CHAPTER XXXVIII.

DISEASES OF THE FLOOR OF THE MOUTH.

Encircling the tip and sides of the tongue is a space bounded externally by the inner face of the maxillary alveolar process, which space constitutes the lower boundary of the mouth; its floor is the mylo-hyoid muscle; its carpet a plane of mucous membrane. Anteriorly this space is divided into two parts by the frænum linguæ. Floor and carpet are separated by cellular tissue which might not inaptly be likened to a single layer of wadding related by one face to the first, by the other to the second, structure.

Imbedded in this cellular tissue are the sublingual glands, together with their vessels of outlet. Passing through it are the Whartonian ducts. Lying beneath the floor of the region are the submaxillary glands. A large vein crosses it. The most common of the diseases of the locality, as the author has met with them, is tumefaction arising out of sympathetic disturbances; notably, alveolo-dental inflammations. Cases will be encountered where the mucous membrane is so thrown upward, as a result of effusion into the underlying cellular tissue, as to assume a place on a level with the teeth. In glossitis such infiltrations are not infrequently of an extent that throws the membrane as a partial envelope about the sides of the tongue. Treatment is to be directed to the primary lesion.

The second most common disease arises out of obstruction in the salivary ducts. The trouble shows itself either as a raised roundish line running from an inflamed point beneath the tip of the tongue; as a cystoma; or as a tumor, lesser or greater in size, of stony hardness. The swelling known as frog-belly ranula is an example of salivary obstruction.

Ranula.—The term, not a good one, is retained because of the familiar position it holds in surgical nomenclature.

The subject is one easily comprehended. A ranula is the analogue of a sebaceous tumor, being simply a cyst of retention; a collection, the result of the closure of a tube of outlet. The tumor thus designated is found principally beneath the tongue; it is a swelling varying in size and in expression according to the circumstances of its existence, at times being observed when not larger than a pea, at others so great in bulk as to throw the tongue back into the fauces. Ranulæ are occasionally met with which fill the whole oral cavity; such dimensions, however, are uncommon.

If we were to tie or otherwise obstruct one of the tubes just alluded to, it would be natural to expect that the secretion accumulating back of the ligature

would expand and bulge out the duct into the form of a tumor. This is really the very simple history of the formation of a ranula.

Ranula, thus provoked and formed, varies as much in appearance and character as in size. In one case it looks and feels almost precisely like the belly of a frog, the enveloping cyst being thin and attenuated. In other instances the walls are thick. The contents present varying characteristics, being watery, semi-solid, or solid even to the hardness of stone. Commonly it consists of a yellow albuminous-like substance, which, for evacuation, requires pressure upon the tumor after an incision has been made.

A ranula, the contents of which are watery, implies, as a rule, that the disease has been of short existence, the fluid being simply the secretion from the gland unchanged in character. In the ranula of semi-solid consistence an explanation is found in the partial absorption of the more fluid portion, leaving an inspissated mass. In the solid ranula the encystment is the common salivary calculus,—being precisely the same as is seen upon the sides of the teeth, except in the absence of the common detritus of the mouth. Such a ranula as the last is found to be of long standing; absorption of the watery part has gone on until what remains is the limy portion of the secretion.

A thin cyst implies a rapidly-formed tumor unattended by vascular excitement, the envelope being a simple attenuation of the walls of the duct and overlying parts. This form of ranula very frequently ruptures, and thus effects a self-cure. Cysts, thickened and hard, imply tumors of slower growth and the association of vascular changes resulting in the effusion within the cyst-wall, and the organization of a greater or less amount of lymph. Cysts thus thickened may compose the bulk of ranulæ, the cavities being small in comparison.

A ranula gives trouble from its size and location, seldom or never degenerating. It does not seem true, either, that harm results to digestion from the loss of the secretion, such loss, indeed, being more apparent than real, the associate glands performing excess of work. A ranula attaining great size would necessarily intrude upon all the surrounding parts, thereby provoking secondary lesions which might very well prove of more serious character and consequence than the original disease: thus, cases are on record where the teeth have been forced from their sockets, where large ulcers have formed against the inner face of the lower jaw, where necrosis of extensive character has been provoked, etc.

Treatment.—This, in principle, consists simply in opening the tumor, evacuating its contents, and so conducting cure of the wound that it shall not entirely close, securing and preserving in this way an orifice of exit for the secretion.

In the frog-belly tumor it is found sufficient to catch up with tenaculum or forceps a portion of the sac, and with the scissors or bistoury cut it off: the edges of the wound then to be cauterized, and the case left to nature.

In the thickened cysts an operation as just suggested might not be easy to accomplish. In such a case take a strand of ligature wire (silver is to be preferred), double it upon itself half a dozen times, to the extent of the supposed thickness of the sac of the tumor to be operated upon. Take next the continuation of the length of the wire, and closely, yet spirally, bind with it the thickness just secured by the half-dozen reflections. Next take a curved needle, and thread the wire to it. Now pass it through the tumor, entering at the centre. When the thickened part of the wire—which is to be bulbed by a perforated shot compressed on its extremity—is brought in contact with the cyst, an incision is to be made just large enough to allow the passage; pull it now in until checked by the shot; fix the needle-end so as to retain the thickened part in place, and the operative part of the proceeding is completed.

A second mode, founded on the same principle of drainage, consists in taking a delicate rubber tube, and, after cutting through its walls a number of outlets, passing it through the tumor. To retain it in place, the extremities are tied together, having an opening made between the ligature and the tumor.

If, when making the little section in the tumor for the passage of the wire or tube, the contents should not at once escape, they are to be pressed or syringed out. If the parts seem particularly indolent, there is no objection to the introduction of a stimulating injection. The presence of the drain will, however, in ordinary cases prove sufficiently provocative of a desired inflammatory action. Iodine, in tincture, may be used externally over the face of the tumor.

In a ranula holding a calculus nothing is to be done without the knife, except, indeed, in certain occasional instances where the orifice of a duct has become patulous and the stone can be seen or felt. In these latter cases the operator may succeed in drilling or breaking the mass in pieces, and thus securing its removal. It is much easier, however, even here, to incise down to the stone and take it away. See for interesting case chapter on *Salivary Calculus*.

All cysts or tumors found beneath the tongue are not, however, to be esteemed as of the character just described. Inflammation of the sublingual gland is not infrequently met with, and the tumefaction is, at times, so considerable as to very closely simulate ranula. Cysts within the substance of the gland, not salivary in character, are other of the conditions encountered, and these more closely imitate the ordinary ranula than the first, particularly when the cyst is simple. Papillary indurations are sometimes met with in the same situation.

Lipoma simulating ranula is found occasionally referred to.* Writers,

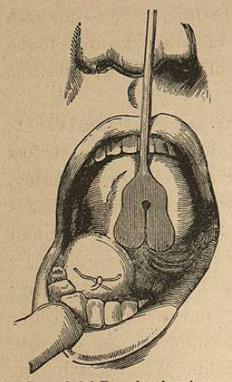
* "Lipoma simulating Ranula.—Mr. F. Churchill exhibited a specimen of lipoma simulating ranula. He said this tumor was removed from under the tongue of an old man eighty-six years of age. The specimen is unique, so far as the Society is concerned. I have been unable to find in the *Transactions* any records of a lipomatous tumor removed from this situation, and there is no such tumor in the Museum of the College of Surgeons. Mr. Liston refers to the removal of fatty tumors under the tongue in his work on Practical Surgery. Mr. Pollock removed a fatty tumor from below the jaw of a lady forty years of age, enveloping the mylo-hyoid muscle; but in this case the intrinsic muscles of the tongue do not appear to have been encroached upon by the tumor. In several cases, hardened, putty-like masses have been removed from a ranular cyst, as also phosphatic concretions. During the last session of the Society, Mr. Warren Tay exhibited four or five butter-like masses, which he had removed from a ranular cyst, but 'under the microscope no definite structure could be detected in them. Entangled in the substance composing the masses were some cells and portions of cells looking like *débris* of epithelium.' Dr. Meymott Tidy, after a careful chemical analysis, 'was disposed to regard the bulk of the deposit as adipose.' The history of the case was as follows: H. T., aged eighty-six, was admitted to the Westminster General Dispensary, under the care of my colleague, Dr. Waite, who treated him for eczema rubrum of the leg. After consultation with Dr. Waite as to the nature of the tumor beneath the tongue, supposing it to be a ranula, I suggested that it should be removed in the usual way. He stated that on several occasions fluid had issued from the tumor, after which it was distinctly smaller. The incisive teeth in the lower jaw were intact, and situated just behind these was a movable (apparently pedunculated) tumor, about the size of a walnut, covered by the smooth, glistening mucous membrane of the floor of the mouth. The tumor was also, in part, covered by the sublingual gland; it was soft and yielding, and I was under the impression that I could detect fluctuation. The distended mucous membrane was being chafed by contact with the sharp edge of the teeth during mastication. The old man had noticed the swelling for twenty-two years. It had gradually increased up to the present time. During the past twelve months, however, it had given him pain, in consequence of chafing against the teeth; he much feared that it was a cancer. From its size it had also interfered with mastication, and acted as a serious impediment to his speech. Having removed a portion of the anterior wall of the tumor, I proceeded to turn out the contents, but found, underlying the mucous membrane, a bright, glistening mass, resembling a cyst-wall; this was seized with a pair of clutch-forceps and drawn forward, a small portion of it being removed, but still no fluid escaped. I proceeded then to separate the adhesions to the mucous membrane with the spoon-end of a director, but the deep connections were too firm to separate in this way; the finger also failed to enucleate the mass. The tumor was forcibly drawn forward, and these deep attachments cautiously divided with the knife. In this way the tumor, which was lobulated, and enveloping (probably) the genio-hyoglossi muscles, was removed. Exploring the cavity afterwards, I could feel the sharp borders of the vertical muscles, and I was satisfied that the growth had been entirely removed. There was very little hemorrhage after the operation, and the cavity had completely closed in the course of a week."—*Proceedings of the Pathological Society.*

prominent among whom is M. Marrant Baker, are found, who incline to doubt the common relation of the ranulæ with the salivary ducts, but upon such premises, as must appear to any one who shall see much of the disease, that the arguments advanced carry no weight: the true ranulæ arise from salivary lesions influencing the relations of the discharge: tumors of kindred position may have the signification of muciparous cysts, or may be expressive of a systemic vice. Because a tumor is beneath the tongue it is not necessarily a ranula.

Ranulæ are found superficially seated, or deep, according to the part affected and the location of the lesion: thus, ranulæ associated with the tubal outlets of the sublingual gland are always entirely superficial, because the part affected is covered only by the mucous membrane. Obstruction of the duct of Whar-

ton at its orifice yields also a superficial tumor, lying as it does between the mucous membrane and the mylo-hyoid muscle; occurring, however, beneath that muscle, the tumor resulting is deep-seated.

FIG. 400.



Superficial Ranula, showing seton introduced.*

Ranulæ are of temporary or of permanent signification: thus, where only a limited obstruction exists, a tumor may form suddenly during the excess of secretion at periods of mastication, to drain gradually away as the superexcitation passes off. Cases are met with where, as the result of accidental inflammatory conditions, the outlets become obstructed from neighboring exudates, the tumor disappearing as the exudates are absorbed.

The existence of true ranula does not necessarily imply that the tube affected is absolutely closed: a ranula may exist where observation discovers the canal patulous and the secretion discharging; here an explanation is found in well-known similar stricture as met with in the relation of the bladder and its urethral canal, urine constantly dribbling from the meatus, yet the patient suffering from retention; or, again, a probe may be passed with all ease into the orifice of a salivary duct, yet a true tumor of retention exist,—here, as referred to, a stricture being deep-seated.

The sublingual gland itself is occasionally the seat of an inflammatory enlargement which protrudes a tumor upon the floor of the mouth. These enlargements are not infrequently of most indolent character, as many as five or six months being required to resolve them. The submaxillary, however, seems to be the gland most disposed to take on such condition, the tumefaction thus produced being without rather than within the mouth, although it occasionally happens that it is first observed by the patient as a swelling on the inner side of the jaw.

Illustrations in Ranula.—CASE 1. A gentleman having a tumor the size of a hen-egg, situated upon the floor of the mouth, applied to the author, having been assured that his disease was cancer and that nothing could be done. The growth seemed semi-solid, and was fixed to the underlying parts with great firmness; the vault of the swelling was smooth and non-vascular; darting pains associated with it.

Examination of the centre of the tumor made by means of a syringe and large aspirating needle afforded the diagnosis of ranula. Cure was secured by section of the cyst and complete cauterization of its inner face. The walls of

* This is but a single expression of the superficial ranulæ. One treated this very day of writing by the author—being a double tumor—presented the appearance of the whole floor of the mouth raised on a level with the teeth.

the sac were quite a quarter of an inch in thickness; the contents were semi-fatty.

CASE 2.—Lately, at the Imperial Society of Surgeons there were exhibited by M. Paulet two salivary calculi found by him in Wharton's duct. In connection with the presentation was reported the unique fact—for such it was thought to be—that the submaxillary glands of both sides were found stuffed with stones. See in this connection case of Mrs. B., described in chapter on *Salivary Calculus*.

CASE 3.—*Obstruction of both Submaxillary Glands.* December 17, 1847, John C. Lyons, aged twenty, Benton Centre, Yates County, consulted Dr. Hamilton. He stated that in the latter part of July, while harvesting, the weather being very warm, he discovered in the morning a soreness under his tongue upon the left side, and before night he found there was a tumor at this point. This was oblong and about half an inch in length. His physician, Dr. Wolcott, opened it the following day, and it discharged a glairy matter. Since then it had been opened four times; but, a few days before calling on Dr. H., he discovered that there was a swelling on the opposite side, externally, in the region of the submaxillary gland. When seen by Dr. H. the gland was of the size of a pullet's egg, oblong, not painful or tender. It was increasing in size, but he noticed that it was larger in cold and damp weather. His health was good. He was advised to submit to a low diet, take physic, and apply externally the tincture of iodine. Patient was never seen again, and the result is unknown. During the winter of 1847 and 1848 two similar cases of enlargement of the submaxillary gland were presented in Dr. Hamilton's surgical clinic, at the Buffalo Medical College, one of which had resulted in an external salivary fistula.

The third most common affection met with about the floor of the mouth relates with muciparous cysts. The meaning of such cysts is obstruction in outlets of mucous glands. Diagnosis lies in limited size and in the superficiality of situation. Treatment consists in puncture and cauterization.

Cysts apparently non-mucous are met with in the region, the contents of which are various: cheesy, pultaceous, jelly-like. The sebaceous form has been most frequently described; one of these cysts seen by the writer was as large as a pullet-egg. A condition, simulating a cystic tumor, treated by W. Fairlie Clark, had its meaning in the symmetrical enlargement of the sublingual folds; the trouble arising out of irritation caused by a carious tooth. The tumor is described as being of a horse-shoe shape and surrounding the free portion of the tongue.

The fourth in classification, as frequency is concerned, are cysts simulating ranula: that term being restricted to tumors arising out of obstructions in salivary ducts. The seat of such cysts is Fleischman's synovial sac,—a bursa closely adjoining the outer side of the genio-hyoglossus muscle, beneath the mucous membrane. Cases of this kind are frequently mistaken for the true ranulæ. An interesting example was lately reported to the Pathological Society

of Philadelphia, by Professor J. G. Richardson, where the sac was filled with seed-like bodies similar to those met with in bursæ of the wrist-joint.

Convinced by personal experience that this form of cyst is not uncommon, the author is led to infer that the bursa described by Fleischman is very much more constant as to presence than generally admitted. Diagnosis of this special cyst is forwarded in remembering that the tumor is to be felt upon the neck adjacent to the middle line. A post-mortem made of such a cyst by a Dr. Müller, of Moscow, showed a cavernous tumor the size of a pigeon-egg, the contents of which were a clear, transparent fluid. The subject was an infant.

Epithelioma of the floor of the mouth commences as a primary affection at the lingual frænum, otherwise it is an extension of the disease from the side of the tongue or gum.

Venous aneurism, or nævus, of the location, has been met with in the author's practice but in a single instance. The case was successfully treated by exciting inflammation in the growth.

CHAPTER XXXIX.

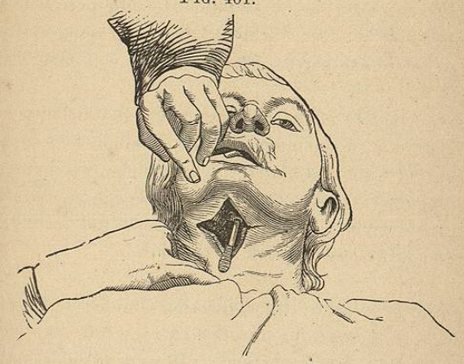
HYGROMATA OF THE NECK.

A CLASS of cysts indirectly associated with the oral floor may at this point claim attention.

The front of the neck holds several bursæ. The first of these, commencing from above, is known as Fleischman's. The second is situated between the thyro-hyoid membrane and the posterior face of the hyoid bone. The third has its location between the skin and pomum Adami; this last is sometimes double. Any of these cysts may become the seat of a hygroma, the contents of which may be either clear and viscid, or sanguineous and grumous. Any one of them may furnish location for a true ranular deposit.

Example of Ranula situated in Front of Neck.—Fig. 401 represents a case and operation, occurring in the practice of the author, having the

FIG. 401.



following history. First, it was noticed by the patient that the parts beneath the chin began to soften and broaden, and that gradually freedom of motion in the jaw was lost, while a slight sense of difficulty was experienced in speech, as the result of stiffness about the tongue, the floor of the mouth being quite indurated. In the course of four months, a tumor, evidently cystic, and fully the size of an ordinary orange, occupied the front of the neck, but was happily concealed by a long and heavy beard worn by the patient.

Presenting himself for a cure, a diagnosis as to the general nature of the