



ORIGINAL RESEARCH PAPER

Periodontology

INTERDENTAL PAPILLA AUGMENTATION WITH PRF – A CASE REPORT

**KEY WORDS:** Black triangles, papillary reconstruction, Semilunar flap, PRF

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ABSTRACT

Increasing awareness and concern for their smile enhancement in patients has led to persistent search of advance aesthetic treatment modalities. Appearance of angularis nigra has remained a matter of concern for various individuals as it comprises once smile and further their self-esteem. Various factors responsible for open these black triangles are: loss of interdental bone due to periodontitis, root curvature, absence of interdental contact, and length of interdental contact etc. various surgical and non-surgical approaches aims toward restoring the interdental soft tissue. The aim of the present case report is to present a minimally invasive papillary regenerative procedure by using PRF membrane which was tucked into the pouch, followed by coronal displacement of entire gingiva-papillary unit.

**KeyMessage:** Use of PRF and pedicle flap offers an approach that is both reliable and feasible. It eliminates the need for second surgical site for procuring the connective tissue. PRF has both mechanical adhesive properties and biologic functions hence, offers a promising results in this minimally invasive approach of papilla reconstruction.

**Introduction:**

Not only teeth but also the gingival tissue forms an integral part of one's smile. Interdental soft tissue loss can also occur as a result of iatrogenic causes like periodontal flap surgeries and excision of pyogenic granuloma. *Tarnow et al*,<sup>2</sup> proposed that there was a complete fill of the interdental space post surgically if the distance between the crest of alveolar bone and contact point was ≤ 5mm. PRF, promotes wound healing and haemostasis by gradual release of growth factors from fibrin matrix.<sup>3</sup> Henceforth, it holds a promising role in interdental papillary augmentation.

**Case Report:**

A 25 year old female patient who was systematically healthy reported to the department of periodontology with the chief complaint of presence of black triangle between right maxillary central and lateral incisor. (FIGURE 1)



(Fig:1)

- Clinical examination revealed class I papillary loss between right the maxillary central and lateral incisor. The distance from the contact point to the bone crest was evaluated by transgingival probing, using UNC-15 periodontal probe which was found to be 5 mm.
- Intraoral periapical (IOPA) radiograph revealed no bone loss

hence, only soft tissue was deficient. Therefore complete papilla reconstruction was expected. The surgical procedure was explained to the patient and an informed consent was obtained. Routine blood investigations were done.

**METHODOLOGY**

**1. Preparation of PRF**

PRF was prepared according to the *Choukroun et al*<sup>4</sup> protocol. With veni puncture method 10 ml blood was withdrawn from the patient and was subjected to centrifugation at 3000 rpm in a sterile test tube. The product obtained possessed three layers– topmost layer of acellular platelet poor plasma (PPP), PRF clot in the middle and RBC's at the bottom. PRF clot was then separated and was subjected to uniform compression in Choukroun PRF box to form the



(Fig:2)

**2. Surgical procedure**

Intra-oral asepsis was performed with 0.2% Chlorhexidine Digluconate rinse for 30 seconds and Betadine solution was used to carry out extraoral asepsis. Under local anesthesia ( 2 % lignocaine) a split thickness semilunar incision was given about 1 mm coronal to the mucogingival junction in the inter dental region of #11 and #12. Intrasulcular incisions were also made around the neck of the adjacent teeth extending from buccal to the palatal surface. Through the semilunar incision the split thickness flap was continued to create a pouch in the interdental area. A probe was used to separate the attachment of tissues from the root surface thus, facilitating the coronal displacement of the gingivopapillary unit as a whole.(FIGURE 3) The prepared PRF membrane was eased in to the pouch created and pushed coronally, thereby, filling the

bulk of the interdental papillae.(FIGURE 4)



(Fig: 3)



(Fig:4)

The incisions were secured by 5-0 silk suture (FIGURE 5) followed by placement of periodontal dressing at surgical site. Post-operative instructions were then given to the patient. Patient was prescribed analgesics (Paracetamol T.D.S) and antibiotics (Amoxicillin 500 mg B.D) for 3 days along with chlorhexidine digluconate (0.2%) rinse twice daily for 10 days. Sutures were removed after 10 days.



(Fig:5)

Clinical examination post 3 month revealed papilla completely filling the interproximal embrasure and in complete harmony with adjacent papillae (FIGURE 6).



(Fig:6)

**Discussion:**

Numerous surgical techniques have been developed for the augmentation of the interdental papillary tissue. A 100% fill of the interdental space with the papillary tissue can be expected postsurgical intervention if the distance from the alveolar crest and

the contact is 5mm or less.<sup>2</sup> In our study as well the distance from the contact point to the bone crest was and contact point was evaluated to be 5mm and henceforth complete fill of interdental space was observed.

Structurally stable papilla reconstruction was observed in a study done by **Arunachalam et al**,<sup>5</sup> using PRF along with surgical intervention. This was also seen in the present study that papillae reconstructed to new position was stable and was in harmony with adjacent tissues.

According to **Han and Takei**,<sup>6</sup> any kind of free grafting cannot be utilized for these procedures due to restricted small place and less surface area for blood supply for donor tissue. Hence, pedicle tissue for augmenting the interdental papilla should be used by giving a semilunar incision and coronally advancing the gingival-papillary unit and filling the dead space with connective tissue and PRF like in our present case.

However the major disadvantage associated with connective tissue graft procedure is the need for a second surgical site, morbidity linked with autogenous palatal donor mucosa, and also it is time consuming and technique sensitive.<sup>7</sup>

However in the present study PRF is utilized in place of connective tissue in Han and Takei technique which has an advantage as it promotes wound healing and haemostasis and not additional surgical site is involved thus, increasing patient compliance.<sup>3</sup>

**Conclusion**

Although many advanced approaches showing good clinical results have been proposed to restore interdental papilla. Use of PRF may be the panacea for interdental papilla augmentation both in terms of the results obtained and the cost factor involved.

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