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## SPECIAL PATHOLOGY AND THERAPEUTICS.

### LOCAL DISEASES.

#### DISEASES OF THE DIGESTIVE SYSTEM.

##### TOPOGRAPHY OF THE ABDOMEN: PHYSICAL EXPLORATION.

Regions.—In Figs. 1 and 2 the topography of the abdomen is indicated, according to the usually accepted arrangement. The position of the organs within, relative to the exterior boundaries of regions, must be definitively known, to make the topographical outlines available for any useful purpose.

In the epigastrium (4, Fig. 1) is contained the left lobe of the liver, the pyloric end of the stomach, the first part of the abdominal aorta, the semilunar ganglion and the solar plexus, the pancreas, a part of the transverse colon, the supra-renal bodies, and a portion of each kidney. In the right hypochondrium, we find the liver, gall-bladder, portal vein, the vena cava, the hepatic artery, hepatic and common ducts, the hepatic plexus, the ascending colon, the duodenum, kidney, etc.; and in the left, the stomach, spleen, junction of transverse with descending colon, kidney, etc. In the umbilical and lumbar regions, we find—

beginning with the right—the ascending colon, the small intestines, the vena cava, the aorta, the ureters, the mesentery, the splanchnic

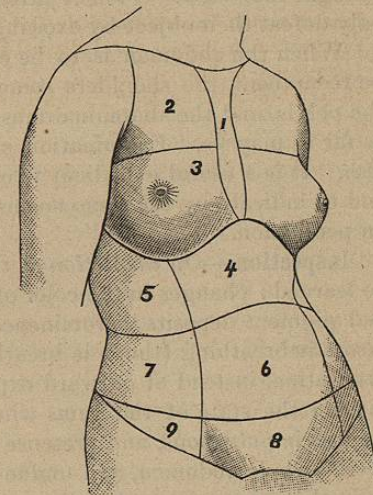


FIG. 1.—THORACIC AND ABDOMINAL REGIONS. *Anterior*.—1, Sternal; 2, Subclavicular; 3, Mammary; 4, Epigastric; 5, Hypochondriac; 6, Umbilical; 7, Lumbar; 8, Hypogastric; 9, Iliac. After Rüdinger.

nerves, the kidneys, the descending colon, etc. In the right iliac region are contained the cæcum, the appendix vermiformis, the iliac arteries and veins, etc. In the hypogastrium are placed the bladder, the ureters, iliac arteries and veins, etc., and in the left iliac region the sigmoid flexure of the colon.

Inspection, palpation, and percussion are the chief modes of examination for ascertaining the state of the organs composing the digestive system, but occasionally auscultation may also be employed. Inspection informs us regarding the condition of the mucous membrane of the lips, cheeks, tongue, tonsils, palate, and pharynx. Inspection by rhinoscopy discloses the condition of the vault of the pharynx, of the posterior nares, and of the orifices of the Eustachian tubes; by laryngoscopy, of the epiglottis, the larynx, and upper trachea. For ordinary purposes an inspection of the throat may be made without the aid of a special illuminating apparatus. The patient is seated opposite the window, the mouth is widely opened, and the tongue is gently steadied—not forcibly held down—by the depressor, handle of a spoon, etc.; now, a deep inspiration is taken, and all parts of the throat, except, of course, the posterior nares and larynx, are well brought into view. Violent attempts to depress and hold the tongue only defeat their object by exciting reflex swallowing, or regurgitation.

When the abdomen is to be examined, the patient should usually be recumbent, the shoulders somewhat elevated, the thighs flexed on the pelvis, and the abdominal muscles relaxed by the voluntary efforts, as far as may be. Examination should be made in the erect position also. It is a useful expedient to outline the regions with a soft pencil, and to indicate by the same means the changes in sonority discovered on percussion.

*Inspection.*—On *inspection* of the abdomen the following facts may be learned: changes in the color of the skin, and the position of abnormal pigment deposits; prominence or retraction of the walls; movements in breathing (thoracic breathing, abdominal), drawing in during inspiration, instead of outward expansion, jerking or rhythmical respiration; the state of the veins when unduly prominent; exaggerated epigastric pulsations, and presence of abnormal pulsations; distention of the whole abdomen, and undue prominence in particular situations, as in the epigastrium when the stomach is too full, local swellings due to gas, accumulated fæces, enlargement of organs, etc.

*Palpation and Percussion.*—To the sense of touch in health, the abdomen makes the impression of a soft, flexible, and dough-like material, except where the rectus muscle imparts the sensation of combined firmness and resistance. When the cutaneous reflex is heightened from any cause, or peritonitis exists, the rectus contracting in segments—as it may do—the impression made on the sense of touch may be very confusing.

By palpation we recognize the existence of tender points, or fix the position of painful siezures, enlargement or induration, or changes in the contour of organs, tumors, fecal accumulations, and floating or movable organs. As, however, the application of palpation to the study of the condition of the abdominal organs will, necessarily, be referred to in connection with their diseases, only some general practical suggestions will be made here.

On palpation and percussion of the stomach, the amount of its contents, the area occupied by the organ, the existence of tumors—except those at the cardiac orifice—may be made out. It should not be forgotten that usually, but not invariably, the left lobe of the liver extends across the epigastrium and downward to a varying extent, and that the greater part of the stomach lies under the ribs in the left hypochondrium. The position of the pylorus is not constant. The stomach may, indeed, have a nearly vertical position, and the pylorus extend to, and even reach below, the umbilicus. This is the more apt to happen when the pylorus is weighted by a tumor, which may, in consequence, seem to be attached to some other organ distant from the stomach.

The pulsations of the abdominal aorta in thin subjects, and when abnormally strong, may be readily felt, especially in those persons affected by a depressed state of the sympathetic system. A tumor overlying the abdominal aorta may have a pulsation communicated to it that is not easily distinguished from the pulsations of an aneurism.

In the normal state of that organ, the spleen can not be felt, or defined by percussion with certainty, but when enlarged, especially on a full inspiration, its size and condition may be made out. In doubtful cases, percussion should be practiced when, the patient taking a full inspiration, the spleen is forced down into a position where the area of dullness can be ascertained. When the stomach is enlarged and distended with gases, the left hypochondrium becomes resonant, the percussion note having a highly tympanitic quality. If the spleen be enlarged, and especially if large enough to fill out the space beneath the ribs, the percussion note will be dull or flat. By the character of the percussion-sounds, the dimensions of the stomach can be approximated, in cases of dilatation of the organ.

A distended state of the transverse colon modifies, proportionally, the hypochondriac and epigastric regions; by palpation and percussion it can be ascertained whether the increased dimensions of the bowel be due to fæces or gas, or to both. Impaction occurs, greatly more frequently, in the cæcum, and at the sigmoid flexure, than elsewhere in the large intestine. In some comparatively infrequent instances, the transverse colon has a V-shape, and the apex of the V extends below the umbilicus—a condition of things productive, it may be, of serious consequences, by favoring obstruction, and confusing the diag-

nosis, by altering the significance of the normal palpation and percussion.

**Auscultation.**—Auscultation is of far less importance as a means of ascertaining the state of the abdominal organs than inspection and palpation; nevertheless, it may be indispensable; for example—to make diagnosis of an abdominal aneurism, auscultation becomes essential. Only in this way can a pulsating tumor be differentiated from an aneurism.

Although narrowing of the pyloric orifice may not be ascertained by auscultation, yet by careful observation a difference may be detected between the sound caused by the passage of gas through the natural pyloric orifice, and that which is produced by a narrowed outlet.

To ascertain this, the stethoscope is placed over the pylorus, and then the stomach is forcibly pressed upon to drive the gas and liquid through into the duodenum. The character of the resulting sound varies with the size of the orifice, and hence the laws of acoustics enable us to approximate, at least, to the degree of stenosis.

Various expedients are now made use of to measure the capacity of the stomach—thus: filled with water after irrigation and then the size can be determined by measuring the fluid.

Also—a sound passed and pushed downward and forward, until the point is felt.

The diagnostic value of the absence of hydrochloric acid in the gastric juice remains a *vera-ata questio*.

In Fig. 2 the regions of the body on its posterior aspect are given. In the subscapular re-

gions of the right and left sides are contained the organs noted as occupying the hypochondriac regions in front. The renal and lumbar regions contain the ascending and descending colon respectively, the kidneys, the abdominal aorta, and the vena cava, the ureters, the small intestines, etc.

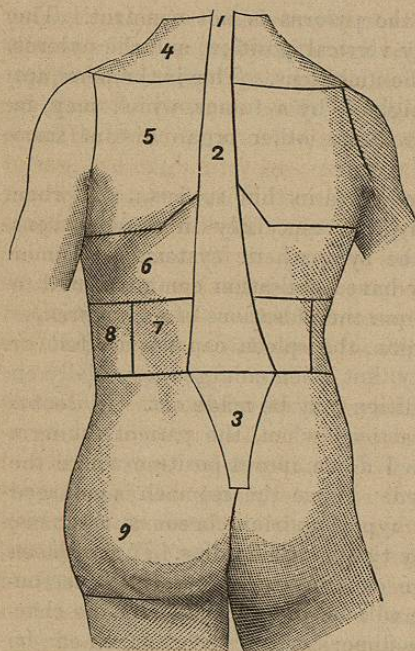


FIG. 2.—THORACIC AND ABDOMINAL REGIONS. Posterior.—1, Nucha; 2, Inter-scapular; 3, Sacral; 4, Supra-scapular; 5, Scapular; 6, Subscapular; 7, Renal; 8, Lumbar. After Rüdinger.

## DISEASES OF THE MOUTH, TONGUE, AND PHARYNX.

### STOMATITIS.

**Definition.**—Stomatitis is an inflammation of the buccal mucous membrane. There are various forms of the disease, determined by the seat and character of the lesion—for example: simple, follicular or aphthous, ulcerative, mercurial, and parasitic.

**Causes.**—Simple stomatitis may be a part of a catarrhal process which involves the mouth, the œsophagus, and the stomach; but more frequently it is caused by local irritants, such as condiments, tobacco, too hot and too cold liquids, etc. The follicular or aphthous form occurs at all ages, but is more common in early life. Children having feeble constitutions depressed by bad hygienic influences are especially liable. Often dependent on gastro-intestinal disorders, it is a frequent complication of prolonged diarrhœa, and more certainly so when the stools have an acid reaction. The ulcerative form is due to all those causes, also, which depress the vital forces—to fatigue, to excesses of all kind, to bad hygiene, to damp and dark habitations, to improper and insufficient food, and to various cachexiæ. Mercurial stomatitis is produced by the systemic action of mercury, in what form or mode soever the metal may be introduced into the organism. It should be remembered that in infancy the mercurial action does not manifest itself in stomatitis, but in an equally injurious toxic action in another form.

**Symptoms.**—It is almost invariably true of inflammation of a mucous membrane, that the first effect of the process is to arrest secretion of its glandular appendages. The membrane becomes rough and swollen, and of a more or less vivid red color; and the glands, especially those at the base of the tongue, by an increase of their contents, enlarge and become prominent; but the dryness, in a few hours, is succeeded by increased secretion. The fluid now poured out from the surface of the mucous membrane consists of a transparent solution—serum—holding in suspension numberless young cells, cast-off epithelium undergoing fatty metamorphosis, and minute organisms, bacteria, etc., derived from the external air. The exuded fluid tends to accumulate at certain points in the cheeks and on the gums, and on the floor of the mouth. In some places, especially at the mouths of the follicles, superficial erosions are produced by the falling off of the epithelium.

The mouth feels dry and hot at the outset. Considerable pain is experienced at every movement of the lips, tongue, and soft palate, or when hot and cold liquids or irritating solids are introduced into the mouth. Taste is much perverted, or is entirely wanting. The secre-

tion poured out in the mouth excites a subjective taste of foulness, and this is represented, objectively, by an odor of putrefaction, especially when there are carious teeth.

The characteristic of the aphthous form of stomatitis is a fibrinous exudation occurring first in the follicles. The exudation has a grayish or yellowish-white tint, round or oval in shape, and varying in size from the head of a pin to a bean. Subsequently, additions laterally of fibrin bring the isolated deposits in contact, and thus larger patches are produced. The exudation softens in two or three days, the mucous membrane disintegrates, and small ulcers are formed, which cicatrize in a week or two. As a similar process takes place in the skin, in variola, the same terms are used to describe the variations in the aphthous patches; thus they are said to be discrete, coherent, confluent, etc. In infancy the aphthous exudation is arranged somewhat symmetrically, on the veil of the palate, and at the junction of the veil with the bony vault; in adults, the exudation occurring in the follicles assumes a vesicular and pustular character, and attacks the lips, the cheeks, and the point of the tongue.

Considerable suffering attends aphthous stomatitis; the mouth is dry with the initial hyperæmia; but, in a short time, a transparent and viscid secretion streams from the cavity; the ulcers, painful at all times, are exquisitely so when acids, sweets, and sapid substances are ingested, and by the mere movements of the jaws in mastication. The breath is fetid; the sublingual, submaxillary, and parotid glands become swollen and sensitive to pressure. The system at large sympathizes with the local disturbance; and, in children especially, there is more or less fever; disturbances of the digestive organs ensue; the urine becomes scanty and high-colored. It occasionally happens that systemic infection takes place, with all the evidences of the most profound adynamia—the so-called typhoid state. Gangrene of the mucous membrane may then set in, or it may commence in the mouth, inducing an adynamic state. More frequently, aphthæ occur in the mouth as a complication in typhoid or puerperal fever, when gangrene of the mucous membrane may follow.

*Muguet* is a term applied by the French to designate a form of exudative stomatitis, the special characteristic of which is the occurrence of minute parasitic organisms. The local morbid process is the same as in the other forms of stomatitis; hyperæmia, arrest of, followed by greatly increased secretion; production of new cells and casting off of the epithelium, but without exudation of fibrin. The buccal secretion is usually acid, a condition which favors the growth of parasitic organisms. Atmospheric germs are deposited, and a process of acid fermentation goes on with a correlative growth of microscopic organisms. Whitish masses, looking like curds, are to be seen on the palate, cheeks, tongue, and lips. These masses may remain separate and

discrete, or enlarge, cohere, and cover the whole mucous surface. They may also extend into the air-passages, but more frequently into and through the intestinal canal. The extension into the latter organs is not by growth along contiguous surfaces, but by deglutition. In the fauces these curd-like masses interfere with deglutition; in the larynx with respiration.

The membrane-like exudation of muguet is not truly a membrane, but is a collection of epithelial and mucous corpuscles matted to a mass by the vegetation of *oidium albicans*. The systemic disturbance produced by it depends on the extent of the patches; if small in size and discrete, there may be no fever and only restlessness due to the soreness of the mouth; if confluent, there may be considerable fever. When patches develop in the intestinal canal after the vegetations are swallowed, very decided gastro-intestinal symptoms may be produced. There will be more or less diarrhœa, or the stomach may become excessively irritable, food being rejected as soon as swallowed. The suspension of or serious interruption in the process of alimentation causes an extreme degree of anæmia and impairment of the vital forces with cerebral symptoms, comprehended under the term hydrencephaloid, or spurious hydrocephalus. These cerebral symptoms are frequently confounded with the opposite state—cerebral congestion.

**Diagnosis.**—The ulcerated form of stomatitis is to be distinguished from syphilitic mucous patches. The distinction rests on the history, the form and duration of the patches, and the presence of concomitant symptoms. In syphilis the ulcers are less sharply defined and contain ashy-gray sloughs closely attached; they are slow to heal, and appear and disappear; they are accompanied by other syphilitic lesions, and preceded by a characteristic symptomatology.

The aphthous form of stomatitis, or muguet, may be confounded with diphtheria. The differentiation is arrived at by attention to the following points: In diphtheria the exudation usually begins as a delicate pellicle on the tonsils or veil of the palate; in muguet as a curd-like or pultaceous mass, on the lips, gums, or cheeks—the former extending forward, the latter backward. The exudation of diphtheria thickens and widens as it develops, and extends into the Eustachian tube, nares, larynx, and to wounded surfaces; that of muguet is rarely coherent, and extends into the fauces and œsophagus. The exudation of muguet is made up of cast-off epithelium, mucous corpuscles, and the vegetation of *oidium albicans*; that of diphtheria, of a true fibrinous material within and upon the epithelium, and an immense quantity of bacteria, which also extend into the neighboring vessels and lymphatics. The odor, the swelling of the cervical lymphatics, the general systemic infection, and the profound adynamia, together with the peculiar sequelæ of diphtheria, separate this malady readily from aphthous stomatitis.

**Treatment.**—Attention to diet is of the first importance. Acid substances, sweets, and condiments, excite smarting and distress in the process of mastication. In adults ulcerative stomatitis is often due to errors of diet, and such subjects soon learn that acid fruits and vegetables, and those foods which may undergo acid indigestion, will produce a plentiful crop of painful ulcers in the mouth. Obviously, in such cases, the offending articles should be omitted from the diet. The starchy and saccharine substances, owing to their facility for undergoing the acid fermentation, may be equally objectionable. In infants, to avoid the evil effects of acid indigestion, some sodic bicarbonate, or lime-water, is added to the milk. In ulcerative stomatitis, local applications are highly serviceable. The surface of each ulcer should be cleansed and a little pure carbolic acid applied. This produces a momentary smarting, but great relief follows. Salicylate of bismuth, but especially a saturated solution of sodium bicarbonate, have considerable power to allay the irritability and pain. If the local disease be due to gastric disorder, besides regulation of the diet, remedies to allay gastric irritability are necessary: for example, bismuth, minute doses of calomel ( $\frac{1}{10}$  to  $\frac{1}{12}$ ), creosote, hydrocyanic acid, etc. In some cases remarkably good results follow the administration of potassium chlorate in large doses—for adults fifteen grains every four hours, and for children proportionately. In aphthous stomatitis the same principles of treatment obtain; but some attention must be given to the peculiar local conditions. As the extension of the patches is determined, to a large extent, by the growth of the *oidium albicans*, remedies destructive of minute organisms ought to be employed—such as resorcin, salol, iodol, and tannic acid, and a mixture of iodoform and tannin, bismuth, and the salicylate of bismuth, quinine and others, all of these being sprinkled in the form of powder over the seat of morbid action to destroy the parasitic forms and prevent pullulation. A combination of bismuth and carbolic acid is very effective to relieve the extreme irritability of the stomach. Potassium chlorate is equally effective in this as in the ulcerative form. To be successful, it is necessary to administer large doses. Mercurials should never be given in any form, for the destructive ulcerations and the gangrene, which now and then occur, will be attributed to their action.

Mercurial stomatitis will require the same general plan of treatment as the other forms of the disease, with the exception that elimination of the poison must be promoted by the administration of the iodide of potassium.

#### GLOSSITIS.

**Definition.**—*Glossitis* is a term that signifies inflammation of the tongue. As usually one half of the organ is involved, the malady is sometimes designated *hemi-glossitis*. When confined to the mucous

membrane, it may be entitled superficial or mucous glossitis. When the substance of the tongue is attacked, the disease may be called interstitial or parenchymatous glossitis, according as the interstitial connective tissue or the muscular is the seat of the morbid process.

**Causes.**—Mucous glossitis is usually caused by the contact of steam, hot liquids, chemical irritants, etc. It may, also, be due to an extension by contiguity of tissue, of stomatitis, and thus constitute a part of a general inflammation of the mucous membrane of the oral cavity. It is usually a secondary disease, arising in the course of various septic maladies, just as parotitis does, which is a more common affection. Among the infectious diseases, of which glossitis may occur as a complication, are erysipelas, pyæmia, puerperal diseases, typhoid fever, etc. Prof. B. Ball maintains that hemiglossitis is a neurosis.

**Pathological Anatomy.**—In mucous glossitis the anatomical changes are limited to the mucous membrane, and consist in hyperæmia, redness, and swelling, and the epithelium becomes cloudy, granular, and is detached. Especially along the borders of the tongue, and on its dorsal surface, are these changes most pronounced, giving a raw, red, and somewhat glazed appearance to these parts of the organ. In papilliform glossitis the large papillæ of the base of the tongue are swollen by hyperæmia and an accumulation of their contents.

In the deep-seated or parenchymatous glossitis, one half of the tongue is usually involved at the outset. The inflammatory process is thus limited, because of the arrangement of the vessels and the attachment of the muscles along the central median raphe, which opposes a barrier to the extension of the inflammation in this direction. The whole tongue may ultimately become engaged, and is invaded in the more formidable cases. The mucous membrane is swollen, deeply injected, softened, its epithelium detached by a fibrinous exudation. An interstitial exudation separates the muscular elements, which are affected by a granular degeneration in which their striæ disappear; they soften, are completely disassociated, and are finally broken up into a diffuent mass. The interstitial connective tissue, also, participates in the inflammation, the cellular elements undergo multiplication, and, with the wandering leucocytes, form foci of suppuration, which, finally coalescing, constitute a large, purulent collection. The largest accumulation of pus may be at the base of the tongue, and purulent infiltration of the glotto-epiglottic folds may take place. In the subacute form of interstitial glossitis, a hyperplasia of the connective tissue occurs, forming patches of sclerosis; and in the chronic form the new tissue encroaches on the muscular, causing atrophy and degeneration, so that the tongue, or one half, or a smaller portion of it, will be injured and deformed.

**Symptoms.**—In superficial glossitis there are constantly present a decided heat and irritation of the tongue, and the sense of taste is im-

paired or lost. Actual pain and an intolerable smarting and burning are experienced in the attempt to masticate, especially if the substance taken into the mouth is acid or pungent. The saliva flows abundantly, and is rather viscid. The sublingual glands appear swollen, and are somewhat tender. The movements of the tongue in speech and deglutition as well as in mastication are painful. The organ is red, raw-looking, sometimes smooth and glazed; the papillæ, in general, are swollen and prominent, especially the circumvallate. In the papilliform glossitis these bodies are much swollen, and are very prominent objects, while the rest of the organ presents a normal appearance. Some heat is experienced in them, and in the act of swallowing they are painful. Very often they cause a feeling of a foreign body lodged on the base of the tongue, and excite repeated efforts of swallowing.

Very different are the symptoms when the body of the tongue is involved in the inflammatory process. The organ enlarges and may become enormous—too large, indeed, for the mouth—and may protrude between the teeth. The swelling, beginning usually on one side, quickly extends to the other, so that ultimately the site of the original mischief is lost in the general tumefaction. Especially does the base of the tongue enlarge, pressing strongly against the roof of the mouth, and, pushing the soft palate into the fauces, forces the epiglottis down on the larynx. With the first swelling the movements of the tongue become stiff and constrained, speech guttural and thick, and swallowing difficult and painful; but when the fauces and larynx are obstructed, swallowing is impossible, speech unintelligible, and even breathing grows more and more difficult. Very great pain in the tongue, throat, and ears, is now experienced; a tough and rather acrid saliva flows from the mouth incessantly; the lymphatic glands of the neck are swollen, often immensely so, and may fill out the whole space from the chin to the sternum; the face is puffy and cyanosed, partly in consequence of the swelling of the cervical glands preventing the return of blood through the jugulars, and partly because the swollen tongue hinders the passage of air into the larynx. So rapid is the progress of the swelling that death may ensue in from twenty-four to forty-eight hours by suffocation, or an increasing stupor announces the onset of carbonic-acid poisoning. The usual constitutional symptoms are present. A more or less decided chill inaugurates the febrile movement; the pulse rises in an adult to 110, 120, or even 140 per minute, and the temperature to 102°, 103°, or in severe cases to 105° Fahr.; the urine is scanty, acid in reaction, sometimes albuminous, and the skin is dry. The tongue is deep red, dry, hot, and of a brawny hardness, except at some point where pus has formed and approaches the surface. At the point of maximum intensity, it may be, when suffocation seems imminent, the case may sud-

denly improve by the spontaneous evacuation of matter. Then the swelling subsides, the breathing becomes easier, a little liquid may be swallowed, and convalescence is soon established. More or less sloughing of the connective tissue, with consequent deformity on cicatrization, may occur, and gangrene, very rarely. In some instances resolution takes place, without suppuration the swelling slowly subsides from the maximum, and the general state improves correspondingly.

When glossitis comes on in the course of an infectious disease, the swelling develops more slowly than when it is an idiopathic affection, gangrene is more apt to occur, and the general condition is extremely grave.

**Course, Duration, and Termination.**—In the most acute cases life may be put in jeopardy by the swelling which prevents the access of air in so short a time as twenty-four hours. Chills and high fever—the temperature rising to 104°, 105°, or 106° Fahr.—and sweats will indicate the occurrence of suppuration. Increased difficulty of breathing may be due to an extension of the suppuration, the pus dissecting from the base of the tongue under the glotto-epiglottidean folds, and even to the aryteno-epiglottidean. Spontaneous rupture or an incision permitting escape of matter will afford prompt relief. When resolution takes place without suppuration, the improvement, if it occur, is slow, and the swelling subsides by small degrees from day to day. When glossitis comes on in the course of an infectious malady, which has already taxed the powers of life to their utmost, the additional disease will usually soon determine a fatal result. Sudden death may be produced by an œdema of the glottis, from rupture of an abscess into some of the great vessels, or from paralysis of the heart. The disease may continue several weeks, resolution slowly taking place; or, an abscess discharging favorably, speedy recovery will ensue; or more or less sloughing and loss of substance may occur, a tedious convalescence follow, and the tongue remain impaired in its functions.

**Diagnosis.**—Glossitis will not be confounded with any other malady, since every step in its development can be watched. Gumma of the tongue may cause some enlargement, but its progress is slow, and is not accompanied by the systemic symptoms of glossitis, and is accompanied by the usual syphilitic manifestations. Hypertrophy of the tongue may be confounded with chronic interstitial glossitis, but the distinction is made by reference to the course of the latter, which leads to induration, usually in patches, and to atrophy of the muscular elements. Secondary swelling of the tongue may result from obstruction to the salivary duct by a calculus, and from inflammation of the sublingual glands. The history of the case and attention to the order in which the parts swelled, the discovery of a salivary calculus in position,