



Management of Gingival Recession due to Over-Aggressive Brushing with Subepithelial Connective Tissue Grafts: A Case Report

Dilsiz A*, Amizadeh S, Turksoy A, Bekdas F and Tekin Z

Department of Periodontology, Faculty of Dentistry, Atatürk University, Turkey

***Corresponding author:** Alparslan DILSIZ, Professor, Department of Periodontology, Faculty of Dentistry, Atatürk University, 25240-Erzurum, Turkey, Tel: +904422313967; Fax: +904422361375; Email: aydilsiz@yahoo.com

Case Report

Volume 11 Issue 3

Received Date: July 06, 2026

Published Date: July 22, 2026

DOI: 10.23880/oajds-16000421

Abstract

Gingival recession is the most common and undesirable condition, which is characterized by the displacement of the gingival margin apically from the cemento-enamel junction (CEJ) and the exposure of the root surface to the oral environment. While its etiology involves anatomical factors (i.e. thin biotype, bone dehiscence), and plaque-induced inflammation, over-aggressive toothbrushing remains a primary trigger in patients with high oral hygiene standards. Toothbrushing is an oral hygiene practice that has successfully maintained oral health. However, brushing can also be detrimental for the individual if not performed correctly. Previous studies have reported that brushing over-aggressive and incorrectly for short periods can cause either cervical abrasions or gingival recession, eventually leading to dentinal hypersensitivity. The principal objective in the treatment of gingival recession is to cover the exposed root surfaces to improve esthetics and to reduce hypersensitivity. Various surgical options have been developed to achieve the coverage of denuded roots and include the use of Subepithelial Connective Tissue Grafts (SCTG), free gingival grafts, laterally sliding flaps, coronally advanced flaps, and guided tissue regeneration. This article describes a case report of management of gingival recession due to over-aggressive and incorrectly brushing, thus significantly improving the clinical symptoms.

Keywords: Gingival Recession; Toothbrushing Brushing Technique; Brushing Force; Subepithelial Connective Tissue Graft; Cervical Abrasion; Dentinal Hypersensitivity

Abbreviations

CEJ: Cemento Enamel Junction; SCTG: Subepithelial Connective Tissue Grafts.

Introduction

Gingival recession is the apical displacement of the marginal tissue boundary relative to the CEJ, exposing root surfaces. It frequently induces dentinal hypersensitivity,

root abrasion, and compromised smile aesthetics. While its etiology involves anatomical factors (i.e. thin biotype, bone dehiscence, and high frenulum) and plaque-induced inflammation, over-aggressive toothbrushing remains a primary trigger in patients with high oral hygiene standards [1,2]. Brushing forces exceeding physiological thresholds (>2-3 N) accelerate soft tissue wear and root abrasions, often eradicating the anatomic CEJ [3,4]. Excessive force, high bristle rigidity, and prolonged duration contribute to marginal tissue loss [5,6]. Incorrect horizontal scrubbing

with hard brushes directly correlates with multiple recession defects in prominent dental arches [7-10].

The principal objective in the treatment of gingival recession is to cover the exposed root surfaces to improve esthetics and to reduce hypersensitivity. Additional benefits that result from treating areas of gingival recession may include an increase in the width and thickness of keratinized gingiva. Coverage of denuded roots has become one of the most challenging procedures in periodontal mucogingival surgery. Various surgical options have been developed to achieve the coverage of denuded roots and include the use of SCTG, free gingival grafts, laterally sliding flaps, coronally advanced flaps, and guided tissue regeneration [1,2,9]. Among these surgical options, variations of SCTG procedures demonstrated a high percentage of root coverage with a high predictability and without significant post-surgical complications [1,2]. Also, the root coverage gained with SCTG procedures was reported to be stable over the long-term. Therefore, SCTG procedures have commonly served as the “gold standard” to evaluate the safety and results of new root-coverage techniques. The purpose of this case report was to illustrate the destructive nature of the incorrect brushing and to describe the successful treatment of this case. The case was written in accordance with the CaReL guidelines [11].

Case Report

A 36-year-old male presented with pain, discomfort, sensitivity and recession in the upper left quadrant. His medical history revealed that he was systemically healthy, with no history of drug or food allergies. The patient reported no smoking or alcohol consumption habits.

Clinical examination revealed excellent oral hygiene but generalized Miller Class I (RT1) recessions involving teeth no. 23, 24, 25, and 26 (Figure 1A). Vertical recession depth was 2-4mm on all buccal surfaces, with a narrow zone of keratinized tissue and severe cervical abrasions altering the CEJ. Upon questioning, the patient admitted to brushing over-aggressive horizontal with a hard-bristled toothbrush, and incorrectly for short periods.

Treatment consisted of oral hygiene instruction, mechanical debridement, and surgical periodontal treatment. Full-mouth scaling, root planing, and polishing were performed. Proper brushing technique and duration were taught to maintain oral hygiene and prevent soft tissue damage. Intensive oral hygiene instructions were given; the patient transitioned to a non-traumatic, modified Bass technique using a soft-bristled brush with physiological force (<2 N). At 4 weeks, tissues were inflammation-free, and compliance was excellent.

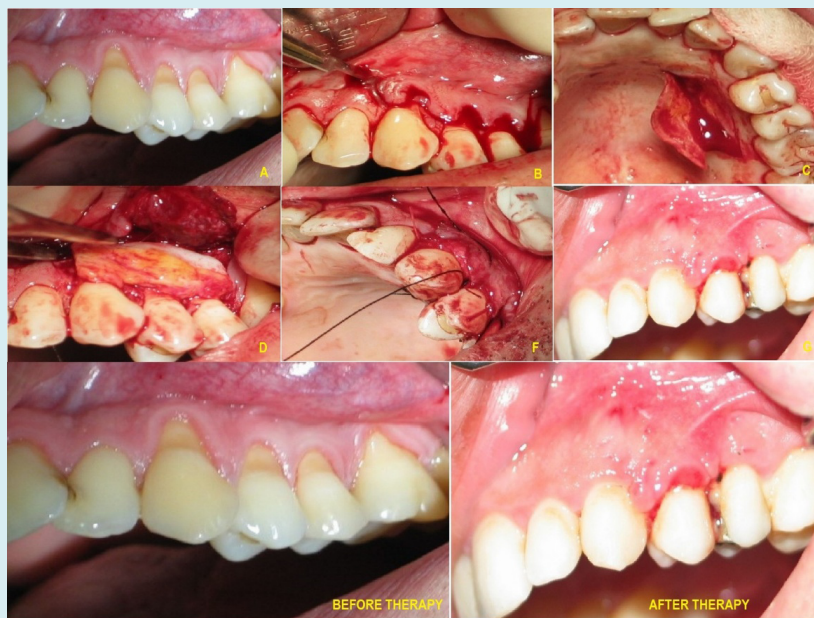


Figure 1: Clinical views of the case.

Figure 1A: Pre-operative view

Figure 1B: A partial-thickness tissue flap was carefully opened

Figure 1C: Trap door method of collection of a connective tissue graft from the hard palate

Figure 1D: Transfer and adaptation of the SCTG onto the recipient bed.

Figure 1F: The partial-thickness flap sutured in place

Figure 1G: Post-operative view

Surgical Procedure

Under local anesthesia, intraculcular incisions were made, and interdental papillae were de-epithelialized, a partial-thickness flap was dissected at teeth no. 23, 24, 25, and 26 (Figure 1B). Simultaneously, a donor SCTG was harvested from the left hard palate using the trap door technique (Figure 1C). The palatal outer flap achieved primary closure with 4-0 glycolac sutures.

The harvested SCTG was transferred to the recipient bed (Figure 1D), adapted over the exposed roots, and stabilized at the CEJ using 4-0 glycolac sutures (Figure 1E). The mucosal flap was coronally advanced to completely submerge the graft and meticulously sutured. Post-operative care included a soft diet, 0.12% chlorhexidine rinses twice daily, and systemic analgesics.

Healing progressed without complications. At 15-day, the sutures were removed, showing excellent graft take-up and healthy initial remodeling (Figure 1F). The donor site healed satisfactorily with minimal patient discomfort. Clinical evaluations at 6-month revealed 100% complete root coverage to the anatomical CEJ for teeth no. 23, 24, 25, and 26 (Figure 1G). Significant increases in keratinized tissue width and clinical attachment level were maintained. The marginal tissues exhibited optimal thickness and an excellent color match. Dentinal hypersensitivity was completely resolved, and the patient was highly satisfied.

The present case report was conducted in accordance with the principles of the Declaration of Helsinki, and written informed consent was obtained from the patient for publication of the clinical findings and images.

Discussion

The present case involved gingival recession associated with the use of a toothbrushing overaggressive and incorrectly for short periods, and the successful treatment with SCTG.

Periodontal plastic surgery aims to achieve predictable root coverage and sufficient attached keratinized tissue for long-term stability [1,2]. In patients with meticulous hygiene, recessions are frequently linked to over-aggressive horizontal scrubbing, leading to soft tissue degradation and cervical abrasions, as observed in this patient [3-10].

For multiple defects, SCTG combined with CAF remains the ultimate "gold standard" [1,2,12,13]. Systematic reviews confirm it provides superior mean/complete root coverage and higher long-term stability than CAF alone or barrier membranes [2]. SCTG's biological superiority stems from its

dual blood supply from the periosteum and the vascularized overlying flap, drastically reducing necrosis risks across wide exposed roots [1,2]. It provides a superior aesthetic color blend and thickness, avoiding the "tire-patch" look of free mucosal grafts [2]. When mechanical trauma eradicates the CEJ, SCTG effectively fills the concave cervical defect, restores the natural emergence profile, thickens the tissue biotype, and prevents future relapse [1,2]. Furthermore, the palatal "trap door" technique allows primary closure, mitigating hemorrhage, reducing pain, and accelerating healing compared to open-wound methods [14]. In the current case, gingival recession was managed successfully use SCTG with "trap door" technique.

Surgical success requires treatment directed at the causative factor. Therefore Phase I periodontal debridement is mandatory. Restructuring habits via soft brushes, the modified Bass technique, and controlled force (<2 N) prevents recurrence. The long-term efficacy of these homecare regimens relies heavily on mechanical plaque removal to control inflammation and maintain tissue stability. Because persistent mechanical injury directly compromises graft vascularization, the etiology must be fully corrected pre-surgery [1-4]. Longitudinal studies confirm that minimizing toothbrushing trauma is as critical as surgical execution for long-term stable root coverage [3,5]. In the present case, the 6-month stable results achieved here illustrate that precise surgery combined with patient compliance yields highly predictable periodontal outcomes.

Conclusion

This case report shows that it is possible to treat gingival recession and maintain the periodontal health of a patient with brushing overaggressive. Brushing as a routine oral hygiene measure depends on correct execution for good oral health. Dentists can recommend products and techniques specific to an individual's condition and dexterity, promoting the most suitable oral hygiene routine for them.

References

1. Aroca S, Di Domenico GL, de Sanctis M (2026) Mucogingival surgery techniques: Coronally advanced flap versus tunnel approach. J Periodontol.
2. Kotsailidi EA, Michelogiannakis D, Barmak AB, Madianos P, Caton JG, et al. (2023) Root coverage surgery for dentin hypersensitivity reduction: a systematic review and meta-analysis of randomized controlled trials. Quintessence Int 54(6): 484-497.
3. Kumar S, Gopalkrishna P, Syed AK, Sathiyabalan A (2025) The Impact of Toothbrushing on Oral Health,

- Gingival Recession, and Tooth Wear-A Narrative Review. *Healthcare (Basel)* 13(10): 1138.
4. Hamza B, Martinola L, Körner P, Gubler A, Attin T, et al. (2023) Effect of brushing force on the abrasive dentin wear using slurries with different abrasivity values. *Int J Dent Hyg* 21(1): 172-177.
 5. Heasman PA, Holliday R, Bryant A, Preshaw PM (2015) Evidence for the occurrence of gingival recession and non-carious cervical lesions as a consequence of traumatic toothbrushing. *J Clin Periodontol* 42 (S16): S237-255.
 6. Wiegand A, Burkhard JP, Eggmann F, Attin T (2013) Brushing force of manual and sonic toothbrushes affects dental hard tissue abrasion. *Clin Oral Investig* 17(3): 815-822.
 7. Rajapakse PS, McCracken GI, Gwynnett E, Steen ND, Guentsch A, et al. (2007) Does tooth brushing influence the development and progression of non-inflammatory gingival recession? A systematic review. *J Clin Periodontol* 34(12): 1046-1061.
 8. Addy M, Hunter ML (2003) Can tooth brushing damage your health? Effects on oral and dental tissues. *Int Dent J* 53(S3): 177-186.
 9. Dilsiz A, Aydin T (2009) Self-inflicted gingival injury due to habitual fingernail scratching: a case report with a 1-year follow up. *Eur J Dent* 3(2): 150-154.
 10. Rawal SY, Claman LJ, Kalmar JR, Tatakis DN (2004) Traumatic lesions of the gingiva: a case series. *J Periodontol*. 75(5): 762-769.
 11. Prasad S, Nassar M, Azzam AY, Jose FG, Jamee M, Sliman RKA, et al. (2024) CaReL Guidelines: A Consensus-Based Guidelines on Case Reports and Literature Review (CaReL). *Barw Medical Journal* 2(2): 13-19.
 12. Deliberador TM, Bosco AF, Martins TM, Nagata MJ (2009) Treatment of gingival recessions associated to cervical abrasion lesions with subepithelial connective tissue graft: a case report. *Eur J Dent* 3(4): 318-323.
 13. Bellver-Fernández R, Martínez-Rodríguez AM, Gioia-Palavecino C, Caffesse RG, Peñarrocha M (2016) Surgical treatment of localized gingival recessions using coronally advanced flaps with or without subepithelial connective tissue graft. *Med Oral Patol Oral Cir Bucal* 21(2): e222-e228.
 14. Langer B, Langer L (1985) Subepithelial connective tissue graft technique for root coverage. *J Periodontol* 56(12): 715-720.