THE USE OF PERIODONTAL SURGERY TO ENHANCE THE RESULTS OF RESTORATIVE DENTISTRY

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ABSTRACT

Periodontal disease and dental caries share a common etiological agent namely bacteria from dental plaque. [1, 2, 3] These two dental diseases frequently occur together and there is a positive correlation between the incidence of dental caries and the incidence of periodontal disease. [4, 5] Therefore it is essential that caries treatment must be coordenated with periodontal therapy. During initial therapy periodontal procedures and operative procedures are often carried out together. This conjunctive approach is also applicable to the surgical component of periodontal surgery. At the time that periodontal surgery is being carried out it is important that the exact restorative treatment plan be finalized so that the surgical technics ca be modified enchance the results of these restorative procedures. Periodontal surgery can be classified into two broad categories. Firstly surgery aimed at eliminating the effects of periodontitis e.g. periodontal flap surgery, and secondly surgery aimed at correcting deficits of gingiva e.g. mucogingival surgery. Many patients who require these surgical procedures also need to have restorative dentistry and prosthetic carried out in the same area. It is important that the periodontal surgery procedures must be coordinated with restorative dentistry and prosthetic procedures.

1. PERIODONTAL FLAP PROCEDURES

In tnose patients where periodontal flap procedures are to be utilized to treat periodontal defects, it is imperative that the operator be aware of the final positioning of the gingival crest. In many situations the gingival tissue is apically positioned during periodontal flap procedures, and the level of the gingiva is modified further by the healing process. Clinical observations show that in general terms the gingival margin becomes stabilized after three months post-periodontal surgery. During this initial post-surgical time period, there ist at first an apical positioning of the gingiva compared to the level at which the tissues were sutured. However, by three months this tissue has moved coronally so that it is at, or within a millimeter of the level of the tissue at the completion of the surgical procedure. Understanding this phenomena is important in those patients who are to have margins of restorations placed into gingival environment following periodontal surgery. The movements of the level of the gingiva, postsurgically will vary somewhat from patient to patient, but the general guideline should be that final restorations should not be placed into the gingival crevice until three or four months postperiodontal surgery. Following this guideline not only insures that the level of the gingival margin has stabilized, but will also provide the operator with a gingival crevice which has completed its healing process and has the potential to have reorganized into a health tissue.

In patients who are to receive extensive crown and bridge work in association with periodontal surgery, it is frequently advisable to utilize provisional restorations made of self-curing acrylic resin. This will enable the dentist to ascertain of the tissues to the crown contours, margins, and occlusal patterns which will finally be utilized. These provisional restorations should be placed during initial therapy and are cemented in such a way they can be removed during periodontal flap procedures. Removal of these provisional restorations provides an enhancement of the access to the interproximal alveolar bone, and so facilitates the techniques of periodontal flap surgery. (Fig. 1) Following the healing of the surgical procedures, the patient then has the opportunity to demonstrate their ability to maintain plaque control in a situation analogous to that which will be created by the final cast restorations. Modifications of occlusal patterns, interproximal and buccal contours, and margin placement can be carried out in the provisional restorations in order to be sure that the final restorations will provide the maximum benefits to the patient.

When periodontal flap procedures are used in molar areas where crown and bridge procedures are planned, the osseous contours created surgically should be in harmony with the crown contours created in the restorations. In the region of the buccal root furcations, the osseous tissue should be grooved with an apically directed groove running from the alveolar crest. Similarly the crown contours and tooth preparation, should have an accentuated buccal groove running occlusally from the furca area. In those situations where a root resection is to the carried out, the osseous surgical technics should also be coordinated with the contours of the crown and prepared tooth, so that the final architecture of the periodontium is in harmony with the restoration (Fig. 1, Fig. 2).

In those situations where it is required to increase the crown length prior to cavity preparation, periodontal surgery

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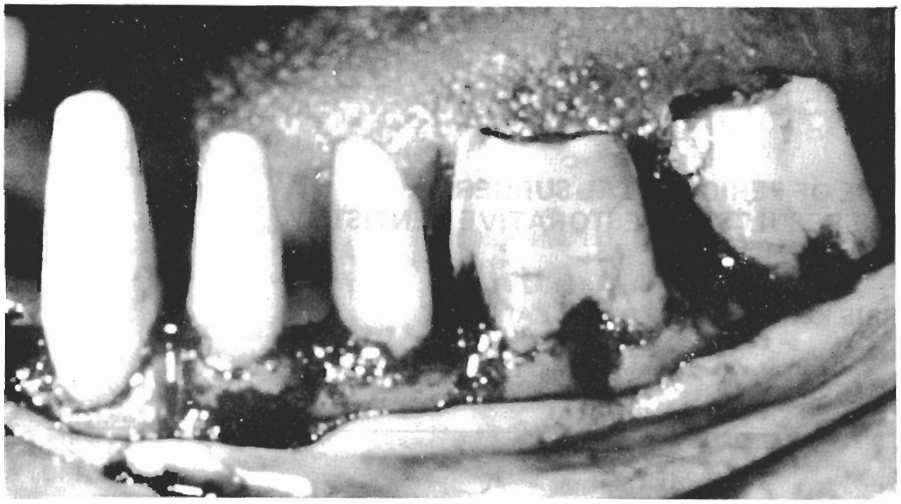

FIG. 1 – Buccal and Lingual flaps with osseous recontouring of the interdental and furcation areas in harmony with crown preparations. Removal of provisional restorations enhances surgical access.

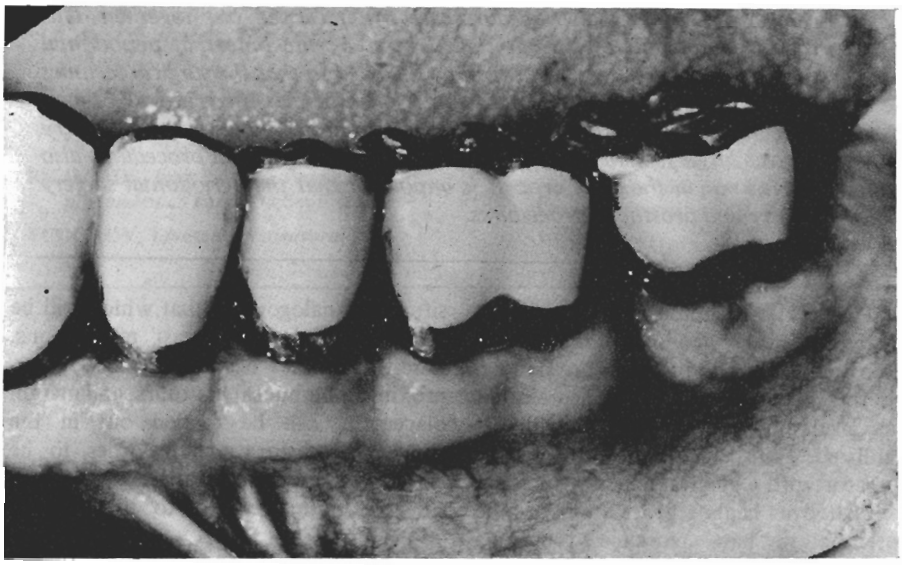

FIG. 2 – Periodontal and restorative therapy completed in case seen in Figure 1. Note supragingival margins, accentuated contours of midbuccal grooves and healthy gingiva.

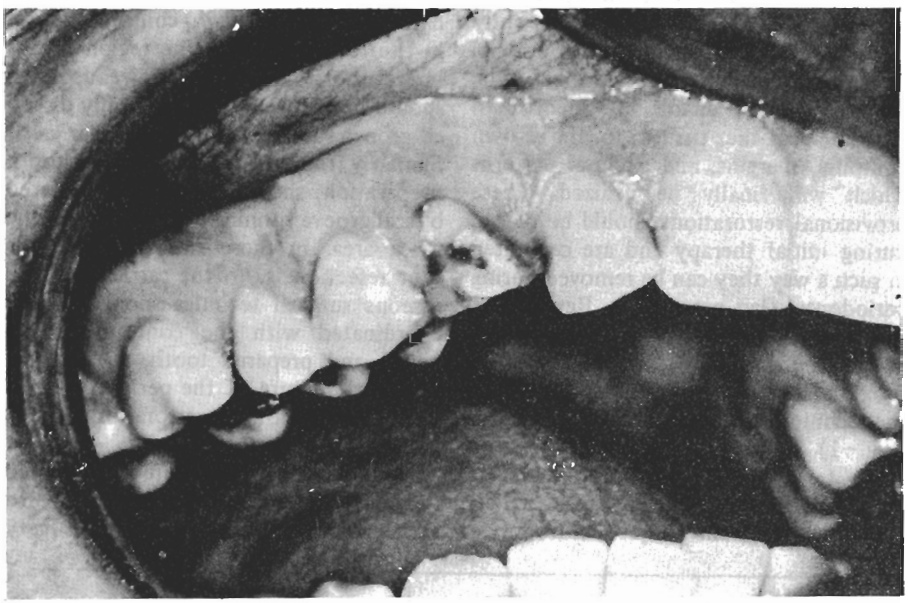

FIG. 3 – Fracture of crown on upper canine extending subgingivally to just below the alveolar crest.

plays an important role. It must be stressed that in most cases it is necessary to utilize a flap procedure, as the simple removal of tissues by gingivectomy often results in the creation of a mucogingival problem because of the loss of gingival tissue. The methods utilized for crown lengthening follow the general principles of flap design that is used for conventional periodontal flap procedures. However in those areas where an edentulous area is adjacent to a crown to be lengthened, the incisions are modified so that a triangular shaped wedge of tissue is removed over the area of edentulous ridge. Flaps designed in this way ensure that the tissue remaining is thin and can be positioned in such a way that it is closely adapted to the underlying osseous structures. The size of the tissue removed in the wedge determines how much crown lengthening will occur in the interproximal area.

In those patients where crown lengthening of only the labial or lingual surfaces is required the apical positioning of flaps can used to lower the attachment level of the gingiva in an apical direction. It must be remembered that in some situations it may be necessary also to remove osseous tissue in order to re-establish the periodontal support mechanism at a more apical position. The space that occurs naturally between the most apical portion of the epithelial lining of the gingival crevice, and the alveolar bone is a millimeter to a millimeter and one half. Therefore, if a crown extention procedure is carried out, ist is necessary to first determine the level at which the gingiva is to be positioned against the tooth. Then and additional 2-3mm apical to this is provided for the gingival crevice, together with an additional millimeter to a millimeter and half for the level of the alveolar crest. If after making these determinations the new level of the alveolar crest is apical to where alveolar crestal bone is presently in place, it will be necessary to remove osseous tissue and to recontour the outer surface of the alvelous in order to establish the periodontium at a more apical position (Fig. 3, Fig. 4, Fig. 5, Fig. 6).

These techniques for increasing the lengths of the clinical crown also have application in those situations where a tooth fracture has occured. Frequently tooth fractures occur in such a way that the apical extension of the fracture is slightly below the level of the alveolar bony housing. If this tooth is to be restored, and the restoration is to be extended to the apical level of the fracture line then osseous tissue recontouring is necessary (Fig. 3, Fig. 4, Fig. 5, Fig. 6).