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An Overall Philosophy of Treatment of Periodontal Disease and Case Analysis

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THE overall philosophy of any dental practitioner in the treatment of periodontal disease is embodied in the views he promulgates as a result of his training, skill, personal insights, knowledge and experience in the treatment of periodontal ills. The objective of this paper is not to assay controversial forms of treatment or to delve deeply into any single aspect of the science of periodontology but, rather to reveal a philosophy by showing how a case may be analyzed in the preparation for and during the progress of periodontal treatment. It is felt that this approach might prove to be of more value than a discussion of a particular phase of periodontal diagnosis or treatment, which would of necessity presume that the overall philosophy of diagnosis and treatment of periodontal disease is a well-worn and most useful tool in the chest of knowledge of every periodontist. A re-examination and re-evaluation of procedures are never entirely without merit.

The importance of a thorough understanding of the basic sciences cannot be overstressed. The many and varied pathological changes seen in the oral cavity can never be diagnosed with accuracy unless the normal anatomy, histology, and physiology of the parts are well known. Many of the changes seen in the mouth cannot be correctly interpreted or related, except in the light of our knowledge of the basic biochemical and bacteriological actions and reactions. Every step of case analysis requires thoughtful consideration and intelligent decisions. This will not be possible unless the practitioner thoroughly understands the fundamental processes of the body in health and in sickness. Our very first assumption, therefore, is that the periodontist must at all times seize every

opportunity to enrich and extend his knowledge of the sciences as they pertain to periodontal disease.

Exactly what is case analysis? It is the art of considering thoroughly all of the factors which have produced the existing condition or conditions in a patient's mouth, plus the institution of a flexible but definite plan by which the mouth may best be restored to health. Gingivitis and periodontitis comprise approximately 90 per cent of all of the periodontal diseases.⁴ The case analysis and treatment plan discussed hereafter is particularly applicable to these conditions.¹ In a more general sense, nevertheless, periodontosis, atrophy, and other disturbances may be included also.

The first step in case analysis and treatment is examination, recording and treatment planning. All information relating to conditions of the teeth, the gingivae, and soft tissues of the mouth, and all data relating to the personal and family history should be carefully recorded. Special attention should be focused upon any systemic condition which may be present such as: subclinical avitaminosis, diabetes, blood dyscrasias, syphilis, faulty mineral metabolism, and any other general, debilitating disease.

It is important to remember that no matter how completely all local irritants are removed, how skillfully and thoroughly all pockets are eliminated, or however effective has been the instruction in the correct institution of home care during the treatment process, only temporary or partial success can be attained if the general health of the patient is poor. Too many practitioners have become frustrated and discouraged by failures with cases where the principal causative factors were systemic

when they had otherwise done a fairly good job in the correction of the local conditions involved. They neglected to discover and correct all systemic conditions which modify or prevent adequate response of the tissues to local treatment. Many hours of fruitless labor might have been averted if the examination had been comprehensive or thorough enough to reveal the systemic condition responsible for the poor health of the tissues. An important part of our concept of the overall management of periodontal patients is based, therefore, upon an evaluation of their general health.

While the depth of pockets is being recorded and the mobility of the teeth is being measured with the purpose of determining the prognosis of individual teeth, pitfalls await the one who is bound by inflexible rules. For example, a tooth with two or more millimeters of movement ordinarily is considered hopeless, as is the case also of a tooth which can be depressed within its socket. But, mitigating factors, such as the presence of acute lateral abscesses, or the manner in which the remaining bone is distributed in each tooth examined, must be considered with careful discrimination.² It is well to remember that neither the depth nor the configuration of a periodontal pocket can be determined from the x-ray, alone. Periapical films are especially unreliable. Bitewing x-ray films are better, but the bottom of the pocket never coincides with the bony alveolar margins. There is always soft tissue between the pocket and bone.

Usually, it is believed that a *minimum* of one-half of the total periodontal membrane attachment must remain after treatment in order to attain satisfactory results. Too often the estimate of how much attachment is left is made from x-rays alone, but the attached soft tissues containing bone matrix cannot be seen in x-rays. Too often an estimate of the attachment is made considering the entire length of the tooth or the entire length of the root. Neither is correct.

Many teeth have been lost as a result

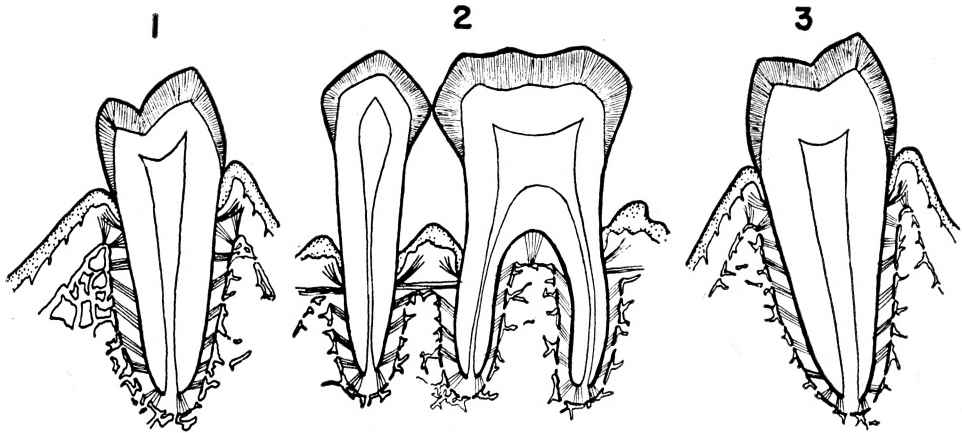
of snap judgment from viewing an x-ray, or because of a misunderstanding of how much support the tooth had originally as compared with the existing condition. Furthermore, the estimate of how much attachment is left is often made without due consideration to the lingual and buccal or labial bone present. Rarely is the loss of bone in these areas as great as it is in the interproximal areas. (See Figures 1, 2 and 3.)

It is necessary constantly to think in three dimensions when making deductions from x-rays. Actually the continuous deposition of cementum upon the root surfaces of the teeth increases the diameter and length of their roots. Therefore, the total surface area in which fibers may be attached is greater with increasing age. This is nature's way of compensating for continuous eruption and occlusal wear.

As soon as the examination, recording and treatment planning are completed, we proceed then with the second step, namely, the removal of all hopeless teeth. Judgment on questionable teeth is deferred until later in the treatment. This is especially important in cases where the teeth in question have been exposed to severe occlusal trauma. Such teeth should be taken completely out of occlusion at this time to give the tissues involved a chance to recover. However, all teeth that are clearly beyond the stage of successful treatment should be removed without delay.

The next step in our procedure consists of excavating all deep carious cavities and protecting them with medicated, temporary fillings. It would indeed be odd therapy to manage somehow to save the supporting structures of a tooth only to lose additional tooth substance or the tooth itself from advancing caries. Proper treatment of the hard and soft structures of the teeth, therefore, becomes an important role in the total picture of periodontal therapy.

We are now prepared to proceed to the "so-called" routine treatment, which consists of (1) thoroughly scaling and polish-



Figures 1 and 3 diagrammatically show bucco-lingual sections of a second bicuspid and first molar of the same arch with their high buccal and lingual attachments, while Figure 2 shows the condition of the same teeth in mesio-distal section.

ing each surface of the crowns and roots of the teeth involved, (2) stimulating the circulation in the gingival tissues, and (3) instructing the patient in the home care of the teeth and gums. The best that any dentist can possibly expect of competent treatment will be to get the tissues in a healthy and strong state. The patient must keep them that way by constant, diligent and intelligent home care.

Hirschfeld,³ Orban,⁵ and others have estimated that about 75 per cent of the success achieved in periodontal therapy depends upon the patient's home care. Yet how much time does the average dentist devote to the teaching of toothbrushing, gingival massage, and interproximal care? Far too little! A patient cannot be taught adequate home care by the over-simplified method of lectures, films, or demonstrations on models alone. These devices are important but demonstration in the patient's mouth is absolutely necessary. The dentist should demonstrate *in the patient's mouth* how the teeth and gums should be brushed, and the reason for each procedure, while the patient watches in a large hand mirror. The patient then brushes while the dentist watches and corrects mistakes. The patient is requested to bring his brush and rehearse the procedure at each visit. Corrections or additions to the technique are made by the

dentist-teacher during each lesson until the method has come to be a well-established habit in the hands of the patient. Much of therapeutic value of a periodontist's service will depend upon his skill, patience, and time devoted to patient instruction.

Many fail to realize that it is normal (at least in so far as incidence is concerned) for the interproximal areas to become food traps in adults as the papillae recede with age. Periodontal diseases make these food traps larger. We contend that no method of brushing adequately cleanses the interproximal areas once the gingival papillae have receded. Hence, the use of adjuncts such as rubber tips, dental floss, toothpicks, stimulents, or pipe cleaners must be taught to the patient in much the same manner as toothbrushing was described. Painstaking effort in this direction will reap rich dividends in the form of tightening of the teeth, reduction of pockets, bone formation, and little or no recurrence of the disease.

The next step in treatment is the removal of all remaining mechanical irritants such as overhanging fillings, poor bridges, shell crowns, and misfitting restorations of any form. Let it not be forgotten that every time a filling, crown, bridge or denture is placed, there is being practiced either good or bad periodontal treatment. Permanent

replacements for the restorations removed may be deferred until the supporting tissues are again healthy. However, the restorations are placed immediately if the operator believes that such replacements will aid recovery of the supporting tissues. Bridges or removable partial dentures are usually contraindicated in the presence of questionable teeth remaining in the mouth. These conditions require individual and carefully arrived at judgment.

The treatment of any dietary deficiencies, first by artificial supplementation and eventually by correction of the natural dietary intake is now decided and carried out. If there had been clear-cut evidence during the examination of a gross dietary deficiency, this would have been corrected as the very first step in treatment. More often, however, there is a sub-clinical lack for which specific therapy aimed at correction can profitably be instituted at this time. Sometimes, however, the expected improvement in the tone and quality of the periodontal tissues does not occur. If we are certain of the thoroughness of removal of all local irritants, and if we are confident of the adequacy of the patient's home care, then the systemic examination should be painstakingly repeated. All consultations with the patient's private physician, nutritionist, or other specialists deemed necessary in checking for systemic disorders should be arranged. While it is no doubt true that local conditions act as the exciting cause of 90 per cent of the periodontal diseases, the general systemic condition of the patient plays a major role in the success of any treatment.

Attention is directed next to the correction of occlusal disharmony and the establishment of a gliding occlusion. Centric relation, protrusive excursion, protrusive position, and the lateral excursions should be brought into harmonious relationships. The major objective in equilibrating the occlusion should be to divide the stresses of occlusion among the remaining teeth in direct proportion to their capacity to bear the forces of mastication. In other words,

stronger teeth should accept the "brunt of the load" of mastication while teeth that have lost considerable attachment should not be overtaxed. Many cases, that have been successfully managed otherwise, fail ultimately because of insufficient attention to this simple, physical principle in treatment. It is advisable to observe and re-check an occlusion that has been equilibrated until a reasonably static relationship is established. Sometimes the shifting of the teeth following grinding presents new problems for correction within several days or weeks, later.

At this point in the treatment, all questionable teeth that have not responded favorably should now be removed. If at any time during the course of treatment a questionable tooth becomes hopeless, it should be removed without hesitation. In this way, unnecessary waiting for healing of the wound before replacement is avoided and the whole matter of complete mouth rehabilitation is enhanced.

Pockets that remain at this stage will usually have to be removed by surgery or chemical cauterization. It is not so important what method is employed for the removal of pockets as it is that they be carefully eradicated, whereby a hygienic condition is made possible. Whichever method of pocket removal is attempted, the success will depend largely upon the post-operative care by the dentist and patient while the tissues are healing at a new level. Frequently this step will have been performed immediately following the removal of local irritants. The determining factor here will be the judgment of the clinician as to whether local treatment alone might result in ample reduction or repair of the pocket areas.

It is essential that temporary and permanent stabilization of weakened teeth be effected wherever indicated. This procedure includes the replacement of missing teeth. Proper sharing of the occlusal load may often be attained by the judicious use of interlocking inlays, interlocking bridges,

and circumferential cast splints. When partial dentures are indicated, as many teeth as possible should be used in sustaining the forces brought to bear upon the appliances. Where the case was referred by another dentist, the patient is usually referred to him for this work with a careful prescription and explanation from the periodontist. (A consultation for this is best procedure.) The patient should be seen when this work is completed for the purpose of re-checking the occlusion and also the restorations which were placed.

A program for regular prophylaxes and periodic check-ups should be discussed and arranged before the patient is dismissed. He should certainly be apprised of the fact that his investment cannot be protected properly without regular dental care to prevent recurrence of the original condition. Furthermore, it is important that the patient be made to realize that the overall objective of treatment is not merely to arrest the disease process and restore the mouth mechanism to normal function, but to establish a general physical condition which will lead to a vibrantly healthier, happier life.

SUMMARY

An attempt has been made here to reveal our overall philosophy in the treatment of periodontal disease through a statement of

case analysis and treatment procedure. This procedure, too, has been set forth in steps in the order of usual importance. Too much stress, however, cannot be placed upon the need for constant flexibility in moving from step to step. The conditions of each case will determine whether occlusal equilibration is needed first, or whether immediate medical consultation is more urgent. It must be kept in mind that treatment of no single factor can cure periodontal ills; rather, it is the correction of all of the inter-related conditions which produced the disease, combined with a program of adequate home care to prevent its recurrence. This alone will result in successful periodontal therapy.

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Presented before the Philadelphia Society of Periodontology on October 27, 1953. Dr. Russell A. Dixon is Dean and Dr. Joseph L. Henry is Associate Professor of Periodontology of the College of Dentistry, Howard University.

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