ORAL HEALTH AND MAXILLOFACIAL RESEARCH
2024, VOL. 1, ISSUE 1
https://doi.org/10.61577/ohmr.2024.100004

RESEAPRO JOURNALS

CASE REPORT

OPEN ACCESS

Coronal gingival regrowth following augmentation of keratinized tissue: a case report

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ABSTRACT

Insufficient keratinized tissue adversely impacts oral hygiene, potentially leading to gingival inflammation and recession. A young female patient presented at the dental clinic with localized gingival recession in the lower anterior tooth region, accompanied by challenges in maintaining adequate oral hygiene. A modified technique that involved a free gingival graft was executed. Subsequently, the patient underwent a 3-month follow-up, during which the gingival margin level was reevaluated. Coronal regrowth of the gingival margin was observed, even though the marginal gingiva had not been directly manipulated during the periodontal surgical intervention.

KEYWORDS

Coronal regrowth; Free gingival graft; Keratinized tissue; Gingival margin; Oral hygiene

ARTICLE HISTORY

Received 20 September 2023;
Revised 26 October 2023;
Accepted 6 November 2023

Introduction

Gingival recession is a prevalent periodontal disease. Roughly 50% of the population exhibits a minimum of 1 mm gingival recession [1]. The etiology of recession encompasses factors such as periodontal inflammation, aggressive tooth brushing, improper orthodontic interventions, and a deficiency of keratinized tissue [2].

Contemporary therapeutic approaches involve various surgical techniques for managing gingival recession. The choice of the most reliable surgical technique depends on several variables, including location, classification, quantity of keratinized tissue, and others. In scenarios involving the lower anterior region, free gingival graft is recommended [3]. Subsequently, an augmentation in the amount of keratinized tissue occurs. This enhances oral hygiene and reduces the likelihood of gingival inflammation while improving the gingival condition [4]. Herein, we report the case of a young female with gingival recession. The objective was to assess the degree of coronal gingival regrowth subsequent to increased keratinized tissue.

Case Details

A 17-year-old female patient with no underlying medical conditions presented at the dental clinic of Arab American University suffering from gingival recession. Upon clinical evaluation, the condition was identified as Miller's class II gingival recession, specifically affecting tooth #31. The recession exhibited a depth of 3 mm, with a keratinized tissue width of less than 1 mm. Probing depths measured less than 3 mm, and the tooth displayed vital signs with a mobility grade of 1. Additionally, the tooth was situated within the alveolar socket, as depicted in (Figure 1).

Surgical procedure

After obtaining informed consent, 2% Lidocaine with epinephrine 1:100000 was locally administered. Subsequently, a smooth linear incision was performed at the mucogingival junction using a 15c blade. A split-thickness flap was created,

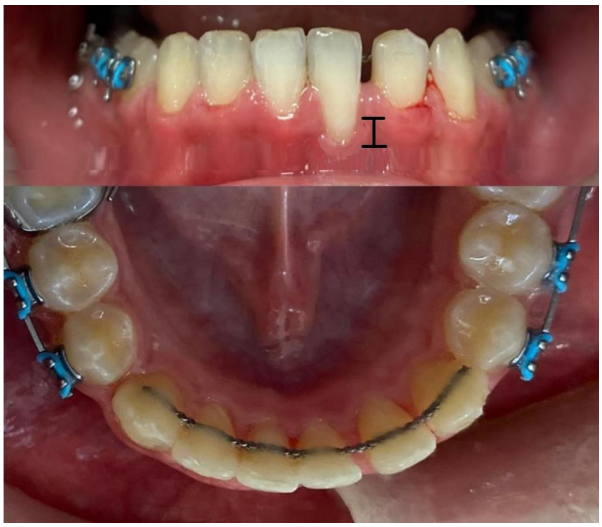

Figure 1. Pre-operative photographs.

repositioned apically, and secured with 4-0 nylon sutures. To facilitate precise graft dimensions, a sterile foil template was employed to transfer measurements from the recipient to the donor site. The free gingival graft, uniformly measuring 1.5 mm in thickness, was harvested from the second premolar region of the palate. The graft was then placed on the recipient site and compressed for 5 minutes. Proper suturing was performed to secure the graft to the underlying connective tissue and adjacent teeth using 5-0 nylon sutures (Figure 2). The donor site was sutured with crisscross sutures using 3-0 silk sutures. After the surgery, the patient initiated a systemic oral antibiotic regimen (Amoxicillin 500mg for 1 week) and employed a 0.12% Chlorhexidine mouthwash for 2 weeks. The patient was also instructed to exercise caution to prevent trauma to the surgical sites, especially within the initial two-week period. Sutures were removed after 10 days. The patient underwent a series of follow-up appointments to

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assess the level of the gingival margin at 10 days, 3 weeks, 1 month, and 3 months post-surgery (Figure 3). After a 3-month interval, the recession depth demonstrated a noteworthy reduction from 3mm to 1mm. This substantial improvement is likely attributed to enhanced oral hygiene practices and reduced apical soft tissue traction.

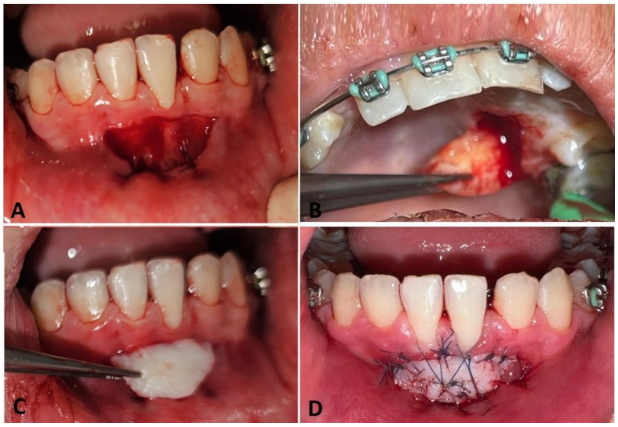

Figure 2. (A) Apically positioned split-thickness flap. (B) Harvesting of the free gingival graft from the palate. (C) Placement of the free gingival graft on the recipient site. (D) Suturing.

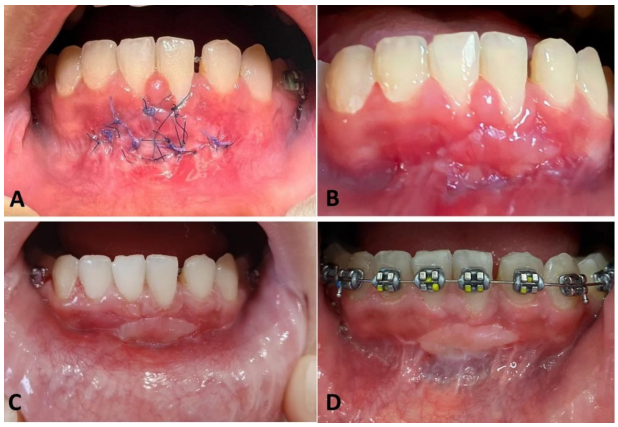

Figure 3. (A) 10 days post-op. (B) 3 weeks post-op. (C) 1-month post-op. (D) 3 months post-op.

Discussion

There are several reports on coronal gingival regrowth [5-9]. Unlike the current case, these studies predominantly involve surgical interventions manipulating the gingival margin. Herein, we abstained from any manipulation of the gingival margin. Several investigations have established a positive correlation between the width of recession and the extent of gingival regrowth, with narrower recessions (<3 mm) exhibiting a heightened potential for regrowth. Additionally, the tooth's positioning within the alveolus has been identified as a contributing factor to the magnitude of gingival regrowth, with a heightened likelihood of regrowth when the tooth is located within the alveolus [10].

In our study, we employed a free gingival graft to augment the quantity of keratinized tissue. This facilitated the patient's ability to perform effective oral hygiene measures. It is worth noting that various authors have recommended the presence of a minimum of 2 mm of keratinized tissue around teeth for optimal oral health [11]. In our case, the initial amount of keratinized tissue was less than 1 mm, emphasizing the necessity of the graft procedure to address this deficiency.

Conclusions

Within the limitations of this study, it is reasonable to suggest that expanding the width of keratinized tissue may lead to coronal regrowth of the gingival margin.

Consent

Written informed consent was obtained from the patient.

Disclosure statement

No potential conflict of interest was reported by the authors.

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https://doi.org/10.61577/ohmr.2024.100004