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Root coverage using the VISTA technique and acellular dermal matrix via frenectomy access: A case report

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Abstract
Objective: To evaluate the effectiveness of the Vestibular Incision Subperiosteal Tunnel Access (VISTA) technique combined with an acellular dermal matrix (ADM) for the treatment of multiple gingival recessions.
Clinical case: A 50-year-old male patient presented to the Periodontics Master's Clinic at FOUAC UT with thermal hypersensitivity. Clinical examination revealed multiple RT1-type gingival recessions (Cairo classification, 2011) from teeth #16 to #25, along with a low-insertion maxillary labial frenum between the upper central incisors. Root coverage was performed using the BIOXILLIUM® ADM via the VISTA technique, with surgical access achieved through a frenectomy incision.
Results: Follow-up at one and four months revealed satisfactory root coverage, increased gingival thickness, and a clinically healthy appearance of the tissues. The patient reported complete resolution of sensitivity.
Conclusion: The VISTA technique combined with ADM offers a minimally invasive alternative to traditional connective tissue grafts, with reduced morbidity and faster recovery. Frenectomy access may enhance surgical efficiency and patient comfort when both procedures are indicated.

Keywords: Gingival recession, mucogingival surgery, VISTA technique, acellular dermal matrix, frenectomy

Introduction
Periodontal plastic surgery encompasses a range of mucogingival procedures aimed at correcting soft tissue defects around teeth and implants, with both functional and aesthetic objectives. Gingival recessions are multifactorial conditions often associated with buccal alveolar bone deficiencies, which may be anatomical or acquired [1].
Accurate classification of recession type is essential for selecting appropriate treatment. Miller's classification (1985) [2] and Cairo's classification (2011) [3] are widely used. (Figure 1,2). Cairo's system, based on interproximal clinical attachment levels, offers strong predictive value for surgical outcomes [4].

1) **Class I:** The interdental periodontal support is intact, and the gingival recession does not extend to the mucogingival junction. Complete root coverage can be achieved.
2) **Class II:** The interdental periodontal support is intact, and the gingival recession reaches the mucogingival junction. Complete root coverage can be achieved.
3) **Class III:** There is some loss of interproximal attachment and bone, and the gingival recession reaches the mucogingival junction. Partial root coverage can be achieved.
4) **Class IV:** The loss of attachment and bone is so severe that root coverage cannot be achieved.

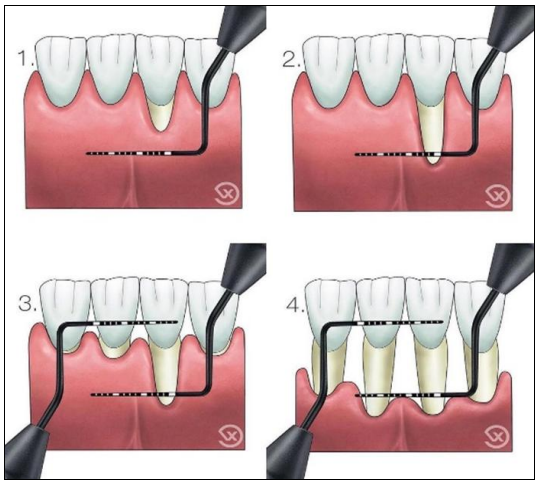

Fig 1: Miller's classification [2]

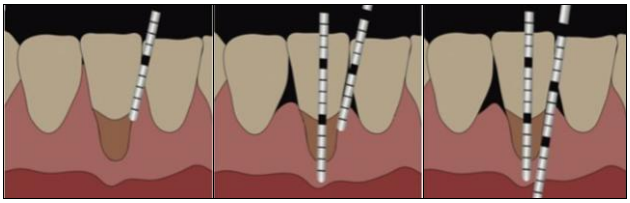

Fig 2: Cairo's classification [3]

a) **Recession Type (RT) 1:** No interproximal attachment loss. The interproximal Cementoenamel Junction (CEJ) is not clinically detectable on the mesial and distal surfaces of the tooth.
b) **RT2:** The amount of interproximal attachment loss is less than or equal to the buccal attachment loss.
c) **RT3:** The amount of interproximal attachment loss is greater than the buccal attachment loss.

Among the various techniques available for root coverage, the VISTA technique stands out for its minimally invasive nature and aesthetic outcomes [5]. VISTA involves subperiosteal tunneling through a single vestibular incision, preserving papillary integrity, and reducing flap tension [6] (Figure 3).

While Connective Tissue Grafts (CTG) remain the gold standard for root coverage [7, 8], ADM offers a viable alternative in cases involving multiple recessions or when donor site morbidity is a concern. ADM eliminates the need for a second surgical site, reducing operative time and postoperative discomfort.

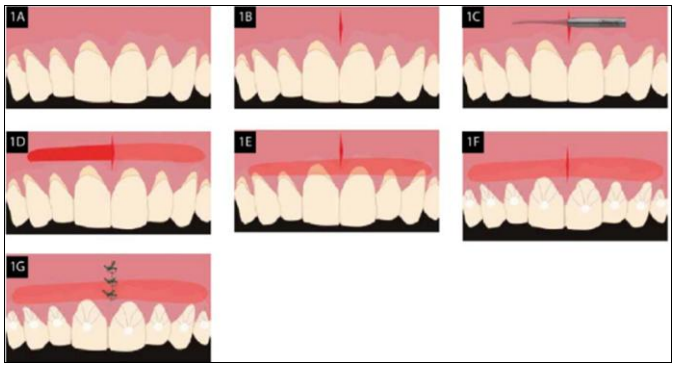

Fig 3: VISTA technique

Clinical case

A 50 years old male patient was referred from the undergraduate department to the Periodontics Master's Clinic at FOUAC UT, reporting thermal hypersensitivity in the maxillary anterior region. He was classified as ASA I. Clinical examination revealed multiple RT1-type gingival recessions (Cairo Classification, 2011) from teeth #16 to #25 (figure 4), and a low-insertion maxillary labial frenum between the upper central incisors. A treatment plan was developed to perform root coverage using BIOXILLIUM® ADM via the VISTA technique, with access achieved through frenectomy.

Fig 4: Initial clinical presentation: RT1 recession (teeth #16–25)

Surgical procedure

One week prior to surgery, prophylaxis was performed, and non-carious cervical lesions were restored with composite resin. On the day of surgery, asepsis and antisepsis protocols were followed. Resin was placed at contact points to anchor suspensory sutures.

Anesthesia was achieved via bilateral posterior superior alveolar nerve block with 4% articaine, supplemented by local infiltration around the frenum. A frenectomy was performed (Figure 5), followed by vertical incisions distal to the upper canines using a #15c blade and mosquito forceps.

Fig 5: Frenectomy procedure

Subperiosteal tunneling was performed using TK1, TK2, and Allen instruments to ensure complete fiber release and flap mobilization (Figure 6). BIOXILLIUM® ADM was hydrated per manufacturer instructions, and two 30×10 mm strips were prepared (Figure 7). These were inserted through the vertical incisions and secured with Vycril 5-0 sutures. Passive closure of incisions was achieved with the same material.

Fig 6: Tunneling technique using TKN1, TKN2, and Allen instruments

Fig 7: Presentation of ADM (Acellular dermal matrix)

Coronal advancement of the flap was facilitated using suspensory sutures anchored to the resin contact points with Nylon 5-0 (Figure 8). Postoperative instructions and pharmacological management were provided. Sutures were removed after 21 days.

Fig 8: Flap suturing

Results

At the 6-month follow-up appointments, satisfactory root coverage and a clinically healthy appearance of the tissues were observed. (Figures 9). The patient reported complete resolution of hypersensitivity to cold stimuli and speech-related discomfort.

Fig 9: Healing at 6 months

Discussion

This case demonstrates the successful use of the VISTA technique combined with ADM for root coverage via frenectomy access. In cases where frenectomy is indicated, this approach offers dual benefits: enhanced access for tunneling and ADM placement, and a unified healing process for both procedures [9].

BIOXILLIUM® ADM, derived from human dermis and composed primarily of type I collagen, acts as a scaffold for host cell repopulation. Studies have shown minimal inflammatory response and progressive integration over 24 months [10].

ADM has been successfully used to increase gingival thickness, cover exposed roots, and augment soft tissue volume around implants and edentulous areas [11]. Reported root coverage outcomes using ADM with coronally advanced flaps range from 80% [12] to 95% [13]. In this case, the use of frenectomy as the access point allowed for efficient execution of both procedures, minimizing patient discomfort and surgical complexity.

Conclusion

The VISTA technique combined with ADM provides a minimally invasive, effective alternative for treating gingival recessions. When frenectomy is indicated, it can serve as a strategic access point for tunneling and ADM placement. This dual-purpose approach simplifies the surgical protocol and enhances patient comfort by consolidating recovery into a single phase.

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