

VERENIGINGSVERSLAGEN

VEREENIGING VAN NEDERLANDSCHE TANDARTSEN

SOME PRESENT-DAY ASPECTS OF TREATMENT OF PERIODONTAL DISEASES *)

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The establishment of an accurate diagnosis, on which treatment will be based, is essential. This is not always easy, but will be facilitated if certain points are kept in mind.

1. *The anamnesis.* This should be thorough, and should include all previous forms of dental treatment, especially periodontal and orthodontic, the family history, and any relevant medical history. In many cases a tentative diagnosis may be made on the history alone.

2. *The clinical examination.* This must be complete and *systematic*. It is advisable to follow a definite order of examination in order not to miss any features. Pocket depths should be recorded by suitably graduated probes.

3. *The use of radiographs.* In most cases, 14 films, together with two bite-wing films, suffice. A technique should be followed which will permit repetition, as far as humanly possible, as only thus can radiographs give an indication of the progress of the case. The use of calibrated radiopaque points, as described by Leonard Hirschfeld (1), gives most valuable information, to which reference will be made later. (Fig. 1).

4. *The use of models.* Plaster models also give much useful information, for example presence of plunger cusps, cusp interferences and so on. (Fig. 2).

5. *Colour transparencies.* Though not essential, they are of great value in assessing the progress of the case, again with the proviso that the photographic technique is capable of exact repetition. They have the additional value of educating the patient.

After a careful study of all relevant material, a diagnosis is made and a plan of treatment drawn up. This plan should be explained to the patient, with the aid of models and photographs of cases. The patient should also be given the prognosis, both with and without treatment. The probable duration of the active phase of treatment should be estimated, together with an indication of the number of visits to be incurred. Before the treatment proposed is finally decided, the patient must be made aware of the extent to which success will depend on his own efforts. This is of fundamental importance, and cannot be overemphasised.

This leads directly to a consideration of what will be, in the majority of cases, the first phase of treatment — the removal of deposits, and the institution of good oral hygiene measures.

In general, a multiplicity of therapeutic measures indicates that none of them is especially or wholly effective. Certain forms of treatment advocated have been,

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to say the least of it, unusual and empirical. There have been injections into the gums (supplemented by preparations for oral administration) of extracts of foetal jaws etc., autohaemotherapy, placental implants, vaccines, and many toothpastes claiming or inferring that they cure pyorrhoea.

These various general measures have all been alleged to be successful in the treatment of periodontal diseases, but one must remember that *almost invariably* they have been accompanied by certain local measures; I refer to oral prophylaxis — scaling and polishing of the teeth, and the institution of a regime of oral hygiene. In describing the wonder treatments just mentioned, the authors quite often refer to the preliminary measure of scaling as having been carried out and yet are prepared to attribute all their success to the general therapy!

If I dwell for a moment or two upon scaling, curettage and polishing, it is not because these are in any way novel, or that there are new ways of carrying out these measures, but because they constitute unquestionably *the* most important single measure in periodontal therapy.

The detection of calculus is facilitated by a suitable explorer. One of my own design (CROSS 2), somewhat similar to a very fine hoe scaler is shown in fig. 3. Scaling instruments may be divided into *supra-gingival* (or coronal) including sickle and push scalers, and *subgingival*, including hoes, curettes, files. Some sickle scalers are also capable of removing superficial subgingival calculus.

One further point in connection with the use of scaling instruments — *they must be sharp*. I know of no better method than sharpening them on an Arkansas oilstone. It is worth bearing in mind that instruments fresh from the manufacturer are not invariably as sharp as they should be.

Scaling alone will accomplish, often very rapidly, the most dramatic results. It is valuable to demonstrate this to the patient by scaling one half, or one quadrant, of the mouth at a time.

Curettage is an operation which may be technically as difficult as almost any in the field of dentistry. Much experience may be required in order to curette successfully certain deep, serpiginous or complex pockets. It is quite clear that the instruments concerned require to be fine and slender, with a small blade, but nevertheless there have been, and still are, many instruments which are ludicrously gross. Our American colleagues have developed some very beautiful fine instruments. JENSWAERHAUG (3) has shown that the mean distance from the bottom of the calculus to the bottom of the pocket was 1.16 mm. where the bottom of the pocket was situated below the enamel-cement junction. In 3% of cases the distance was 0.1—0.4 mm. It follows that the blade of any instrument designed to remove such calculus must be shallower.

There has in the past been a certain amount of discussion as to whether it is possible for reattachment of soft tissue to the root to occur. Some, on theoretical grounds, it appears, urge that this is impossible, e.g. FISH (4) who states „There was at one time some talk of reattachment of the epithelium to the tooth, thereby closing the pocket. This is a physiological impossibility. If a healthy gum margin is surgically detached from the tooth some degree of reattachment can be secured in the deepest part of the lesion, but it is impossible to secure reattachment of inflamed gum to the infected surface of a tooth, even if that surface could be completely curetted, which of course is impossible.” On the other hand many periodontists believe that it can and does occur, and reattachment has

been demonstrated histologically on several occasions. As Glickman (5) says, „Emphasis on the problem of ‚reattachment’ should be shifted from controversy regarding whether or not it can occur, to consideration of factors influencing the extent to which it occurs, and to exploration of the clinical procedures whereby maximum reattachment may be obtained.” And as Beube (6) says, „Despite the lack of a large number of cases showing formal proof of reattachment, through histological examination of human teeth and attachment apparatus, soft tissue curettage is nevertheless recommended as one of the initial procedures in the treatment of periodontal pockets, because this method has successfully removed pathologic tissue, resulting in pocket closure and new bone formation, as seen radiographically. These beneficial changes have improved the health and function of these teeth, and the question of whether new cementum and periodontal membrane have also been formed becomes an academic question and of relative unimportance to the clinical problem”. *Recently, however, conclusive histological evidence of reattachment has been given by Schaffer and Zander* (7).

Let us then accept curettage as one of the fundamental methods of periodontal treatment and ensure that by utilising the procedure for those cases for which it is indicated, the chances of success are high. Where the gum is flabby, soft and readily displaced from the tooth, the chances of successful pocket closure are small. Similarly, if any trace of either calculus, crevicular epithelium or epithelial attachment remains, no reattachment can occur. A technique has been advocated by Shapiro (8) in which a modified gingivectomy is simultaneously accomplished; the epithelium is bevelled away obliquely, thus giving, as it were, a flying start for the clot in the pocket to organise without interruption. This has also been advocated by Beube (9). The use of an alkaline hypochlorite solution, ‚Antiformin’, combined with curettage, has been advocated by Box (10). Pockets which were to be excised by gingivectomy were treated in this manner, the gingivae subsequently being sectioned and examined; about the same proportion of specimens examined, whether treated by ‚Antiformin’ or by curettage alone, showed *some* traces of epithelium present.

Pocket elimination

It is sometimes a problem to decide whether pocket elimination should be carried out first, or whether a balanced occlusion, perhaps in conjunction with splinting, should be the primary consideration. In general, it is wise to eliminate pockets first. Sometimes granulation tissue is present, causing displacement of teeth, and the teeth concerned return after pocket elimination to their correct positions. In such cases, occlusal correction by selective grinding would be harmful.

Nevertheless, there are cases in which occlusal adjustment, even the establishment of disocclusion, is necessary as a first step. Such cases are periodontal abscesses, and cases where there is marked mobility of teeth. In such a case recently treated, to have attempted curettage before balancing the occlusion and securing fixation would have made any pocket reattachment hopeless, and probably endangered the pulp of at least one tooth.

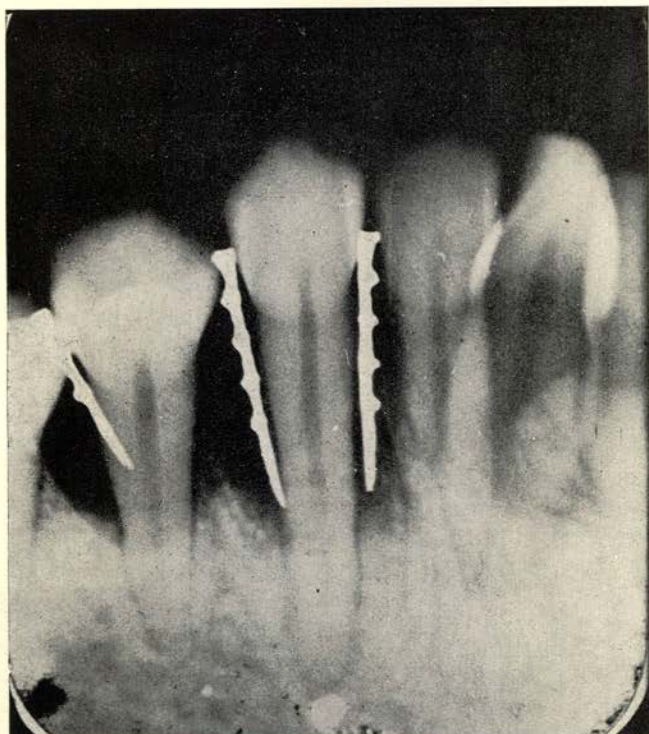


Fig. 1. Hirschfeld calibrated silver points in position. 12 mm. pockets mesially and distally $\frac{3}{4}$, about 6 mm. of total depth being intrabony

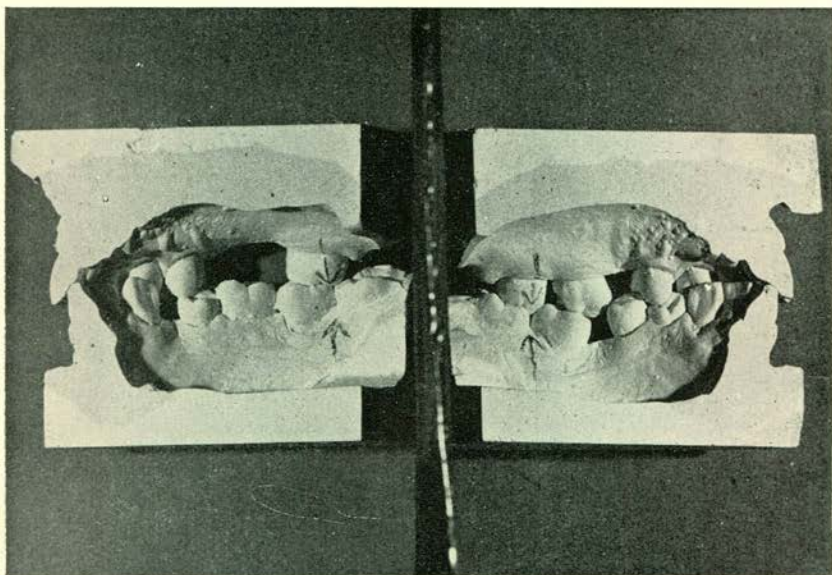


Fig. 2. Use of models to disclose plunger cusps

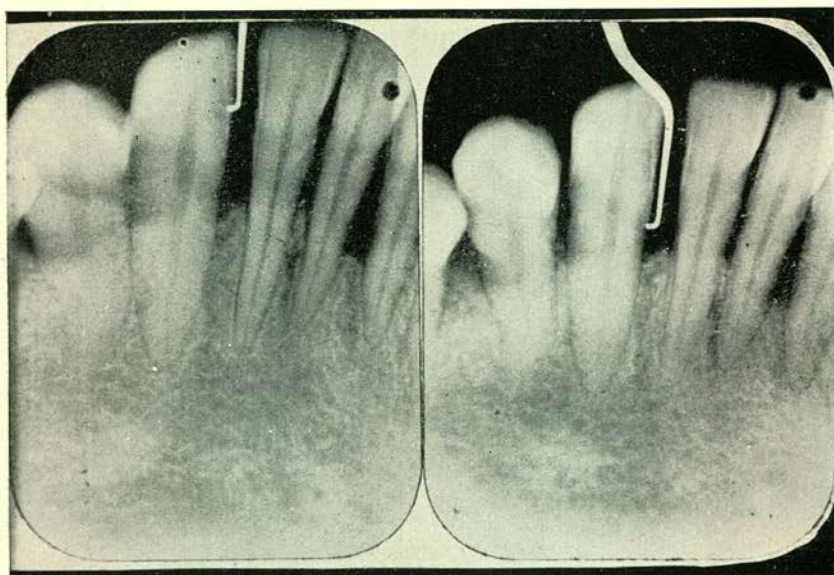


Fig. 3. Use of Cross calculus probe to define extent of calculus. Left - upper limit; Right - lower limit

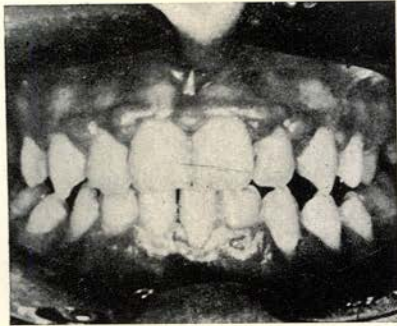


Fig. 4. Gingival hyperplasia - before gingivoplasty

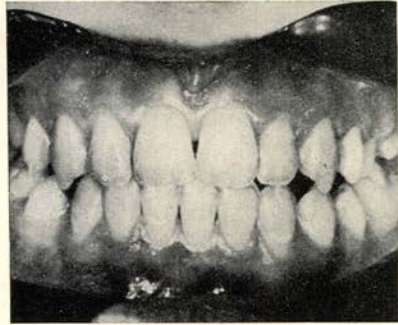


Fig. 5. Gingival hyperplasia - after gingivoplasty

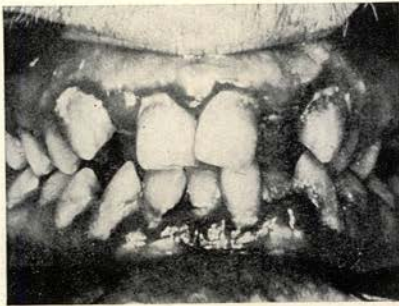


Fig. 6. Malocclusion, poor oral hygiene and chronic marginal gingivitis. Before orthodontic treatment

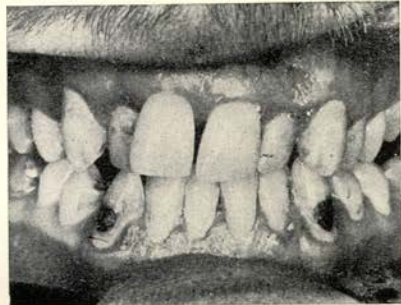


Fig. 7. After orthodontic treatment



Fig. 8. Chrome cobalt steel splint for loose lower anterior teeth - centric occlusion

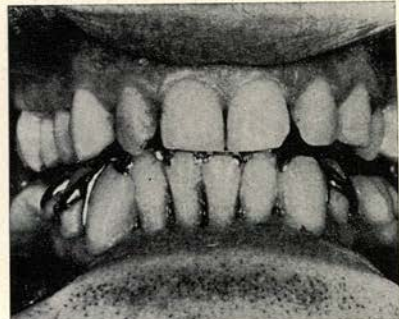


Fig. 9. Protrusion - showing limited amount of splint visible

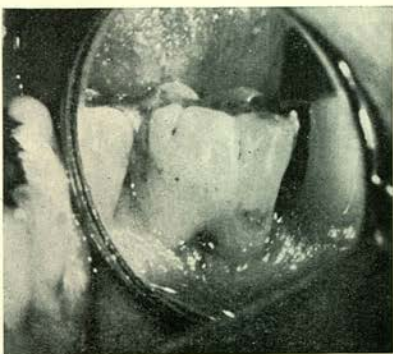


Fig. 10. Bifurcation involvement - treatment by inter-radicular curettage and gingivectomy



Fig. 11. Same case with interdental stimulator in position



Fig. 12. 10 mm. palatal pocket in root filled 6



Fig. 13. Same case six months after resection of palatal root

Methods of pocket elimination, other than by curettage

These may be by pressure packing, gingivoplasty, gingivectomy and flap operation. Pressure packing may be by wax (Dunlop technique) or by cement pack. It is a valuable adjunct to scaling and will reduce such gingival enlargement as is due to oedema and inflammation. It is important to remember that after 24—28 hours the pack becomes loose, owing to the tissue shrinkage, and requires replacement.

Gingivectomy and gingivoplasty are the most frequently used surgical procedures in periodontal treatment; the technique for these procedures has been frequently described, and each individual operator has his own slight modifications. Of the many knives in use for the operation, that designed by my colleague, Blake, has much to recommend it. It consists of a shaft terminating in a slotted head. The slot is just wide enough to receive standard Bard Parker, Swann Morton and Gillette scalpel blades, Numbers 11 and 15 being the ones principally used. It has the advantages of razor sharpness and accessibility to all areas and facilitates a long bevel for the incision. The initial incision is made with the No. 15 blade, the interproximal gum begin separated by means of the No. 11.

Most periodontists at present use a surgical pack or dressing similar to Ward's original „Wonderpack". These packs usually contain zinc oxide, asbestos fibre, tannic acid, resin, and are mixed with eugenol or a proprietary impression paste. It is essential that the pack be forced through each interdental space and left firmly in contact with the wound surface. It is left in position for a week.

As an adjunct to the surgical knife, a high frequency electrosurgical instrument is invaluable. It is particularly useful for the final contouring of the gum margins, and the production of sluiceways to clear food which otherwise impinge on the gum.

The accompanying photographs illustrate some cases before and after treatment. (Figs. 4, 5)

The flap operation

This is indicated in the treatment of the periodontal abscess, in intrabony pockets not suitable for treatment by simple curettage, complicated pockets, and certain bifurcation involvements. The principal reason for its employment is that it gives good access and visibility to the area under consideration. B e u b e (11) has advocated the use of bone powder for flap operations, in that it helps to act as a scaffold for new bone formation. Cemental scrapings act similarly. (Z a n d e r (12)).

In any operation in which reattachment is attempted, the incorporation of a modified gingivectomy as described by S h a p i r o (8) in order to delay the epithelium from entering the former pocket area seems good policy. The removal of bone in flap operations is indicated at times, in order to facilitate contouring. It is not necessary to remove any bone which is giving active support — in fact, this is contra-indicated.

Perhaps in the past we have been too little aware of the possibilities of orthodontic treatment for periodontal cases. Malocclusion and traumatic occlusion are

common predisposing conditions to periodontal diseases, and much may be done by means of appliances. Some years ago there appeared to be a rather general idea that orthodontic treatment was to be limited to children — no treatment over the age of 20 or so. But treatment of patients considerably older may be entirely satisfactory, some patients in their forties having been successfully treated. (Figs. 6, 7). To move teeth in adults may take a little longer, but the two major factors are economics and aesthetics.

Antibiotics

Acute ulcerative gingivitis responds well to Penicillin. My preference is for Penicillin chewing gum for the ambulant, apyrexial patient, and Penicillin parenterally for the patient with a temperature who ought to be in bed. The chewing gum should be prescribed for 48 hours only — three pieces a day for two days, each piece being kept in the mouth for five hours, and the last piece of the day being retained during the night.

Acute herpetic gingivo-stomatitis responds in some cases to Aureomycin or Terramycin. In others there is apparently no benefit. These antibiotics may be given orally, or topically as a cream.

Antibiotics are also valuable in the initial treatment of the acute periodontal abscess, to control the occasional postoperative infection of gingivectomy wounds, to prevent secondary infection where deep curettage or flap operation is being carried out with reattachment in view, and as a prophylactic measure prior to any periodontal surgical procedure where the patient is known to have had rheumatic fever or cardiac valvular disease.

Bite rehabilitation is increasingly being utilised in periodontal treatment. This involves, in the first place, a careful study of the occlusion — a bite analysis (Lindblom (13)), often coupled with X-rays of the temporo-mandibular joints. Bite rehabilitation may necessitate orthodontic treatment, restorations of occlusion by means of fillings, onlays, bridges, partial prosthesis and the final correction of the occlusion by selective grinding.

Selective grinding has been advocated for nearly 40 years (Stillman (14)) but the emphasis on the procedure has increased progressively during the period 1935 to the present day. It has incurred some opposition, but although not as widely used as it should be has yielded the most dramatic results in number of cases, and is a procedure without which no periodontist can be truly competent. It is of value not only in the treatment of an established malocclusion or traumatic occlusion, but as a preventive measure. (Cross (15), Holst (16)). Interfering cusps may be reduced in order to facilitate lateral or protrusive excursions, and indeed some orthodontists consider this procedure an essential supplement to their treatment, when stability has been reached.

Splinting

Occlusal correction alone may be insufficient when excessive mobility is present, and it may be that as improved and easier methods of securing immobilisation are developed, they will be applied earlier rather than later.

The principal methods now used are:

1. Stainless steel wire.
2. Cast stainless steel or gold removable splints. (Figs. 8, 9).
3. Acrylic removable splints.
4. Soldered inlays, onlays, bridges, etc. — fixed splints.

Finally I turn to a few special problems.

Bifurcation and trifurcation involvements.

These are quite common, and are diagnosed clinically, sometimes by radiography only. Well before a diagnostic probe can be placed into the bifurcation, however, there will be microscopical evidence of inflammation, and abscess formation may occur.

It has been stated (Miller (17)) that the prognosis in these cases is hopeless; others (Mc Call and Herzog (18), Glickman (19)) do not subscribe to this view, and in my experience many such cases may be successfully treated.

- a) Earliest radiographic evidence of involvement (thickening of periodontal membrane space in bifurcation area. No treatment usually required.
- b) Clinical involvement; probe enters the area from one or other root surface. Treatment — gingivectomy. If the involvement is fairly deep, pack with zinc oxide paste.
- c) Advanced clinical involvement; probe enters from two or more surfaces.
 - (i) Bifurcation of molars — inter-radicular gingivectomy, curettage, then use of wood points. (Figs. 10, 11).
 - (ii) Trifurcation — gingivectomy, or flap operation, and curettage. Zinc oxide paste if area cannot be made accessible for cleaning by patient. (Figs. 12, 13).

Intrabony pockets

The use of the Hirschfeld point is invaluable in assessment of these. They cannot, clearly be treated by simple gingivectomy alone, as this cannot excise the pocket completely. Glickman (20) suggests a horizontal incision, then a vertical one, the latter being in the pocket itself, to cut away the intrabony crevicular epithelium. This is surely more practicable with a curette, for it is impossible to place an ordinary small scalpel blade in the majority of intrabony pockets.

The treatment advocated is, therefore, curettage for the intrabony pocket with narrow orifice, and curettage, flap operation, and often removal of bone for architectural reasons for a pocket with wide orifice. Flabby soft tissue should also be excised. This is one of the few occasions when removal of bone is possible. As Copes (21) so rightly says, „Het wegnemen van bot mag dan ook alleen geschieden om architectonische redenen, met andere woorden wanneer de vorm van de door de operatie ontstane wond aanleiding zou geven tot recidief”.

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CONTRIBUTIE 1954

De Penningmeester van de Vereeniging van Nederlandsche Tandartsen vestigt de aandacht van de leden op het feit, dat volgens art. 8 van het Huishoudelijk Reglement de contributie over het lopende jaar (f 15.—) dient te worden overgemaakt in de maand Januari. Zij, die na 1 Juli 1953 lid zijn geworden, betalen de halve contributie. Het gironummer is 38178, ten name van de Penningmeester: L. V. Arnold, Dennenlaan 4, Hilversum.