

ated with acute conditions or with the presence of agents of offence, treatment directed to meet the indications may result very well; but commonly such recession is slow and chronic, and admits of no remedy. Medicaments to neutralize or correct irritative conditions in the oral fluid are sometimes demanded, and answer a very good end. Of such neutralizing agents, acids or antacids are employed, according to the indications yielded by the test-papers; generally lime-water in the one direction, and very-dilute citric acid in the other.

A treatment for absorption of the alveolus consists in scraping the absorbing bone, precisely as is done in osseous caries. This is to be accomplished without difficulty by introducing between the neck of the tooth and gum the common lathe-shaped excavator, which, upon reaching the alveolus, is made to cut away the surface surrounding the tooth. Dr. Riggs, of Hartford, recommends instruments especially prepared for the purpose, but any kind which is capable of meeting the indication answers the purpose of the suggestion. Such an operation has, in theory, much to commend it; in practice, however, the benefit accruing is not by any means all that is to be desired. To receive good results from freshening the alveolar edges one is to do the operation only where indicated,—a selection which it requires much experience to make. To freshen the bone, as a majority of the cases is concerned, is to expedite the falling of the teeth.

A character of recession of the gums from about the necks of the teeth, or, to express it better, a condition in which the teeth are raised in their sockets, and where a cure is impossible, is found as the result of a growing density in the structure, in which the equilibrium of circulation between these organs and surrounding parts becomes so deranged that they are as foreign bodies, and the recession really implies a filling up of the alveoli by an osseous deposit with the object, on nature's part, of their removal. In these cases the teeth will seldom be seen affected by caries, being dense to an extent which is cognizable to the naked eye.

Recession arising from the employment of non-soluble dentifrices is frequently to be met with. Such condition is recognized from the history of the case, from the presence of particles of the substance of offence, and from the disease seeming to implicate the gum alone. Such cases have their cure in withdrawal from use of the injurious agent, in the free syringing of the part with a medicated water,—stimulation being required,—and in effecting the contraction of the turgid gums by free bleeding secured through occasional scarification.

CHAPTER XIII.

THE TEETH AND THEIR DISEASES.

PERIODONTITIS.

THE importance of the disease known as Periodontitis commands for its consideration, in a work on Oral Surgery, a special chapter.

Periodontitis, peridentitis, pericementitis, dental periostitis, as the condition is variously designated, implies inflammation of the membrane associating the root of a tooth with its alveolus. (See *Peridontium*.)

Periodontitis, like inflammation in general, may exist either in a condition of activity or chronicity.

The active form is most frequently found as an expression of direct local irritation; the chronic, as a result of systemic influences.

Acute, or active, periodontitis, if not resolved, or aborted, has a history which associates it with parulis. The inflammation commences commonly with a dull, heavy gnawing in the parts affected: this is the signification of simple vascular excitement. As the grade of the trouble advances, pain increases with it. The tooth seems to the touch of the patient to project beyond its fellows, and really does so. Occlusion of the jaws gives pain, which pain so grows in severity that the whole attention of the patient becomes directed eventually to the avoidance of contact. Finally, when not arrested, the action goes on to a suppurative condition,—the state of abscess; and the pus, discharging through a sinus which it creates for the convenience,—generally opening upon the gum opposite the diseased point,—establishes the condition of parulis.

Chronic periodontitis—subacute, as it might with as much propriety be termed—has a history markedly distinguishing it from the sthenic form: its causes are manifold. Mercurial ulitis is perhaps the most frequent. Scorbutus is a common cause; being abundantly expressed in every neighborhood where much pork is eaten to the exclusion of a mixed diet. Many cases have origin from the exanthems: of such causes scarlatina seems the most provocative; rubeola follows this in frequency. The phosphoric impression, as seen in connection with the workmen of match-factories, is a cause familiar to most surgeons. Neuralgic associations certainly beget irritability in the periodontal tissue, and, in cacoplastic states of the blood, may degenerate the nutritional changes. Rheumatism and gout, as toxical conditions, are frequently found from clinical experimentation to be the irritants supporting a

resisting periodontitis. Uterine reflections, those particularly from the menstrual relation, are other causes. Age is a common cause,—old people losing their teeth by a degenerative condition of this membrane, which allows the organs to drop out; or the same result is found frequently to coincide with tubular consolidation of the fangs, the excess of nutritional work thrown thus on the periodontium exhausting finally the capability of the membrane. Tartar is a common and frequent cause of periodontitis.

Chronic periodontitis—existing as a primary form—differs diagnostically from the acute condition in the absence of a sthenic expression. The tooth or teeth affected grow sore, tender, and elongated, but the progress is so slow as not to make the offence of sufficient import to the comfort of the patient to invite any vigorous antagonism, the expression commonly being that associated with the chronicity so frequently succeeding the acute form; the parts are recognized to be in the state of disease, but the condition is sufficiently bearable to be endured.

The acute and chronic forms of periodontitis find constantly a combined relation. Thus, the constitutional offences are found capable of provoking the active condition, while local offences, as instanced in salivary calculus, conjoin not infrequently with the chronic state.

Chronic periodontitis, except as associated with the acute form of the disease, is not found to tend to parulis, but when degenerating to the formation of pus, has the discharge about the neck of the diseased tooth or teeth.

The importance and frequency of periodontitis rendering the condition one most necessary to be thoroughly understood, advantage may be taken of the present and succeeding chapters to direct attention to the subject in a required detail.

First and most commonly, it will be seen that the acute form of the condition depends on preliminary disease in the dental pulp, that organ, being in a state of profound inflammation, affecting the periodontium by its continuity of relationship, or otherwise being dead, proving the source of offence by its post-mortem changes and influences. In any and every case of acute periodontitis which presents itself, whether exhibiting the first expression of a scarcely noticeable uneasiness, or the tooth being so elongated and tender as to render the slightest touch unbearable, attention is to be directed to the condition of the pulp-cavity. If this, as is frequently the case, be found open, and the pulp dead or absent, then it is at once—no evidence of other vice, either constitutional or local, being seen—to be inferred that the trouble is that of a sthenic, free inflammation, demanding for its relief common anti-phlogistic medication.

Where a pulp-cavity is found closed, the tooth being undecayed, or otherwise having in it a filling, a first indication directs an opening into the chamber, no hesitation being necessary, as in perhaps all instances where a tooth has become thus tender to the touch, the pulp, if not actually dead, will be found in such a state of congestion that its destruction has been in-

ured. If, however, it be desired to attempt an abortion both of the pulpitis and periodontitis, the plan suggested of uncovering the organ will be the wisest that is to be pursued, as thus depletion is to be practised with the most immediate effect, and medicaments find direct application. Instances, however, present—and these are much the most numerous—where the periodontitis depends on a preliminary operation in which the pulp of the tooth has been purposely destroyed and removed, its place being occupied by metal as in what we are to study as a root-filling. Here it is not unlikely the trouble depends simply on an excess of work thrown upon the periodontium from the abstraction of the pulp life; or it may be that the tooth is unable to endure the thermal changes resulting from the presence of the filling material; or perhaps some particle of the pulp was not removed, which, disintegrating and decomposing into its gaseous elements, has provoked the inflammation through pressure upon the parts about the foramen; or, still again, it may be that a slight twist of the cotton or gold, or whatever may have been used to fill the root, has been forced through the foramen. The consideration of a condition of this nature calls always for the exercise of individual judgment aside from ordinary rules. If a pulp-cavity has been well and scientifically treated, it would scarcely seem necessary or desirable to undo what had been done; as having been properly done, with all collaterals considered, it is not to be esteemed that undoing and doing over would improve matters. We would therefore naturally consider the periodontitis as the lesion, and consider this alone. If, on the contrary, there be doubt as to the perfectness of the operation,—if there be reason to infer that any portion of the pulp remains in the cavity, or that a twist of the filling has passed the foramen,—then a first indication lies in such direction.

Accumulation of tartar provoking periodontitis would not be difficult to distinguish, and the indication for its removal would be self-suggesting.

False occlusion, another cause of periodontitis, calls alone for its appreciation to an observation which considers the common articulation. A tooth which, from any reason, strikes prematurely, is certain to succumb to the irritation if the offence be continued for any length of time. In such relation, the condition of newly-placed fillings is to be considered. A plug is never to afford the feeling of special contact. When a filled tooth becomes sensitive in its periodontium, attention is first wisely directed to its articular relations; should the metal be unduly prominent, it will, most likely, be at once remarked through an indentation seen upon its face. Should such indentation not exist, the surface may be rubbed over with a little pulverized pumice-stone, so as to deaden it: the contact of the opposing tooth, if now it unduly touch, will distinguish itself by a polish produced.

Teeth unduly occluding from false articulation are to find remedy in the file or disk, which is to cut away from the unaffected organs (or, if seemingly necessary, from the one which has expressed the irritation) such portion as shall remedy the defect.

Still another cause of periodontal inflammation, not infrequently met with, exists in accidents arising out of the use of escharotics, which, having been applied to a cavity for the destruction of the dental pulp, have escaped and fallen around the neck of the tooth. A similar result has ensued

FIG. 86. from application of caustics to the gum for the arrestation of mucous oozing, or of hemorrhage. Still again has such inflammation been provoked by ligatures used with the rubber dam, or by forgotten rings of rubber tubing or thread. In Fig. 86 is exhibited a ringed tooth, where the cause of a defying abscess was discovered only after extraction. The relation of ring and tooth here shown is just as when removed from the mouth.



Still another cause of periodontitis, one happily likely to be of very limited duration, is found in the process of wedging. All teeth are made more or less sore through this manipulation, and the soreness expresses inflammation. Such wedging, however, employed in the mouths of old persons, or with those of bad constitution, may well result in the necessity for a medication, aside from the removal of the cause exciting the trouble.

Taking it for granted that any and all existing sources of irritation have been removed, an acute periodontal inflammation, taken in time, may in nine out of twelve cases be aborted as follows. Pass a lancet several times through the gum down to the alveolus; let the patient hold water in the mouth, so as to prevent the formation of clot, and provoke free bleeding; as soon as the vessels and capillaries have disgorged themselves, paint the parts with tincture of iodine. The philosophy of this treatment is sufficiently evident not to need explanation.

A routine plan followed commonly with satisfactory results in incipient periodontitis is as follows:

Place the feet of the patient in hot water. Apply just in front of the ear a fly-blister the size of a silver dime piece, and upon the nape of the neck a second, the size of a silver dollar. Administer internally twenty-five grains of the bromide of potassium, having combined with it five drops of the tincture of veratrum viride,—this combination to be repeated in four hours, if relief be not sooner obtained. Lance the gums freely with a very sharp lancet, and afterwards keep cotton applied saturated with tincture hamamelis, or this medicine combined with lead-water. This treatment, if all local cause of offence has been removed, will seldom fail in securing a satisfactory result. It is found well to retain the feet in the hot water until a patient grows faint or breaks out into a perspiration. In the plethoric, in addition to the above course, half an ounce of the sulphate of magnesia may be given in a gobletful of water.

In the employment of arterial sedatives in periodontitis, as in an inflammation of any other part, regard is always to be had to the condition of the pulse, such medicaments being alone indicated in the sthenic conditions, and

acting here with an efficiency and influence sometimes quite magical. Of such sedatives few seem possessed of the virtue of veratrum viride. I am well satisfied that it is in very many cases all that is needed in the treatment. Hydrate of chloral is another of this class of agents highly commending itself. That it, however, possesses sedative qualities dangerous in extent is scarcely to be doubted. To commence its exhibition in doses of not over seven grains is to err on the safe side.

As adjuncts, leeches are occasionally employed with great benefit. If the inflammation be associated with the lower maxilla, these may be applied below the jaw; or, if objection be not made by the patient, they may be used directly to the gum. Great care is required that they do not escape and get down the throat. Salt water kills them.

A very simple plan of treating incipient periodontitis, one which will frequently be followed by immediate relief, consists in making a minute blister upon the gum overlying the affected root, through an application of a saturated solution of iodine. Lead-water and laudanum, as used so commonly in general surgical practice, is found a valuable refrigerant lotion to an inflamed periodontium. It is applied on a pledget of cotton placed between the gum and cheek. A satisfactory combination is as follows:

R.—Plumbi acetatis, ℥ss;
Tincturæ opii, ℥ss;
Aquæ, ℥vi. M.

Another and a most admirable plan of treating incipient periodontitis consists in the application of dry cups to the side of the face; this plan can scarcely be too highly commended.

To protect the affected tooth from contact with its neighbors, resort is to be had to a cap placed over adjoining organs. To this end, gutta-percha is commonly employed, being easy and instantaneous of application, requiring alone that a piece of the material about an inch square be softened in a flame and moulded over the parts, a mouthful of cold water hardening it into the required resistance. An instrument, however, more delicate, is found in a cap of silver, as devised by the late Dr. J. H. McQuillen. (See Fig. 87.) Such a cap is quickly made by the mechanical dentist, he requiring alone an impression of the tooth or teeth proposed to be covered, and which is secured in a moment by means of a small lump of softened beeswax.

FIG. 87.



Metal cap.

An acute periodontitis resisting the various means here suggested, the attack increasing in severity, the surgeon finds himself compelled to abandon antiphlogistics, the indication being to advance the condition to the suppurative point as quickly as possible. To this end, heating and exciting medicaments are required; warm water is to be held in the

mouth, or a weak dilution of the tincture of capsicum may be employed; about twenty-five drops to an ordinary-sized goblet of warm water will be found sufficiently stimulating. The domestic application of a roasted split fig to the gum increases the heat of the parts and invites suppuration to the surface to which it is used. Pursuing a natural course, the periodontitis ends in the formation of pus and the establishment of alveolo-dental abscess.

CHAPTER XIV.

THE TEETH AND THEIR DISEASES.

ALVEOLO-DENTAL ABSCESS.

PERIODONTITIS, or inflammation of the alveolo-dental membrane (considered in the previous chapter), when not resolved, has as its other termination, as there suggested, alveolo-dental abscess. To this condition, as a distinct one, attention is now to be directed.

Alveolar, or alveolo-dental, abscess has, of course, the history of an inflammation and suppuration anywhere in the body, having nothing peculiar to its history, except as special features associate with the anatomical characteristics and influences of the parts involved. It is a condition in which a tooth, diseased to the suppurative point in its enveloping membrane, or periodontium, is discharging, through some convenient orifice of exit, pus secreted by or formed in such membrane.

The local features of alveolar abscess are to be described in a very few words. At the apex or somewhere about the root of the affected tooth, a degenerative thickening of the membrane occurs,—pyogenic membrane, as it was termed. (Fig. 88.) This, a diseased condition of the part, becomes shreddy and stringy, failing to organize the lymph constantly exuded or effused by it. The degeneration of this lymph is pus. As such membrane grows thicker and softer, and such pus accumulates, it becomes evident that space and vent are made necessities; thus absorption, through the pressure, is effected, and the matter, sooner or later, influenced in the direction it takes by the vulnerability of the surrounding osseous parietes, finds egress, giving generally that peculiar fistule in the gum, known as parulis, or gum-boil. The morbid process exhibited in an inflamed root-membrane consists in the accompaniment of the hyperæmia by a hyperplastic state of the tissue-cells, these cells increasing not only in number but in size. In this change it is that we find the explanation of the shreddy periodontium seen more or less markedly upon all abscessed roots.

A recognizable hyperæmia is not, however, a necessity for the excessive proliferation of connective-tissue cells; hence it is that epulic tumors frequently have origin in such hyperplasticity of the odonto-alveolar periosteum where expressions of vascular change have never been observed.

The formation and confinement of pus in a cavity so obstinately closed as

FIG. 88.



Shreddy sac of tooth abscess as met with in dental parulis.