

Covering the Uncovered: Complete Root Coverage of Gingival Recession using Sub-Epithelial Connective Tissue Graft

Dr. Suraksha Subedi,¹ Dr. Rebicca Ranjit,¹ Dr. Soni Bista¹

¹Department of Periodontology and Oral Implantology, College of Dental Surgery, Gandaki Medical College, Pokhara, Kaski, Nepal.

ABSTRACT

Gingival recession is defined as the displacement of marginal tissue apical to cemento-enamel junction, exposing the root surface. It is caused by traumatic toothbrushing, periodontitis, high frenal attachment, and injudicious orthodontic tooth movement. It leads to dentinal hypersensitivity, aesthetic problem, root caries, cervical abrasion and difficulty in oral hygiene maintenance. This can be managed by root coverage procedure which can be achieved by various surgical techniques. This case report shows successful management of Miller's Class II gingival recession using sub-epithelial connective tissue graft procedure that was followed up for six months without any complications.

Keywords: Gingival recession; root coverage; sub-epithelial connective tissue graft.

INTRODUCTION

Gingival recession is a common finding in daily clinical practice. Its prevalence is about 65% of individuals in Nepalese population.¹ This condition can be managed with several root coverage procedures using free gingival graft (FGG), sub-epithelial connective tissue graft (SCTG), laterally-positioned graft, double-papilla flap, pouch and tunnel technique, and guided tissue regeneration.² Among these techniques, SCTG described by Langer and Langer in 1985 is considered as the most predictable technique.³ This case report shows successful management of Miller's Class II gingival recession using SCTG and followed up for six months without any complications.

CASE REPORT

A 25-year-old female patient reported with complaint of receding gums in lower front teeth region for two years which was associated with tooth sensitivity. Patient had undergone orthodontic therapy three years back. On intraoral examination, there was generalised gingival inflammation and bleeding on probing. Miller's Class II gingival recession⁴ was noted in respect to 41 (according

to two-digit tooth numbering system) with aberrant frenal attachment and inadequate vestibular depth (Figure 1). The condition was diagnosed as dental plaque induced gingival disease (IA) as per American Academy of Periodontology (AAP) 1999 classification along with mucogingival deformity in relation to 41 (VIII-B, American Academy of Periodontology, 1999 classification).

On the first visit, full mouth scaling and root planing was done and oral hygiene instructions were given. After discussing various treatment options with the patient, frenectomy with vestibular deepening at first, followed by root coverage in relation to 41 with SCTG was planned. All treatment protocols were explained to patient and written consent was taken. Two weeks later, under normal haemogram values, frenectomy with vestibular deepening was performed using #15 surgical blade followed by periosteal suturing with 3-0 silk suture. On one month re-evaluation, good healing was observed (Figure 2).



Figure 1: Preoperative view.

Correspondence

Dr. Suraksha Subedi
Email: surakshya691@gmail.com



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Figure 2: Three months follow-up.

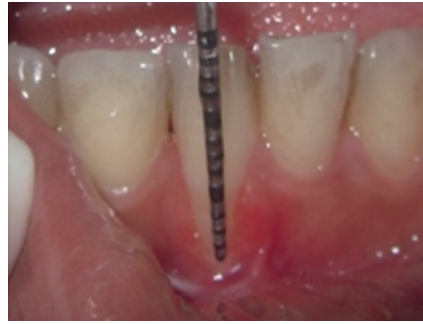


Figure 3: Recession height (5 mm) and width (3 mm).



Figure 4: Horizontal incision.

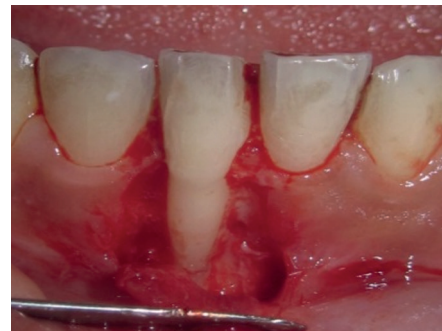


Figure 5: After flap reflection and deepithelisation of interdental papilla.

After three months of surgery, root coverage procedure was carried out. Preprocedural mouthrinse using 2 ml of 0.2% diluted chlorhexidine solution and extraoral antisepsis was performed with 5% povidone iodine solution (Betadine). Local anaesthetic infiltration using 2% lignocaine with adrenaline 1:200,000 was administered. The recession height and width of 5 mm and 3 mm were measured using University of North Carolina-15 (UNC-15) periodontal probe (Figure 3). Two horizontal incisions were made at the base of interdental papillae, two vertical incisions on either side of 41 with #15 blade and split-thickness flap was reflected (Figure 4). Furthermore, de-epithelisation was done on both interdental papillae (Figure 5).

Under right greater palatine nerve block, connective tissue graft was procured from palatal area from molar to canine. Aluminium foil template of 4 mm x 7 mm was placed on the donor site. Trap-door technique was used for harvesting SCTG (Figure 6).⁵ First, two vertical and one horizontal incision were given 3-4 mm below the gingival margin and a partial thickness flap was reflected. Again two vertical and one horizontal incision were given deep to the bone with #15 blades. With the help of Adson's tissue forceps, connective tissue was retrieved and placed on saline. The flap was approximated with 4-0 vicryl suture (Figure 7).

The obtained graft was inspected for tissue tags, glandular tissues, etc. and a uniform thickness of about 1.5 mm

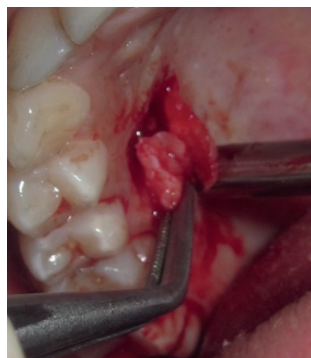


Figure 6: Trap-door technique.

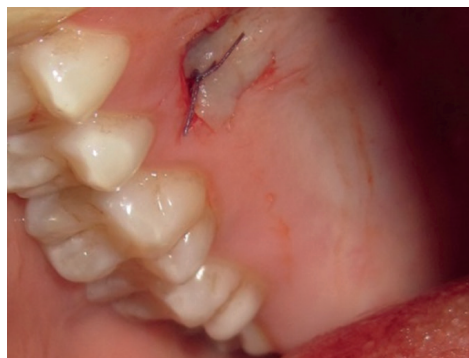


Figure 7: Donor site sutured.



Figure 8: Root conditioning.



Figure 9: Connective tissue graft placed on recipient site.



Figure 10: Connective tissue stabilised with 4-0 sling suture.



Figure 11: Flap coronally advanced over graft and secured with sling suture.



Figure 12: Aluminum foil on the recipient site.



Figure 13: Periodontal dressing placed.



A



B



C

Figure 14: Postoperative view: A) After suture removal B) At three months C) At six months.

thickness was made. On the recipient site, root planing was done with #1-2 Gracey curette. A fresh doxycycline solution was prepared by mixing doxycycline capsule in normal saline (100 mg/ml) was used for root conditioning (Figure 8). The prepared graft was then placed on the recipient bed, secured with sling and interrupted suture with 4-0 vicryl suture (Figure 9, 10). The overlying partial thickness flap was coronally advanced and sutured with sling and interrupted suture on two vertically incised areas (Figure 11). The surgical site was then covered with aluminum foil and periodontal dressing (COE-PAK™ GC Dental) (Figure 12, 13).

The patient was instructed to refrain from toothbrushing at surgical site for 10 days. Chlorhexidine mouthwash 0.2% 10 ml twice daily for 10 days along with amoxicillin 500 mg

thrice daily for five days and analgesics (Ibuprofen 400mg and Paracetamol 325 mg) thrice daily for three days were prescribed. Patient was recalled after 10 days of surgery for suture removal.

On tenth day, periodontal dressing and sutures were removed and the area was thoroughly irrigated with normal saline. Any signs of complications or relevant symptoms were examined. The healing in recipient and donor site was satisfactory (Figure 14a). Recall appointments were made at one, three, and six months. At one month follow-up, wound healing was satisfactory (Figure 14b). At three months recall, normal colour and consistency was maintained. Complete root coverage was obtained without any complications at six months (Figure 14c).

DISCUSSION

Gingival recession leads to dentinal hypersensitivity, root caries, and compromised aesthetics. The cause of recession in this patient was post-orthodontic treatment which caused sensitivity and unaesthetic appearance. Root coverage is the procedure to cover the recession defect and achieve an optimal integration of covering tissue with recipient tissue. This enhances aesthetics, reduces hypersensitivity, increases width, and thickness of gingiva. Several surgical procedures have been employed over the years to achieve these goals with varying outcomes.²

Among various procedures, SCTG³ introduced by Langer and Langer in 1985³ is considered the gold standard. It is usually indicated in single or multiple defects, where aesthetics is of prime concern and in absence of sufficient attached gingiva. The advantages include high aesthetic outcome, increased graft vascularity, minimal palatal trauma, and successful outcome. Thus, this method of root coverage was chosen for this case. However, it is technique sensitive, requires high patient compliance, and complicated suturing.

In this case report, root conditioning was done in order to enhance new attachment on the root surface and provide antimicrobial activity. It acts by removing smear layer and exposing and widening dentinal tubule orifices. This

was supported by the study of Srinivas et al. where higher percentage of coverage was obtained by root conditioning in addition to SCTG procedure.⁶ Furthermore, an in vivo study showed root conditioning promotes periodontal wound healing and new attachment.⁷ This case report used trap-door technique for harvesting the graft because of its historic importance and simplicity. This technique provides primary wound closure at donor site, hastens the healing, increased patient comfort, reduces pain, and complications.^{8,9}

In this case report, complete root coverage, acceptable aesthetics with adequate width of keratinised gingiva was obtained along with complete restoration of normal colour and consistency of gingiva. This is supported by various studies done in literatures.^{2,6,10}

SUMMARY

This case reports shows successful management of Miller's Class II recession using SCTG followed up for six months. It was found to be a predictable procedure in terms of complete root coverage, increased width of keratinised gingiva and colour match.

Conflict of Interest: None.

REFERENCES

1. Humagain M, Kafle D. The evaluation of prevalence, extension and severity of gingival recession among rural nepalese adults. *Orthod J Nepal*. 2013;3(1):41-6.
2. Bouchard P, Malet J, Borghetti A. Decision-making in aesthetics: Root coverage revisited. *Periodontol* 2000. 2001;27(1):97-120.
3. Langer B, Langer L. Subepithelial connective tissue graft technique for root coverage. *J Periodontol*. 1985;56(12):715-20.
4. Miller PD. A classification of marginal tissue recession. *Int J Periodontics Restorative Dent*. 1985;5(2):8-13.
5. Edel A. Clinical evaluation of free connective tissue grafts used to increase the width of keratinised gingiva. *J Clin Periodontol*. 1974;1(4):185-96.
6. Srinivas BVV, Rupa N, Kumari KH, Prasad SSV, Varalakshmi U, Sudhakar K. Root coverage using subepithelial connective tissue graft with platelet-rich plasma in the treatment of gingival recession: A clinical study. *J Pharm Bioallied Sci*. 2015;7(6):530-8.
7. Chahal G, Chhina K, Chhabra V, Bhatnagar R, Chahal A. Effect of citric acid, tetracycline, and doxycycline on instrumented periodontally involved root surfaces: A SEM study. *J Indian Soc Periodontol*. 2014;18(1):32-7.
8. Pandit N, Khasa M, Gugnani S, Malik R, Bali D. Comparison of two techniques of harvesting connective tissue and its effects on healing pattern at palate and recession coverage at recipient site. *Contemp Clin Dent*. 2016;7(1):3-10.
9. Singh A, Kiran P. Laterally positioned double flap with the connective tissue graft for coverage of denuded root surface: A case report. *J Int Clin Dent Res Organ*. 2014;6(1):40-5.
10. Raofi S, Asadinejad S, Khorshidi H. Evaluation of colour and width of attached gingiva gain in two surgical techniques: free gingival graft and connective tissue graft covered by thin mucosal flap, a clinical trial. *J Dent*. 2019;20(4):224-31.