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Case Report

Management of Multiple Gingival Recession Defects Using a Combined Tunnel and VISTA Technique: A Clinical Case Report

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Abstract

Gingival recession is a common mucogingival deformity that may lead to root hypersensitivity, root caries, plaque accumulation, and aesthetic concerns. Several periodontal plastic surgery techniques have been developed to achieve predictable root coverage and improve soft tissue stability. This case report describes the successful treatment of multiple mandibular gingival recession defects using a combined Tunnel and Vestibular Incision Subperiosteal Tunnel Access (VISTA) technique. Clinical outcomes demonstrated substantial root coverage, increased keratinized tissue width, and satisfactory aesthetic results with uneventful healing.

Keywords: *Gingival recession, Periodontal plastic surgery, VISTA technique, Root coverage*

Introduction

Gingival recession is defined as the apical displacement of the gingival margin relative to the cemento-enamel junction (CEJ), resulting in root surface exposure. The etiology is multifactorial and includes periodontal disease, traumatic tooth brushing, thin periodontal phenotype, malpositioned teeth, high frenal attachment, and orthodontic tooth movement. [1,2]

The management of gingival recession aims to achieve root coverage, reduce dentin hypersensitivity, increase keratinized tissue, and improve aesthetics. Among the available surgical techniques, the Tunnel Technique and VISTA approach have gained popularity due to their minimally invasive nature and preservation of the vascular supply to the soft tissues.[3,4]

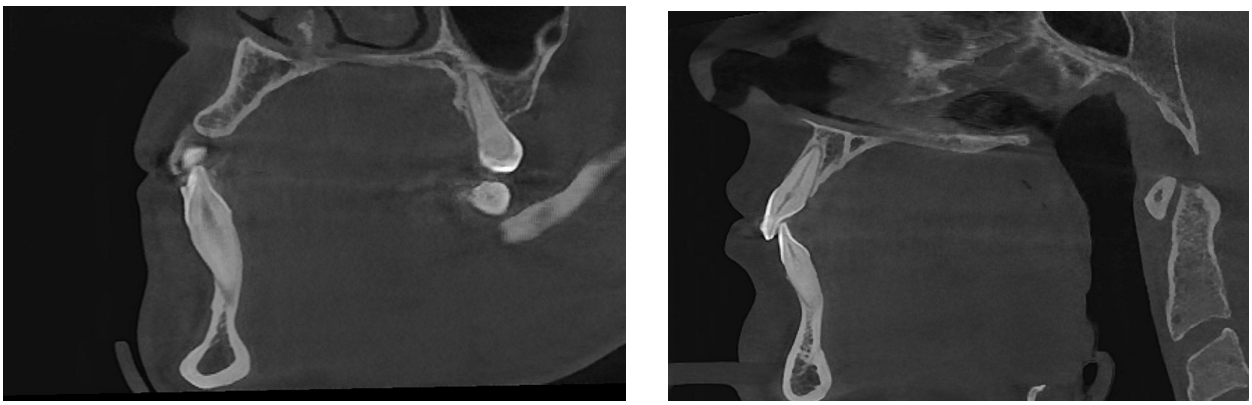
This report presents the clinical management of multiple mandibular recession defects using a combined Tunnel-VISTA approach.[5,6]

Case Presentation

A 34 y.o female patient was referred by the orthodontic department for periodontal evaluation and treatment prior to the initiation of orthodontic therapy.

Clinical examination revealed multiple Miller Class II-III gingival recession defects involving the mandibular anterior teeth. A prominent lower labial frenum and shallow vestibular depth were observed, contributing to soft tissue tension in the affected area. The patient reported aesthetic concerns and occasional dentinal hypersensitivity.

Periodontal examination demonstrated adequate plaque control and the absence of active periodontal disease. Radiographic revealed thin cortical bone in the buccal aspect of the alveolar ridge but no significant pathologically interproximal bone loss.



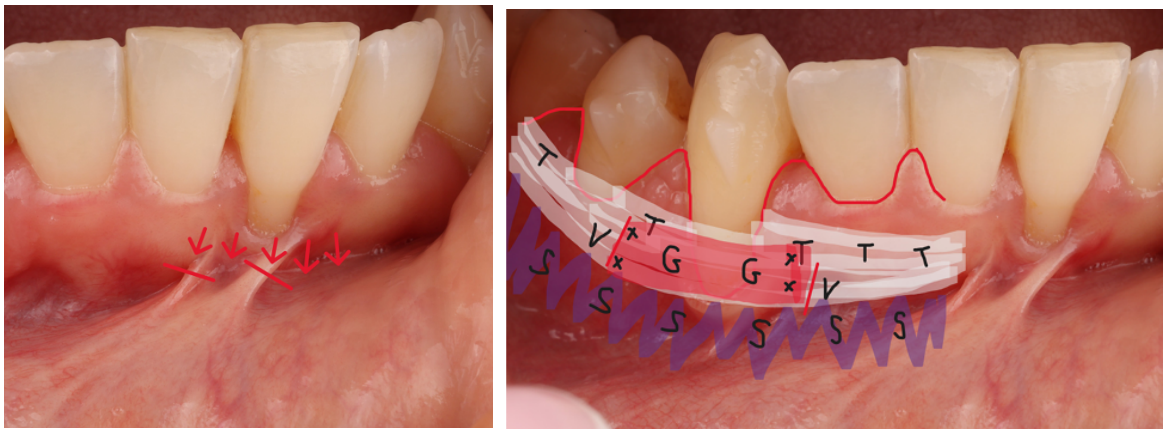
Treatment Planning

The treatment objectives were:

- Elimination of soft tissue tension.
- Increase in vestibular depth.
- Enhancement of keratinized tissue width.
- Achievement of predictable root coverage.
- Creation of a stable periodontal environment before orthodontic treatment.

A staged surgical approach was selected.

Figure 1. Preoperative clinical view demonstrating multiple mandibular gingival recession defects.



Figures 2,3. Schematic planning, T: tunnel, V: Vista, S: split, G: graft.

Surgical Procedure

Phase I: Frenectomy and Vestibular Enhancement

A frenectomy was performed to eliminate traction forces exerted by the lower labial frenum. Simultaneously, vestibular deepening was carried out to improve the soft tissue anatomy and increase the zone of attached gingiva.

Following healing, significant improvement in vestibular depth and tissue mobility was observed.

Figure 4. High frenal attachment and shallow vestibular depth before treatment.

Figure 5. Clinical appearance following frenectomy and vestibular deepening.

Phase II: Combined Tunnel and VISTA Technique

After local anesthesia administration, two small vestibular access incisions were created bilaterally to facilitate the VISTA approach.

A specialized tunneling instrument was used to create a subperiosteal tunnel extending beneath the recession defects while preserving the interdental papillae. Care was taken to maintain the integrity of the soft tissue complex and its vascular supply.

The tunnel was extended beyond the mucogingival junction to permit tension-free coronal advancement of the gingival tissues.

The gingival complex was advanced coronally to fully cover the exposed root surfaces and stabilized using suspended coronally anchored sutures.

The surgical sites were irrigated and closed with microsurgical sutures.

Figures 6,7,8. Creation of the subperiosteal tunnel using the VISTA approach.

Figures 9. Coronal advancement and stabilization of the gingival complex.

Postoperative Care

The patient received:

- Chlorhexidine mouth rinse (0.05%) twice daily for 10-12 days.
- Postoperative oral hygiene instructions.
- Soft diet recommendations.
- Follow-up visits at 1 month.

Mechanical plaque control in the treated area was temporarily discontinued during the initial healing phase.

Figure 10,11. Postoperative result at 1 month demonstrating successful root coverage.

Results

Healing was uneventful with no postoperative complications.

At the 1-month follow-up:

- Significant root coverage was achieved.
- Increased width of keratinized tissue was observed.
- Improved gingival thickness and contour were noted.
- Vestibular depth remained stable.
- The patient reported complete satisfaction with the aesthetic outcome.

Clinical photographs demonstrated marked improvement in soft tissue architecture and gingival symmetry.

Discussion

Successful root coverage depends on multiple factors, including defect classification, tissue thickness, flap mobility, vascular supply, and patient compliance.[1,2]

The Tunnel Technique preserves papillary integrity and minimizes surgical trauma, thereby promoting rapid healing and favorable aesthetic outcomes. The VISTA approach provides excellent access through remote vestibular incisions while reducing visible scarring and preserving blood supply.[3,4]

The combination of these techniques allows extensive flap mobilization and tension-free coronal advancement, particularly in cases involving multiple adjacent recession defects.[5,6]

The favorable outcome observed in this case supports previous findings demonstrating high percentages of root coverage and patient satisfaction following minimally invasive periodontal plastic surgery procedures.[7,8]

Conclusion

The combined Tunnel and VISTA technique proved to be an effective treatment modalityfor the management of multiple mandibular gingival recession defects. The procedure provided predictable root coverage, increased keratinized tissue width, improved aesthetics, and stable soft tissue outcomes. This approach may be considered a valuable option for patients requiring mucogingival correction before orthodontic treatment.

Conflict of Interest

The author declares no conflict of interest.

Acknowledgements

None

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