

DISCUSSION OF "CROWN AND SLEEVE-COPING RETAINERS FOR REMOVABLE PARTIAL PROSTHESES"

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OTHER THAN THE MATERIAL provided by Doctors Paul A. Miller and Irving L. Yalisove, there is little or nothing in the literature which was of any help in providing me with pertinent facts, which are so necessary to present an intelligent discussion of this intriguing subject.

I will review briefly some of the important features of this technique. Several maxillary teeth, or mandibular teeth which ordinarily would be marked for removal, may be retained and used to stabilize an otherwise complete upper or lower denture. These teeth are brought into the best possible health; their clinical crowns are shortened; they are covered with a gold primary coping with a shape that is similar to the upper half of a ball bearing, and a secondary or sleeve coping is constructed to fit over them. This secondary coping is attached to the denture and is relieved around its entire circumference in the cervical region where it contacts the primary coping. The result is positive contact in line with the long axis of the abutment tooth when vertical forces are applied between the primary and secondary copings. This vertical pressure, if intermittent, has a stimulating effect upon the abutment tooth and has caused mobile teeth to tighten. When lateral or horizontal functional and nonfunctional pressures are applied, because of the relief around its entire circumference provided by the removal of the inner surface of the secondary coping, the secondary coping rotates around the primary coping and the destructive horizontal pressure is dissipated over the entire mucosa instead of exerting its noxious influence upon the abutment tooth.

Among the important benefits attributed to this theory and technique are: (1) Preservation of the bony structures (the ridges) is possible for much greater periods than was otherwise the case when these supporting tissues were subjected to vertical and horizontal pressure without the benefit of natural teeth to help counteract them. (2) Patients who were emotionally disturbed at the suggestion that all their teeth would have to be removed and complete dentures would have to be inserted, now can take hope and receive comfort from the assurance that some of their natural teeth can be retained. Thus, their ridges are preserved and the insertion of a complete denture is postponed. At the same time, the patient is being conditioned in case he has to wear a complete denture eventually. (3) With the extended longevity of the population, and the alarming increase of complete denture wearers at a comparatively early age, this concept may provide us with

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the means of prolonging the retention of the natural teeth, and thereby deferring to some later date the insertion of complete dentures. (4) The diversity of ways in which the principles and techniques can be applied where either complete or removable partial dentures are to be inserted, is limited only by the ability and ingenuity of the dentist. (5) Splinting teeth together is an accepted procedure in all dental occlusal concepts. It divides the functional and nonfunctional pressures over a broader area and protects the weak teeth. We are told that this method of crown and sleeve-copings provides positive splinting because, when the secondary coping contacts the primary copings under vertical pressures, all abutment teeth are rigidly connected. The weak teeth are supported by the strong teeth.

Most of the principles embodied in this concept have scientific and biomechanical support as to their correctness. For example, the self-releasing taper must be resorted to as against the self-holding taper. Miller opposes the connecting of groups of teeth because of poor hygiene, and because groups of teeth are rocked rather than released when subjected to horizontal pressures. For example, he would favor two separate primary crowns over two lower cuspids without a connecting bar and then have the secondary copings be part of the removable partial denture. He feels that, if these crowns are connected, they are more likely to be moved as one unit by horizontal pressures.

Yalisove mentions that retention is diminished because of a break in the border seal when the crown and sleeve-coping retainers are used. He states, however, that this by no means deters from their use because of their many other advantages.

The title of Doctor Yalisove's article should be "Crown and Sleeve-Coping Stabilizers for Partial Removable Dentures," instead of "Crown and Sleeve-Coping Retainers," since both Miller and Yalisove stress stabilization and not retention in their concept. However, my feeling is that, although stabilization is the number one achievement, retention is also accomplished—even though to a lesser degree.

Some questions come to my mind: When the base settles, and the abutment teeth are not intruded a sufficient amount to compensate for it, does the denture rock upon these rigid abutment teeth? Does the settling of the denture cause a more intimate contact between primary and secondary copings and therefore permit the horizontal forces to exert their noxious influence? Do they have to remove and replace their secondary crowns frequently because of this?

We are told that the amount of relief given in the secondary coping is in proportion to the amount of "give" in the mucosa. A soft and yielding mucosa would require more relief, while a hard, and less yielding mucosa would require less relief. This, then, becomes an intelligent guess.

One dentist* states that he first places these so-called telescoped removable partial dentures directly over nonparallel abutment teeth by relieving the plastic base where it fits over these teeth. If the patient observes adequate oral hygiene, this dentist is willing to go further and consider primary and secondary copings. Otherwise, he feels that the treatment will be a failure because of future caries. This brings up the problem of tooth preparation of vital teeth with long clinical

*Allen A. Brewer, personal communication, February, 1965.

crowns. Is it necessary to remove the pulps of teeth in an effort to shorten the clinical crowns in order to overlay the secondary copings? Long clinical crowns create greater leverages than short clinical crowns and therefore, short clinical crowns are more desirable.

Examples of groups of teeth which were used by covering them with primary copings have been shown. The primary copings were long and not cut sufficiently short to present the favorable crown-to-root proportion of which the author spoke. When secondary copings are inserted over them, it would appear mechanically impossible for any release in the removable partial denture when it is subjected to horizontal pressures.

There is also the problem of esthetics with anterior abutment teeth. Are the pulps removed when esthetics becomes a problem? What is the life expectancy of pulpless teeth? Only one patient with a complete upper denture covering the primary copings and providing a full border seal was shown. This denture seemed large and bulky. In all others, the secondary copings, in the form of veneer crowns, did not have any buccal or labial flanges to provide a border seal. Instead, the seal was broken in these areas. Is this because the additional bulk would interfere with optimal esthetics? Without this labial flange to continue the border seal, I should think the retention would be much less than it would with it.

We are told that the gingivae around the abutment teeth become firm and healthy due to the intermittent stimulation of the telescoped partial removable denture. It would seem that the surgical removal of any inflamed gum collar would lessen the time required for achieving normal tissue health around these abutment teeth.

The removable partial denture is related to the secondary copings under pressure. Therefore, when released, the secondary copings will have a slight space under them in relation to the primary coping, and the essayist claims that, in function, this space is taken up. Granting that this occurs, what is done to check this, once the denture is inserted? Will not the vertical and horizontal pressures cause an intrusion both of abutments and of the denture to eliminate this rebound in a very short time? How can this be checked?

This concept lends itself to the construction of prostheses for cleft palate patients, as well as for patients who have had oral surgery for the removal of malignant tumors. In both instances, usually only a few natural teeth remain. It becomes necessary to preserve these teeth for the longest possible time in order to support the extensive prostheses which are necessary. The primary and secondary coping concept may provide the greatest longevity of teeth dependent only upon the ingenuity of the dentist.

I would also like to have seen more documentation of the results over the ten year period. We were not able to see a step-by-step procedure for making one of these dentures, and the essayist did not show the roentgenograms after the prostheses had been used for a number of years. This evidence would have helped us in our evaluation of the concept.

While the photographs of the diagrams were clear, the same cannot be said of the clinical material. I suggest that, in the future, the photographs of this phase be sharper.

I was pleased to hear the essayist mention that the occlusal factor was critical. It is critical in *all* restorative work.

My final thought is the importance of the psychologic factor in this endeavor. It does give the patient hope, and for this important reason, among the many others, it is highly commendable. Doctor Yalisove, I wish to thank you for myself and for our Academy in bringing us this interesting and useful concept for our consideration.

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