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Aesthetic Consideration in Periodontal Flap

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Case Report

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Abstract: Flap surgery is the treatment for periodontal disease with alveolar bone destruction. Surgical periodontal flap with conventional incision will result in gingival recession and loss of interdental papillae after treatment. Periodontal flap surgery on the anterior region or regions that require high aesthetic value could be addressed with papilla preservation flap. This case report aimed at outcomes of surgical papilla preservation flap in the area that require aesthetic.
Keywords: Aesthetic consideration, Interdental papilla, papilla preservation flap.

INTRODUCTION

Most distressing aspects of periodontal surgery is the unesthetic maxillary architecture after definitive pocket elimination therapy in anterior region. An ideal periodontal therapy must necessary to consider esthetic appearance[1]. Non-surgical approach is encouraged for maxillary anterior dentition. However, there are situations in which surgical therapy is unavoidable. A surgical approach that involves the papilla will lead to shrinkage[2]. This led to the development of a flap technique which intended to spare the papilla instead of splitting it. By kromer in 1956 which was designed papilla preservation procedure[3].

Papillary preservation flap and its modified flap design both required a wide interdental space as a pre-requisite to bring about appreciable functional and esthetic value. To apply esthetic value to teeth having narrow interproximal zone, Cortellini *et al.* in 1999 proposed the Simplified Papilla preservation flap technique [4].

Compromised esthetics in the anterior region of the mouth could be a serious consequence of periodontal surgical procedures. Several articles have been devoted to flap designs and surgical techniques to maintain full papillary form and preserve the soft tissues during surgical access[5].

CASE REPORT

A 20 year old female patient reported to the outpatient Departmert of Periodontics, Rajah muthiah dental college with a chief complaint of bleeding gums for past 1 year, there was probing depth of more than 6mm in relation to maxillary anteriors which bleed on probing. The maxillary anterior teeth exhibited grade I miller's recession, interdental spacing between anterior maxillary teeth. Adequate keratinized tissue and papillary frenal attachment was exhibited in this area. The radiographs showed horizontal bone defects in relation with maxillary anterior teeth. Clinical and radiographic data, suggest chronic periodontitis.

Fig 1 preoperative photograph shows presence of periodontal pockets after scaling and root planing was achieved and patient was motivated for oral hygiene care. The areas were re-assessed for gingival health, probing pocket depths and bleeding of gingiva during supportive periodontal therapy, which indicated need for surgical intervention with predictable esthetic value. Papilla preservation flap surgery was the ideal choice in relation to the maxillary anterior teeth fom mesial of 13 to mesial of 23 , as these teeth presented wide interdental spacing with a broad interproximal gingival zone which is a pre-requisite for papilla preservation flap technique. After obtaining the informed consent from the patient, after adequate anesthesia the extent of bone defect was probed in relation to the buccal and palatal aspect of the interdental papilla to determine the position of semilunar incision. The facial surface was prepared with a sulcular incision around teeth 13 to 23 with no incisions made through the interdental papilla. Fig 2 sulcular incisions. The palatal flap design consisted of a semilunar incision Fig.3 made across the interdental

papilla in relation to the teeth 13 to 23. This semilunar incision was made such that it dipped apically from the line angles of the tooth so that the papillary incision line was at least 4 mm from the gingival margin which allow the interdental tissue to be dissected from the palatal aspect facilitating intact elevation with the facial flap once the incisions were completed, the flaps were reflected and the interdental papilla was freed from the underlying hard tissue using interproximal knife. The detached interdental tissue was pushed through the embrasures with a periosteal elevator so that the flap could be easily reflected with an intact papilla.

Fig 4 The underside of the reflected flap was scraped and trimmed to remove granulation tissue and pocket epithelium. The thickness of the interdental tissue maintained adequate blood supply, minimized the chances of post-operative gingival recession. The defect was debrided with curettes and thorough scaling and root planing was performed. Fig 5 The facial flap containing the papilla was brought to contact well with the incision line on the palatal aspect and a direct suture was placed.Fig 6 A surgical dressing was placed to reduce the chances of flap displacement by mastication, tooth brushing or interferences by tongue. Fig 7 Post-operative instructions were given, Antibiotic therapy (amoxicillin 500 mg, Thrice daily and analgesic (Aceclofenac (325mg) and Paracetamol (100 mg) twice daily) was prescribed for 5days. Patient was instructed to rinse with 0.2% chlorhexidene twice a day for two weeks. Periodontal dressing and sutures were removed one week postoperatively. Healing was uneventful.

Fig-1: Preoperative photograph showing presence of periodontal pockets

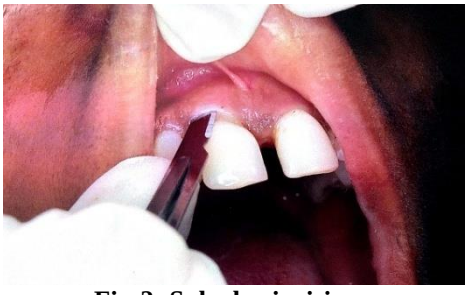

Fig-2: Sulcular incisions

Fig-3: Semilunar incision

Fig-4: Papilla encorporated in facial flap

Fig- 5: Debridement

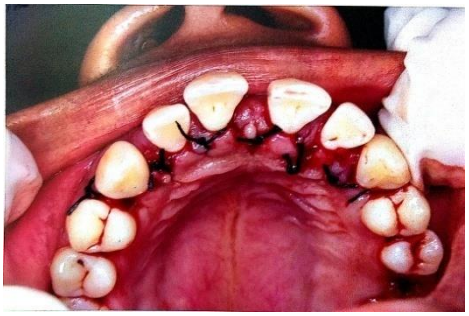

Fig-6: Palatal of sutured flaps

Fig-7: Periodontal pack placed

DISCUSSION

Considering treatment in the esthetic zone the papilla plays a fundamental role, the papilla preservation flap incorporates the entire papilla in one of the flaps [18]. App in 1973, reported a similar technique and termed it as Intact Papilla Flap,which retained the interdental gingival in the buccal flap . Evian et al preserved the interdental gingival in the facial flap, which exposed osseous margins on the labial and the interproximal zone, while the palatal tissues were reflected separately. Genon and Bender in1984 also reported a similar technique indicated for esthetic purposes. Takei *et al*. in 1985 introduced a detailed description of the surgical approach reported earlier by Genon and named the technique as Papilla Preservation Flap, which ensured optimal interproximal coverage and facilitated placement and retention of bone grafts which prevented exfoliation of the graft material[1].

Variations in the papillary preservation flap designs can be appropriately used when coronal advancement of flap over bone graft and barrier membrane placements is considered. Simplified papilla preservation flap can offer better esthetic results with teeth exhibiting narrow interdental spaces even in posterior teeth. Interdental papilla is the gingival

portion that occupies the space between 2 adjacent teeth. This anatomic entity was first described in 1959 by Cohen[6]. Its shape and extension are the result of tight relations between periodontal tissues, tooth form, and contact point [7,8]. It is important to PRESERVE papillary integrity during all dental procedures and minimize its LOSS as much as possible, especially during and after periodontal THERAPY [9,10].

In 1995, Cortellini *et al*. published modification of the Evian *et al*. and Takei *et al*. techniques naming it modified papilla preservation technique[11]. The authors, exploiting the mobility of the buccal flap, suggested this buccal approach for all cases where a regenerative procedure has to be applied for interproximal space. The described technique is very similar to those reported 7 years before by Checchi *et al*. [2, 3] In the Cortellini *et al*. [12, 13] procedure the incisions are only buccal, while in the Checchi *et al*. technique, they are mainly buccal, the modified papilla preservation technique has an interproximal incision always straight because of specific sutures, while in Checchi *et al*.'s technique, the incision is scalloped and more apical; finally, different suture techniques are used[14]. All techniques described have a prerequisite a wide interdental space to allow minimal trauma to the interproximal tissue when pushed through[15,16]. Other aspect is related to oral hygiene conditions. The ability of the patients to perform adequate plaque control through oral hygiene could influence the outcomes of any oral surgery, in particular in relation to soft tissue conditions [17].

CONCLUSION

An ideal periodontal therapy establish a state of periodontal health evidenced by absence of inflammation, periodontal pockets and for the patient to maintain the health in addition to function and esthetics. In conclusion, periodontal flap surgery on the anterior region or regions that require high aesthetic value could be addressed with papilla preservation incision.

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