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RESEARCH ARTICLE

RECONSTRUCTION OF INTERDENTAL PAPILLA USING TWO SURGICAL TECHNIQUES FOR ELIMINATING “BLACK TRIANGLES” – A CASE REPORT WITH ONE YEAR FOLLOW-UP.

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Abstract

The loss of interdental papilla between teeth leads to formation of unaesthetic “black triangles”. This is one of the common problems encountered in routine clinical practice and of great concern from aesthetic as well as phonetics point of view, when occurs in the anterior maxillary region. However, augmentation of lost interdental papillae is one of the challenging periodontal plastic surgical procedures, as well as it is highly technique sensitive. This case report discusses two different surgical approaches namely, Han and Takei Technique and Azzi et al technique using connective tissue graft in the management of lost interdental papilla in the anterior maxillary region. The patients were followed up for one year and when compared no significant difference was found in the results.

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Introduction:-

Along with the maintenance of dental and periodontal health, dental aesthetics nowadays has become a great concern for both dental practitioners and patients. The growing concerns of aesthetics in the present scenario make the work of a general dentist very intimidating. In healthy gingiva the embrasure space between the two adjacent teeth is completely filled by the interdental papilla (IDP).¹ Apart from playing an important role in aesthetics, IDP also acts as a biological barrier which protects the underlying periodontal structures. Subsequent migration of attachment epithelium in the interdental region results in the loss of interdental alveolar bone thus leading to the formation of unpleasing black triangles. The papillary augmentation procedures which aim to fill the black spaces created by a papillary loss in the interproximal area, are considered to be one of the most complex procedures among the other periodontal surgical procedures.² It is observed that the most predictable outcome of surgical procedure is when the bone crest to contact point distance is <5 mm and papilla <4 mm.³

Hence, the aim of the present case report was to evaluate the efficacy of two surgical techniques of interdental papilla reconstruction by Azzi et al⁴ and Han and Takei⁵ using a subepithelial connective tissue graft to augment the soft tissue in the interdental area and to assess the success of reconstruction of the lost IDP in the maxillary anterior region over a period of 1-year. It also compares to check the predictability of one technique over the other.

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Case Report

Case 1-

A 28 year old healthy male patient presented to the department of Periodontology, Subharti Dental College and Hospital, Meerut with a chief complaint of unaesthetic appearance of his gums in the upper front teeth region. No facial recession was evident. The soft tissues appeared to be healthy without any inflammation. Clinical examination revealed class I papillary loss based on Papilla Index Score (PIS) described by Nordland and Tarnow⁶, creating aesthetically displeasing black triangles between both the maxillary central incisors (11, 21) (Fig1A). A detailed medical and dental case history was recorded followed by scaling and root planning. 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 radiograph revealed no bone loss hence, only soft tissue was deficient with good prognosis post-surgery. Therefore, complete papilla reconstruction was expected. The surgical procedure was explained to the patient, and informed consent was obtained.

Intraoral asepsis was performed with 0.2% chlorhexidine digluconate rinse for 30 s, and Betadine solution was used to carry out extraoral asepsis. Local anaesthesia was achieved using 2% lignocaine. Han and Takei technique⁵ was used for papilla reconstruction. The semilunar labial incision was made from the disto-labial line angle of tooth to the mesio-labial line angle of tooth. The gingival-papillary unit was pushed incisally to move gingiva into the crated area (Fig1B). Subepithelial connective tissue double the size of missing PH was harvested from palate using trap door technique (Fig1C). The connective tissue was placed into the pouch space after gingival-papillary unit was pushed incisally. The incisions were secured by 5-0 silk suture (Fig1D) followed by placement of periodontal dressing at surgical site.

Case 2-

A 32 year old healthy male patient presented to the department of Periodontology, Subharti Dental College and Hospital, Meerut. His chief complaint was visible black holes in upper front teeth region on smiling. Clinical examination revealed, missing IDP in relation to 21,22 (Fig2A). Pre surgical preparation was done same as above case and case papilla reconstruction was done using Azzi et al⁴ technique.

An intrasulcular incision was made around the necks of the maxillary incisors. An envelope type split thickness flap was then elevated buccally and palatally (Fig2B). A second surgical site was created to obtain a connective tissue graft double the size of missing PH for placement under flaps in the recipient site using trap door technique.(Fig 2C) The tissue graft was then placed under the buccal and palatal flap and in the interdental papilla area and sutured (Fig 2D).

In both the cases patients received postoperative instructions and were prescribed with analgesics (Paracetamol TDS) and antibiotics (amoxicillin 500 mg BD) for 3 days along with chlorhexidine digluconate (0.2%) rinse twice daily for 10 days. Sutures were removed after 10 days.

Post-surgical follow up was done at every month till 1 year in both the cases. Both the cases showed no post-operative complication and hundred percent coverage were observed. (Fig1E, 2E).

Discussion:-

The above two case reports compared two different techniques by Han & Takei⁵ and Azzi et al⁴ to augment the missing papilla. Beagle in 1992 described a pedicle graft procedure utilizing the soft tissues palatal to the IDP to reconstruct new papilla.³ In 1996, Han and Takei described the use of a facial approach with a semilunar incision to gain access to the papillary area for augmentation of the papilla.⁵ Azzi et al in 1998⁴ described technique to gain access to augment the connective tissue and bone under the deficient papilla.

Numerous surgical procedures have been introduced for reconstruction of interdental soft tissue. According to Tarnow et al.⁶ the distance from the base of the contact area to the crest of bone could be correlated with the presence or absence of the interproximal papilla and if it is 5 mm or less, the papilla was present almost 100% of the time or may be reconstructed surgically.

Nemcovsky⁷ augmented interproximal papilla in 9 patients by a technique which was based on an advanced papillary flap combined with a gingival graft. The follow-up of which was only for 3 months, and papilla index score was used to assess the outcome.

From a biologic point of view, the presence or absence of the papilla primarily depends on the distance between the interdental contact point and interproximal crest of bone.⁸ Periodontal disease leads to bone resorption, with the formation of horizontal defects or vertical defects. Both patterns of bone resorption, can lead to an increase in the distance from the bone crest to the contact point. Hence, in the present case report, patients who was periodontally healthy with a PD of 1–3 mm were selected.

Both techniques showed a successful reconstruction of papilla. The Azzi et al⁴ technique comprises a sulcular incision and a connective tissue placed in the envelope created. The blood supply to the grafted connective tissue is a important key element of this technique. This is assured by the full coverage of the connective tissue extension with overlying flap. The grafted connective tissue receives a flow of plasma and blood circulation from the capillaries of periosteum, underlying connective tissue and overlying flaps.

In the Han and Takei⁵ technique a section of connective tissue graft was placed beneath the coronally displaced tissue. The use of pedicle graft ensures a predictable blood supply to the graft which is derived directly from the base of the mobilized flap. Therefore, this technique showed a better improvement clinically than Azzi et al technique. Results of this case report are in contrast to previous study done by Shruthi et al⁹ in which results showed that both the technique individually were effective in reconstructing the papilla.

Conclusion:-

The augmentation of interdental papilla can be done by various procedures which have been proposed to restore the lost interdental tissue. The results of present case report shows that both the techniques individually have satisfactory results in reconstruction of papilla, however Han and Takei technique proved to be better over other.



Fig 1A:- Pre-operative image demonstrating lost interdental papilla w.r.t. 11,21



Fig 1B:-Semilunar incision given, tissue released and gingiva-Papillary unit pushed incisally

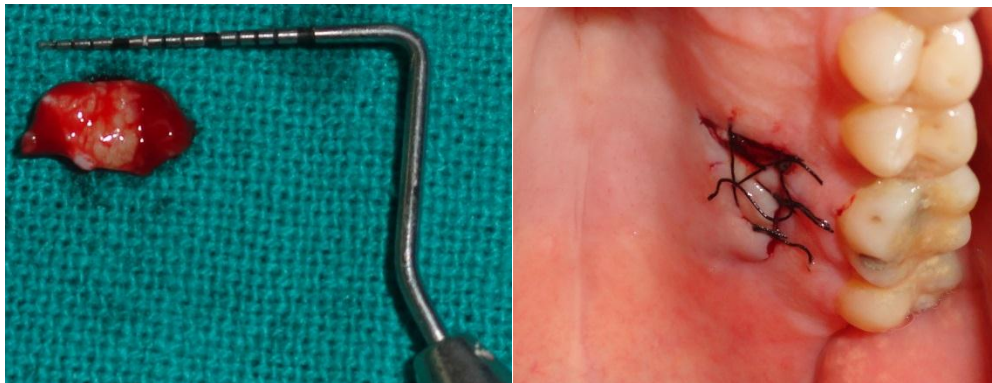


Fig 1C:-Subepithelial connective tissue harvested using Trap Door Technique and palate sutured



Fig 1D:-connective tissue placed in the prepared pouch and sutured



Fig 1E:-Post operative picture after one year follow-up demonstrating completely filled interdental papilla w.r.t. 11,21



Fig 2A:-Pre-operative image demonstrating lost interdental papilla w.r.t. 21,22



Fig 2B:-Split thickness flap elevated buccally and palatally



Fig 2C:-Subepithelial connective tissue harvested using Trap Door Technique and palate sutured



Fig 2D:-Connective tissue placed at the recipient site and sutured



Fig 2E:-Post operative image after one year follow up showing complete fill of interdental papilla

Reference:-

1. Sawai ML, Kohad RM. An evaluation of a periodontal plastic surgical procedure for the reconstruction of interdental papillae in maxillary anterior region: A clinical study. *J Indian Soc Periodontol* 2012;16:533-538.
2. Beagle JR. Surgical reconstruction of the interdental papilla: Case report. *Int J Periodontics Restorative Dent* 1992;12:145-155.
3. Khan S, Dureja D, Sharma H, Wadhawan A, Akhtar MS. Interdental papilla augmentation with PRF- a case report. *Paripex Ind J Res* 2017;6(11):730-731
4. Azzi R, Etienne D, Carranza F. Surgical reconstruction of the interdental papilla. *Int J Periodontics Restorative Dent* 1998; 18: 467-473.
5. Han TJ, Takei HH. Progress in gingival papilla reconstruction. *Periodontol* 2000 1996; 11: 65-68.
6. Nordland WP, Tarnow DR. A Classification system for loss of papillary height. *J Periodontol* 1998;49:1124-1126.
7. Nemcovsky CE. Interproximal papilla augmentation procedure: A novel surgical approach and clinical evaluation of 10 consecutive procedures. *Int J Periodontics Restorative Dent* 2001;21:553-559.
8. Cardaropoli D, Re S, Corrente G. The Papilla Presence Index (PPI): A new system to assess interproximal papillary levels. *Int J Periodontics Restorative Dent* 2004;24:488-492.
9. Shruthi S, Gujjari SK, Mallya KP. Comparison of two surgical techniques for the reconstruction of interdental papilla. *J Int Descip Dent* 2015;5:17-23.