Surgical Reconstruction of Lost Interdental Papilla: A Case Report

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Several reasons contribute to loss of interdental papillae and establishment of the black triangle between teeth. Several surgical and non-surgical techniques have been proposed to treat soft-tissue deformities and manage the interproximal space. The surgical techniques aim to recontour, preserve, and reconstruct the soft tissue between the teeth. This case report demonstrates the reconstruction of the papilla following a semilunar coronally repositioned papilla technique with 6 months follow-up.

Keywords: Black triangle, Connective tissue graft, Papilla reconstruction

INTRODUCTION

A healthy gingiva is the one in which the embrasure space between the two adjacent teeth is completely filled by the interdental papilla. The gingival inflammation alters the standard contour, shape, and consistency of the interdental gingival tissue resulting in swollen interdental papilla that causes overfilling of the embrasure space creating pseudo pocket but without loss of attachment.¹ The absence or loss of interdental papilla (resulting in so-called “black triangles”) may create esthetic impairments, phonetic problems, and food impactions.² Interdental papilla acts as a biological barrier and protects the periodontium as well as plays an important role in esthetics.³ Various non-surgical and surgical techniques have been used over the years for the reconstruction of the interdental papilla. Non-surgical techniques included the repetitive use of curettage of the interdental papilla. Surgical techniques consisted of pedicle and free connective tissue grafts.⁴

CASE REPORT

A 30-year-old female patient reported with the chief complaint of loss of gums between the upper front teeth. On examination, there was a loss of papilla between 11 and 12 (Figure 1). A detailed medical and dental case history was recorded.

Preparation of the patient included scaling and root planning of entire dentition and oral hygiene instructions. Immediately before surgical procedure, the patient was instructed to rinse with 0.2% chlorhexidine digluconate for 30 s. After local anesthesia, a split thickness semilunar incision was performed 3 m apically from mucogingival junction facial to the interdental area, and a pouch-like preparation was performed into the interdental area (Figure 2). Intrasulcular incisions were made around the necks of the adjacent teeth from buccal to palatal surfaces to free the connective tissue attachment from the root surface and to allow coronal displacement of the gingival-papillary unit (Figure 3).

Following this, the connective tissue graft was harvested from the palate, and the donor site was sutured (Figure 4). The harvested graft was tried according to the requirements of the recipient site. It was then tucked in and pushed coronally to support and provide bulk to the coronally placed interdental tissue. Then, the flap was stabilized using 5-0 sutures (Figure 5).

The patient was placed on analgesics and 0.2% chlorhexidine digluconate twice daily for 2 weeks.

The sutures were removed 2 weeks after the procedure. The patient was reviewed 6 months postoperatively (Figure 6).
Ahmad, et al.: Surgical Reconstruction of Lost Interdental Papilla

DISCUSSION

The interdental papilla can be lost because of bone loss, previous flap surgery, and surgical excision of common gingival condition like pyogenic granuloma. Several conditions can modify the interproximal space that may result in alteration in the contour of the interdental papilla such as abnormal tooth shape, improper contours of prosthetic crowns or restorations, traumatic interdental hygiene procedures, and especially periodontal diseases may cause loss of interdental papilla.

Several efforts have been undertaken to treat and restore the missing interproximal papilla. Surgical techniques aiming at correcting the “black hole problem” have been used mainly with free epithelialized gingival grafts, repeated interproximal curettage, or displacement of the interproximal palatal tissue in the buccal direction.

Any technique related to gingival tissue reconstruction must emphasize adequate blood supply to the surgical site. Because of the limited area that the interdental papilla occupies, any form of grafting presents a blood supply problem in the reconstruction of the papilla. It is also known from the previous studies that the long-term stability of the papilla is dependent on the anatomic environment. The incisal distance from the interdental crest of the bone to the apical portion of the contact is essential to maintain the papilla. In periodontally involved patients, it is the loss of bone interdentally that lengthens this distance, creating the unpredictable status for papillary reconstruction. In the present case report, Han and Takei technique has been followed, which is a form of pedicle grafting using a semilunar incision and coronal displacement of the entire gingival-papillary unit, held in place with a section of subepithelial connective tissue graft beneath the coronally displaced tissue. The use of pedicle graft ensures a predictable blood supply to the graft as the blood supply is derived directly from the base of the mobilized flap.
In conclusion, the case report shows a novel surgical procedure using connective tissue graft to regenerate a lost interdental papilla. The reconstructed papilla in the new position was stable when reviewed at 6 months.

REFERENCES


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