

Gingival Recession Treatment with Utilization of Free Gingival Autograft Technique: A Case Study

Wiet Sidharta¹, Agung Krismariono², Aristo Lay³

¹Student of Periodontology Residency Program, Faculty of Dentistry, Universitas Airlangga, Surabaya, Indonesia

²Department of Periodontology, Faculty of Dentistry, Universitas Airlangga, Surabaya, Indonesia

³Former Student of Periodontology Residency Program, Faculty of Dentistry, Universitas Airlangga, Surabaya, Indonesia

ABSTRACT:

Background: Gingival recession is apical migration of marginal gingiva, causing exposure of the root surface of the tooth. To treat this condition, free gingival autograft is used to increase the keratinized gingiva in the deformed area. The aim of the case is to prove the efficacy of Free Gingival Autograft technique in increasing amount of keratinized gingiva in area affected by gingival recession.

Case presentation: In this clinical case presentation, a systemically healthy 61-years-old female come to the Periodontics Department of Airlangga Dental and Mouth Hospital seeking treatment for her mandibular front teeth which appeared to be elongated clinically and aesthetically displeasing.

Case management: The patient was treated by free gingival autograft. Graft is harvested from the palatal, placed, and sutured on the recipient site. 1 month post treatment follow up showed good result, evident with increased amount of keratinized mucosa in the previously deformed area.

Conclusion: Gingival recession is a complex condition which can be treated with free gingival autograft. This technique showed satisfactory result, evident with increase of keratinized gingiva at 1 month follow-up.

KEYWORDS: Gingival recession, autograft, free gingival graft, keratinized gingiva, augmentation

INTRODUCTION

Gingival recession can be defined as shifting of soft tissue margin apical from cemento-enamel junction. This condition can be caused by multiple conditions such as plaque induced periodontal disease, wrong brushing methods, orthodontic shifting, overhanging restoration, malposition, or frenal attachment, etc.¹

Dorfman stated that if the marginal tissue can be maintained to be from inflammation, recession treatment is not even necessary², but according to Miller treatment on the said area have predictable and satisfactory outcome³.

There are many alternatives for gingival recession treatment such as rotational flap, coronally advanced flap, free gingival graft, guided tissue regeneration, connective tissue graft or even combination of the techniques mentioned above. Although there are many breakthrough in the techniques to correct gingival recession, free gingival graft seems to be the preferred option because of the simplicity, possibility to treat multiple tooth at once, easy tissue handling. This technique also can be done where the keratinized tissue around the operative area is not sufficient.⁴

CASE PRESENTATION

61 years old female patient come to Periodontics Specialist Clinic of Airlangga Teeth and Mouth Teaching Hospital with a chief complaint of anterior mandibular front teeth appear to be elongated because of gingival recession. Patient has good oral hygiene, scaling and rootplanning lastly done 1 year ago, patient have also done splinting on anterior mandibular teeth 3 years ago and the splint is in good condition. No mobility is observed in the said area. In clinical examination, Class III Miller's Recession can be observed on teeth 32,31,41,42. (**Fig. 1**).



Fig. 1. Patient indicating Miller's class III gingival recession in the teeth 32,31,41,42

Based on the radiographic examination discontinuity of lamina dura and resorption of alveolar crest about half of the root length can be observed on teeth 32, 31, 41, and 42. (**Fig. 2**). Based on the results of examination, *gingival augmentation apical to recession* on teeth 33,32,31,41,42,43 is planned to resolve the aesthetic complaint from the patient.



Fig. 2. OPG of the patient

CASE MANAGEMENT

Initial procedure was performed on the patient involving scaling and root planing. Surgery was performed after phase I periodontal therapy. The patient gave his approval on informed consent regarding the planned procedures.

After asepsis protocol an adequate administration of local anesthetic (lidocaine HCl 2% with epinephrine 1:100,000), horizontal incision on the operative area is done with 15c blade at cemento-enamel junction level from mesial line angle of tooth 33 to mesial line angle of tooth 33. Flap elevation is gently done with periosteal elevator and irrigation with normal saline is done to clean the recipient site (**Fig. 3A**), exposed root surface is cleaned thoroughly with Gracey 1-2 curette. (**Fig. 3B**). After all of the procedure is carried out, donor site dimension measurement is done with the help of periodontal probe (**Fig.3C**) Template is made based on measured dimension of graft needed. Left palatal aspect between first premolar and first molar is chosen because that area has sufficient width to be made as donor site. Incision is made on the palatal aspect with 15c blade being hold parallel against the tissue, incision is made continuously in the apical direction. (**Fig. 3D**). Tissue graft is then retracted with tissue plier until the graft is extracted perfectly. Thickness of the graft is also checked to obtain uniform thickness and smooth surface. (**Fig. 3E**). The graft is obtained and ready to be put to the recipient site

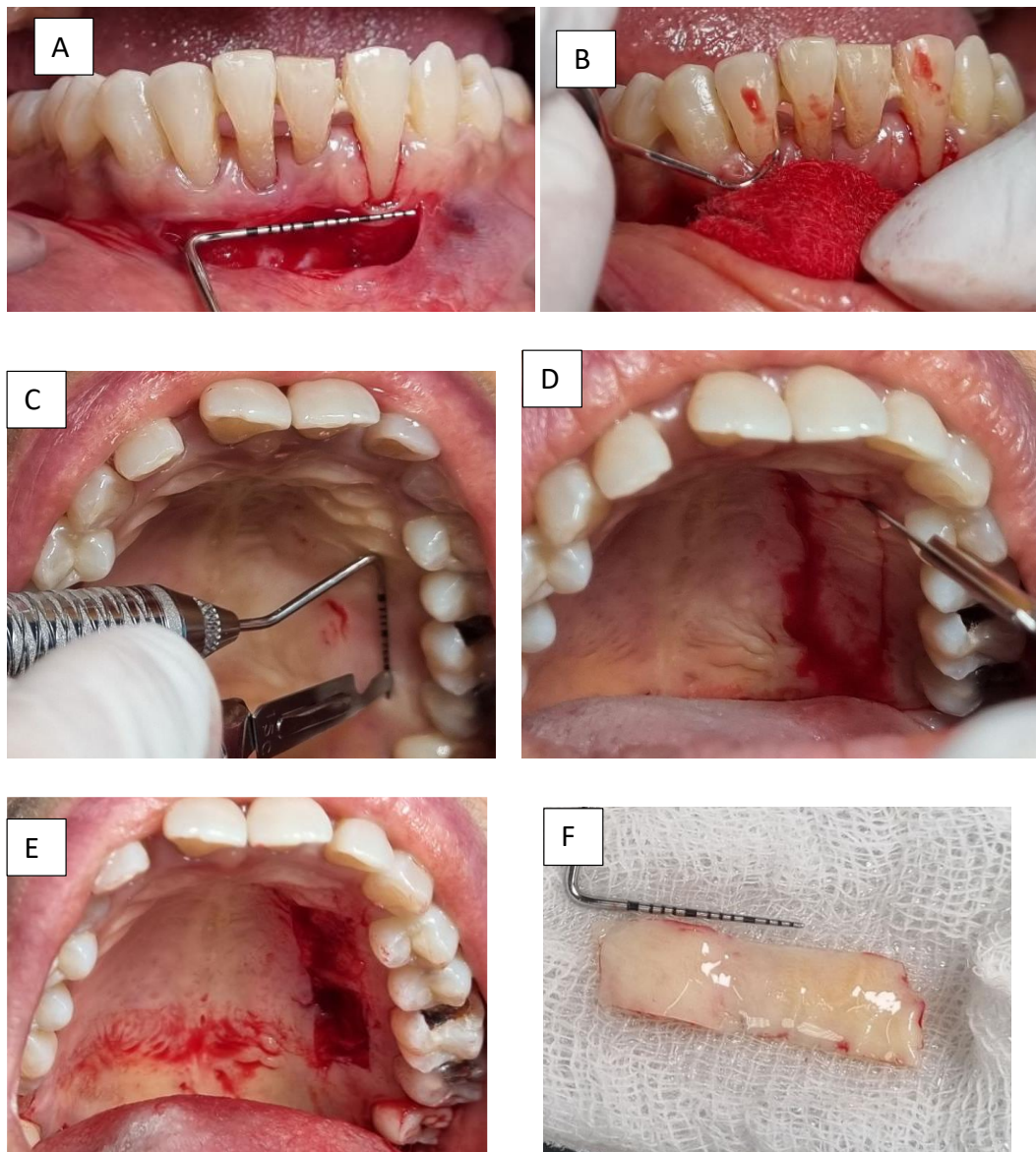


Fig. 3. Preparation of the recipient and donor site: (A) incision and dimension measurement of recipient site; (B) cleaning using Gracey curette; (C) measurement of the donor site; (D) incision of donor site; (E-F) donor site graft harvesting and the gingival graft

Recipient site is irrigated with normal saline to ensure clean periosteal bed (**Fig. 4A**) Graft is applied on the recipient site (**Fig. 4B**) and fixated using 4-0 nylon suture (**Fig 4C**). The fixation is done on the graft to coronal and apical edge of the recipient site. Vertical suture is also done to ensure good adaptation of the graft to the root surface. (**Fig 4D**) Donor site on the palatal is then sutured to gain a good tissue healing (**Fig 4E-F**). After the suture is checked for stability, Hawley's retainer is inserted to protect the wounded donor site and speed up the healing process.

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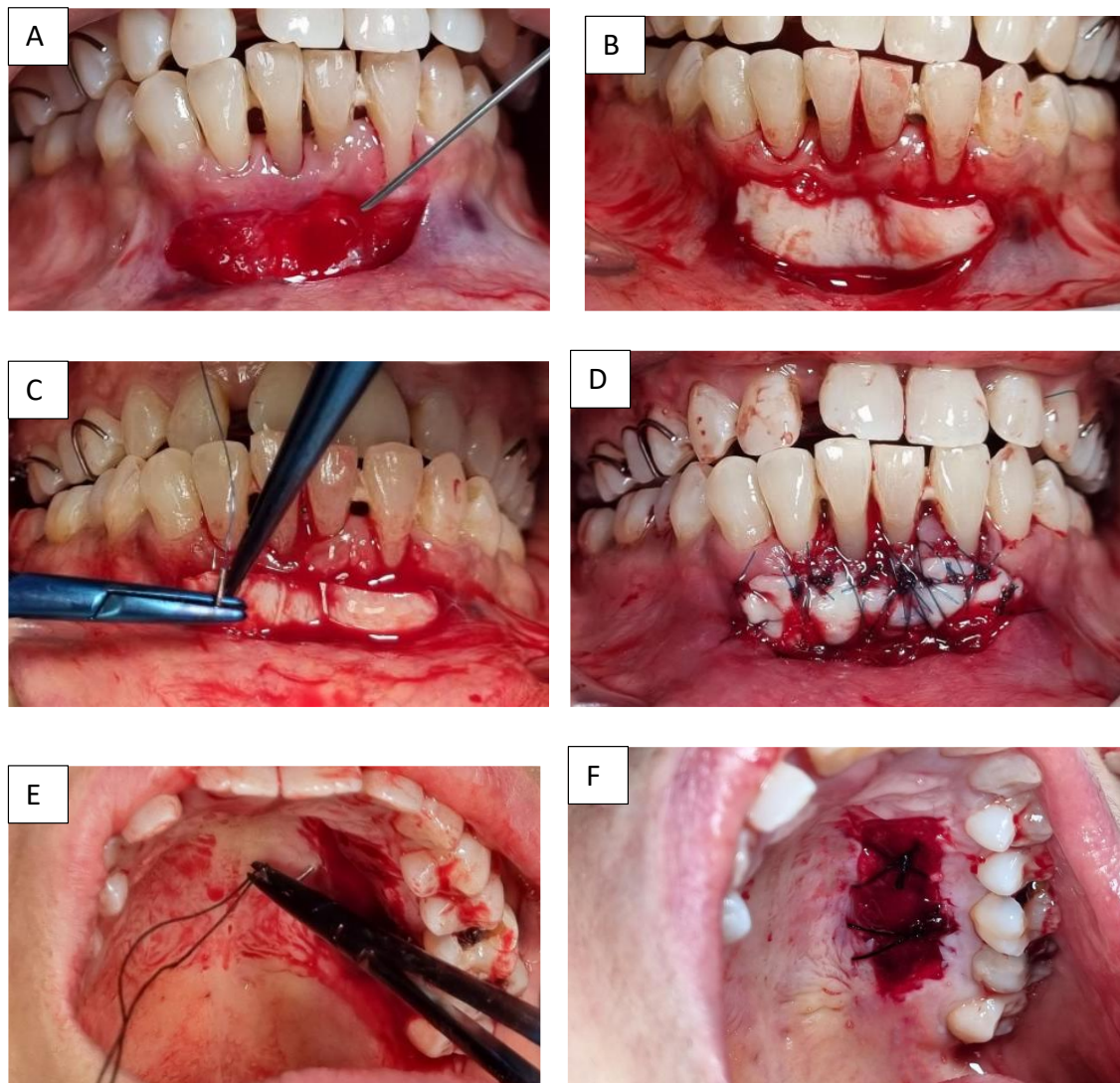


Fig. 4. Surgical procedures: (A) irrigation of recipient site; (B) application of the graft to perioateal bed; (C) suturing procedure; (D) clinical appearance after suturing; € suturing of donor site; (F) clinical appearance after donor site suturing

Patient is instructed to avoid brushing the post operative area until seven days after the operation. To avoid plaque accumulation, chlorhexidine gluconate 0.12% gargle solution is prescribed. Mefenamic Acid 500 mg is also prescribed to reduce post operative pain. Patient is also instructed to avoid food that is too hot or too spicy.



Fig. 5. (A) 1 month post-op; (B) 1 month post-op palatal aspect; (C) Before surgery; (D) Post surgery

On the 1 month post-surgery control, healing on both the donor and recipient site appears to be good. (Fig 5A-B) Keratinized tissue appears to be gained significantly on the operated site. Exposed root surface on the said area in which make the front teeth look elongated is also decrease significantly (Fig. 5C-D).

DISCUSSION

Result shown from free gingival autograft treatment above showed success in reducing gingival recession and increasing keratinized gingiva amount. This technique is first described by Sullivan and Atkins, in which free gingival graft is reported to give the best result in shallow and narrow gingival recession case.⁵

Free Gingival Autograft can be utilized to increase keratinized gingiva amount, increase vestibulum depth, increase gingival tissue in edentulous area, and also covers exposed root on area affected by gingival recession⁶.

Keratinized tissue is important because adequate amount of keratinized tissue served as a barrier from physical trauma and inhibits the progress of gingival recession. There is no universal consensus but there is a general agreement that if there is less than 2mm of keratinized tissue then the area is prone to recession.⁷

When graft is applied on the recession affected area, it will accept vascular blood flow from the recipient area. Donor and recipient site then merged and cause coronal migration of free gingival margin post operative.⁸

Free gingival graft have a low success rate and more unpredictable result compared to the connective tissue graft.⁹ This can be attribute to inadequate scalling and root planning, Insufficient preparation of the recipient site, size and width deficiency of the graft, dehydrated graft tissue, insufficient adaptation of the graft and the periosteal bed, graft stabilization failure, excessive tension of the graft caused by suture, trauma on the graft on the initial healing period, and also smoking.¹⁰

Free Gingival Graft treatment show 40-70 % success rate on coverage of class I and II Miller recession. Perfect root coverage is achieved when soft tissue margin located on cemento-enamel junction, clinical attachment of soft tissue to the root, sulcular depth of 2mm or less, and also absence of bleeding on probing.¹¹

Free gingival autograft is chosen because : (1) Narrow palatal area which ruled out connective tissue graft, (2) Asian people gingival phenotype which tend to be thin and ruled out laterally placed flap because of the high risk of recession, (3) apico-coronal gingival dimension is not sufficient which ruled out coronally placed flap.

Free gingival graft is chosen because of the simplicity and less invasive compared to the connective tissue graft. Free gingival graft also has its drawback aesthetically on the color mismatch between donor and recipient, but some studies also reported color assimilation after 6 months post-op.¹²

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CONCLUSION

Free gingival graft can be the first choice method to treat gingival recession and increase keratinized tissue on the recipient site. This is attributed to the simplicity and high predictability of successful treatment outcome, also multiple tooth recession treatment on one single operation is possible

Further studies with more samples and prolonged follow-up period are required for better understanding of this subject.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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