Journal of Advanced Zoology
ISSN: 0253-7214
Volume 45 Issue 1 Year 2024 Page 694-696

Periosteum-Assisted Coronally Repositioned Flap with EDTA Root Biomodification: A Case Report

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Abstract

The periosteum, a vascular connective tissue layer covering the bone, has great regenerative potential, making it suitable for use in autogenous grafts. The periosteal eversion technique utilizes the periosteum to cover exposed tooth roots. This case report focused on evaluating root coverage using this method for a patient with Miller's Class II recession on a maxillary canine. A partial-thickness flap was reflected, root biomodification was performed using EDTA, and the periosteum was everted over the exposed root and sutured. After six months, 90% of the root surfacewas successfully covered, highlighting the technique's effectiveness for gingival recession treatment**.**

KEY WORDS: *Gingival coverage, periosteal eversion, root surface coverage.*

INTRODUCTION:

Gingival recession occurs when the gum margin shifts towards the root apex, exposing the root surface. Various surgical techniques, including laterally positioned flaps, coronally repositioned flaps (CRF), and free gingival grafts, aim to achieve rootcoverage. While connective tissue autografts (CT) are highly successful, they require an additional surgical site, unlike the simpler CRF technique, which avoids donor sitecomplications.[2]
The coronally repositioned flap (CRF) procedure, introduced by Norberg in 1926, is often combined with tissue regenerative membranes to enhance periodontalregeneration. Periosteum, a membrane covering the alveolar bone and root surface, was selected for root coverage due to its osteogenic, fibro-genic, neuro-proliferative, and vasculo-proliferative properties. Using periosteum eliminates the need for a second surgical site, reducing patient discomfort and morbidity. The periosteum contains various cells, including fibroblasts, osteoblasts, and stem cells. Chemical rootsurface conditioning, commonly used in root coverage, involves agents like EDTA to

decontaminate and expose the collagen matrix in dentin and cementum for biomodification.[6]

CASE REPORT:

A patient aged 24 years old reported to the Periodontics Department at Subharti Dental College and Hospital, Meerut. On clinical examination, class II gingival recession defected was diagnosed according to the classification given by Miller in 1985 in relation to 23. (Fig.1) Written informed concern was obtained from the patient.

SURGICAL PROCEDURE: The incision site was anesthetized with 1:80,000 lignocaine hydrochloride, and pre-operative recession measurements were recorded using a calibrated UNC-15 probe. A partial-thickness flap was raised on the buccal surface of tooth 23, and the periosteum was separated. The exposed root was treated with 24% EDTA gel, rinsed, and sutured. The flap was repositioned coronally, extending 2 mm above the CEJ, and secured with a sling suture and post operative instruction given.

Fig.1 coronally repositioned flap with periosteum & EDTA Root conditioning done irt 23

RESULTS:

The treated site demonstrated gain in clinical attachment level (CAL)andsuccessful root coverage was achieved within 6 months.

DISCUSSION:

The goal of this case report was to highlight the significance of recession coverage by utilizing the periosteal eversion technique. The periosteum, a tissue covering the alveolar bone and root surface, was chosen for root

coverage due to its unique properties. Its highly osteogenic which makes it ideal for this procedure.[7] Additionally, the use of periosteum eliminates the need for a secondary surgical site for graft harvesting, reducing patient discomfort and morbidity.[8,9]

CONCLUSION:

Within certain limitations, the periosteum offers multiple advantages in terms of both quality and quantity, as well as reduced morbidity at the donor site. It can be effectivelyutilized as a root coverage material for exposed root surfaces.

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