



The Creeping Attachment Following the Free Gingival Graft Surgery after Orthodontic Treatment: A Case Report

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Abstract

Objective: Gingival recessions are a common periodontal problem and many factors play a role in its etiology. In this case report, it was aimed to present a 'creeping attachment' that was occurred within 2 years after the free gingival graft was applied to the patient with gingival recession due to orthodontic problems.

Case: A 16-year-old female patient with orthodontic problems applied to our clinic with the complaint of gingival recession at mandibular anterior teeth. In the detailed examination, there was increased overjet, tongue-trusting habit and occlusal trauma in mandibular left and right first incisors. There were 3.5 mm (left incisor) and 2 mm (right incisor) gingival recession and Miller Class-II mobility. The patient was informed about surgery and a free gingival graft operation was planned. Under local anesthesia, the free gingival graft which was taken from the premolar region of the maxilla, was placed to extend coronal 1 mm of the enamel-cement junction. The wound was closed with periodontal surgical pat after the graft was secured to the recipient site. After 10 days periodontal surgical pat and sutures were taken. Clinical records and photographs were taken at 10th day, 1st month, 3rd month, 6th month and 2 years later.

Conclusion: There were no complications of soft tissue healing. Gingival recessions were completely closed after 2 years. As in this case, creeping attachments can occur in long-term follow-up of free gingival grafts when oral hygiene and periodontal maintenance programs are followed.

Keywords: Creeping Attachment; Free Gingival Graft; Gingival Recession

Introduction

Gingival recessions are defined as the migration of the marginal gingival tissue apically to the cemento-enamel junction (CEJ) and may be related to esthetic problems, hypersensitivity, and cervical caries [1,2]. Gingival recession is a complex phenomenon in which a large number of factors play a role in the etiology and the mechanisms causing recession have not yet been fully elucidated. Etiologic factors causing gingival recession; poor oral hygiene, periodontal disease, after successful periodontal treatment, improper tooth brushing techniques, orthodontic treatment, Class-II division-II malocclusion, iatrogenic factors, thin gingival biotype, presence of fenestration and dehiscence, high frenulum attachment, trauma, various dental restorations. In a review, the etiology of gingival recession was divided into three groups [3].

1. Anatomical factors,
2. Physiological factors,
3. Pathological factors [3].

Treatment of gingival recessions is done to prevent the progression of problems caused by the occur of root surfaces. Many gingival recession treatment's techniques have been developed within the scope of plastic periodontal surgery. These techniques can be used alone or combined with different techniques at the same time or in succession [3]. Surgical procedures for the treatment of gingival recessions may simply be classified as pedicle soft tissue grafts and free soft tissue graft procedures [4]. One of these procedures is the free gingival graft (FGG). Treatment of keratinized gingiva deficiency with FGG has been used for a long time is a high rate tech-

nique [5,6]. FGG technique has been used extensively in the past for the treatment of gingival recession and has been successful ratios were obtained [6-8]. The graft is removed from the lateral surfaces of the hard palate remaining in the distal region of the ruga region with epithelial and lamina propria layers. The graft is fixed to the prepared recipient area [5,6].

The creeping attachment, noted by some investigators like Corn, Bernimoulin, Lüscher, and Muhlemann, as a postoperative migration of the gingival marginal tissue to coronally, to cover totally or partially a pre-operative denuded root [9,10]. The gingival tissue becomes firmly attached to the root surface and generally it is seen no or minimal probing depth [10].

Case Presentation

A 16-year-old female patient with orthodontic problems applied to our clinic with the chief complaint of gingival recession at mandibular anterior teeth. In the detailed examination, there was increased overjet, tongue-trusting habit, and occlusal trauma in teeth 31 and 41. There were 3.5 mm (31) and 2 mm (41) gingi-

val recession and Miller Class-II mobility. Radiographic bone loss was't observed. With the elimination of the occlusal trauma and swallowing exercises, phase-I periodontal treatment was completed and the patient was informed about surgery and a free gingival graft operation was planned. Under local anesthesia, the free gingival graft (10 mm x 15 mm dimension), which was taken from the premolar region of the maxilla, was placed to extend coronal 1 mm of the enamel-cement junction. The wound was closed with periodontal surgical pat (Coe-Pak, GC America INC) after the graft was secured to the recipient site using 5-0 resorbable suture [Pegelak,Doğsan]. After 10 days periodontal surgical pat and sutures were taken. Clinical records and photographs were taken at 10th day, 1st month, 3rd month, 6th month and 2 years later.

There were no complications of soft tissue healing. Gingival recessions were 1 mm (31) and 0.5 mm (41) at 1st and 3rd months, and the gingival recession was completely closed after 2 years. As in this case, creeping attachments can occur in long-term follow-up of free gingival grafts when oral hygiene and periodontal maintenance programs are followed.



Figure 1: A: Pre-operative clinical view of gingival recessions at mandibular first incisors. B: Muco-gingival stress distribution. C: Recipient bed for FGG D: positioning and adapting the FGG.



Figure 2: Post-operative clinical healing at 10th day.



Figure 5: Creeping attachment and complete root coverage at 2nd year.



Figure 3: Clinical view of grafted site at 1st month.



Figure 4: Clinical view of grafted site at 3rd month.

Discussion

Over the decades, numerous surgical techniques have been proposed for root coverage. Complete root coverage of recessions depend on some complex factors including adjacent soft tissues, alveolar bone loss, optimal oral hygiene and minimal probing depth. This is the ultimate aim of root coverage procedures [11]. The root coverage can be obtain by different surgical techniques such as coronally or laterally positioned flaps, subepithelial connective tissue grafts, free gingival grafts, alloderm grafts, collagen matrices and repositioned flaps with various platelet derived consantrates such as platelet rich fibrin, platelet rich plasma concentrated growth factors and others [12]. Free gingival graft is one of the surgical techniques for treatment of gingival recessions. In the literatüre, some of the investigators indicated about the high success rates [6,13,14] while on the contrary other researchers suggested low root coverage percentages with free gingival grafts [9,15]. The use of FGG technique results in a lighter color than the natural color of the gingiva. This is an aesthetic problem for patients with high expectations and the possible color mismatch is seems the only disadvantage of this technique when comparing with other root coverage techniques [16]. The free gingival graft is the most widely used surgical technique for increasing the keratinized gingival tissue. Free gingival grafts are giving the best results for increasing and gaining keratinized gingiva if there is limited or no keratinized tissue at before the surgery. Although subepithelial connective tissue grafts alone or with coronally flaps seems currently gold standart for gingival recessions, it does not give the adequate amount for obtaining keratinized tissue according to free gingival grafts

[12,17]. The literature on the success about free gingival grafts is contradictory and percentages of root coverage is ranging between 11% to 100%. The free gingival graft is contraindicated in the presence of deep probing pockets, in deep and wide recession defects and patients with esthetic demands [3]. The major shortcoming of free gingival grafts is the patient morbidity due to palatal surgery site and this disadvantage is common for repositioned flaps, different platelet concentrates or connective tissue grafts. Alloderm and collagen matrices derived from animals like porcine are sometimes unacceptable by patients and because of this reason autologous procedures can be preferred considering results in improvement of clinical parameters [17,18]. Free gingival grafts are still giving high success rates to clinicians and maintain the keratinized gingival tissues.

Creeping attachment is defined as "post-operative migration of the gingival marginal tissue in the coronal direction along portions of a previously cut root" [19]. Clinically the migration occurred slowly during a long period of time. There are many clinical reports about the effect of free grafts on gingival margin levels in the literature [9,10,20]. Reports show variability. Most reports show "creeping attachment between 0.12 and 3.5 mm for 2 years [9,10]. The result of many studies encourage the use of grafts over exposed root surface in an attempt for gingival coverage.

Conclusion

According to the literature point of view, the complete root coverage can be achieved by free gingival grafts for the treatment of narrow gingival recessions. The coverage may increase by creeping attachment phenomenon as seen in this case report and this provides maintaining the healthy gingival margin and enhancing oral hygiene procedures.

Conflict of Interest

The authors declare that they have no conflict of interests regarding the publication of this manuscript.

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