EAS Journal of Dentistry and Oral Medicine
Abbreviated Key Title: EAS J Dent Oral Med
ISSN: 2663-1849 (Print) & ISSN: 2663-7324 (Online)
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

Volume-7 | Issue-4 | Jul-Aug-2025 | DOI: https://doi.org/10.36349/easjdom.2025.v07i04.010

Case Report

Contribution of epithelial-connective tissue grafting in the development of soft tissues in edentulous ridges: a case report

Diabel THIAM[1*], Ahmad Moustapha DIALLO[1], Ndeye Lira MBOW[1], Henri Michel BENOIST[1]

[1]Department of Periodontology, Institute of Odontology and Stomatology (IOS), Faculty of Medicine, Pharmacy and Odontostomatology (FMPO), Cheikh Anta DIOP University (UCAD) of Dakar, BP. 5005 Dakar, Senegal

Article History
Received: 04.06.2025
Accepted: 09.08.2025
Published: 23.08.2025

Journal homepage:
https://www.easpublisher.com

Quick Response Code

Abstract: The management of edentulous ridges is of paramount importance in prosthetics rehabilitation in dentistry, particularly in the anterior regions for prosthetic or implant purposes. This clinical case reports the treatment of a 28-year-old female patient with stage III grade C periodontitis, presenting with mandibular anterior edentulism with a deficit in keratinized tissue and shallow vestibular depth. After an initial phase of periodontal treatment, an epithelial - connective tissue graft was performed to increase the height and thickness of the keratinized mucosa and the vestibular depth. The results at 2 months showed satisfactory healing, stable integration of the graft and improved local conditions for hygiene and future rehabilitation. A well-integrated graft of sufficient thickness allows for harmonious tissue continuity with adjacent structures, reinforcing the stability and durability of the planned prosthetic rehabilitation.

Keywords: Edentulous Ridges, Epithelial, Connective Tissue Graft, Keratinised Gingiva.

Copyright © 2025 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution **4.0 International License (CC BY-NC 4.0)** which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

The management of edentulous ridges is of paramount importance in dentistry, particularly when preparing the edentulous site for prosthetic or implant rehabilitation. Tooth loss is often accompanied by progressive bone resorption and a decrease in the quantity and quality of soft tissue, which can compromise prosthetic integration and alter smile aesthetics. In this context, soft tissue management plays a key role in optimizing clinical results, improving prosthetic stability, patient comfort, and peri-implant health. Among the various tissue reconstruction techniques, epithelioconnective tissue grafting stands out as an effective solution to restore or augment the keratinized mucosa at the level of edentulous ridges in order to improve the mechanical strength of the tissues, facilitate the maintenance of oral hygiene, and strengthen the stability of future prosthetic restorations. Compared to other techniques, epithelial-connective tissue grafting has the advantage of predictable graft take and a satisfactory aesthetic result, particularly in the anterior sectors. However, the success of this technique relies on rigorous planning and controlled execution to ensure optimal integration of the graft and avoid post-operative complications. In this clinical case, we will illustrate the contribution of epithelial-connective tissue grafting in the development of an edentulous ridge, highlighting the functional and aesthetic benefits.

CLINICAL OBSERVATION

Mrs. DR, single, aged 30, received for the first consultation on April 5, 2023 at the periodontology clinic of the Institute of Odontology and Stomatology of the Cheikh Anta DIOP University of Dakar for dental mobility evolving for a year and a half. She presented a good general health without any particular family history and had never received periodontal care. The clinical examination showed a generally inflammatory gingiva with a thick and flat gingival phenotype in the maxilla and thin scalloped in the mandible with a lower labial frenulum type II of Plasek [1], associated with a shallow vestibule and a gingival recession (RT) type 3 of Cairo [2], opposite the 31 and 42. The absence of the 41 materialized an anterior mandibular edentulism with an insufficient height of keratinized tissue (TK) [figure 1]. The O'Leary plaque index (PI) [3], was 65%, with a bleeding on probing index (BOP) of Ainamo and Bay [4], of 47%, a maximum interdental attachment loss (IAL) of 6 mm, a maximum probing depth (PD) of 5 mm. Occlusal examination showed an incisor end-to-end with Mulmanne mobility II [5], on the 31. The diagnosis of stage III localized periodontitis grade C was made

***Corresponding Author:** Diabel THIAM
Department of Periodontology, Institute of Odontology and Stomatology (IOS), Faculty of Medicine, Pharmacy and Odontostomatology (FMPO), Cheikh Anta DIOP University (UCAD) of Dakar, BP. 5005 Dakar, Senegal

according to the diagnostic criteria of the new classification of periodontal diseases of 2017 [6].



Figure 1: Anterior mandibular edentulism with low TK height, shallow vestibule and RT3 on 31 and 41

Medical Care

Initial periodontal therapy was implemented, including motivation and teaching of oral hygiene measures followed by scaling and polishing, occlusal equilibration by selective grinding at the 31-42 level to reduce occlusal overloads and debridement. Three months later, a reassessment was carried out showing a BOP of 14.2%, an IP of 26.34% and a PS ≤ 4mm. And the indication for an epithelial-connective graft was made, the objective of which was to increase the height and thickness of TK at the edentulous site and increase the depth of the vestibule in order to allow optimal oral hygiene. The operation began with the preparation of the recipient site with a horizontal marginal incision 2 mm from the edentulous ridge extending to the distal surface of the 31 and 42] with saline irrigation performed throughout the procedure to avoid tissue dehydration. A mucosal flap (partial thickness) was dissected with removal of the mucosal part leaving a periosteal surgical wound [Figure 2b]. After measuring the length of the wound using a periodontal probe, an epithelial-connective graft was taken from the palate and then positioned on the recipient site and sutured using crossed periosteal sutures [Figure: 2 a, b, c, d]



Figure 2: a= marginal horizontal incision; b= periosteal recipient site; c= positioning of the graft at the recipient site; d= periosteal sutures

A post-operative advice sheet and appropriate oral hygiene recommendations were given to the patient, along with a prescription for analgesic and chlorhexidine mouthwash diluted to 0.12%. The results at 14 days post-operatively [Figure 3] showed good integration of the graft with the beginning of epithelialization. At 2 months, the results compared to the initial state, showed good healing with sufficient height and thickness of TK and a deep vestibule favorable to adequate oral hygiene and very favorable to prosthetic rehabilitation [Figure 4 a, b].



Figure 3: Results 14 days after operation



Figure 4: a= Results 2 months after operation; b=: Initial view of the case

DISCUSSION

The stability of periprosthetic soft tissues is a fundamental element in the long-term success of prosthetic and implant rehabilitations. A sufficient band of keratinized mucosa around teeth and implants has been associated with better control of inflammation, reduced marginal recession, improved esthetics, and increased patient comfort during daily oral hygiene procedures [7, 8]. In mandibular anterior areas, often characterized by a low height of keratinized tissue and a shallow vestibule as described in this case, epithelial-connective tissue grafting (ECG) represents an effective solution, as it allows for a significant increase in the height and thickness of keratinized mucosa while improving vestibular depth, which is crucial for soft tissue stability and predictability of restorative treatments [9]. Several studies have demonstrated that GEC offers more stable and durable clinical results compared to buried connective tissue graft techniques or allogeneic matrices, particularly in cases where a significant increase in keratinized mucosa is desired [10, 11]. This technique, although generating moderate morbidity at the donor site, remains the reference in terms of predictability of tissue gain, particularly for sites with high functional or aesthetic demand. In our case, GEC not only improved the local biological environment but also favorably anticipated a possible implant or prosthetic rehabilitation. The reconstitution of a favorable mucogingival environment is a sine qua non condition to limit long-term complications such as chronic inflammation, prosthesis mobility or degradation of supporting tissues [12]. Finally, the aesthetic benefits, although secondary in the posterior regions, take on particular importance in the anterior mandibular sector, where the smile line can sometimes expose the gum.

CONCLUSION

A well-integrated epithelial-connective tissue grafting, of sufficient thickness, allows for harmonious tissue continuity with the adjacent structures, reinforcing the stability and durability of the planned prosthetic rehabilitation.

REFERENCES

1. PLACEK M. et al. Significance of the labial frenum attachment in periodontal disease in man. J Periodontol . 1974; 45 (12): 891-894.
2. Cairo F, Nieri M, Cincinelli S, Mervelt J, Pagliaro U. The interproximal attachment level to classify gingi val recessions and predict root coverage outcomes: an explorative and reliability study. J Clin Periodontol 2011;38:661 –6.
3. O'Leary TJ, Drake RB, Naylor JE. The Plaque Control Record. J Periodontol . 1972;43(1): 38.6.
4. Ainamo J, Bay I. Problems and proposals for recording gingivitis and plaque. Int Dent J 1975;25(4):229 35.
5. MUHLEMANN HR Periodontometry , a method for measuring tooth mobility. Oral Surg Oral Med Oral Pathol . 1951; Oct; 4(10): 1220 – 33
6. Papapanou PN, Sanz M, Buduneli N, Dietrich T, Feres M, Fine DH et al. Periodontitis: Consensus report of workgroup 2 of the 2017 World Workshop on the Classification of Periodontal and Peri Implant Diseases and Conditions. Periodontol. 2018; 89:S173-S182.
7. Wennström JL, Derks J. Is there a need for keratinized mucosa around implants to maintain health and tissue stability? Clin Oral Implants Res. 2012;23 Suppl 6:136–146.

8. Cairo F, Pagliaro U, Nieri M. Soft tissue management at implant sites. J Clin Periodontol . 2020;47(S22):S 163–S179.
9. Thoma DS, Buranawat B, Hämmerle CHF, Held U, Jung RE. Efficacy of soft tissue augmentation around dental implants and in partially edentulous areas: A systematic review. J Clin Periodontol . 2018;45(Suppl 20):S 185–S202.
10. Chambrone L, Salinas-Muñoz C, Westerlund A, et al. Evidence-based strategies for soft tissue augmentation: Systematic review and meta-analysis of randomized clinical trials. J Clin Periodontol . 2019;46(S21):92–121.
11. Tavelli L, Barootchi S, Ravidà A, et al. Influence of keratinized mucosa on peri-implant health: A systematic review and meta-analysis. J Dent Res. 2020;99(1):36–43.
12. Roccuzzo M, Bonino F, Aglietta M, Dalmasso P. Ten-year results of a three arms prospective cohort study on implants in periodontally compromised patients: soft tissue response. Clin Oral Implants Res. 2020;31(7):639–648.

Cite This Article: Diabel THIAM, Ahmad Moustapha DIALLO, Ndeye Lira MBOW, Henri Michel BENOIST (2025). Contribution of epithelial-connective tissue grafting in the development of soft tissues in edentulous ridges: a case report. *EAS J Dent Oral Med, 7*(4), 179-182.