Surgical Management of Gingival Recession Using Free Gingival Autograft: A Case Report

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ABSTRACT

Gingival recession leads to dentinal hypersensitivity, aesthetic problems, root caries, cervical abrasion and difficulty in oral hygiene maintenance. Managing gingival recession often is a great challenge for practitioners. Different surgical techniques have been advocated for root coverage like free soft tissue graft procedures free gingival graft and sub-epithelial connective tissue graft, pedicle soft tissue graft rotational flap and flap advancement, pouch and tunnel technique and guided tissue regeneration. This case report displays use of free gingival graft for management of patient of age 22 years with Miller's Class I recession defect in lower left mandibular central incisor.

Keywords: Free gingival autograft; gingival recession; root coverage.

INTRODUCTION

Globally, around 50 % of individuals suffers from gingival recession[1] and in Nepal about 65%.2 Prevalence increases with age and is common in mandibular teeth than maxillary with thicker and wider keratinised tissues.[2] For management of recession, several surgical techniques are applied: free gingival graft (FGG), sub-epithelial connective tissue graft, laterally-positioned graft, double-papilla flap, pouch and tunnel technique and guided tissue regeneration.[3] FGG, first described by Bjorn et al. (1963),[4] to increase width of attached gingiva and deepening of sulcus. Mean root coverage percentage ranges from 43%-85.3%.[5] However, meticulous surgical procedure can ensure success rate of FGG towards higher side.

CASE REPORT

A 22-year-old male patient reported to the Department of Periodontology, Dhulikhel hospital with a chief complaint of downward shifting of gum in lower front teeth region which was progressive in nature and causing tooth sensitivity (Figure: 1). Medical history revealed no obvious findings. Patient underwent on fixed orthodontic therapy two years back for correction of crowded upper and lower teeth. On examination, the oral hygiene status was fair with moderate deposition of plaque and calculus and presence of recession of Miller's Class I[6] was noted with respect to #31 (Figure: 4) having a thin gingival biotype and high lower lip line. During 1st visit, full mouth scaling was done and modified Stillman's method of toothbrushing was demonstrated. The recession noted was 'U' type recession[7] with 3 mm apico-coronal height and 3 mm mesio-distal width at greatest dimension (Figure 2, 3). The single-stage surgical technique using free gingival autograft was explained on the same day. On the next visit after one month, written consent was taken and the surgical procedure was carried out as follows:

Preparation of recipient bed: The area was anaesthesized by use of local infiltration technique with 2% Lignocaine HCl + 1:2,00,0000 epinephrine. The peripheral gingival tissues surrounding the recession was de-epithelialised

Figure 1: Pre-surgical view.

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Citation

Neupane M, Humagain M, Subba M, Lamichhane S, Dawadi A. Surgical Management of Gingival Recession using Free Gingival Autograft: A Case Report. J Nepal Soc Perio Oral Implantol. 2019;3(6):81-3.

Figure 2: M-D dimension of recession (3 mm).

Figure 3: Apico-coronal height of recession (3 mm).

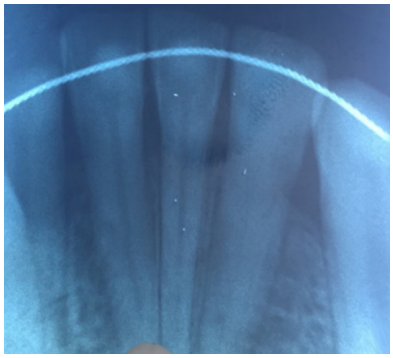

Figure 4: Intra-oral periapical radiograph.

Figure 5: Recipient bed preparation.

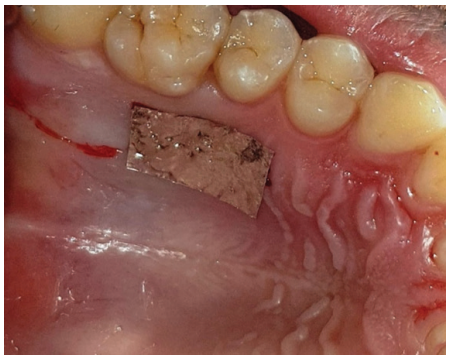

Figure 6: Tin foil template(15×7 mm).

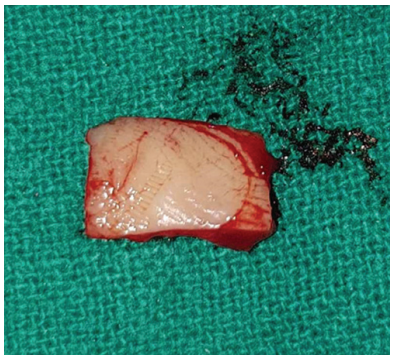

Figure 7: Harvested FGG from palate.

after scaling and root planing was performed. Lower lip was then retracted and initial incision was made at the existing mucogingival junction using #15 BP blade. A sharp dissection was continued 6 mm apically and deep to compensate for graft healing and shrinkage. Thus, a recipient bed measuring approximately 12×6 mm was prepared ready to receive the graft (Figure: 5).

Obtaining the graft from donor site: The graft was planned to be retrieved from distal to anterior palatine rugae area with respect to tooth number 24, 25, and 26. Greater palatine nerve block was given using same anaesthetic solution as used for the recipient site. Tin foil template of 15×7 mm was placed on the donor site and bleeding points were induced (Figure: 6). Partial thickness dissection was done to retrieve the FGG from the donor area. Thus, a graft was obtained from the palate. The donor site was covered with haemostatic sponge for haemostasis and Hawley's retainer was placed.

Graft preparation: The underside of graft was inspected for the presence of any fatty or glandular tissues. The tissue tags and fatty tissues were removed and graft of uniform thickness of about 1.5 mm thickness was prepared using #15 scalpel (Figure:7).

Graft placement: The graft was then placed on the recipient bed and secured first by use of two interrupted 4-0 silk sutures at the mesial and distal aspects. Then,graft was fully stabilized by use of criss-cross suture and re-inforced interrupted sutures. Slight pressure was applied with saline moistened gauze for 5 minutes to achieve haemostasis and formation of fibrin clot. The surgical site was then well-protected using tin foil and non-eugenol periodontal dressing. (Figure: 8,9)

Figure 8: FGG secured with suture.

Figure 9: Graft completely sutured to recipient bed.

Figure 10: Post-operative view at 1 month.

Post-surgical instructions: The patient was instructed to refrain from tooth brushing at the surgical site for 10 days. Chlorhexidine mouthwash 0.2% 10ml twice daily for 10 days along with Amoxicillin 500 mg thrice daily + Metronidazole 400mg thrice daily for 5 days and Analgesics as per needed was prescribed. Patient follow up visit was scheduled after 10 days of surgery.

Suture removal and post-operative healing: Non-eugenol periodontal dressing and sutures were removed followed by irrigation with normal saline. The recipient site and donor site healing was satisfactory. At the one month follow-up, both recipient site and donor site were completely healed & desired results were obtained (Figure 10).

DISCUSSION

Gingival recession is displacement of gingival margin apical to cemento-enamel junction leading to exposure of root surface and posing various deformities like dentinal hypersensitivity, root caries and aesthetic compromise. Common etiologies for most of the recession are increasing age, masochistic habits, injudicious orthodontic forces, periodontal surgery, periodontal diseases and abnormal frenal attachments. For management of gingival recession, several surgical techniques are being clinically applied like FGG, sub-epithelial connective tissue graft, laterally positioned graft, double papilla flap, pouch and tunnel technique and guided tissue regeneration.[3]

Due to its wide variety of use, FGG is commonly practiced technique for many decades. It was used basically for management of inadequate width of attached gingiva and inadequate vestibular depth. The advantage with this technique is that it offers root coverage in addition whenever attempt to augment keratinised gingiva is done. Technique sensitive, high patient compliance, trauma during healing, open raw wound at donor site and unpredictable colour match are the major drawbacks of FGG. There are different schools of thoughts for thickness of graft. Soehren and colleagues in 1973 advocated the use of partial to intermediate thickness graft of 0.5-0.75 mm as the ideal graft for FGG believing there is less primary contraction due to less amount of elastic fibers in thin graft.[8] However, results by Ratertschak, Siebert and Ward observation revealed the secondary contraction of thin grafts due to cicatrisation during uptake of graft by tissues.[9] Thus, the ideal full thickness graft as described by Sullivan and Atkins back in 1968 still holds true for successful healing and ideal results.[10] This case report depicts the successful use of FGG as described by Miller's criteria for successful root coverage. The soft tissue margin must be at the cementoenamel junction, there is clinical attachment to the root, the sulcus depth is two mm or less and there is no bleeding on probing. The root coverage achieved in this case was almost 67% which corresponds to results achieved on average which was 64% as per systematic review on perioplastic surgery done by Roccuzzo.[5] Also, the thick biotype keratinised gingiva was the end result after first month of surgery. A recession coverage with one mm creeping attachment over a one year period post-surgery is anticipated.

SUMMARY

Among all root coverage techniques sub-epithelial connective tissue graft is considered as the "gold standard." FGG still is a flexible and multipurpose technique for root coverage in areas with recession, inadequate width of attached gingiva, shallow vestibular depth and in areas where aesthetics is not a major concern.

Conflict of Interest: None

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