontic treatment is a double-action procedure regarding the periodontal tissues which may be very meaningful in increasing the periodontal health status and may be a harmful procedure which can be followed by several types of periodontal complications. There is a strong correlation between the severity and extent of gingival recessions and the orthodontic treatment suggesting that orthodontic tooth movement may lead to gingival recession. The principal objective in the treatment of gingival recession is to cover the exposed root surfaces to improve aesthetics and to reduce hypersensitivity. Different soft tissue grafting procedures have been proposed in the treatment of gingival recessions. Free gingival graft is a reliable method for treatment of gingival recession. The purpose of this case report was to illustrate the relationship between orthodontic therapy and gingival recession and to describe the management of this case.

**Keywords:** Aesthetics, Free Gingival graft, Dentinal hypersensitivity, Periodontal health, Root coverage.

## INTRODUCTION

Gingival recession is the exposure of the root surface due to an apical shift of the gingival margin.[1] Marginal etiological factors that can lead to gingival recession: a. Periodontal disease: In periodontal disease, the interaction between bacterial infection and immune response of the host causes matrix degradation, alveolar bone resorption, and apical migration of the epithelium, resulting in periodontal pockets, gingival recession, or a combination of both. (1)Miller presented an expanded classification, which is probably the most widely used today. Miller's system is as follows[1,2]



### Name & Address of Corresponding Author

Dr Priyata Ranjan  
Post Graduate Final Year  
Department of Periodontics  
Buddha Institute Of Dental Sciences and Hospital  
Patna, Bihar

## CASE REPORT

A 24-year-old girl was referred to the Department of Periodontics, Buddha Dental College and Hospital Patna Bihar, for evaluation and treatment of the gingival recession associated with the mandibular right central incisor. The dental history revealed that she was undergoing orthodontic therapy in both arches since one year. The patient reported that she first noticed the gingival recession about five months ago and it was getting progressively worse and was sensitive to tooth-brushing. Her general health condition was good, did not take any medications, had no known allergies and was a nonsmoker. Clinical evaluation revealed Miller's Class II (1) gingival recession on the buccal surface of left central incisor extending 7mm apical to the CEJ [Figure 1] and a narrow zone of attached gingiva measuring approximately 1mm. There was no loss of papilla height on the mesial and distal aspect of the central incisor. There was no gingival recession associated with adjacent teeth. There was no bone loss on the mesial and distal aspects of the affected tooth. The aim of the treatment was to restore harmonious appearance of the gingiva by covering the root surface and to increase the zone of attached gingiva. It was decided to treat this problem with Free Gingival graft.

### Surgical Procedure

Preparation of Recipient Site After local anesthesia and intraoral disinfection with 0.2 % chlorhexidinemouthrinse, the exposed root surfaces were planed thoroughly with a Gracey1-2 curette in both the cases.<sup>[3]</sup> The horizontal incision was made at the level of cemento-enamel junction extending from the line angle of adjacent teeth on either side of the recession deep into the papilla, creating a well defined butt joint. At the distal terminal of the horizontal incision, vertical incision was given extending well into the alveolar mucosa. A partial thickness flap was elevated and excised apically [Figure 2] followed by root biomodification by tetracycline hydrochloride 50 mg/ml for 3 minutes.<sup>[4]</sup>

**Preparation of Donor Tissue**

The amount of donor tissue needed was accuratelydetermined by using a foil template. The left side of palatebetween first and second premolar which had greaterthickness was selected to harvest the donor tissue. The initialincision was outlined by the placement of tinfoil templatewith a number 15 scalpel blade. A bevel access incision wasmade to get an even thickness of the graft. The incision wasmade along the occlusal aspect of the palate with number 15scalpel blade held parallel to the tissue, continued apically,lifting and separating the graft. [Figure 3]. The graft was placedon the recipient bed and sutured by means of crossutures (4-0 Vicrylresorbable) at the coronal and apical borders.<sup>[5]</sup> After suturing, the donor site was covered with the retention plate appliance, which patient was using. 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 mouth wash

**Clinical Observations**

Follow-up on 10thday revealed signs of graft acceptance. Sutures were removed; oral hygiene instructions were reinforced. After 3 weeks, examination showed that graft was completely accepted and recession was fully covered with the graft tissue. Donor site was completely healed.

**DISCUSSION**

The aetiology of gingival recession is multi factorial like excessive or inadequate teeth brushing, destructive periodontal disease, tooth malpositioning, alveolar bone dehiscence, thin and delicate marginal tissue root surface, high muscle attachment and frenal pull, occlusal trauma and other iatrogenic factors.<sup>[6]</sup> Among these aetiologic factors, a strong correlation was found between the severity and extent of gingival recession to past or undergoing orthodontic treatment which can be associated with dentine hypersensitivity, root caries and/or cervical wear.<sup>[7]</sup> Experimental evidence suggests that orthodontic tooth movement does not

actually cause gingival recession but might create an environment that predisposes to this condition particularly if teeth are repositioned in a facial direction.<sup>[8]</sup> Coverage of denuded roots has become one of the most challenging procedures in periodontal mucogingivalsurgery. The success of surgical procedures for root coverage depends on several factors, such as the aetiology of gingival recession, evaluation of the interproximal bone level and region to be treated.<sup>[9]</sup> Various surgical options have been developed to achieve the above goals and include the use of sub epithelial connective tissue graft, laterally sliding flaps, coronally advanced flaps, double papilla flaps, guided tissue regeneration, and acellular dermal matrix allografts.

Bjorn in 1963, and Sullivan and Atkins in 1968, were the first to describe the free gingival graft.<sup>[10]</sup> The free gingival graft was initially used to increase the amount of attached gingiva and extend the vestibular depth. Later it was used to attempt coverage of exposed root surfaces. Simple and highly predictable when used to increase the amount of attachedgingiva, it is also quite versatile.



Figure 1: Photograph showing recession.



Figure 2: Preparation of recipient bed



Figure 3: Harvesting graft from palate. Figure 4: Harvested graft



**Figure 5: Donor site. Figure 6: Free gingival graft and suture placed.**



**Figure 7: Post-operative after 10 days. Figure 8: Photograph after 3 months**

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## CONCLUSION

This case report describes the management of gingival recession caused by tooth movements during orthodontic therapy. The surgical treatment using FGG has proven to be a gold standard with highly predictable outcome for root coverage.

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