

tion. The field is one inviting wide and generous competition. It is to be added, however, in conclusion, that the experience of the writer favors treatment of palatine defects by operation in all cases where such means applies. It is to be suggested, at the same time, that failures are, and will not unlikely continue to be, multitudinous. In a succeeding chapter the matter and manner of surgical operations upon the parts will be found fully considered.

## CHAPTER XXXII.

## THE GUMS AND THEIR DISEASES.

THE gums are simply an amount of fibro-cartilaginous tissue (the fibrous element predominating) placed as protecting cushions about the alveolar processes. The neck of each tooth is closely enveloped by a dental pit of this cushion; the mucous membrane, which covers the common surface, being reflected around the pit and rendered continuous with the periodontium of the organ.

The gums, in a healthy state, are remarkable for their insensibility, bearing, with very little or no response, the pressure and irritation to which, in the process of mastication, they are so continuously subjected. The mucous membrane, of which this tissue is largely made up, is very heavy and thick as compared with its continuity in other parts of the alimentary canal, and is underlaid by a network of vessels, which leads it to be esteemed of considerable vascularity as reference is had to operations involving it.

Inflammation is the disease of the gums; but such perverted vascular action, here, as everywhere else, has quite a variety of significations. These significations are—

1. Accumulations of tartar.
2. Periodontitis.
3. The mercurial impression.
4. Scurvy.
5. Syphilis.
6. Dead or loose teeth.
7. A crowded dental arch.
8. Use of improper dentifrices and brushes.
9. Improperly inserted artificial teeth.
10. Malignant impressions.
11. Anomalous conditions.—Neuralgia. (See *Neuralgia*.)

A comprehension of the diseases of the gums is found in the appreciation of these various conditions or influences.

1. **Accumulations of Tartar.**—Salivary calculus, a deposit from the saliva, combined with the various oral detritus, when attached about the necks of the teeth, becomes necessarily a source of offence, provoking inflammatory action, the grade of which is marked by the general condition of the individual. The most common type of inflammation thus induced is the chronic degenerative. The tartar, pressing upon the gums and insinuating itself about and around the necks of the teeth, soon interferes to such extent with

the proper circulation in the part as to yield the puffy, turgid condition so familiar in most of the cases. The mucous follicles associated with the dental pits have, of course, their secretive ability soon destroyed, and thus nothing prevents the insinuation of particles into these pits, and a consequent increase in the agency of offence. This irritation, uncombated, gradually progresses until the teeth become loosened and fall out, when, carrying with them the tartar, the parts recover.

All deposits, however, existing under the common name of tartar, or salivary calculus, do not have such a destructive history. Thus, it is very common to observe a greenish discoloration, particularly upon the teeth of the robust and uncleanly, which, so far as is observed, seldom results in any particular harm: it is æsthetically offensive, however, and is credited by many with being a corroder of enamel. Another kind, the black, rarely exists but in very limited amount, and as rarely or never does greater ill than slightly irritating the festoon; its situation is commonly the lingual face of the inferior teeth. It does happen, however, that this description of tartar, or something very analogous to it, is sometimes provoked, as it were, in depraved constitutions, to extensive deposit; it is a kind of mixture or agglutination related with sordes. The gums, very much depraved from a constitutional influence, are irritated not infrequently by this deposit into a state very little short of gangrene; the breath is made offensive, and the oral fluids, by admixture with the offensive mass, are rendered entirely unfit to be received by the stomach. The first two conditions of these stains, or deposits, if attempted to be removed with instruments or by means of pumice-stone, offer great resistance, but, as has been discovered by Dr. Dorr, a preliminary touching with tincture of iodine softens them most happily.

Yellow tartar, the deposit of the bilious and allied temperaments, is the kind most generally met with, and, as a rule, is most destructive to the integrity of the alveoli and gums. It is not at all uncommon to find this deposit of such extent as to inclose in a common mass half a dozen or more teeth, while its power of insinuation and destruction is so great that, before attention may have been directed to the process, the pits will be found destroyed and the teeth ready to drop from the mouth. The writer has, in his own practice, frequently been consulted in these cases, where nothing was of any avail but the removal of the implicated teeth. This description of calculus is evidently a direct deposit from the saliva, its situation corresponding with the location of the salivary orifices. It is found associated with a sluggish condition of the secretive action of the glands, and its reliable prophylaxis rests with their stimulation. This tartar has a rough, dry surface, and is generally easy of removal; flaking away in masses at the slightest touch of the instrument. The effect of its presence upon the gum is to force it away from the teeth, or rather, it might be more correct to say, to lift the teeth from the gums and their alveoli, destroying entirely any relation of attachment between the parts. The gums themselves, under its irritating influence, become puffy and soft,

and so tender occasionally as to render, in many cases, unbearable the ordinary pressure exerted in mastication, so that the patient is compelled to subsist exclusively on soft food, or to employ other than nature's process of comminution. (See chapter on *Salivary Calculus*.)

2. **Periodontitis.**—Ulitis arising out of periodontitis is not at all difficult to distinguish; it corresponds in character with the primary lesions in being acute or chronic. If a tooth be acutely inflamed in its periodontium, it is sore to the touch, and elongated. If it be chronically inflamed, it is loose or discolored. Inflammation in the gum is simply an inflammation of continuity. If the patient be in good health, the action is circumscribed; if the reverse, it will of course influence. To treat such an inflammation, the health of the tooth or teeth is to be restored. An inflamed periodontium is commonly associated with a dead pulp; this is the first source of offence for which the practitioner looks. If such a condition be found, and no cavity of communication exist with the pulp-canal, it will, in nine cases out of ten, only be necessary to make such communication, and the trouble quickly disappears. Tartar is the frequent source of chronic periodontitis. Fish-bones, or other foreign bodies, forced into the membrane in mastication, excite inflammation.

Acute periodonto-ulitis uncontrolled ends in parulis, and from such acute termination is very apt to pass to chronicity. Chronic ulitis presents the condition of continued turgescence, soreness, loose teeth or fangs; suppuration frequently occurs at the seat of the original abscess, and sometimes from the affected alveolar pits. Its cure, like that of the acute condition, resides in a treatment directed to the teeth. (See *Periodontitis* and *Alveolar Abscess*.)

3. **The Mercurial Impression.**—Mercury first yields decided evidence of its action by producing in the mouth a metallic taste, complained of as copery. A little time, and this taste is accompanied with some increase in the quantity of the saliva; still later the festoons of the gums are found congesting, commencing generally about the necks of the lower central teeth. Succeeding this congestion we have the dull whiteness indicating the change in the epithelial tissue (a form of aphthæ). There now follow the elongation of the teeth, increased salivary flow, stiffness of the gums, enlargement of the tongue, foul breath, etc.

The effects which mercury is to produce on the mouth, or system at large, depend on the quantity administered and the susceptibility of the individual. The writer has exhibited the medicine in quantities of from fifteen to twenty grains in the course of three days without being able to perceive the local action; while, on the contrary, he has known five grains so to swell the tongue that it required much effort to prevent the patient being smothered. Children from five to ten years of age seem markedly susceptible. Some time back, there was removed at the Oral Hospital the whole of the left half of the body of the lower jaw, dead from but some three grains of calomel, as averred by the practitioner who administered the medicine. The patient was seven years of age. Mercurial ulitis, when confined alone to these parts,

signifies but slight effect on the part of the action of the agent; and the immediate cessation in its employment will generally result in the disappearance of these effects. If this should not, however, prove the case, nothing better is to be done than to scarify the gums, and paint them with tincture of iodine, the medicament to be graduated to each particular case, say, as a rule, half and half of the officinal tincture and water. Chlorate of potash as a wash, and used internally, is also to be employed. To an adult, ten grains of the salt, dissolved in a tablespoonful of water, may be given four or five times a day. As a local application, one drachm to the ounce of water is a very good strength. The bowels are to be kept in a lax condition by the administration of Seidlitz powders or other saline cathartics. Where mercurial ulitis passes to that stage which results in a breaking down of the tissue (and this is sometimes the case where even adjacent parts are not markedly affected), the treatment required is more imperative, and pertains, as a rule, quite as much to the constitution at large as to the mouth itself. Locally, the fetor will urgently demand attention; and one of the best means to correct this is found in the use of a solution of the permanganate of potash, such solution varying in strength from two to ten grains to the ounce of water. Constitutionally, vigorous tonic medicaments are required,—not the least important of which are the iron and bark preparations. If hemorrhage intervene, it may be necessary to employ opium and lead internally; or, as suggested in another part of this work, tincture of erigeron canadense, in doses of one or two drops, repeated frequently until such bleeding is controlled. Locally, cobweb saturated in alum-water may be used; laid carefully upon a bleeding part, and retained in position, it is seldom found to fail. Monsel's salts are not to be used. The tendency in extreme cases toward sloughing is a matter constantly to be borne in mind. When the tumefaction is very great and the tissue indolent-looking, the parts are to be incised and iodine applied; both remedies, however, are to be used with judgment and caution. The author has known gums in this condition which might perhaps have been recovered, sloughed in mass by applications of strong tincture of iodine. Always let the incisions be few at first, and the officinal tincture at least two-thirds diluted with alcohol or water. Aromatic sulphuric acid as a wash is a happy local remedy in these depressions: it may be mixed with water until the acid taste is comfortably bearable,—about ℥i to ℥vi of water. A combination for local use, occasionally employed with much benefit, is composed as follows:

R.—Potassii chloratis, ℥ss;  
Sodæ biboratis,  
Aluminis pulveris, āā ℥ij;  
Potassii permanganatis, gr. xxv;  
Aque Coloniae, ℥j;  
Tincturæ cinchonæ, ℥ij;  
Tincturæ myrrhæ, ℥j;  
Tincturæ capsici, ℥j;  
Tincturæ krameriæ, ℥j;  
Aque, ℥viiij. M.

There is a preparation of capsicum and myrrh, officinally known as Tinctura Capsici et Myrrhæ, which is used in this same direction with the most satisfactory of results by adding to it water until the latter fluid is changed in color to a bluish-white. A direction commonly given to patients in connection with this medicine is to take a goblet of water and add to it drop after drop of the combination until the shade required is secured, then to retain a mouthful for a few moments before ejecting it; this to be repeated several times a day.

If, in defiance of all that is done, the parts slough, one of three things occurs; the disease will seem to have exhausted itself, and the adjoining parts, after a little rest, give evidence of recovery; or the bone follows the ulcerative action, and sloughs as did the soft parts; or the patient dies from irritation and exhaustion. (For treatment of Caries and Necrosis, see other pages.)

4. Scurvy.—Scurvy proper, such as decimated the legions of Louis the Ninth, and in later days was so frequently the scourge of protracted sea-voyages, is a condition which modern science and judgment have so combated that it may be trusted that few will meet with or have occasion to treat it. Modified forms of the disease are still, however, prevalent enough, and exist with features which vary from simple indolent ulitis to general purpura.

Puffiness of the gums, scorbutic in nature, is fairly judged from its dull, purple aspect, independent of its varying constitutional conditions. This venous congestion compares pathologically with the effusions of purpura proper. It would not, however, be at all truthful, nor in accordance with the facts, to describe any particular train of constitutional conditions as constantly associated with the scorbutic sore mouth, as met with in ordinary practice, and for the reason that nothing else of the disease may appear but the local manifestation. That it is a constitutional affection and not a local disease, is proven by the fact of absence of any source of local irritation, and by the further fact of its constant presence in the mouth, let the disease possess whatever other manifestations it may.

Dr. Foltz, U.S.N., in a report made by him on the scurvy which appeared in the blockading fleet of the Gulf of Mexico, states that lassitude and indisposition to muscular energy, noted so frequently by authors as prodroma, were not among the symptoms which ushered in the disease, and that there was great activity, and not infrequently cheerfulness, good appetite, and sound sleep at night, after the teeth were loosened, the gums ulcerated, the limbs œdematous and discolored; and when at last the patient gave way, it was not an indisposition to corporal exertion, but an actual disability.

Authors, however they differ in their descriptions of the various cases that have come under observation, are all agreed that scurvy results from the absence of fresh fruits and vegetables, or of juices, necessary to furnish some principle required in the blood, which principle is not, in such absence, otherwise obtained. In the treatise published by Dr. Hamilton on Military

Surgery, the author says, "In regard to the pathology of scurvy, the belief prevails that it is due essentially to the absence of certain staminal principles from the blood, and especially potash. It appears to be a pretty well ascertained fact that all, or nearly all, of those remedies which have been employed successfully in the prevention or cure of scurvy, contain potash. Potatoes, cabbage, celery, lettuce, lime-, lemon-, and orange-juice, contain it in large quantity, unless their salts have been expressed by the application of heat, as in boiling, or other modes of cooking. Lime-, lemon-, and orange-juice contain nearly one grain of potash to every ounce.

"One ounce of potatoes yields one grain and a half, while one ounce of rice yields only .005 of a grain. The substitution of rice in an English work-house for an equal amount by weight of potatoes was followed in a short time by scurvy."

In the ordinary scurvy of the gums, which every practitioner is aware presents itself most frequently in the very early spring, when the old vegetables have been pretty well exhausted and fresh ones have not begun to grow, it is a common experience to discover that the patients have existed almost exclusively on salt meats; hence it is much the most frequently met with in the poorer class of farm-laborers. The gums, in these cases, are of a purple color, turgid, the dental pits discharging pus, the teeth loosened, the breath offensive, but the face not by any means pale, nor the habits languid; indeed, there is little or nothing to signify that the local manifestation is a systemic offspring. When the condition is extreme, it is not uncommon to have fungoid growths springing from the edges and depths of the dental pits.

**TREATMENT.**—It will be found good practice to treat these conditions locally, as directed in mercurial ulitis. Constitutionally, however, different indications are to be met; a something possessed by a vegetable and acid diet is required by the blood. Without stopping to discuss the question whether this something may or may not be potash, we act on the empirical conviction, and at once direct such diet. Then the depressed or perverted life-force is to be elevated or relieved, and to this end nothing can equal the sheet-bath, taken with water moderately warm and moderately salt. Saturating the sheet, it is quickly thrown around the body, and the patient or an assistant rubs the cloth over the flesh until the whole person is in a ruddy glow. This is repeated each morning immediately on rising.

As medicine, the vegetable acids are to be freely used. Lemonade is perhaps quite as good as anything that can be given. A combination which has some celebrity is known as Turner's antidote; it consists of ℥ij of nitrate of potassa, mixed in ℥viiij of acetic acid, administered in tablespoonful doses three times a day. Conjoined with general medication, local attention is required by the teeth and gums. (See chapter on *Salivary Calculus*.)

5. **Syphilis.**—Syphilitic ulitis the writer infers, from his individual expe-

rience and observation, to be an inflammation, not of the gum-tissue proper, but simply of its mucous envelope: or, on the other hand, it is an inflammation commencing in the periosteum, and secondarily affecting the gum-tissue. He does not recall a case of pure uncomplicated syphilitic ulitis; while few conditions are more common than mercurio-syphilitic ulitis and osteo-ulitis of syphilitic origin. The appreciation of such lesions is, of course, not at all difficult; the history alone is sufficient to give a diagnosis, while to the experienced eye a moment's glance is enough to reveal the precedents. If the inflammation be confined to the mucous membrane, the full extent of its surface will be more or less affected, its color will be a dull red, it will be more or less tender to the touch, and most likely ulcerated. If, on the contrary, the bone or its periosteum be the primary seat of trouble, the gum may simply be thrown up by the effusion beneath it; or if it happen that the gum itself has become inflamed, the action seems inclining to localize itself as much as possible. This, however, depends on the state of the parts beneath, and on the treatment that is being pursued. If the condition be one of pure uncomplicated venereal ostitis, the excitement in the gum is found localized to the immediately overlying parts; but if there have been a mercurial treatment, any extent of complication may show itself. The treatment in these cases is founded on existing conditions.

6. **Dead or Loose Teeth.**—Pulpless teeth affect secondarily the gum structure through continuity with the inflamed periodontium. A tooth periodontally inflamed is always sore to the touch, is more or less elongated, and is discolored. A ulitis connected with such diseased tooth or teeth is plainly discoverable by the absence of other sources of irritation; relief follows, of course, the cure of the primary lesion.

7. **Overcrowded Condition of the Dental Arch.**—See chapter on *Anomalies of Dentition*.

8. **Use of Improper Dentifrices and Brushes.**—Many gums are subjected to continuous irritation and inflammation from the use of agents in the way of dentifrices, brushes, or other dental applications, which, either chemically, vitally, or mechanically, predispose and conduce to deterioration. Perhaps in the whole range of practice there is, in no single instance, less attention given to the requirements of the various cases than is manifested in the prescribing of tooth-cleansing powders and washes. Charcoal, a favorite agent with many, while excellent in its place, is one of the most frequently abused of these remedies. Very common is it to find, after a few weeks or months of the use of the material, the gums becoming pitted with black spots about the necks of the teeth and loosening from them. This is a result of the insolubility of the agent in the fluids of the mouth; gradually, but surely, it finds its way into the mucous pits, and, not being either washed out or dissolved by the secretion, it quickly destroys the integrity of the relation; hence follow chronic periodontitis and the eventual loss of teeth,—the mass of gum-tissue sympathizing during the whole period, producing chronic ulitis.

Pulverized coral and pumice are other agents mechanically destructive, although in their places very good, and, as will be remarked, recommended. Castile and other soaps, too freely used, degenerate the gum-tissue by the action of their alkalinity; a constant use of such agents is quite certain to be attended by puffiness and chronic turgidity of the parts, by degenerated mucous discharges, and by an offensive breath. Acids, on the other hand, employed of too full strength, inflame and irritate the gums, and put the teeth on edge by dissolving more or less of their lime-salts. A ulitis arising out of the irritation of acid agents differs, however, from that produced by the alkaline, in being of a free, generous, acute, or, at worst, subacute nature, easy of control, and much more injurious to the teeth than to the gums themselves. Irritation of the gums commonly associates also with injury to the teeth.

A very common cause of ulitis in persons with carious teeth results from the too free use of creasote. This agent, used pure, is a powerful irritant, and has been the cause of some of the most severe acute inflammations. Seen early, the cases exhibit the direct effect of the agent in the escharotic result that has been produced on the mucous membrane,—the part being white, pasty, and sloughing. Outside of the immediate local use of oil or butter, if it be inferred that free creasote remains about the mouth, such cases are to be treated on common principles. A case occurred, a short time back, in the writer's practice, where a girl, with the intention of committing suicide, swallowed two drachms of the agent. Called immediately, an emetic was used; the first thing at hand, namely, the soap on her washstand, being employed, and this was followed by making her swallow half a pound of common table-butter. No particular bad results occurred: the patient's mouth, œsophagus, and stomach were sore for three days, after which she seemed about as usual.\*

Chloride of zinc, used in the mixing of the oxychloride plugs, is another of the causes of ulitis. The action of this may be of a twofold character: either directly upon the gum-tissue, as by its careless use it may have been allowed to come in contact with this structure, or through a periodontitis excited by the action of the agent on the dental pulp. From abuse of this material many cases have occurred in which large portions of the gums are destroyed; and not infrequently the action extends to the alveolar process, necrosing the sockets of the teeth.

\* Dr. Theodore Husemann (*Journal of Applied Chemistry*) "opposes the use of fixed oils, glycerine, and similar demulcents in cases of poisoning by carbolic acid or creasote, but recommends, based upon experiments with rabbits made by himself and Ummethun, the saccharate of lime, the alkaline earth combining with the carbolic acid to form a non-irritating salt. Lime-water is less adapted to this purpose, owing to the sparing solubility of lime in water, and the large quantity of lime-water required for neutralizing the poison. Precipitated carbonate of lime does not combine with carbolic acid, but may be employed in case the saccharate of lime should not be procurable at once; the carbonate appears to act merely mechanically by absorbing the poison, and thus delaying its ill effects; sufficient time is thereby afforded to prepare the saccharate."

Causes of chronic ulitis, occasionally met with, exist in an undressed plug, in a wedge of gold, or in metal or other material forced into the dental pit while in the act of filling a tooth on its approximal face. Matters of this kind are apt to be overlooked by a general practitioner; hence an unappreciated stubbornness in his case. When ulitis is circumscribed, and the centre of the trouble seems to be a tooth filled on an approximal surface, attention may first be directed to the possibility of such conditions. To satisfy himself, let the physician take a strand of common ligature silk, and, passing it between the teeth, feel if it run freely about the necks; if it catch, the probability is that the trouble has been discovered. Remedy is found in dressing away by means of a file the bulging portion of gold, or otherwise removing what may be found.

The employment of arsenical paste in the destruction of the dental pulp is a frequent source of ulitis. In the use of this means, it is well to seal it in the cavity with a particle of wax, or, where this is not admissible (and there are certainly cases where to do it is impossible), then a tuft of cotton, saturated with gum sandarac, is placed over the application, and protected for a few moments until it hardens. (See *Odontalgia*.) In inflammation from this cause the immediate local use of the sesquioxide of iron has been recommended; but no good results come from it, the harm being established before the patient applies. Syringing the parts thoroughly, and a treatment directed on general principles, is all that may be done.

Brushes used in cleansing the teeth are frequently a source of offence from their excessive stiffness, tearing really the epithelium, at each cleansing, from the mucous membrane; the patient complains of the soreness and bleeding of the gums every time the teeth are brushed, yet fails to recognize himself as producer of the trouble.

9. **Improperly inserted Artificial Teeth.**—Ulitis, resulting in fungoid degeneration, and in troublesome chronic conditions, is frequently witnessed as a result of ill-adapted dentures and of ill-adapted material employed in their construction. Teeth inserted on plates held in position by clasps, or bands, attached to unsuitable teeth, are a prolific source of offence. Where the bearings of a plate are not accurate, the bands cut into the gums fret and irritate them, until, in the end, the teeth to which the clasps are attached are loosened, and the part passes to a chronic degeneracy, puffing up, and losing much of its vitality; otherwise a hypertrophied ring of the tissue, hard and callous, surrounds the diseased tooth, and serves as a sort of protection to the adjoining parts. A case comes to mind in which a lady, wearing an upper set of teeth, supported partially by atmospheric pressure and partly by a band passing around the only natural tooth in her mouth, had provoked, in this socket, an epulic growth of such threatening character that, failing to cure it by ordinary means, an operation was advised as the only hope of saving her life. In Mr. Heath's Jacksonian prize essay, drawings are given of certain papular hypertrophies (thought by the author to be quite